

# **Workable Pension Systems**

**Reforms in the Caribbean**

**P. Desmond Brunton  
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*Editors*

**Inter-American Development Bank**

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*P. Desmond Brunton and Pietro Masci*  
*Editors*

**Inter-American Development Bank**  
Washington, DC

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Barbados

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## CONTENTS

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ACKNOWLEDGMENTS .....	V
AUTHORS .....	VI
FOREWORD .....	VII

### Introduction

CHAPTER 1	
<b>Pension Reform in Developing Countries: Policies and Politics</b> .....	3
<i>P. Desmond Brunton and Pietro Masci</i>	

### Section One: Pension Reforms in Caribbean Countries

CHAPTER 2	
<b>Reforming Pension Systems in Small Emerging Economies in Latin America and the Caribbean</b> .....	23
<i>Kenroy Dowers, Stefano Fassina, and Stefano Pettinato</i>	

CHAPTER 3	
<b>The Case for Pension Reform in the Caribbean</b> .....	49
<i>Marion Williams</i>	

CHAPTER 4	
<b>A Needs Assessment of Pension Systems in the English-Speaking Caribbean</b> .....	59
<i>Stefano Pettinato and Javier Díaz Cassou</i>	

CHAPTER 5	
<b>Private Pension Regulation and Supervision in the English-Speaking Caribbean</b> .....	97
<i>Kyle Rudden</i>	

### Section Two: Other Experiences

CHAPTER 6	
<b>Systemic Pension Reform in Latin America: Designs and Early Experiences</b> .....	127
<i>Robert Palacios</i>	

CHAPTER 7	
<b>Recent Pension Reforms in Sweden and Italy:</b> .....	177
<b>The Notional Defined Contribution Approach</b>	
<i>Giuseppe Pennisi</i>	

CHAPTER 8  
**The Political Economy of Reform in Brazil’s  
 Civil Servant Pension Scheme** ..... 217  
*André Medici*

**Section Three: Policies and Instruments for Reforms**

CHAPTER 9  
**Public and Private Roles in Pension Reform** ..... 245  
*Lawrence H. Thompson*

CHAPTER 10  
**Annuities and Pension Reform: Main Issues in Developing Countries** ..... 269  
*Stefano Pettinato, Kenroy Dowers, and Pietro Masci*

CHAPTER 11  
**Social Security Schemes and Potential Reforms  
 in Five Caribbean Countries** ..... 323  
*A. Charles Herbert*

CHAPTER 12  
**Old Age Pension Reform in the English-Speaking Caribbean:  
 A Policy Assessment** ..... 353  
*Olivia S. Mitchell and Derek M. Osborne*

**Section Four: Conclusions and the Role of Multilateral  
 Development Banks**

CHAPTER 13  
**Pension Reform and the Role of Multilateral Development Banks** ..... 391  
*Euric Allan Bobb and Pietro Masci*

**Annexes and Index**

ANNEX A  
**Establishing Basic Pension Parameters** ..... 415  
*Lawrence H. Thompson*

ANNEX B  
**Glossary of Planning and Pension Terms** ..... 435

**Index** ..... 443

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Conference participants were chosen based on their expertise and in an effort to balance the disciplines represented. The resulting chapters in this book are the views of the authors and not necessarily those of the officers or boards of the Inter-American Development Bank or the Caribbean Development Bank.

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## FOREWORD

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Given its direct effects on growth and prosperity, pension reform is a pressing issue for all countries—large and small, rich and poor. Better health care and increased prosperity mean that many countries in the developing world will soon have to address the issue of a significant retired population making a claim on their economic resources. Thus careful attention must be paid to developing policies, systems, and institutions that enable this process to work smoothly, and to ensuring that promises made to older populations are kept without diminishing the prosperity of younger workers.

This volume focuses on these issues for nations of the Caribbean. The chapters were prepared by a distinguished group of scholars: some are experts on the Caribbean, while others have detailed knowledge of pension issues in Europe and Central and South America. Together the chapters describe the status, analyze the challenges, and suggest solutions for Caribbean pension systems.

The book is structured in four sections. Section One focuses on pension systems and regulation in the English-speaking Caribbean and provides a theoretical discussion of pension reform in small emerging economies. Section Two enlarges the discussion by describing experiences in other countries that may provide helpful lessons for the Caribbean nations. The widespread use of reform approaches in Latin America provides a picture of mixed success as countries move away from the traditional pay-as-you-go system. Section Three addresses the strengths and weaknesses of the government and the private sector in development of effective pension systems. In addition, the section analyzes annuity products as a method for handling the distribution of income during retirement, and provides a detailed evaluation of reform proposals in the English-speaking countries of the Caribbean. Finally, Section Four offers a summary of the need for pension reform and the intricacies and challenges of making it a reality in the Caribbean.

Regardless of a nation's size or economic status, its pension system must be financially sustainable. Around the world, fast-growing retired populations and slow-growing workforces are raising old age dependency ratios and straining pension systems. Pensions are already the largest budget item in many countries, and the financial pressures they pose will only increase.

Pension reform analysis must take into account the special features of Caribbean economies, including their small size, limited diversification, considerable labor mobility, and large informal sectors. For example, many workers move among and outside Caribbean nations in search of jobs—keeping them outside formal pension systems. Similarly, informal sector employees are usually not registered with formal pension systems.

The experiences of richer nations provide warning signs for the Caribbean. During the 1960s the average European citizen spent 13 years in retirement. But today newly retired workers can expect to draw benefits for 20 years or more. Accordingly, current and future beneficiaries are increasingly concerned about pension security.

Pensions have traditionally been based on the pay-as-you-go model, with current workers paying the benefits of current retirees—an approach subject to both financial and political risks. A major reform model involves introducing voluntary individual accounts, which provide an advanced funding mechanism. Employee and employer contributions to the accounts are invested to support consumption during retirement.

This reform model has advantages and drawbacks. It can give workers more control over their retirement funds and increase their confidence in pension benefits. But some individual account models have generated enormous uncertainty about future benefits, and others have exorbitant administrative costs that could negate the benefits of advance funding. Moreover, they do not assure universal coverage.

Implementing individual accounts in the Caribbean requires diversifying pension investments. But a lack of deep, diversified capital markets makes it difficult for pension managers to find appropriate investment vehicles. Such reforms also require independent and effective product regulation, which are in short supply in many Caribbean countries.

Because beneficiaries will demand secure income throughout their retirement, individual account systems must also be well managed. Benefits can be distributed as lump sums or through annuitization of the assets accumulated for retirement. Here too there are challenges for the Caribbean, such as a lack of reliable mortality tables for some countries leading to the use of data and information from other countries with different demographic features. This volume provides a useful contribution in

this regard by discussing annuity programs and experiences in various Latin American and Caribbean nations.

A major challenge is the high cost of annuities in countries with thin capital markets and limited investment opportunities. This cost may run as high as 20 percent of total pension contributions. Potential solutions (discussed in the volume) include regionalization, with retirement programs allowed to invest outside their home countries, relying on regional supervision and regulation. This approach would draw on collective expertise instead of the limited resources of each nation.

The wide-ranging studies in this volume offer many views of pension reform, and provide a range of approaches for developing strong pension systems for the 21st century and beyond.

Although Caribbean countries face problems with their pension systems, they are not at a crisis point. Governments and citizens have to start developing solutions. But while many old age programs appear solvent in the short term, dramatic reforms will be needed in the coming decades. This book is intended to encourage and support policymakers and experts as they take steps toward reform.

**Dennis E. Flannery**

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# Introduction

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## **Pension Reform in Developing Countries: Policies and Politics**

*P. Desmond Brunton and Pietro Masci*

**E**xpenditure on pensions is frequently the highest single item in the public sector budgets of most countries. At the same time, demographic trends in almost every country show that populations are aging rapidly, due to lower fertility rates and improvements in life expectancy. The implications of these trends are that budget deficits are becoming unsustainable, with significant negative effects on competitiveness and economic growth. Inefficient management and underfunding of public pension systems as well as mismanagement of private accounts present a daunting challenge for pension systems that need to meet the objectives of providing financial security in old age, including for those with exceptional longevity, and smoothing the distribution of consumption over people's life span.

In most countries exhibiting a pension crisis, pension schemes are publicly managed. Benefits are allocated using a formula based on the highest past salary, and employee and employer contributions are in effect perceived as taxes. These public schemes are pay-as-you-go pension systems in which funds are not accumulated but transferred from current contributors to current pensioners (see Box 1.1). Introducing a tighter link between workers' old-age pension benefits and past contributions is considered a sensible alternative available to policymakers because it would enhance the system's transparency and performance. Many countries are gradually implementing this solution together with a pay-as-you-go publicly managed pillar that provides pension coverage for those who are not able to accumulate enough to provide a minimum pension. It is becoming increasingly important for policymakers to define a reform of the pension system that would help to insure individuals against the risk of outliving their assets after they retire (that is, longevity risk) and against the risk of

### Box 1.1. Pension Systems: Basic Definitions

**Unfunded pension systems (pay-as-you-go systems).** Under the framework of an unfunded pay-as-you-go system, the current generation of workers pays taxes to finance the pensions of the current generation of pensioners. In return, the former expect to receive a pension when they retire, paid by the next generation of workers.

**Funded pension systems.** In a funded system, individuals accumulate contributions and investment income during their working life and, through various mechanisms, decumulate these funds in retirement.

**Defined benefit pension systems.** According to a defined benefit system, the pension paid to retirees is linked to the final salary they earned while working, and requires a minimum number of years of service and contributions. Pension benefits are guaranteed for life and normally are not constrained by the amount of money that the retiree contributed to the system during his/her working life.

**Defined contribution pension systems.** Under a defined contribution scheme, pension benefits are actuarially linked to contributions. This means that the pension received by the retiree is not guaranteed for life. The pension is determined according to how much the worker contributed to the system and the return on the investments made.

These various pension systems are not mutually exclusive. They can be complementary under the framework of a multipillar system. Some systems are built on three complementary pillars:

1. An unfunded, defined benefit pillar provides a minimum social safety net.
2. A funded, defined contribution pillar ensures that individuals save enough to fund their pensions.
3. A voluntary pillar stimulates additional savings.

depleting the assets while they are still alive (that is, over-consumption risk). Financial arrangements and instruments have to be established to limit risks in the accumulation phase (while assets are building up) as well as in the payout period (when the resources are being withdrawn).

This chapter examines the policies and politics of pension reform. Based on the experience of several developed and developing countries, the analysis seeks to provide a public policy framework for pension reform in general and for reforms in small developing economies in particular. The main conclusion is that policymakers need to achieve consensus and a comprehensive approach to pension reform that allows incremental policy changes. An incremental approach would facilitate more effective review of the various tradeoffs and allow the formulation of feasible advances in the pension reform process.



## Policy Framework

A policy framework is needed for analysis and reform of the complex environment of the pension system. We suggest tailoring the policy framework for developing countries, and making it consistent with each country's political, social, and cultural situation. The framework we propose is based on a functional view and in many respects borrows from Mitchell (1998), who emphasizes that pension reform requires a comprehensive effort involving a broad array of sectors and institutions to deal with risks inherent in pension systems. The starting point of the framework identifies the risks that individuals face with respect to old age and the capability of the system to provide security. It then looks at the dimension, assessment, mitigation, avoidance, transfer, and management of these risks, which are categorized as follows:

- Individual risk
- System risk
- Country risk
- Catastrophic or nondiversifiable risk.

The task of the policymaker is that of identifying the appropriate policies and institutions that can reduce the various risks. Policies (and institutions) can be relevant for a single risk category or can influence more than one category at the same time.

### *Individual Risk*

Individual risk refers to the inability to protect against consumption shortfall in old age. This is related to insufficient or asymmetrical information and the individual's inability to take advantage of market opportunities. Improvement in earning capacity and enhanced utilization of financial resources would mitigate risk. Training and public education campaigns could help to reduce information asymmetry, but it is likely to be prevalent even in sophisticated markets. This suggests the need for a strong regulatory environment to help in mitigating individual risk. The state of development of the capital market has a major influence on the viability of the pension system, particularly when future pensions are based on contributions, because

the capital market facilitates optimization of individual pension benefits. Tax reform, if it results in reduced evasion, contributes to pension system viability and hence reduces individual risk by increasing participation rates and widening the tax base. At the same time, a functioning financial and capital market is fundamental.

So-called “contractual savings” (for example, pension funds and insurance companies) play an important role in capital market development and its effects on pension systems. The primary function of contractual savings is to provide adequate and affordable retirement income and survivors’ benefits. These savings also constitute a key device for capital market development, in which the creation of an annuity market is critical for the transfer of individual risk. However, the level of benefits provided in the design of the first (public) pillar might lead to adverse selection, that is, it might discourage people from participating in the annuity market. The degree of formal and informal protection that exists in the society (for example, family assistance and disability and unemployment insurance) as well as the practice of bequests also influence the annuity market. Individual risk can be transferred by way of designing voluntary defined contribution pension plans that would increase employee participation and savings, rather than by defined benefit pensions that have a more redistributive function. However, poverty reduction programs that protect individuals in their old age should serve as a complement to any form of funded pension scheme.

### ***System Risk***

A fundamental role of public policymakers is to mitigate system risk and overcome failures in the management of pension systems. Effective monitoring and supervision are crucial to protect against system risk. Enforced rules and regulations that eliminate conflicts of interest are crucial for the safety and credibility of the system. Transparency and disclosure are essential for evaluating the management of resources. Rules on the management of funds, such as the “prudent man rule” and the use of public actuarial assumptions in determining the pension funds’ financial plans are also essential to direct the actions of managers. The protection of property rights provides legal and enforceable claims in case of mismanagement of pension funds. Requiring pension managers to purchase trustee insurance is an instrument that can permit the transfer of system risk. And government guarantees for defined benefit pension plans can reduce the underfunding of pensions.

## *Country Risk*

Country risk comprises two components: inflation risk and exchange rate risk. The most important factor in country risk is appropriate and reliable macroeconomic and fiscal policy. The regulatory environment of the financial sector is also critical since the safety and solvency of the banking system have important implications for the pension system. Especially in developing countries, the banking system holds a significant amount of the savings of individuals and managed pensions. Banking crises, which arise in poorly regulated environments, not only threaten these savings, but also require the government to devote resources to solving the crises in order to forestall financial sector collapse. The fiscal implications of financial sector bailouts can be pervasive (for example, as in the case of Jamaica in the late 1990s).

Country risk is also magnified by a poorly functioning capital market that does not allow diversification of investments and hence creates incentives for capital flight. Capital markets in Latin America and the Caribbean are thin, do not permit diversification, and do not guarantee liquidity. Under these circumstances, pension managers, having limited authorization to invest abroad, put their money in government bonds. Although intuitively investors might expect bonds, stocks, and annuities to perform better in a developed capital market, experience in Latin America suggests that viable pension systems are still possible in an underdeveloped market. In fact, convincing evidence indicates that, even in underdeveloped financial systems, annuity management companies can function effectively. For example, companies in Chile and Singapore have offered competitive and stable annuity rates that have in some cases outperformed those offered in the United Kingdom and the United States.<sup>1</sup> The Chilean experience indicates that a pension system based on funded principles may contribute to the development of long-term investment instruments through its positive impact on the growth of institutional investors and capital markets. Moreover, in the absence of other similar investments, the pension system's demand for capital market instruments is likely to spur supply for these long-term instruments, generating a virtuous circle of financial, capital, and insurance market development.

Insurance against country risk essentially focuses on protection against the risk of inflation. An unfunded pension system depends on the tax base to generate

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<sup>1</sup> See James and Vittas (1999) for a comparison of various annuity markets.

a steady flow of revenue. In the case of a funded system, the risk depends on the return on assets. One approach to reduce inflation risk is for the government to issue inflation-indexed bonds.

### ***Nondiversifiable Risk***

In the case of catastrophic risks, such as natural disasters, risk reduction is mainly related to national disaster mitigation plans and programs. It is also possible to transfer a portion of catastrophic risk by issuing catastrophe bonds or using insurance. For developing countries, it is crucial to initiate a process of assessing the impact of natural disasters and introducing national mitigation plans.

So far we have identified the main risks in a pension system and the mechanisms for mitigating, avoiding, reducing, and/or transferring them. Two important considerations emerge with respect to the role of public policy. First, policymakers who embark on pension reform, particularly in developing countries, need to have a clear understanding of the links among the various risks and their effects on the sustainability of the pension system. Second, policymakers have to be prepared to operate on all fronts with appropriate sequencing. Critical issues include the following:

- A stable macroeconomic policy environment
- An appropriate regulatory environment
- Enforcement of property rights to protect contractual obligations related to retirement
- Transparency and disclosure mechanisms in the financial sector
- Financial and capital market development.

### **Public Policy**

Various models have emerged to explain the introduction of policy changes in a democracy by focusing on factors that interact over time to shape the choices that policymakers face. One such model, the Kingdon model—based on an advanced economy—with some adjustment, appears to be appropriate for explaining the pension reform process (Kingdon 1997). This model—consistent with an incrementalist

notion—can accurately explain discrete as well as unanticipated changes. The model can be applied to explain pension reforms in developing countries, particularly in the Caribbean.

### ***The Kingdon Model***

The framework of the Kingdon model identifies three sets of factors or streams: a problem stream, a policy stream, and a political stream. The problem stream refers to all the components that shape opinion about the existence of a problem. The media has a particularly relevant role in this regard. The policy stream refers to elements that have an impact on policy ideas, alternatives, and solutions. The political stream refers to factors that are typical of the political environment, such as political parties, interest groups, and national attitudes that influence policymakers so that they pay attention to specific problems and find political solutions.

A typical problem begins with public opinion, and then progresses to the status of an issue to be put on the decision agenda with some degree of urgency. Frequently, the catalyst for this progression is an external event (for example, a financial scandal) or a negative situation that requires a policy change (for example, a budget deficit). These circumstances elevate the issue and open a window of opportunity for a policy decision. The Kingdon model characterizes these conditions as the *convergence of the three independent streams*—problems, policies and politics—in which a policy decision can be made that breaks the status quo. Politicians are urged to act and take decisions, and they do so by relying on the policy stream that generates suitable solutions. Stakeholders and politicians play a crucial role in pushing the agenda forward and taking advantage of the opportunity to enact the change in policy.

### ***Incrementalism***

The Kingdon model mainly focuses on the political process of changing policy. It can be complemented by incrementalism, which emphasizes the substance of the changes and how—with some exceptions—policy changes are mostly incremental.

In fact, policy changes generally do not depart dramatically from previously existing norms and rules. Several factors influence incremental changes in public

policy: limits on available information and knowledge; inability to define outcomes in a dynamic society; differences in values, which prevent a common definition of the problem and policy solutions, and lead to differences in objectives and priorities; inability to overcome political and group interests; and a democratic process that tends to adopt solutions that do not differ greatly from the status quo in their impact on various parties and constituencies.

The incremental approach, or *disjointed incrementalism*, as Lindblom (1959) calls it, is confirmed by many specific cases.<sup>2</sup> As Hayes (1992, p. 20) points out, the process of successive approximations can “converge on a solution through a long series of iterations” that take place over time and allow decisionmakers to surmount differences in values, lack of consensus on objectives and priorities, and imperfect knowledge. The incremental approach does not prevent nonincremental policy changes. However, bold and nonincremental policy transformations might be problematic if they are advanced without success (for the case of welfare reforms, see Hayes 1992), or if they constitute daring departures from previous policies whose implications have not been fully evaluated due to lack of comprehensive knowledge of complex problems and realities and their links (Braybrooke and Lindblom 1970). In sum, changes in complex webs of institutions and organizations, such as the social security and welfare systems, tend to be “overwhelmingly incremental” (North 1990).

### ***Application of the Model to Pension Reform***

The Kingdon model and the complementary incremental approach seem appropriate for describing the typical policy process in a democratic society. The combination can be applied in developed and developing countries to public policy issues, such as the pension reform process and, in particular, reform of the public sector pillar.

In the context of the pension system, the Kingdon model should not be regarded as a descriptive tool but as a strategy to obtain welfare improvement. The *problem stream* is characterized by a series of unfavorable situations that suggest the need for reform of the system based largely on public finances. The following com-

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<sup>2</sup> A good example is the energy policy of the United States, particularly after the 1970s (see Hayes 1992, p. 4).

ponents make up the problem stream: demographic change, budgetary pressure, fiscal imbalance, low economic growth, and reduced competitiveness. Other aspects of the problem stream are the ideological criticisms of models based on government intervention and the link between pension reform and capital market development. The implications of these issues might depend on the country, but to varying degrees they form part of the pension reform process.

In the *policy stream*, a large number of studies, experiences, best practices, and debates on pension reform constitute what the Kingdon model calls the “primeval soup.” The policy stream continuously evolves and considers and evaluates the various factors mostly in a neutral and rational fashion, trying to maximize the welfare gains of a given choice while still considering the social and political context.

In the *political stream*, conflicting forces interpret the problem stream in different ways. Labor unions and pensioner associations, for example, have acquired expectations based on the old system and regard benefits as a form of entitlement. Feeling threatened by the changes, such groups might work to delay or derail the reform. However, governments must face the daunting challenge of imposing welfare losses on powerful domestic groups. Imposing losses is politically difficult because it implies costs that are concentrated and immediate and also very visible, while benefits are contingent, diffuse, and long term so that they accrue in a future political cycle. Pension reform is a typical area in which political considerations have a highly relevant influence on the policy stream, and allow mostly incremental changes from previous policies, with some sudden spikes.

### ***Policy Options***

Following Weaver (2003), four options for pension reform emerge and can be integrated into the Kingdon model:

- Reducing benefits and/or changing eligibility
- Changing the financing structure by increasing contribution rates or broadening the contribution base
- Restructuring the pension system in a fundamental way
- Combining the above.

Developing and developed countries present significant differences in the initial conditions (problems) as well as the available policy options, depending on country circumstances. For instance, demographic pressure is perceived as less acute in developing countries than in developed countries. The first two options are more typical of several developed countries, while the third option—discarding the old pension system based on the role of the state and starting a new market-oriented system, part of the so-called retrenchment of the welfare state (Rosenberry 1982; Robinson 1986; Palmer 1987)—is frequently the preferred approach in developing countries. In fact, many Latin American countries have adopted this approach and embraced a complete substitution of mandatory individual accounts for state systems. The preference for this approach in Latin America is to rely on a rational and comprehensive ideal based on the assumption of perfect knowledge of a market mechanism that would deliver expected benefits. In the countries in the region, political interests that could thwart change are less powerful than in developed countries. In developing countries that are relatively young democracies, the influence of special interest groups (which are extremely powerful in developed countries) is only beginning to take hold.

However, particularly in Latin America and the Caribbean, the situation *ex post* shows that pension reforms have not been undertaken in a holistic and comprehensive fashion. Thus, it can be argued that the failure of pension reform in several countries is related to the inadequacy of a nonincremental approach, which has failed to consider links, policy alternatives, and policy solutions.

### **Design of Pension Reform**

The picture that emerges from the analysis above leads to two basic considerations that impact the design of pension reform. First, wealthy countries have mostly relied less on fundamentally restructuring pension reforms, and leaned more toward incrementalism rather than radical changes. This strategy is justified by the political situation in these countries and by the fact that the endowment of resources permits these countries to deal with problems over time. Moreover, the “slow motion approach” permits wealthy countries to incorporate in the change various aspects of the policy framework. Instead, in many Latin American countries, privatized pension plans have often supplanted rather than added to the public pension tier.



Second, in spite of the relatively radical changes undertaken, developing economies have tended to approach pension reform without an overall strategy and comprehensive view of the complexity of the process. Where reforms have been undertaken in a comprehensive manner and where the policy environment has been conducive, positive results have been demonstrated. Indeed, the success of the Chilean experience shows the importance of a long-term view.

These considerations suggest that while it may appear less challenging, an approach that incorporates all the policy elements outlined in this chapter and attempts to build a coalition for reform over time and incrementally is the most viable solution for many countries and is suitable for small economies.

### **Small Developing Economies**

The experiences in Latin America illustrate significant differences in reform processes compared with developed countries. But even within the broad group of small developing economies, there are a number of differences. For example, small economies like those of Central America or Bolivia differ substantially from the Caribbean countries due to various historical, political, and economic factors. The small developing economies of the Caribbean region exhibit features that make the reform process unique.

In attempting to apply the Kingdon model modified with the incremental twist to the small developing economies of the Caribbean in particular, it becomes evident that issues of competitiveness, demography, and ideology are less acute than they are in developed or larger developing economies. At the same time, other factors, such as efficiency and regional integration, are more relevant.

In the Caribbean, there is considerable benefit to be gained from the creation of regional structures that could facilitate economies of scale and reduce transaction costs. Certainly in the case of public social security schemes, a single regional entity would result in lower administrative costs and improved efficiency. With respect to a market-oriented pension scheme, the regional dimension would assure the basis for competition among private providers. Regional structures would also help in overcoming a major constraint of the small size of the individual Caribbean economies, that of investment diversification. Although the Caribbean economies are similar, regional structures would significantly increase the size and also diversity of the capital market. As the region moves to greater reliance on funded and individual accounts, development of the capi-

tal market would require a regional dimension to make its functioning more viable in terms of liquidity, as well as to improve the diversification of the investments, and ultimately to make pension reforms more effective and sustainable. Benchmark interest rates at the national level would be too volatile and therefore a viable option would be to create a benchmark in the context of the regional economy. Similarly, development of a strong insurance industry, which is crucial for market-oriented pension reforms, would be significantly enhanced in the context of a regional market.

The regional approach would allow the use of regionally generated funds for domestic projects rather than transferring resources to other developed economies. The benefits of regional integration would have to be carefully managed in the context of the information asymmetries that may be enhanced and in the face of operational factors and political interests that may not favor the integration process.

However, the Caribbean economies will have to consider opening up investments outside national or regional borders to achieve better returns and greater diversification. Since this move would imply liberalization of the capital account, it must be undertaken in the context of a regional economic strategy involving mechanisms for coordination of economic policy across the region. In essence, the full establishment of the Caribbean Single Market and Economy is a prerequisite for sustainable and effective pension reform in the region.

In addition, the reform process would have to consider the challenges of implementation. The implementation of a defined contribution and an individual account system would require skilled staff and sophisticated companies that may not be readily available in a small Caribbean economy. Regionalization of the pension systems would facilitate the optimization of human resources.

These elements—characteristics of small developing economies, policy considerations, and the political context—converge toward the view that a rational comprehensive model would not be applicable. A revised Kingdon “strategy” would accommodate differences over time and make the various parties converge toward a common goal that at present is not available.

## Conclusions

The reform of pension systems has become a critically important aspect of public policy, driven largely by increasing pressure from unfavorable demographic change,

fiscal imbalances, and structural trends. These factors reflect the increase in dependency ratios, frequent poor management of existing pay-as-you-go public pension systems, and shortcomings of private systems that recent financial scandals have brought to light. Thus, there is a need for a critical examination of the principles on which the current systems operate and the structures that manage them. Pension reform is a complex undertaking that has to be tackled within the context of a comprehensive strategy.

Regardless of the roles played by the public and private sectors in pension provision, the ultimate aim of pension arrangements is to alleviate the threat of sharp income reductions during old age by transferring resources from the workers to the elderly. In other words, the system provides workers with the expectation (and, in some cases, the certainty) of a secure flow of income after retirement. Pay-as-you-go systems transfer contributions simultaneously from workers to pensioners. Fully funded plans based on a defined contribution principle move assets across time, a principle that supports the intuition that workers' assets accumulated from past contributions are transformed to an income stream. Both structures have advantages and disadvantages, implying that pension systems probably require multiple layers or pillars of coverage. From a political point of view, taking into consideration the various interests around social security and welfare in general in developed as well as developing countries, reform should be incremental and evolutionary rather than revolutionary.<sup>3</sup>

From a public policy point of view, a number of factors are important for an effective pension system: the presence of a transparent legal and regulatory framework, an efficient supervisory structure, and an institutional environment that takes into account the formal health and disability systems as well as informal protection networks, cultural factors, poverty levels, and the institutional support infrastructure (for example, supervision of financial markets, a strong banking sector, and actuarial capability). Together with sound macroeconomic policy, the institutional and legal environment gives credibility to the system, thus facilitating its growth and development. All this implies that reform of pensions is country specific and cannot avoid the influence of past decisions on future developments.

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<sup>3</sup> Research on path dependency reveals that the networks associated with mature welfare state programs constitute a barrier to radical change (Pierson 1994, p. 181).

Small developing economies, such as the Caribbean countries, present significant obstacles in many of these problem and policy areas, which may hinder future growth and compromise the stability of the system. In the case of Caribbean countries with a large public sector pension tier, it is likely that as political forces need to respond to demographic and fiscal pressures, reform will be mostly incremental. Regional integration in the Caribbean presents special political and policy issues. And although incrementalism appears to be the “politically correct” option for the Caribbean countries, timing and long-term view are essential in reforming the pension system. In fact, as the structure of the population becomes more skewed toward old age and economic and fiscal problems become more acute, it may be more difficult to obtain broad-based support for the changes that a pension reform would introduce. Therefore, a flat incrementalism without a strategy could delay the reform process. Caribbean countries have a “window of opportunity” that has to be carefully evaluated and grasped.

The significance of the political dimension in pension reform indicates that the reform process should not be seen in isolation; it should be discussed with the social partners and coordinated with reforms in the financial and capital markets in a series of strategic incremental steps. An overall review of all the policy elements is crucial for the success of the reform. The fundamental consideration for small economies, including those in the Caribbean region that have strong public sector and unfunded first pillar pension systems, is the need to develop national (and/or regional), comprehensive strategies in the context of a long-term horizon and involving an optimum mix of public and private sector pension provision. The long-term commitment of policymakers is thus crucial.

BIBLIOGRAPHY

- Acuña R., Rodrigo, and Augusto Iglesias P. 2001. *Chile's Pension Reform after 20 Years*. Social Protection Discussion Paper Series no. 0129. World Bank, Washington, DC.
- Asociación Boliviana de Aseguradores. 2003. *Quincuagésima Cuarta Memoria*. Gestión Julio 2002-Junio 2003. La Paz.
- Barr, Nicholas. 1998. *The Economics of the Welfare State*. Stanford, CA: Stanford University Press.
- Barzelay, Michael. 2003. *The New Public Management*. New York: University of California Press – Russel Sage.
- Braybrooke, David, and Charles E. Lindblom. 1970. *A Strategy of Decision: Policy Evaluation as a Social Process*. New York: Free Press.
- Brown, Jeffrey. 2000. *How Should We Insure Longevity Risk in Pensions and Social Security?* Issue Brief no. 4. Center for Retirement Research, Boston College.
- Brown, Jeffrey, Olivia S. Mitchell, James Poterba, and Mark Warshawsky. 2001. *The Role of Annuity Markets in Financing Retirement*. Cambridge, MA: MIT Press.
- Callund, Jonathan. 1999. Annuities in Latin America. Paper presented at World Bank Annuities Workshop, 7–8 June, Washington, DC.
- Chiappori, Pierre André, and Bernard Salanie. 2000. Testing for Asymmetric Information in Insurance Markets. *Journal of Political Economy* 108 (February): 56–78.
- Cutler, David. 2001. Health Care and the Public Sector. In Alan Auerbach and Martin Feldstein, eds., *Handbook of Public Economics*. Amsterdam: Elsevier Science.
- Davis, E. Philip. 2003. *Issues in the Regulation of Annuities Markets*. Discussion Paper no. PI-0213. The Pensions Institute, Birkbeck College, University of London.
- Demaestri, Edgardo, and Federico Guerrero. 2003. *The Rationale for Integrating Financial Supervision in Latin America and the Caribbean*. SDS/IFM Technical Paper no. 135. Inter-American Development Bank, Washington, DC.
- Devesa-Carpio, José E., and Carlos Vidal-Meliá. 2002. *The Reformed Pension Systems in Latin America*. Social Protection Discussion Paper Series no. 0209. World Bank, Washington, DC.

- Dowers, Kenroy, Stefano Fassina, and Stefano Pettinato. 2001. *Pension Reform in Small Emerging Economies: Issues and Challenges*. SDS/IFM Technical Paper no. 130. Inter-American Development Bank, Washington, DC.
- Doyle, Suzanne, and John Piggott. 2002. *Mandatory Annuity Design in Developing Economies*. Social Protection Discussion Paper Series no. 0208. World Bank, Washington, DC.
- . 2003. Integrating Payouts: Annuity Design and Public Pension Benefits in Mandatory Defined Contribution Plans. In Olivia Mitchell and Kent Smetters, eds., *The Pension Challenge: Risk Transfers and Retirement Income Security*. Oxford: Oxford University Press.
- Friedman, Benjamin M., and Mark Warshawsky. 1990. The Cost of Annuities: Implications for Saving Behavior and Bequests. *Quarterly Journal of Economics* CV(1) February: 135–54.
- Gillion, Colin, John Turner, Clive Bailey, and Dennis Latulippe. 2000. *Social Security Pensions: Development and Reform*. Geneva: International Labour Office.
- Hayes, Michael T. 2001. *The Limits of Policy Change: Incrementalism, Worldview, and the Rule of Law*. Washington, DC: Georgetown Press.
- . 1992. *Incrementalism and Public Policy*. White Plains, NY: Longman Press.
- Inter-American Conference on Social Security. 1995. *Social Security in the English-Speaking Caribbean*. Monographic Series 19.
- James, Estelle, and Dimitri Vittas. 1999. Annuities in Comparative Perspective: Do Customers Get Their Money's Worth? OECD, Paris.
- Karacadag, Cem, V. Sundararajan, and J. Elliot. 2003. Managing Risk in Financial Market Development: The Role of Sequencing. In Robert Litan, Michael Pomerleano and V. Sundararajan, eds., *The Future of Domestic Capital Markets in Developing Countries*. Washington, DC: The Brookings Institution.
- Kingdon, John W. 1997. *Agendas, Alternatives and Public Policies*. Boston, MA: Addison-Wesley Pub Co.
- Life of Barbados. 1999. *Annual Report*. Bridgetown, Barbados.
- Lindblom, Charles E. 1959. The Science of Muddling Through. *Public Administration Review* 19 (Spring): 79–88.
- Lindblom, Charles E., and Edward J. Woodhouse, eds. 1993. *The Policy Making Process*. Englewood Cliffs: Prentice Hall.

- Mitchell, Olivia. 1998. Building an Environment for Pension Reform in Developing Countries, Social Protection Unit. N. 9803. World Bank, Washington, DC.
- . 2000. Building an Environment for Pension Reform in Developing Countries. In Zvi Bodie and E. Philip Davis, eds., *Foundations of Pension Finance*. London: Edward Elgar.
- Mitchell, Olivia S., Zvi Bodie, P. Brett Hammond, and Stephen Zeldes, eds. 2002. *Innovations in Retirement Financing*. Philadelphia: University of Pennsylvania Press.
- Musalem, Alberto, and Thierry Tressel. 2003. Institutional Savings and Financial Markets: The Role of Contractual Savings Institutions. In Robert Litan, Michael Pomerleano and V. Sundararajan, eds., *The Future of Domestic Capital Markets in Developing Countries*. Washington, DC: The Brookings Institution.
- North, Douglass C. 1990. *Institutions, Institutional Change and Economic Performance*. Cambridge, U.K.: Cambridge University Press.
- Palacios, Robert, and Rafael Rofman. 2001. *Annuity Markets and Benefit Design in Multipillar Pension Schemes: Experience and Lessons from Four Latin American Countries*. Social Protection Discussion Paper Series no. 0107. World Bank, Washington, DC.
- Palmer, John L. 1987. Income Security Policies in the United States: The Inevitability and Consequences of Retrenchment. *Journal of Public Policy* 7(1): 1–32.
- Pierson, Paul. 1994. *Dismantling the Welfare State? Reagan, Thatcher, and the Politics of Retrenchment*. Cambridge, U.K.: Cambridge University Press.
- Pierson, Paul, and R. Kent Weaver. 1993. Pension Cuts in Proportional Representation Systems. In R. Kent and Bert Rockman, eds., *Do Institutions Matter?* Washington, DC: The Brookings Institution.
- Poterba, James M. 2001. Annuity Markets and Retirement Security. Paper presented at the Third Annual Joint Conference of the Retirement Research Consortium, 17–18 May, Washington, DC.
- Robinson, Ray. 1986. Restructuring the Welfare State: An Analysis of Public Expenditure 1970/80-1984/85. *Journal of Social Policy* 15(1) January: 1–21.
- Rosenberry, A. Sara. 1982. Social Insurance, Distributive Criteria and the Welfare Backlash: A Comparative Analysis. *British Journal of Political Science* 12: 421–27.

- Rothschild, Michael, and Joseph Stiglitz. 1976. An Essay on the Economics of Imperfect Information. *Quarterly Journal of Economics* 90: 629–49.
- Society of Actuaries (SOA). 1999. The RP-2000 Mortality Tables. Exposure Draft. Schaumburg, Illinois.
- Superintendencia de Administradoras de Fondos de Pensiones. 2002. *Series Estadísticas*. Gobierno de Chile. <http://www.safp.cl/>.
- Tuljapurkar, Shripad, and Carl Boe. 1998. Mortality Change and Forecasting: How Much and How Little Do We Know? *North American Actuarial Journal* 2(4): 13–47.
- United Nations. 2001. *World Population Prospects (2000 Revision)*. Population Division, Department of Economic and Social Affairs, New York.
- Walliser, J. 1998. The Effect of Privatization of Social Security on Private Annuity Markets. Congressional Budget Office, Washington, DC.
- Weaver, R. Kent. 2003. *The Politics of Public Pension Reform*. CRR Working Paper no. 2003-06, Center for Retirement Research, Boston College.
- World Bank. 1994. *Averting the Old Age Crisis*. Oxford University Press.
- Yaari, M. 1965. Uncertain Lifetime, Life Insurance and the Theory of the Consumer. *Review of Economic Studies* 32: 137–50.
- Yermo, Juan. 2001. *Private Annuities in OECD Countries*. Paris: OECD.



# **Section One**

## **Pension Reforms**

### **in Caribbean Countries**

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## **Reforming Pension Systems in Small Emerging Economies in Latin America and the Caribbean**

*Kenroy Dowers, Stefano Fassina, and Stefano Pettinato*

**B**y 2025 nearly 15 percent of the world's population is expected to be more than 60 years old. With growing life expectancies, populations in developing countries are aging much faster than those in industrial countries. As a result, by 2030 developing countries are expected to contain about 80 percent of the world's elderly. Of particular relevance for the sustainability of old age support systems—also called pension or social security systems—is the old age dependency ratio, which calculates the elderly (normally defined as people age 65 and older) as a percentage of the working age population (those between 15 and 64).

Except in Africa and the transition economies of Central and Eastern Europe and Central Asia, old age dependency ratios are likely to increase by more than 50 percent between 2000 and 2025 (Table 2.1). Although OECD and transition economies will have the highest levels of old age dependency, the largest increases will occur in the Arab states, Asia and the Pacific, and Latin America and the Caribbean. Growing nonworking populations are expected to generate substantial costs that will be reflected in government budgets.

In addition to the pressures created by demographic trends, most of the world's pension systems suffer from systemic management flaws and inefficiencies. Excessive commitments by pension institutions, preferential treatment of certain population groups, and shortsightedness in system designs are only some of the results of political instability, administrative corruption, and bureaucratic inefficiency. All these fac-

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**Table 2.1. Old Age Dependency Ratios by Region, 1975, 2000, and 2025 (Percent)**

Region	1975	2000	2025
Africa	6	6	7
Arab states	6	5	8
Asia and the Pacific	7	9	14
Central and Eastern Europe and Central Asia	14	17	24
Latin America and the Caribbean	8	9	14
OECD high-income countries	17	21	32
World	10	11	15

*Note:* The old age dependency ratio is defined here as the percentage of the population age 65 and over, divided by the working age population, those between 15 and 64.

*Source:* Based on United Nations data.

tors have weakened retirement arrangements and institutions in many countries, contributing to the old age crisis.

Manifestations of the old age crisis include:

- Growing government deficits—crowding out investments in education, health, and infrastructure
- Insufficient provisions for nonindexed old age benefits
- Perverse redistribution from younger to older generations and from low to medium or high-income workers
- Hindered growth as systems mature and become a burden for government revenues
- High wage taxes that encourage evasion and informality
- Reduced incentives for saving
- Incentives for early exit from the labor market.

In recent years considerable attention has been given to the need to devise solutions to the old age crisis. The main concerns relate to the ability of existing pension systems to deliver promised benefits.

Policy responses typically target either the system dependency ratio or the replacement rate. (The system dependency ratio is the ratio between the number of

pensioners receiving benefits from the system and the number of people contributing to it; the replacement rate is the ratio between the average income after retirement—the pension benefit—and the income before. See Annex A for a more technical explanation.) Raising the retirement age or the minimum number of years of contribution lowers the dependency ratio, while reducing benefits (by modifying the benefit formula or loosening indexing mechanisms) or increasing the contribution rate (that is, the payroll tax) takes pressure off the replacement rate.

Countries' responses to the impending old age crisis have depended on their circumstances. In Africa and most of Asia informal structures are generally in place to deal with old age income insecurity, and partly compensate for the inefficiencies and low coverage of official public systems.<sup>1</sup> To reduce liberal early retirement provisions and generous benefits, several Latin American countries have introduced fully funded, defined contribution programs that give contributors a choice among privately managed funds. Finally, many countries that belong to the Organisation for Economic Co-operation and Development (OECD) appear to be moving toward systems that combine a mandatory publicly managed pension program with voluntary privately managed, fully funded occupational pensions or saving plans that target the needs of high-income groups.

Most of the recent models for pension reform suggest a multipillar structure, with a first pillar of benefits financed by public revenues, a second mandatory pay-as-you-go or fully funded pillar, and a third voluntary pillar made up of privately managed individual accounts. But little attention has been paid to whether these models are appropriate for solving the old age crisis in small emerging economies—defined here as countries containing fewer than 8 million people and with per capita GDP of less than \$5,000 (in 1995 dollars). (See Glaessner and Valdés-Prieto 1998 for a discussion of the main issues of pension reform in small developing nations.)

Small developing countries are likely to experience high international labor mobility and have large informal economies. Their economic systems are often volatile, highly unequal, and based on the export of a single good. Moreover, their financial markets are small and poorly regulated, preventing economies of scale. Finally,

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<sup>1</sup> These structures are usually based on support given to parents by their children. A broader definition includes security provided by other family members and by communities. World Bank (1994) reviews traditional systems for income security across regions.

political volatility and weak institutions promote corruption and bureaucratic inefficiency. All these features limit the applicability and success of the approaches to pension reform being recommended and implemented in larger countries (see World Bank 1994).

Most of the elements of the current pension reform agenda are applicable to small emerging economies. But others are not. Reforms must reflect the small size and structural economic difficulties common to these countries. Thus this chapter proposes a new model that is based on the current approach but that addresses the issues unique to small developing states. In particular, it suggests new investment management rules, the introduction of a specific regulatory framework, and the regional integration of many institutions and arrangements critical to pension system management. The focus here is on small emerging economies in Latin America and the Caribbean.

### **Approaches to Pension Reform**

Recent approaches to pension reform fall into two groups, depending on the scope of reform and its impact on the system. The first is parametric reform, and the second is comprehensive reform.

Parametric reform involves changing one or more underlying features of the pension system, including the benefit formula, the retirement age, the benefit indexation mechanism, the minimum contribution period, or private fund management rules. Parametric reforms leave the basic social security system intact and generally focus on reducing fiscal deficits based on the system's implied debt or, more broadly, reducing inequities within and across generations. More extensive reforms introduce large-scale expansions of pension schemes, from a very limited contributory base. Although easier to implement politically, changing the parameters of a pension mechanism only temporarily postpones the fiscal crisis incumbent with existing social security arrangements. Alternatively, when the reform process achieves financial sustainability, it may fail to fully realize the overarching goal of reducing old age income insecurity.

Comprehensive reform involves significant structural modification of the pension system. For example, a new pillar may be introduced—changing the structure of the entire system. Such reforms typically require massive political effort and

careful analysis and implementation. One major issue that arises when implementing structural reforms is the cost of the transition from the old system, which is often proportional to the depth of the change.<sup>2</sup>

Common characteristics of comprehensive reform include introducing:

- A multipillar structure, as described above
- Private management of pension assets
- Benefits linked to contributions through defined contribution arrangements
- Individual accounts
- Tax breaks for pension savings
- Enhanced laws and regulations.

Parametric reform could precede or follow comprehensive reform. Before reforming the structure of a pension system, authorities may decide to adjust its parameters to strengthen it and ease the impact of dismantling it. Conversely, after a new system has been introduced, various parameters may be adjusted in a continuous fine-tuning process. Such adjustment is required in most cases to mold the system to the changing demographic, economic, and financial environment where it operates.<sup>3</sup>

Over the past decade countries that have reformed their pension systems have generally chosen between the Western European model or the Latin American model.<sup>4</sup> The Western European model hinges on a universal, mandatory, public pay-as-you-go pillar. With a few exceptions, this is a defined benefit scheme.<sup>5</sup> In some countries privately managed fully funded systems also exist, but these are generally voluntary. Most private fully funded schemes have not reached maturity, so the resources ac-

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<sup>2</sup> The transition cost of switching from a pay-as-you-go to a fully funded system largely comes from repayment of the implicit (pension) debt. This implies the need to pay back those who are—or are about to be—retired and who have contributed to the old system.

<sup>3</sup> For example, Chile has made a variety of modifications to the system it introduced in 1981. For details, see Iglesias (2001).

<sup>4</sup> Here the Latin American model is similar to the system suggested by World Bank (1994), where the public pillar maintains a redistributive role through a tax-financed minimum pension guarantee and the main pillar is a mandatory privately managed one. When adopted, both models need to be adjusted to country characteristics.

<sup>5</sup> This principle links the benefit to contributors' average salary in their final years of contributing.

crued still represent a small share of GDP.<sup>6</sup> This model is based on a broad concept of social protection in which the pension system is one component. More than focusing on efficiency and sustainability, this approach gives preference to equity, universal coverage, and the public nature of social security. Thus it is relatively costly, and is recommended less often than the Latin American model as the approach for developing countries.

After Chile implemented comprehensive pension reform in 1981, many countries elsewhere in the region adopted elements of its approach, establishing the Latin American model.<sup>7</sup> The central feature of this model is a mandatory, privately managed, defined contribution, fully funded pillar. (For technical details about the model, see World Bank 1994.) This model generally also involves a mandatory public pay-as-you-go pillar and a voluntary private pillar. A unique feature of this approach is the creation of individual savings accounts, managed by pension fund management companies. The defined contribution pillar links worker contributions to benefits, providing a lump sum or an annuity at the end of the contribution period. Most countries that have adopted this model have done so while maintaining—or revitalizing—the old public pay-as-you-go pillar.

Table 2.2 lists the Latin American countries that have reformed their pension systems. Since the mid-1990s most countries have introduced systems similar to the one introduced in Chile in 1981: focused on a fully funded, defined contribution approach, elimination (instant or gradual) of the old pay-as-you-go system, and mandatory for most or all new entrants.

Some Eastern European transition economies—Hungary, Latvia, and Poland—have introduced elements of the Latin American model, and in recent years several Central American countries have indicated that they plan to reform their pension systems using the same approach taken by their wealthier southern neighbors. But there are reasons to believe that their stages of development and small economies may make the standard Latin American model unsuitable for small emerging countries. The next section examines the main characteristics of small developing coun-

<sup>6</sup> The United Kingdom and the United States are exceptions because their private funded schemes account for a large portion of the pension system.

<sup>7</sup> For extensive coverage of the Chilean system, see Iglesias (2001). For a regional analysis of second-generation pension reforms in Latin America, see Queisser (2000).



**Table 2.2. Approaches to Pension Reform in Latin America, by Country**

Country	Year	Pay-as-you-go pillar	Fully funded pillar	Affiliation with fully funded system
Chile	1981	Closed to new entrants	Full	Voluntary
Peru	1993	Reformed	Mixed	Voluntary
Argentina	1994	Reformed	Mixed	Voluntary
Colombia	1994	Reformed	Mixed	Voluntary
Uruguay	1995	Reformed	Mixed	Voluntary <sup>a</sup>
Mexico	1997	Closed to new entrants	Full	Compulsory
Bolivia	1997	Closed	Full	Compulsory
El Salvador	1998	Closed to new entrants	Full	Compulsory
Nicaragua	2001	Closed to new entrants	Full	Compulsory

a. Only for those with earnings below a minimum level (see Box 2.3).

Source: Based on authors' review of the countries' legal systems.

tries. It also shows how some of these features may impede the implementation and operation of new pension systems.

### Characteristics of Small Emerging Economies and Implications for Pension Reform

As discussed, the global old age crisis is due to demographic factors and systemic imbalances in pension arrangements, indicating the need for adjustments or drastic changes to pension systems. But in developing countries the crisis is mainly the result of systemic problems, because the demographic strain—aging populations and high dependency ratios—is not yet a major issue (see Table 2.1). In fact, the relatively young populations in most developing countries may offer a window of opportunity for change, easing the transition to more sustainable pension schemes.<sup>8</sup>

Small emerging economies, however, present challenges that can limit the benefits of the pension system reform—that is, the Latin American model of funded

<sup>8</sup> The window of opportunity for reforming unfunded pension systems and incurring relatively low transition costs derives from the small size of the implicit debt. Factors that contribute to lower pension liabilities (and thus the costs of reform) include high ratios of young and working age populations to elderly workers and benefit recipients, limited pension system coverage, and relative immaturity of the system. For more details on transition cost financing, see Queisser (2000).

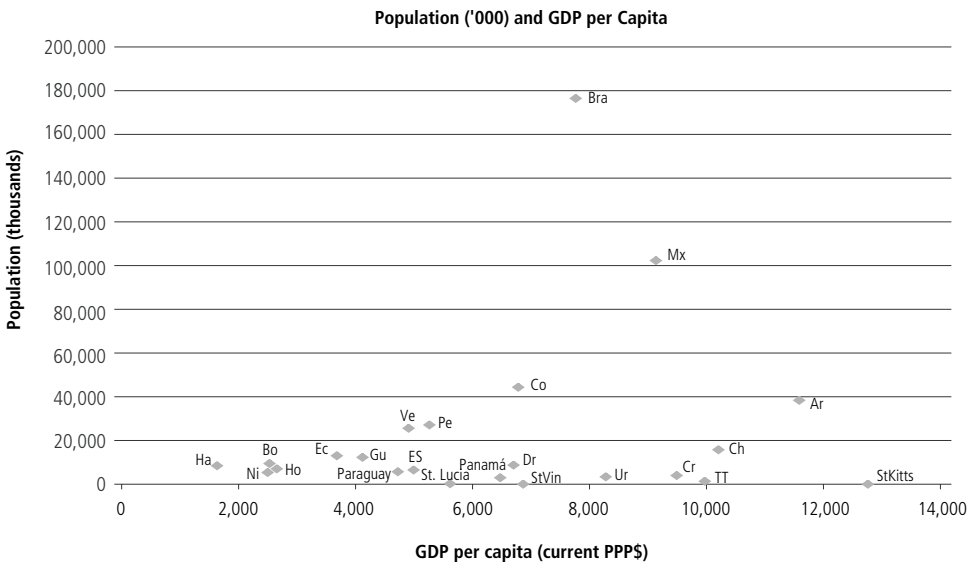
systems—being advocated by many analysts. This section describes these challenges; the next offers variations on this model that may compensate for most of the obstacles and distortions.

As noted, here an economy is considered small and emerging if its population is less than 8 million and its per capita GDP is less than \$5,000 (in 1995 dollars). Based on these thresholds, 13 Latin American and Caribbean countries are considered small emerging economies: Belize, Bolivia, Dominica, El Salvador, Guyana, Haiti, Honduras, Jamaica, Nicaragua, Panama, Paraguay, St. Lucia, and St. Vincent and Grenadines (Figure 2.1).

A 2000 report by the Commonwealth Secretariat and World Bank Joint Task Force on Small States identifies some of the key features of small states:

- *Remoteness and isolation.* Many small emerging economies are islands, landlocked, or far from major markets—features that drive up costs for transporting possible exports.

**Figure 2.1. Population and GDP Per Capita in Latin America and the Caribbean, 2003**



- *Openness.* Small economies generally strive to have intense contact with their neighbors and the rest of the world. One manifestation of this feature is their high international labor mobility.
- *Susceptibility to natural disasters and environmental change.* Most small economies are located in areas frequently hit by natural disasters, such as hurricanes, droughts, and volcanic eruptions.
- *Limited productive diversification.* Due to their limited resources and domestic markets, small emerging economies generally produce only a few goods or services—hindering their export opportunities and increasing their reliance on imports.
- *Poverty.* Poverty and inequality tend to be higher in smaller emerging economies than in larger ones.
- *Limited public and private sector capacity.* Although limited public and private sector capacity is a problem common to most emerging economies, it appears to be more serious in small ones. Low human capital endowments and their uneven distribution are a major reason (Commonwealth Secretariat–World Bank Joint Task Force on Small States 2000).<sup>9</sup>

Some of these features can significantly undermine the implementation of optimal pension policies in small emerging economies—particularly the introduction of funded pension systems. Five critical areas where obstacles may arise are a country’s demographic structure, labor market, economic structure, financial system, and political economy.

### ***Demographic Structure***

In most small emerging economies participation in pension systems is skewed toward the youngest sectors of the population. This may be a problem because, especially in middle-income countries, poverty rates are higher among the young (James 1997). Due to high unemployment and underemployment, poor young people may

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<sup>9</sup> The characteristics in the report by the Commonwealth Secretariat and World Bank Joint Task Force on Small States refer to countries with populations of less than 1.5 million. But it is likely that most of these features still apply in countries with slightly larger populations (say, 8 million).

be unable to make the regular contributions required to accrue the rights and minimum amounts needed to (eventually) receive benefits in a defined contribution system with individual accounts.

The problem of large contribution gaps is amplified by the high probability of young workers migrating abroad (see below). Another potential problem comes from the small populations in these countries. The resulting small number of contributors reduces the potential gains from economies of scale—a crucial feature for the proper functioning of a fully funded pension plan.

### ***Labor Market***

Large pockets of informal labor are common in small emerging economies. This—coupled with the limited number of contributors noted above—may prevent the critical mass of contributors needed for a pension system’s sustainability, and the system may be unable to generate the economies of scale needed for its actuarial balance (Packard 1999). There may be a mutually reinforcing vicious cycle between low participation rates and high administrative costs.<sup>10</sup>

Furthermore, during domestic economic downturns or foreign economic expansions, workers in small emerging economies may seek employment abroad. Such migration will lower the pension system’s ratio of contributors to beneficiaries—the system dependency ratio—as migrants’ remittances to their home country bypass its pension system. A pay-as-you-go pillar may be the most damaged by such migration. Finally, the coverage of current pension systems is largely skewed toward civil servants. New systems need to consolidate and enlarge the base of contributors through national campaigns to foster participation.

### ***Economic Structure***

An economy’s structure plays an important role in determining the best approach to pension reform. In addition to having large informal economies, many small emerg-

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<sup>10</sup> Having fewer workers regularly contributing to a pension system makes it harder for fund managers to lower costs by exploiting economies of scale—making the opportunity cost of joining the system very high for poor workers (Packard 1999).

ing economies have shortcomings such as low savings rates, high income inequality, and high corporate tax rates.

When comparing countries in Latin America and the Caribbean, several differences are evident between the 13 small emerging economies and the others in the region (Table 2.3). The small emerging economies have lower gross domestic savings (9.5 percent of GDP compared with 19 percent) but higher trade (imports and exports) flows (61 percent of GDP compared with 50 percent). In addition, the small emerging economies are almost more than twice as reliant on agriculture (15 percent of GDP compared with 8 percent).

These characteristics of small emerging economies are likely to discourage participation in additional savings mechanisms. When a large portion of national income is derived from traditional agricultural or extractive industries, economies suffer from the vagaries of external economic pressures. Similarly, when most potential contributors to the pension system work in the same industry, the high correlation among their wages—and thus among their contributing power—can weaken the system during economic downturns. Moreover, many of these countries suffer from the same macroeconomic weaknesses, including large fiscal deficits, soaring government debt, high interest rates, double or triple-digit inflation, and volatile exchange rates. These factors may discourage domestic and especially foreign investment in a new pension system, and may reduce the returns to pension funds once they are introduced.

### ***Financial System***

A critical assumption of multipillar pension reform—that is, a pay-as-you-go plus a fully funded structure—is the existence of financial markets that permit reasonable returns on investments of portfolio assets. Where financial markets function in small emerging economies, they are usually embryonic, offering few investment opportunities and lacking adequate legal and regulatory frameworks.

Two common indicators for capital market maturity are shown in Table 2.4. The first is market capitalization (as a percentage of GDP), a proxy for a country's stock market size. Market capitalization is often positively correlated with the ability to mobilize capital and diversify risk. The second indicator is the value traded (as a percentage of GDP), or market liquidity. One way to interpret this number is the capacity to easily trade securities.

**Table 2.3. Demographic and Economic Features of Latin American and Caribbean Countries, 2002**

Country	GDP per capita, PPP (current international \$)	Population, total (thousands)	GDS/ GDP (percent)	Trade/ GDP (percent)	Unem- ployment (percent)	Agriculture/ GDP (percent)
<b>Small emerging economies</b>						
Belize	6,538	253	10	79		15
Bolivia	2,459	8,809	10	39		15
Dominica	5,469	71	3	65		19
El Salvador	4,887	6,417	2	57	6.2	9
Guyana	4,224	766	7	147		31
Haiti	1,623	8,286	-3	41		27
Honduras	2,597	6,797	12	64	3.8	13
Jamaica	3,982	2,617	13	59		6
Nicaragua	2,486	5,342	6	60		18
Panama	6,166	2,940	24	31	13.2	6
Paraguay	4,657	5,510	8	51		22
St. Lucia	5,437	159	13	45		7
St. Vincent and the Grenadines	6,549	109	19	59		11
<b>Other economies</b>						
Antigua and Barbuda	9,847	76	22	57		4
Argentina	11,083	36,480	27	34	17.8	11
Barbados	15,293	269	14	49	10.3	6
Brazil	7,752	174,485	22	24		6
Chile	9,796	15,589	26	55	7.8	9
Colombia	6,493	43,733	14	31	17.9	14
Costa Rica	8,817	3,942	17	74	6.4	8
Dominican Republic	6,644	8,613	15	65		12
Ecuador	3,583	12,818	20	47		9
Grenada	7,178	104	22	59		8
Guatemala	4,058	11,992	7	36	3.1	22
Mexico	8,972	100,819	19	52	2.4	4
Peru	5,012	26,749	18	27	8.7	8
St. Kitts and Nevis	12,227	47	22	72		3
Trinidad and Tobago	9,446	1,304	21	90		2
Uruguay	7,767	3,361	14	32	17.2	9
Venezuela	5,368	25,090	29	41		3

Source: World Development Indicators Database, World Bank.

Both indicators are considerably lower in developing regions than in more developed parts of the world. Within Latin America, Central American and Caribbean markets—which contain most of the region’s small emerging economies—are, not surprisingly, the shallowest, especially in terms of market liquidity. This suggests that introducing funded pension plans in these countries requires mechanisms that compensate for the limited size and liquidity of their financial markets. Another feature that stands out is the extraordinary degree of market depth in Chile, which has a level of market capitalization comparable to that in OECD countries. The country’s introduction of a mandatory funded pension plan in the 1980s likely contributed to this outcome.

Although capital account constraints limit the possibility of securing higher returns and portfolio diversification from investments in securities traded in foreign markets, tight regulation and supervision may be beneficial in underdeveloped capital markets given the limited financial experience and high-risk environment.<sup>11</sup> But low returns may also reduce incentives to contribute to pension funds given the higher returns available from alternative investments. As a result potential contributors often look overseas for other investment opportunities. These factors severely limit the potential benefits of a mandatory privately managed pension scheme.

### ***Political Economy***

The political economy of many small emerging economies also affects the structure of, commitment to, and implementation of reforms. It is hard to break bad habits formed by a history of corruption and political involvement in the management of contributions and provision of benefits. The use of pension funds to finance the government and state enterprises is mainly driven by politicians’ short-run exigencies rather than long-run benefits. Such practices produce inertia when the time comes to implement reform.

Though many pension funds in small economies have acquired surpluses, large contingent liabilities often exist for the unfunded civil service element. Reform

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<sup>11</sup> Vittas (1996) distinguishes between tight or “draconian” regulatory frameworks needed in developing countries when introducing a funded system, and “relaxed” ones suitable where mature financial and capital markets already exist. Clearly, rules should be relaxed as the market deepens.

**Table 2.4. Stock Market Capitalization and Value Traded, by Region and in Latin America and the Caribbean, 2000**  
(Percentage of GDP)

Region	Market capitalization	Value traded
Central Europe, Central Asia	11.2	3.8
East Asia and Pacific	133.1	77.8
Latin America and the Caribbean	22.6	2.5
Middle East and North Africa	39.1	10.5
OECD high-income countries	114.7	81.4
South Asia	16.3	8.2
Sub-Saharan Africa	39.0	7.8
<b>Latin America and the Caribbean</b>		
Argentina	29.6	2.7
Bolivia	1.4	0.0
Brazil	30.3	11.6
Chile	101.1	10.2
Colombia	13.4	0.8
Costa Rica	15.2	1.4
Dominican Republic	0.8	—
Ecuador	2.2	0.1
El Salvador	17.2	0.4
Guatemala	1.2	0.0
Honduras	8.7	—
Jamaica	36.7	0.6
Mexico	31.8	7.5
Panama	37.5	0.5
Paraguay	5.5	0.2
Peru	25.8	4.4
Trinidad and Tobago	63.6	1.4
Uruguay	0.8	0.0
Venezuela	7.3	0.8

Source: World Bank (2001).



requires governments to recognize these liabilities in the transition to a funded system, and this has also proven to be a disincentive to implementing reform. Finally, because the success of a new system largely depends on the effective regulation and functioning of market rules, weak and inefficient law enforcement and judicial systems represent serious constraints.

### **An Agenda for Pension Reform in Small Emerging Economies**

In general, a pension system can be analyzed by observing its institutional structure, systemic mechanisms, legal and political framework, and scale. The government-run system typical of many Latin American countries is described in the first column of Table 2.5, observed from these four perspectives. The second and third columns summarize the main characteristics of the Latin American reform model and this chapter's proposed model for the region's small emerging economies—the latter a variant of the former.

Most of the systemic aspects of the Latin American reform model are suitable for small emerging economies.<sup>12</sup> A system based on individual accounts could enhance the savings of its participants, fostering savings at the national level. Moreover, the incentive structure linked to a defined contribution system is likely to increase contributions from participants working abroad.<sup>13</sup> But there are important differences in the institutional, legal and political, and scale dimensions.

Three main elements of current pension reform proposals are not easily applicable to small emerging economies and require modifications to be more directly relevant:

- The approach to investment management—centralized collection and limited bidding—would limit fees and increase the scale in the provision of some pension services.

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<sup>12</sup> Among others, Glaessner and Valdés-Prieto (1998) advocate this view.

<sup>13</sup> Although current demographic circumstances help sustain old unfunded systems, the projected structure of the population will eventually create problems like those faced today by countries with older populations. This suggests the importance of acting now—changing the system for a more efficient one at a lower cost, given the window of opportunity.

**Table 2.5. Three Models for Pension Reform**

Area	Traditional pay-as-you-go model	Second-generation Latin American model	Small emerging economies proposed model
Institutional	A government social security agency <b>manages</b> the system, and <b>collects</b> contributions from affiliates. The ministry in charge <b>regulates</b> the system. Some responsibilities may be decentralized to local authorities.	New private pension fund administrators (AFP) <b>collect</b> (through employers) and <b>manage</b> contributions. The Independent Supervisory Authority <b>regulates</b> AFPs competitive market.	Initially the pension fund market is <b>managed</b> by two AFPs chosen through competitive bidding process, <b>supervised</b> by the Independent Supervisory Authority. Competition is enhanced later. <b>Collection</b> is centralized (tax premises).
Systemic	Entire public system is unfunded pay-as-you-go, defined benefit formula, usually fragmented by occupational groups. Some partially funded voluntary funds may exist. Marginal parametric reforms may be introduced.	One pillar is fully funded, defined contribution, parallel or substitutive of the public pay-as-you-go pillar. The government normally provides safety net through minimum pension plan. Voluntary funded plans may be also established.	(See second-generation Latin American model.)
Legal/political	Introduced from the absence of a previous system, broad political consensus (no pensions to be paid at first). Employers finance the system by levying payroll taxes on workers.	Difficulties to gather consensus due to costs of transition. Individual pension accounts for all employees are established. Controversies on rules on transfers between fund managers.	Concerted design and implementation involving business, public, and social actors. Individual pension accounts for all employees. Initially limited international activity in AFPs portfolio.
Other (scope)	National	National	Regional coordination of systems; unique Supervisory Authority.

- The regulatory framework should be designed to maximize efficiency and compensate for the lack of domestic expertise and financial market experience.
- Regional integration of elements of the pension system would generate economies of scale from a centralized system. This move would considerably expand the market, reducing the costs that come from limited contributory bases, high volatility, and small populations and financial markets.

## *Investment Management*

Many Latin American countries that have implemented the multipillar approach have developed private pension fund administrators that compete to manage employee contributions. But in small countries limited domestic investment opportunities limit the potential efficiency gains from portfolio performance. Potential efficiency gains are greater when there is centralized collection of pension assets (perhaps tied to another collection system, such as taxes), financial management of the assets, and bargaining for annuities from insurance companies.

Centralization of collection and investment management does not negate having multiple private portfolio managers. For example, portfolio managers (both local and international) could be invited to submit bids to manage pension assets. In this case the portfolio managers would not maintain an infrastructure for collecting funds from pension contributors. In addition, there would be no need to develop marketing strategies to attract pension contributors to support a particular pension fund administrator. This approach would reduce the large administrative costs that pension fund administrators face in both the startup and operational phases.

Latin American pension fund management companies charge an average commission of 3.4 percent of an affiliate's salary, but this amount varies considerably across systems (Table 2.6). This amount is certainly felt more by poorer contributors—and may discourage them from contributing at all.

To contain such costs, a centralized agency—such as a tax collection agency—could gather contributions from employers and allocate the funds to fund managers, simplifying the entire process and reducing overlaps. Under the proposed system portfolio managers would bid for long-term concessions (at least five years) to manage some or all pension assets. Given the size of small emerging economies, free entry and competition would probably leave space for pension fund administrators to raise their fees.<sup>14</sup> Bolivia and Sweden have used this approach, and are good examples of limited competitive bidding and efficiency gains due to centralized collection systems (Box 2.1).

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<sup>14</sup> This approach has been proposed for Central American countries by Cifuentes and Larraín (1999).

**Table 2.6. Average Pension Fund Administrative Charges in Selected Latin American Countries**

Country	Year of reform (percentage of affiliate's salary)	Charge	Population, 1998 (millions)
Chile	1981	2.94	14.8
Peru	1993	3.72	26.0
Colombia	1994	3.49	38.3
Argentina	1994	3.45	36.1
Uruguay	1996	2.62	3.3
Mexico	1997	4.42	97.2
Bolivia	1997	3.00	7.8
El Salvador	1998	3.50	5.9

*Note:* The administrative charge is the cost of commissions plus insurance.  
*Source:* Queisser (2000); World Bank (2000).

When addressing investment strategy, it is essential to consider which portfolio management techniques are appropriate for small economies with constrained capital and limited investment opportunities. As noted, capital account inflexibility is one of the factors that keep small emerging economies from allowing pension asset managers to have a larger share of international investments in their portfolios. But modern investment management techniques—such as asset or stock index swaps, inflation index bonds, and securitization—can provide alternative investment strategies for countries with capital constraints.<sup>15</sup>

Tax incentives that generate equity are one way to foster the growth of a competitive capital market.<sup>16</sup> After having reached a critical size, the financial system can facilitate the survival of a system of pension funds that can, in turn, generate the flow of investment—domestic and foreign—needed for capital market development.

<sup>15</sup> The shift toward funded pension systems encourages greater domestic participation in external bond issues through the active participation of banks and pension funds. Argentina, Kazakhstan, and Lebanon are major examples (see Mathieson and Schinasi 2000, ch. 3).

<sup>16</sup> For example, through dual income tax systems, which levy lower taxes on profits gained using resources collected through the issuance of securities.

### **Box 2.1. Pension Reform in Bolivia**

In 1997 the Bolivian government implemented a reform of its pension system similar to that pioneered by Chile. The reform eliminated the publicly managed pay-as-you-go pillar and introduced individual, fully funded, defined contribution accounts. The new system guarantees income support equivalent to about 26 percent of the national average income to all Bolivians age 65 and older. All contributors to the old system have been transferred to the new one, while those already retired under the old system have continued to receive their pensions from that system.

The new system is based on individual capitalization accounts managed by pension fund administrators. Originally, to avoid the high marketing costs and commissions experienced in other countries, only two pension fund managers were allowed to control the market, sharing contributors in Bolivia's four main cities. Since 2002 that market has been opened to new participants, but none have yet to enter the market.

A unique feature of Bolivia's pension reform was its link to the privatization of state enterprises. Half of the capital of the six largest state enterprises was divested to private investors. The rest went from the government directly to the new pension system. The shares—the Collective Capitalization Fund—are managed by the new pension fund managers.

## ***Regulatory Framework***

Most recent approaches to pension reform have included efforts to enhance the supporting regulatory framework. In most cases this involves creating an independent social security supervisory authority that oversees pension fund companies and employers and sets criteria for participation, contribution levels, conflicts of interests, and rules on investments, switching, and related matters.

Several prudential and direct issues arise when designing a regulatory body for a fully funded, privately managed pension system or pillar (see Shah 1996). Prudential requirements include financial solvency, avoidance of conflicts of interest, custodial safeguards for managed assets, information disclosure, fiduciary responsibility, account keeping, and net asset value calculations. Direct regulatory elements are more specific to a particular system. The main one is the exclusion of certain classes of financial assets—typically equities when a system is still immature. The main reasons for this are illiquidity problems, disclosure and corporate governance standards, and accounting practices. Because the government mandates that contributors save for their retirement, it is important that the resources be deposited in

safe investments. To guarantee this safety (to the extent possible), the government has a responsibility to select the best, most sophisticated investment managers. The pension supervisory authority performs this function.

For many countries social security reform is only one element of development—one that occurs alongside evolution of the capital market and modernization of the insurance and banking sectors. Though these countries lack institutional and technical capacity, they are often tempted to develop independent, decentralized entities to regulate the different segments of the financial market. There are two problems with this approach. First, the countries are typically strapped for resources and so cannot staff the independent supervisory entities with knowledgeable, well-trained officers who have sufficient resources. The second problem pertains to the lack of a consolidated regulatory framework to mirror the conglomeration that exists in the financial sector. Generally the main players in the financial sector are not divided by segment, and a few companies dominate the financial market. A centralized, consolidated structure provides regulators with a holistic view of the activities of these financial conglomerates.

For a small country with an underdeveloped financial system, a preferable approach to regulation is the “draconian” one, where strict regulations apply to the management of pension funds and financial assets in general.<sup>17</sup> This regulatory approach is justified when participation in the system is mandatory and when affiliates and fund managers have limited experience and are unfamiliar with the new rules. Under a framework of strict supervision, investment by pension funds in overseas assets is typically limited to a small percentage of the funds’ overall portfolios. As the financial system matures, these restrictions are gradually relaxed.

There are concerns about the political instability and bureaucratic murkiness that exist in some small emerging economies. These shortcomings may hamper the creation and effective operation of autonomous, transparent, efficient regulatory bodies. Moreover, the expertise and financial support required to properly run a supervisory body may be constrained by the small size of such countries’ economic systems.

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<sup>17</sup> For a comprehensive analysis, see Vittas (1996). A view more in favor of relaxed regulation of private pension funds can be found in Shah (1996) and Glaessner and Valdés-Prieto (1998).

## *Regional System*

Small emerging economies should consider adopting a regional system in which a centralized regulatory or administrative mechanism would reduce costs through economies of scale—which typically are quite low in small emerging economies.<sup>18</sup> Under such a structure each country would adopt basic pension parameters to fit its fiscal and demographic realities. Each country would also design and manage its own tax collection system. But the structure of national pension systems would be common across countries and coordinated by a regional body.

The regional body would perform the following functions:

- Coordinating and complementing regulations set at the country level (for instance, setting administrative fees in relation to pension parameters chosen at the national level)
- Soliciting, selecting, and evaluating international bidders to manage a combined portfolio
- Regulating and supervising asset allocation
- Enforcing sanctions.

Member countries could come together to form and fund the body and appoint its members. The body should have a twofold organization: a slim centralized structure relying on a regional network of country-level institutions.

Initially, a few pension funds would be selected through international bidding. The funds that collected contributions in the regional system would be able to do so in any country in the region, generating the benefits from economies of scale that are impossible to achieve in a single country. As in Bolivia (see Box 2.1), after a few years a new bidding process could be opened to more competitors.

The regional supervisory entity would provide oversight to promote efficiency and independence and reduce the political interference in pension regulation common in politically volatile small emerging economies. The likely results would be increased efficiency, better supervision, and a more stable regulatory institution. In

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<sup>18</sup> Cifuentes and Larraín (1999) propose a regional regulatory base for Central American countries.

formulating the regional oversight entity, it would be necessary to create a centralized commission to develop policy and a framework for the entity's operations. The commission could be made up of representatives from the central banks and governments of each participating country. If harmonization in other areas—such as trade or drug enforcement—is already being pursued by a group of countries, this could provide an appropriate platform for the creation of the regional pension architecture.

The creation of a regional authority should not be seen as an alternative to strengthening financial market regulation and supervision at the country level. Indeed, the regional entity should be a catalyst for efforts to improve the operations of local markets. The countries participating in the arrangement should provide the regional entity with powers of supervision, inspection, and enforcement similar to those granted to similar bodies in developed countries.

## Lessons and Policy Implications

Due to the lack of empirical evidence and limited research on this topic, there are no significant lessons about the type of pension reform that works best in small emerging economies. Still, a few conclusions can be drawn from some cases and extended to countries considering such reform. For example, Nicaragua recently reformed its pension system by reforming its pay-as-you-go pillar (to be phased out) and introducing a fully funded pillar with privately managed individual savings accounts (Box 2.2).

One of the biggest tests for the applicability of a pure Chilean-type pension model in a small emerging economy occurred in El Salvador. In 1996 the country's congress passed a law to comprehensively reform the public pay-as-you-go system, phasing it out for a new private, fully funded system. Just one year later El Salvador experienced a severe financial crisis, ignited by allegations of fraud relative to the formation of the new system. Due to the loss of confidence by international investors, this episode delayed the introduction of the system. Today the Salvadoran pension system appears in better shape than it was at the time of its introduction, although the bad start may have taken a toll. This example illustrates the importance of transparency and financial stability for the successful introduction of a privately managed funded pension pillar. (Nicaragua recently introduced a system similar to El Salvador's; see Box 2.2.)



### Box 2.2. Pension Reform in Nicaragua

In 2001 Nicaragua introduced comprehensive reform of its pension system, implementing a fully funded, privately managed system alongside the existing defined benefit, pay-as-you-go public system. The reform was driven by concerns about the sustainability of the public system, which is financed largely by government debt and subsidies. Concerns about low and unequal coverage also influenced the reform.

Workers under age 43 must join the new system, while those older will remain in the old system. The public pillar will go through some parametric changes involving, for example, the retirement age, minimum pension period, and prerequisites for a guaranteed minimum pension. As in the general Latin American model, the private pillar will be financed through employee contributions, deposited in specialized pension fund management companies. A pension supervisory agency will be established in order to monitor the companies' profitability, check their portfolio composition, and ensure that they meet the minimum standards set by the system.

As with reforms in other areas, consultations with other sectors of society may facilitate the transition when designing a new pension system. Labor unions, particularly powerful in some countries, should be included in decisionmaking—as Uruguay and Venezuela did before introducing new pension systems (Box 2.3).<sup>19</sup>

Another area that deserves closer examination is the advantage that small emerging economies may have in terms of transition costs from reforming their pension systems. In a country where benefits are being paid—or have been promised to a large number of current contributors—the burden of reform is massive. Small emerging economies usually have young pension systems, with relatively few commitments and young populations. If the pension system needs to be reformed, the opportunity to switch to a new, more efficient and sustainable pension structure should be seized now, without waiting for the hard times to come.

As a general conclusion, the challenge for policymakers comes largely from the shallowness of financial markets in small emerging economies, where commercial banks dominate the supply of services. This is often a consequence of these coun-

<sup>19</sup> It may not be coincidental that these two pension systems are probably the ones that have departed the most from the pure Chilean model.

**Box 2.3. Pension Reform in Uruguay**

Uruguay introduced a new multipillar pension system in 1996. Like the one introduced two years earlier in neighboring Argentina, the Uruguayan pension system is a combination of a publicly managed pay-as-you-go pillar and a private fully funded one. A full transition to a privately managed funded system was also considered, but labor groups—strong in both countries—opposed such reform.

The second pillar is modeled after the Chilean pension fund reform of 1981. Contributions to the first pillar are mandatory for all workers. But rules for joining the second pillar vary. At the time of the reform, only workers under age 40 had to join the new system. In addition, the second pillar is mandatory for all workers with earnings above a certain threshold (periodically adjusted for inflation), and optional for everyone else. As in the Argentine system, contributions to the private pillar come exclusively from employees, while the first pillar is financed by both employees and employers.

Although the structural and operational characteristics of the newly established second pillar closely follow the Chilean model, one important difference is the supervisory body. Private pension fund management companies are licensed and supervised by the Central Bank of Uruguay—as opposed to an ad hoc independent supervisory agency. In addition, participants are allowed to switch funds twice a year, making the system more competitive.

tries' limited size as well as their relatively low and unequally distributed income. A suggested measure to compensate for these characteristics is strong supervision of pension fund management companies, with centralized collection of contributions. Regional coordination of such activities would promote the system's transparency and efficiency. It would also facilitate the cross-border provision of services for affiliates and portability of acquired rights—easing the complications that come from the labor mobility common to small economies.

## REFERENCES

- Acuña, Rodrigo, and Augusto Iglesias. 2001. Chile's Pension Reform after Twenty Years. Social Protection Discussion Paper 0129, World Bank, Washington, DC.
- Cifuentes, Rodrigo, and Felipe Larraín. 1999. Pension Reform in Central America: A Proposal. Development Discussion Paper 676. Harvard Institute for International Development, Cambridge, Mass.
- Commonwealth Secretariat and World Bank. 2000. Small States: Meeting Challenges in the Global Economy. Report of the Commonwealth Secretariat/World Bank Joint Task Force on Small States. Commonwealth Secretariat, London; World Bank, Washington, DC.
- Glaessner, Thomas C., and Salvador Valdés-Prieto. 1998. Pension Reform in Small Developing Countries. Policy Research Working Paper 1983. World Bank, Washington, DC.
- Iglesias, Augusto. 2001. The Chilean Pension Scheme after Two Decades.
- James, Estelle. 1997. In Salvador Valdés-Prieto (ed.), *The Economics of Pensions*. Cambridge: Cambridge University Press.
- Mathieson, Donald J., and Garry J. Schinasi. 2000. International Capital Markets: Developments, Prospects, and Key Policy Issues. *World Economic and Financial Surveys* (September). International Monetary Fund, Washington, DC.
- Packard, Truman G. 1999. Extending Coverage of Multi-Pillar Pensions Systems: Hypotheses and Implications. Background paper for the World Bank Institute—Harvard Institute for International Development Workshop on Pension Systems in Crisis: Challenges and Options for Reform, June 14-25. Washington, DC.
- Palacios, Robert, and Montserrat Pallarés-Miralles. 2000. International Patterns of Pension Provision. Social Protection Discussion Paper 9. World Bank, Washington, DC.
- Queisser, Monika. 2000. *The Second-Generation Pension Reforms in Latin America*. Development Centre Studies. Paris: Organisation for Economic Co-operation and Development.
- Shah, Hemant. 1996. Towards Better Regulation of Private Pension Funds. Paper prepared for the Economic Development Institute conference on Pension Systems: From Crisis to Reform, 21–22 November, Washington, DC.

- Vittas, Dimitri. 1996. Regulatory Controversies of Private Pension Funds. Paper prepared for the Economic Development Institute conference on Pension Systems: From Crisis to Reform, November 21-22, Washington, DC.
- Von Gersdorff, Herman. 1997. Pension Reform in Bolivia: Innovative Solutions to Common Problems. Policy Research Working Paper 1832. World Bank, Washington, DC.
- World Bank. 1994. *Averting the Old Age Crisis*. A Policy Research Report. Washington, DC.
- . 2000. *World Development Indicators 2000*. Washington, DC.
- . 2001. *World Development Indicators 2001*. Washington, DC.

## The Case for Pension Reform in the Caribbean\*

*Marion Williams*

**A**lthough the case for pension reform throughout the world has already been strongly made in many quarters, the arguments are worth repeating because the affected populations must accept the need for pension reform particularly where benefits are being modified or reduced or expectations changed. Given that on the present trajectory, funding costs of pension schemes are likely to continue to rise, understanding both current and future costs is necessary to allow enough time to plan for expected increases and to make necessary modifications to existing plans. More than ever before, plan actuaries need to continually review and modify assumptions to ensure that they are still good predictors of future expectations. These observations apply to the Caribbean as they do to so many countries where social security systems are a defined benefit that is partially funded and publicly administered.

### Why Reform?

Since the early to mid-1990s, actuaries and international institutions have raised the issue of “averting the old age crisis” (World Bank 1994). The implication for pension funds of aging populations, which are expected to be healthier and live longer, was seen as creating a crisis. Studies of the Organisation for Economic Co-operation and Development countries show declining rates of labor force participation among able-bodied men of working age (OECD 1988). Other trends include early retirement,

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exit from pension schemes, decreasing fertility rates, and day-to-day demands that create lifestyles that lead to smaller family size. Formal pay-as-you-go pension schemes were therefore no longer well positioned to provide sustainable streams of payments to citizens reaching retirement. International organizations, governments, and individual analysts who had made incremental changes to pension schemes began to dramatically reassess the adequacy of existing schemes, taking into account life cycle trends, changing demographics, and changing working habits. Governments also became generally more proactive about finding solutions.

In the case of developing countries, the World Bank (1999) shows that faster changes in the demographic structure of populations of developing countries would result in a larger proportion of retirees at much lower levels of per capita income than in developed countries, but that problems were also urgent in developed countries. The study shows that in Europe the population over age 60 is forecasted to increase from 20 to 30 percent by 2030 (World Bank 1999, p. 95). Meanwhile, the number of workers per pensioner has fallen from 3.5 in the 1950s to around 2.5 in the 1990s, and is forecasted to decline further to around 2.0 workers per pensioner.

In the transition economies of Europe, this rate had already fallen to about 1.5 workers in the 1990s. In Asia the ratio of the elderly to the working population is exceptionally high and is projected to triple in the next 40 years. In Sub-Saharan African countries, pension systems are in their infancy, with coverage of less than 5 percent of the population and expenditure of only 1.5 percent of gross domestic product; the situation appears not to be too critical with respect to funding pension schemes, although care of the aged remains a concern (World Bank 1999, p. 111). A large informal sector is one of the chief reasons for many of the pension problems in Latin American countries.

In the Caribbean, social security systems have been in place for close to 40 years in most countries. Social security reserves are an important asset, representing approximately 19 percent of regional gross domestic product. In most countries, the number of active contributors to social security schemes relative to the number of employed persons exceeds 75 percent, except in a few countries, principally Jamaica, Guyana, St. Lucia, and Trinidad and Tobago (Osborne 2004). In Barbados, this rate is as high as 95 percent. However, although most programs in the Caribbean are adequately funded for the short and medium term, almost all are financially unsustainable for the long term at current contribution rates and the level of pensions promised.

## Need for Reform in the Caribbean

In the English-speaking Caribbean, national insurance pension schemes are the most prevalent form of retirement income for workers, although in Trinidad and Tobago and Jamaica, a host of alternative savings vehicles also exist.<sup>1</sup> In the English-speaking Caribbean, a relatively faster rate of increase in the share of aging citizens in many countries implies that greater outlays of financial and other resources will have to be made to adequately satisfy health and welfare concerns. In many Caribbean countries, declining fertility rates and improved medical care, which has raised longevity rates, have further influenced the situation. If, as is the case in most Caribbean countries, the assumption is that governments are expected to continue to be the primary providers of social security for citizens in retirement, then this form of expenditure is likely to crowd out other competing demands for scarce public funds unless remedial measures are taken.

Although most programs have performed well and none presents a shortfall, many programs are plagued by high administrative costs. Where such expenses continuously consume high portions of income, smaller amounts are available to meet future benefit expenditure, resulting in a weakening of the funds' overall financial position (Osborne 2004). With expenditure increasing at a faster rate than income in most schemes, and given the implications of population aging on future costs, immediate action and explicit policy positions on strengthening long-term sustainability are warranted. In the case of Barbados, it was projected that the current figure of 3.4 contributors for every pensioner would have fallen to 1.3 by 2060 in the absence of reform (Ninth and Tenth Actuarial Review of the Barbados National Insurance Scheme 2000).

Other features among schemes in the region include rules that do not allow the programs to automatically adjust to economic changes, poorly diversified investment portfolios, and lack of transparency. Pensions also tend to be loosely tied to actual contributions, and participation rates among the self-employed are low.

Thus, like their counterparts in Europe, America, and Asia, pension schemes in the Caribbean Common Market (CARICOM) region face threats to sustainability.

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<sup>1</sup> The English-speaking countries are Antigua and Barbuda, Bahamas, Barbados, Dominica, Grenada, Jamaica, St Lucia, St Kitts and Nevis, St. Vincent, and Trinidad and Tobago. Guyana and Belize are also included in CARICOM countries.

## Possible Types of Reforms

Much of the international dialogue on the possible kinds of reforms has tended to focus on design and concentrated on three pillars or features: an unfunded mandatory feature, a funded mandatory feature, and a voluntary private feature (World Bank 1994). However, Osborne (2004) describes the major challenges facing social security schemes in the Caribbean as fourfold, involving design, financing, administration, and governance. The crux of the debate has concentrated on whether the features of design reforms should be mandatory or voluntary; with defined benefit or defined contribution systems; and publicly, privately, or fully funded.

In the early 1970s and 1980s, most countries in the region had adopted mandatory public or quasi-public social security systems. Some countries (St. Lucia, for example) had government-run provident accounts. None have had a privately managed, funded, defined contribution system. Even in the private sector, those companies that had pension schemes tended to have defined benefit systems.

However, in recent years there has been a distinct trend toward tightening the relationship between contributions and benefits in the private sector. Many private sector companies in Barbados, for example, are switching to a notional defined contribution system.

Many companies have also sought to integrate their private pension schemes with the national insurance schemes so as to avoid pensioners receiving both a private pension and a national insurance scheme pension to which employers contribute. Several companies have increased the full-benefit pension age.

## The Beginning of Reforms in the Caribbean

Caribbean countries are at varying stages of reform. For example, Jamaica, Trinidad and Tobago, and the Organisation of Eastern Caribbean States are at earlier stages in the process of evaluation and reform. However, there is a growing consciousness of the need for pension reform in almost the entire Caribbean, with Barbados appearing to be somewhat more advanced in the process. With escalating costs, especially for defined benefit schemes, and increased scrutiny by employees due to market losses and diversification issues, it has become even more critical for pension scheme sponsors to focus on the design of their retirement programs.



In the Caribbean, a defined benefit and partial pay-as-you-go system with greater funding and an individual account option seems to be emerging as one solution. There seems to be less appetite for a defined contribution system. Regarding the change from a defined benefit system to an individual account defined contribution system, Osborne (2004) notes that the “loss of solidarity concept between and within generations which the current system is built on, will reduce significantly the level of income security to Caribbean workers and pensioners.” In addition, the unfunded liability that would be created at changeover would have to be funded by generations that would also be required to fund their pension in full on a current basis. If a switch to a fully funded defined contribution approach were made, the significant increase in the amount of funds that would be amassed would be too large for local and regional economies to absorb. Even if the defined benefit approach were maintained, it would be important to guard against excessive funding levels because the challenge of investing those funds in suitable vehicles that would earn a good rate of return would be great. However, when funds are large, governments are unable to resist the urge to increase pensions and/or make investments that are not in the best long-term interest of the fund or country. The advantages of the defined contribution approach do not outweigh the disadvantages that changing the structure would produce. Many of the benefits of the defined contribution approach could be achieved with the current structure if there were slight modifications to current design and administrative aspects of regional social security schemes.

Barbados has already embarked on pension reform. After an extensive consultative process involving inputs from a wide cross-section of Barbadians, reforms of the national insurance scheme were undertaken. Barbados opted to maintain a defined benefit program, but instituted several reforms that reduced the life value of the benefit. These include an increase in the contribution rate of 1 percent of insurable earnings each year for four years to be shared equally among employers and employees until 2030; an increase in the retirement age from 65 to 67 from 2006, with the retirement age rising by 6 months every four years until 2018; flexibility in the retirement age between 60 and 70; and permission for early retirement from age 64, with the intention of gradually increasing that age each year (Actuarial Report on Pension Reform in Barbados 1993-1996, 2003).

In Trinidad and Tobago, a number of reforms were put in place in October 2003 and March 2004. Although the defined benefit system was kept, coverage was

increased. The minimum retirement pension was raised and wage ceilings were increased by 25 percent so that approximately 80 percent of wages were covered. The limit was raised on survivors' spouses, who can now receive their pension for life or until remarriage, and gender discrimination was removed for survivors' pensions to widows and widowers.

Some analysts suggest indexation, for example indexing career earnings pensions, and making normal pension ages higher. There is need for reform in this area of voluntary contributions so as to encourage persons to use this facility, which already exists in most schemes, but which is inflexible and therefore underutilized. If the indexed career earnings pension approach is adopted, then full flexibility could be afforded any contributor who chooses to make additional contributions. Osborne (2004) recommends setting explicit target ratios and objectives for funding or for measuring future sustainability, and cites the Barbados reserve-expenditure target ratio as an example.

Privatization of public pension plans does not seem to have found favor. For the most part, Caribbean countries appear likely to opt to have plans remain publicly managed while adding a voluntary feature or encouraging individuals to supplement their plans with private annuities. In those Caribbean countries where per capita incomes are relatively high, such individual plans are more affordable. Tax benefits might be used to relieve government of some of the costs of providing pensions. In several countries there appears to be growing demand to administer and manage social security schemes on an individual account basis, especially for contributions from individuals that exceed mandatory contribution amounts. These payments could be either on earnings above the ceiling or simply additional savings that workers wish to make. Some Caribbean countries, Barbados among them, have already taken this step of encouraging individuals to supplement their social security pensions by utilizing tax benefits to purchase registered retirement savings plans.

In the context of the CARICOM Single Market and Single Economy and the expected increase in worker mobility throughout the region, there will be greater need for portable benefits for those who work in various states in the region. As early as 1996, Caribbean governments signed the CARICOM Social Security Agreement and by 2002 all governments had ratified and enacted the Agreement. It was intended to protect CARICOM nationals' entitlement to benefits and provide equity in treatment for workers moving from one country to another, and is integral to the process

of facilitating the free movement of labor. However, experience has shown that the Agreement has been more costly for those countries that have greater numbers of migrant workers and seems to need fine-tuning to accommodate greater portability and reduce its cost. In addition, portability of pensions needs to be developed at the in-country level so that workers may more freely move between jobs and companies.

The Caribbean case is complicated by the preoccupation with immediate fiscal difficulties, which in some cases require concentrated attention. Pension reforms in the Caribbean should therefore be structured well within acceptable financial best practices. The obvious challenge is to structure the reform program within the already established formal system without too much dislocation. Reforms should not exert too strong a burden on the informal systems that traditionally cared for the elderly, and should avoid putting too much pressure on already stretched national budgets. In addition, older folks who do not have enough earning years to adjust to new rules without being disadvantaged should be given consideration in the development of new structures. Delicate choices have to be made in weighing the health of the scheme against altering the expected benefits of persons at all income levels whose best earning years are behind them. Adequate notice of impending changes will be important. The question will be how much time will be considered adequate. In the final analysis, amending rules that will result in reduced pensions will not be easy, nor will it be easy to obtain a commitment to increased contributions. However, regional governments will need to convince their populations that this is in their best long-term interests.

For corporate employers, the trend toward lengthening the retirement age requires strategies to ensure that older employees are in tune with the new technologies and new thinking in their disciplines. In the Caribbean, where governments are confronting the challenge of increasing productivity, it is important that employees who find difficulty in adjusting are not locked into remaining with the corporation when they really wish to retire but stay because it is not economically affordable to leave. This development requires consideration in the interest of the increased productivity to which the Caribbean aspires.

Another factor that must also be addressed in the Caribbean is the impact of HIV/AIDS on assumptions about the life expectancy of plan members. Actuarial assumptions will be influenced by the effectiveness of anti-AIDS programs in the region, a measure that will be quite an informational challenge for actuaries.

Private pension plans also need to continue their restructuring programs. This has already started in some cases, but many of the considerations discussed in the context of public funds need to be applied to private pension funds as well. The region has been slower in dealing with these types of funds. Both public and private funds raise issues of contractual obligations. The question is whether new contracts should give flexibility to employers to change plan terms and, should such flexibility be possible, whether it should differ when plans are contributory as compared with when they are noncontributory.

So far in the CARICOM region, inflation has remained relatively low, except for a few cases, particularly Jamaica. Given the likelihood of eventual portability of pensions across countries, should pensions be indexed to wage increases or to inflation? Should they be indexed at all?

There are important regulatory and supervisory issues. Who regulates the pension funds and what is the scope of the regulation? There are also governance issues, many of which have come to public notice in the past two years as a result of misuse and fraudulent use of pension funds, principally in the United States.<sup>2</sup>

The use of pension fund resources is another important issue in the Caribbean. In the region, pension funds are the single most significant source of public investible funds. Pension fund management should therefore allow for the maximum use of resources for development purposes, ensure the security of fund resources, and put in place professional management. A preference for domestic or regional management would help to build skills and should be encouraged. Over the longer term, the region may wish to aim for greater uniformity in regional schemes rather than, as at present, harmonization. However, given the fact that countries have different financial abilities, this may be some way away. This does not however preclude greater use of the regional securities market as fund managers contribute to building greater depth in these markets. Diversification is important and hence some funds must be invested outside the region, but foreign investment finances others. It is important that the Caribbean region finds ways to use these funds effectively on the regional front without jeopardizing their security. A careful review of asset allocation strategies and a sound long-term investment strategy could provide the right balance

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<sup>2</sup> The Enron case in the United States, where pensioners in that firm lost their pension funds, was well documented in the U.S. press in 2001 and 2002.

of risk tolerance consistent with appropriate returns and investment time horizons that still give priority to regional investment. It is important that regional governments strike the correct balance.

REFERENCES

- Ninth and Tenth Actuarial Review of the Barbados National Insurance Scheme. 2000. International Labour Office, Geneva, Switzerland.
- Organisation for Economic Co-operation and Development (OECD). 1988. *Developing Public Pensions*. Paris: OECD.
- Osborne, D. 2004. *Social Security in the CARICOM Single Market and Economy*. CARICOM Secretariat, Georgetown. May.
- World Bank. 1994. *Averting the Old Age Crisis: Policies to Protect the Old and Promote Growth*. New York: Oxford University Press.
- \_\_\_\_\_. 1999. *New Ideas about Old Age Security*. World Bank Conference. World Bank, Washington, DC.

## **A Needs Assessment of Pension Systems in the English-Speaking Caribbean**

*Stefano Pettinato and Javier Díaz Cassou*

Over the next few decades old age pension systems—and, more broadly, national insurance systems—in English-speaking Caribbean countries are expected to face growing challenges, mainly because of external circumstances but also due to internal structural conditions. As a result it may be extremely costly for many of these countries to maintain these systems unless changes are made. Such changes will require increasing attention and debate on adapting systems to changing domestic policies and socioeconomic circumstances, as well as considering openness to international forces—features that are increasingly interactive and at times mutually reinforcing.

This chapter analyzes 11 English-speaking Caribbean countries—Antigua and Barbuda, Barbados, Belize, Dominica, Grenada, Guyana, Jamaica, St. Kitts and Nevis, St. Lucia, St. Vincent and the Grenadines, and Trinidad and Tobago—with a focus on how cyclical and structural conditions are affecting their pension systems, undermining their medium and long-term sustainability. Major concerns arise from:

- Projected financial and actuarial difficulties that the systems will face due to changing demographics
- Neglect of large population groups while special privileges are granted to others
- An urgent need to rationalize management of the systems' funds and operations, increase efficiency and transparency, and reduce costs.

The first section describes the economic and social environments in which the region's pension systems operate. The second discusses the evolution and current structures of social security systems in the region, with an emphasis on old age pension systems. The final section identifies the main challenges facing these systems, and offers ideas on addressing them. Annex 4.1 provides detailed descriptions of the region's pension systems.

The analysis contained in this chapter is subject to a limitation stemming from the lack of reliable data about the performance of pension systems in some of the English-speaking Caribbean countries. There are few reliable sources of information, and data collection techniques and methodologies are often out-dated and not uniform. In order to complete this needs assessment we have used a variety of primary and secondary sources that sometimes provided conflicting and incomplete data. The tables and indicators contained in this chapter should therefore be taken as an approximation.

## **Economic and Social Conditions in the Region**

Prior to assessing the needs and challenges of pension systems in the English-speaking Caribbean it is necessary to describe the environment in which these systems operate. This section analyzes first the recent evolution of macroeconomic conditions in the English-speaking Caribbean and then the key structural socio-conditions of these countries.

### ***Macroeconomic Conditions in the 1990s***

During the 1990s economic growth in the 11 English-speaking Caribbean countries analyzed here averaged 3.2 percent a year. Belize and St. Lucia were the strongest performers, while Barbados and Jamaica lagged behind (Table 4.1). Because of their size and close proximity to large markets like the United States and their wealthier South American neighbors, countries in the region have historically been and are increasingly exposed to regional and international economic and financial trends.

Toward the end of the 1990s and into 2000 and 2001 (a period not captured by available data), the international economic slowdown—driven by the sharp slowdown in the U.S. economy in 2001, as well as the terrorist attacks of September 11th—



**Table 4.1. Economic and Structural Conditions in Various English-Speaking Caribbean Countries, 1990s**

Country	GDP growth, 1990s (average annual percent)	GNP per capita growth, 1990s (average annual percent)	Inflation rate, 1990s (average annual percent)	GDP per capita, 1999 (PPP\$)	Human development index, 1999
Antigua and Barbuda	3.3	3.6	n/a	10,225	0.798
Barbados	0.7	0.4	2.9	14,353	0.888
Belize	4.7	1.6	2.0	4,959	0.776
Dominica	2.2	1.7	2.3	5,425	0.776
Grenada	3.3	2.5	2.2	6,817	0.738
Guyana	4.8	7.6	7.0	3,640	0.740
Jamaica	0.8	0.4	27.8	3,561	0.757
St. Kitts and Nevis	3.9	3.8	3.6	11,596	0.808
St. Lucia	4.9	1.0	3.4	5,509	0.775
St. Vincent and Grenadines	3.5	2.6	3.2	5,309	0.755
Trinidad and Tobago	2.7	2.3	6.2	8,176	0.802
Average	3.15	2.5	6.1	7,234	0.783

Note: PPP stands for purchasing power parity.  
Source: World Bank data; UNDP (2003).

weakened economic performance in the region. Among the most important causes was a dramatic reduction in exports to the United States, mainly in the form of reduced tourism flows from the United States, and lower revenues from sales of natural resources in international markets.

In terms of productivity growth—measured using as a rough proxy the growth in GDP per capita—the English-speaking Caribbean countries cover a wide range, with the best performance in St. Kitts and Nevis, Antigua and Barbuda, and Guyana, and the worst in Barbados and Jamaica. With the exception of Jamaica, low inflation throughout the region indicates sound macroeconomic policies. Average annual inflation ranged from 2.0 percent in Belize and 2.2 percent in Grenada up to Jamaica’s 27.8 percent, which was mainly driven by poor performance in the early 1990s (see Table 4.1).

### ***Structural Socioeconomic Conditions***

The last two columns of Table 4.1 present data on each country’s level of economic development (expressed in terms of GDP per capita) and human development. Barbados and St. Kitts and Nevis are the richest countries, while Guyana and Jamaica are poorest. These and other structural differences must be considered when discussing policy options for the region, as they indicate extremely different realities among countries.

The United Nations Development Programme (UNDP) human development index sheds some light on each country’s relative level of development.<sup>1</sup> Among the region’s countries, the index is lowest in Grenada and highest is Barbados (which is ranked 28th in the world in terms of the index). The indexes in the region are higher than the average for developing countries (0.647) and in line with the average for Latin America as a whole (0.760).

Demographics are also relevant when analyzing pension systems. Although the population of the English-speaking Caribbean countries analyzed here varies from 39,000 (St. Kitts and Nevis) to 2.7 million (Jamaica), the region’s population structures are more homogeneous (Table 4.2). (Only Belize is an outlier, with a younger population.)

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<sup>1</sup> The human development index is a composite measure based on GDP per capita, life expectancy, literacy, and school enrollment. It was designed and is updated yearly by the UNDP in the *Human Development Report*.

**Table 4.2. Demographic Features of Various English-Speaking Caribbean Countries, 2001**

Country	Population	Population group (percentage of total)		Life expectancy at birth (years)	Fertility rate
		15–64	65+		
Antigua and Barbuda	66,970	67.2	4.9	70.7	2.3
Barbados	275,330	69.4	8.9	73.8	1.5
Belize	256,062	54.4	3.5	71.2	3.4
Dominica	70,786	63.5	7.8	73.6	2.0
Grenada	89,227	59.0	3.9	64.5	2.5
Guyana	697,181	66.9	4.9	63.3	2.5
Jamaica	2,665,636	63.5	6.8	75.4	2.5
St. Kitts and Nevis	38,756	61.4	8.8	71.0	2.0
St. Lucia	158,178	62.6	5.3	72.6	2.4
St. Vincent and Grenadines	115,942	64.0	6.4	72.6	2.1
Trinidad and Tobago	1,169,682	69.0	6.7	68.3	1.7
Average	509,432	63.7	6.2	70.6	2.3

Source: World Bank data; United Nations data; World Factbook (various issues); UNDP (2003).

Barbados and St. Kitts and Nevis have the largest elderly populations, with people over 65 accounting for nearly 9 percent of the population. (One major factor, especially for St. Kitts and Nevis, may be the migration of younger people to wealthier regions.) Jamaica has the highest life expectancy at birth among the countries considered, with 75.4 years. The fertility rate is also revealing, and is often used to predict future population structures. Women in Barbados and Trinidad and Tobago have the fewest children, indicating more gender-equal societies and smaller families. Belize, on the other hand, has a much higher fertility rate than the rest of the region.

In Barbados the share of the population 65 and older went from 6 percent in 1960 to 9 percent in 2000. In 1990 almost a third of the 31,000 people over 65 were older than 80, and women accounted for two-thirds of elderly people. Other

English-speaking Caribbean countries experienced similar trends during this period.

But when demographic data are projected into the future, very different trends occur across the region. Although old age dependency ratios—defined here as the ratio of people over 60 to people 20–59—are expected to increase in most countries between 1995 and 2040 (often falling over the next 10–15 years, then rising), St. Kitts and Nevis shows a declining trend (Table 4.3).<sup>2</sup> The sharpest increases will occur in Guyana, where the old age dependency ratio is expected to more than triple in 45 years, and St. Vincent and the Grenadines, with a similar increase. Ratios in Barbados, Dominica, and St. Vincent and the Grenadines are expected to reach levels comparable to those in advanced OECD countries.

Unemployment levels and labor force structures also differ widely across the region (Table 4.4). Unemployment ranges from 5 percent in St. Kitts and Nevis to 22 percent in neighboring St. Vincent and the Grenadines. The composition of the labor force reflects countries' levels of economic development, with the richest countries (Antigua and Barbuda, Barbados, St. Kitts and Nevis, and Trinidad and Tobago) having the smallest shares of agricultural workers.

Levels of economic development are reflected in national poverty levels. As measured by the headcount poverty rate (calculated based on household surveys), poverty is highest in Guyana (with 43 percent of the population living below the national poverty line) and Belize (34 percent)—and lowest in Antigua and Barbuda (12 percent) and Barbados (8 percent; see Table 4.4). But countries' income distributions (as measured by the Gini coefficient, a common measure of inequality) often do not reflect their economic development. The least equitable countries are Antigua and Barbuda (with a Gini coefficient of 53 percent) and Belize (51 percent). At the other end of the spectrum are Guyana and Trinidad and Tobago (42 percent in both).

## The Region's Social Security Systems

This section describes the main features of the evolution and current state of pension systems in the English-speaking Caribbean.

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<sup>2</sup> No projections were available for Antigua and Barbuda.

**Table 4.3. Old Age Dependency Ratios in Various English-Speaking Caribbean Countries, 1995–2040**  
(Percent)

Country	1995	2000	2005	2010	2015	2020	2025	2030	2035	2040
Barbados	28.0	25.3	21.2	22.8	26.5	32.5	40.9	48.0	54.2	54.9
Belize	16.1	14.7	12.1	11.6	11.1	11.9	15.5	19.4	24.2	30.0
Dominica	22.2	19.0	17.8	17.6	16.4	19.0	22.0	26.2	37.7	46.7
Grenada	22.5	20.8	21.2	21.1	21.0	19.4	18.9	22.1	28.6	36.4
Guyana	11.3	11.9	12.1	13.3	15.1	19.0	24.5	29.9	33.8	35.4
Jamaica	18.1	17.3	16.7	16.6	17.7	21.0	26.7	32.8	38.3	41.9
St. Lucia	22.1	22.7	21.4	17.4	15.2	12.8	16.0	20.0	27.9	36.5
St. Kitts and Nevis	42.1	31.8	24.0	18.5	13.3	16.1	27.6	34.5	31.0	32.3
St. Vincent and Grenadines	16.7	17.7	19.4	19.7	20.0	26.0	31.6	35.9	41.8	48.1
Suriname	15.5	15.6	15.9	14.5	14.7	17.0	22.8	28.7	34.7	37.0
Trinidad and Tobago	17.6	17.3	17.2	19.0	22.5	27.4	32.5	35.4	38.8	43.5
Average	21.1	19.5	18.1	17.5	17.6	20.2	25.4	30.3	35.5	40.2

Note: The old age dependency ratio is defined as the population over 60 to the population age 20-59. Data for 2005-40 are projections.  
Source: Palacios and Pallarés-Miralles (2000).

**Table 4.4. Labor and Poverty Indicators in Various English-Speaking Caribbean Countries**  
(percent)

Country	Unemployment rate	Labor force in agriculture	Poverty headcount	Gini coefficient
Antigua and Barbuda	7	11	12	0.53
Barbados	11	10	8	0.46
Belize	13	38	35	0.51
Dominica	20	40	33	0.49
Grenada	15	24	20	0.50
Guyana	12	30	43	0.42
Jamaica	16	21	34	0.43
St. Kitts and Nevis	5	<5	15	0.45
St. Lucia	15	39	25	0.47
St. Vincent and Grenadines	22	26	17	0.45
Trinidad and Tobago	13	10	21	0.42
Average	13	25	24	0.47

*Note:* Data are the most recent available.

*Source:* World Bank data; World Bank (1996); World Factbook (various issues).

### *Evolution of Public Pension Systems*

Over the past several decades social security in the Caribbean has generally evolved from social assistance to social insurance. For example, many countries began implementing public social insurance systems—including retirement pensions—in the 1960s and 1970s (see Annex 4.1 for details on each country's plan). Under these defined benefit systems the benefits that workers receive upon retirement are based on their final salaries and predetermined replacement rates.<sup>3</sup>

Barbados has been one of the region's pioneers in social insurance. A social assistance plan was instituted in 1937, and a social insurance system was established in 1966. Similarly, in 1969 Guyana introduced a social insurance system to replace the social assistance plan of 1944. Further adjustments were made between

<sup>3</sup> The replacement rate is an indicator used to reflect the relative generosity of a pension system in a particular country. It is usually calculated as the ratio between a worker's pension benefit and average pensionable earnings.

1981 and 1992. Trinidad and Tobago belongs to the same group, with a social assistance plan introduced in 1939, replaced by social insurance in 1971, and amended in 1999.

Jamaica introduced its social insurance system in 1958, though it covered only sugarcane workers, and evolved to a modern and comprehensive system in 1966. Belize introduced social insurance in 1979. Finally, Antigua and Barbuda departed from the model seen elsewhere in the region, introducing a social assistance scheme in 1993 on top of a social insurance system implemented in 1972.

In some countries social assistance was initially provided through provident funds—that is, publicly managed funds that pool workers' contributions and use them to cover those in need. Dominica, Grenada, St. Kitts and Nevis, St. Lucia, and St. Vincent and the Grenadines all followed this sequence, supporting provident funds around 1970 and shifting to social insurance between the late 1970s and mid-1980s. The main reasons for the shift away from provident funds were the widespread macroeconomic instability, inflation, and devaluation of the 1970s and 1980s, which produced large negative returns and widespread dissatisfaction with the funds' performance (ICSS 1995; Forde 2001).

The pension schemes of the English-speaking Caribbean are partially funded, and so entail a transfer of resources from current to retired workers. This approach is based on the notion of intergenerational solidarity and reciprocity. In actuarial terms such systems, when mature, are sustainable only if the ratio of pensioners to contributors remains at sustainable levels, given the growth in the wage rate and the parameters of the system (contribution rates, retirement age, and pension benefit formula).

An alternative approach is the pension scheme Chile introduced in 1981. This revolutionary plan is fully funded, with benefits based on defined contributions and savings accumulated in individual accounts overseen by certified, carefully regulated pension managers. At retirement, workers are entitled to withdraw their savings and the accrued return on the investment and, among other options, purchase a life annuity. The sustainability of such a system depends on investment performance and pension manager regulation.

After more than three decades, many of the systems in the region are close to reaching maturity. Despite the difficulties facing some governments due to increasing ratios of pensioners to contributors, no Caribbean country has seriously consid-

ered introducing a system like that in Chile—with the exception of Trinidad and Tobago. In 1999 Trinidadian authorities sponsored discussions with various stakeholders about the possibility of shifting toward a pension model based on two tiers: a reformed social security system to play a welfare (redistributive) role and a new mandatory, privately managed plan for the well-off. These discussions were still on the table when this chapter was written.

### ***Current National Insurance Systems***

In most public pension systems in the English-speaking Caribbean, benefits are based on predetermined formulas linked to average pensionable earnings (that is, a worker's final and highest salary levels). (Exceptions are Jamaica and Trinidad and Tobago.) In addition to this defined benefit approach, the systems do not operate on a fully funded basis, but only on a partially funded one. In fact, most schemes are still building up funds, due to their relatively brief maturity, with contributors largely outnumbering beneficiaries.

When the systems mature, the ratio of contributors to beneficiaries will gradually decrease, creating financial pressure. As a result a larger share of contributions will have to be used to cover benefits. When contributions become insufficient, investment income will have to be used. Finally, as a last resort, assets will have to be sold to finance the increased volume of benefits.

In other words, if contribution rates are not increased before funds are exhausted, when mature, the systems will operate on a pay-as-you-go basis.<sup>4</sup> For these reasons the risks from an underperforming economy or from increasing life expectancies (or both) are carried by current and future workers. Currently, most schemes operate with limited or no government financing or subsidies.

Rising old age and system dependency ratios have serious implications for the level of income support available through social insurance for the elderly.<sup>5</sup> Fur-

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<sup>4</sup> The reason behind this rests on the fact that most of these systems operate with cash-flow surpluses: income (from contributions and invested resources) exceeds expenditures. Because current benefits are also financed out of investment income from accumulated funds, in reality the schemes are partially funded (neither pay-as-you-go nor fully funded). The problem is that reserves are expected to be depleted over the next 20–40 years. For more details and projections on these trends, see Osborne (2001).

<sup>5</sup> The old age dependency ratio compares the number of elderly to the working age population. The system dependency ratio refers specifically to system beneficiaries and contributors.



thermore, countries with large informal sectors may experience additional pressure on their social assistance systems as more elderly people retire with little or no pension coverage and no alternative means of income support. Due to the rapid changes in population structures discussed above, many countries' pension schemes are under pressure both actuarially and financially.

In principle all workers are required to participate in the national insurance schemes in all of the English-speaking Caribbean countries being analyzed here. But in practice many workers are left out—especially those employed in the informal sector. It is difficult to establish the extent of the informality problem in the English-speaking Caribbean because few reliable data exist on this issue. The problem is aggravated by the fact that different countries apply different definitions of informal employment making it difficult to draw any comparison (Mayers, Downes, and Greenidge 2002). Furthermore, research on this topic has been carried out only in the countries with the smallest informal sectors, and therefore the results of these studies cannot be considered representative of the region.

The available data suggest that informality in the labor market is relatively high in the English-speaking Caribbean. In 1996 the World Bank estimated the importance of informal workers, unpaid workers, and self-employed workers in various Caribbean countries. In Antigua and Barbuda this group was estimated at 9 percent of the labor force, in Dominica 29 percent, in Grenada 18 percent, in Guyana 26 percent, in Jamaica 39 percent, and in Trinidad and Tobago 22 percent. Other studies estimate the size of the informal sector in Trinidad and Tobago at 2.6–6.8 percent of GDP, though this is considered an underestimation. In Barbados the hidden sector has been estimated at less than 1 percent of GDP (Mayers, Downes, and Greenidge 2002). The International Labour Organization offers yet alternative figures. It estimates informal employment in Barbados at 15 percent, and in Trinidad and Tobago at 19.4 percent.

But in recent years, due to worsening economic performance, many observers believe that the informal sector has grown in most Caribbean countries. Belize, Jamaica, and St. Kitts and Nevis are good examples of this phenomenon, with large pockets of the workforce active in the informal labor market. Typically, school dropouts, housewives, and the disabled do not contribute to and are not covered by social security. As a result many individuals reach retirement age with no pension coverage.

In Belize and Grenada less than 25 percent of the population of pensionable age receives pension income (World Bank 1996). At the other end of the spectrum, Barbados and Trinidad and Tobago have the highest coverage rates. In recent years the problem of informality has been aggravated by a marked rise in unemployment, which currently is close to 20 percent in various countries in the region. The rising importance of the informal sector in the English-speaking Caribbean calls for further research on the informal networks that support informal workers upon retirement, and on possible ways of combining these networks with formal private or public programs to expand the coverage of pension systems.

Although in principle the self-employed are required to participate in the region's pension systems, in practice few of them do so (Table 4.5).<sup>6</sup> The low level of affiliation is mainly due to the myopia of large sectors of the population, many of whom do not attach enough importance to old age income reduction. Despite the fact that the value of pensions exceeds contribution rates in almost every country in the region, young people seldom save for retirement.

Barbados and Trinidad and Tobago are often considered the region's star performers in terms of pension coverage. In Barbados more than 92 percent of people over 65 receive a pension, while in Trinidad and Tobago 82 percent do. Part of the reason for these countries' high coverage is their provision of noncontributory pensions to support antipoverty goals. This is especially true in Trinidad and Tobago, where noncontributory pensions are particularly important in relative terms. In other countries most of the elderly are left out of the social insurance system (see Table 4.5).

The proportion of elderly people with pension income is considerably lower elsewhere in the region. Jamaica's scheme covers only 27 percent of the country's elderly, while in Belize less than 10 percent of those over 65 receive pension coverage. Grenada is the worst performer, with less than 5 percent of those over 60 receiving pension income. It should not be surprising that, where data are available, spending on public pensions (as a percentage of GDP) generally rises with pension coverage (see Table 4.5).

Although the region's average replacement rates of 30–60 percent are reasonable by international standards, the real value of pensions and contribution ceilings

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<sup>6</sup> Making things worse, employers often fail to comply with their obligations for pension contributions, or omit information about contributors (partially or entirely), despite the threat of fines and even imprisonment.

**Table 4.5. Pension Coverage in Various English-Speaking Caribbean Countries**  
(Percent)

Country	Age of workers	Participation by self-employed workers	Contributors as percentage of working age population	Percentage of elderly receiving pension income	Public pension spending as percentage of GDP	Pensioners as percentage of population
Antigua and Barbuda	16–59	Mandatory	n/a	n/a	n/a	n/a
Barbados	16–65	Mandatory	68	92	4.1	0.7
Belize	14–64	Excluded	70	10	0.2	n/a
Dominica	14–60	Mandatory	82	n/a	1.4	3.5
Grenada	16–59	Voluntary	60	<5	1.5	n/a
Guyana	16–59	Mandatory	n/a	37	0.9	3.3
Jamaica	18–65/60	Mandatory	33	27	0.3	1.7
St. Kitts and Nevis	16–62	Excluded	n/a	n/a	n/a	n/a
St. Lucia	16–65	Voluntary	n/a	n/a	n/a	n/a
St. Vincent and Grenadines	16–65	Mandatory	n/a	n/a	n/a	n/a
Trinidad and Tobago	16–64	Excluded	61	82	3.4	3.5

Source: World Bank (1996); SSA (2001); Palacios and Pallarés-Miralles (2000).

has been declining due to lack of indexation mechanisms. Governments increasingly rely on legislation aimed at periodically adjusting these levels to the cost of living, making such adjustments less frequent and more subject to delays from political debate. For example, inflation has corroded benefits in Belize and Trinidad and Tobago, where inflation was high in the 1980s. Barbados is the only country in the region that has introduced automatic adjustments to correct for cost of living increases.

Ceilings on contributions are relatively high in the Organization for the English-Speaking Caribbean (OESC) countries. In other English-speaking Caribbean countries current low ceilings on contributions tend to reduce the progressivity of the contributory structure of pension schemes. The schemes incorporate provisions for minimum pension guarantees. Full pensions are guaranteed with relatively few years of contributions, though requirements range from 3 years in Jamaica to 14 years in Guyana and Trinidad and Tobago. Because benefits are generally based on average monthly earnings over the past 5–10 years, workers who experience higher earnings as they age (such as professionals and civil servants) reap most of the benefits.<sup>7</sup>

Although the level of benefits differs widely across the region, the range of benefits is relatively homogeneous. In every country national insurance schemes provide short-term benefits (maternity and sick leave) and long-term benefits (old age pensions and disability and survivor benefits). While some countries also provide benefits for on-the-job injuries, only Barbados covers the unemployed.

Old age pension coverage is the main long-term benefit. (The main features of the region's mandatory public pension systems are listed in Annex 4.1.) The retirement age is generally the same for men and women (except in Jamaica, where men retire 5 years later than women, at 60) and in most countries is 60 (except in Barbados, where it is 65, and St. Kitts and Nevis, where it is 62).

Some national insurance systems—in Barbados, St. Kitts and Nevis, and Trinidad and Tobago—include additional programs to alleviate poverty among those who have not contributed sufficiently or consistently enough to secure minimum pensions. Still, some population groups are entirely excluded from national insur-

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<sup>7</sup> Although adopting a benefit formula based on average lifetime earnings would also be unfavorable to the underemployed and to workers in part-time positions or with interrupted earnings, one based on the highest 10 years of earnings (rather than the past 10) would be more progressive. Such a system would require calculating earnings from earlier periods in current denominations, however.

**Table 4.6. Ratios of Pensioners to Contributors in Pension Systems in Various English-Speaking Caribbean Countries**

Country, year	Pensioners above the normal retirement age / contributors	Pensioners per 100 contributors
Barbados, 2001	4.1	24.4
Dominica, 2002	5.5	18.2
Grenada, 2002	9.3	10.8
Guyana, 2001	5.0	20
St. Kitts and Nevis, 2002	9.7	10.3
St. Lucia, 2001	14.9	6.7

Source: World Bank (1996); SSA (2001); Palacios and Pallarés-Miralles (2000).

ance schemes. In particular, the unemployed are neglected, because they lack the contributory power to reach eligibility conditions.<sup>8</sup>

A number that is difficult to obtain but important for gauging a scheme's maturity is the system dependency ratio, measured here as the number of pensioners per 100 contributors (Table 4.6). Among the six countries for which data are available, Barbados appears to have the most mature system, with 24.4 beneficiaries per 100 contributors. Grenada has the lowest system ratio, at 10.3. The costs of administration and operation also vary widely, with Jamaica having the lowest relative costs and one of the largest schemes.<sup>9</sup>

In addition to safety net, redistributive, and efficiency objectives, national insurance schemes throughout the region seek to provide long-term capital growth and investment income by investing funds in balanced, well-diversified portfolios (Bissemer 2002). Even though as they reach maturity the systems will increasingly operate on a pay-as-you-go basis, the funds that are quickly accumulating could be used to foster domestic economic development. It is perhaps for this reason they are invested predominantly in domestic assets, limiting the often-required international diversification but also reducing dependence on foreign markets.

<sup>8</sup> In Barbados, a notable exception to this rule, the unemployed receive partial coverage through an unemployment benefits scheme. Because of this scheme and the financial support it requires, the country's pension contribution rate is the highest in the region (see World Bank 1996).

<sup>9</sup> The Jamaican scheme makes full use of modern technology. In 1994 pensioners could already cash their vouchers at branches of the National Commercial Bank (World Bank 1996).

### *Private Pension Schemes*

Complementary pension programs and retirement savings vehicles have been evolving alongside social insurance programs and are increasingly common in English-speaking Caribbean countries, though coverage is generally limited to better-off socioeconomic groups. These plans are more common in the region's more advanced countries. Such schemes are driven by growing concerns about the limited coverage provided by public systems, as well as by policies to promote alternative means of savings for old age.

These schemes, developed mainly within employer (occupational) plans, provide old age income in addition to the pension benefits that originate from public systems.<sup>10</sup> In these schemes employers generally deduct contributions from wages. Occupational schemes are largely voluntary but can also derive from labor union treaties and collective bargaining.

One of the main advantages of employer-based pension systems is the low public sector interference they require, due to their relative autonomy from the government. In addition, they are relatively cheap and provide incentives to reduce contributory evasion. On the flipside, the limited transferability of their benefits makes them limited and vulnerable to employment-related uncertainties. Furthermore, if workers change jobs frequently, the long-term goal of saving for old age is often unmet through these plans because many workers cash in the accumulated funds and use them for consumption.

Alternatively, voluntary pension schemes can be based on personal savings plans. In the past some English-speaking Caribbean countries tried to implement such systems through provident funds—with little success and plenty of unhappiness among contributors, who saw most of their savings vanish. The collapse of the Jamaican financial market in the mid-1990s made many neighboring countries wary of the risks related to poorly regulated financial sectors.

Because of their limited coverage, most private and occupational pension plans have been developing within relatively weak legal frameworks. As concerns about pension coverage increase, along with the number of workers who can afford to con-

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<sup>10</sup> In some countries civil servants receive additional employer-based pension coverage through state-owned companies that manage the funds (such as the Insurance Corporation of Barbados).

tribute to complementary plans, these schemes are expected to experience rapid growth in terms of both contributors and beneficiaries. It would be advisable for the emerging pension funds market—as well as the annuities one—to be more coherently and rationally regulated and supervised.

Most voluntary programs work on a defined contribution basis, and pool worker contributions (along with employer contributions) into funds administered by specialized companies. The private pensions and annuities markets in the region tend to be dominated by a few large companies, including Sagicor, Clico, Guardian Life, and more recently some credit unions and other domestic and international financial institutions (such as the Bank of Nova Scotia). These companies provide markets for the large and increasing amounts of resources generated through the existing occupational plans.

One caveat is the lack of investments for these resources. Consequently, these companies have purchased vast amounts of real estate.<sup>11</sup> In the past this was a good investment for these companies, but the concentration of investments in real estate may pose significant risks for the future—especially if a decline in real estate prices occurs at the time of a rise in the number of retirees. This risk can be mitigated only by diversifying assets, for which regional financial integration might be the best option.

## **Unresolved Issues and Main Needs**

The last section of this paper summarizes the key challenges facing pension systems in the English-speaking Caribbean, and elaborates some preliminary recommendations.

### ***Two General Models***

Based on their underlying objectives and national characteristics, two models for social security seem to stand out in the English-speaking Caribbean: Barbadian, and Trinidadian and Jamaican.

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<sup>11</sup> Some of this information was obtained by interviewing pension fund market operators and regulators in Barbados and Trinidad and Tobago.

Among Caribbean countries, Barbados has one of the most extensive systems of social insurance and assistance. Pensions are paid to almost everyone over 65, putting pressure on the treasury.<sup>12</sup> There is extensive unemployment compensation and insurance against injury and illness, as well as paid maternity leave, severance payments, and subsidized housing and funeral payments (for low-income families). In sum, the Barbadian system represents a model of broad coverage, pay-as-you-go intergenerational financing, defined benefit pension calculation—with all the advantages and shortcomings of such a structure.

In many ways the Barbadian system can be associated with tomorrow's systems on other islands. The relatively advanced economic and demographic development of Barbados makes it more advanced in time. The scheme requires the region's highest contributions from employees and employers, with a total contribution rate of 15.25 percent (with 7.25 percent coming from employees and 8 percent from employers; see Annex 4.1 for details).

In Trinidad and Tobago and, to some extent, Jamaica, social insurance systems have been set up largely on the basis of redistributive principles. But the presence and impact of these systems are still limited, particularly because of low contribution rates. Because of low contribution rates, pension coverage can be granted only up to some maximum point—beyond which the schemes' expenditures need to be covered by external funds, such as government funds or public sector employee contributions. Interestingly, public sector pay-as-you-go noncontributory benefits in the two countries are partially funded by military personnel, as well as by parliamentarians in Trinidad and Tobago (Forde 2001).

## ***Major Challenges for the Region's Systems***

### *Demographic Pressures*

As noted, populations in English-speaking Caribbean countries are rapidly becoming older, increasing demands for old age income security. Some countries in particular will begin seeing large groups of elderly citizens in the next few decades. St.

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<sup>12</sup> Excluded are people who worked for more than the number of years required to qualify for a pension but failed to contribute, and are not eligible for the country's noncontributory pension.



Vincent and the Grenadines will have the sharpest increases in elderly population, eventually reaching levels of old age dependency comparable to those in advanced countries. And even though it is starting from an older population structure, Barbados will also experience demographic pressures that will likely exert financial pressure on pension systems.

### *Low and Unequal Coverage*

Most of the systems examined cover only a small fraction of country populations—mainly people working in the public sector and, more generally, the formal sector. Even many self-employed workers not necessarily involved in the informal economy receive little coverage, despite mandatory provisions for their participation. High contribution rates are the main reason the self-employed avoid enrolling in pension systems and reporting their business activity. Such workers must provide the entire contribution—that is, what employees and employers pay separately—and are generally entitled to limited long-term benefits.

### *Poor Resource Allocation and Management*

National insurance schemes are run like large nonbank financial institutions, levying taxes on workers and investing the resources for later use by contributors. But most of these institutions operate like unofficial public banks, providing different financial services for government and quasi-government agencies. The financial power of these institutions is so great that they could facilitate the development of capital market institutions not only in their domestic economies but also across the region. To do so, pension funds should use modern portfolio management techniques, including diversification in domestic and some international assets.

### *Preliminary Recommendations*

This chapter does not pretend to offer solutions to all the challenges facing the region's pension systems. But it does identify some of the most compelling issues requiring careful examination. Over the next few decades social insurance systems are going to experience serious cash-flow shortages. Corrective measures must reflect the characteristics of each system and of each country's social, economic, and demographic environment.

The systems work by financing current expenditures ( $X$ ) with current income ( $Y$ ), and the difference between the two is the pension surplus ( $S$ ). Defining  $I$  as investment income,  $C$  as contribution income,  $P$  as pension benefits, and  $A$  as administrative costs leads to:

$$S = Y - X, \text{ where}$$

$$Y = Y(I, C) \text{ and } X = X(P, A).$$

Furthermore,  $I$  comes from current invested reserves ( $R$ ) at the rate of return  $i$ ,  $C$  is a function of the pool of contributors ( $W$ ) and their wage ( $w$ ) and the contribution rate ( $c$ ), and  $P$  depends on the number of beneficiaries ( $B$ ) and the replacement rate ( $r$ ). These definitions make it possible to describe the above relation as:

$$S = [I(R, i) + C(W, w, c)] - [P(B, r) + A] \text{ or, if } S = 0,$$

$$[I(R, i) + C(W, w, c)] = [P(B, r) + A].$$

Financial sustainability should be attained by increasing sources of income or by decreasing expenditures. The formula above shows the mechanisms that can be used to maintain a pension surplus  $S$ .<sup>13</sup> Increasing income (raising the left-hand component) through higher contribution rates ( $c$ ) could help mitigate the looming increase in the number of beneficiaries ( $B$ ). Similarly, better management of pension fund investments could raise income by increasing returns ( $i$ ) and future reserves ( $R$ ). On the other side of the equation, lowering benefit eligibility ( $B$ ) or the pension formula ( $r$ ) could help. But these measures will merely delay the deterioration of systems' cash flows, their move toward breaking even, and, probably, going into deficit. Other measures may be more effective in the long run, and some are described below.

### *Rationalizing Operating and Administrative Costs*

In most Caribbean pension schemes 10–20 percent of contributions are used to cover administrative costs (Osborne 2001). Most schemes operate under largely suboptimal conditions: not only are staff underskilled and lacking proper technology, but

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<sup>13</sup> Income from reserves will still decrease with time, however, because fewer resources will be accumulated as the ratio of beneficiaries to contributors increases.

administrations are overstuffed—with more than half of administrative costs going to staff costs. Thus existing administrative arrangements should be rationalized. Such efforts should include training staff (who are often the most opposed to structural reforms) and improving technology. In addition, given the small size of countries in the region, integration of part of the administration might be advisable (see Dowers, Fassina, and Pettinato 2001).

#### *Increasing Public Pension Coverage*

One reason few self-employed and informal workers are willing to contribute to pension systems is the rapid loss of value of benefits, largely due to lack of automatic indexation mechanisms. As noted, Barbados appears to be the only country among those studied that provides automatic cost of living adjustments. Other countries rely on periodic reevaluations through legislative processes, an approach that inevitably delays changes and shifts decisions into the political arena. While this measure may increase financial costs due to the higher value of benefits, it can also have desirable effects through increased participation.

#### *Introducing Legal Reforms to Encourage the Development of Second and Third Pillars*

As noted, the market for private pension funds has been developing steadily in the region. This has happened mainly in countries with sufficient demand and infrastructure for products such as deferred annuities and retirement savings plans. It is advisable, however, that such markets be strictly regulated and that transparency be made a priority. Doing so would foster the development of private schemes, providing important supplementary income for increasing numbers of individuals. Mandatory private pillars could ultimately be considered in more advanced countries, in a stable and fiscally sound macroeconomic environment with sophisticated capital markets, to complement and possibly to compete with reformed public pay-as-you-go pillars.

#### *Facilitating and Simplifying Provision of and Access to Pension Plans*

Provision (supply) of and access (demand) to public pension coverage should be greatly simplified to allow the less privileged (toward whom some benefits are targeted) to get coverage. Several steps should be taken in this regard, including opening rural centers to collect contributions and distribute benefit checks, and maintaining

constant information campaigns and periodic publications to explain how systems work as well as the rationale for frequent (and often obscure) changes in rules. In addition, personnel in national insurance offices should receive better training, with higher supervision to avoid corruption.

*Involving Local Stakeholders, Public Pension Officials, Market Operators, and Sector Experts*

It is often assumed that reform proposals are based on consensus by local experts, domestic academics, and operators of institutions (both private and public) involved in pension systems. But this process is not always the case—and even where it is, it should be more thorough. Thus this assessment proposes sending a questionnaire to such individuals to gather knowledge, ideas, and concerns, and to develop consensus on the direction of pension reforms (see Annex 4.2).

*Promoting Dialogue and Negotiations with Governments*

In line with the previous point, discussions on if, how, what, and when to reform pension systems should involve business and labor organizations and national and international (both policy and academic) experts.

## Annex 4.1. Social Insurance Systems in the English-Speaking Caribbean

Category	Antigua-Barbuda	Barbados	Belize	Dominica
First law	1972 (social insurance) and 1993 (social assistance)	1937 (assistance)	1979	1970 (provident fund)
Current law	Same	1966	Same	1975
Type	Social insurance system plus assistance program	Social insurance system	Social insurance system	Social insurance system
Coverage	Employed and self-employed (16–59), excluding family labor and those with wages less than \$7.50/week	Employed and self-employed, excluding unpaid family labor	Employed persons 14–64, including public servants (compulsory with retirement at 65, with option at 60)	Employed, self-employed, apprentices age 16–60
Retirement age	M60, F60	M65, F65	M60, F60	M60, F60
Ceiling on annual insurable earnings	US\$20,225	Minimum US\$552; maximum US\$18,788	US\$8,320	US\$22,305
<b>Funding</b>				
Public employee	3 percent of earnings	6.7 percent of earnings	1 to 3.5 percent	3 percent of earnings
Private employee	2 percent of earnings	7.25 percent of earnings	1 to 3.5 percent	3 percent of earnings
Self-employed	8 percent of earnings	12.5 percent of earnings	1 to 3.5 percent	7 percent of earnings
Voluntary contributions	n/a	n/a	1 to 3.5 percent	6.1 percent of earnings
Employer	5 percent of payroll	8 percent of payroll	3.5 to 6 percent	7 percent of payroll
Government	Only as employer	Only as employer	Only as employer	None

(continued)

### Annex 4.1. Social Insurance Systems in the English-Speaking Caribbean (continued)

Category	Antigua-Barbuda	Barbados	Belize	Dominica
<b>Eligibility</b>				
Full old age pension	Age 60 + 500 weeks of contributions	Age 65 + 500 weeks of contributions credited with at least 150 paid	Age 60 with 500 weeks of contributions paid or credited with 150 paid	Age 60 + 300 weeks of contributions paid or credited (at least 150 paid)
Reduced pension	350 weeks of contributions	n/a		n/a
Transitional pension	156 weeks (starting before 1975)	n/a		n/a
Old age grant	Age 60+ at least 26 weeks of contributions (before 1975) or 52 weeks	Age 65 + 50 weekly contributions paid or credited	Insured person retiring after 60, not qualifying for a retirement pension; minimum 26 contributions	n/a
Old age assistance	Age 65+, age 60+ if blind or disabled	n/a		n/a
Disability pension	156 weeks of contributions	Less than age 65; 150 weeks of contributions	150 weeks of contributions paid, with at least 110 weeks of contributions paid in last 5 consecutive contributing years	150 weeks of contributions paid or credited
Survivor pension	Insured, disability, or old age pension at death	150 weeks paid by deceased	Insurer was pensioner or eligible at death	Fully insured or pension at death, married 3 years

(continued)

## Annex 4.1. Social Insurance Systems in the English-Speaking Caribbean (continued)

Category	Antigua-Barbuda	Barbados	Belize	Dominica
<b>Old age benefits</b>				
Full pension	25 percent of covered earnings plus 1 percent for each 50 contributions above 500, up to 50 percent	40 percent of average earnings during best 3 years of last 15, plus 1 percent of total earnings per 50 weeks of contributions after 500 weeks of contributions BD\$105/week	30 percent of average weekly earnings, based on highest 3 years in last 15 years + 2 percent per 50 weeks of contributions above 500, and 1 percent above 750 n/a	30 percent of average earnings during best 3 of last 10, + 2 percent of earnings per 50 weeks contributions after 500, and 1 percent per 50 after 750 weeks of contributions n/a
Reduced old age pension or minimum benefit	Proportional to full pension	n/a	n/a	n/a
Transitional pension/spouse supplement	25 percent of earnings, minimum \$136.50/month, maximum \$227.50/month US\$1,200	n/a	n/a	n/a
Old age grant		6 times average weekly earnings for each 50 weekly contributions paid or credited	Greater of 6 times average weekly earnings for each 50 weekly contributions paid or credited, or 2.5 times the sum of earnings divided by weeks of contributions	Lump sum of 3 times average weekly covered earnings for every 50 weeks of contributions paid or credited, if age 60 but ineligible for pension
Old age assistance	\$136.50/month	BD\$86/week	n/a	n/a
Delayed retirement	n/a	n/a	n/a	Increase of 6 percent of regular pension for every year of postponement

(continued)

## Annex 4.1. Social Insurance Systems in the English-Speaking Caribbean (continued)

Category	Antigua-Barbuda	Barbados	Belize	Dominica
<b>Institutional structure</b>				
General supervision	Ministry of Finance and Social Security	Ministry of Finance and Social Security	Ministry of Finance	Ministry of Health
Administration	Social Security Board	National Insurance Office	Social Security Board	Social Security Board
<b>Category</b>	<b>Grenada</b>	<b>Guyana</b>	<b>Jamaica</b>	<b>St. Kitts and Nevis</b>
First law	1969 (provident fund, defunct)	1944 (old age, assistance)	1958 (for sugar workers only)	1968 (provident fund)
Current law	1983	1969, 1981, 1986, 1989, 1992	1966	1977 (social security replaced provident fund); 1996
Type	Social insurance system	Social insurance system	Social insurance system	Social insurance and social assistance system
Coverage	Employed and self-employed (16–59), including public employees	Employees (public and private) age 16–59 and self-employed, voluntary contributions excluding employees earning less than GYD7.50/week, casual employees, family labor	Employees (public and private) and self-employed age 16 and below retirement age, voluntary contributions; excluding casual employees, family labor	Employees (public and private) age 16 and below retirement age, voluntary contributions excluding unpaid family labor
Retirement age		M60, F60	M65, F60	M62, F62
Ceiling on annual insurable earnings	EC\$36,000; US\$13,483	US\$5,064	US\$4,464	US\$29,213

(continued)



**Annex 4.1. Social Insurance Systems in the English-Speaking Caribbean** (continued)

Category	Grenada	Guyana	Jamaica	St. Kitts and Nevis
<b>Funding</b>				
Public employee	4 percent of earnings	4.8 percent of earnings	2.5 percent of earnings	5 percent of wages
Private employee	4 percent of earnings	4.8 percent of earnings	2.5 percent of earnings	5 percent of wages
Self-employed	6.75 percent of earnings	10.47 percent of income	J\$20/week plus 5 percent of earnings, up to \$6,570	10 percent of wages
Voluntary contributions	n/a	8.17 percent of average weekly including 2 years before stopping work	J\$20/week	n/a
Employer	5 percent of covered wage	7.2 percent of payroll	2.5 percent of wages up to \$6,570/year	5 percent of payroll
Government	None	Only as employer	Only as employer	Only as employer
<b>Eligibility</b>				
Full old age pension	Age 60 + 500 weeks of coverage (150 weeks of contributions paid)	Age 60 + 750 weeks of contributions paid or credited (150 weeks of contributions paid)	Age 65 men/60 women, 1,248 weeks of paid contributions and annual average 35 weeks paid or credited	Age 62 + 500 weeks of contributions paid or credited (150 weeks of contributions paid)
Reduced pension	Age 60, 260 weeks of coverage with at least 150 weeks of contributions paid	n/a	Annual average between 13 and 38 weeks	n/a
Transitional pension	n/a	n/a		n/a
Old age grant	Age 60 ineligible for pension, at least 50 weeks of contributions paid or credited	n/a	Lump sum 52 weeks of contributions	For persons not qualified for pension

(continued)

## Annex 4.1. Social Insurance Systems in the English-Speaking Caribbean (continued)

Category	Grenada	Guyana	Jamaica	St. Kitts and Nevis
Old age assistance	n/a	n/a	n/a	Means-tested benefit
Disability pension	Under age 60, 50 weeks of contributions paid	Age 16–59 and permanently disabled, 250 weekly contributions credited (150 weeks of contributions paid)	Permanent disability from 156 weeks of paid contributions and annual average between 13 and 38 weeks	Under 62 years of age, 150 weeks contributions paid
Survivor pension	Deceased was pensioner or eligible for pension	Deceased was pensioner or eligible	1,248 weeks of paid contributions and annual average of 39 weeks paid or credited	150 weeks of contributions paid
<b>Old age benefits</b>				
Full pension	30 percent of average earnings + 1 percent of earnings for each 50 weeks of contributions over 500 weeks	40 percent of average earnings during highest 3 years of last 5 years before age 60 + 1 percent of earnings per 50 weeks of contributions after 750 weeks	Basic component \$10/week; earnings related component \$0.06/week for every \$0.34 of employer-employee contributions paid	30 percent of average wage (highest 3 of last 15 contributing years) + 2 percent of each 50 weeks of contributions credited or paid between 500, and 750 weeks, and 1 percent above
Reduced old age pension or minimum benefit	16 percent of average earnings + 1 percent for each 25 weeks of contributions over 150 up to 350 weeks	Minimum benefit of 50 percent of minimum wage	n/a	E.C. \$200 month; maximum, 60 percent of wages or E.C. \$3,900/month (whichever is less)
Transitional pension/spouse supplement	n/a	n/a	\$3.5 week for dependent's spouse age 55 women/60 men	

(continued)

**Annex 4.1. Social Insurance Systems in the English-Speaking Caribbean** (*continued*)

Category	Grenada	Guyana	Jamaica	St. Kitts and Nevis
Old age grant	Lump sum equal to 5 times average weekly wage for each 50 weeks of contributions	Lump sum equal to one-twelfth of annual insurable wage for each set of 50 weeks of contributions	\$71 with 52 weeks of contributions paid	6 times average weekly wage for every 50 weeks of contributions up to 499 contributions paid or credited
Old age assistance	n/a	n/a	n/a	n/a
Delayed retirement	n/a	n/a	n/a	n/a
<b>Institutional structure</b>				
General supervision	Ministry of Social Services and Labor	Ministry of Finance	Ministry of Labor, Social Security and Sports	Ministry of Education, Labor and Social Security
Administration	National Insurance Board	National Insurance Board	National Insurance Division of	Social Security Board MLSSS
<b>St. Vincent and the Grenadines</b>				
Category	<b>St. Lucia</b>	<b>St. Vincent and the Grenadines</b>	<b>Trinidad and Tobago</b>	
First law	1970 (provident fund, defunct)	1970 (provident fund)	1939 (social assistance), 1971 (social insurance), 1999 amended	
Current law	1978 (National Insurance Act)	1986 (social insurance)	Same	
Type		social insurance system	social insurance and social assistance system	

*(continued)*

**Annex 4.1. Social Insurance Systems in the English-Speaking Caribbean** (*continued*)

Category	St. Lucia	St. Vincent and the Grenadines	Trinidad and Tobago
Coverage	Employed, self-employed, apprentices age 16-65; excluding civil servants	Employed, self-employed age 16-65	Social Insurance: employed person age 16-64, voluntary insurance available; excluding self-employed social assistance: residents age 65+, or 40+ if blind and needy
Retirement age	M60, F60		M60, F60
Ceiling on annual insurable earnings	US\$22,472	US\$16,944	US\$6,873
<b>Funding</b>			
Public employee	n/a	2.5 percent of earnings	2.8 percent of earnings (12 wage classes)
Private employee	5 percent of earnings	2.5 percent of earnings	2.8 percent of earnings (12 wage classes)
Self-employed	10 percent of earnings	6 percent of earnings	n/a
Voluntary contributions	n/a	n/a	7.1 percent of earnings
Employer	5 percent of payroll	3.5 percent of payroll	5.6 percent of payroll (8 categories)
Government	None	None	Full cost of social assistance benefits
<b>Eligibility</b>			
Full old age pension	Age 60 and 12 years of contributions, retirement necessary	Age 60 and 500 weeks of contributions paid	Age 60 or 65 (compulsory) with 750 weeks of contributions paid or credited, with increments if greater than 750
Reduced pension	n/a	n/a	n/a
Transitional pension	n/a	n/a	n/a

*(continued)*

**Annex 4.1. Social Insurance Systems in the English-Speaking Caribbean** *(continued)*

Category	St. Lucia	St. Vincent and the Grenadines	Trinidad and Tobago
Old age grant	Age 60, lacking regular full old age pension	50 weeks of contributions	If ineligible for pension
Old age assistance	n/a	n/a	Means-test pension: age 65+, 20 years residence, income below TT\$5,000/year
Disability pension	Under pensionable age, minimum 5 years of contributions	Under age 60, 150 weeks of contributions disabled	10 weeks for contributions in preceding 13 weeks before onset of illness, payable after 26 weeks of illness
Survivor pension	Insured pensioner at death, widow over 55 or caring for deceased's children	150 weeks of contributions paid by deceased	Deceased insured, with 50+ contributions, or pensioner
<b>Old age benefits</b>			
Full pension	40 percent of average earnings in highest 3 of last 10 years + 0.1 percent per month of contributions over 144 weeks	30 percent of average earnings, increased if over 500 weeks of contributions paid	30 to 48 percent of average weekly earnings, according to 12 wage classes
Reduced old age pension or minimum benefit		\$50 per week	
Transitional pension/spouse supplement		n/a	
Old age grant	Refund of contributions with interest + 7.5 percent of average earnings per year of contributions	6 times average weekly wage for each 50 weeks of contributions	3 times total contributions

*(continued)*

### Annex 4.1. Social Insurance Systems in the English-Speaking Caribbean (continued)

Category	St. Vincent and the Grenadines		Trinidad and Tobago
	St. Lucia		
Old age assistance	n/a	n/a	Means-tested pension: TT\$620/month
Delayed retirement	n/a	n/a	n/a
<b>Institutional structure</b>			
General supervision	Prime Minister's Office	No data	Ministry of Finance (social insurance system), Ministry of Social Development (public assistance and means-tested old age pension)
Administration	National Insurance Board	National Insurance Board	National Insurance Board (managed by tripartite board: government, labor, employers)

Source: Social Security Administration (2001), ICSS (1995), Plamondon (2001); World Bank (1996); Osborne (2001).

## Annex 4.2. Status of and Expectations for National Pension Systems

This questionnaire is designed to gather information on the status of pension systems in various English-speaking Caribbean countries. The information from this questionnaire is subjective because it comes from individuals and institutions involved with pension systems at different levels. Respondents should be chosen among policymakers, market operators, analysts, consultants, and any other institutions involved in and knowledgeable about pension systems in the countries being examined. *The identities of respondents should be kept strictly confidential and not be made public under any circumstances.* The questionnaire could also constitute the basis for a more extensive survey to study the factors of pension reform.

### a. What is the nature of your involvement with “country”’s pension system?

- Policymaker, government
- Pension supervisor, government
- International specialist
- Private sector pension/insurance provider
- Private sector consultant/analyst
- Academic
- Other (specify) \_\_\_\_\_

### I. Current pension system

#### b. What is your general opinion of the current pension system in “country”?

- Very satisfactory
- Satisfactory
- Unsatisfactory
- Very unsatisfactory

#### c. Do you think that the pension system...

- Doesn't need immediate adjustments
- Needs some adjustments (such as increasing the retirement age or contribution rates, changing the benefit formula, and so on)
- Requires major adjustments and possibly structural reform
- Requires major structural reform

**d. What are the main problems with the pension system?**

(indicate all that apply)

- Actuarial unsustainability
- Mismanagement
- Fragmented structure
- Unfair advantages to special groups, inequities
- Low population coverage
- Other (specify) \_\_\_\_\_

**e. What do you perceive as the best/worst pension plans by provider type?**

**Best:**

- State
- Others
- Foreign
- Private

**Worst:**

- State
- Foreign
- Private
- Others

**f. Do you worry about the adequacy of the current retirement system in “country” to provide old age security?**

- No
- Sometimes
- Yes

**II. Pension system reform**

**g. How should the responsibility and burden for old age pension provision be shared in “country” between individuals, employers, and government? (indicate percentage)**

- \_\_\_\_\_ percent individuals
- \_\_\_\_\_ percent employers
- \_\_\_\_\_ percent government

**h. What policy scenario do you consider most likely in the near future in “country”? (may choose more than one)**

- No changes
- Introduction of minor short-term adjustments (such as temporary reduction of benefits)



- Correction of some key parameters of the public system (such as retirement age or contribution rates)
- Establishment of new fully funded scheme, maintaining current public scheme (multipillar)
- Replacement of current public scheme with new fully funded one
- Creation of funded individual retirement accounts
- Other (specify) \_\_\_\_\_

**i. What policy scenario would you favor in the near future for “country”?**  
(may choose more than one)

- No changes
- Introduction of minor short-term adjustments (such as temporary reduction of benefits)
- Correction of some key parameters of the public system (such as retirement age or contribution rates)
- Establishment of new fully funded scheme, maintaining current public scheme (multipillar)
- Replacement of current public scheme with new fully funded one
- Creation of funded individual retirement accounts
- Other (specify) \_\_\_\_\_

**III. A fully funded pension system?**

**j. Is some variation of the “Chilean model” (fully funded, defined contribution, privately managed, individual accounts) a desirable alternative for “country”’s pension provision arrangements and needs? Why?**

- Yes, because \_\_\_\_\_
- No, because \_\_\_\_\_
- Don’t know

If you answered “Yes” to (j), please complete the following questions:

**k. How should supervision for private pension providers be structured in “country”?**

- Autonomous specialized pension supervisory authority
- Autonomous insurance, banking, and pension supervisory authority

- Central bank as pension supervisory authority
- Ministry of finance supervises market for pension providers
- Other (specify) \_\_\_\_\_

**l. What are the main obstacles to such reform? (may choose more than one)**

- Political opposition (please explain) \_\_\_\_\_
- Social resistance (please explain) \_\_\_\_\_
- Labor organizations (please explain) \_\_\_\_\_
- Employer organizations (please explain) \_\_\_\_\_
- Other (specify) \_\_\_\_\_

**m. What role do you think labor organizations should play in future discussions of pension reform?**

- Should play an active role throughout the process, as a major policymaking force
- Should be consulted throughout the discussions and provide feedback and monitoring
- Should be consulted only when broad policy decisions are made
- Other (specify) \_\_\_\_\_

**n. Where should new pension fund administrators invest workers' contributions?**

- At first they should be mandatorily invested in domestic markets, and only later should they be allowed to be diversified internationally
- They should be allowed to be diversified internationally from the start
- Don't know
- Other (specify) \_\_\_\_\_

## REFERENCES

- Bissemer, Enid. 2002. The Role of National Insurance Schemes in Caricom in the Transformation of the Financial System. Paper presented at the Senior Level Policy Seminar, Caribbean Centre for Monetary Studies, 2 May, Port of Spain, Trinidad and Tobago.
- Dowers, Kenroy, Stefano Fassina, and Stefano Pettinato. 2001. Pension Reform in Small Emerging Economies: Issues and Challenges. Technical Paper. Inter-American Development Bank, Sustainable Development Department, Washington, DC.
- Forde, Penelope. 2001. Investing Social Security Reserves in the Caribbean. Paper presented at the Caribbean Sub-regional Tripartite Meeting on Social Security Financing and Investment Policies for Pension Funds, October 24-25. Barbados.
- ICSS (Interamerican Conference on Social Security). 1995. Social Security in the English-Speaking Caribbean. Monographic Series 19. Mexico City.
- Mayers, Stuart, Darrin Downes, and Kevin Greenidge. 2002. Estimating the Size of the Hidden Economies in Barbados. Working Paper. Barbados Central Bank, Bridgetown, St. Michael.
- Osborne, Derek. 2001. Financing Social Security. Options and Strategies. Paper presented at the Caribbean Sub-regional Tripartite Meeting on Social Security Financing and Investment Policies for Pension Funds, October 24-25. Barbados.
- Palacios, Robert, and Montserrat Pallarés-Miralles. 2000. International Patterns of Pension Provision. Social Protection Unit, World Bank, Washington, DC.
- Plamondon, Pierre. 2001. Financing Social Security Pensions. Paper presented at the Caribbean Sub-regional Tripartite Meeting on Social Security Financing and Investment Policies for Pension Funds, October 24-25. Barbados.
- SSA (Social Security Administration). 2001. *Social Security Systems around the World*. Washington, DC.
- UNDP (United Nations Development Programme). 2003. *Human Development Report 2003*. New York: Oxford University Press.
- World Bank. 1996. Poverty Reduction and Human Resource Development in the Caribbean. Caribbean Group for Cooperation in Economic Development.

- Caribbean Country Operations Division, World Bank, Washington, DC.
- . 2000. *World Development Report 2000/2001: Attacking Poverty*. New York: Oxford University Press.
- . 2001. *World Development Indicators 2001*. Washington, DC: World Factbook. Various issues. Washington, DC: Central Intelligence Agency.

## **Private Pension Regulation and Supervision in the English-Speaking Caribbean**

*Kyle Rudden*

**E**fficient private occupational pension schemes are important to a country's economic and social development. This chapter analyzes regulation and supervision of such schemes in 12 English-speaking Caribbean countries: Antigua and Barbuda, the Bahamas, Barbados, the Cayman Islands, Dominica, Grenada, Guyana, Jamaica, St. Kitts and Nevis, St. Lucia, St. Vincent and the Grenadines, and Trinidad and Tobago. Although some of these countries provide off-shore financial services that may include pensions and wealth management, this chapter focuses on retirement schemes for citizens and residents. It does not address unfunded pension arrangements for government employees. Moreover, in many countries state-owned statutory authorities and companies have set up occupational pension plans. These are generally subject to the same regulation as private plans.

The information in this chapter came from a review of country legislation, prior working knowledge, and interviews with industry practitioners. Regulatory and supervisory frameworks were compared with the OECD Guidelines for Pension Fund Governance issued in July 2002.<sup>1</sup> The main goal of those guidelines is to support pension funds as a secure source of funds for retirement benefits—a goal shared by this analysis. General comments on the region's overall compliance with the OECD guidelines are included as Annex 5.1.

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<sup>1</sup> See <http://www.oecd.org/pdf/M00035000/M00035885.pdf>.

**Table 5.1. Direct Regulatory Systems**

Regulation by tax authority	Regulation by other authority	
	No	Yes
Yes	Jamaica Barbados Dominica St. Vincent Grenada	Trinidad and Tobago St. Lucia
No	Antigua St. Kitts and Nevis Bahamas	Cayman Islands Guyana

## The Region's Regulatory and Supervisory Systems

Regulation of private occupational pension schemes in the countries being analyzed here involves three main areas: oversight by tax authorities, direct regulation, and indirect regulation. The effectiveness of this regulation is affected by countries' legal and governance systems—including levels of social acceptance and compliance. (For more details on this regulation, see the country analyses later in the chapter, as well as Annex 5.2. Table 5.1 provides a summary of direct regulatory systems.

### *Oversight by Tax Authorities*

Countries with direct income taxes often provide strong tax incentives to establish occupational pension plans. Tax authorities usually play a supervisory role in such cases. In general, this follows the U.K. model of tax concessions and approval (or, more precisely, the U.K. model of several decades ago). Of the 12 English-speaking Caribbean countries considered here, 8 impose direct income taxes: Barbados, Dominica, Grenada, Guyana, Jamaica, St. Lucia, St. Vincent and the Grenadines, and Trinidad and Tobago.

#### *Tax Concessions*

Tax concessions for private occupational pension systems, whether guided by law or practice, typically allow:

- Deductibility of employee contributions for income tax, usually subject to limits as a percentage of income or in fixed amounts
- Deductibility of employer contributions for corporate tax, often subject to less stringent or less well-defined limits than those on employee contributions<sup>2</sup>
- No taxation of employer contributions to employees
- Exemption of pension plan contribution and investment income from tax
- Beneficial tax treatment of some benefit payments, though actual pensions are generally subject to income tax
- Some portion of the pension (typically 25 percent) to be converted into a tax-free lump sum. (Jamaica is the only country where the lump sum is subject to a fixed maximum, rather than a percentage.)

Unlike in several industrial countries, there are generally no negative tax consequences for overfunded pension plans.

### *Formal Regulation*

Supervision by tax authorities is generally limited to approval of initial pension plan documents and any amendments; there is little or no involvement in ongoing plan governance or regulation. To be approved, plan documents must be structured in a way acceptable to the authorities. This may be a function of legislation as well as practice.

Tax-driven pension legislation in the seven countries analyzed in this section is similar in many ways. For example, all the countries require pension plans to be established as formal trusts and provide for minimum retirement ages and maximum benefits. These regulations are aimed at minimizing tax avoidance and ensuring that plans are used to provide retirement benefits. In addition, legislation or practice covers some governance issues. For example, plan documents must require some form of member representation and provide for audits and actuarial valuations.

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<sup>2</sup> Guyana is the only country with taxes that does not allow income tax deductions for pension contributions. As a result the tax authorities in Guyana play no role in supervising pension arrangements.

### *Informal Regulation*

In countries where the tax authorities are the only regulatory agency, it is not unusual for them to step beyond their theoretical legal powers. For example, they may refuse to approve plan amendments that comply with the legislation but that in their opinion are inequitable to members. Because there are often delays in obtaining approval, it is not uncommon for pension plans to be administered using rules that have not been formally approved—sometimes for many years. In addition, there are sometimes inconsistencies over time or between plans.

### ***Direct Regulation***

The following issues are dealt with in greater detail in the discussion below on individual countries.

#### *Insurance Regulator*

In St. Lucia and Trinidad and Tobago, in addition to being approved by the tax authorities, pension plans must be registered under the insurance legislation. Registration under the insurance legislation is also required in Guyana. The insurance legislation in the three countries is very similar. Pension plans are subject to regulation by the insurance supervisory authority.

#### *Pension Regulator*

In the Cayman Islands, which has no direct taxes, occupational pension plans are mandatory and overseen by a National Pensions Act and a pension regulator. During 2004, insurance regulation in Trinidad and Tobago was subsumed into wider financial services supervision by the Central Bank.

### ***Indirect Regulation***

Aspects of pension plan management are often delegated to third party institutions such as corporate trustees and investment managers. The level of indirect regulation arising from such delegation largely depends on the sophistication and strength of the financial service regulation in the relevant country. For example, corporate trustees



and institutional investment managers are typically regulated by financial service regulators. Insurance companies and brokers providing pension services should be subject to the supervision of some form of insurance regulator. In addition, subsidiaries or affiliates of foreign firms may be subject to regulation based on the legislation of the parent company's country.

In addition, there is reliance on professionals such as auditors and actuaries. There is also indirect regulation when services are provided by members of professional associations with codes of ethics and operational and disciplinary standards—including attorneys, bankers, investment advisers, accountants, and actuaries. Membership in widely recognized international professional associations is a definite advantage in marketing services to pension plans in the Caribbean. Thus professionals tend to self-regulate their actions to avoid loss of such membership.

Pension plan governance may also be indirectly regulated or affected by labor or social legislation. One example would be legislation preventing discrimination against part-time workers in the provision of benefits, including pensions. Another would be legislation requiring common law spouses to be given rights similar to spouses in registered marriages.

## ***Legal Systems***

### *English Common Law*

All the countries reviewed here inherited legal systems based on English common law, which includes strong equitable protection for beneficiaries under trusts. Until recently the U.K. Privy Council was the court of final appeal for these countries. This is changing for several countries with the introduction of the Caribbean Court of Justice.

### *Trust Law*

Pension plans in the Caribbean are set up under trusts, either through legislation or by practice. Each country typically has a trustee act, based on U.K. legislation, that deals with basic concepts and regulation of trusts. Trustees of modern pension plans are also guided by the fairly extensive U.K. and Commonwealth case law on trusts and pension trusts. The influence of U.S. pension law is limited, though some countries and institutions use it as a benchmark.

### *Canadian Influence*

There seems to be a general trend toward Canadian-type legislation in the Caribbean. Legislation in the Cayman Islands, and the soon to be implemented Pensions Act in Barbados, draw heavily on Canadian legislation. Legislation in Jamaica and Trinidad and Tobago will also likely incorporate further aspects of Canadian law.

## **Governance Systems**

### *Social Contract*

For a system of governance to succeed, it must be accepted by society as a whole. A governance system assumes that system participants will generally agree with and comply with its guidance. If this assumption is invalid, governance will fail or be inefficient. For example, a formal governance system cannot operate effectively if there is endemic corruption and nepotism. If there is failure to enforce the social contract at that level, attempts to introduce governance systems may be a waste of time.

Regulation is most effective in societies with strong social cohesion and pressure to conform to standards and values. Of all the Caribbean countries, Barbados has the greatest social cohesion and the highest Human Development Index. Social security contribution rates and living standards are high, and labor, business, and government work together to achieve national development goals. This social cohesion is reflected in ratings by international credit rating agencies such as Standard & Poor's.

### *Implicit Assumptions*

Ideally, the governance system should provide guidance on how regulation should operate. For regulation to be effective, instances of material noncompliance should be the exception rather than the norm. The practical consequences of deliberate and persistent material breach must be obvious and nontrivial. There must also be implicit reliance on the efficient function of support systems such as the courts. If these support systems do not function well, the introduction of new legislation will be largely cosmetic in effect.

Other issues for effective regulation include the resources allocated to the regulatory function and the political will to enforce regulation. These are also affected by the priority given to the regulatory process by society as a whole.

### *Economic, Social, and Political Stability*

No occupational pension system can survive national economic collapse. For example, if real investment returns are consistently negative, workers have no incentive to save or to prefund pensions. Similarly, where there are sudden large inflationary shocks, defined benefit plans will tend to move into deficit positions too large to be funded. And while defined contribution plans may remain in actuarial balance, their benefits will be meaningless. The typical responses are to effectively abandon pension promises or employee expectations, or to move to modified pay-as-you-go funding systems. This was the approach that Guyana took after liberalizing its economy in the 1990s.

When it comes to pension schemes, the main goal of any governance system is to provide security for promised benefits. This goal cannot be achieved without a wider context of social, economic, and political stability. Ideally, then, a governance system should promote such stability.

### **Domestic, Regional, and External Influences**

The region's private occupational pension systems are subject to many influences, including demographics, development goals, foreign investment restrictions, market participants, regional integration efforts, HIV/AIDS, and conversion of defined benefit to defined contribution schemes.

### ***Demographics***

With the possible exception of Barbados, Caribbean countries have young populations, with at least a quarter of the population under age 15. Over the next 20–40 years this demographic structure is projected to change, leading to a much larger elderly population. To ensure the stability of social security systems, retirement ages will likely start to rise over the next 5–10 years. This increase will probably also occur in occupational pension plans. As populations age, more voters take interest in pension plans, and governments become more likely to pass legislation benefiting current and potential pensioners.

## *Development Goals*

One of the challenges of pension plans in developing economies is finding suitable long-term investments. The extent to which these long-term funds can be used to advance the process of development is debatable.

### *Specific Issues*

Unemployment and underemployment are relatively high in the countries considered here, especially among young groups. Caribbean economies are small, and key industries are susceptible to economic shocks from international events as well as increased global competition. Infrastructure for economic development and transformation is lacking in several areas. Capital markets are thin and underdeveloped. Telecommunications and education systems require greater resources if the region is to avoid becoming increasingly irrelevant.

In many countries informal employment accounts for a significant share of economic activity. Informal workers are typically not covered by social security or private pension systems. Although beyond the scope of this chapter, coverage of such groups is critical to equitable and suitable national development.

### *Balancing Objectives*

The development agenda has policy implications for national and regional pension plan governance and legislation. The overriding objective—to provide pension plan benefits when due—could, and possibly should, be balanced with social and national development needs. For example, pension plans could be allowed to invest some of their funds in “developmental” or “socially responsible” activities. But developmental activities tend to become politically motivated, and socially responsible investments are often financially unproductive because they are not carefully managed. Pension plans cannot be perceived as providers of grant funds.

This is a difficult matter to judge. On balance, there is no reason an occupational pension plan should not be allowed to invest a small portion of its assets in risky ventures such as venture capital, oil and gas, and the like. This approach would be especially appropriate for pension plans in actuarial surplus. By means of comparison, several industrial countries allow occupational pension plans to self-invest in the employer to some small degree, which by definition increases risk.

On the other hand, this approach requires caution. For example, it is difficult to make a case for mandatory direct investment in national development projects. If such projects are obviously financially viable, or there is a government guarantee, then there should be no need for mandatory investment. If not, mandatory investment would be akin to a tax.

### *Jamaica's Experience*

As an example, in Jamaica in the 1990s, life insurance companies, pension plans, and the social security system invested heavily in large, illiquid real estate and tourism projects. Among the reasons offered for supporting these investments were the absence of other investments, the need to support national development goals such as employment, and the high long-term yields available. But most of these projects failed—and while many other issues led to the collapse, it is arguable that the mantra of national development was taken too far. On the other hand, Jamaica's experience points to the very real problem of limited investment opportunities and market failure in Caribbean economies.

### ***Restrictions on Foreign Investment***

Many English-speaking Caribbean countries have formal or informal controls on foreign exchange, including Barbados and members of the East Caribbean Currency Union: Antigua and Barbuda, Dominica, Grenada, St. Kitts and Nevis, St. Lucia, and St. Vincent. Even in countries that do not have such controls, such as Jamaica and Trinidad and Tobago, there are limits on overseas investments by pension plans. Many investment managers have argued that these limits constrain their choices and depress their returns. They want to diversify their portfolios and obtain access to asset classes not available locally. In some cases there is also a desire to hedge or speculate against expected local currency depreciation. Not surprisingly, foreign investment management companies also lobby for relaxation of such restrictions.

One obvious counter-argument is the basic asset-liability management theory that assets should be denominated in the same currency as liabilities, and that any mismatch should be supported by capital in case the position moves against expectations. Less obvious are standard arguments for retaining domestic funds in local economies for national development. Governments interested in maintaining stable exchange

rates are not particularly happy to see large external flows of pension plan funds. Such flows can also reduce the economic influence of their monetary policy. The issue of foreign investment is probably best debated at the national level, because different countries have different objectives.

### ***Market Participants***

There are relatively few providers of services to pension plans in the region. Service providers include life insurance companies, trust companies, auditors, and accountants.

#### *Insurance Companies*

Three regional insurance companies/groups provide a large portion of pension administration and investment services in the Caribbean, especially in the eastern Caribbean:

- CLICO/British American (although CLICO and British American are competitors in the pension market, there is overlap among their ultimate ownership)
- Sagicor (formed by the takeover of Life of Barbados by Barbados Mutual and its subsequent demutualization)
- Guardian Life.

#### *Trust Companies*

Trust companies, generally affiliates of commercial banks, act as trustees for most pension plans in Trinidad and Tobago and the eastern Caribbean. Individual trustees are more common in Jamaica and to a lesser extent in Barbados. Trust companies typically also provide investment management services.

#### *Auditors*

Most English-speaking Caribbean countries have national accounting institutes that are members of the International Federation of Accountants (IFAC) and the Institute of Chartered Accountants of the Caribbean (ICAC). Thus audits are supposed to be carried out according to IFAC standards. Larger international audit firms are well represented, and are subject to internal reviews by their international affiliates. Such

firms audit most large companies and pension plans. Apart from this, accounting institutes do not conduct practice reviews of member accountants; they only investigate specific complaints. The ICAC is currently reviewing the development of a regional practice monitoring unit.

Most national accounting institutes have adopted the International Financial Reporting Standards promulgated by the International Accounting Standards Board. Institutes that have not formally adopted these standards have used them either to guide national standards or as de facto standards.

### *Actuaries*

All actuaries in the Caribbean pension market are qualified members of the U.K. or North American professional actuarial associations. These international bodies provide professional guidance, including minimum standards for preparing pension valuation reports. The use of a qualified actuary is required by legislation in most countries, and by practice elsewhere. Some actuarial services are provided by actuaries from outside the region.

There is some variation among firms and actuaries on the content of valuation reports. Assumptions for valuations are generally quite conservative and set by individual actuaries. This conservatism partly reflects the absence of proper information and investment markets. There is little or no review by regulators of actuarial assumptions.

Most Caribbean actuaries are members of the Caribbean Association of Actuaries (CAA), an umbrella body seeking to expand its role in providing guidance and supervision. The CAA has qualified for observer status in the International Actuarial Associations and is working toward full membership. The CAA's goals are supported by U.K. and North American actuarial associations, which have stated that regional monitoring and regulation of their members would be more efficient.

### ***Regional Integration Issues***

Regional integration issues affecting pension plan regulation include legislative convergence, freedom of movement of labor, tax regimes, and more efficient use of regulatory resources.

### *Legislative Convergence*

The case for regional integration of pension plan regulation is easy to make. For many years there has been general agreement in the Caribbean Community (CARICOM) to harmonize legislation in several areas. But doing so has proven difficult. As a result insurance and pension legislation varies by country.

Across the region, there appears to be a move toward legislation that reflects regional supervision concepts—particularly in larger countries. Still, significant differences remain between countries. For example, recent recommendations for revisions to pension legislation in Trinidad and Tobago were quite different from proposed pension acts in Barbados and Jamaica. Regional political, commercial, and professional bodies should try to make national laws more consistent.

### *Freedom of Worker Movement*

One area of direct interest to pension plans is freedom of worker and enterprise movement within the Caribbean Community. Related to this is the growing number of Caribbean corporations with operations in more than one country. From the perspective of employers, it would often be efficient to allow such organizations to have one group pension plan. But different tax jurisdictions make this difficult.

For example, an employee could work in Barbados and receive tax relief for his or her pension contributions. Could that employee then retire in Antigua and not pay income tax on his or her pension? Another difficulty arises when pension plans have to be registered locally under insurance or financial services legislation. The region's policymakers should give this area some consideration.

An agreement in place allows for the coordination of social security benefits for people employed in various Caribbean countries. Extending this practice to the private pension market would require changes in attitudes and legislation. Though currently unlikely, it would not be inconceivable to have a cooperative regime that allowed nationals of one country to be covered by an occupational pension plan in another country. That is, once the pension plan is approved in the other country, it is also approved for local tax and regulatory purposes.

This approach could provide economies of scale in investment and administration. But it could also cause a loss of domestic investment capital and transfer of operations and resources to the regime perceived as most favorable by employers. A



loss of sovereignty could also occur, because nationals and their savings could be subject to foreign pension standards. For example, one country may require minimum benefits not required by another. Similarly, no nation with extensive regulation would be comfortable ceding regulatory sovereignty to a poorly regulated country. Thus there must be coordination of regulation, or at least agreed standards of governance. It is debatable whether such agreement must be preceded by convergence or could act as a catalyst for convergence. Such agreements are most likely to develop between countries with similar regulations, philosophies, and practices.

### *Reduced Costs*

Pension plan integration could also help address the region's lack of supervisory resources. Most countries, unless otherwise supported by staff supervising offshore financial services, have a hard time finding sufficient technical expertise for supervisory departments. Regulatory fees, where they exist, are generally nominal and do not cover the costs of regulatory departments. To be effective, any increase in regulation would require a significant increase in costs.

An alternative approach would be to contract some aspects of regulation to experts in other countries. Doing so would be politically easier than establishing regional regulators, because sharing scarce resources and information between countries is less likely to be considered an imposition on national sovereignty. For example, the actuarial review of pension valuations submitted to the regulator in one country could be contracted to an actuary employed by the regulator in another country. This approach would keep down plan costs and increase the perceived independence of regulatory decisionmaking. It would also improve regulators' cross-jurisdictional understanding and relationships.

When foreign resources are used, costs can be reduced if countries share them. For example, in 2002 the Institute of Chartered Accountants in Jamaica and in Trinidad and Tobago together hired a consultant to write reports on the observance of auditing and accounting standards and codes for both countries. But such cooperation is rare.

### *External Pressures*

External pressures are expediting regional integration and making it more necessary. These pressures include:

- Global trade liberalization—particularly the World Trade Organization (WTO), General Agreement on Trade in Services (GATS), and Free Trade Area of the Americas (FTAA) negotiations scheduled to occur around 2005
- Anti-money-laundering and anti-terrorism directives affecting financial services, such as the pronouncements of the Financial Action Task Force (FATF) and its Caribbean arm (CFATF).

Regardless of whether Caribbean countries integrate with each other, in the near future they will be forced to integrate with the rest of the world.

### ***HIV/AIDS***

HIV and AIDS infection rates are relatively high in the Caribbean, second only to Sub-Saharan Africa. Though alarming, these data must be put in context. Infection rates in the Caribbean are 1 percent or less—while in Southern Africa they are 20–30 percent. Still, as recently as 10 years ago some Southern African nations had infection rates as low as 1 percent. As individual countries and as a region, what happens with HIV/AIDS over the next 10 years is up to the people of the Caribbean.

A significant reduction in the active working population has obvious demographic implications for any pension or social security system. There are also some less obvious issues. For example, in South Africa many defined benefit pension plans have gone into deficit because of generous illness and death benefits for workers.

### ***Conversion from Defined Benefit to Defined Contribution Schemes***

Around the world, there has been a growing trend among pension schemes to shift from defined benefit to defined contribution arrangements. This shift has been partly caused by tighter regulatory requirements and new accounting standards. In addition, changing employment patterns have made traditional benefit structures less relevant. This pattern has already been reflected to some extent in the Caribbean, and is expected to accelerate with the increased regulatory requirements in Jamaica and Barbados.

## Countries with No Formal Regulation of Pensions

Antigua and Barbuda, St. Kitts and Nevis and the Bahamas have no formal regulation of pension plans. They have limited or no direct income taxes and no legislation directly governing occupational pension plans. Little information is available on the size of pension markets in these countries.

### *Antigua and Barbuda and Saint Kitts and Nevis*

Antigua and Barbuda and St. Kitts and Nevis have no or low income tax rates and relatively high corporate tax rates. No tax concessions are provided to occupational pension plans, except possibly deferral of investment income under a trust. There are no legal requirements for pension plans to be filed or registered with the tax authorities or the insurance supervisory authorities.

As in most eastern Caribbean countries, occupational pension plans have limited penetration—partly because of the lack of tax incentives. But also as in other eastern Caribbean countries, there are reasonable levels of social security and relatively few medium-size and large employers. The pension plans that exist are usually managed by insurance companies or trust companies. In such cases there is reasonable indirect and self-regulation by pension plan managers, including standard items such as trust documents, booklets for employees, audits, actuarial valuations, and so on.

### *The Bahamas*

The Bahamas has no direct income or corporate taxes. There is no legal requirement for pension plans to be filed with the tax authorities or the insurance supervisory authorities. The lack of tax incentives has limited pension plan growth, though penetration may be proportionately greater than in the untaxed countries in the eastern Caribbean such as Antigua and Barbuda and St. Kitts and Nevis. The group pension plans that exist are largely defined contribution arrangements.

The Bahamas is a reasonably sophisticated offshore center influenced heavily by its close proximity to the United States. A reasonable degree of indirect, informal, and self-regulation is exercised in the pension market. Pension fund management

companies are generally regulated as financial institutions or investment providers. Providers generally comply with reasonable international best practices or even U.S. standards. Trusts, independent audits, and actuarial valuations are common.

Although legislation to regulate pension plans under insurance law was drafted several years ago, implementation does not seem to be a priority at this time.

### **Countries with Only Tax Regulation of Pensions**

Pension plans in Jamaica, Barbados, Dominica, Grenada, and St. Vincent and the Grenadines are subject to regulation by the tax authorities only. Jamaica and Barbados are completing transition to more formal regulation by financial service authorities.

#### ***Jamaica***

Jamaica has about 1,500 occupational pension plans, though some of these may not be active. This figure includes many very small pension plans with 10 or fewer members. These small plans are largely managed by insurance companies and other service providers. Sagicor and Guardian subsidiaries control the insurance market in Jamaica, which accounts for about one-quarter (by value) of the pension market. The total pension market is worth some \$2 billion.

Jamaica's financial services sector is relatively well developed, and its financial markets are probably the most sophisticated—and certainly the most liquid—in the Caribbean. Regulation of most financial services has strengthened considerably since the financial collapse of the late 1990s.

Pension plans, however, are formally regulated only by the tax authorities. Moreover, this regulation is limited to approval of plan documents on establishment or alteration. Audited financial statements and actuarial valuations are prepared as a matter of practice and are usually specified in plan documents.

Individual trustees are common, and there is no requirement for member representation. Many trustees, especially in small plans, are unaware of their legal responsibilities and rights. Significantly stronger legislation has been drafted, including requiring pension plans and market participants to register with the Financial Services Commission. This is likely to come into force in early 2005.

## ***Barbados***

The Barbadian market for occupational pensions is somewhat anomalous by Caribbean standards. Elsewhere in the region, most countries with generous social security systems have few occupational pension plans. Barbados has the region's highest social security contribution rates—employers and employees combined currently contribute close to 20 percent of employee income. Still, most companies have healthy occupational pension plans that are largely integrated with the national insurance system. Possible reasons for the high penetration of pension plans in Barbados, relative to its neighbors, include the country's higher disposable income, stable economic fundamentals (including low inflation), older population, stronger savings ethic, and weaker propensity to consume.

Barbados has a relatively old population for a Caribbean country. As a result it has started to raise future retirement ages in the social security system. Retirement ages in occupational pension plans may follow suit.

Most Barbadian pension plans are invested in mutual funds or deposit administration contracts with Sagicor. Sagicor also administers most of these plans. There are only a few directly invested pension plans. The total market size is worth about \$1 billion.

Formal regulation of occupational pension plans occurs under the tax law. The approval of the tax authorities is required for original plan documents and any subsequent amendments. Triennial actuarial valuations and annual audited financial statements are prepared as a matter of course. The industry appears well regulated, with few reported conflicts or problem areas. Barbados has a strong informal regulation system by Caribbean standards, including social and corporate conservatism. In addition, the workforce is relatively well educated and concerned about pension issues, which is a significant stabilizing factor.

At the time of this writing, a Pensions Act had been passed by the Barbadian Parliament and the regulations required for implementation were expected to be developed. The act—based on the pension legislation in Ontario, Canada, with minor modifications—will create a new position, the supervisor of pensions. It will also deal with all the areas covered by the OECD pension guidelines.

In addition to governance, the Pensions Act deals with social issues such as minimum and maximum benefits. Currently in Barbados, pension plan members

can cash out the effective value of employer contributions and their own contributions by leaving service prior to retirement. This option will be eliminated in the new act. A similar provision in recently proposed Jamaican legislation was widely resisted and so deemed politically unacceptable—showing how different societal perspectives can influence governance and legislation. The Barbados act also tries to address cross-border pensions and other matters of wider importance.

Some private sector actors have said that the proposed legislation represents excessive regulation. Given the stability of the Barbadian pension system, there may be some truth to this assertion. It would not be the first time that a Caribbean country has had to adopt complicated foreign legislation. Moreover, doing so will certainly increase the cost of regulation.

### ***Dominica and St. Vincent and the Grenadines***

Dominica and St. Vincent and the Grenadines provide tax relief on contributions to pension plans set up under trusts and approved under the countries' income tax acts. The requirements for approval are much the same as in St. Lucia (see below), except that there are no requirements to register pension plans with insurance regulators. Audited financial statements are prepared annually, and actuarial valuations about every three years. As in most eastern Caribbean countries, the pensions market is driven by insurance companies and brokers.

### ***Grenada***

Grenada's Income Tax (Superannuation Funds) Regulations provide for the approval of pension plans under trust subject to certain minimum requirements. There are fewer restrictions than in the income tax acts of Dominica and St. Vincent and the Grenadines, and employee contributions are returned upon leaving service.

### **Countries with Tax and Financial Services Regulation of Pensions**

In Trinidad and Tobago and St. Lucia, pension plans are subject to regulation both by tax authorities and the insurance or financial service regulators.

## *Trinidad and Tobago*

Trinidad and Tobago's pension market is well developed, with an estimated size of \$2–3 billion—making it the largest in the English-speaking Caribbean. There are approximately 200 registered pension plans established under trust, with corporate trustees more common than individuals. Life insurance companies provide investment management and administration services to about half of the market, or some 20 percent by value. Guardian Life and CLICO are the largest insurance participants in the pension market. Trust companies affiliated with commercial banks also provide investment management services and account for most of the remainder.

### *Formal Regulation*

Pension plans in Trinidad and Tobago are regulated by the Board of Inland Revenue under the Income Tax Act and by the Supervisor of Insurance under the Insurance Act. To be approved by the tax authorities, plans must be established under trusts and meet certain requirements. The Board of Inland Revenue usually applies the requirements of draft pension regulations when determining whether to approve plan documents. The tax authorities are generally involved in plan governance only when a plan is introduced or amended. Still, plan rules usually reserve certain powers for the tax authorities. For example, a maximum benefit clause may read that “the pension shall not exceed two-thirds of the highest pensionable salary or such other amount allowed by the Board of Inland Revenue.”

No pension plan or amendment is valid unless registered under the Insurance Act, and the Supervisor of Insurance will not approve plan documents that have not been approved by the Board of Inland Revenue. The Insurance Act requires certain standards, such as filing of audited financial statements and actuarial valuations. The latter become publicly available. The act also gives the Supervisor of Insurance rights of intervention and the ability to sue for breach of trust as if he was a beneficiary.

### *Prospects*

Legislation to transfer the Supervisor of Insurance to the Central Bank was passed in April 2004. This move is part of efforts to integrate supervision of financial services and should improve regulatory resources. In addition, Canadian consultants recently

made recommendations to improve regulation of insurance companies and pension plans. But these recommendations met with industry resistance and have been deferred pending further review. A detailed and updated regulatory framework should be implemented during 2005.

### ***St. Lucia***

St. Lucia provides tax advantages to pension plans approved under the Income Tax Act. Pension plans must also be registered with the Registrar of Insurance under the Insurance Act. Requirements for approval and registration are fairly standard for Caribbean legislation and similar to the provisions in Trinidad and Tobago. Audited financial statements are filed annually with the registrar, and actuarial valuations are filed every four years.

## **Countries with Non-Tax Authority Regulation of Pensions**

In the Cayman Islands and Guyana, the tax authorities play no role in formal regulation of pension plans. Pension and insurance regulators provide oversight of the sector.

### ***Cayman Islands***

The Cayman Islands is the only Caribbean country where employers are required to offer pension plans and provide minimum benefits. Disposable incomes, living costs, and per capita GDP and GNP are high by regional standards. The country's main sources of income are offshore financial services and to a lesser extent tourism. There is a significant expatriate population, and the local population is relatively small. There are no direct income or corporate taxes, so there are no tax incentives to create pension plans—which was one of the reasons occupational pension plans were made mandatory. Another was to reduce reliance on and supplement national social security programs.

#### *Legislation*

Cayman pension legislation and its extensive regulations, passed in 1996 to 1998, are quite comprehensive—covering pension plan administration investments, actuarial



valuations, and audits. The legislation, which is very prescriptive and detailed, was largely based on Canadian regulation, with some U.K. influence. It deals with all the issues identified in the OECD guidelines and many others.

There is one possible exception to the OECD guidelines. The legislation does not appear to require any form of reporting to the authorities of unresolved problems by actuaries and other pension plan service providers. But there is a requirement for “whistle blowing” by auditors.

### *Practical Implications*

Under the law, employers must provide pension plans for national and nontransient expatriate employees. The law has led to the creation of numerous defined contribution arrangements; the regulatory burden is apparently too great for defined benefit arrangements. Multiemployer plans that cater to the needs of small employers are the most common way of dealing with the many regulatory requirements placed on pension plan administrators. Multiemployer and industrywide plans are not common in other Caribbean countries.

### *Guyana*

Although Guyana is a taxed jurisdiction, few tax concessions are granted to pension plans. For example, contributions to pension plans do not reduce income taxes. As a result the tax authorities are not involved in the creation, amendment, or supervision of pension plans.

Guyana recently introduced an Insurance Act similar to those in Trinidad and Tobago and St. Lucia. As an initial step, the new Commissioner of Insurance, who is an actuary, has requested existing pension plans to register under the Insurance Act.

### **Conclusion**

Most Caribbean pension plans are subject to limited formal regulation by government and industry authorities. In many countries the documents establishing and amending plans are subject to approval by tax and in some cases insurance or other financial service regulatory authorities. But in countries where there is little or no

tax advantage associated with a formal pension plan, there is usually no formal regulation.

Formal regulation, however, is often supplemented by indirect and informal regulation. For example, audited financial statements and actuarial valuations are generally prepared according to international standards. As providers of financial services, pension plan investment managers and service providers are subject to indirect regulation. And protection of beneficiaries under U.K.-based trust law provides a strong, common regulatory foundation. Still, it is difficult to assess the efficiency and effectiveness of informal regulatory systems.

Other checks and balances can contribute to good governance of pension schemes:

- A well-informed population and consumer awareness groups
- Trustees and management committee members aware of their rights and responsibilities
- Harmonious employer and employee relations that facilitate open communication and genuine partnership on issues such as pension arrangements
- Social cohesion and moral suasion, leading people to do “what is right” for fear of social or economic ostracism
- A judicial system that facilitates rapid, cost-effective redress for breach of trust and other issues
- A stable macroeconomic framework.

Pension legislation in the English-speaking Caribbean falls short relative to OECD guidelines. Some of this shortfall is made up by market practices and self-regulation as well as by indirect and informal regulation. Serious consideration should be given to codifying best practices in line with the OECD guidelines. Stronger legislation is expected to be introduced in Barbados, Jamaica, and Trinidad and Tobago during 2004-2005. But the cost and availability of resources to perform regulatory functions are a serious constraint. Thus there is a strong argument for some type of regional cooperation and adoption of minimum standards.

## ANNEX 5.1. GENERAL COMMENTS ON CARIBBEAN COMPLIANCE WITH OECD GUIDELINES

As noted, OECD Guidelines for Pension Fund Governance issued in July 2002 aim to support pension funds as a secure source of funds for retirement benefits.<sup>3</sup> The following sections, arranged according to the main areas of the Guidelines, describe typical Caribbean practice. Cayman legislation (except in requiring actuaries to report to the regulator) deals extensively with all OECD guidelines. Draft legislation in Barbados also covers these areas.

### *Identification of Responsibilities*

Pension plan documents and contracts with financial institutions generally identify the main governance issues. Documents for plans that have been around for several decades may not address all relevant issues.

### *Governing Bodies*

Trustees are the legal governing body in almost all cases. Several countries require a management committee to be established where there is a corporate trustee, in which case committee members are de facto trustees. Most individual trustees and management committee members are unaware of their rights and responsibilities. In many cases, especially in small pension plans, they simply rubber stamp the decisions or recommendations of the pension service provider.

There is some variation across countries in who appoints and pays service providers. Plan documents usually provide for these functions to be performed by trustees, possibly with the input or consent of the employer, management committee, or both. Legally, trustees and management committee members should review the performance of the service providers they appoint. But that may not occur as frequently or as rigorously as it should, especially in small plans.

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<sup>3</sup> See <http://www.oecd.org/pdf/M00035000/M00035885.pdf>.

### ***Expert Advice***

There is generally no legislative requirement for trustees to take expert advice. But general trust law requires trustees to obtain advice in areas where they are not competent. Corporate trustees and professional investment managers are usually competent in the relevant investment and pension areas. Trustees of small plans often rely on advice from consultants and professional investment managers.

### ***Auditors***

Independent audits are carried out annually, usually as a requirement of legislation and certainly as a matter of practice. In many countries these reports are not filed with any supervisory body. Auditors are generally appointed by trustees and are usually local accountants. Except in the Cayman Islands, there are no requirements for auditors to report material problems to regulatory authorities.

### ***Actuaries***

In practice and in many cases by legislation, actuarial valuations must be performed periodically—usually every three years. The comments above on the appointment of auditors apply to the appointment of actuaries. There are no requirements for actuaries to report negative findings to regulatory authorities.

### ***Custodians***

There has been an increase in the use of custodial trustees to hold assets in large countries and for large plans. Custodians are generally appointed by trustees, subject to normal commercial arrangements. Again, there are no legal requirements for custodians to report matters to regulatory authorities.

### ***Accountability***

By case law more than legislation, trustees are accountable to plan members for their actions. Most plans call for regular meetings of trustees or management committee

members, though this is often neglected, especially for small plans. Decisionmaking is normally by majority vote, but decisions are usually not formally communicated to plan members. With the possible exception of Jamaica, it is the practice and in most cases law that members must be represented on a plan's governing body—usually by election of a representative trustee or management committee member.

### ***Suitability***

There are no legal requirements for trustees or management committee members to be fit and proper or experienced persons. Some basic regulation may exist—for example, excluding undischarged bankrupts. Corporate trustees are regulated under financial institution legislation.

### ***Internal Controls***

Formal internal control systems exist only in the region's large plans, or indirectly through the involvement of large institutional service providers.

### ***Reporting***

Most countries do not have regular reporting requirements. That is, while audited financial statements and actuarial valuations may be prepared, they are not filed with any government agency. Even in countries that require filing, long delays and non-compliance are not uncommon.

### ***Disclosure***

New members typically receive information on plan benefits, as a matter of good employee relations and marketing of pension services. The level of updates to this information depends on national, employer, and provider practices. More sophisticated employers and providers provide annual or triennial benefit statements for members, but this is not the norm. Members of defined contribution plans generally do not receive information on the plans' investment strategies. Members can usually request to see plan documents, audited financial statements, and valuation reports.

### *Redress*

In theory, there is strong case law support for the protection of beneficiaries under a trust. Despite this, few pension cases are taken to litigation. Reasons for this include the high costs and long timeframe of formal litigation, as well as unsophisticated consumer markets. Alternative dispute resolution methods are rarely used.

**Annex 5.2. Features of Private Occupational Pension Regulation in Various English-Speaking Caribbean Countries**

Feature	Antigua and Barbuda,		Cayman Islands		Dominica, Grenada		Guyana		Jamaica		St. Lucia		St. Vincent and the Grenadines		Trinidad and Tobago		
	St. Kitts and Nevis	Bahamas	Barbados	Barbados	Islands	Grenada	Grenada	Guyana	Jamaica	St. Lucia	St. Vincent and the Grenadines	St. Vincent and the Grenadines	Trinidad and Tobago	Trinidad and Tobago	Trinidad and Tobago	Trinidad and Tobago	
Income taxes	No	No	Yes	Yes	No	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	
Tax concessions	N/A	N/A	Yes	Yes	N/A	Yes	Yes	No	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	
Penetration <sup>a</sup>	Low	Moderate	High	High	Mandatory	Low	Low	Low	High	Low	Low	Low	High	Low	High	High	
Pension-related regulation																	
Pensions act	No	No	Draft	Draft	Yes	No	No	No	Draft	No	No	No	No	No	No	No	No
Insurance act	No	No	No	No	No	No	Yes	Yes	No	Yes	No	Yes	No	No	Yes	Yes	Yes
Tax act	N/A	N/A	Yes	Yes	N/A	Yes	Yes	No	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes
Under trust	P	P	L	L	L <sup>b</sup>	L	L	P	L	L	L	L	L	L	L	L	L
Maximum benefits	N/A	N/A	L	L	L	L	L	L	L	L	L	L	L	L	L	L	L
Restrictions on benefits	N/A	N/A	L	L	L	L	L	L	L	L	L	L	L	L	L	L	L
Investment restrictions	N/A	N/A	L/P	L/P	L	L	L	L	P	L	L	L	L	L	L	L	L

(continued)

### Annex 5.2. Features of Private Occupational Pension Regulation in Various English-Speaking Caribbean Countries (continued)

Feature	Antigua and Barbuda,		St. Kitts and Nevis		Bahamas	Barbados	Cayman Islands	Dominica, Grenada	Guyana	Jamaica	St. Lucia	St. Vincent and the Grenadines	Trinidad and Tobago
	P	P	P	L/P	P	L/P	L	L/P	L/P	L/P	L	L	—
Audits													
Actuarial valuations	P	P	P	L/P	P	L/P	L	L/P	L/P	L/P	L	L	—
Member representation	P	P	P	L/P	P	L/P	L	L/P	L/P	Draft	L	L	—

P = imposed by practice; L = imposed by legislation or law.

a. Reflects the size of the private occupational pension market relative to the private sector working population. In most countries, for lack of data, these findings are estimated based on discussions and observations; thus the findings are not entirely conclusive.

b. The law also allows non-trust forms of pension plan structure.

Note: The information in the table does not reflect yet to be implemented legislation in Barbados and Jamaica.

Source: Based on a survey by K.R. Consulting (Trinidad) limited as of June 2003.



## **Section Two**

# **Other Experiences**

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## **Systemic Pension Reform in Latin America: Designs and Early Experiences**

*Robert Palacios*

Over the past century pension schemes mandated and run by governments spread to every corner of the world. The liabilities associated with these defined benefit schemes have grown much faster than the assets (if any) set aside to cover them. Recently, however, the pendulum has begun to swing in the opposite direction. Liabilities are being reduced, funding ratios are increasing, and the private sector is playing a larger role in managing pension systems. Arguably, the most important and radical manifestation of this shift has involved a specific kind of reform that incorporates a fully funded, privately managed element—referred to here as *systemic reforms*. Originating in Chile, this type of reform has now been adopted by 12 Latin American countries, accounting for about half the systems that fall into this category worldwide. This chapter reviews the designs of and early experiences with these new schemes.

Various authors have described the situation that generally leads to systemic pension reform. (See, for example, Cifuentes and Larraín 1998; Edwards 1998; Cottani and Demarco 1998; Sales-Sarrapy and Solis-Soberon 1998; and Mesa-Lago 2002.) The main reasons include:

- Increasing pressure on the central budget to cover pension deficits
- Inequities within and across schemes
- Lack of long-term sustainability due to country demographics
- Failure to provide promised benefits
- Poor management of reserves, past or present

- Labor market distortions and incentives to evade
- Desire to promote financial and capital market development.

The relative importance of these factors has varied greatly across countries, as evidenced by the heterogeneity of initial conditions in the 12 Latin American countries that chose systemic reform (Table 6.1). The ratio of contributors to pensioners, for example, was much lower in some countries and fell more sharply in some in the years leading up to reform. By the time of reform, Argentina, Chile, and Uruguay had mature systems with high costs and unfunded pension liabilities. There were fewer than three and in some cases two contributors for every pensioner, and the demographic transition to an older population was well under way. In contrast, pension spending was quite modest in countries with young systems, such as the Dominican Republic, El Salvador, and Mexico. A few countries with young systems still held reserves, and most had at least four contributors for every pensioner.

**Table 6.1. Conditions Prior to Systemic Pension Reform in Latin American Countries**

Country	Pension spending (percentage of GDP)	Level of reserves	Contributors/ pensioners, main scheme	Implicit pension debt (percentage of GDP), 1990
Argentina	6.2	None	0.60	305
Bolivia	2.5	Some	3.0	31
Chile	5.7	None	2.5	131
Colombia	1.1	Some	12.1	35
Costa Rica	1.6	Significant	6.6	94
Dominican Rep.	0.8	None	17.0	22
Ecuador	2.0	Some	5.6	19
El Salvador	0.4	Some	11.6	9
Mexico	1.0	None	8.0	37
Nicaragua	2.5	Some	4.8	14
Peru	1.2	None	4.3	45
Uruguay	15.0	None	1.4	290

Source: Bravo and Uthoff (1999); Cottani and Demarco (1998); Edwards (1998); Cifuentes and Larraín (1998); Rofman (2003); Palacios and Pallarés-Miralles (2000).

Ultimately, pension reform probably would not have occurred if the systems were performing their functions in terms of providing old age income security (Valdés-Prieto 1998). Despite differences in initial conditions, most of the region experienced a gradual erosion of confidence in the old pay-as-you-go, state-managed systems. So, while reformers cite many factors, acceptance of systemic reform by voters in 11 democracies was largely a reflection of frustration with the old model. (The 12th country was Chile.) Loss of confidence was more pronounced in some countries, which helps explain much of the variation in reform design.

## **Comparing the Designs of the New Pension Systems**

The 12 countries covered in this chapter have all introduced a fully funded, privately managed pension component based on defined contributions. This is a fundamental departure from a model that became prevalent during the 20th century, which relied on public management and unfunded, defined benefit promises. But the designs of the new schemes vary significantly. The discussion here focuses on three aspects: implicit benefit schedules and redistribution, rules and regulations, and institutional arrangements.

### ***Implicit Benefit Schedules and Redistribution***

The first objective and the heart of any pension system design is the (wage) replacement rate that can be expected upon retirement. This rate will normally vary based on a contributor's income, number of contributions, and even gender. The replacement rate measure is relevant because it provides an indication of how consumption is being smoothed over the life cycle, a key objective of the pension system. The second objective of most pension systems is to redistribute toward workers who would fall into poverty despite having saved regularly—namely, the lifetime poor. The replacement rate for low-income workers provides an indication of how the pension system addresses this objective.

One way to compare target replacement rates across countries is to impose a standardized set of assumptions and simulate outcomes for the same individual. These “synthetic” replacement rates remove some of the noise due to labor market circumstances in different countries and time periods. They have been calculated for OECD

countries in previous studies, and more recently for Eastern European countries. (See, for example, Whiteford 1995 and Whitehouse 2001, forthcoming.) Those studies reveal large differences due to the parameters of defined benefit formulas, taxation levels, and the size of individual account contributions.

Table 6.2 shows synthetic replacement rates for pension schemes in 8 of the 12 Latin American countries and is taken from Whitehouse (forthcoming), to whom readers should refer for further information on assumptions and methodology. Before looking at the results, it is useful to highlight five important points about the simulations. First, the results refer to workers who contribute for their entire working lives. This means that replacement rates will be higher than what is actually observed for most workers and will abstract from any redistribution from long to short-tenure workers. Second, net rates of return for the funded component are assumed to be 1.5 percentage points higher than the growth of wages. Third, the simulation is for a male worker. The replacement rate from the funded component would be lower for female workers in countries where gender-specific mortality rates are used to calculate benefits. Fourth, the lifetime revalued average wage is used as the denominator for the replacement rate. This is consistent with an analysis of the life-cycle consumption-smoothing objectives of a pension scheme, but replacement rates

**Table 6.2. Synthetic, Full-Career, Net Replacement Rates in Latin American Pension Schemes, 2003**

*(Percentage of average lifetime wage)*

Country	Wage level (percentage of average wage)					
	50	75	100	150	200	250
Argentina <sup>a</sup>	134	103	87	70	63	58
Chile	59	60	61	62	64	67
Colombia	109	73	58	58	58	58
Costa Rica	111	111	111	112	112	112
Dominican Republic	112	75	56	37	32	33
El Salvador	66	44	39	41	42	41
Peru	72	73	74	75	77	80
Uruguay	129	129	129	114	93	74

a. Assumes 7 percent contribution to individual account is maintained.

Note: Data are based on a male worker entering the labor market in 2003 with complete contribution history.

Source: Whitehouse (forthcoming).

may appear high relative to other published replacement rates. Finally, the figures are net replacement rates—that is, the take-home pension after taxes is compared with the take-home wage after taxes. Again, this is consistent with an analysis of the life-cycle consumption-smoothing objectives of a pension scheme.

The table shows replacement rates expressed as shares of average lifetime wages for workers earning 50–250 percent of the average wage in eight countries based on current parameters and standardized assumptions. It reveals a wide range of implicit benefit schedules across countries. Replacement rates for low-income workers are highest in Argentina and Uruguay and are twice the rates in Chile and El Salvador. Costa Rica and Uruguay stand out due to their high replacement rates for workers across the entire income range shown here. In Uruguay this result is even more striking when one considers that it is the only country with automatic wage indexation of benefits.<sup>1</sup>

The replacement rates in Table 6.2 are indicative of consumption-smoothing outcomes for individual workers with certain wage histories who made regular contributions. The second objective of pension policy is to redistribute to individuals who, despite having saved within the system, are unable to generate a level of consumption acceptable to society.

The higher replacement rates for low-income workers in most of the countries in Table 6.2 reflect efforts to redistribute. In principle, a system based on privately managed defined contributions can generate the same amount of redistribution toward the lifetime poor as the system that it replaces. The degree of redistribution largely depends on the level of and eligibility conditions for the minimum pension.<sup>2</sup> Still, when it comes to redistribution there are at least two differences between defined contribution and defined benefit systems.

The first is that minimum pension guarantees in funded, defined contribution schemes are usually not financed from payroll taxes, while minimum pensions in defined benefit schemes are typically financed from contribution revenues. But this distinction is not universal. Colombia and the Dominican Republic both try to

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<sup>1</sup> The differences between countries arise for several reasons. The most important are the contribution rate for individual accounts, the defined benefit formula (where one applies), and the level of the minimum pension guarantee.

<sup>2</sup> In Mexico, not included in Table 6.2, the extent of redistribution also depends on the matching government contribution to individual accounts—a kind of prepayment of the minimum pension.

finance part of the minimum pension using an earmarked payroll tax or “solidarity” contribution. At the same time, mature pay-as-you-go systems such as Uruguay’s finance expenditures—including the minimum pension—from revenues other than payroll taxes.

Despite these exceptions, the new model tends to rely more on general revenues to finance redistribution to the lifetime poor.<sup>3</sup> This has the merit of reducing taxes on labor. On the other hand, where coverage is low, it could be argued that well-off workers from the formal sector are not the best beneficiaries of scarce budget transfers intended to alleviate poverty.

While the role of minimum pension guarantees relative to social assistance programs for the elderly is beyond the scope of this chapter, there is a strong case for reliance on the latter when coverage is limited—as in most of the countries covered here. (For a review of Latin American social assistance schemes for the elderly, see ILO 2002b.) A recent study by the Economic Commission for Latin America and the Caribbean (CEPAL) illustrates the potential costs of expanding social assistance schemes to cover all elderly people (Jimenez and Cuadros 2003). Using different poverty lines and considering only those 65 and older, the study estimates costs of 0.4–2.3 percent of GDP, with most countries around 1 percent of GDP—a significant share of the budget, and especially difficult to achieve in poorer countries.

A second important difference between traditional defined benefit schemes and those that rely mainly on defined contributions is the greater prevalence of transfers between members for reasons unrelated to poverty. Intragenerational transfers have been documented for many public defined benefit schemes in the form of higher internal rates of return for workers with certain characteristics (short careers, late entry to the labor force, married or single, and so on). Pay-as-you-go defined benefit schemes are also more likely to apply special eligibility and retirement rules to different categories of workers than those based on defined contributions, further increasing disparities in outcomes. Many of these transfers between members are regressive, benefiting privileged groups.

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<sup>3</sup> This is recognized by critics of systemic reforms, who seem to prefer redistribution within the pension system over “external” mechanisms. For example, Mesa-Lago (2002) complains that structural reforms are “devoid of endogenous solidarity.” But it is not clear why what he calls “exogenous solidarity” is inferior or cannot achieve the same social objectives as endogenous solidarity.



A good example is the common tendency of defined benefit schemes to redistribute by applying nonlinear accrual rates. Under this approach workers are credited with larger benefits per contribution at the beginning of their careers. This allows those with partial or broken careers (disproportionately women and workers that frequently enter and exit the informal sector) to receive higher internal rates of return on their contributions than do workers who contribute over their entire careers. This may lead to a progressive result overall, but because there is no income test, high-income workers with partial contribution histories also receive a subsidy—at the expense of low-income workers who contribute regularly.

In general, the minimum pension guarantees of defined contribution schemes provide a more transparent method of effecting transfers to low-income groups and reduce the prevalence of regressive transfers. Minimum pension guarantees can provide progressive transfers to workers with incomplete contribution histories while taking income into account to avoid leakages.

Before concluding the discussion on redistribution, it is important to point out that a comprehensive analysis of systemic pension reform must take into account contributions as well as benefits. Moreover, those seeking to compare redistributive outcomes in the new and old systems face daunting methodological problems.

First, in most cases a long transition is involved, so the relationship between contributions and benefits changes both within and across generations. Second, the new system often involves changes to parameters (such as the retirement age) that are unrelated to the paradigm shift from unfunded, defined benefit to funded, defined contribution. Third, the counterfactual is extremely difficult to pin down. Specifically, would the unsustainable, unreformed scheme have been allowed to run large deficits in order to keep benefit promises? Or would benefits have been eroded through underindexation, as has been common? Finally, assumptions about key relationships, such as between the growth of wages and the rate of return on investments, largely determine the results of the analysis.

Few studies make such comparisons, and in most the results are difficult to interpret due to the problem of determining the proper counterfactual. In one of the few studies of its kind, Bucheli (1999) calculates generational accounts for male and female workers at different income levels in Uruguay. The impact of each reform measure on these individuals is calculated and summed to provide a measure of the incidence of the reform. The study shows that high-income men and low-income

women gained the most from the reforms, while middle-income women lost the most (under the baseline assumptions). The study also finds, not surprisingly, that the comparison was very sensitive to the assumed wage growth and investment return combination. In short, such comparisons are extremely difficult to make and require careful analysis of different kinds of workers as well as sensitivity analysis to changes in key assumptions.

This review of implicit benefit schedules shows that there are important differences in the sizes and sources of replacement rates in the different reformed systems. The degree to which systems are funded in the steady state also varies greatly. Costa Rica and Uruguay have very high replacement rate targets and are much more dependent on pay-as-you-go defined benefit components. Argentina and the Dominican Republic rely mostly on funded schemes for upper and middle-income workers but maintain relatively large pay-as-you-go defined benefit elements for redistribution. Chile, Mexico, Peru, and to a lesser extent Colombia and El Salvador rely much more on private, individual accounts.

### ***Rules and Regulations***

Unfunded defined benefit schemes are run by governments or quasi-public institutions, while funded defined contribution schemes are generally managed by private firms that have been licensed to participate in the market and must obey certain rules. These rules affect the system's performance by restricting investment options, charges, and payout options, and by requiring the provision of certain guarantees to members. Each of these issues is considered below.

#### *Investment Rules*

Investment rules for mandatory funded schemes take several forms, including asset class limits and minimums, issuer limits, and concentration limits. Rules also specify valuation requirements and reporting of investment practices and results. Regulations that restrict how pension funds exercise shareholder rights can also be included in this category. Other important issues include corporate governance rules for pension fund administrators and the use of custodians.

Countries with mandatory private defined contribution schemes usually impose explicit limits on the schemes' investment portfolios. (Australia and Sweden

**Table 6.3. Portfolio Limits for Latin American Private Pension Funds by Type of Investment, 2002**  
(Percent)

Country	Government debt	Local securities	Foreign securities	Cash and term deposits	Fixed income	Variable income
Argentina	80	100	20	30	100	60
Bolivia	100	100	50	40	100	75
Chile	50	100	20	50	85	40
Colombia	80	100	10	20	100	38
Costa Rica	90	40	25	40	100	20
Dominican Rep.	10	100	0	60	100	30
El Salvador	100	100	0	40	100	5
Mexico	100	100	20	10	100	0
Nicaragua	50	100	30	50	100	10
Peru	40	100	10	30	100	35
Uruguay	90	70	0	30	100	0

Note: Limits for Chile assume portfolio C. For more details, see Annex 6.1 and Annex 6.2.

Source: Salomon Smith Barney (2002).

are notable exceptions.) Table 6.3 shows portfolio limits in Latin America in 2002. For domestic assets, shares are not allowed in several countries, while others allow as much as 40 percent. Corporate bond limits are higher, with an average of about 50 percent. Limits on government debt are generally much higher, ranging from 40 to 100 percent, with most countries at the upper end of the spectrum. Derivatives are allowed in three countries, but only in significant amounts in Chile (not in the table). A key restriction, the limit on foreign securities, ranges from 0 to 50 percent. In practice, the foreign component is further restricted by requirements for central bank approval that is often not forthcoming.<sup>4</sup> Finally, throughout the region there is a clear bias toward fixed rather than variable income assets.

For three reasons, individual asset class limits provide only partial information about their impact on investment policy. First, the limits must be viewed in the aggregate to see what flexibility pension funds have to invest. If the sum of the limits

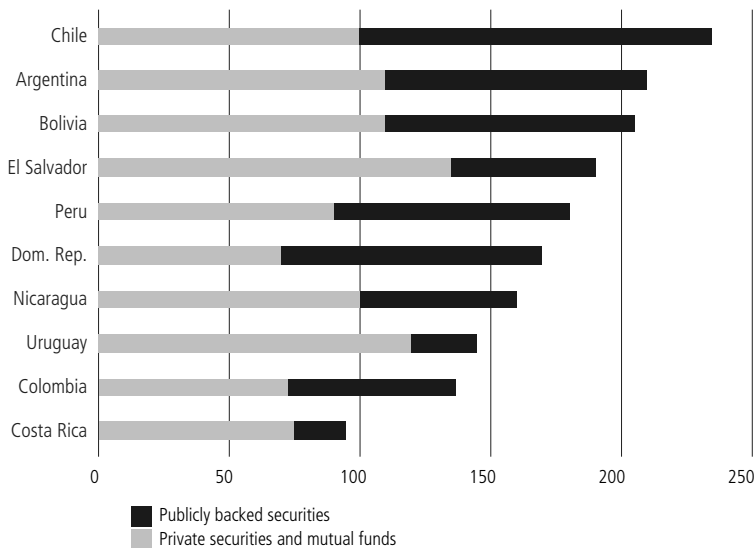
<sup>4</sup> Despite the relatively high ceiling in Bolivia, for example, only recently have foreign investments been allowed—and they represent less than 5 percent of the portfolio.

is 100 percent, for example, asset allocation is effectively defined. Second, even where limits allow flexibility, a limited domestic supply of instruments is often the binding constraint. Third, there may be requirements to invest a minimum share of funds in certain assets that override these limits.

Addressing the first point, Figure 6.1 compares a combination of common asset limits. Each bar sums to the maximum investment for two groups of domestic assets: government securities and bank deposits on the one hand and private securities (excluding those issued by financial institutions) and mutual funds on the other. Within these asset classes, Chile provides the most flexibility and allows the largest proportion of private securities and mutual funds—while Costa Rica and Uruguay provide the least flexibility and impose the most restrictive limits on these assets. Mexico, not shown here, allows only fixed income instruments. However, its effective limits are based on the overall value at risk and the rating of the bond rather than on limits by particular types of instrument.

**Figure 6.1. Portfolio Limits on Two Groups of Domestic Assets for Latin American Private Pension Funds**

(Percent)



Source: Palacios (2003b).

El Salvador helps illustrate the second and third points about asset class limits. Despite a relatively high limit on corporate bonds of 50 percent of the portfolio, these instruments are in short supply. As a result the constraint is not binding. On the other hand, pension funds are required to buy two nontradable assets—special bonds and paper issued by the national housing bank—which together will represent more than half of total investments for the next few years. In other words, because of mandates and scarce domestic investment opportunities, the regulated portfolio limits are a secondary factor.

Solis-Soberon (1999) and Srinivas, Whitehouse, and Yermo (2000) argue that portfolio limits result in lower risk-adjusted returns and so lower benefits. While recognizing the potential for these effects, Valdés-Prieto (2000) disputes the empirical evidence presented by Srinivas and Yermo and cites contradictory data from other studies. More important, argues Valdés-Prieto, limits may be necessary for reasons specific to the initial conditions of reform in each country.

Valdés-Prieto (2000) highlights the rationale for placing heavy restrictions on equity investments during the first five years of the Chilean reform. As he points out, the possibility that pension funds would have been used to prop up an insolvent banking sector—at the expense of workers—justified transition rules on the funds' investments. Similar situations will undoubtedly arise in other countries and may justify temporary restrictions. The danger is that the long-term vision of investment policy for this sector may be forgotten and, unlike Chile, the rules may not evolve in the right direction.

A dynamic approach to regulation is important. As funds accumulate, there are two ways to increase the universe of investments in the interests of plan participants. The first is to develop domestic capital markets. The second is to allow a larger proportion of pension funds to be invested abroad. Restrictions on purchasing foreign securities disable an important option for rapidly growing pension funds, limiting their ability to diversify across sectors, instruments, and, especially, country-specific risks. In short, the case for increasing foreign investment is compelling, especially in small countries with underdeveloped financial markets.

Finally, in this context it is important to mention the recent introduction of multiple portfolio options in Chile. Since August 2002 nearly 1.5 million workers have selected from a menu of funds reflecting different amounts of variable and fixed income instruments. Options are based on age, and restrictions apply as one ap-

proaches retirement. The implications of allowing more investment choices are significant and will be the subject of much discussion and research over the next few years.

### *Charges*

Another important set of regulations relate to how pension fund managers charge for their services. Again, there is significant variation across countries, as shown in Table 6.4. Although all countries allow (or in some cases require) charges on contribution flows, only Mexico and Nicaragua allow asset-based charges. Costa Rica, the Dominican Republic, and Mexico allow charges based on returns. Half the countries place some kind of cap on total charges. In Colombia and El Salvador the cap applies to the sum of insurance and administration fees.

Iglesias (2001) says that restrictions on charges are motivated by the desire for transparency, ease of administration for employers (when employees use different fund managers), adaptability to changing cost structures of fund managers, and subsidies for low-income workers. He also notes that some of these rationales are incompatible.

**Table 6.4. Charges Allowed for Pension Fund Managers in Latin America**

Country	Flat charges	Contribution based	Asset based	Returns based	Loyalty discounts	Cap on fees (or contract)?
Argentina		X			X	No
Bolivia		X				Yes <sup>a</sup>
Chile	X	X				No
Colombia		X				Yes <sup>b</sup>
Costa Rica		X		X		Yes
Dominican Rep.		X		X		Yes
Ecuador		X				No
El Salvador		X			X	Yes <sup>b</sup>
Mexico	X	X	X	X	X	No
Nicaragua		X	X		X	Yes
Peru		X			X	No
Uruguay	X	X			X	No

a. Charges agreed as part of the contract for the fund management concession.

b. Cap is the sum of insurance and administrative charges.

Source: Country sources.

Restrictions on charges produce cross-subsidies when fund managers cannot differentiate prices for individuals who represent very different marginal costs. There are costs associated with administering any individual account, but restrictions that prohibit fixed annual charges or a commission based on assets or returns force subsidies from contributors to those with dormant accounts.<sup>5</sup> Cross-subsidies also arise due to rules prohibiting different charges for groups and individuals with accounts of different sizes. One exception are discounts for persistence or “loyalty.”

Some cross-subsidies may redistribute in favor of low-income workers. This is the case, for example, when pension management firms are forced to charge uniform rates or fixed charges are prohibited. It is also likely when charges are based on flows and there is a strong correlation between contribution density and lifetime income level. But not all workers with incomplete contribution histories are low income, so there are leakages. So, using charge structures to subsidize low-income workers is questionable—especially given that there are more direct ways to provide such subsidies.

Another argument for rigid charge structures is to promote transparency. While there is little empirical evidence indicating more price competition in systems with more transparent charge structures, there are concerns about the ability of individuals to compare different charge structures. The complexity of this comparison in Mexico, where charge structures are least regulated, depends on several variables that would have to be projected into the future. This has led the supervisor, CONSAR, to publish standardized tables comparing charges.

The main concern about charges is their potential impact on net returns and, ultimately, pension levels. Proposals that try to address the issue fall into two categories: increase competition or restrict both the structure and level of charges.

Proposals that fall into the first category include maintaining simple charge structures but allowing limited competition based on group discounts (Mastrangelo 1999), allowing other financial sector participants to offer pension fund services, and otherwise reducing barriers to entry. Argentina and Mexico use an additional incentive to keep charges low: individuals who do not choose fund managers are assigned to those with the lowest charges.<sup>6</sup>

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<sup>5</sup> Age-related cross-subsidies also exist, including from workers to those receiving scheduled withdrawals and within disability and survivor insurance schemes (where risks are higher for older workers). Disability also involves cross-subsidies to low-income workers.

<sup>6</sup> CONSAR introduced this approach in Mexico in 2002.

The second approach involves controlling charges directly. This takes various forms in the five countries that apply traditional caps.<sup>7</sup> In Colombia, El Salvador, and Nicaragua (planned) the cap is the sum of the insurance premium for disability and survivor coverage and the fund management commission. In Costa Rica the charge was on returns, and the ceiling was set at 8 percent in nominal terms. In 2003 this ceiling was raised and a contribution-related charge was added, also with a limit. Finally, in the Dominican Republic managers are allowed to charge up to 0.5 percent of covered wages plus a percentage of returns above the benchmark rate, as well as 1.0 percent of wages for insurance. Where caps have been applied, all fund managers have tended to charge the maximum.

A popular if less direct way to intervene in the market is to try to reduce costs by restricting the number of times individuals can switch between pension funds. These restrictions are based on the assumption that higher marketing costs (due to frequent sales commissions for agents) are passed on to consumers. The restrictions try to reduce marketing expenses by reducing the potential number of transfers. All countries restrict transfers, usually by specifying the number of months an affiliate must have contributed or maintained an account at a pension fund before switching. This period ranges from 2.5 months in Chile to 12 months in several countries. The risk of this approach is that it contributes to inertia and limits competition without necessarily reducing charges. In fact, because these restrictions ensure longer memberships and so larger revenue streams, marketing expenses may increase in the form of higher sales commissions paid to agents per transfer.

### *Payout Options*

Mandatory pension systems have two main goals: avoiding a sudden sharp drop in consumption levels and protecting against old age poverty. Providing effective longevity insurance, or at least spreading out payments during old age, is important for both. For these reasons, withdrawals are restricted in most mandatory, defined contribution schemes. (Exceptions include Australia and Hong Kong, China.)

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<sup>7</sup> Bolivia's cap on charges reflects international bidding for the fund management concession, where the criteria used in the selection process included commission levels. While this case is interesting, it occurred under unique circumstances that make comparisons with other countries difficult.



**Table 6.5. Withdrawals Allowed from Funded Pension Schemes in Latin America, 2003**

Country	Life annuity	Scheduled withdrawal	Combined life annuity and scheduled withdrawal or deferral	Lump sum above minimum	Variable annuity
Argentina	X	X	X	X	X
Bolivia	X	X			X
Chile	X	X	X	X	
Colombia	X	X	X	X	
Costa Rica	X	X	X		
Dominican Rep.	X	X		X	
Ecuador	X	X			
El Salvador	X	X	X	X	
Mexico	X	X	X	X	
Nicaragua	X	X	X	X	
Peru	X	X	X	X	
Uruguay	X				

Source: Devesa-Carpio and Vidal-Meliá (2002); Palacios and Rofman (2000).

Although all Latin American funded schemes restrict withdrawals upon retirement, the options provided and the way they are regulated vary. As shown in Table 6.5, all schemes allow life annuities and all except Uruguay allow scheduled withdrawals.<sup>8</sup> Many allow for a combination of life annuities and scheduled withdrawals or deferral of the annuitization decision. Only Argentina and Bolivia allow variable annuities, and in Argentina this is subject to a minimum interest rate condition. Chile introduced a restricted form of variable annuities in 2004.

For scheduled withdrawals, this is related to the formula specified by regulators. Here an important design choice is the interest rate used to determine the stream of payments in the scheduled withdrawal. If this rate is too high, pension funds may be exhausted quickly—while a low rate could overcompensate and reduce consumption unnecessarily.

<sup>8</sup> Timing risk with regard to interest rates has been cited as a possible problem. This risk can be mitigated by deferral or by combining a scheduled withdrawal with an annuity.

Annuity rules are even more problematic. In countries where regulations exist, there are questions about underlying mortality data.<sup>9</sup> Several countries that allow annuities do not have detailed regulations or actuarial tables to implement this policy. The dearth of data and low coverage make it difficult to create the technical basis for such regulations. Costa Rica, the Dominican Republic, El Salvador, and Nicaragua will have to confront this challenge in the coming years. Costa Rica recently produced a set of life tables for this purpose but has yet to issue the relevant regulations.

### *Guarantees*

Guarantees are a fourth important area of government intervention in new pension systems. Four types of guarantees in funded schemes result in contingent liabilities for the systems. The first two relate to the accumulation phase and the last two to the payout phase:

- Absolute rate of return guarantees
- Relative rate of return guarantees (sector and benchmark-based)
- Benefit payout guarantees
- Minimum pension guarantees.

Table 6.6 shows that only two Latin American countries—Argentina and Uruguay—provide absolute return guarantees, and these apply to state-run pension fund managers. In contrast, relative return guarantees are found in every country except Bolivia, Costa Rica, and Mexico. This type of guarantee is intended to limit variability in outcomes due to extreme cases of poor performance by fund managers. These guarantees are typically triggered by significant underperformance of one pension fund relative to the sector and financed by special reserves, with the state as the ultimate guarantor in case of failure. Some analysts have expressed concern that by penalizing managers who deviate from the average portfolio, such guarantees lead to herding behavior. To the extent that herding exists, it will be greater the narrower the band of the guarantee.<sup>10</sup>

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<sup>9</sup> For a detailed discussion of these points regarding Argentina, Chile, Colombia, and Peru, see Palacios and Rofman (2000).

<sup>10</sup> For a comparison of relative return bands, see Devesa-Carpio and Vidal-Meliá (2002, table XIX). Chile widened the band of its relative return guarantee over time—an example of adapting regulation as the market matures.

**Table 6.6. Guarantees Provided by Funded Pension Schemes in Latin America**

Country	Absolute rate of return guarantee	Relative rate of return guarantee	Benefit payout guarantee	Minimum pension guarantee
Argentina	X	X	X	
Bolivia				
Chile		X	X	X
Colombia		X		X
Costa Rica				
Dominican Rep.		X		X
El Salvador		X		X
Mexico				X
Nicaragua		X		X
Peru		X	X	
Uruguay	X	X		

Source: Country legislation; Federación Internacional de Administradoras de Fondos de Pensiones (FIAP) survey.

Benefit payout guarantees exist in several countries and will become more important in the future, especially in countries where annuity providers find it difficult to match long-term, indexed liabilities with appropriate assets.

Finally, the most important guarantee under funded schemes, in terms of social effects and fiscal consequences, is the minimum pension guarantee. Table 6.7 shows that minimum pension guarantees are provided in every Latin American country—except Peru—that does not have a residual public defined benefit component (shaded rows).<sup>11</sup> The value of the guarantee differs across countries for several reasons. In terms of design,<sup>12</sup> the most important reasons are the ratio of the minimum pension guarantee to the average covered wage, the eligibility or vesting period, and the size of contributions to individual accounts.

<sup>11</sup> Peru has a guarantee, but it applies only to workers close to retirement at the time of the reform. Most of the participants in the new, funded scheme are under 45 and so are not covered.

<sup>12</sup> Obviously the distribution of wages, the average number of years spent in the formal sector, and the relationship between net returns and growth of wages lead to different costs for minimum pension guarantees. This point also illustrates the link between minimum pension guarantee liabilities and the investment regime. The government is essentially providing a rate of return guarantee, the value of which will depend on individual circumstances. For example, the value of the guarantee will be high for low-income workers who contribute for the minimum vesting period.

**Table 6.7. Rules for Minimum Pension Guarantees in Latin American Pension Schemes, 2002**

Country	Guarantee/ average covered wage (percent)	Anchor or method for guarantee level	Eligibility or vesting period (years)	Contribution to individual account (percentage of covered wage)
Argentina	28 <sup>a</sup>	n.a.	30	7.7
Bolivia	Bonosol <sup>b</sup>	n.a.	n.a.	10.0
Chile	25	Discretionary	20 <sup>c</sup>	10.0
Colombia	50	Minimum wage	25	10.0 <sup>d</sup>
Costa Rica	20 <sup>a</sup>	n.a.	n.a.	4.25
Dominican Rep.	41	Minimum wage	30 <sup>e</sup>	8.0
Ecuador	n.a.	n.a.	n.a.	Varies
El Salvador	32	Discretionary	30/25 <sup>f</sup>	10.0
Mexico	23	Real 1997 min. wage	24 <sup>g</sup>	7.0–12.0
Nicaragua	n.a.	Real min. pension	25 <sup>d</sup>	7.5
Peru	None	None	n.a.	8.0
Uruguay	20 <sup>a</sup>	n.a.	n.a.	Varies

n.a. Not applicable.

a. Pay-as-you-go scheme.

b. Bonosol is a universal flat benefit.

c. Men must be 65; women must be 60.

d. Rising to 12.0 percent in 2008.

e. Must be 60.

f. 30 years for men at age 60, 25 years for women at age 55.

g. Must be 62.

Note: Shaded rows indicate countries that have eliminated public defined benefit schemes (except for Colombia, which maintains a parallel defined benefit scheme).

Source: Devesa-Carpio and Vidal-Meliá (2002); Palacios and Rofman (2000); Federación Internacional de Administradoras de Fondos de Pensiones (FIAP) survey.

The table shows that, as discussed earlier, redistribution is perfectly feasible under a funded, defined contribution scheme. In fact, relative minimum pension guarantees are often higher than their equivalents in pay-as-you-go schemes. In this regard, Peru stands out for its lack of a minimum pension guarantee. These findings also highlight differences in ratios of contribution rates to minimum pension guarantees. Where a guarantee is high relative to the contribution rate, as in the Domini-

can Republic, it is likely (under reasonable assumptions about the rate of return on investments) that a large proportion of workers will qualify, because the required net rate of return would be excessive.

A common flaw in the design of minimum pension guarantees is how their levels are determined.<sup>13</sup> Most guarantee levels are discretionary or tied to the minimum wage, which is also discretionary. In Mexico and effectively in Nicaragua, the guarantee is set in real terms. The first method results in increased uncertainty, both in terms of the size of the unfunded liability and the redistributive outcome. If the minimum pension is anchored to the minimum wage, for example, cohorts retiring in different periods are likely to receive arbitrarily different subsidies because the minimum wage varies. Moreover, the minimum wage may bear little relationship to official poverty lines, and the ratio of minimum wage to poverty line varies widely across countries. A better strategy would involve tying the minimum pension to an objective standard of relative or absolute poverty.

### *Institutional Arrangements*

Pension rules and regulations are followed, implemented, and enforced by five actors: affiliates, contribution collectors, pension fund managers, annuity providers, and supervisors. The institutional arrangements that delineate the activities of each of these actors differ by country and are important determinants of system performance.

All the Latin American pension reforms are based on individual or personal plans, as opposed to occupational plans.<sup>14</sup> They also share a reliance on specialized or sole purpose fund managers. The most important differences lie in how contributions are collected and the organizational features of supervisors. Also significant in defining the role of the state in each system is the assignment of institutional respon-

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<sup>13</sup> Another problem is one shared by pay-as-you-go minimum pensions—namely, “cliff vesting” rules wherein full benefits accrue suddenly. This can result in perverse incentives and redistribution. In both cases this problem could be partly rectified by prorating the minimum pension.

<sup>14</sup> The mandatory private systems in Hong Kong and Switzerland are based on an employer mandate, and occupational schemes play an important role in Australia and the United Kingdom. Costa Rica is the only Latin American system with mandatory private pension coverage that allows closed group funds, but these are very limited. Voluntary occupational funds are important in Brazil.

sibility for disability and the presence of state-owned pension fund managers. These differences are highlighted in Table 6.8, and each is discussed below.

There are three broad options for organizing the flow of information and money of the new pension schemes, with many variations. Option 1 is the decentralized model, which requires employers to provide information and pay contributions on behalf of their employees directly to the specialized fund managers. The centralized model can rely on a public (option 2) or private entity (option 3) for collection and record-keeping. Chile is an example of option 1, Costa Rica of option 2, and Mexico of option 3. A variant on option 3, unique to the Dominican Republic, is to divide functions of registration, collection, record-keeping, and so on between the public and private sectors.

Of the 12 countries analyzed, 7 have opted for centralized collection. This decision is often based on the argument that significant economies of scale will help reduce system costs. But there are no studies documenting such savings or comparing performance measures. This area merits further research, both on the costs and

**Table 6.8. Institutional Arrangements for Funded Pension Plans in Latin America, 2003**

Country	Centralized collection	Specialized supervisor	Disability only in pay-as-you-go scheme	State-owned manager
Argentina	X	X		X
Bolivia				
Chile		X		
Colombia				
Costa Rica	X	X	X	X
Dominican Rep.	X <sup>a</sup>	X		X
Ecuador	X		X	
El Salvador		X		
Mexico	X <sup>b</sup>	X	X	X
Nicaragua	X	X		
Peru				
Uruguay	X			X

a. Public-private partnership based on function.

b. Private ownership by industry.

Source: Country sources; Federación Internacional de Administradoras de Fondos de Pensiones (FIAP) survey.

benefits of centralized collection and the possible use of new technology, including the Internet.

Costa Rica and Uruguay continue to collect contributions through the old public pension system, and Nicaragua plans to do so as well. This approach may seem natural in that the Caja Costarricense de Seguridad Social (CSS) and Uruguay's Banco de Previsión Social (BPS) continue to play a role in pension provision and so must collect contributions from all members of the funded schemes in any case. On the other hand, in many countries the problems of introducing a new, untested system are exacerbated by the dismal state of databases and information technology in the old system. For example, Costa Rica's new collection and record-keeping system has been the subject of much criticism following major implementation problems.<sup>15</sup>

Mexico has adopted an alternative to the public monopoly. In this model, pension fund managers are shareholders in the centralized agency, set up as a non-profit firm to collect contributions. In the Dominican Republic a hybrid solution is being tested involving a public-private partnership.

Although there appears to be a role for the private sector in collection and record-keeping, that is not the case with supervision, where a distinct public sector presence is required and outcomes are harder to measure. Design choices include whether the supervisor should be specialized, the resources devoted to it, the source of its financing, and how it is appointed and removed.

All but four countries have set up specialized supervisors for their new pension systems.<sup>16</sup> Three countries—Colombia, Ecuador, and Uruguay—have created departments within their central banks for this purpose, while Peru includes it in its bank and insurance supervisor. Bolivia's supervisor covers securities, insurance, and pensions. The rationale for a specialized supervisor is based on at least three principles. First, the new private pension systems are unique in that workers are required to entrust their savings to private financial firms. Second, the long-term nature of these savings requires a different perspective than is typical for day-to-day regulation in other sectors such as banking. Finally, the reliance on specialized fund managers that are separate from other financial entities and that have very specific standards requires a specialized regulator.

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<sup>15</sup> Based on interviews with officials and industry representatives in 2003.

<sup>16</sup> In contrast, a recent survey of OECD countries shows that specialized pension supervisors are less common than the integrated or partially integrated model. See OECD (2003, table 1).

Specialized supervisors pose three potential disadvantages, however. First, to the extent that there are significant fixed costs involved, multiple supervisors could be more expensive. Second, there may be scarce human capital available to staff multiple regulators. Third, separate regulators may have more trouble coordinating. Defenders of specialized regulators suggest that these concerns are exaggerated and that there are additional benefits, including the diffusion of regulatory power and the ability for a pension fund supervisor to avoid conflicts of interest that may arise. One example cited is when short-term considerations affecting the solvency of banks are in conflict with the long-term objectives of the pension system.<sup>17</sup>

Finally, what does not appear in the table is the degree of independence of the pension fund supervisors, another critical element of institutional design. The process of nominating, selecting, and removing a superintendent and the financial independence of the regulator relative to the central budget are likely to determine whether even the best regulatory framework is successfully applied. The need for an independent, qualified supervisor will become even more important as pension fund assets grow over time.

There are also differences in institutional responsibility for disability. In 3 of the 12 countries disability insurance continues to be provided by public pay-as-you-go schemes. In Costa Rica and Ecuador this is related to the presence of large residual public schemes and correspondingly low contributions to individual accounts. But in Mexico the disability premium is the only part of the system that has not been privatized. The premium charged is significantly higher than that in other countries despite lower benefits. There is no obvious rationale for this practice.

Grushka and Demarco (2003) analyze institutional arrangements for determining eligibility for disability in the reformed Latin American countries, and identify several possible organizational models. These include:

- Independent medical commissions (as in Argentina, Chile, and Colombia)
- Life insurance companies (Bolivia)
- Pension fund management companies (Peru)
- Preexisting social security agencies (Mexico, Uruguay)

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<sup>17</sup> See for example, Demarco and Rofman (1998) and Ariztia (2002).



- Pension fund supervision agencies (Argentina to some extent)
- Other public agencies (no example reported).

Reviewing the various approaches, Grushka and Demarco point out that all have conflicting incentives. For example, insurers and pension fund managers are interested in reducing disability rates, while public agencies with no financial stake may be too lax. As with collection and record-keeping arrangements, decisions on the roles of the public and private sectors in determining eligibility for disability benefits have measurable outcomes—and should be the subject of independent study to quantify the tradeoffs involved.

A fourth policy area regarding institutions is the potential role of the state as a provider of pension services. The legislation establishing the Chilean pension system expressly prohibited participation by state-owned pension fund managers. This restriction was aimed at reducing the potential for government intervention in the market through implicit guarantees or other special competitive advantages.

Despite these concerns, 5 of the 12 countries allow state-owned companies to compete with the new private pension sector. In two of these, Costa Rica and Mexico, public pension institutions have not been successful in attracting members. In contrast, pension fund managers owned by state banks in Argentina, Costa Rica, and Uruguay are major players in the market. A similar situation was emerging in the Dominican Republic as the system began in 2003.

### *Summary*

This section has focused on design features of the 12 Latin American pension reforms, including implicit benefit schedules, regulations of the accumulation and payout stages, and institutional arrangements.

The analysis of implicit benefit schedules showed a wide dispersion in the size of the mandate. This may be a reflection of how society views the role of government in pension provision. Nevertheless, the level of overall replacement rates affects the probability that the scheme is sustainable in at least two important ways.

First, the higher the overall replacement rate targets, the less important will be the role of private, voluntary pensions. This would remove an important potential source of competition for specialized fund managers in the mandatory scheme and

concentrate the country's long-term savings in a smaller number of firms. Second, high target benefits imply a high rate of forced savings or taxation or both. This will only add to the incentives for small employers to stay in or move to the informal sector. While this effect may be marginal, it works against the system's financial and social objectives.

Finally, and related to this balance, funding ratios—the assets being accumulated relative to the liabilities being accumulated—appear to span a large range across the reformed countries. In several where the system has been completely privatized, minimum pension guarantees set at high and discretionary levels represent a new type of unfunded liability that could undermine the finances of the reform.

In terms of rules and regulations and institutional arrangements, the influence of the original Chilean design is evident in the proliferation of features such as relative return guarantees, scheduled withdrawal options, specialized firms and supervisors, and minimum pension guarantees. There are also clear examples of bilateral influences, such as the adoption by Ecuador of the income-based contribution originally introduced in Uruguay or the growing popularity of the centralized collection model.

In both areas, however, there are many differences. Mexico stands out as having eschewed a relative rate of return guarantee, introducing a matching contribution, and allowing more flexible charge structures. Its innovative collection model is also unique, although the Dominican Republic has partially emulated it. Finally, its risk-based regulation of investments may provide an alternative approach to the asset class limits that have typified these systems to date.

Regulations in some countries could have a negative effect on the system, especially if they do not evolve as assets in the system grow over time. Portfolio limits set without regard to the limits of domestic capital markets or with a view toward financing government deficits or pet programs (such as housing) represent a major threat to long-term performance. Restrictive policies on foreign investment worsen the problem and reduce risk-adjusted returns for workers. Caps on charges are probably not the best approach because they are likely to legitimize charges that are too high or increase market concentration when too low. Group and other types of discounts, lower barriers to entry, increasing flexibility for product and service differentiation, and better-educated consumers are alternatives that require much more thought and effort than caps and restrictions on transfers between funds.

From a regulatory perspective the payout stage is the least developed. In several countries workers are accumulating savings that in principle could be converted to annuities, yet no technical foundation is available to regulate the products. There is room to improve these regulations in the countries where the market is operating. For example, a few countries may be forcing too much annuitization by most reasonable standards. Uruguay is the extreme example of this anomaly in system design.

### **Early Experiences of the New Pension Systems**

Focusing on system design can be valuable insofar as actual performance measures mask underlying flaws that appear only when the system matures or suggest poor performance due to exogenous factors. This is especially the case when there is a temptation to rush to judgment about a contentious shift in a paradigm. Short experiences in pension reform are unlikely to indicate what kind of pensions workers today will receive in 30 years when the first cohort to have participated for their entire working lives finally retires.

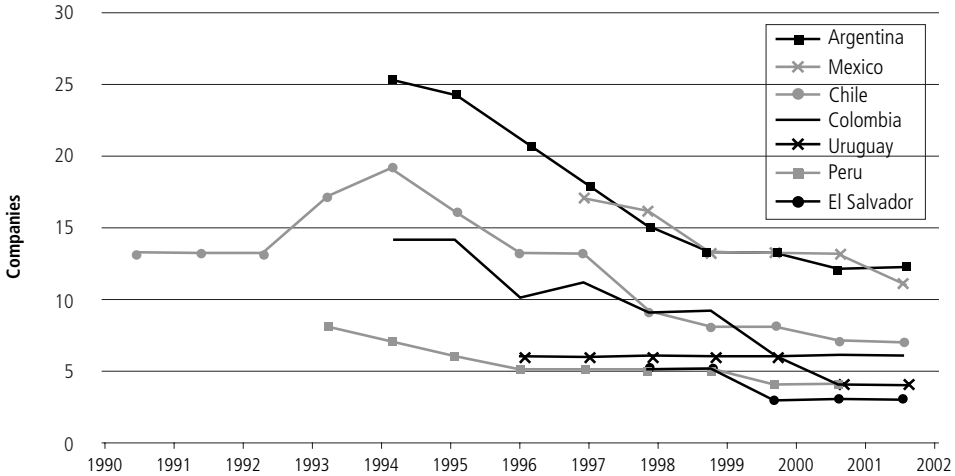
The new pension systems have not functioned long enough for any definitive conclusions to be drawn. This is true even for Chile, though there is growing evidence of success by certain measures based on the 22 annual observations available. Still, during the long voyage to scheme maturation it is useful to reflect every few steps on the direction in which things seem to be heading and to identify potential problems. This section reflects on experiences through 2002, drawing on 55 country-year observations.

#### ***Early Experiences with the Accumulation Period***

In 2003 more than 50 million workers will make contributions in the nine countries where the new systems have begun to operate. A much larger number now hold individual account balances. The early experiences include the development of the new pension fund industry, growth of assets, and portfolio composition, costs, charges, and rates of return.

Figure 6.2 shows the process of industry consolidation over time in seven countries. As in many new markets, the tendency is for competition for market share among various entrants to be followed by the sale of one firm to another or merger

**Figure 6.2. Number of Pension Fund Companies in Seven Latin American Countries, 1990–2002**



Source: Salomon Smith Barney (2002); Federación Internacional de Administradoras de Fondos de Pensiones (FIAP) survey.

in order to reap economies of scale. This process is now unfolding in the new systems of Costa Rica and the Dominican Republic.

The resulting market concentration is a cause of concern for supervisors for at least two reasons. First, concentration may limit competition if there are possibilities for collusion. In light of the projected accumulation of assets, a relatively small number of firms would eventually manage a large portion of long-term savings in the economy. This raises some (but not all) of the concerns discussed in the context of monopoly public pension funds (see Iglesias and Palacios 2000). On the other hand, over time this concern is mitigated by the fact that insurance institutions also become important players.

Table 6.9 describes pension market conditions in each country in 2002. In all countries at least 50 percent of the contributors belong to the three largest firms, and in four countries this ratio is above 80 percent. In some countries the size of assets relative to stock market capitalization and the percentage of outstanding debt held by pension funds are already high. The projected asset figures for 2015 suggest that the degree of market power will increase sharply. Finally, the average number of con-

**Table 6.9. Market Indicators for Pension Fund Managers and Annuity Providers in Latin America, 2002**

Country	Share of affiliates at three largest managers (percent)	Average contributors per manager	Share of foreign ownership (percent)	Operating costs per contributor (U.S. dollars)	Number of annuity providers
Argentina	60	267,250	66	100	20
Bolivia	100	380,500	76	19	1
Chile	71	489,000	62	51	17
Colombia	69	374,000	48	66	9
Costa Rica	80	77,750	0	22	1
Dominican Rep. <sup>a</sup>	70	59,333	—	—	—
El Salvador	100	330,940	77	116	n.a.
Mexico	55	1,149,100	72	51	14
Peru	85	291,975	72	69	5
Uruguay	92	154,165	20	50	2

n.a. Not applicable.

a. Data as of September 2003.

Source: Salomon Smith Barney (2002); Federación Internacional de Administradoras de Fondos de Pensiones (FIAP) survey; SIPEN (2003); author's calculations.

tributors per pension fund manager is more than 350,000. This highlights a special problem facing small countries with low coverage: maintaining a competitive market with multiple players and ensuring contestable markets.

Several requirements for participating in the market make it harder to generate competition. Requirements for sole purpose fund managers, restrictions on ownership, and minimum capital and reserves related to guarantees increase startup costs. The specialized nature of the activity has also led certain actors to seek transnational economies of scale, as evidenced by the participation of certain foreign institutions in multiple markets.<sup>18</sup>

Each country's pension industry is supervised by specialized or integrated agencies, as described earlier. Supervising a modern financial sector generally requires well-trained staff and extensive information technology—which requires competi-

<sup>18</sup> The prime examples here are BBVA and Citibank, which have major operations in several countries.

**Table 6.10. Indicators for Private Pension Fund Supervisors in Latin America, 2002**

Country	Staff per fund	Staff per 100,000 contributors	Budget per fund (U.S. dollars)	Budget per contributor (U.S. dollars)	Budget as share of wage bill (percent)	Financing source
Argentina	16	6.3	322,657	1.3	0.05	Industry fees
Chile	20	4.1	711,135	1.5	0.03	Government
Costa Rica	9	11.1	445,865	5.7	0.14	Mixed <sup>a</sup>
Dominican Rep. <sup>b</sup>	8	9.1	350,000	4.0	0.12	Industry fees
El Salvador	35	22.2	1,016,440	6.5	0.08	Mixed
Mexico	19	1.7	1,675,078	1.5	0.02	Mixed

a. Central Bank required to cover 80 percent, with the rest paid by industry fees.

b. Based on target staff levels and budget and estimated contributor population by end-2003.

Source: Author's calculations based on Martinelli (2003) and Palacios (2003a).

tive pay and sufficient budgets. For the specialized entities it is possible to compare staffs and budgets and to identify sources of financing, as in Table 6.10.

The table provides normalized indicators for six specialized supervisors. There is evidence of economies of scale, especially with regard to the size of the budget relative to contributors and the covered wage bill. For example, relative to larger markets Costa Rica, the Dominican Republic, and El Salvador would have to levy much larger fees as a share of contributions or per contributor to finance the supervisor. The evidence is less clear on spending per pension fund administrator—partly reflecting the immaturity of the markets in Costa Rica and the Dominican Republic. Further consolidation is likely to double the ratios of staff per fund and supervisory budget per fund shown here over the next few years. El Salvador appears to be the most expensive and has the highest ratio of staff to funds. But these figures actually understate this case because one of the three firms is not viable. However, the role of the supervisor has been more extensive in El Salvador, as it has been directly involved in assigning individual identification numbers and determining disability (Acuna 2003).

Financing strategies range from complete budget support in Chile to industry fees in Argentina and the Dominican Republic (ignoring startup costs). Costa Rica, El Salvador, and Mexico have mixed financing, although in Costa Rica current financing is almost completely dependent on the Central Bank.

OECD (2003) discusses the tradeoffs between these strategies. Complete dependence on the budget could expose the supervisor to fiscal constraints that hamper its ability to keep up with state-of-the-art technology and competitive salary scales. It could also be a source of political influence that jeopardizes its independence. On the other hand, reliance on industry fees could lead to regulatory capture. Another important argument, especially in countries with low coverage, is that it is inequitable to provide general revenue financing of supervision concerned with a small and relatively high-income part of the labor force. But this could be said for other elements of financial sector supervision and may ignore a certain public good element.

The industry is specialized, heavily regulated, and concentrated—factors that may affect the level of commissions charged. Table 6.11 compares commissions including and net of disability and survivor insurance costs for 10 Latin American countries. The determinants and difficulties of comparing insurance benefits have already been discussed. Among the price determinants are the defined benefit level prescribed,

**Table 6.11. Commissions and Insurance Premiums Charged by Latin American Pension Fund Managers, June 2003**  
(Percentage of average covered wage)

Country	Total commission	Disability and survivor insurance	Net commission
Argentina	2.25	0.80	1.45
Bolivia <sup>a</sup>	2.21	1.71	0.50
Chile	2.26	0.67	1.59
Colombia	3.50	1.58	1.92
Costa Rica	n.a.	n.a.	n.a.
Dominican Rep. <sup>b</sup>	1.50	1.00	0.50
El Salvador	2.98	1.28	1.71
Mexico <sup>c</sup>	4.14	2.50	1.64
Peru	3.51	1.24	2.27
Uruguay <sup>d</sup>	2.81	0.87	1.93

n.a. Not applicable.

a. In addition, a commission is charged for management of the investment portfolio. This charge is limited to 0.02285 percent of assets under management.

b. Does not include charges that can be levied on returns beyond a certain threshold.

c. Similar commission over the flow. The 2.5 percent contribution for insurance goes directly to the Instituto Mexicano de Seguridad Social (IMSS) and is independent from the pension system.

d. In addition, a commission is charged for custody, which in December 2002 averaged 0.00293 percent of the individual account balance.  
Source: AIOS (2003a); Salomon Smith Barney (2002).

disability incidence by age cohort, the age structure of affiliates, and the rate of return on individual accounts.<sup>19</sup> In addition, there is evidence that competition in this area is limited and that pension funds may engage in cross-subsidies by purchasing policies from entities belonging to the same financial group.<sup>20</sup> But little research is available that would shed light on the variation observed across countries or over time, and this remains an important area for future investigation.

Net commissions range from 0.5 to 2.3 percent of average covered wages, but these figures are difficult to compare for several reasons. As noted, charge structures vary across countries. So, for example, Mexican charges—which take various forms (asset based, return based, flat fees, and so on)—must be converted into an equivalent percentage of the average wage for comparisons. Other countries, such as Costa Rica and the Dominican Republic, also allow charges based on returns and would also have to be converted into a percentage of the average wage.

Whitehouse (2000) calculates charge ratios and reductions in yields for selected Latin American countries. Using the charge ratio concept, which measures the reduction in the accumulated balance resulting from charges, he finds a range of 13.5–26.0 percent, noting that these results are sensitive to various assumptions. These figures seem large relative to the more common expression of charges as a percentage of assets. But over the life cycle, using reasonable assumptions, a charge ratio of 15–20 percent is equivalent to about 1 percent of assets for workers who contribute 10 percent of their earnings over their entire careers.<sup>21</sup>

While it is appropriate to estimate the impact of charges over the life cycle given the ultimate objectives of the pension system, these measures rely on the strong assumption that current charge structures and levels will persist for the next several decades. Thus the simulations lead to the question of what determines charges now and how these factors might change in the future. This requires an analysis of the determinants of the costs facing pension fund administrators and the extent to which those costs directly affect charges.

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<sup>19</sup> Grushka and Demarco (2003) provide simulations for the sensitivity of an equilibrium premium level to these factors.

<sup>20</sup> See Palacios and Rofman (2000) for a fuller discussion of the market in four Latin American countries.

<sup>21</sup> Intuitively, if charges are taken out of contributions each period and placed in a separate account earning the same return as the individual account balance, the ratio of accumulated charges to the individual account at the point of retirement should be the same as the share of the contribution deducted each period.



It is commonly assumed, for example, that there are economies of scale in the pension fund industry, and there seems to be empirical evidence supporting this assumption (see Donoso 2002). Table 6.12 shows the results of a simple multivariate regression based on 49 pension fund managers from eight countries in 2002. The cost per contributor (in U.S. dollars) is found to be significantly and negatively related to the number of contributors across this sample, suggesting economies of scale. The average income of the country is also taken into account due to the different wage costs and importance of salaries in the cost structure. Country income level is significant and positively related to the cost per contributor. Figure 6.3 compares the implied cost per contributor and the number of contributors per fund manager in a country that has the average income of the sample. Costs fall by half as the number of contributors rises from 50,000 to around 1 million. (Similar results were found when using costs per affiliate.)

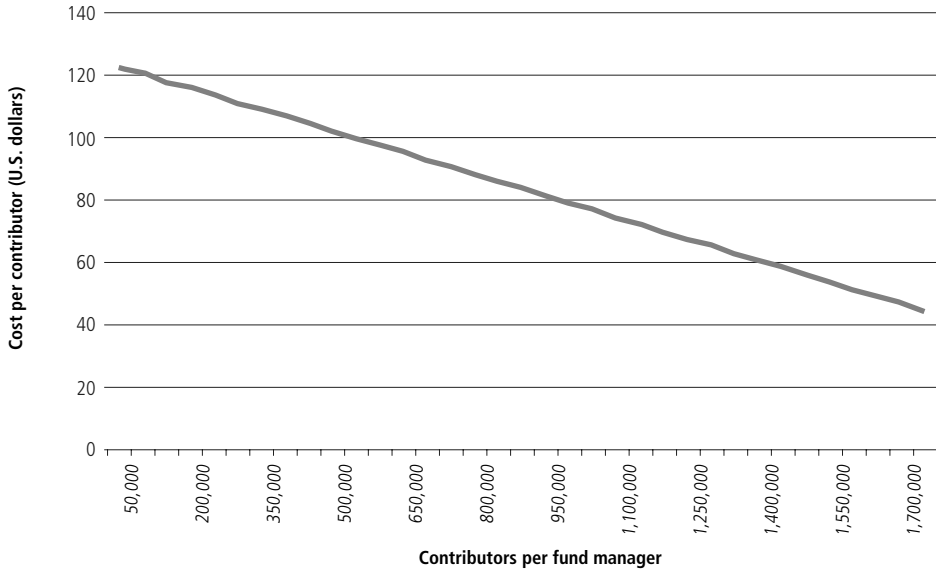
These factors do not explain all the variation in costs for the sample. Not taken into account are other features of the system that could affect pension fund costs, including the structure and charges for contribution collection and record-keeping, fees paid to finance supervision, taxes, transaction costs in local capital markets, reserve requirements, and reporting rules. The maturity of the scheme may also affect costs if recipients of scheduled withdrawals add to the administrative burden. Table 6.12 suggests that these factors may account for more than a third of the variation in costs across Latin America.

**Table 6.12. Relationship between Cost per Contributor and Contributors per Manager for 49 Latin American Pension Fund Managers, 2002**

Variable	Coefficient	t-statistic
Contributors	-0.0000462	-2.4
Income per capita (PPP US\$)	0.03272	7.5
Costa Rica dummy	-144	-4.4
Intercept	-136.3	-3.4
Adjusted R <sup>2</sup> = .59		
Observations = 49		

*Note:* Costs are measured in U.S. dollars.  
*Source:* Author's calculations.

**Figure 6.3. Average Economies of Scale for 49 Latin American Pension Fund Managers, 2002**



Note: The figure shows a fitted line for the unweighted average income of the eight countries in the sample.  
Source: Author's calculations.

For contributors, what matters is whether lower costs translate into lower charges. Not surprisingly, there is a strong correlation between costs and commissions in the sample.<sup>22</sup> But there is also evidence of price dispersion within the same markets. Such large variations are unlikely to be explained solely by differences in product or quality of service. This reinforces similar findings for Chile presented by Donoso (2002) and highlights the apparent lack of price elasticity of demand that appears to characterize the industry (see Donoso 2002 and Mastrangelo 1999).

High charges in the new systems have been the subject of criticism. The same critics point to economies of scale to suggest that costs should be reduced through centralized management. But these arguments rarely discuss the tradeoffs that come with such policies. The first involves the reductions in service quality that often oc-

<sup>22</sup> The adjusted  $R^2$  for a simple regression of costs on charges per contributor (in dollars) across a sample of 49 pension fund managers was 0.88.

cur when there is little or no competition (at least in the form of market contestability). A key objective of the competitive model is to provide incentives for pension fund managers to invest members' savings effectively. Without competition, risk-adjusted returns may be compromised. It is straightforward to show that large percentage reductions in charges (say, 50 percent) are more than offset by higher long-run returns on investments (say, 1 percentage point). Experiences with investments by public pension monopolies suggest that reductions in returns could be greater than any gains achieved through lower costs and charges in a centralized environment (Iglesias and Palacios 2000).

Another set of tradeoffs exists at a broader level. As is evident from Table 6.13, pension funds will accumulate enormous assets over the next decade. Given the large proportion of long-term savings in the economy that these represent, a highly concentrated pension fund sector could lead to problems in areas such as corporate governance. Moreover, if the logic of the centralization argument were extended, it would imply similar proposals for banking or insurance. A more sophisticated critique of charges in the new systems is concerned with competition policy and sees

**Table 6.13. Current and Projected Assets of Funded Pension Systems in Latin America**

Country	Assets, 2003		Assets, 2015		Assets as share of stock market capitalization, 2002 (percent)	Ownership of government debt, end-2002 (percent)
	Millions of U.S. dollars	Percentage of GDP	Millions of U.S. dollars	Percentage of GDP		
Argentina	15,607	15.6	57,023	30.9	14.5	15.1
Bolivia	1,261	17.2	5,884	43.5	171.8	36.4
Chile	39,672	60.6	95,388	89.7	65.8	63.8
Colombia	5,327 <sup>a</sup>	6.5 <sup>a</sup>	26,825	24.7	40.6	n.a.
Costa Rica	218	1.4	2,088	10.0	3.9	1.3
El Salvador	1,309	9.2	n.a.	n.a.	69.4	16.3
Mexico	34,963	5.6	247,887	26.0	37.1	16.8
Peru	4,541	8.2	26,813	28.1	39.8	2.8
Uruguay	1,149	12.7	1,942	13.3	962.5	8.9

n.a. Not applicable.

a. Data are for 2002.

Source: AIOS (2002, 2003a); Federación Internacional de Administradoras de Fondos de Pensiones (FIAP) survey; Salomon Smith Barney (2002); Soley (2002).

potential for translating greater efficiency into lower commissions when consumers are informed and markets are contestable (Valdés-Prieto 1999).

The massive size of the funds also challenges reformers with regard to investment policy. Today pension fund investment accounts are highly concentrated in government bonds in most countries (Table 6.14). Although this setup offers potential benefits in terms of extending the yield curve and adding liquidity to that particular market, it could also encourage governments to rely on what may be almost a captive source of credit, blurring the distinction between the funded and pay-as-you-go financing models. Moreover, should the pattern continue in the long run, lack of diversification would reduce risk-adjusted returns and, in extreme cases, exposes members to significant default risk.

A key rationale for the new pension systems is that competing defined contribution schemes will seek to maximize risk-adjusted returns. The high real rates of return observed to date suggest that this goal is being achieved (Table 6.15). Though these results cover relatively short periods, they are far superior to anything observed in public pension schemes around the world—including those that operated prior to the reforms in Latin America (Iglesias and Palacios 2000; Mesa-Lago 1991).

**Table 6.14. Portfolio Allocations for Latin American Private Pension Funds by Type of Investment, 2002 (Percent)**

Country	Government debt	Local securities	Foreign securities	Cash and term deposits	Fixed income	Variable income
Argentina	78	11	9	2	90	10
Bolivia	69	14	1	16	100	0
Chile	30	32	17	21	75	25
Colombia	49	34	5	12	93	7
Costa Rica	67	19	0	14	100	0
El Salvador	85	1	0	14	99	1
Mexico	83	15	0	2	100	0
Peru	15	53	7	25	71	29
Uruguay	64	6	0	30	100	0

Source: Federación Internacional de Administradoras de Fondos de Pensiones (FIAP) survey; Salomon Smith Barney (2002).

**Table 6.15. Returns on Individual Accounts, Wage Growth, and Income Growth Since the Inception of Funded Pension Systems in Latin America (Percent)**

Country	Real rate of return since inception	Standard deviation	Real wage growth	Return/wage growth differential	Real per capita income growth	Return/income growth differential
Argentina	11.7	13.4	-0.8	12.5	-0.4	12.1
Bolivia	16.2	n.a.	8.8	7.6	0.4	15.8
Chile	10.5	9.3	1.8	8.7	4.5	6.0
Colombia	11.8	2.6	1.4	10.4	-0.3	12.1
El Salvador	11.3	3.6	-0.2	11.5	0.5	10.8
Mexico	10.6	n.a.	0.0	10.6	2.8	7.8
Peru	5.7	7.5	1.8	3.9	2.4	3.3
Uruguay	9.5	n.a.	3.6	5.9	-0.3	9.8

n.a. Not applicable.

Source: Country surveys; AIOS, Boletín estadístico; ILO (2002a).

However, the analysis of portfolio allocation suggests that these figures must be interpreted with some skepticism. To begin with, the concentration in government bonds may reduce volatility in a way that masks underlying risks. Another problem is the lack of clear values for certain assets. In El Salvador, for example, a large proportion of the portfolio is invested in debt issued by a public housing institution without explicit government guarantees. These assets are not traded, and pension funds are required to buy them. Recent developments in Bolivia provide another example of a significant portion of pension fund assets that cannot be marked to market.<sup>23</sup>

Nevertheless, the experience to date is consistent with the kind of positive differentials between returns and wage growth needed to produce reasonable replacement rates. They also put the question of commissions into perspective: the spreads between returns and wage growth more than offset any reasonable estimates of the cost advantages of a centralized monopoly scheme over a decentralized competitive

<sup>23</sup> In 2002 the Bolivian government forced pension funds to merge individual account assets with the collective fund. In the process, shares of previously capitalized firms that had not been listed in a stock market became part of individual account holdings. The value of these assets is unknown, and what is reported are adjusted book values.

model. They also suggest that funded schemes can provide returns higher than the sustainable rates of return in pay-as-you-go schemes (Valdés-Prieto 2002).

In the long run, however, the spread between government bond yields and the growth of tax revenues needed to pay off the debt and interest implied by these figures (given the high concentrations of the portfolios in government securities) is probably not sustainable in several countries. (Chile and Peru are exceptions.) A differential between returns and wage growth based on the rate of return on capital is more likely to resemble the 3–4 percentage point spread observed in Chile and Peru over the past decade or similar differentials observed for private pension funds with diversified portfolios in OECD countries. This depends crucially, however, on how the regulation of investments evolves.

### *Early Experiences with the Payout Period*

With the exception of Chile, there is little experience with the payout period among Latin American pension reformers. Table 6.16 shows the number of people receiving some kind of old age benefit in seven of the countries. Bolivia, El Salvador, and Uruguay have fewer than 1,000 cases. Only Argentina, Chile, and Colombia have more than 10,000. Chile has by far the most, with more than 400,000.

Annuities were practically nonexistent before the pension reforms created demand for them. For example, in Chile annuities represented less than 7 percent of

**Table 6.16. Number of Old Age Beneficiaries from Funded Pension Systems in Latin America, 1997–2002**

Country	1997	1998	1999	2000	2001	2002
Argentina	1,980	7,299	11,636	21,344	29,318	31,580
Bolivia	0	0	0	0	0	384
Chile	265,601	290,205	322,234	363,351	401,420	414,549
Colombia	1,487	2,787	4,603	6,549	8,880	11,417
El Salvador	0	0	0	0	0	862
Peru	0	0	0	0	2,388	4,939
Uruguay	0	0	0	0	0	73

Source: AIOS (2002); Acuña (2003).

the insurance market as late as 1988—seven years after reform began. In Argentina annuities represented less than 0.2 percent of the market in 1989, five years before reform, and in Peru the market was limited to tax-favored deferred annuity products (Seguros de Retiro) when reform began in 1994. Today the annuity market represents about one-third of the insurance business in Chile, and in Argentina it accounted for 11 percent and in Peru 14 percent at the end of 1998. In Colombia the market is still small and represented less than 3 percent of the insurance sector in 1998, but is growing rapidly. Except in Chile, most of the business is due to annuities for beneficiaries of survivor and disability benefits.

Life insurance companies can participate in annuities markets in Chile, Colombia, and Peru, but Argentina requires specialized providers with separate balance sheets. In 2002, 20 retirement insurance companies were selling pension annuities in Argentina. While this number of companies might suggest a competitive market, there is significant concentration in the top five providers.

Palacios and Rofman (2000) cite problems with the annuities market in several countries. In Argentina and Peru, for example, more than 80 percent of annuities were purchased from an insurance company related to the pension fund manager—suggesting that workers were being channeled toward their annuity providers. There was also evidence that consumers find it difficult to understand the various products.<sup>24</sup>

In several countries the situation is even more difficult due to the small domestic market and dearth of mortality data. While Costa Rica has just completed a detailed mortality analysis to establish the technical grounds for its payout stage, this remains to be done in the Dominican Republic, El Salvador, and Nicaragua. The markets in all of the Central American countries, Bolivia, and the Dominican Republic will continue to be small, and it may be difficult to encourage competition between annuity providers in the medium term. Costa Rica is the extreme case, with only one, state-owned monopoly representing the only potential provider at present.

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<sup>24</sup> With the possible exception of Chile, however, these markets are at such an early stage that it is difficult to engage in the kind of research now prevalent in the economics literature for the United Kingdom and the United States, where the focus is the actuarial fairness of annuity markets as measured by “money’s worth” ratios. But preliminary evidence shows high money’s worth for Chile, and future research will look at the potential for adverse selection effects through the scheduled withdrawals route. Here the question is whether individuals with longer than average life expectancies are more likely to annuitize.

Long-term contracts involving inflation-indexed annuities will be especially difficult to generate in these smaller countries given the state of the insurance sector and the lack of available assets to match these liabilities. This raises questions about how to set reserve requirements. One interim solution will undoubtedly be to rely heavily on the scheduled withdrawal option. This has the important disadvantage of not providing longevity insurance. More creative solutions, such as international bidding for cohorts of retirees, may also be considered in these smaller countries. Whatever the solution, this aspect of the system will become more important as it matures and large numbers of potential annuitants reach retirement age.

### *The Economic Effects of Pension Reforms*

The systemic pension reforms described above may have important effects on savings, labor and capital markets, and, ultimately, economic growth. But these effects are difficult to measure—especially in the short time frame under consideration for all countries except Chile. Estimating these effects is beyond the scope of this chapter. The purpose of this section is only to draw out some of the emerging lessons from the literature. The main lesson is that while there is potential for a positive growth impact through various channels, pension reform alone will not automatically achieve the desired results.

The most obvious example is the impact on savings, which crucially depends on two policies. The first is the extent to which the pension liabilities of the old system are reduced both through parametric reforms and through the valuation of accrued rights for those who join the new system. Even more important is how the transition from pay-as-you-go financing to funding is financed. Both are extremely difficult to measure.

On the first point, available studies generally conclude that reforms, which almost always involve a partial default on existing pension promises, have reduced long-term pension deficits and so increased public savings. (See, for example, Sales-Sarrapy and Solis-Soberon 1998 for Mexico, and Bertranou, Grushka, and Shulthess 2000 for Argentina. Forteza 1999 comes to a more qualified conclusion for Uruguay.) But the limitation of these studies comes when a counterfactual must be assumed. For example, would the parametric reforms to the old system have been passed in the absence of the systemic reform? Similarly, what is the counterfactual for indexation



when this is discretionary in many countries? If pensions in the past decade have been eroded through underindexation under high inflation, is it reasonable to assume that this practice would not have continued in the future?

Another area of great uncertainty involves the financing of the transition. In the short run the so-called transition deficit may result in the growth of public debt to the extent that fiscal policy is not adjusted to accommodate it. It is impossible to predict with any certainty whether future governments will use debt or tax financing to cover the shortfall of pay-as-you-go revenues. In short, savings can be increased if certain fiscal measures are taken in tandem. Tax financing is probably less likely when governments use new pension funds as a captive source of credit. In other words, proper diversification rules for investment are linked to how the transition will eventually be financed.

While there is strong evidence of a positive savings effect in Chile, it is too early to know the outcome in the other countries (see Iglesias 2001 for a review of the literature). What is clear is that a potential gain does exist, that this gain is not possible without pension reform, and that the potential impact is greater in systemic reform. Whether the reform generates this effect depends on whether the prereform liability is reduced (based on the assumed counterfactual) as well as the eventual fiscal accommodation of the transition deficit. Only in Chile has enough time passed to come to some reasonable conclusion on the latter question.<sup>25</sup>

Pension reforms can reduce labor market distortions by reducing the perceived tax element of the contribution or payroll tax and by removing subsidies to retire early. Reducing the tax component of the contribution may reduce the share of the labor force in the informal sector, increasing coverage of the system. It may also increase overall employment. Ultimately, these effects can result in higher growth rates.

Coverage has risen in several countries after reform. In Chile coverage—measured as a share of employment or economically active population—increased by 10 percentage points between 1980 and 1999 (Jimenez and Cuadros 2003, table 4). But this was also a period of rapid economic growth, especially among formal sector employers. To assess the impact of the pension reform in isolation, it is necessary to account for other factors.

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<sup>25</sup> For example, Valdés-Prieto (2002) contends that most of the transition costs in Chile were financed through increased public savings.

The fact that limited empirical evidence is available is due to several complications that arise in the analysis. First, the period being considered is relatively short, and economic conditions were unstable in many cases. Second, the reform does not affect the entire labor force. In fact, most of the reforms do not even encompass all formal sector workers. Using general coverage indicators as the dependent variable therefore fails to isolate the portion of the workforce affected by the reform. Finally, and perhaps most important, the distortions imposed by the pension system are only one of many factors that encourage informal sector activity. The others, including mandatory severance, other social insurance taxes, income taxes, and health and safety regulations (to name a few), may play a greater role than pension taxes in driving small employers into the informal sector.

One of the more detailed empirical studies of the impact of systemic pension reform, by Colina, Ronconi, and Tommasi (2002), uses household survey data to test for the presence of a structural change in coverage attributable to the introduction of the new, private pension scheme in Argentina. The authors' dataset allowed them to differentiate between workers covered under the private funded scheme and those under the public pay-as-you-go scheme and to control for a series of other variables. The study provided econometric evidence that the "costs associated with the labor code, collective bargaining and social security have a negative impact on coverage, especially for those workers with low productivity" (p. 30). But the authors could not identify any statistically significant impact on coverage due to the introduction of the new private pension scheme. They concluded that this reform appears to have had no impact or at most an impact much less important than other factors unrelated to the design of the pension system.

In contrast, Edwards and Cox-Edwards (2002) arrive at a more favorable estimate of the positive impact of reform in the Chilean case. Based on simulations using Chilean parameters, they find that the reform may have increased informal sector wages and reduced overall unemployment. The result may reflect, among other things, the maturity and high coverage of the Chilean system and the greater extent to which the system was shifted from unfunded to funded than, for example, in Argentina.

While there is general agreement that incentives to participate in publicly mandated pension schemes can be improved through better design, there is little empirical evidence to suggest that these are crucial determinants of formal sector

participation. Many other factors—from rigidities in the labor market code to minimum wage rules, transaction costs associated with labor registration, and even confidence in government institutions—are likely to be just as important. Thus, applied in isolation, systemic pension reform is unlikely to lead to a significant increase in coverage. It is also clear that the impact of the reform on the overall labor market will be less the smaller the share of the labor force covered in the funded scheme and the larger the residual pay-as-you-go, defined benefit scheme. No doubt these hypotheses can be tested in the future given the wide variation of design and coverage among countries that have introduced reforms.

The potential impact on capital markets arises from the presence of a new class of institutional investors interested in long-term savings instruments that match the structure of their liabilities or outflows. These investors bring a new dimension to capital markets, allowing for the creation of a yield curve and the development of long-dated securities including those backed by mortgages. They can also increase liquidity, reducing spreads and improving price discovery in what are typically thin markets. Several studies have documented this effect empirically in Chile (Holzmann 1996; Lefort and Walker 2001).

Increased savings, reduced labor market distortions, and improvements in domestic capital markets can each have a positive impact on economic growth. But as noted, the potential benefits may not be reaped if other factors are at work. In this regard the main risk is that governments effectively reintroduce the pay-as-you-go model through the back door by mandating investments or financing deficits.

On the other hand, if workers' savings are channeled effectively and governments find a way to pay off a significant portion of the implicit pension debt that remains from the old model with higher taxes or reduced spending, a positive savings impact is highly probable. The link between savings rates and growth is generally accepted. Combined with improved efficiency in labor and capital markets, a positive impact on economic growth is likely.

As was the case when the wave of reforms began, Chile again provides an example for more recent reformers. Parallel reforms, privatization, reduced tax burdens, disciplined fiscal policy, and especially capital market reforms coincided with the early phase of pension reform. A recent study by Corbo and Schmidt-Hebbel (2003) isolates these effects, focusing on the growth impact of the pension reform. The authors find that the combined effect of labor, capital market, and savings im-

pacts on growth through total factor productivity was on the order of 0.2–0.9 percent a year during 1981–2001.

In summary, the evidence suggests that pay-as-you-go schemes may reduce savings, can exacerbate labor market distortions, and clearly do not contribute to capital market development. Funded schemes, in contrast, have the potential to improve all three areas under the right conditions. The challenge for the countries that have reformed recently is to harness this potential, as Chile appears to have done over the past two decades.

## Lessons

A new model of pension provision that includes a fully funded, defined contribution component offers an alternative to the more traditional defined benefit model that dominated during the 20th century. This model has been applied in countries as different in their social and economic models as Hong Kong and Sweden, along with eight formerly socialist countries in Eastern Europe. Many more countries, such as China and Russia, are considering defined contribution schemes, and India has developed (though not yet implemented) one for its civil servants.

But most of the experience to date has been in Latin America, where the Chilean system has operated for 22 years and where newer systems have cumulative experience totaling 33 more years. Millions of workers in these countries have opened accounts in specialized firms under strict supervision, acquiring property rights and a greater degree of control over their retirement income. Many of these had the option to remain in the old defined benefit scheme, but opted for the new private scheme. While critics have cited high charges for this specialized service, net rates of return have been sufficient to ensure reasonable levels of retirement income for workers who contribute regularly. Finally, almost all the countries have incorporated redistribution to those with low accumulated balances, so a safety net exists to alleviate old age poverty. The first lesson, then, is that it is possible to design and implement this new model in a wide variety of circumstances.

A corollary to this, however, is that the exact dimensions of the system—including target retirement income levels and the mix between unfunded defined benefit and funded defined contribution elements—varies widely across the region. There is not a “Latin American model” in terms of the degree to which the pension

system is managed publicly or privately or to which individual members are exposed to the risk that government promises will be broken versus fluctuations in financial markets. Similarly, Caribbean countries will certainly select different permutations of systemic reforms if they choose this path.

Another emerging lesson from the region relates to investment policy. It seems clear that high returns based on real interest rates on government bonds that exceed the growth of the economy cannot be sustained in the long run. Some countries, such as Chile and Mexico, have been able to tap into relatively deep domestic capital markets, and parallel reforms in the financial sector may even be encouraged by the presence of this new pool of long-term savings managed competitively. Smaller countries, such as El Salvador, will find local market constraints to be binding much sooner. Even in the countries with the most advanced capital markets, however, the arguments for diversification grow stronger the larger the pool of pension fund assets relative to the national economy. In the Caribbean—for publicly managed pension funds as well as private—the diversification argument is compelling.

Finally, and perhaps most relevant for a region with a constellation of small populations, it is increasingly clear that there are economies of scale that can be taken advantage of in the interests of the members of the scheme. Systems with fewer than, say, 100,000 members will find it difficult to support a competitive market of fund managers, and fixed costs may significantly reduce net investment returns. Provision of insurance, both during the active stage and at retirement, will be expensive if done on a small scale. Duplication of record-keeping, asset management, and even supervision will reduce the ultimate pensions that can be paid out. The experience thus far suggests that despite the difficulties involved, regional integration should be seriously considered to contain costs and promote competition.

**Annex 6.1. Investment Limits by Asset Class for Private Pension Fund Managers in Latin America, 2002**  
(Percent)

Country	Government			Private										Foreign				
	Central	Local	Others	Financial institutions			Companies			Others			Mutual funds		Equity	Bonds	Equity	Mutual funds
				Cash and term deposits	Bonds	Mortgage backed securities	Bonds	Equity	Bonds	Equity	Derivatives	Bonds						
Argentina	50.0	30.0		30.0		40.0	60.0	20.0	20.0	2.0	10.0	10.0						
Bolivia	100.0	10.0		50.0		50.0	45.0	40.0	10.0									
Chile	50.0			50.0		50.0	70.0	40.0	25.0	25.0	20.0	10.0						
Colombia	50.0		20.0	2.0	40.0	40.0	30.0	30.0	5.0									
Costa Rica	70.0			5.0	70.0	30.0			20.0									
Dom. Rep.			10.0	60.0		50.0	70.0	30.0										
El Salvador	80.0		15.0	40.0		15.0	50.0	5.0										
Mexico																		20.0
Nicaragua	50.0			50.0		30.0	50.0	10.0										30.0
Peru	60.0			30.0	25.0	40.0	40.0	35.0	15.0	5.0	7.5							
Uruguay	60.0		30.0	30.0	20.0	25.0												0.0

## Annex 6.2. Investment Limits by Issuer for Private Pension Fund Managers in Latin America, 2002

(Percent)

Country	Local government	Term deposits	Financial institution bonds	Mortgage backed securities	Bonds	Equity	Mutual funds	Foreign bonds	Foreign equity
Argentina	4.0	5.0		5.0	5.0	2.5		2.5	2.5
Bolivia			10.0		10.0	10.0			
Chile					7.0	5.0			
Colombia					10.0				
Costa Rica					5.0	5.0			
Dom. Rep.						10.0	5.0		
El Salvador					6.0	5.0			
Mexico									
Nicaragua					10.0	10.0	5.0		
Peru						7.5	3.0		
Uruguay					3.0	3.0			

## REFERENCES

- Acuña, R. 2003. The Reformed Pension System in El Salvador. Pension reform primer working paper. World Bank, Washington, DC. [[www.worldbank.org/pensions](http://www.worldbank.org/pensions)].
- AIOS (Asociación Internacional de Organismos de Supervisión de Fondos de Pensiones). 1999. Análisis de la rentabilidad de los fondos de pensión. *Revista internacional de fondos de pensiones* 1.
- . 2002. *Boletín estadístico* 7 (Junio).
- . 2003a. *Boletín estadístico* 9 (Junio).
- . 2003b. La capitalización individual en los sistemas previsionales de América Latina. Santiago, Chile. [<http://www.aiosfp.org/>].
- Ariztia, J. 2002. Análisis tema supervisión previsional. Paper presented at the conference, Regulación de los sistemas de pensiones de capitalización individual: visiones de los sectores público y privado, December, Lima, Peru.
- Asociación de AFP Chile. 2003. *Multifondos: resultados y tendencias*. vol. 1. Santiago, Chile.
- Banco de Previsión Social. 2000. *Estadísticas de previsión social*. Montevideo, Uruguay.
- Bertranou, F., C. Grushka, and W. Shulthess. 2000. Proyección de responsabilidades fiscales asociadas a la reforma previsional en Argentina. Economic Commission for Latin America and the Caribbean, Santiago, Chile.
- Bravo, J., and A. Uthoff. 1999. Transitional Fiscal Costs and Demographic Factors in Shifting from Unfunded to Funded Pensions in Latin America. Serie financiamiento del desarrollo 88. Economic Commission for Latin America and the Caribbean, Santiago, Chile.
- Bucheli, M. 1999. Los efectos de la reforma en las cuentas generacionales. In A. Forteza (ed.), *La reforma de la seguridad social en Uruguay: efectos macroeconómicos y mercados de capitales*. Montevideo, Uruguay: Universidad de la República.
- Cifuentes, R., and B. Felipe Larraín. 1998. The Current Status of Pensions Systems in Central America: An Assessment. Discussion paper 647. Harvard Institute for International Development, Cambridge, Mass.
- Colina, J., L. Ronconi, and M. Tommasi. 2002. Problemas para la expansión del grado de cobertura en el sistema reformado de pensiones argentino. Centro de Estudios para el Desarrollo Institucional (CEDI), Buenos Aires.



- Corbo, V., and K. Schmidt-Hebbel. 2003. Macroeconomic Effects of Pension Reform in Chile. Paper presented at the Federación Internacional de Asociaciones de Pensiones Conference, May, Cancun, Mexico.
- Cottani, J., and G. Demarco. 1998. The Shift to a Funded Social Security System: The Case of Argentina. In M. Feldstein (ed.), *Privatizing Social Security*. Cambridge, Mass.: National Bureau for Economic Research.
- Davis, J., R. Ossowski, T. Richardson, and S. Barnett. 2000. Fiscal and Macroeconomic Impact of Privatization. IMF Occasional Paper 194. International Monetary Fund, Washington, DC.
- Demarco, G., and C. Grushka. 2003. Disability Pensions and Systemic Pension Reforms: The Latin American Experience. Pension reform primer working paper. World Bank, Washington, DC. [[www.worldbank.org/pensions](http://www.worldbank.org/pensions)].
- Devesa-Carpio, J., and C. Vidal-Meliá. 2002. The Reformed Pension Systems in Latin America. Pension reform primer working paper. World Bank, Washington, DC. [[www.worldbank.org/pensions](http://www.worldbank.org/pensions)].
- Donoso, A. 2002. Precios en sistemas previsionales de capitalización individual: consideraciones sobre el caso chileno. Paper presented at a Federación Internacional de Administradoras de Fondos de Pensiones (FIAP) conference, Lima, Peru.
- Edwards, S. 1998. The Chilean Pension Reform: A Pioneering Program. In Martin Feldstein, ed., *Privatizing Social Security*. Cambridge, Mass.: National Bureau for Economic Research.
- Edwards, S., and A. Cox-Edwards. 2002. Social Security Privatization Reform and Labor Markets: The Case of Chile. NBER Working Paper 8924. National Bureau for Economic Research, Cambridge, Mass.
- Forteza, A. 1999. Los efectos fiscales de la reforma. In A. Forteza (ed.), *La reforma de la seguridad social en Uruguay: efectos macroeconómicos y mercados de capitales*. Montevideo, Uruguay: Universidad de la República.
- Grushka, C., and G. Demarco. 2003. Disability Pensions and Social Security Reform: Analysis of the Latin American Experience. Pension reform primer working paper. World Bank, Washington, DC. [[www.worldbank.org/pensions](http://www.worldbank.org/pensions)].
- Holzmann, R. 1996. Pension Reform, Financial Development and Economic Growth: Preliminary Evidence from Chile. IMF Working Paper 96/94. International Monetary Fund, Washington, DC.

- Iglesias, A. 2001. Chile's Pension Reform after 20 Years. Pension reform primer working paper. World Bank, Washington, DC. [[www.worldbank.org/pensions](http://www.worldbank.org/pensions)].
- Iglesias A., and R. Palacios. 2000. Managing Public Pension Reserves: Evidence from the International Experience. Pension reform primer working paper. World Bank, Washington, DC. [[www.worldbank.org/pensions](http://www.worldbank.org/pensions)].
- ILO (International Labour Organization). 2002a. *Cuadro de salarios reales*. Geneva.
- . 2002b. *Pensiones no contributivas y asistenciales*. Geneva.
- Jimenez, L., and J. Cuadros. 2003. Evaluación de las reformas a los sistemas de pensiones: cuatro aspectos críticos y sugerencias de política. Serie financiamiento del desarrollo 131. Economic Commission for Latin America and the Caribbean, Santiago, Chile.
- Lefort, F., and E. Walker. 2001. Pension Reform and Capital Markets: Are There Any Hard Links? Pension reform primer working paper. World Bank, Washington, DC. [[www.worldbank.org/pensions](http://www.worldbank.org/pensions)].
- Martinelli, A. M. 2003. Benchmark de las superintendencias de pensiones en América Latina. Estudio Especial 2. Superintendencia de Pensiones, San Jose, Costa Rica.
- Mastrangelo, J. 1999. Políticas para la reducción de costos en los sistemas de pensiones: el caso de Chile. Economic Commission for Latin America and the Caribbean, Santiago, Chile.
- Mesa-Lago, C. 1991. Portfolio Performance of Selected Social Security Institutes in Latin America. Discussion Paper 139. World Bank, Washington, DC.
- . 2002. Myth and Reality of Pension Reform: The Latin American Experience. *World Development* 30 (8): 1309–21.
- OECD (Organisation for Economic Co-operation and Development). 2003. Supervisory Structures for Private Pension Funds: Preliminary Survey Results. Directorate for Financial, Fiscal and Enterprise Affairs, Insurance Committee, Working Party on Private Pensions, Paris.
- Palacios, R. 2002. Managing Public Pension Reserves Part II: Lessons from Five OECD Initiatives. Pension reform primer working paper. World Bank, Washington, DC. [[www.worldbank.org/pensions](http://www.worldbank.org/pensions)].
- . 2003a. Pension Reform in the Dominican Republic. Pension reform primer working paper. World Bank, Washington, DC. [[www.worldbank.org/pensions](http://www.worldbank.org/pensions)].

- . 2003b. Systemic Pension Reform in Latin America: At the Crossroads. In *Pension Reforms: Results and Challenges*. Santiago, Chile: International Federation of Pension Fund Administrators.
- Palacios, R., and M. Pallarés-Miralles. 2000. International Patterns of Pension Provision. Pension reform primer working paper. World Bank, Washington, DC. [www.worldbank.org/pensions].
- Palacios, R., and R. Rofman. 2000. Annuity Markets and Benefit Design in Multipillar Pension Schemes: Experience and Lessons from Four Latin American Countries. Pension reform primer working paper. World Bank, Washington, DC. [www.worldbank.org/pensions].
- Rofman, R. 2003. El sistema provisional y la crisis de la Argentina. Documento de Trabajo 7/03. World Bank, Washington, DC.
- Sales-Sarrapy, C., and F. Solis-Soberon 1998. Pension System Reform: The Mexican Case. In M. Feldstein, ed., *Privatizing Social Security*. Cambridge, Mass.: National Bureau for Economic Research.
- Salomon Smith Barney. 2002. Private Pension Funds in Latin America.
- Schmidt-Hebbel, K. 1999. Latin America's Pension Revolution: A Review of Approaches and Experience. Paper prepared for the Annual Bank Conference on Development Economics, April, World Bank, Washington, DC.
- Siandra, E. 1999a. La inversión extranjera de los fondos de pensiones y el desarrollo del mercado de capitales domésticos. In A. Forteza, ed., *La reforma de la seguridad social en Uruguay: efectos macroeconómicos y mercados de capitales*. Montevideo, Uruguay: Universidad de la República.
- . 1999b. La reforma de la seguridad social y los mercados de capitales. In A. Forteza, ed., *La reforma de la seguridad social en Uruguay: efectos macroeconómicos y mercados de capitales*. Montevideo, Uruguay: Universidad de la República.
- SIPEN (Superintendencia de Pensiones). 2003. Sistema Dominicano de pensiones, boletín 1. Santo Domingo, Dominican Republic.
- Soley, T. 2002. Proyección de Fondos. Superintendencia de Pensiones, San Jose, Costa Rica.
- Solis-Soberon, F. 1999. The Regulation of Investments in Latin American Defined Contribution Public Pension Schemes. Organisation for Economic Co-operation and Development, Paris.

- Srinivas, P. S., E. Whitehouse, and J. Yermo. 2000. Regulating Private Pension Funds' Structure, Performance and Investments: Cross-country Evidence. Pension reform primer working paper. World Bank, Washington, DC. [www.worldbank.org/pensions].
- Superintendencia de Administradoras de Fondos de Pensiones. 2002. *El sistema chileno de pensiones*. Santiago, Chile.
- Tarzajan, J. 2002. Justificación para inversión en el extranjero de los fondos de pensiones de El Salvador. Paper commissioned by the government of El Salvador.
- Valdés-Prieto, S. 1998. The Latin American Experience with Pension Reform. *Annals of Public and Cooperative Economics* 69 (4): 483–516.
- . 1999. Costos administrativos en un sistema de pensiones privatizado. Discussion Paper 677. Harvard Institute for International Development, Cambridge, Mass.
- . 2000. Reply to the Article 'Do Investment Regulations Compromise Pension Fund Performance? Evidence from Latin America,' by P. S. Srinivas and Juan Yermo. *Revista de análisis económico* 14 (1): 67–120.
- . 2002. *Políticas y mercados de pensiones: un texto universitario para América Latina*. Santiago: Ediciones Universidad Católica de Chile.
- Whiteford, P. 1995. The Use of Replacement Rates in International Comparisons of Benefit Systems. *International Social Security Review* 48 (2/95).
- Whitehouse, E. 2000. Administrative Costs in Funded Pension Schemes. Pension reform primer working paper. World Bank, Washington, DC. [www.worldbank.org/pensions].
- . 2001. Pension Systems in 15 Countries Compared: The Value of Entitlements. Discussion Paper 02/04. University of New South Wales, Centre for Pension and Superannuation, Sydney, Australia.
- . Forthcoming. Guide to Latin American Pension Systems. Pension reform primer working paper. World Bank, Washington, DC. [www.worldbank.org/pensions].
- World Bank. 1994. *Averting the Old Age Crisis: Policies to Protect the Old and Promote Growth*. New York: Oxford University Press.

## **Recent Pension Reforms in Sweden and Italy: The Notional Defined Contribution Approach**

*Giuseppe Pennisi*

**D**uring the 1980s and 1990s aging populations forced almost all Western European countries to change key elements of their pension systems, which had been designed under assumptions of rapidly growing employment, young workforces, and low dependency rates. While most Western European countries have introduced parametric changes in their pension systems and encouraged varying degrees of privatization, Sweden and Italy have maintained strong pay-as-you-go public pillars—but drastically revised them from defined benefit to notional defined contribution schemes. Such reforms are now being considered by many other countries around the world.

This chapter analyzes Sweden and Italy's pay-as-you-go notional defined contribution schemes and highlights differences in the countries' political economy and final outcomes. The two main pension reform models in the Caribbean—the Barbadian and the Trinidad and Jamaican—are broadly based on social insurance schemes and mirror continental Western European approaches, because they rest on strong public pillars rather than private pension plans or stakeholder pension arrangements. Thus the Caribbean models have less in common with the U.K. approach and the Latin American pension system privatization of the 1980s and 1990s. At the same time, both the Barbadian and the Trinidad-Jamaican models require changes to cope with projected demographic pressures, migration, and social and political demands for better and more equitable coverage, better resource allocation and management, and development of multipillar systems for more balanced risk diversification.

The pay-as-you-go notional defined contribution approach, coupled with the development of a funded pillar, could be a pension reform model for many Car-

ibbean countries. It combines the pay-as-you-go social insurance approach with built-in adjustments to address demographic pressures, public finance constraints, and equity objectives. It is also extremely flexible, and can be tailored to country conditions.

### **Western European Pension Systems: Emergence, Evolution, and Reform**

Pension systems were introduced in Western Europe at the end of the 19th century and evolved over the 20th century, generally as part of broader welfare systems. Their gradual development in the first half of the 20th century gave way to rapid expansion after World War II, encompassing entire populations. All the systems had a similar goal: providing insurance against the risk of becoming old—initially an unlikely prospect for most people because in many countries the retirement age was 70 and the probability of reaching it was extremely small.

In parallel, other parts of welfare systems provided insurance against risks of becoming unemployed, disabled, poor, and the like. Philosophically these pension and welfare systems rested on social welfare theory, a consequence-based (or consequentialist) approach geared toward formulating and implementing corrective action to mitigate market failures and other societal imperfections. (Sen 1992 and 2000 provide excellent treatments of these philosophical aspects of the pension and welfare debate.)

Each pension and welfare system is the result of a delicate balance of economic, social, and political power. Worldwide, pension systems are broadly classified as based on defined contributions or defined benefits, funded or unfunded, and actuarial or nonactuarial (Lindbeck and Persson 2003). A more specific taxonomy is used to depict the principal features of Western European pension and welfare systems as they were originally designed (see Table 7.1):

- In terms of *eligibility* there are universal systems where, subject to certain criteria, all citizens (or residents) of a country are entitled to basic welfare and pension coverage, often based on a flat rate element complemented by an earnings-related component, and particularistic, occupation-based systems where welfare and pension mechanisms are tied to recipients' status, normally their occupation.

- In terms of *financing* there are systems financed almost entirely by general taxation and those financed mostly by contributions from workers (as future retirees) and their employers. More important, some welfare and pension systems are based on pay-as-you-go mechanisms where current benefits are paid out of current revenues (contributions) and the general exchequer, while others rely on funded mechanisms that pay benefits using proceeds from capital accumulation.
- In terms of *administration*, some systems are centrally run by public sector entities and some are highly decentralized to other public or semipublic institutions, often operated as autonomous agencies under boards and management committees representing workers and employers (Flora and Heidenheimer 1983; Ferrera 1993, 1998; Esping Andersen 1996a, 1999; Clark, Craig, and Wilson 2003; Mitchell, Myers, and Young 2003; Venditti 2003).

Most Western European welfare and pension systems have evolved into mixed systems with varying elements of all these features and of defined contribution and defined benefit, funded and unfunded, and actuarial and nonactuarial components. Pension reforms in Sweden and Italy show how a universal system (Sweden) and a particularistic, occupation-based system (Italy) have evolved into mixed systems and changed, nearly in parallel, their pay-as-you-go defined benefit pillars into partly funded actuarial and defined contribution pillars. Although significant institutional differences across countries will likely remain important for the foreseeable future, these are not among the main issues facing Western European pension systems.

**Table 7.1. Four Types of Welfare and Pension Systems in Western Europe**

Country group	Eligibility	Benefits	Financing	Administration
Scandinavian countries	Universal	High	General taxes	Central government
Ireland, United Kingdom	Universal	Low (but can be increased)	Taxes and contributions	Central government
Belgium, France, Germany, Italy, Luxembourg, Netherlands	Occupational	High	Contributions	Intermediate bodies
Portugal, Spain	Corporatist	High (only for certain categories)	Taxes and contributions	Intermediate bodies

### *The Old Age Crisis*

Over the next few decades the European Union in general and Western Europe in particular will face a significant acceleration in aging due to the Baby Boom generation reaching retirement age, continued increases in life expectancy, and decreases in fertility, especially since the early 1970s (Commission of the European Communities 2003; European Central Bank 2003; Lindbeck and Persson 2003; CSIS 2002; Jackson 2002). Together the large cohort reaching retirement age and rising life expectancy will cause a doubling of Western Europe's old age dependency ratio (defined here as the number of people 65 and older as a percentage of those 15–64). In 2000 this ratio was just over 25 percent; by 2050 it will be more than 50 percent (Table 7.2). Even if the average fertility rate were to gradually increase, it would not be sufficient to counter a projected reduction in the EU population starting around 2020 (EU Economic Policy

**Table 7.2. Old Age Dependency Ratios in Western Europe, 2000–50**  
(*People age 65 and older as a percentage of people age 15–64*)

Country	2000	2010	2020	2030	2040	2050
Austria	25.1	28.8	32.4	43.6	54.5	55.0
Belgium	28.1	29.4	35.6	45.8	51.3	49.7
Denmark	24.1	27.2	33.7	39.2	44.5	41.9
Finland	24.5	27.5	38.9	46.9	47.4	48.1
France	27.2	28.1	35.9	44.0	50.0	50.8
Germany	26.0	32.9	36.3	46.7	54.7	53.3
Greece	28.3	31.6	35.8	41.7	51.4	58.7
Ireland	19.4	19.1	24.5	30.3	36.0	44.2
Italy	28.8	33.8	39.7	49.2	63.9	66.8
Luxembourg	23.4	26.2	31.0	39.8	45.4	41.8
Netherlands	21.9	24.6	32.6	41.5	48.1	44.9
Portugal	25.1	26.7	30.3	35.0	43.1	48.7
Spain	27.7	28.9	33.1	41.7	55.7	65.7
Sweden	29.6	31.4	37.6	42.7	46.7	46.1
United Kingdom	26.4	26.9	32.0	40.2	47.0	46.1
Average	26.7	29.8	35.1	43.8	52.4	53.4

Source: Commission of the European Community (2003).



Committee 2001). As a result public spending on pensions is projected to increase considerably (Table 7.3).

Until a few years ago only demographers and economists were seriously concerned by these developments. But now public perceptions of their implications for pension systems are widening and deepening. Because most existing systems are public pay-as-you-go schemes, a majority of Western Europeans are taking pessimistic views of their future public pension entitlements and of the difficulties they will have in living on foreseeable retirement incomes.

An obvious policy response to rising life expectancy would be to raise the retirement age—typically 65 in Western European countries. But few people stay in the labor market until the statutory age, with most retiring between the ages of 56 and 60. On average, Western Europeans spend 20 years in retirement, up from 13 years in the 1960s. Another obvious response to rising life expectancy would be to develop fully funded pension pillars, private or public (Gruber and Wise 1999). But the heavy burden of employer and employee contributions to pay-as-you-go schemes

**Table 7.3. Public Spending on Pensions in Western Europe, 2000–50**  
(Percentage of GDP)

Country	2000	2005	2010	2020	2030	2040	2050
Austria	14.5	14.4	14.8	15.7	17.6	17.0	15.1
Belgium	9.3	8.7	9.0	10.4	12.5	13.0	12.6
Denmark	10.2	11.3	12.7	14.0	14.7	13.9	13.2
Finland	11.3	10.9	11.6	14.0	15.7	16.0	16.0
France	12.1	12.2	13.1	15.0	16.0	15.8	n.a.
Germany	10.3	9.8	9.5	10.6	13.2	14.4	14.6
Ireland	4.6	4.5	5.0	6.7	7.6	8.3	9.0
Italy	14.2	14.1	14.3	14.9	15.9	15.7	13.9
Luxembourg	7.4	7.4	7.5	8.2	9.2	9.5	9.3
Netherlands	7.9	8.3	9.1	11.1	13.1	14.1	13.6
Portugal	9.8	10.8	12.0	14.4	16.0	15.8	14.2
Spain	9.4	9.2	9.3	10.2	12.9	16.3	17.7
Sweden	9.0	8.8	9.2	10.2	10.7	10.7	10.0
United Kingdom	5.1	4.9	4.7	4.4	4.7	4.4	3.9

Source: EU Economic Policy Committee (2001).

leaves little room for the savings required for funding, especially during the transition phase. Over the past 15 years many Western European countries have embarked on pension reform, and the related challenges have led to lively debate. (Commission of the European Communities 2003 provides effective overall analysis and specific country annexes.)

### *Changing Conceptual Basis*

A common but rarely studied philosophical trend underlies the shift from the social welfare theory to the contractual approach (Roth 1999).<sup>1</sup> Whereas the social welfare theory approach focuses on outcomes—the consequences of policies and programs—the contractual approach seeks to get “institutions right” through appropriate procedures<sup>2</sup> where, given ethical constraints, rights protection, and fair rules of the game, individuals are free to pursue their own ends. In welfare and pension policies this implies an emphasis on greater freedom of choice about contribution levels and future benefits, retirement age, risk diversification between two or more pillars, and the coverage ratio of retirement benefits relative to income in the last few years of working life.<sup>3</sup>

### *The Pension Reform Debate*

This general background helps in understanding the pension reform debate on the old age crisis in Western Europe. Certain features frame this debate.

#### *Reforms and Financial Shocks*

Although economic and financial shocks—such as those in the early 1990s involving European exchange rate agreements and later in the decade involving the path toward a common European currency—may forestall reforms, they can also accelerate

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<sup>1</sup> The contractual approach is philosophically based on Rawls (1971, 1993, 2001). For a sample of interesting and recent applications to welfare and pension systems, see Barbie, Hagedorn, and Kaul (2002); Lindert (2002); Schultz (2002); Brugiavini, Peracchi, and Wise (2003); Shavell (2003); Shiller (2003); and Wigger (2002).

<sup>2</sup> Thus it is often also called the procedural approach.

<sup>3</sup> For a recent critique of welfarism and consequentialism in pay-as-you-go pension systems, see Köthenbürger and Poutvaara (2002).

them. Students of market-supporting institutions know that at times several large shocks are needed for change (Rajan and Zingales 1998). For policymakers and politicians, periods of crisis can provide opportunities, at least in critical sectors, to undertake bold institutional reforms. In a seminal book, *Private Truths, Public Lies: The Social Consequences of Preference Falsification*, Kuran (1995) shows how crises can break through “public lies” and “the process of preference falsification” in reforming economic and social policies, especially in sensitive sectors such as pension and welfare systems.

More recently, Rodrik (2000) shows how crises can forestall attempts by “political losers” not to change obsolete institutions—and, if properly nurtured, can be a lever toward high-quality institutions. For example, in Denmark, Italy, Spain, and other Western European countries the 1992 foreign exchange and financial crisis and the later European Monetary Union (EMU) crisis led to a major change in unions’ outlooks, which in the past had often impeded pension, welfare, and labor market reforms. The resulting shift was from a corporatist, conservative posture in favor of the “old” institutions of the “old” economy to a broader, more socially responsible attitude intended to ease the transformation to a flexible, high value-added production structure (Bertola, Boeri, and Nicoletti 2001; Boeri, Brugiavini, and Calmfors 2001).

Sweden is an exception, in that reform advocates were at work well before the financial shocks of the early 1990s. The Swedish pension reform was accelerated not by the 1992 crisis in European financial markets but by longer-term awareness of the need for a more flexible, competitive economy and for a pension system in line with that goal. International economic integration and, in particular, European economic integration undoubtedly influenced the growing perception of the need for the reform and the consensual process that led to basic changes in the system.

It is not easy to “nurture” countries toward reform and toward stronger institutions for social policies. Italy shows that reforms were feasible and were made in response to the foreign exchange and financial crisis (in 1992) and the threat of being denied access to the group of EMU founding fathers (in 1995–97). Since then the momentum in Italy has been gradually lost. Despite the opportunity to design new and definitive reforms with a longer view and without an emergency policy framework, no substantive action has been taken. In Sweden the reform process is continuing, though at a slow pace.

### *Parametric and Structural Reforms*

Since the late 1980s many Western European countries (Austria, Belgium, Denmark, Finland, France, Germany, Greece, Portugal, Spain) have introduced parametric pension reforms—that is, changing basic parameters of their systems, most notably the minimum retirement age and rules about vesting, early retirement, contribution rates and levels, and benefit rates and levels. At the time of this writing major new parametric reforms are being considered by Parliament, with many difficulties, in Austria and France. Rarely have such changes been introduced through a single comprehensive reform act. Instead, several pieces of legislation were required to adapt each country's system as social and political consensus was reached. (See especially the case studies of the United Kingdom and the United States in the 1980s in Pierson 1994.)

The United Kingdom carried out a more complete pension overhaul, going a long way toward a fully funded system.<sup>4</sup> Within Western Europe, Italy and Sweden stand alone in having carried out structural reforms that maintained a pay-as-you-go scheme but introduced highly innovative notional defined contribution systems. This approach was later adopted by Poland and some Baltic countries and is being considered, to varying degrees, in Austria, France, Germany, and the Russian Federation. These notional defined contribution schemes are described later in this chapter as part of the analyses of Italy and Sweden. Here the main point is that both parametric and structural reforms imply changing from an unfunded, broadly nonactuarial, one-pillar public pay-as-you-go system to a two or three-pillar system with an increasing role for funded, actuarial schemes.

### *Pension Reform and Broader Welfare Reforms*

Western Europe's experience shows that pension reforms soon and easily come to a standstill if they are not part of broader welfare state and labor market institutional reforms. In Italy, in particular, a basic feature of the social welfare system is its concentration on pensions. For that reason pension reform became a visible, high-priority issue in the 1992 crisis and in the 1995–97 path toward the EMU. This diverted focus from another, lesser known feature of Italian social policies: taxes and transfer

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<sup>4</sup> This appears to have partly accounted for the country's good performance in the 1980s and 1990s (Disney, Emmerson, and Smith 2003).

schemes have poor targeting among people of working age and, in general, weak antipoverty properties.

Since 1995 modest attempts have been made to remedy this situation, but they have been mostly unsuccessful, and the lack of an efficient monitoring and evaluation system has meant that very little has been learned from them. “Less pensions, more welfare” is not merely a slogan but a call to broadly revamp social policies (Boeri and Perotti 2001). Such a call must include labor market reform to increase flexibility and decentralized wage bargaining as well as break down barriers between formal and informal employment (Pennisi 1997). Only such broader social policy adjustments would prevent pension reforms from coming to a halt in a loop with the other elements of the welfare state. A 2001 government study on labor policies (Ministero del Lavoro e delle Politiche Sociali 2001a) and, more significantly, Parliamentary approval of new framework legislation for labor regulations, augur quite well. In spring 2003 Parliament enacted the new framework legislation and the government proposed measures to “give it teeth.” Those measures became effective in spring 2004 and are known as the Biagi Act, after the labor lawyer who worked most actively on them before being killed, in March 2002, by a Red Brigade terrorist group.

Important reforms of employment and nonemployment welfare systems have also been introduced in the Scandinavian countries, Germany, and Spain, along with changes in pension systems. In all countries where the retirement system is gradually transformed from a one-pillar pay-as-you-go system to a two or three-pillar system with a growing fully funded leg, the emphasis should be on integrating the fully funded element with unemployment insurance through individual savings accounts (Stiglitz and Yun 2001).

#### *Pay-as-You-Go and Fully Funded Systems*

The differences between pay-as-you-go and fully funded pension systems are discussed more extensively elsewhere in this volume (see, for example, chapter 10). Here the salient points are summarized only in terms of the reform debate in Western Europe, where the discussion focuses on three questions:

- *Can a funded system guarantee higher real returns?* A look at real yields of investments in financial markets over the past 30 years shows high real

returns. For the United States, Siegel (1999) shows an annual real return of 6–7 percent for stocks and shares, while Jorion and Goetzmann (2000) and Sharpe (2002) find returns of 4–5 percent.<sup>5</sup> The recent stock market bubble had a major adverse impact on pension funds and benefits (Gustman and Steinmeier 2002). Still, pension funds with investments in financial markets for sufficiently long periods seem able to provide high real returns. When making a simple comparison of the returns to pay-as-you-go and fully funded pension systems, it is easy to conclude that funded systems show a clear advantage. But this is true only if the *pure returns* of the two systems are compared. The advantage tends to fade if *transition taxes* are also considered—that is, the tax burden that the generation making the transition to the new system has to bear to finance existing pensions.<sup>6</sup>

- *Does a new funded system improve the economic welfare of society as a whole?* Some authors have constructed models that generate efficiency gains from a transition to a funded system (Feldstein 1998; Kotlikoff 1998). Others have argued that a welfare-improving transition to a funded system is not possible (Diamond 2001; Geanakoplos, Mitchell, and Zeldes 1999). Advantages for future generations tend to be somewhat offset by costs for present generations. But a more interesting question is whether funding increases the national savings and stock of capital. If the pie becomes bigger, the distribution conflict between generations—which inevitably arises in the transition to a new pension scheme—can be alleviated. On the other hand, funding has significant equity and income distribution implications because it tends to favor higher-income groups (Casarico and Devillanova 2003).
- *Does funding insulate from demographic shocks?* An aging population tends to have an impact on funded schemes because, sooner or later, pension funds will have to sell their assets to a smaller economically active popu-

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<sup>5</sup> This figure does not include dividends. Goetzmann and Jorion (1997) show that between 1870 and 1995 the return was 8.8 percent for the Netherlands, 6.4 percent for the United Kingdom, 5.5 percent for Germany, and 4.45 percent for France.

<sup>6</sup> The same applies if the payment of existing pension rights is financed with the issue of public debt. In fact, someone has to shoulder the burden of interest related to this debt (the debt service), and this is equally true for new taxes.

lation—and if a given stock of assets is sold to a smaller number of buyers, the price of the assets can be negatively affected, with repercussions on the resources available for pensioners.<sup>7</sup>

Given these factors, in the Western European debate on pension reform, consensus is emerging that funding should be seen as a complement, rather than an alternative, to pay-as-you-go, with the goal of diversifying political and financial risk. Political risk is inherent to pay-as-you-go systems, where overall net benefits can be changed by governments and parliaments if socioeconomic conditions or the political compact change (Casamatta, Cremer, and Pestieau 2003).

For a better understanding of the political economy of pension reforms and of lessons that may be relevant to Caribbean countries, this chapter focuses on Sweden and Italy, where in the 1990s parametric changes were accompanied by broader and deeper structural adjustments. Before these reforms the two systems had evolved into mixed pay-as-you-go from very different origins and following quite distinct tracks, with significant differences in eligibility, benefit levels, and income replacement rates. As in the United Kingdom and most Nordic countries, the Swedish system started as a universal flat rate scheme, while the Italian was designed as a particularistic occupation-based scheme, with major differences in contributions and benefits across occupational categories. In addition, even in their initial phases Swedish pensions were financed by the general exchequer on a pure pay-as-you-go basis, while until World War II Italian pensions were financed out of employer and worker contributions and meant to be funded through capital accumulation (mostly real estate investments).

## Sweden's System

The Swedish system became a mixed pay-as-you-go scheme in 1960 (Wadensjö 1999). Before that it involved only a universal pillar, with comparatively low benefits and income replacement rates. Until the 1990s the scheme consisted of two

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<sup>7</sup> Or, if the elderly people in the goods market demand a higher amount of goods than those currently produced by active people—that is, pensioners' desired consumption exceeds workers' desired savings—it will cause price inflation, reducing the purchasing power of pensioners' annuities.

public pay-as-you-go pillars: a basic old age pension identical for all beneficiaries<sup>8</sup> and a supplemental earnings-related pension called the ATP (from the Swedish acronym).<sup>9</sup> Together these two pillars provided coverage equal to about 65 percent of average earnings (with higher benefits for those with lower earnings), subject to a ceiling.<sup>10</sup> The system included a disability pension calculated the same way as the basic old age pension. In 1976 a part-time pension was introduced for workers between 60 and 65, allowing them to remain in part-time jobs and receive reduced pensions.

In terms of public finances and general sustainability, when the political and social mood for pension reform developed in Sweden, the country's system was not out of line with the average pension burden elsewhere in Western Europe. On the contrary, due to high labor force participation rates, for more than 35 years contributions had exceeded what was needed to pay the benefits of retirees. Indeed, a substantial reserve fund had accumulated since 1960,<sup>11</sup> enabling the creation of the part-time pension and the lowering of the official retirement age in 1976 from 67 to 65. Thus, unlike in many other Western European countries (especially Italy), no urgent crisis drove the adjustments to Sweden's system. Instead, the main motivations for reform were:

- Growing awareness that the combined effect of the basic old age pension and, more significantly, the supplemental ATP constrained labor mobility

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<sup>8</sup> The main exceptions were married couples when both husband and wife were entitled to an old age pension. The retirement age was 67 until 1 July 1976 and 65 thereafter. A reduced early old age pension and an enhanced later old age pension have been options since 1960. In 1993 the government introduced a requirement of 40 years of residence or 30 years of earnings to receive a full old age pension. If the requirement was not met, the pension was reduced accordingly.

<sup>9</sup> To be eligible for an ATP pension, 3 years of earnings at least one base amount a year were required—and for the full ATP pension, 30 years of earnings. The pension was calculated using the average of the 15 years with the highest real earnings subject to a ceiling of 7.5 times the base amount.

<sup>10</sup> Recent quantitative analysis shows that consumption changes at retirement are fully anticipated. Apparently the decline is due to a drop in work-related expenses and substitution of home production for market-purchased goods and services (Hurd and Rohwedder 2003).

<sup>11</sup> From the start the ATP system was meant to be pay-as-you-go with a reserve fund to make up for future difficulties or changes in basic demographic or employment parameters (Eriksen 1973; SOU 1994). The reserve fund is operated in an imaginative, efficient manner by financial management firms (each responsible for part of the fund) selected after a public bidding process.



and so imposed major rigidities just when structural changes in the economy and the society called for flexibility.<sup>12</sup>

- Increasing life expectancy—and more specifically, a number of studies on older workers’ productivity and human capital, arguing for the need to keep them in the labor market (Illmarinen 1999; NSIB 2001).
- Increasing evidence that during its first two decades the ATP—and the resulting high coverage ratio—had contributed to a decline in household savings. Although the pension reserve fund had helped counterbalance this effect through 1980, there was a risk that this counterbalance would cease when the fund had to be used to cover benefits. Even though this issue became a concern in the early 1980s, it was not acted on until the reforms of the 1990s (Markowski and Palmer 1979; Berg 1982). The steady decline in household savings caused considerable alarm for the long-term development of Sweden’s capital market and investment ratios relative to the larger, more competitive European financial market.

In 1991, well before the 1992 foreign exchange and financial crisis in European markets, the Swedish government established a working group for pension reform, and instructed it to focus on these three issues (Palmer 2000).

### *The Road to Reform*

The working group—chaired by Bo Könberg, the minister for social insurance—spent nearly two years developing a scheme that took into account the diverse range of views on the subject. Könberg said that this approach was possible because the members of the working group (which included representatives from each of Sweden’s main political parties) dropped their guard and agreed to formulate something completely new (Palmer 2000). This quest was not limited to the working group’s proceedings; it also drew on the media, universities, opinion leaders, and the general public. The resulting consensus molded, diffused, and strengthened the existing mood for reform.

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<sup>12</sup> Sweden’s accession to the European Union heightened the perceived need for such flexibility (Palmer 2002).

The new pension act was approved in 1994 by nearly 80 percent of the Parliament, providing the general framework for reform (Eriksen and Palmer 2002). The plan included elements of individual proposals but combined them in a rather innovative scheme: an earnings-related, pay-as-you-go, notional defined contribution system. After Parliamentary elections later in 1994, a Social Democratic administration was returned to office. An implementation group, representing the five parties that had signed the 1994 reform, was established to translate the framework legislation into specific rules and procedures. A variety of adjustments were made (Wadensjö 1999), and detailed legislation was approved in 1998 and has been in effect since 1 January 1999. The transition period ended in 2003, with the reform becoming fully effective in January 2004 (Svensson 2002). The new system is seen by some as a hodgepodge of short-term political compromises, and by others as a truly original response to the challenges of an aging Europe.

### *The New System*

Sweden's new pension system is based on three pillars:

- The first is a contributory notional defined contribution scheme, coupled with a guaranteed noncontributory old age pension. The defined contribution component is earnings-related, financed by a contribution of 18.5 percent of pensionable earnings over an individual's entire working life. The contribution is split evenly between employers and employees. Of the 18.5 percent, 16 percentage points go toward pay-as-you-go financing and are accumulated at a given interest rate as notional pension capital (which accumulates in line with earnings), and 2.5 percentage points are invested in one or several funds chosen by the individual (the "premium pension"). The defined contribution system is rigorously separated from the government budget and expected to be financed only by contributions. Upon retirement, capital accumulated under the premium pension is converted into an annuity, the amount of which depends on average life expectancy at the age of retirement and the amount contributed to the premium pension. The guaranteed old age component provides a minimum pension for those over 65 after 40 years of residence in Sweden. It is

financed by the exchequer. In 2003 a new form of means-tested support was introduced for elderly people not entitled to the guaranteed pension. Finally, a means-tested housing allowance provides significant support to low-income old people.

- The second pillar consists of large occupation-related schemes based on collective bargaining and agreements, and covers 90 percent of workers. Contributions are typically 2–5 percent of earnings. Historically these schemes were based on defined benefits, but they are increasingly based on defined contributions. In 2000 flows from these schemes accounted for 14 percent of total pension disbursements.
- The third pillar involves voluntary individual tax-deductible accounts. In 2000 these accounted for 5 percent of pension disbursements (Commission of the European Communities 2003).

Three distinctive features of the new system are its wide diversification of risks into three pillars (with the first pillar divided into three subpillars: the two parts of the main component and the guaranteed component), a payroll contribution rate in line with that of most Western European countries (but nearly half that in Italy), and strong ties to changes in other parts of the welfare system (such as housing assistance for poor people and special measures for those leaving the labor market early; see Engström and Eriksen 2002 and Sianesi 2002). Another important characteristic is transparency. Every year the authorities send pensioners information on their accounts and explain the need for any changes to the system, as well as the links between economic growth and future pensions (Svensson 2002).

### ***Goals and Challenges***

The Swedish pension system appears to have achieved its goals of a sustainable public finance burden, steady increase in household savings, and flexible retirement age. More specifically, in the notional defined contribution scheme, economic growth determines the rate of return on accounts and the public finance burden is almost automatically adjusted to available resources. Recent projections estimate that public spending on pensions will increase from 9.0 percent of GDP in 2000 to just 10.0 percent in 2050, despite considerable expected growth in the old age dependency

ratio (see Tables 7.2 and 7.3). Moreover, household savings as a percentage of disposable income reached 5.2 percent in 2001 and 8.2 percent in 2003, while it hovered around 2.5 percent in the early 1990s (OECD 2003). New rules on the retirement age are encouraging workers to remain in the labor market in a variety of part-time arrangements.<sup>13</sup> This approach enhances individual choice while maintaining a floor of contributory and noncontributory welfare guarantees (Gruber and Wise 2002).

Some of these achievements are due to certain long-term structural factors. For example, Sweden's old age dependency ratio is projected to grow much slower than those in other Western European countries. Sweden's is expected to increase from 29.6 in 2000 to 46.1 in 2050, whereas Italy's will jump from 28.8 to 66.8. Italy will also see much higher public pension spending, rising from 14.2 percent of GDP in 2000 to 15.9 percent in 2030, and stabilizing at 15.7 percent in 2040—a burden that will constrain welfare spending on other priorities (unemployment, family support, social inclusion). Moreover, Sweden will have less trouble achieving financial sustainability due to the large (26 percent of GDP in 2001) and well-managed reserve fund created in 1960 to smooth out fluctuations in contributions and disbursements.

In addition, Sweden's employment rate for older workers (67 percent) is high by Western European standards and strikingly high compared with Italy's (28 percent). Although early retirement is no problem—the public pillar allows for flexible retirement after the age of 61—there are incentives to continue working (Eriksen and Palmer 2002).<sup>14</sup> Most workers are expected to take the incentives rather than the early retirement option.

One of the main challenges for Sweden's system is related to the indexing method, especially for retirees who receive a large part of their income from the guaranteed old age pension. Indexing for the guaranteed pension is linked only to the price index. As a result, future growth in productivity and real income will likely lead

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<sup>13</sup> It is possible to claim 25, 50, 75, or 100 percent of benefits of either or both components of the notional defined contribution scheme after the age of 61, but by continuing to work new contributions provide a new addition to notional capital and thus higher benefits later.

<sup>14</sup> A recent study shows that the labor force participation rate for men 60–64 in Sweden is second only to that of Japan. Incentives related to the 1994–98 reform will likely further increase the participation rate for men in that age bracket (Gruber and Wise 2002).

to a growing gap between pensioners dependent on the guaranteed pension and those with earnings-related pensions above the guaranteed level. Women are likely to be particularly affected by this feature of the system.

Despite these concerns, the political compromise and protracted negotiations that led to Sweden's pension reform did not yield a hodgepodge package, but a coherent system with a built-in mechanism for further consensual and transparent adjustments.

### *Consensus Building in Sweden*

As discussed, Sweden's pension reform was not a cost-cutting exercise hastily carried out in response to a financial emergency. On the contrary, it started as a broad political investigation on the future of Sweden and involved numerous social partners—such as representatives of employers and workers—and other groups. Later, around the time of the 1994 framework legislation, it mainly involved the political parties represented in Parliament. And in the final stage, through the implementation group, it reflected the desires of the five political parties most in favor of a major overhaul rather than minor adjustments.<sup>15</sup>

The influence of the social partners gradually declined, at least in terms of being invited to formal government discussions and Parliamentary debates on reform. But the social partners were always behind the scene, because the political parties maintained allegiance to them. The Swedish model for industrial relations has a long tradition.<sup>16</sup> In addition, contractual agreements for the second pillar are an integral part of collective bargaining carried out by the social partners. At certain points in the pension reform discussions, they were at the fore—namely, how the 18.5 percent contribution would be split between employers and employees and the transition from treating the contribution as an employer fee to making it partly an employee fee.

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<sup>15</sup> A good summary (in English and French) of the detailed negotiations appears in Wadensjö (1999); the same book analyzes the process of pension reform in Germany, Italy, Japan, Spain, the United Kingdom, and the United States. For a useful comparative analysis, see Bertola, Boeri, and Nicoletti (2001).

<sup>16</sup> It started with an agreement in 1938 between SAF (the private employer federation) and Lo (the workers union). At that time nearly 70 percent of employees were blue collar, Lo was closely affiliated with the Social Democratic Party, and SAF was giving support to the Moderate Party. Even though changes in the structure of the society and the labor market have weakened these links, some broad connections still exist and have a bearing on political choices.

A final comment: Sweden is a vast but sparsely populated country with a decentralized government, strong civic traditions, and high social capital in terms of social networks and participatory, consensual decisionmaking on issues of interest to the community as a whole.<sup>17</sup> This setup made possible the smooth shift to an effective new pension system, without conflict or strife.

### Italy's System

In Italy, after a long phase of inconclusive discussions in the 1980s (see Annex 7.1), pension reform began only after the 1992 foreign exchange and public finance crisis. In the early 1990s the Italian pension system was a highly fragmented occupational pay-as-you-go scheme, financed by payroll taxes and employer and worker contributions. It featured benefits linked, by and large, to earnings in the last or best years of working life (Coppini 1994; Ferrera 1984, 1998), yet appeared dramatically out of line with pension systems elsewhere in Western Europe:

- Although Italian public spending on welfare, at nearly 25 percent of GDP, was broadly in harmony with the Western European average, up to 60 percent of these expenditures (13 percent of GDP) were channeled to more than 100 pension schemes (whereas the Western European average placed public pension spending at 40 percent of welfare expenditures and 10 percent of GDP).
- The ratio of payroll taxes and contributions to wages and salaries was twice that in France, Germany, and Sweden and four times that in the United Kingdom (greatly impinging on Italian labor costs and competitiveness).
- Annual transfers from workers to pensioners were estimated to be 2,500 trillion lire (1.3 billion euros) more than the resources from payroll taxes and contributions paid by pensioners when they had been workers, creating socially unacceptable intergenerational inequity.

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<sup>17</sup> The literature on social capital is enormous. For the purposes of this chapter, it is useful to refer to the collection of essays in the special issue of *The Economic Journal* (volume 112, 2002), especially Gleaser, Liabson, and Sacerdote and Bowles and Gintis.

- Estimates by the Organisation for Economic Co-operation and Development (OECD), International Monetary Fund (IMF), and European Commission pointed out that, without major reforms, annual public spending on pensions would reach 21 percent of GDP in 2030 and public debt on pensions would peak at six times GDP in 2050—jeopardizing public and private spending on other social and economic activities.
- Econometric studies showed that such an unbalanced pension system had severe static and dynamic implications for the allocation of labor and capital markets. The sluggish growth of the Italian economy was at least partly caused by this burden.

### *The System's Early Stages*

The pension system had evolved over less than a century, during a time when Italy transformed its economy and society from an agrarian-based structure to a post-industrial, high value-added, service-oriented one. Each stage of economic development had a different pension system, but cumulative errors were made in the transitions between systems—creating severe financial and economic problems in the late 1980s. Occupational schemes worked relatively well before World War II and were one of the reasons for Italy's high savings rate in certain periods. They even provided a surplus to the general budget because of a marked difference between actual and expected financial yields (Coppini 1994). The system did not break down because of long-term changes in the population's age profile and in the labor market. Well before these trends had become apparent, World War II and its aftermath had brought about high inflation, turmoil in financial markets, and extremely low yields for occupational funds focused on real estate and government bonds.

To avoid a dramatic and sudden impoverishment of those on pensions, the fully funded scheme was gradually modified between the late 1940s and late 1960s to become a mixed system with features of both fully funded and pay-as-you-go schemes. The system was still structured along occupational lines and mostly financed by payroll taxes and employer and employee contributions. But increasing claims were made on general taxation through buffer funds (somewhat similar to the Swedish reserve fund) to offset the financial consequences of World War II on pensions. Changes were made haphazardly to various segments of the system, with each occupational

category scrambling to obtain a better pension than the others, as well as a short-sighted view that current payments (payroll taxes and contributions) could always be manipulated. The pension “maze” (Castellino 1975) contained serious inequities between workers of the same generation (belonging to different occupational segments) and even more severe disparities between workers of different generations.

In the late 1960s Italy was in the final years of its economic “miracle.”<sup>18</sup> Political parties and trade unions thought that a general overhaul of the system would help ensure that, after 40 years of working and making contributions, workers would be entitled to a pension that provided 80 percent of their average wage over the last three years of employment. In 1968 new legislation specified the characteristics of the new scheme, aimed at establishing the world’s most advanced pension system. The following year, Parliament introduced a general pension for all Italians over 65 lacking income, with benefits indexed to wage increases rather than the cost of living (so pensioners would profit from increases in general productivity). The new system also allowed retirement after 35 years of service (with requirements much lower for civil servants and even lower for working mothers). Because benefits were based on 80 percent of average earnings over the five last or best years of employment, the system was called a pay-as-you-go earnings-based pension. (In 1987, faced with increasing financial difficulties, Parliament extended the reference period for benefit calculations to the 10 last or best years of employment.)

While maintaining an occupational system, the new legislation also compensated for inequities (and related political tensions) within generations and allowed older workers to reap the benefits of Italy’s economic miracle (Ferrera 1994). These objectives, however, could have been achieved with technical corrections to the mixed system developed between the late 1940s and late 1960s. Instead, the changes were strongly politicized.

### *Developments in the 1970s and 1980s*

Just a few years after the 1968–69 overhaul, it became apparent that Italy’s changing demographics and labor market meant that the new pension system was not finan-

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<sup>18</sup> The miracle involved a young and growing labor force, high multifactor productivity, low unemployment (around 3 percent), and sustained GDP growth (about 5 percent a year).



cially and economically sustainable in the long term. The ratio of workers to retirees dropped from 4.6 in the early 1950s to 1.2 in the 1990s. Moreover, the system had built-in incentives to create inequities and promote evasion of payroll taxes and contributions.<sup>19</sup> In addition, the labor market evolved from lifetime employment patterns to increasing mobility between firms, sectors, and locations.

In effect, the 1968–69 reforms were based on faulty premises—indeed, an entire catalogue of what should not be done when adjusting pension schemes. The drastic transformation of Italian society in the 1970s and 1980s was not foreseen when the late 1960s reforms were designed and approved. Rapid secularization of a previously strong Roman Catholic country had major effects on gender roles and family sizes. At the same time, the country’s industrialization model was drastically revised from large plants engaged in basic manufacturing to small and medium-size firms working in industrial districts. The rigidities of formal labor legislation encouraged the growth of informal employment (De Luca and Bruni 1993).

In parallel, the compulsory pension system was called on to take up the slack in areas of welfare policies (unemployment, disability) where Italy lagged behind other Western European countries. Ultimately, the conceptual objectives for the pension “maze” became unclear and overly broad, moving from providing insurance against the risk of becoming old to sustaining living standards and ensuring intragenerational and intergenerational equity. Thus the pension system became a catch-all device for achieving many often competing goals. This experience points to a key lesson: a pension system’s basic objectives must be kept simple, as should its design. In addition, sufficient flexibility must be built in to adapt to changing circumstances.

### *The 1992 Crisis as a Driver of Reform*

Western Europe’s 1992 foreign exchange and financial crisis caused a deep shift in policy priorities, bolstering efforts to control public spending and reform factor and product markets—including pension systems (Monorchio 1996). Between September 1992 and February 1993, despite massive interventions by European cen-

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<sup>19</sup> Employers and workers tended to evade payroll taxes and contributions earmarked for the pension system, except in the years relevant to the calculation of benefits. This was exacerbated as Italy’s economic and social structure changed from large manufacturing groups to burgeoning small enterprises both in industry and services.

tral banks in the foreign exchange market and the depletion of the Bank of Italy's foreign reserves (Banca d'Italia 1993), the Italian lira depreciated nearly 30 percent (as weighted by foreign trade). In response, in the second half of 1992 the Italian government enacted two supplemental budgets to increase revenues and reduce expenditures.

Three related developments are relevant to this chapter. First, the government was granted authority to reform the pension system within guidelines set by Parliament. Second, pension reform was not isolated but went hand in hand with public health and labor market reforms. Third, the new policies were formulated in a short period, and so lacked a long-term vision.

The main aspects of the 1992–93 pension reform (called the “Amato reform” after the prime minister then in office) were:

- The retirement age was set at 65 for men and 60 for women starting in 2002.
- Eligibility for an old age pension was extended from 15 to 20 years of contributions.
- The mechanism for calculating old age benefits was drastically revised for those with less than 15 years of contributions, with reference earnings extended from the last 10 years (as established in 1987) to the entire working life and past earnings adjusted for inflation and 1 percent real growth.
- The yield coefficient of the various schemes was harmonized at 2 percent a year (with a few exceptions for certain powerful occupational groups).<sup>20</sup>
- Indexing of pensions was based on the cost of living, not real earnings or wages.
- Contribution rates were set at 26.5 percent of earnings (with two-thirds paid by employers) for employees and 15.0 percent for the self-employed.
- The retirement age for seniority and long-term service pensions was raised to 35 years of contributions for all.
- A 15 percent withholding tax was introduced on funds channeled to pension funds.

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<sup>20</sup> The yield coefficient is the guaranteed return on the accumulated contribution by employers and employees.

In short, the Amato reform was no more than a cost control device and did not change the basic design of the pay-as-you-go scheme designed in the late 1960s. It was a parametric reform in that it modified basic parameters of both contributions and benefits. The revised indexing turned out to be the most effective in terms of reducing future pension expenditures (Ministero del Lavoro e delle Politiche Sociali 2001b). But the Amato reform also introduced serious discrimination, with very different benefit calculation procedures for workers with fewer and more than 15 years of contributions.

Moreover, the Amato reform did not address the basic conceptual flaws of the pay-as-you-go pension scheme, and in 1994 the new government had to impose a temporary freeze on the new system. After the 1994 election, pension reform was again among the main items on the government's agenda. But the political coalition crumbled over pension reform issues—particularly a proposal to abolish early retirement and revise the benefit calculation mechanism. Finally, with a new financial crisis looming (Tivegna and Chiofi 2001) and growing pressure from financial markets, the pension system was overhauled.

### *The 1995 Reform and the Notional Defined Contribution System*

The 1995 reform aimed at stabilizing public pension spending (relative to GDP), increasing labor market efficiency (by reducing distortions and labor taxes), and making the pension system more equitable. It introduced a notional defined contribution mechanism in which benefits are strictly tied to contributions paid during the working career. Upon retirement the notional accumulated contributions are transformed into an annuity.

The main characteristics of the reform are:

- Pension benefits are calculated by multiplying the balance of the individual account by an age-related conversion coefficient that renders the present value of future benefits equal to capitalized contributions. This coefficient can be updated and modified every 10 years based on changes in life expectancy at birth of the overall population, GDP growth rates, and earnings assessed for social security contributions.
- A flexible retirement age, which workers can choose at any year between 57 and 65.

- A payroll tax rate increased to 32.7 percent of wages or salaries to reduce the structural revenue-expenditure imbalance of the public pension fund for private sector employees.
- Reform implementation is planned to be very gradual and initially involve only people who began working after 1995. The universe of pensioners was divided into three groups: those with more than 18 years of contributions in 1995, who will be subject to the same rules existing before the 1992 reform (the earnings-based defined benefit scheme); those with fewer than 18 years of contributions, who will be submitted to a pro rata regime, in the sense that the rules established in 1995 will be applied only to contributions paid after that date; and the last group of newcomers, who started to pay contributions after 1995 and who will be subject to the new scheme. In 1997 Parliament enacted another set of measures aimed at unifying the different pension schemes and further revising early retirement (Castellino 1998; Fornero 1999; Franco 2000; Gronchi 1997; Sartor 2001; Vitaletti 2000).

Because of political and social constraints, gradual implementation means that the reform will produce benefits only in 15–20 years. It is estimated that only in 2070 will the new system be fully in effect, because only then will the last beneficiary of the survivor pension have passed away.

### *Challenges and Lessons*

Under the conceptual categories described in the first part of this chapter, the Italian pension system remains consequentialist (that is, based on social welfare theory) even if the notional defined contribution pillar and (in the distant future) the fully funded private pillar have strong contractual elements. This dichotomy within the system accounts for some of the tensions facing Italian analysts and policymakers any time they tackle the subject.

Italy's pension reform is incomplete. At the time of this writing, Parliament is in the final stages of reviewing a bill aimed at reducing the burden of contributions for new workers (in wage employment) and promoting the development of the second pillar—that is, fully funded private pension funds. Most of the issues involved

are extremely technical and deal with labor market regulations, fringe benefits, and tax issues.<sup>21</sup>

Still, several political economy questions can be raised:

- *Could reforms have been faster, deeper, and wider?* Reforms are more difficult in deeply corporatist, highly segmented welfare states than in universal welfare states (Esping Andersen 1996a, 1999). Corporatist interests collude in blocking reforms that would decrease privileges. As noted, the 1992 financial and foreign exchange crisis jump started reform in Italy (see also Annex 7.1). On a counterfactual basis, it seems that the policy and, more significantly, strategy approaches attempted in the 1980s had no meaningful results until the 1992 financial and foreign exchange reform. Still, the 1992 reform was no more than a cost-saving parametric adjustment, and three years were required to develop the public awareness required for structural reform—that is, the notional defined contribution scheme introduced in 1995. Today there is broader, deeper awareness of the need to pursue the structural reform path started in 1995. Paradoxically, the slow growth of the economy and the public finance difficulties in maintaining European Monetary Union targets could help foster reform (Maré and Pennisi 2003a; 2003b).
- *What are the likely implications for competitiveness and economic growth?* Although the public finance and equity aspects of Italian pension systems have been thoroughly studied, limited attention has been given to their macroeconomic implications—for savings, investment, and growth. A recent study examines distortions in savings, investment, cost of capital, and labor supply and demand after the 1995 reform (Fondazione Ideazione 2001). The conclusion is that even though the notional defined contribu-

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<sup>21</sup> For a good analysis, see Franco and Maré (2003). In short, due to heavy pension contributions, employers tend not to hire new workers but to engage them as self-employed on a variety of consultancy contracts (with much lower pension contributions now and consequently much lower retirement benefits later). A jumpstart to the fledgling Italian pension funds would be achieved by channeling, on a mandatory basis, the monies now set aside for severance pay, a mandatory capital accumulation in Italian wage legislation in the past and in collective bargaining now. In parallel, the bill intends to eliminate the difference in tax treatment for pension funds—now discriminating in favor of closed occupational funds where unions and employers have a major say and so reducing the possible growth options of open funds (Amato and Maré 2001).

tion system overcomes some of the macroeconomic weaknesses of the previous system, there is a long way to go to solve the constraint on competitiveness. In 2002–03, in parallel with further adjustments in the pension system, broader labor market and tax reforms were introduced.<sup>22</sup>

- *Have the most concerned population groups and their unions slowed reforms?* In recent decades Italy's pension system has gone through three phases. From the late 1970s until 1992 unions, through a vast gamut of social dialogue elements, delayed needed action—mainly because the most vocal and politically powerful parts of the unions were in the age group approaching retirement, and thus potential losers from any change to the overly generous 1968–69 pay-as-you-go defined benefit system. In 1992 the financial and foreign exchange crisis forced the unions to accept reform. Two years later the center-right government was voted from office just when it outlined a reform proposal broadly similar to the notional defined contribution scheme advanced a few months later by a center-left government and ultimately approved by Parliament (Antichi and Pizzuti 1999). By then the unions had become aware of the need for positive involvement in the reform process because of the growing public perception of the need for major adjustments in the system. Currently a third and more complex phase is under way. Because major differences on labor reforms arose between the three main unions, they are making earnest efforts to cooperate with the government in further adjusting the pay-as-you-go notional defined contribution public pension scheme and in developing the fully funded pillar.

## Lessons of Reform and Their Relevance for Emerging Caribbean Countries

Recent analysis of retirement issues in emerging Caribbean countries anticipates that over the next few decades old age pension systems (and national insurance systems

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<sup>22</sup> The labor market reform is largely being implemented, while tax reform will entail a long transition period due to the Italian public finance situation. Estimates are that together these and a number of sector reforms would help improve competitiveness and growth prospects of the Italian economy. The pension reform alone would not, and could not, brighten these prospects.

more broadly) will face growing difficulties, mainly due to circumstances external to the systems but also because of internal structural features (Dowers, Fassina, and Pettinato 2001; Pettinato and Díaz Cassou 2003). Because it may be too costly for some countries to maintain their current schemes, there is a need for debate on available alternatives.

The pay-as-you-go notional defined contribution method, coupled with the development of a funded pillar, could be an appropriate pension reform model for many Caribbean countries. The main reasons are:

- It combines the pay-as-you-go social insurance approach with built-in adjustments to address demographic pressures, public finance constraints, and changing equity aims.
- It can be tailored to country conditions, and implemented in countries with quite different pension cultures, histories, and paths. Although the basic structure of the Swedish and Italian pay-as-you-go systems is similar, there are significant differences in terms of contribution rates, funding roles, and retirement ages.
- It allows for major differences in transition periods and modalities. Sweden's transition was completed in 2003, while Italy's transition will require another 10–30 years.

Two final points concern process differences and regional cooperation on pensions. Whereas the Swedish strategy was consensual, the Italian changes were highly conflictual. In Italy conflict on the need for reform was overcome only through a major economic structural adjustment program made necessary by a severe financial and foreign exchange crisis. Path dependence is the key element in assessing what is feasible in economic and social reforms and in forging effective reform strategies (North 1990). This overall framework helps explain the different reform patterns in Sweden and Italy. Sweden has had high social capital since its foundation as a state. In Italy the struggle to build strong social capital is still under way. Neoinstitutional economics says that in the face of change, old institutions become more rigid. Thus reform advocates should be on guard and take these constraints into account when designing pension reform strategies. This may be an important lesson from the comparison of the two paths to notional defined contribution schemes in the first Western European countries to implement this approach.

On regional cooperation, a proposal was recently rejected to formulate and implement a “Maastricht pension agreement”—that is, an agreement among EU members similar to the treaty that set public finance requirements for joining the European Monetary Union. Retirement schemes are parts of broader welfare systems, and are embedded in a country’s socioeconomic history. Thus they are not easily combined into a unified approach (Oksanen 2003). A fortiori, a Maastricht-type pension agreement hardly seems feasible for countries such as those in the Caribbean, which share many values but are not part of a union. Still, the development of notional defined contribution methods offers many lessons for periodic Caribbean-wide reviews, and from these lessons may emerge better arrangements for various items (such as portability and management of individual accounts).



### **Annex 7.1. Attempts to Reform the Italian Pension System in the 1980s**

It is worth reviewing the attempts that Italy made between 1978 and 1992 to remedy some of the features of the pension system developed in 1965–69. Little is known about these attempts because they are seldom treated even in the Italian literature on pension reforms (for an exception, see Cazzola 1992). But they provide useful information for an international audience, especially if the goal is to have a better political economy understanding of the process.

The attempts show that, contrary to conventional thinking, long-term structural changes in the pension system were promoted by ministers of labor and social security rather than ministers of the treasury. The latter were more interested in short-term financial issues and were generally satisfied if the annual budget and final accounts balanced—while the former often had a more farsighted view. The attempts also show the positive and constructive role of large unions. But the negative outcomes of these efforts prove one of the basic theorems of neoinstitutional economics: faced with abrupt and far-reaching changes, longstanding institutions become more rigid and path dependent until a drastic exogenous determinant breaks them up (North 1990). In sensitive areas like pensions, reformers must have the capability to feel that such an external determinant is coming and the capacity to join forces to seize it. These lessons may be quite pertinent to Caribbean governments keen on pension reform.

In 1978–80, after a major study of the pension system by an independent committee (including trade unions and employer representatives), Minister of Labor Vincenzo Scotti attempted a rationalization of the 1965–69 pay-as-you-go system:

- To gradually increase the pension age requirement to 65 years for men and 60 for women
- To harmonize the various social security regimes (numbering nearly 120 at the time) under the overall pay-as-you-go pension scheme
- To modify the mechanisms allowing retirees to accumulate pensions and wages
- To define new rules for self-employed workers
- To introduce incentives for private pension funds and other forms of individual retirement systems.

After two years of negotiations and despite a change in government—although Scotti kept his position—this rationalization was blocked by the small, fiscally sensitive Republican Party. The party argued that the transition costs would be too high because the program included an early implementation of higher benefits for low-income retirees; Scotti had had to make this concession to unions and the left-wing opposition.

In 1980 the new Minister of Labor, Franco Foschi, obtained only marginal changes in the pension system: an increase in the pension ceiling, streamlining of pension payments, and new procedures for calculating certain types of supplementary pensions. The key issues of financial, economic, and social sustainability could not be tackled. Indeed, they could not even be considered. The corollary of the minor changes introduced was a negative political economy externality. Pushing for a high level of legislative pension production for small particularistic reasons was the result of negotiations with small corporatist groups rather than the major trade unions and employer associations. This meant a limited vision rather than a broad, long-term view.

In 1982 the new Minister of Labor, Michele Di Giesi, tried again to harmonize the more than 100 regimes making up the social security system and to increase the pensionable age to 65 years for men and 60 for women. A bill was eventually drafted after consultations with unions and employer associations. Although it sailed through the Council of Ministers, Parliament initiated a lengthy debate on whether changes to the 1965–69 system would be constitutional because of the discrimination they would produce between different categories and generations of workers. Parliament was dissolved, and new elections took place before the critical sections of the bill came up for debate and voting.

In 1983–87 the Ministry of Labor was headed for a comparatively long period by the dynamic, energetic Gianni De Michelis. He charted a wide-ranging pension reform, and his staff drafted four successive bills to raise the pensionable age and pension ceiling, implement new procedures for calculating benefits, and provide fiscal incentives and other instruments to promote pension funds. One of the bills was approved by the Council of Ministers, and an extensive Parliamentary debate ensued, with a flood of proposed amendments from both the majority and opposition parties. The legislature ended before the bill was fully examined.

After the 1987 general election the new Minister of Labor, Rino Formica, introduced two new pension reform bills. Parliament acted only to increase the pen-

sion ceiling and lengthen to 10 years the period for the average wage considered when calculating benefits. Fresh attempts at reform were made in 1990 by new Minister of Labor Carlo Donat Cattin, and in 1991 by his successor Franco Marini (a former trade union leader). The basic outlines of the new proposals were similar: to gradually reduce benefits, increase to 65 years the eligibility requirement for both men and women, extend from 35 to 40 the number of years required for early retirement (at whatever age), and introduce ways and means of promoting private pension funds. But even though the transition to the new rules would not have been completed until 2016, no action was taken.

Thus, year after year similar reform proposals were made without tackling the central issues. The failure to introduce even minor modifications cannot be attributed entirely to the resistance to change mentioned above, but rather to the fact that in the 1980s the central policy issue in Italy was how to develop a noninflationary growth path after the inflationary, no-growth path of the 1970s (Graziani 1998). This new growth path was not only a requisite for participation in European exchange rate agreements, it was also a high social priority because of rising unemployment. Accordingly, policies focused on wage and salary indexing, and a benign neglect of pension matters was often used as a means to reach agreement on these issues.

## BIBLIOGRAPHY

- Amato, G., and M. Maré. 2001. *Le pensioni: il pilastro mancante*. Bologna: Il Mulino.
- Antichi, M., and R. Pizzuti. 1999. Le système public de retraite en Italie: observations sur les réformes récentes et les modalités de contrôle de leur application. In M. Reynauld (ed.), *Réformes des retraites et concertation sociale*. Geneva: Bureau International du Travail.
- Banca d'Italia. 1993. *Relazione del Governatore sull'esercizio 1992*. Rome.
- Barbie, M., M. Hagerdon, and A. Kaul. 2002. *Fostering Within-Family Human Capital Investment: An Intragenerational Insurance Perspective of Social Security*. Discussion Paper 678. Bonn: Iza.
- Berg, L. 1982. Konsumtion och sparande- en studie av husallsbeteende. University of Upsalla, Upsalla.
- Bertola, G., T. Boeri, and G. Nicoletti. 2001. *Welfare and Employment in a United Europe*, Cambridge, Mass.: MIT Press.
- Boeri, T. 2000. *Uno stato asociale: perché è fallito il welfare in Italia*. Bari: Laterza.
- Boeri, T., and R. Perotti. 2001. Less Pensions, More Welfare. Paper presented at the Igiier-Rodolfo DeBenedetti (RDB) conference Pensioni: davvero una verifica? 28 September, Rome.
- Boeri, T., A. Brugiavini, and L. Calmfors. 2001. *The Role of the Unions in the 21st Century*. London: Oxford University Press.
- Bowles, S., and H. Gintis. 2002. Social Capital and Community Governance. *The Economic Journal* 112.
- Brugiavini, A., F. Peracchi, and D. Wise. 2003. *Pensions and Retirement Incentives: A Tale of Three Countries—Italy, Spain and the USA*. Ceis Tor Vergata Research Paper 6. Rome.
- Casamatta, G., H. Cremer, and P. Pestieau. 2003. Voting on Pensions with Endogenous Retirement Age. Discussion Paper 3778. Center for European Pension Reform, Turin.
- Casarico, A., and C. Devillanova. 2003. Capital-skill Complementarity and the Redistributive Effects of Social Security Reform. Discussion Paper 3773. Center for European Pension Reform, Turin.
- Castellino, O. 1975. *Il labirinto delle pensioni*. Bologna: Il Mulino.
- . 1998. There Is Nothing Good or Bad. *Economia Pubblica* 4.

- Cazzola, G. 1992. *La fabbrica delle pensioni*. Rome: Ediesse.
- Clark, R. L., L. A. Craig, and J. Wilson. 2003. *A History of Public Pensions in the United States*. Philadelphia: University of Pennsylvania Press.
- Commission of the European Community. 2003. Communication from the Commission to the Council, the European Parliament, the European Economic and Social Committee and the Committee of the Regions, Draft Report: Joint Report by the Commission and the Council on Adequate and Sustainable Pensions. Brussels.
- Coppini, M. A. 1994. *Le ragioni dello stato sociale*. Rome: Ediesse.
- CSIS (Center for Strategic and International Studies). 2002. *Meeting the Challenge of Global Ageing: A report to World Leaders from the CSIS Commission on Global Ageing*. Washington, DC.
- Daykin, C. 2003. *Contracting Out in the UK: A Partnership between Public and Private Sector*. London: Government Actuary's Department.
- De Luca, L., and M. Bruni. 1993. *Unemployment and Labor Market Flexibility: Italy*. Geneva: International Labour Office.
- Diamond, P. 2001. Towards an Optimal Social Security Design. Working Paper 4. Center for European Pension Reform, Turin.
- Disner, R. 2003. Are British Saving Enough for Their Retirement? Institute of Fiscal Studies, London.
- Disney, R., C. Emmerson, and S. Smith. 2003. Pension Reform and Economic Performance in Britain in the 1980s and 1990s. National Bureau of Economic Research, Cambridge, Mass.
- Dowers, K., S. Fassina, and S. Pettinato. 2001. Pension Reform in Small Emerging Economies: Issues and Challenges. Inter-American Development Bank, Sustainable Development Department, Washington, DC.
- Engström, L-G, and T. Eriksen. 2002. Early Exit from the Labour Market and Other Aspects of the Swedish pension reform. In *Ninth International Research Seminar on Issues in Social Security*. Sigtunahojden, Sigtuna, Sweden.
- Eriksen, T. 1973. *En prognosmodell för den allmänna tillaggpensionerogen*. Stockholm: Riksforsakiringsverket.
- Eriksen, T., and E. Palmer. 2002. Swedish Pension Reform: Comments and Reflection. Paper presented at the Ninth International Research Seminar on Issues in Social Security, Sigtuna.

- Esping Andersen, G. 1996a. *Welfare States at the End of the Century: The Impact of Labour Market, Family and Demographic Change*. Paris: Organisation for Economic Co-operation and Development.
- . 1996b. *Welfare States in Transition*. London: Sage.
- . 1999. *Social Foundations of Post Industrial Economies*. Oxford: Oxford University Press.
- European Central Bank. 2003. *Monthly Bulletin* (April). Frankfurt.
- EU Economic Policy Committee. 2001. *Budgetary Challenges Posed by Ageing Population*. Brussels.
- Feldstein, M. 1998. *Privatizing Social Security*. Chicago: University of Chicago Press.
- Ferrera, M. 1984. *Il welfare state in Italia*. Bologna: Il Mulino.
- . 1993. *Modelli di solidarietà: politica e riforme sociali nelle democrazie*. Bologna: Il Mulino.
- . 1998. *Le trappole del welfare*. Bologna: Il Mulino.
- Flora, P., and A. J. Heidenheimer, eds. 1983. *Lo sviluppo del welfare state in Europa e in America*. Bologna: Il Mulino.
- Fondazione Ideazione. 2001. *Pensioni: guida ad una riforma*. Roma: Ideazione Editrice.
- Fornero, E. 1999. *L'economia dei fondi pensione*. Bologna: Il Mulino.
- Franco, D. 2000. Italy: a Never-ending Pension Reform. Paper presented at the National Bureau of Economic Research–Kiel Institute Conference Coping with the Pension Crisis: Where Does Europe Stand? 20–21 March, Berlin.
- Franco, D., and M. Maré. 2003. Le pensioni: l'economia e la politica delle riforme. *Rivista di Politica Economica* (gennaio).
- Geanakoplos, J., O. Mitchell, and S. Zeldes. 1999. Social Security Money's Worth. In O. Mitchell, R. Myers, and H. Young (eds.), *Prospects for Social Security Reform*. Philadelphia: University of Pennsylvania Press.
- Gelauff, G. M. M., and J. J. Graafland. 1994. *Modeling Welfare States Reform*. Amsterdam: North-Holland.
- Gleaser, H., D. Liabson, and B. Sacerdote. 2002. An Economic Approach to Social Capital. *The Economic Journal* 112.
- Goetzmann, W., and P. Jorion. 1997. A Century of Global Stock Markets. NBER Working Paper 5901. National Bureau of Economic Research, Cambridge, Mass.
- Gray, P. 2003. *The UK Pension Context*. London: Department for Work and Pensions.

- Graziani, A. 1998. *Lo sviluppo dell'economia italiana: dalla ricostruzione alla moneta unica*. Torino: Bollati Boringhieri.
- Gronchi, S. 1997. Un'ipotesi di correzione e di completamento della riforma delle pensioni del 1995. *Studi e Note di Economia* 2.
- Gruber, J., and D. Wise, eds. 1999. *Social Security and Retirement around the World*. Chicago: University of Chicago Press.
- . 2002. *Social Security Programs and Retirement around the World: Micro Estimation*. Cambridge, Mass.: National Bureau of Economic Research.
- Gustman, A., and T. Steinmeier. 2002. *Retirement and the Stock Market Bubble*. Cambridge, Mass.: National Bureau of Economic Research.
- Herbert, Charles. 2003. Impact of Parametric and Structural Reforms on the Pension Systems of Four Countries. Paper presented at a Caribbean Development Bank symposium, Barbados.
- . 1990. *Come far passare le riforme*. Bologna: Il Mulino.
- . 1991. *Retoriche dell'intransigenza*. Bologna: Il Mulino.
- Hurd, M., and S. Rohwedder. 2003. *The Retirement-Consumption Puzzle: Anticipated and Actual Declines in Spending and Retirement*. Cambridge, Mass.: National Bureau of Economic Research.
- Illmarinen, J. 1999. *Ageing Workers in the European Union*. Helsinki: Finnish Institute of Occupation and Health.
- INPS (Istituto Nazionale di Previdenza Sociale). 1993. *Le pensioni domani*. Bologna: Il Mulino.
- Jackson, R. 2002. The Global Retirement Crisis. *Geneva Papers* 26.
- Janossy, F. 1966. *Das ende der Wirtschaftswunder*. Frankfurt: Main Verlag Neue Kritiik K.G.
- Jorion, P., and W. Goetzmann. 2000. Global Stock Markets in the Twentieth Century. NBER Working Paper 7565. National Bureau of Economic Research, Cambridge, Mass.
- Köthenbürger, M., and P. Poutvaara. 2002. Social Security Reform and Intergenerational Trade: Is There a Scope for a Pareto-Improvement? Working Paper 975. University of Munich, Center of Economic Studies and Institut für Wirtschaftsforschung, Munich.

- Kotlikoff, L. 1998. Simulating the Privatization of Social Security in General Equilibrium. In M. Feldstein (ed.), *Privatizing Social Security*. Chicago: University of Chicago Press.
- Kuran, T. 1995. *Private Truths, Public Lies: The Social Consequences of Preference Falsification*. Cambridge, Mass.: Cambridge University Press.
- Lindbeck, A., and M. Persson. 2003. The Gains from Pension Reform. *Journal of Economic Literature* (March).
- Lindert, P. 2002. Why the Welfare State Looks Like a Free Lunch. Working Paper 02-7. University of California at Davis, Economics Department.
- Maré, M., and G. Pennisi. 2003a. Financial Constraints and Policy Options: Pension Reform Process in Italy and Its Relevance to Transition European economies. In R. Whiteford (ed.), *Practical Lessons in Pension Reforms: Sharing Experiences of Transition and OECD Countries*. Paris: Organisation for Economic Co-operation and Development.
- . 2003b. Italy's Pension Reform Process: Where Financial and Political Realities Meet. In K. Marshall and O. Butzbach (eds.), *New Social Policy Agendas for Europe and Asia: Challenges, Experiences and Lessons*. Washington, DC: World Bank.
- Markowski, A., and E. Palmer. 1979. Social Insurance and Savings in Sweden. In G. von Fustenbergh (ed.), *Social Security versus Private Savings*. Cambridge, Mass.: Ballinger.
- Ministero del Lavoro e delle Politiche Sociali. 2001a. *Libro bianco sul mercato del lavoro in Italia- Proposte per una società attiva ed un lavoro di qualità*. Rome.
- . 2001b. *Verifica del sistema previdenziale ai sensi della legge 335/1995 e successivi provvedimenti nell'ottica della competitività, dello sviluppo e dell'equità*. Rome.
- Mitchell, O. S., and D. Osborne. 2003. Old-age Pension System Reform in the English Speaking Caribbean: A Policy Assessment. Caribbean Development Bank and Inter-American Development Bank, Barbados.
- Mitchell, O. S., R. J. Myers, and H. Young. 2003. *Prospects for Social Security Reform*. Philadelphia: University of Pennsylvania Press.
- Modigliani, F., M. L. Ceprini, and M. Muralidhar. 2000. The MIT Solution to the Problems of Social Security Crisis. MIT Sloan Working Paper 4051. Massachusetts Institute of Technology, Cambridge, Mass.
- Monorchio, A., ed. 1996. *La finanza pubblica dopo la svolta del 1992*. Bologna: Il Mulino.



- North, D. C. 1990. *Institutions, Institutional Change and Economic Performance*. Cambridge: Cambridge University Press.
- NSIB (National Social Insurance Board). 2001. *The Dilemma of the Welfare System: Coping with Ageing Means Working Longer*. Stockholm.
- OECD (Organisation for Economic Co-operation and Development). 2003. *Economic Outlook*. Paris.
- Oksanen, H. 2003. Population Ageing and Public Finance Targets. European Commission Economic Paper 196. Brussels.
- Palacios, R. 2003. *The Reformed Pension Systems in Latin America*. Washington, DC: World Bank.
- Palmer, E. 1999. Is Swedish Pension Reform the Right Medicine for Ageing Europe? *Journal of Ageing and Social Policy* 14.
- . 2000. The Swedish Pension Reform: Framework and Issues. In *World Bank Pension Primer*. Washington, DC: World Bank.
- . 2002. Swedish Pension Reform: How Did It Evolve and What Does It Mean for the Future? In M. Feldstein and H. Siebert (eds.), *Coping with the Pension Crisis: Where Does Europe Stand?* Chicago: University of Chicago Press.
- Pecorari, P. 1989. *Il protezionismo imperfetto: Luigi Lunati e la tariffa doganale del 1978*. Venezia: Istituto Veneto di Scienze, Lettere ed Arti.
- Pennisi, G. 1997. *La guerra dei trentenni: Italia e nuove generazioni*. Rome: Ideazione Editrice.
- Pettinato, S., and J. Díaz Cassou. 2003. A Needs Assessment of Pension Systems in the English Speaking Caribbean. Inter-American Development Bank, Infrastructure and Financial Markets Division, Washington, DC.
- Pierson, P. 1994. *Dismantling the Welfare State? Reagan, Thatcher and the Policy of Retrenchment*. Cambridge: Cambridge University Press.
- Putman, R. 1993. *Making Democracy Work: Civic Traditions in Modern Italy*. Princeton: Princeton University Press.
- Rajan, R., and L. Zingales. 1998. Financial Development and Growth. *American Economic Review* 88(3).
- Rawls, J. 1971. *A Theory of Justice*. Cambridge, Mass.: Harvard University Press.
- . 1993. *Political Liberalism*. Cambridge, Mass.: Harvard University Press.
- . 2001. *Justice as Fairness: A Restatement*. Cambridge, Mass.: Harvard University Press.

- Rodrik, D. 2000. Institutions for High Quality Growth: What They Are and How to Acquire Them. NBER Working Paper 7540. National Bureau of Economic Research, Cambridge, Mass.
- Roth, T. R. 1999. *Ethics, Economics and Freedom: The Failure of Consequentialist Social Welfare Theory*. Brookfield, Vt.: Ashgate.
- Sartor, N. 2001. The Long-run Effects of the Italian Pension Reforms. *International Tax and Public Finance* (8).
- Schultz, J. 2002. The Evolving Concept of 'Retirement': Looking Forward to the Year 2050. *International Social Security Review* 55.
- Sen, A. 1992. *Inequality Re-examined*. Oxford: Oxford University Press.
- . 2000. *Social Exclusion: Concept, Application and Scrutiny*. Manila: Asian Development Bank.
- Sharpe, William F. 2002. Budgeting and Monitoring Pension Fund Risk. *Financial Analysts Journal* 5.
- Shavell, S. 2003. *Economic Analysis of Welfare Economics, Morality and the Law*. Cambridge, Mass.: National Bureau of Economic Research.
- Sianesi, B. 2002. Differential Effects of Swedish Active Labour Market Programmes for Unemployed Adults during the 1990s. Working Paper 2002:5. Institutet för Arbetsmarknadspolitisk Utvärdering and Institute for Labour Market Policy Evaluation, London.
- Siegel, J. 1999. The Shrinking Equity Premium: Historical Facts and Future Forecasts. *Journal of Portfolio Management* (Fall).
- Shiller, R. 2003. *The New Financial Order in the XXI Century*. Princeton: Princeton University Press.
- SOU (Swedish Official Publications). 1994. *Reformerat pensionsystem-Betänkande av Pensionsarbetsgruppen*. Stockholm.
- Stiglitz, J., and J. Yun. 2001. Integrating of Unemployment Insurance with Pension through Individual Savings Accounts. Working paper 32078. Columbia University, Department of Economics, New York.
- Svensson, H. 2002. A Swedish Third Way? In A. Darling (ed.), *Leading Change for Pension Reform*. London: Policy Network.
- Tivegna, M., and G. Chiofi. 2001. *News e dinamica dei tassi di cambio*. Bologna: Il Mulino.

- Thompson, L. H. 2003. Public or Private Roles in Pension Reform. Caribbean Development Bank and Inter-American Development Bank, Barbados.
- Venditti, A. 2003. Altruism and Determinacy of Equilibria in Overlapping Generations Models with Externalities. *Japanese Economic Review* 54: 179–202.
- Vitaletti, G. 2000. Problemi e potenzialità della riforma pensionistica del 1995 in un confronto tra modelli previdenziali stilizzati. *Economia Pubblica* 4.
- Wadensjö, E. 1999. Suède: les révisions des régimes publics de retraite. In E. Reynaud (ed.), *Réforme des retraites et concertation sociale*. Geneva: Bureau International du Travail.
- Wigger, B. U. 2002. Social Security and Growth in an Altruistic Economy. *German Economic Review* 3.

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## **The Political Economy of Reform in Brazil's Civil Servant Pension Scheme**

*André Medici*

Over the past two decades both developed and developing countries have implemented pension reforms. Reasons for reform include demographic transitions (with increasing life expectancies and growing elderly populations in many countries), labor market changes (with expanding informal sectors cutting into the payroll taxes needed to finance pension systems), and actuarial and financial imbalances of pension systems becoming more widespread due to the first two developments. Pension reforms must be handled carefully, because they may affect the income distribution between generations and among groups in the same generation.

Reforms have been more successful in countries that have more homogeneous societies and that do not have a history of providing privileges to certain groups. By contrast, reforms have been slow and painful in countries with political and representative systems unable to produce stable majorities in their congresses and where traditions related to heterogeneous, segmented pension systems have created political lobbies against reforms and impeded a clean political transition. In Italy, for example, these obstacles have stalled pension reforms started in the first half of the 1990s.

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The author is grateful for comments from Jorge Colina, John Geier, Francisco Marcondes, Robert Rosenblatt, and Rogério Studart. This chapter has been modified since the symposium, taking into account the changes in Brazil's civil servant pension system introduced in the second half of 2003.

In Brazil most pensions are under the umbrella of a pay-as-you-go system. Unlike many developed countries and even more than most other developing countries, Brazil also has a large, socially inclusive, noncontributory system that requires huge fiscal resources to finance expected benefits. In addition, there is a generous scheme for civil servants, as well as schemes that complement the coverage provided by the others. There is, however, considerable inequity among the benefits provided by these four main pension schemes. Thus pension reform in Brazil must both increase the coverage of the contributory schemes and reduce the inequity between the general pay-as-you-go scheme and the privileged civil servant scheme.

In 1998 the Brazilian government implemented reforms to increase the financial sustainability of its pension schemes—seeking to contain pension deficits without hurting acquired rights. Changes to the pay-as-you-go scheme included establishing a mechanism that defines benefits based on workers' ages and length of contributions, as well as raising the minimum retirement age for civil servants.

Despite these reforms, the country's pension schemes continued to generate rising deficits. So, in the second half of 2003 the administration of President Luiz Ignácio Lula da Silva introduced new reforms aimed at equalizing the more generous civil servant benefits with those offered by the general pay-as-you-go system. These reforms were driven by the fact that the government was incurring R\$50 billion a year in deficits to sustain high pensions for fewer than 3 million retired civil servants when it lacked resources to extend health and education coverage to poor citizens.

Reforms to the civil servant pension system are expected to cut the public deficit by 0.3–0.5 percent of GDP a year over the next five years and by more than 1.0 percent of GDP a year beyond that. These savings imply that while the civil servant system will continue to carry a sizable deficit over the medium term, it should decline over the long term. This chapter analyzes Brazil's pension systems, focusing on the scheme for civil servants—including the need for and implications of the recent reforms.

### **Brazil's Pension System: An Overview**

The Brazilian pension system was originally developed along the same lines as those in other Latin American countries. The first pension schemes started in the early 20th

century,<sup>1</sup> with coverage increasing during the industrialization and economic development processes that spanned the 1930s to the 1960s. Those schemes, organized as pay-as-you-go funds and managed mostly by the public sector, were unified in 1967 into a single fund managed by a new public institute (which in 1976 became the National Institute for Social Security, or INSS) in an effort to achieve greater scale economies, increase equity, and improve financial administration. Unification did not, however, include the pension schemes for civil servants and military personnel, which retained independent administrations—guaranteeing many privileges for members.

Between the 1967 reform and the 1988 Constitution, few changes occurred in the administration of pension schemes for public and private employees. The most important change was the introduction, during the 1970s, of a noncontributory pension for elderly and handicapped persons lacking means to survive. In addition, in an effort to avoid short-term financial shocks in the early 1980s, the government made some adjustments to the pay-as-you-go system for private employees. Those adjustments, based on parametric changes such as increasing contribution rates and capping or reducing benefits, did not change the structural trend of the pay-as-you-go system toward a growing deficit.

A conceptual change to pension system rules was introduced with the 1988 Constitution, which defines a national social security system that guarantees all Brazilian citizens access to pensions, health care, and social assistance. The new pension system focuses on protecting people against poverty—especially those who lose their work capacity due to aging, health conditions, or disability, or who suffer the death of a spouse or parent (for children under 21). But this new conceptual framework did not introduce substantial changes in the way that Brazilian pension schemes were organized. It merely consolidated existing financing mechanisms,<sup>2</sup> solidified civil servants' privileges, and consolidated rights for noncontributing workers and the poorest elderly populations.

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<sup>1</sup> The first pension law in Brazil (the Eloy Chaves Law), issued in 1923, covered railroad employees. Using the same model, many other profession-based pension schemes were created in the 1920s, including for commercial activities, public services, industry, and bank employees. By the end of the 1920s there were more than 200 pension funds. In 1934 Getúlio Vargas's government increased the state's role in managing the pension system, creating seven public pension institutions—organized by branch of activity—that took on most of the contributors to the profession-based schemes.

<sup>2</sup> Under the new social security system, pensions are financed by payroll contributions; health care by taxes applied on gross sales, and social assistance by the net profit of firms and the financial sector.

Until 1998 the Brazilian pension system was composed of four schemes:

- *A noncontributory pension for rural workers, disabled people, and others*, with eligibility based on age (70 for men, 65 for women) or disability. This scheme, created in the 1970s, pays a monthly means-tested allowance equivalent to the Brazilian minimum wage (US\$80) and is managed by the National Institute for Social Security. It guarantees old age pensions for workers who spent their entire lives in the informal labor market, especially in rural areas.
- *A mandatory public pay-as-you-go pension for private workers*, financed by payroll contributions. This scheme includes cross-subsidies to the poor and is based on defined benefits, with a monthly ceiling of R\$1,562 (US\$558 in June 2003). Minimum benefits are equivalent to the minimum wage. The system is also managed by the National Institute for Social Security. Employee contributions range from 8–11 percent of payroll, based on wage level. Employers contribute a flat 20 percent of payroll. The government contributes earmarked taxes to finance administrative costs, defray deficits, and cover contributions for employees of state enterprises. A 1998 reform to this scheme raised the minimum retirement age (from 53 to 60 for men and 48 to 55 for women) and extended the length of contributions (from 108 to 180 months). Compulsory retirement ages will be 70 for men and 65 for women after a transition period running from 1998 until 2011. During the transition, pensions will be based on the length of contributions, age, and years from implementation of the new rules.
- *A mandatory scheme for civil servants*, managed by federal, state, and municipal governments and by the armed forces and police. This scheme guarantees pensions equivalent to the worker's last salary before retirement. Pensions require 30 years of service for women and 35 for men, though beneficiaries can receive pensions equivalent to 80 percent of the last salary with 25 years of service for women and 30 for men. Previous time spent at a private job can be counted toward the service requirement—civil servants need to prove just 10 years of public service to receive the benefit. Until the 1998 reform neither civil servants nor the government (as employer) helped finance the system. All benefits were



funded entirely by the public budget. The reform required civil servants to pay 11 percent of their salaries to be enrolled in the system. In 2003 additional reforms were made to this scheme; these are described below.

- *Complementary pension funds*, which are optional, privately managed, mostly centered on capitalization, fairly regulated, and monitored by the Ministry of Social Security and Ministry of Finance. These schemes do not have standardized contribution rates or benefits. The benefits complement pay-as-you-go pensions to a predefined ceiling, based on the rules for each pension fund. Most of these funds enroll only employees of the same company. Large companies in strategic sectors (electricity, oil, banks, telecommunications, steel production, decentralized public enterprises and institutions) account for most of the participants in this scheme.

As noted, the main purpose of this chapter is to analyze the structure, problems, and policies of the civil servant pension system, and all other sections are dedicated to those issues. To complement that analysis, the rest of this section describes some of the features of the three other pension systems.

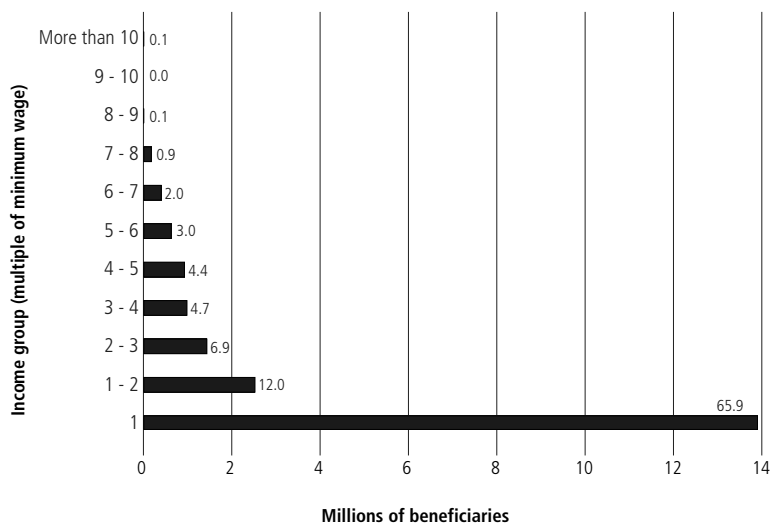
### ***Noncontributory Pension***

According to the 1999 National Household Survey (IBGE 1999), 26.7 million workers were private employees contributing to the pay-as-you-go scheme and 4.8 million were public servants (civil and military) working for central, state, and municipal governments. Another 40.2 million workers—56 percent of the labor force—do not contribute to any system. Those workers are candidates to achieve the old age benefits of the noncontributory scheme if nothing happens to improve their occupational condition.

In 2002 the pension schemes managed by Brazil's federal government paid benefits to 21 million beneficiaries. As shown in Figure 8.1, two-thirds of beneficiaries receive less than the minimum wage and more than three-quarters earn monthly benefits of less than US\$160.

Even so, the Brazilian pension system, especially the noncontributory scheme, helps alleviate poverty. The population below the poverty line would be greater, especially among disabled and elderly populations, if the noncontributory pension did not exist.

**Figure 8.1. Distribution of Beneficiaries in Brazil's Pension System by Pension Income, 2002**



Source: MPAS (2002).

Among 15 Latin American countries, Brazil has some of the broadest pension coverage for people over 60. Only Argentina and Uruguay cover larger portions of the urban elderly, and Brazil has the highest coverage of the rural elderly (Table 8.1). This system has been important in containing rural-urban migration and increasing the income of the poorest families, especially in rural areas.

### ***Mandatory Pay-as-You-Go System***

Between 1994 and 2002 the number of rural pensioners increased from 5.8 to 6.9 million. The number of urban pensioners grew even faster. Several changes in pension regulation designed to avoid future problems in the compulsory pension scheme—such as increasing the retirement age and the length of required contributions and reducing the value of pensions—led many workers to retire earlier than expected. As a result the number of urban beneficiaries in the mandatory pay-as-you-go scheme increased from 9.4 to 14.3 million between 1994 and 2002, in a context of low economic growth and increasing informal labor.

**Table 8.1. Pension Coverage for People Age 60 and Over and Average Monthly Pension Values in 15 Latin American Countries, 1997**

Country	Coverage (percent)		Value (multiple of country poverty line)	
	Urban	Rural	Urban	Rural
Argentina	67		2.3	
Bolivia	26	4	2.6	2.5
Brazil	62	75	3.2	1.7
Chile	61	48	3.5	2.8
Colombia	20	9	3.5	3.1
Costa Rica	40	19	3.5	3.1
Dominican Republic	16		2.9	
Ecuador	17		2.0	
El Salvador	18	3	2.2	1.7
Honduras	8	2	1.2	1.2
Mexico	23	7	1.3	1.6
Nicaragua	17		1.1	
Panama	48	19	4.6	5.0
Paraguay	21		2.6	
Uruguay	81		3.3	
Average	39	21	2.6	2.0

Source: CEPAL (2001) based on household surveys.

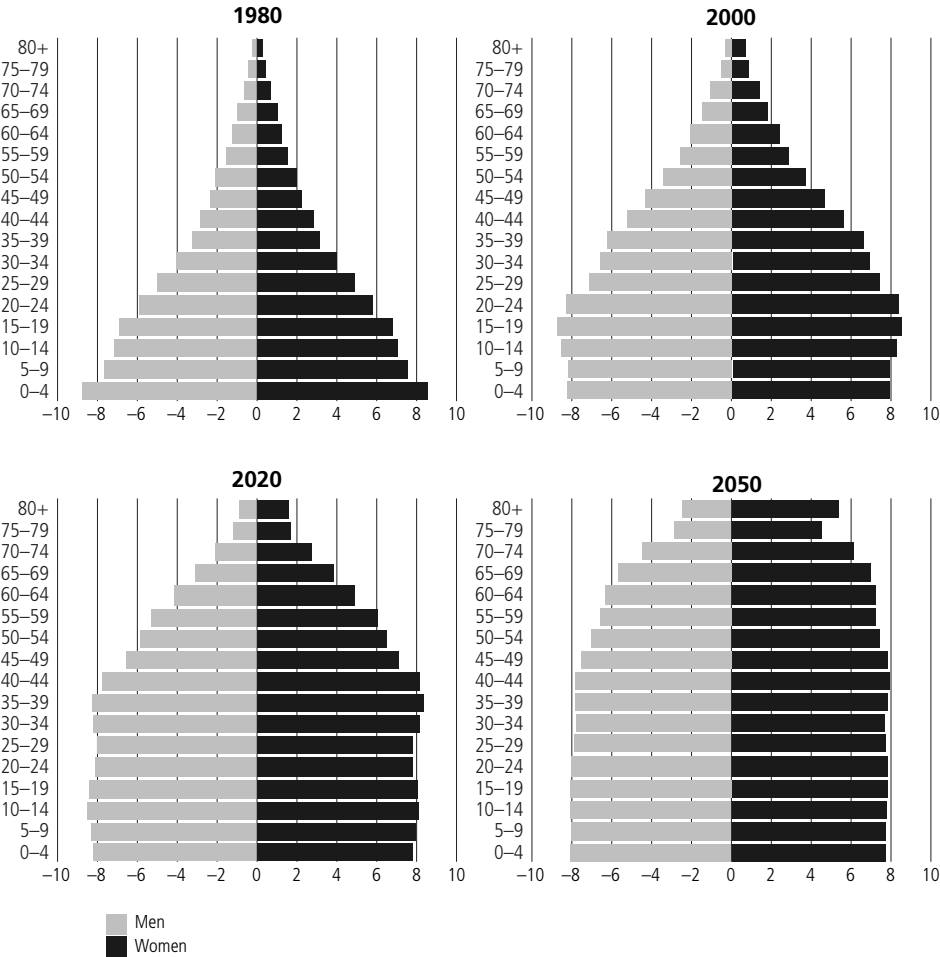
Many variables indicate that Brazil's compulsory pension system is approaching a crisis. Demography is no longer favorable to generous pension systems. Since the late 1950s Brazil has experienced a rapid demographic transition, resulting in a drastic reduction in population growth (from 3.0 percent a year in the 1960s to 1.4 percent in the 1990s). It is expected that around 2010–20, demographic growth will reach the population replacement level. In addition, fertility rates in Brazil fell from 4.3 children per woman of reproductive age in 1960 to 1.9 in 2000, and are expected to be around 1.4 in 2040. Additional life expectancy at age 60 is 18 years and at 70 is about 11 years.

Over the next 50 years the Brazilian population will age significantly (Figure 8.2). Consequently, dependency ratios will decrease as well.<sup>3</sup> Within the next 20 years the dependency ratio will likely fall below 2, and by 2030 it will be almost 1—mean-

<sup>3</sup> During the 1970s the dependency ratio of Brazil's pay-as-you-go scheme was about 4 (meaning 4 contributors for each retiree or pensioner), but by 2000 it was around 2.

**Figure 8.2. Population Pyramids in Brazil, 1980–2050**

(Millions of people)



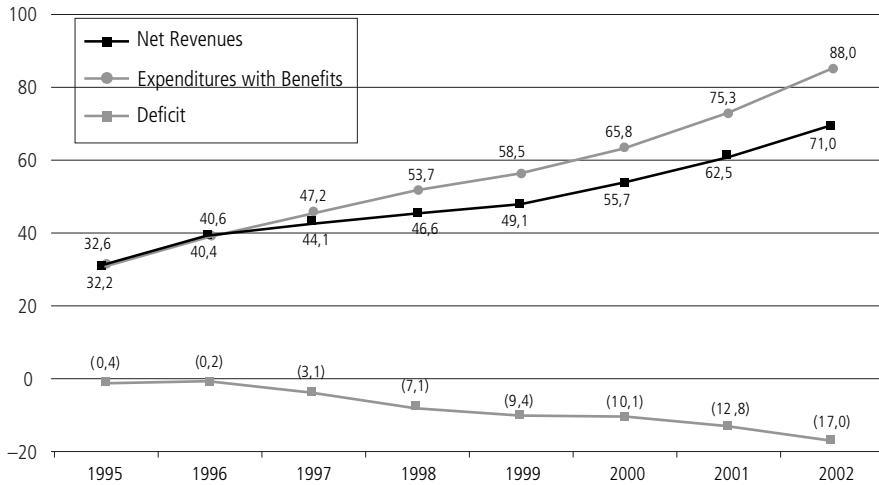
Source: IBGE, *Censos demográficos* (various years).

ing that just 1–2 workers will contribute to sustain each retiree or pensioner under the pay-as-you-go pension system.

Moreover, the informal labor market grew considerably during the 1990s, narrowing the possibility of maintaining financial sustainability in the pay-as-you-go scheme. As a share of the labor force, the formal labor market fell from 50 percent in 1994 to 45 percent in 2002.

**Figure 8.3. Net Revenues, Benefit Spending, and Deficits in Brazil's Pay-as-You-Go System, 1995–2002**

(Billions of R\$)



Source: INSS data.

During the 1990s these demographic and labor markets trends led to growing deficits in the compulsory pay-as-you-go system (Figure 8.3). Since 1995 benefit expenses have exceeded payroll contributions, and by 2002 the deficit had reached R\$17 billion (about US\$6.0 billion). (Part of this deficit is due to the noncontributory system, which should be accounted separately.) Without changes, the deficit of the compulsory pay-as-you-go system is expected to grow from 1.3 percent of GDP in 2002 to 1.7 percent in 2020, assuming moderate annual economic growth of about 2 percent. If economic growth is slower, the deficit will be even larger. Thus steps need to be taken to achieve future financial equilibrium in the pay-as-you-go scheme.

Part of the pension deficit is due to fiscal rules that forgo the collection of R\$8 billion a year—almost half of the annual deficit. Those rules provide unfair privileges for some employers, employees, and nonprofit organizations.<sup>4</sup>

<sup>4</sup> The pay-as-you-go system exempts or reduces tax contributions for philanthropic organizations, rural employers and employees, domestic employees, professional soccer clubs and associations, and others.

### ***Complementary Pension Funds***

Brazil is among the few Latin American countries with voluntary private pension funds. Most complementary pension funds in Brazil are linked with capitalization schemes. The first such funds were created in the 1960s. Since then, several regulations have improved their portfolios and performance. The most recent regulation (Law 109, issued in May 2001) established two types of operating arrangements for these funds: closed entities, represented by employees of a company or groups of companies with specific collective benefits drawn for that group, and open entities, accessible to whoever subscribes and defraying their own benefit plan.

In 2002 the number of participants in complementary pension funds reached 1.7 million, with 4.3 million dependents and 0.6 million retirees. Enrollees represent less than 4 percent of the Brazilian population. Still, these funds play an important economic role, especially in increasing the country's long-term savings. Between 1990 and 2002 the assets of complementary funds increased from 2.2 percent to 14.3 percent of GDP, or more than US\$68 billion. Most assets are held in investment funds (50 percent), stocks (19 percent), and public bonds (12 percent).

Although complementary pension funds need a few regulatory adjustments,<sup>5</sup> these adjustments will probably not be made until after the changes needed in the mandatory pay-as-you-go scheme. As complementary institutions, these funds need to adjust their benefit schemes in line with the shape defined by the pay-as-you-go system.

### ***Main Short-Term Concerns for Brazil's Pension System***

The main risk facing the Brazilian pension system is the deficit in the pay-as-you-go scheme. This deficit has been increasing since the mid-1990s, and the 1998 pension reform was unable to avert this trend.

Brazil's pension system is fragmented and has little integration among its four main schemes. This situation leads to coverage duplications. Many people accumulate rights to pensions as both private employees and civil servants. Even many

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<sup>5</sup> Most needed adjustments are related to administration costs, insurance premiums, asset portfolio composition (especially regarding the possibility of allowing foreign investments), and nature of benefits (defined contribution versus defined benefit or mixed schemes).

civil servants earn two or more pensions simultaneously when they retire as federal and state or municipal employees. The 1998 reform forbade such accumulation.

There is enormous disparity in the benefit rules and requirements for different kinds of employees—especially for civil servants, who are a privileged group. And among civil servants, some groups (such as members of Congress and judiciary employees) receive pensions higher than their last salaries. This situation increases social inequity.

The Brazilian government has tried, at different points in recent history, to introduce reforms to reduce privileges and increase the system's long-run sustainability. But the reforms implemented in the 1990s did not achieve much. Interest groups, such as civil servants and trade unions, exerted pressure to keep privileges and avoid the rational solutions needed for a sustainable pension system.

### **Civil Servant Pension Scheme**

Public employees can be registered as civil servants or contracted under the private pay-as-you-go system. In 1995 around 87 percent of federal, 67 percent of state, and 54 percent of municipal public employees were civil servants. According to constitutional rules, the hiring process for civil servants is based on public competition. Once selected and hired, civil servants have special rights, including a different pension system.

The civil servant pension scheme in Brazil is a complex chain of national and local systems (and interests) that includes many federal employee categories (executive, legislative, judiciary, armed forces) at different government levels; 27 state pension systems (including the Federal District) with the same complexity of the federal level, only replacing the armed forces with state police (civil and military); and employees of 2,140 municipalities.<sup>6</sup> The pension systems for these categories are regulated by a law issued in the early 1990s, Regime Jurídico Único (RJU), created to protect all civil servants nationwide under almost the same basic rules.

The total number of civil servants protected by RJU rules is unknown, but in 1999—taking into account the federal, state, and state capital levels—there were 3.7 million active employees in the system, 1.7 million retirees, and almost 1.0 million

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<sup>6</sup> Public employees of state companies, foundations, and the other 3,150 municipalities are not protected by the RJU.

**Table 8.2. Employees, Retirees, and Pensioners in the Civil Servant Pension Scheme, 1999**

Government level	Active civil servants (thousands) (1)	Retirees (thousands) (2)	Pensioners (thousands) (3)	Dependency ratio (1)/(2+3)
Federal	852.0	532.6	401.3	0.91
State	2,561.0	1,035.6	514.2	1.65
State capitals	332.1	93.2	44.4	2.41
Total	3,745.1	1,661.4	959.9	—

Source: MPAS (2002).

pensioners (Table 8.2).<sup>7</sup> The dependency ratio is higher at the federal level, reflecting the smaller number of active employees relative to retirees and pensioners. At the state and municipal levels the dependency ratios are more reasonable. Still, there is not much confidence in the future sustainability of those systems.

The main advantages of pension rules for civil servants are (Table 8.3):

- *Higher pension value.* Given the same length of service, civil servants receive pensions equivalent to the last salary received. Private employees receive pensions calculated as an average of the 36 months of highest salary in the five years before retirement, limited by a ceiling of 10 times the minimum wage (about US\$1,200).
- *Shorter contributions to achieve a full pension.* Civil servants have to prove that they worked just 10 years as public employees to achieve a pension equivalent to the last salary. (The remaining 25 years could be as a worker or self-employed enrolled in the pay-as-you-go system.) The monthly amount of all fees and commissions received during more than five years of work as a civil servant is fully incorporated in the monthly benefit value.

Table 8.4 shows the combined payroll income, spending, and deficit of the civil servant pension scheme for the federal, state, and municipal levels (including police and military) during 1995–2002. Deficits have been growing, reaching 4.2 per-

<sup>7</sup> Brazilian rules define retirees as former workers receiving a pension and pensioners as widows or dependents of dead retirees.



**Table 8.3. Differences between Pension Rules for Private Employees and Civil Servants**

Type of benefit	Private employees (constitutional amendment 20, December 1998)	Civil servants (constitutional amendment 20, December 1998)
Pension by length of service	<p>Transitional rules:</p> <ul style="list-style-type: none"> <li>— Contribution period: 35 years (men) and 30 years (women)</li> <li>— Minimum age: 53 (men) and 48 (men)</li> </ul> <p>Post-transitional rules:</p> <ul style="list-style-type: none"> <li>— Same</li> <li>— Minimum age: 60 (men) and 55 (women)</li> </ul> <p>Benefit value: 80 percent of the average of the 36 highest monthly salaries in the past five years, adjusted by the provisional factor<sup>a</sup></p> <p>Ceiling of benefit value: R\$1,200 in December 1998 (actualized by inflation rates)<sup>b</sup></p>	<p>Transitional rules:</p> <ul style="list-style-type: none"> <li>— Same</li> <li>— Same</li> </ul> <p>Post-transitional rules:</p> <ul style="list-style-type: none"> <li>— Same</li> <li>— Same</li> </ul> <p>Benefit value: last salary</p> <p>Ceiling of benefit value: none</p>
Pension by age	60 years (men) and 55 years (women)	Same
Length of service to get the benefits assured by the system	35 years (men) and 30 years (women)	10 years (to get the last salary benefit) and 5 years (to incorporate fees and commissions for management positions). The remaining 25 years can be spent as a worker or self-employed enrolled in the pay-as-you-go system
Benefit value parity with salaries of active employees	Benefits actualized based on specific price indexes for retired people	Full parity with salaries of active employees

a. The provisional factor is a formula used to calculate the benefit value at the time an individual retires, based on age and length of contributions.

b. The government has proposed raising the ceiling to R\$2,400 to restore the original reference value of 10 times the minimum wage.

Source: RJU law and regulations.

**Table 8.4. Payroll Income, Benefit Spending, and Deficit of the Civil Servant Pension Scheme, 1995–2002**

Year	Payroll income		Benefit spending		Deficit	
	R\$ billions	Percentage of GDP	R\$ billions	Percentage of GDP	R\$ billions	Percentage of GDP
1995	6.2	1.0	25.4	3.9	19.2	3.0
1996	6.4	0.8	33.7	4.3	27.3	3.5
1997	6.6	0.8	37.1	4.3	30.5	3.5
1998	6.9	0.7	41.8	4.6	34.9	3.8
1999	8.1	0.8	44.0	4.6	35.9	3.7
2000	6.9	0.6	52.0	4.8	45.2	4.1
2001	6.3	0.5	56.4	4.8	50.1	4.2
2002	7.2	0.6	61.6	4.7	54.4	4.2

Source: Ministerio da Fazenda (2003).

cent of GDP in 2002. Most of these deficits resulted from the absence of civil servant contributions until 1998, when a contribution of 11 percent of payroll was established. Deficits have also risen as a result of slow GDP growth in a context of moderate expansions in benefit spending due to the aging of civil servants and the consequent increase in retirees and pensioners.

The federal government has always argued that the system deficit is a consequence of generous benefits and low employee payroll taxes. But the government has never defined, calculated, or made explicit the contributions to be paid by governments (as employers) as a counterpart of civil servant contributions. Some analysts claim that even if the government contribution were twice the size of the civil servant payroll tax, the system would still run a deficit. But the current situation most likely never would have occurred if financing rules had been defined earlier. Pay-as-you-go systems must have independent, transparent accounts and clear mechanisms to finance benefits and identify deficit trends. That never happened with Brazil's civil servant pension system.

Each level of government experiences different outcomes from the system's performance and has different motivations for supporting reforms. Table 8.5 shows that the weight and dimension of the deficit differ at each level of government. Though the federal deficit is larger than that at other government levels, in all cases the deficit

**Table 8.5. Measures of the Civil Servant Pension Deficit by Government Level, 2000**  
(Percent)

Government level	Share of system deficit	Deficit as share of pension spending	Deficit as share of fiscal revenues
Federal	57	89	18
States	36	78	13
Municipalities	7	87	3
Total/average	100	85	

Source: Ministério da Fazenda (2003).

represents a large proportion of spending on the pension system. Another way to analyze the deficit is as a share of fiscal revenues. In 2000 the federal government spent 18 percent of its revenues financing the civil servant pension deficit. State governments spent 13 percent, and municipalities just 3 percent. Given these variations, it is useful to analyze the performance, issues, and needs of the civil servant pension scheme at the federal, state, and municipal levels.

### *Federal System*

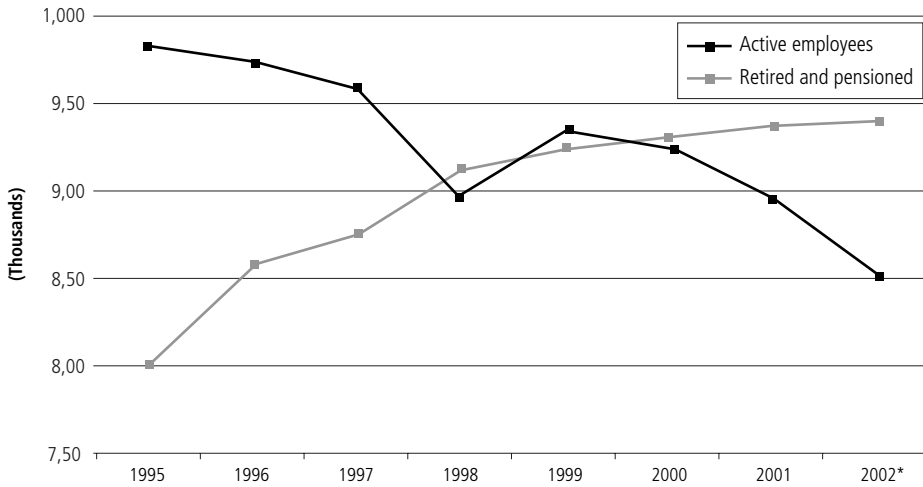
The federal civil servant pension scheme is the most imbalanced among the three levels of government. Its dependency ratio is less than 1, seriously undermining its financial sustainability. Accordingly, its reform is a top priority for the federal government.

In recent years the number of federal civil servant retirees and pensioners has increased sharply, while the number of active employees has decreased (Figure 8.4). Thus the system can no longer be sustained by payroll contributions, and requires urgent adjustments to avoid growing public deficits.

The age structure of current civil servants does not bode well for alleviating the pension deficit: only 29 percent of federal employees are under 41. Moreover, the average age of new federal employees has been rising, from 31 in 1995 to 35 in 2002.

Nearly half of federal civil servants are between 41 and 50, and a quarter are in the retirement range (51 and over). As a result the number of new retirees is expected to increase over the next few years.

**Figure 8.4. Number of Federal Civil Servants (Active and Retired) in Brazil, 1995–2002**



Source: MPAS.

Another issue is the high heterogeneity of civil servant benefits across professional categories. Table 8.6 shows the average pension benefit for different groups of federal civil servant retirees and for private workers registered with the pay-as-you-go system. While the average pension benefit for federal judges is five times that for retirees from the executive branch, the benefit for federal executive branch civil servants is almost 10 times that for retirees based on length of service under the pay-as-you-go system. But some of the groups receiving generous benefits (such as judges, the armed forces, and members of Congress) have considerable political power—inhibiting the likelihood of extensive reform.

### *State Systems*

As noted, relative to the federal government, state governments spend a smaller share of fiscal revenues to finance the civil servant pension deficit. There are many reasons for that:

- States started their civil servant pension systems at different times. So, while some states have older systems with large deficits, many have young systems without deep actuarial imbalances.

**Table 8.6. Average Monthly Pension Benefits for Federal Civil Servants and Private Employees, 2002**  
(R\$)

Professional category	Benefit
Federal civil servants	
Executive branch	2,171
Federal judges	11,862
Central bank	6,662
Armed forces	4,024
Legislative branch	6,969
Judiciary branch	7,308
Private employees (pay-as-you-go system)	
Average pension by age <sup>a</sup>	713
Average pension by length of service <sup>b</sup>	232
Average pension of pay-as-you-go system	362

a. Provided at age 70 (men) or 65 (women), independent of length of service.

b. Provided after 35 years of service (men) or 30 years of service (women).

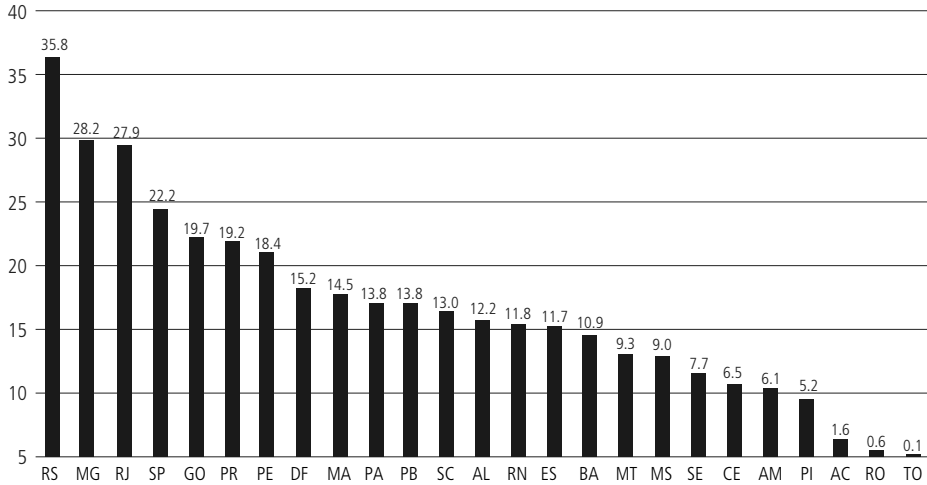
Source: Ministério da Fazenda (2003).

- Some states began implementing civil servant pension reforms in the late 1990s and are now in better financial shape than others.
- Different rules about benefits and contributions in each system have influenced the evolution of the balance between spending and income.

Figure 8.5 shows civil servant pension deficits as a share of fiscal revenues in Brazilian states. In some, such as Rio Grande do Sul, Minas Gerais, Rio de Janeiro, São Paulo, and Goiás, the share of deficit spending is higher than that by the federal government. In others, such as Tocantins, Rondonia, and Acre, the deficit does not compromise too much public revenue.

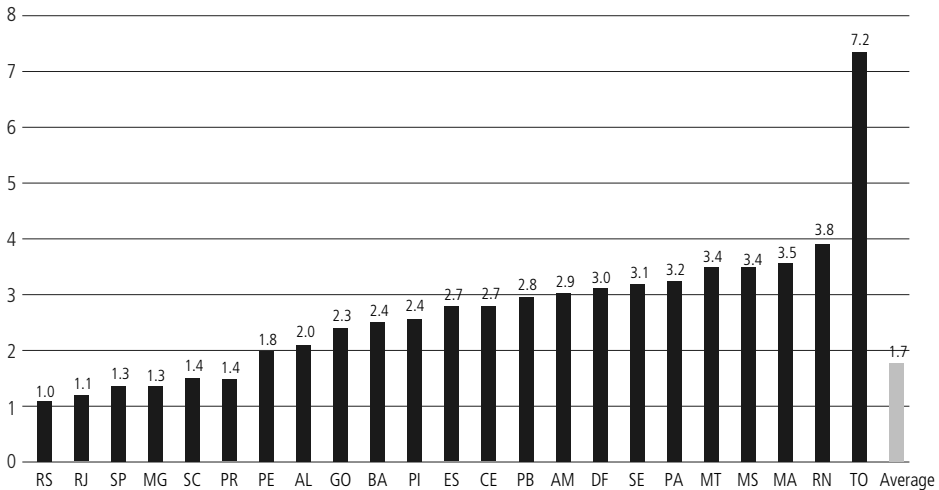
In 2000 the 26 Brazilian states (excluding Tocantins, which was created at the end of the 1990s) had 2.6 million active civil servants and 1.0 million retirees (see Table 8.2). Only 8 states had dependency ratios of less than 2 under their civil servant pension systems, and all were among the richest states (Figure 8.6). Many northern, northeastern, and midwestern states do not face short-term risks of financial crises in their civil servant systems. So, despite the need for measures to restructure the system and avoid future imbalances, the considerable heterogeneity among states makes it difficult to align the opinions of state authorities when it comes to civil servant pension reform.

**Figure 8.5. Civil Servant Pension Deficit in Brazilian States, 2000**  
*(Percentage of state fiscal revenues)*



Source: MPAS.

**Figure 8.6. Dependency Ratios in Brazil's Civil Servant Pension System by State, 2000**



Source: MPAS.

## *Municipal Systems*

Municipal civil servant pension systems were created and expanded later than the federal and state systems. There is little timely information on the total number of beneficiaries of municipal systems. The first of these systems, created in state capitals, have 332,000 active civil servants and 138,000 retirees and pensioners. The dependency ratio of these systems (2.4) is much more comfortable than those at the federal and state levels.

Many municipalities, however, are increasingly using the pay-as-you-go system for their employees. Table 8.7 shows the distribution of public employees in the civil servant and pay-as-you-go systems by government level.

Municipalities contract fewer employees under the civil servant system because federal rules discourage them from doing so, based on the argument that using the pay-as-you-go system will help ensure the long-run sustainability of their local administrations. Even so, some municipal governments are running deficits under the pay-as-you-go system due to fiscal imbalances, falling tax revenues, and cash shortages.

Municipal deficits under the civil servant pension scheme are smaller than those at the federal and state levels. In 2000 only 3 percent of municipal revenues were used to cover these deficits—much less than at the federal and state levels (see Table 8.5).

The 2000 Fiscal Responsibility Law introduced new rules to discipline municipal and state spending on public pensions. The law imposed new obligations in

**Table 8.7. Pension System Coverage for Public Employees by Government Level, 1999**  
(Percent)

Government level	Share of employees		Share of payroll	
	Civil servant system	Pay-as-you-go system	Civil servant system	Pay-as-you-go system
Federal	86.9	13.1	93.3	6.7
State	66.7	33.3	88.8	11.2
Municipal	54.4	45.6	71.5	28.5

Source: Ministério do Trabalho (various years).

areas such as transparency, long-term planning, financial and actuarial balance, and periodic publication of the financial state of pension system accounts.

The administration of President Fernando Henrique Cardoso also introduced many other changes to promote fiscal discipline and prevent the creation of new civil servant pension systems. (More than half of municipalities do not have such systems.) The new rules are crucial to the sustainability of existing systems, and include:

- Prohibiting workers from collecting more than one public pension
- Providing the same benefits as under the pay-as-you-go system
- Separating accounts for health expenditures and pension benefits
- Forbidding systems from making loans to civil servants
- Limiting net spending for retirees and pensioners to 12 percent of municipal income
- Creating municipal pension funds to guarantee the future payment of benefits.

### **Reform of the Civil Servant Pension System**

In December 2003 the Brazilian Congress approved a parametric civil servant pension reform (constitutional amendment 41). This section describes the debate that preceded the amendment's approval and the changes it introduced.

The Brazilian Partido dos Trabalhadores (Workers' Party) won the most recent (2002) national elections. The new president, Luiz Ignacio Lula da Silva, was elected based on his opposition to the "neoliberal" reforms implemented by former President Cardoso. Civil servants, as a group, have always been among the strongest supporters of the Workers Party and were a crucial part of the social alliance that led to President Lula's election. Civil servants expected that any further reforms would reduce their social privileges, undermine their political power, or both.

But in an internally and externally adverse environment, it is sometimes difficult for a government to sustain the privileges of interest groups—no matter what its political debts. Six months before the elections, Brazil's economy experienced hard times. The risk rate for foreign investments skyrocketed due to uncertainty about future economic policies. To ease this uncertainty, since entering office President Lula's



government has had to demonstrate its commitment to macroeconomic stability and public deficit control.

To prove these commitments in the long run, the government had to pursue an agenda of reforms, focusing on two sectors: pensions (especially civil servant pensions, to reduce public deficits) and taxes. These were the main battles facing President Lula's government in 2003, with high risks of losing political support.

Since January 2003 the new government has been trying to reach national consensus on the need for pension reform. President Lula has argued that civil servant pension reform is crucial to achieving social justice and balancing public accounts. During 2002 the federal civil servant pension system spent R\$33 billion on fewer than 1 million beneficiaries, while the pay-as-you-go system spent R\$88 billion (less than 3 times more) on 18 million beneficiaries (more than 18 times more). In 2002 federal, state, and local governments spent R\$62 billion on benefits for retired civil servants. But payroll contributions for civil servants were just R\$7 billion—generating an estimated deficit of R\$55 billion.

Given this situation, President Lula's government has defined three main goals for civil servant pension reform: achieving better balance in the system and guaranteeing long-run stability, reducing social imbalances in the use of public funds by providing larger income transfers to the poorest families, and reducing pressures to cover system deficits and freeing public resources to support economic growth. Based on these goals, in March 2003 the president and the governors of 27 states endorsed the Brasília Charter, which:

- Elaborates joint proposals to reform civil servant pension schemes at the federal, state, and municipal levels, seeking to reverse the systems' actuarial and financial imbalances
- Proposes new rules for benefits (minimum age, minimum time working, and so on)
- Provides for government contributions equivalent to the minimum contributions of active civil servants
- Imposes a ceiling on benefits for civil servants (or different ceilings based on professional category and government level)
- Creates complementary pension funds for public employees as a way to increase the pension value over the ceiling value

- Supports studies at the state level to evaluate the impact of these measures on the system's equity and sustainability.

To build the alliance needed to approve these measures in Congress, President Lula's government had to deal with many special interest groups and engage in political debates in many institutional arenas.

In the executive branch the main actors were the Ministry of the Presidential Cabinet, Ministry of Finance, Ministry of Social Security, and Ministry of Planning, which helped advance the proposed changes. Other parts of the federal government were silent, and some indicated their unhappiness with the proposals. In a strategic move, the government proposed the reforms only for civil servants, excluding the armed forces.

In the legislative branch the actors were members of Congress. The government party (Workers Party) was split into groups for and against the reforms. But opinions were also divided in other parties. The strategy of the government leadership in Congress was to create a punitive environment for any member of the Workers Party who did not support the reforms, and to develop alliances and bargaining tools with members of other parties to generate support.

In the judiciary branch there was clear-cut opposition to the proposed reforms—especially by magistrates and judges, who would see their privileges cut as a result.

State governors were generally in favor of the reforms, and municipal mayors were not called on to participate in the process.

Within civil society there was enormous opposition by active civil servants, who are directly affected by the increased length of service required to receive benefits and the reduction in the value of their future pensions. Retirees were also opposed, because the reform reduces the value of their benefits. Given that active civil servants, retirees, and pensioners represent 6.4 million persons and each is able to influence two other adults, there was a potential of 20 million voters opposed to the pension reforms. Moreover, almost all are among the richest fifth of the Brazilian population and have a strong capacity to influence public opinion.

Although the main arena of debate was Congress, another important arena was the mass media (press, television, and so on), where the public opinion debate—which was decisive in influencing the behavior of members of Congress—took place.

In April 2003 the government sent Congress the constitutional amendment proposal (PEC 40-2003) on pension reform. In August the Deputies chamber ap-

proved an alternative amendment (PEC 40A-2003), but in the Brazilian bicameral system this amendment had to be approved by the Senate to be enacted into law. The Senate introduced some changes and approved it in October. Based on these changes the combined Congress approved a new amendment (PEC 41-2003) in December 2003. The changes introduced by the amendment have consequences for the following actors.

### ***Pensioners and Retirees***

- Current retirees and pensioners (including those who have rights to claim benefits) will contribute the same payroll tax as active civil servants (11 percent), except for those under the ceiling for income tax exemption.

### ***Active Civil Servants (When Retired)***

- These will pay the same payroll tax as paid during employment (11 percent), except those under the ceiling for income tax exemption.
- Federal judicial system civil servants will receive a pension ceiling equivalent to the highest salary received by a Supreme Court minister. For state judicial system civil servants, the ceiling will be equivalent to 90.25 percent of the highest salary of a Supreme Court minister.
- Regular retirement age will increase from 53 to 60 (men) and from 48 to 55 (women). Minimum length of service to retirement does not change: 35 years (men) and 30 years (women). Men and women can still retire younger than the regular retirement age at 53 (men) and 48 (women) with 35 years and 30 years of service, respectively. But in both cases a reduction factor will be applied to the benefit value equivalent to 5 percent for each year until 60 (men) and 55 (women). In other words, the benefit value for those retired at 53 (men) and 48 (women) will be equivalent to 65 percent of the last salary received before retirement. This new rule creates economic incentives for later retirement.
- To count the length of service period as 35 years of contributions in private or public pension schemes, at least 20 years of contributions must be in public schemes and 5 years in the last civil servant position.

- They will keep the right to claim, for length of service retirement, 30 years (men) and 25 years (women) of service for civil servants hired before December 1998.
- Civil servants hired before December 1998 who achieve the requirements of regular retirement age and minimum length of service will receive pensions equal to the last salary received before retirement (benefit integrity principle). They will also get parity in readjusting their pensions with the salaries of active civil servants.

### ***Future Civil Servants***

- These will have their benefits calculated according to the contributions effectively completed (including in the pay-as-you-go system).
- If federal, state, or municipal governments create complementary pension funds, civil servants will have the right to contribute in order to complement benefit values when their salaries are over R\$2,400.
- They will contribute, when retired or pensioners, the same payroll tax as active civil servants (11 percent), except for those under the ceiling for income tax exemption.
- They will be subject to the ceilings and subceilings established by law, including for accumulated received benefits.
- The pension value for pensioners will be the same as for retirees until the limit of R\$2,400, plus 70 percent of the amount beyond this limit.
- They will lose the right of parity between pensions and salaries of active civil servants.
- Governments at all levels will create complementary pension funds for civil servants. Those funds will be publicly managed in a defined contribution scheme.

### ***Military Personnel***

- These will be subject to the ceilings and subceilings established by law, including for accumulated received benefits.

### ***Police and Firemen***

- These will be subject to the ceilings and subceilings established by law, including for accumulated received benefits.
- The pension value for pensioners will be the same as for retirees until the limit of R\$2,400, plus 70 percent of the amount beyond this limit.
- They can no longer use length of service time declared on an affidavit basis to count toward retirement (for current and future civil servants).

### ***For All Those Insured in the Pay-as-You-Go System***

- The ceiling of contributions and benefits increases from R\$1,200 to R\$2,400.
- Coverage of safety and occupational health reverts to the Ministry of Social Security, without participation of the private sector.

### **Final Comments and Concerns**

Many topics related to the new constitutional amendment on pension reform will continue to raise complaints among certain groups of civil servants. For example, most judges on the Brazilian Supreme Court do not agree that it is acceptable to collect payroll contributions from retirees. But on the other hand, the government has argued that the civil servant pension scheme is based on solidarity, not capitalization. For this reason the payroll contribution can be paid indefinitely as a tax, including by retirees.

Another polemical point of the newly approved reforms is the breach of contract on acquired rights for active civil servants expecting to retire in the next few years. This is particularly unfair when compared with the transitional rules for private employees implemented by the 1998 pension reform. Many political actors consider this breach of the rules a flagrant case of disrespect for acquired rights.

Finally, while public sector pension reform was the government's most urgent and difficult task, deficits in the private pension system must also be addressed. These deficits are growing, especially because benefits vary proportionally with annual increases in the minimum wage.

## BIBLIOGRAPHY

- Beltrão, K. I., F. E. B. Oliveira, and M. T. M. Pasinato. 1999. Modelo de simulação de longo prazo das receitas e despesas com o funcionalismo público federal. Texto para Discussão 678. Brazilian Institute of Applied Economics (IPEA), Rio de Janeiro.
- Cardoso, F. H. 2003. A Emenda e o Soneto. *O Globo* (Junho), Rio de Janeiro.
- CEPAL (Comisión Económica para la América Latina). 2001. Panorama social de América Latina. Santiago, Chile.
- Congresso Nacional. 2003a. Emenda aglutinativa global em substituição ao substituto da comissão especial a proposta de emenda à Constituição 40-A/2003. Brasília (DF).
- . 2003b. Emenda constitucional no. 41 de 19 de Dezembro de 2003. Brasília (DF).
- Guedes, J. C. 2003. O primado do público versus a contribuição dos inativos. *Informe da Previdência Social* 15 (7). Brasília (DF).
- Guerzoni Filho, G. 2003. Estudo sobre a proposta de emenda constitucional no. 40 de 2003: quadro comparativo e breves comentários. *Consultoria Legislativa* 18 (Julho). Brasília (DF).
- IBGE (Instituto Brasileiro de Geografia e Estatística). 1999. Pesquisa Nacional por Amostra de Domicílios (PNAD). Rio de Janeiro.
- . Various years. *Censos demográficos*. Rio de Janeiro.
- Medici, A. C., K. I. Beltrão, and R. M. Marques. 1993. Previdência do funcionalismo público: alternativas para a reforma constitucional. In Convenio MPS and CEPAL (eds.), *A previdência social e a revisão constitucional*. Brasília (DF).
- Ministério da Fazenda. 2003. Política econômica e reformas estruturais. Brasília (DF).
- MPAS (Ministério da Previdência e Assistência Social). 2001. Municípios e a reforma da previdência. Brasília (DF).
- . 2002. *Boletim estatístico da previdência social*. Brasília (DF).
- . 2003. Limites de idade para as aposentadorias no serviço público. *Informe da previdência social* 15 (5). Brasília (DF).
- Ministério do Trabalho. Various years. *Relação anual de informações sociais (RAIS)*. Brasília (DF).
- Pinheiro, V. 2003. Previdência complementar para servidores públicos: pontos polêmicos. Brasília (DF).

# **Section Three**

## **Policies and Instruments**

### **for Reforms**

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## Public and Private Roles in Pension Reform

*Lawrence H. Thompson*

**M**ost countries have or are developing retirement income systems with three basic elements:

- Programs that ensure a minimum adequate income to the elderly
- Mandatory programs that provide retirement benefits based on prior earnings or previous pension contributions
- Programs that encourage voluntary supplementation by individual workers and their employers.

The size of these elements and their reach throughout society vary widely, but the basic strategy of having three conceptually distinct elements has widespread appeal.

The financial strategy and management approach underlying the first and third elements are not particularly controversial; most controversy involves the second element. Programs supplying minimum incomes are invariably financed on a pay-as-you-go basis and are operated entirely or primarily by the public sector. Voluntary programs through which employers and individuals provide supplementary retirement incomes are usually financed on a funded basis and are almost always operated by the private sector. Mandatory, earnings-related programs are more varied. They can be either publicly managed or privately managed and can be financed on a funded or pay-as-you-go basis.

This chapter focuses on the debate about private management of mandatory, earnings-related programs. The debate arises most frequently in the context of pro-

posals to shift from a publicly managed defined benefit program, financed on a pay-as-you-go basis, to privately managed individual defined contribution accounts, financed on a funded basis. The chapter first reviews the motives for reforming earnings-related retirement programs and the types of reform proposals being discussed. It then explores the issues surrounding current privatization and individual account proposals, including the merits of advance funding, private management, and defined contribution accounts.

Many approaches to pension management have evolved around the world, reflecting alternative ways that responsibility can be split between the public and private sectors. The different approaches reflect different philosophies about the role of the state, the role of social partners, and the importance of worker choice, and have different implications for the cost of administering pension programs and the predictability of pension benefits. This chapter reviews the various approaches to give a sense of the range of options that a country might entertain, to examine the link between management models on the one hand and administrative costs and benefit predictability on the other, and to discuss factors that might influence a country's decision about which model to adopt.

## The Reform Debate

Although almost every country is reforming its pension system, the motivations for reform and the avenues it takes differ dramatically. In much of Asia, pension reform debates are dominated by concerns about broadening coverage and improving benefits. In economies in transition from socialism, reforms are largely motivated by the need to adjust pension programs and administering institutions to a market economy. Many Latin American reforms are partly motivated by a desire to insulate the pension system from political interference and to improve services for pension system participants. Reform debates in North America, Japan, and Western Europe, on the other hand, tend to focus disproportionately on the costs of an aging society.

Reform proposals are sometimes characterized as being one of two types: parametric or systemic. Parametric reforms concentrate on changing key parameters that control the size and scope of the pension system. These involve extending coverage to additional industries or occupations, changing the age at which benefits be-

come available, altering the average benefit (either by changing the size of the initial benefit or the procedure for indexing benefits after entitlement), and adjusting contribution rates. By contrast, systemic reforms concentrate on changing the basic structure of the pension system. In recent years the most common systemic reform has involved moving to advance funded, privately managed, individual defined contribution accounts. Why advance funded? Why privately managed? Why defined contribution?

### ***Why Advance Funding?***

Advance funding is commonly associated with private pensions, where it allows enterprises to match revenues and costs more accurately and provides assurance that pension promises will be met even if the firm that made them no longer exists when the worker retires. Neither objective is a particularly compelling reason for advance funding in a mandatory program sponsored by a central government. Rather, advance funding of public pension programs is advocated for a variety of different reasons, ranging from improving the macroeconomic environment to providing workers with higher returns on their pension contributions.

Economists and pension analysts generally believe that under the right circumstances, advance funding of pensions can:

- *Allow a given pension benefit package to be financed with a lower contribution rate.* The contribution rate will be lower under a funded approach than under a pay-as-you-go approach, provided that the rate of return earned on pension assets, net of administrative expenses, exceeds the growth rate of earnings covered by the pension system. (Conversely, if the net return is below the growth rate of covered earnings, the contribution rate will be higher under a funded plan than under a pay-as-you-go plan; Aaron 1966.) The link to the net rate of return underscores the importance of minimizing the risk of poor investment performance and avoiding excessive administrative charges when organizing a funded pension program.
- *Spread the cost of financing retirement income.* Financing for pay-as-you-go plans typically comes almost exclusively from taxes levied on labor.

Advance funding shifts a portion of financing responsibilities to capital, broadening the base of support for retirement income.

- *Increase national savings.* To the extent that a funded plan forces participating workers to save more than they would otherwise, it will raise personal savings. Increased personal savings are likely to come predominantly from average and below-average earners, since higher-income households are likely to be able to adjust the rest of their portfolios to offset any excess saving generated by mandated pension contributions. Whether an increase in personal savings translates into an increase in national savings partly depends on how transition costs are financed, a topic discussed below. Obtaining a positive effect on national savings also requires that financial markets channel funds accumulating in pension accounts into higher investment rather than higher consumer lending.<sup>1</sup>
- *Make capital markets more efficient.* Where capital markets exist but are not fully developed, funded pensions may help improve their efficiency and help the economy grow more rapidly. These improvements are thought to occur through encouragement of institutional reforms and creation of deeper markets for capital instruments. But the applicability of this argument to small countries (such as those in the Caribbean) or to individual countries that are part of an integrated financial system (such as the European Union) is not clear. The argument may be more relevant for relatively isolated, medium-size or large countries that can aspire to develop independent capital markets.
- *Increase workers' claim on future benefits.* Advance funding may reduce the odds of future benefit cutbacks by giving workers a moral claim to benefit promises. Benefit claims are particularly strengthened when advance funding is combined with individual defined contribution accounts. (For a longer discussion of advance funding expectations, see Thompson 1998.)

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<sup>1</sup> The lack of a clear link between pension asset accumulation and national savings rates is clear from the experiences of the United Kingdom and the United States on the one hand and of France and Germany on the other. The United Kingdom and the United States have traditionally had low national savings rates, notwithstanding immense pension assets. In contrast, France and Germany have traditionally had higher savings rates, despite having virtually no advance funded pension plans. See Thompson (1998).

Discussions in the popular press about pension finance often suggest additional impacts of advance funding that are, in fact, unlikely. In particular, advance funding is *not* likely to:

- *Reduce the costs of an aging population.* In any given year the retired population must be supported out of that year's national income, and the support will use resources that could otherwise be used for another purpose. Intelligent macroeconomic planning may make the pie larger, but if the retired are to be allowed to share proportionately in the general increase in living standards, the share of the pie going to their support will not change no matter how pensions are financed. Funds invested abroad might allow a country to consume more than it produces (that is, run a trade deficit) for an indefinite period, but using such a surplus to support the consumption of the retired population still denies its use for other purposes. Reducing the cost of supporting an aging population requires parametric reforms—changes in the retirement age or in the living standards of the retired population. Systemic reforms—changes in the structure and financing strategy of the retirement income system—will have little direct effect on the cost of supporting an aging population.<sup>2</sup>
- *Increase the return that workers receive from the retirement income system.* If a funded pension system can operate with lower contribution rates than a pay-as-you-go system, workers will experience a higher return on their pension contributions. As a group, however, they may be no better off, because the higher returns will likely be offset by changes in the costs of other activities. For example, unless a change in pension financing strategy produces significant macroeconomic benefits, the added cost of financing the transition from a pay-as-you-go to a funded system will equal or exceed the savings from lower pension contributions. (This point is developed more fully in Geanakoplos, Mitchell, and Zeldes 1998.)

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<sup>2</sup> A more sophisticated argument in favor of systemic reforms is that they can help reduce total pension costs by reducing political opposition to parallel parametric reforms. No systematic evaluation of this proposition has been undertaken. As noted subsequently, a systemic reform that sharply increases administrative costs may increase the cost of the pension system.

Advance funding has two main drawbacks that have discouraged some countries from using it when organizing their pension systems or shifting from pay-as-you-go financing. These are:

- *Slow phase-in.* Advance funded pension plans—particularly those that take the form of individual defined benefit accounts—are not an adequate response to deficiencies in a country’s retirement income system because they take so long to mature. Three or four decades will elapse between the inauguration of individual funded accounts and a significant change in the economic status of the retired population.
- *Transition costs.* Where a pay-as-you-go system is already operating, shifting to advance funding will likely involve substantial transition costs. These funds must be raised through increased taxes, reduced spending on other government programs, or borrowing from capital markets. To the extent that the transition costs are covered through additional borrowing, the change to advance funding will have a negative net impact on national savings. The funds accumulating in pension plans will simply be loaned back to the government to finance the transition, leaving society worse off by the amount of the administrative costs involved in the transactions. Chile’s Ministry of Finance recently estimated that during 1981–96 pension reform cost the government an average of 5.7 percent of GDP a year. It also estimated that pension funds experienced accumulations at an average annual rate of 2.7 percent of GDP—suggesting a negative impact on national savings equal to 3.0 percent of GDP a year (Arenas de Mesa 1999).

### ***Why Private Management?***

If there is to be advance funding of a pension plan, many analysts believe that the financial assets should be privately managed. It is generally believed that private sector management will help secure higher (gross) returns and produce better service. Specifically, the advantages of private management are seen as:

- *Insulation from political involvement in pension investment decisionmaking.* Studies suggest that privately managed pension funds generally earn higher

returns than do publicly managed funds (see, for example, Iglesias and Palacios 2000). Several factors seem to account for the difference. First, where public agencies are given fairly wide latitude in their investment activities, their portfolios become inviting political targets. The agencies may be required to purchase government bonds at below market rates to facilitate government finance, to purchase particular securities to help well-connected people, or to invest in projects with greater political than economic appeal.<sup>3</sup> Second, to avoid unwarranted political interference in investment decisions and unwarranted influence over the private economy by a pension fund's investment managers, the investment activities of many national pension systems are restricted. For instance, a pension fund may be required to hold all its assets in bank deposits, government bonds, or housing bonds. Such restrictions tend to produce lower returns than would be earned by a portfolio more representative of the entire financial market. Canada recently changed the investment policy governing funds held by the Canadian Pension Plan, a government-managed defined benefit system. In the past these funds were invested exclusively in government bonds. In the future they will be invested more broadly in a portfolio that reflects the kind of investments held by private pension funds in Canada. It remains to be seen whether this move will allow the plan to earn investment returns equal to those earned by private managers without incurring the costs associated with decentralized, private management.

- *Better services.* Where public agencies have failed to provide decent services, a shift to private management is an attractive alternative. The relative service quality of public and private institutions varies widely from place to place, as does the applicability of this argument for private management.<sup>4</sup>
- *Greater operating efficiency.* It is assumed that a private firm will be a more efficient operator of pension programs under many circumstances, in that

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<sup>3</sup> Recent developments in Argentina and Bolivia show that these abuses are also possible where funds are privately managed if a government's fiscal problems are sufficiently serious.

<sup>4</sup> In 1995 Dalbar Financial Services of Boston rated the U.S. Social Security Administration (SSA) first in a survey of the quality of telephone services provided by financial service organizations. All the organizations except the SSA were private firms.

it will have stronger incentives to cut costs and be better positioned to implement technological improvements and streamline work practices. The impact of such efficiency gains needs to be weighed against the higher marketing costs incurred by private firms, as discussed below. In addition, pension fund management involves substantial scale economies. Particularly in small countries, the scale economies involved in monopoly public management may exceed the operating efficiencies from competing private firms.

- *Worker choice of providers.* Many recent systemic pension reforms provide workers with a choice among competing fund managers (though not necessarily among investment strategies). Worker choice is seen as an attractive feature in its own right and is possible only when competition is allowed among a variety of (presumably) private firms. Many view such competition as providing further insurance against political interference in investment decisions.

The experiences of some countries suggest that private management of pension funds also has drawbacks. Perhaps the two most important are:

- *Excessive market costs.* Many countries that have implemented private management of individual accounts have found that competition to acquire clients generates substantial marketing costs. High marketing costs lead to high administrative charges, offset the social gains from greater operating efficiencies among private firms, and reduce the return that would otherwise be earned in a funded pension plan. Administrative charges for fund management average around 18 percent of pension contributions in most Latin American countries and 25 percent in the United Kingdom.<sup>5</sup> Fees for converting fund balances into annuities add another 10 percent of the account balance. Combined, administrative charges in these countries consume more than 25 percent of total contributions, reducing the net rate of return on pension assets by 1.2–1.5 percent percentage points

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<sup>5</sup> Whitehouse (2000) explores asset management fees in general, while Murthi, Orszag, and Orszag (1999) examine the full range of administrative charges in the United Kingdom.



a year.<sup>6</sup> It is not unusual for aggregate pension benefits provided under a mature national pension plan to amount to 6–8 percent of GDP. If this level of benefits is produced by a pension system in which administrative expenses absorb 25 percent of contributions, the bill for administering the pension system will be 2.0–2.5 percent of GDP.

- *Need for effective regulation.* The Latin American pension reform model relies on close regulation of a limited number of specially licensed pension fund managers. In Argentina and Chile, for example, the pension regulator has about 10 employees for every licensed pension fund. Laws and regulations specify the allowable investment mix, the terms under which accounts can be switched from one manager to another, and many of the internal operating procedures of pension agencies. Close regulation is seen as a necessary protection both for individual workers and the government as a whole. (As noted below, governments often retain a considerable contingent liability that would be triggered by poor investment performance or asset management by private pension fund managers.) The United Kingdom initiated a program of decentralized management of individual accounts without adequate consumer protection regulations. The results were additional costs to consumers, estimated to average 15 percent of contributions from termination and transfer fees, and a major “miss-selling” scandal.

### ***Why Defined Contributions?***

Almost all the funded accounts introduced in recent pension reforms have been defined contribution accounts.<sup>7</sup> Pension programs typically operate on the basis of defined benefits or defined contributions. Under a defined benefit system the retirement

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<sup>6</sup> Well-run and mature national defined benefit pension plans typically have administrative costs of 1–3 percent of benefit payments. Administrative costs in the U.S. system are even lower, averaging 0.6 percent of benefit payments and 0.5 percent of contribution income. National plans that are not so well run or are relatively immature are likely to have somewhat higher costs, although they rarely exceed 6–8 percent of contributions or benefits. Costs of defined benefit pension plans are discussed more fully in Mitchell (1996).

<sup>7</sup> Saudi Arabia provides a counterexample. Its public pension plan is defined benefit and is essentially fully funded. Some assets are managed by the central bank. Others are managed by one of three private firms—two of which are located outside the kingdom.

benefit is calculated using a formula that sets a monthly payment that may be uniform for all recipients or that may reflect the preretirement earnings and work history of the individual retiree. Under a defined contribution system the contribution rate is specified but the retirement benefit is not. Rather, the pension benefit is simply the annuity value of the amounts that have accumulated in the worker's account.

The defined contribution approach has several advantages in a system that relies on private management and advance funding, including:

- *Facilitating portability.* Decentralization of responsibility for managing pensions creates portability problems under a defined benefit system, but not under a defined contribution system.
- *Fostering competition among fund managers and choice about investment strategies.* The defined contribution approach is necessary to any system that offers worker choice, either in terms of fund management or investment philosophy.
- *Reinforcing political insulation.* Workers are presumed to be more reluctant to allow political interference in pension investment decisions when they understand that poor returns on their portfolios mean lower retirement incomes.

But the defined contribution approach also has drawbacks, including:

- *Requiring workers to assume more risk.* Retirement benefits are much less predictable under the defined contribution approach because they depend both on the long-run relationship between average wage growth rates and investment returns—which cannot be known when the contribution rate is set—and on annual changes in wage levels and investment returns over a worker's career. Even in the unlikely event that average wage growth and investment returns over a worker's life are predicted perfectly, annual variations in each introduce a random element into the pension calculation. The impact of this variation on retirement benefits is explored later in this chapter.
- *Contingent liabilities for the government.* Where the government guarantees a minimum income level, such variation in pension amounts creates

contingent liabilities. Government payments for minimum pensions will rise whenever an unlucky cohort reaches retirement age. The government's fiscal commitment is asymmetric, however, because lucky cohorts are not required to help finance the subsidy to unlucky cohorts.

- *Difficulties in providing annuities.* Defined contribution accounts must be converted into life annuities to provide assurance that retirement incomes will last the lifetime of the recipients. Such conversions raise both policy and technical issues. One policy issue is whether annuitization should be voluntary or mandatory. The individual account programs established in Europe tend to mandate annuitization, while it is optional for those with sufficiently high account balances in many Latin American countries. Another issue is whether annuity providers should be required to index annuity amounts to price or wage changes after retirement. In most countries private firms do not issue indexed securities. As a practical matter, then, if the government wants to require that annuities be indexed, it will probably have to issue price-indexed bonds. (Even a retirement system based on individual funded accounts must rely on pay-as-you-go financing for inflation protection.)

Some proponents of the defined contribution approach argue that it links benefits more closely to lifetime contributions. But such a link can be just as close under a defined benefit system, if so desired. The link is likely to be looser in a defined benefit system because departures from a close link are easier to implement than under a defined contribution system. Whether this feature is an advantage or disadvantage depends on whether one favors certain departures from a strict benefit-contribution link, such as gratuitous credits for years spent in school, in the military, unemployed, or raising children.

### **Private Management Models**

A variety of individual account models have evolved in the past quarter-century, illustrating different ways to divide responsibilities between the public and private sectors, select asset managers, and give workers a voice in their account management. The descriptions here illustrate the range without attempting to cover all the

approaches that have developed. (For more complete descriptions, see Thompson 1999.)

### *Latin America*

Under the Latin American model (also adopted, with variations, in Hungary, Kazakhstan, and Poland) workers select one of a limited number of authorized pension fund managers. Any worker can select any manager and is free to change managers from time to time, moving the entire account balance from the old to the new manager. For a variety of reasons, all pension fund managers hold similar portfolios, so workers are selecting managers rather than investment philosophies.<sup>8</sup>

In many countries the government collects contributions and allocates them among the pension managers. But in a few (such as Chile) collection responsibility is also decentralized. Pension funds are responsible for maintaining account records. Upon retirement they pay benefits by allowing periodic withdrawals or by transferring the account balance to insurance companies to finance the purchase of annuities.

### *United Kingdom*

In the United Kingdom workers have the option of setting up a personal pension in lieu of the state-managed plan or their employer's plan. (They can also opt back into the state system after having opted out.) They can select from a wide array of personal pension providers offering a variety of investment instruments. They can also change providers each year, and can leave their previous account balance with their old provider. The government collects contributions and allocates them to the personal pension providers that individuals have selected. Personal pension providers are then responsible for maintaining account records. Accounts must eventually be converted into annuities, which may be sold by the pension provider or by a separate insurance company.

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<sup>8</sup> Chile requires firms to offer multiple portfolios that differ in their mix of equities and bonds, on the assumption that equities should have a lower weight in the portfolios of older workers.

## *Sweden*

Sweden's approach offers a wide selection of investment instruments while keeping administrative costs well below those in Latin America and the United Kingdom. In Sweden funded individual accounts are based on a relatively small contribution rate (2.5 percent of wages) and supplement a more generous system run by the state on a pay-as-you-go basis. Any firm licensed to sell mutual funds is allowed to participate in the mandatory funded account system—provided they agree to a schedule of rebates of their normal administrative charges. Workers select one or more of 400-odd funds eligible to participate. The government collects contributions and maintains all the individual accounts.

Participating mutual fund managers know the aggregate volume of business coming from the state pension system but do not know the identity of individual workers whose investments are being managed. It is hoped that this feature will eliminate the marketing costs found in other individual account models. Upon retirement, accounts are converted into annuities by one or two insurance companies selected by the state through competitive bidding.

## *Switzerland*

Switzerland requires employers to contribute, at specified rates, to industrywide pension funds. The funds are managed jointly by worker and employer representatives and upon retirement pay benefits in the form of annuities. Workers do not have a direct choice of pension funds or investment philosophies. Other than general policy oversight, all aspects of the Swiss system are privatized, including contribution collection, account maintenance, asset management, and pension payment. A similar arrangement has evolved in Denmark.

## *U.S. Thrift Savings Plan*

The U.S. government has developed a thrift savings plan for its employees that provides an institutional model attractive to many pension reformers, though the plan has not been instituted nationwide. Under the model the government selects a few market indexes calculated by private firms. The indexes track the performance of

domestic and international equities, corporate bonds, and government bonds. The government contracts with other private firms to manage asset portfolios—with the goal of matching the behavior of each index—and lets workers allocate their account balances among the funds. Workers have a choice of investment philosophy but not fund manager, the opposite of the choice offered in the Latin American model. In the U.S. model the government is responsible for all functions except asset management and annuities payment, though it selects the annuity provider. The model's main attraction is its potential to reduce administrative costs to a fraction of those under the Latin American model.

### Management Models and Contribution Rates

As noted, advocates of advance funding often note that it holds potential for allowing a given pension to be financed with a lower contribution rate. As a general rule, contribution rates will be lower under advance funding as long as the rate of return earned on the asset portfolio, net of administrative expenses, exceeds the rate of growth of wages covered by the pension program (also less administrative expenses). Because the different pension management models outlined above differ substantially in terms of administrative costs, the probability of realizing lower contribution rates will partly depend on the model chosen.

Table 9.1 shows real (inflation-adjusted) portfolio returns and wage growth rates in four major industrial countries over 1953–95. Equity returns refer to the combination of dividends and capital gains for a broad market index in each country. Bond returns are returns on 10-year government bonds. The mixed portfolio is one in which half the portfolio is equities and half is bonds. Wage growth reflects changes in average manufacturing wages in each country.

The data in Table 9.1 give an idea of the room for absorbing administrative costs in advance funded pension systems. As a first approximation, the ceiling on administrative costs is the figure in the final column, showing the gap between the mixed portfolio and wage growth. If administrative costs exceed this level, advance funding will probably require higher contribution rates than would pay-as-you-go financing. Since the calculation is based on changes in average wage levels, technically it applies only when total employment is constant. If total employment under the pension program is growing, the gap would be reduced by the rate of growth of

**Table 9.1. Annual Investment Returns and Wage Growth Rates in Four Industrial Countries, 1953–95***(Geometric average percent, adjusted for inflation)*

Country	Equity returns	Bond returns	Mixed portfolio	Wage growth	Gap between mixed portfolio and wage growth
Japan	8.1	3.8	6.6	5.0	1.6
Germany	7.4	3.9	6.3	4.8	1.5
United Kingdom	7.8	1.8	5.6	3.6	2.0
United States	8.2	2.2	5.6	1.0	4.6

*Source: Thompson (1998, p. 148).*

employment. To get a complete picture, the costs of administering a pay-as-you-go system have to be added to this gap.

There was a major difference between the experience in the United States and that in the other three countries, largely as a result of slower U.S. wage growth. As a result the room for administrative expenses was more than twice as large in the United States as in the other countries—where the gap ran from 1.5–2.0 percent a year.

Estimates of the administrative costs associated with some of the individual account models discussed previously are shown in Table 9.2. The second column shows estimates of administrative costs of maintaining each account and managing the money, while the third column reflects the additional cost of converting the account balance into an annuity. Costs are expressed as percentages of assets under management to allow direct comparisons with the estimated gaps between investment returns and wage growth shown in Table 9.1.

Models based on decentralized management of pension accounts have substantially higher costs than models based on centralized management. Where account management tasks are centralized and competition among pension managers is restricted, costs run 0.5 percent of assets or less. Where pension fund managers are allowed to compete freely for workers' business, costs can be much higher. Indeed, in parts of Latin America, in some Australian funds, and in the United Kingdom administrative costs equal or exceed the gaps estimated in Table 9.1. Workers participating in some of these programs are likely to receive less generous pensions from their funded accounts than they would have received had the same contributions been used to support a pay-as-you-go regime. Thus those planning pension reforms

**Table 9.2. Administrative Costs of Different Fund Management Approaches**  
(Percentage of assets under management)

Type of approach/system	Accumulation phase	Both phases
<i>Centralized approaches</i>		
Denmark		0.3
Switzerland		0.5
U.S. Teachers Insurance Annuity Association		0.3
U.S. Federal Thrift Savings Plan	0.1	0.4 <sup>a</sup>
<i>Decentralized approaches</i>		
Australia	0.5–1.9	1.0–2.4
Latin America	0.6–1.4	1.1–1.9
U.K. personal pensions	1.2–1.3	1.7–1.8
U.S. 401(k) plans	0.8–1.9	1.3–2.5

*Note:* For Australia, Latin America, and the U.S. 401(k) plans the additional cost of annuitization was assumed to be 0.5 percent of assets, an estimate consistent with Mitchell, Poterba, and Warshawsky (1999). Murthi, Orszag, and Orszag (1999) reach the same result in their analysis of the United Kingdom. The cost of annuities for the U.S. Federal Thrift Savings Plan was set at 0.3 percent of assets to reflect the fact that it has negotiated an exclusive contract with an annuity provider. But annuitization is not required under the plan, and presumably few annuities are actually sold. In addition, except for the U.S. 401(k) program these estimates do not include the transactions costs associated with buying and selling assets. Conceptually, those costs should be added to these figures.

a. Author's estimate.

*Source:* Danish Financial Supervisory Authority ([fnet.dk/engdefault.asp](http://fnet.dk/engdefault.asp)); Federal Social Insurance Office of Switzerland ([bsv.admin.ch/statistik/f/svs/pp\\_1\\_1.pdf](http://bsv.admin.ch/statistik/f/svs/pp_1_1.pdf)); Teachers Insurance Annuity Association ([tiaa-cref.org/pubs/html/AR.01/fin\\_02.html](http://tiaa-cref.org/pubs/html/AR.01/fin_02.html) and [03.html](http://tiaa-cref.org/pubs/html/AR.01/fin_03.html)); U.S. Federal Thrift Plan Annual Report ([tsp.gov/forms/financial-stmt.pdf](http://tsp.gov/forms/financial-stmt.pdf)); Whitehouse (2000); Murthi, Orszag, and Orszag (1999); James, Smalhout, and Vittas (2001).

must pay careful attention to the structure of the reformed system if one of the goals of reform is to produce lower contribution rates.

## Management Models and Benefit Predictability

Another area where the models differ is the predictability of the income provided by a pension program. As noted, benefits under defined contribution pension systems are difficult to predict because they are determined by the pattern of wage changes and investment returns over a beneficiary's work career—something that cannot be known in advance. Some management models involve greater uncertainty than do others, however.

Conceptually, the uncertainty associated with projecting benefits under a defined contribution system can be divided into two components. One involves the uncertainty associated with not knowing in advance the average growth rate of real



wages and average investment returns that will prevail over a lifetime. The other involves the impact on each retirement cohort of the particular pattern of annual wage adjustments and investment returns, even when the long-run average wage trend or investment return is known. Tables 9.3 and 9.4 give an idea of the degree of uncertainty from each of these sources.

Table 9.3 shows the contribution rate required to produce a retirement pension equal to 50 percent of final pay under different assumptions about average wage growth rates and net investment returns over a worker's career. The challenge for workers planning their retirement is that the amount they must contribute annually to produce a given pension varies substantially with relatively modest changes in net returns and wage growth rates.

With a wage-return gap as large as that in the United States after World War II and a cost-effective pension management model such as the U.S. Federal Thrift Savings Plan, contributions of about 7 percent of pay will be sufficient. A wage-return gap of the size experienced in Germany and Japan over the same period would require contributions of almost twice that level to produce the same pension—even with the most cost-effective pension management model. With a more expensive pension management model and the Japanese or German wage-return gap, contributions would have to be at least 17 percent of pay. Should workers now entering the

**Table 9.3. Contribution Rates Required to Produce a Pension Equal to 50 Percent of Final Pay under Different Annual Investment Returns and Wage Increases**  
(Percentage of wages)

Average net investment return (percent)	Average wage increase (percent)				
	1	2	3	4	5
3	12	14	17	20	
4	9	11	13	16	18
5	7	8	10	12	14
6		7	8	10	11
7			6	7	9

*Note:* Assumes an uninterrupted 35-year work career with constant earnings growth and constant investment returns. Upon retirement the final account balance is converted into a 15-year annuity. Blank cells are combinations that are unlikely to occur.

*Source:* Author's calculations.

labor force contribute 7 percent of wages, assuming that the 1953–95 U.S. experience will repeat itself and that they will be able to participate in a very cost-efficient pension management model? Or should they contribute 17 percent, assuming a narrower gap and a less efficient management model?

Table 9.4 quantifies the impact of annual variations in actual rates of wage increases and investment returns. The table was constructed using a Monte Carlo approach: random numbers were used to construct annual estimates of investment returns and wage growth from a distribution that had the same mean and standard deviation as the actual 1953–95 U.S. data. The results of 35 such random draws from each distribution produced a simulated wage growth pattern and pattern of annual investment returns for an illustrative cohort of workers from which the wage replacement rate afforded these workers was calculated. For each model the simulation was run 1,000 times to calculate the variance in replacement rates that can be attributed simply to the random pattern of annual variations.

The various models differ in the degree to which pension benefits can be predicted, particularly in this stylized experiment where average returns are known

**Table 9.4. Mean and Standard Deviation of Replacement Rates under Different Models**  
(Percent)

Model	Mean	Standard deviation	Standard deviation as percentage of mean
Traditional defined benefit ( <i>sponsor absorbs all variation</i> )	55	0	0
Swiss model ( <i>sponsor absorbs investment and annuity variations</i> )	56	5	9
Swedish model ( <i>sponsor absorbs annuity variation</i> )	55	21	38
Chilean model ( <i>worker absorbs all variation</i> )	57	26	45

*Note:* Figures are simulations using historical U.S. values. The calculations assume continuous work for 35 years, a contribution rate of 10 percent, a benefit equal to a 15-year annuity, a portfolio of half equities and half 10-year government bonds, administrative costs equal to 1 percent of assets, and annuities at the 10-year government bond interest rate. The annual mean and standard deviation (in parentheses) were 0.99 percent (2.44 percent) for wages, 5.6 percent (9.4 percent) for a balanced portfolio of half equities and half bonds, and 2.25 percent (2.89 percent) for government bonds. These calculations ignore administrative costs.

*Source:* Author's calculations.

with certainty. The differences come from the way the models handle worker choice and provide annuities. The Swiss model, described earlier, locks workers into a particular account provider. Because of this, pension managers use a longer-run average rate of return to calculate each worker's account balance each year. In effect, annual variations in investment returns are smoothed, with higher returns from luckier retirement cohorts used to raise lower returns from unluckier cohorts. This practice is not possible, however, where workers have the right to change their account from one manager to another. If workers can transfer at any time, variations in market returns must be immediately reflected in variations in each worker's account balance.

A second source of variation involves the strategy for providing annuities. The differences are similar. Where workers are locked in to one annuity provider, the provider can smooth out annual fluctuations in the price charged for a given annuity. Where a variety of providers compete for the business of each worker, prices must adjust more quickly to changes in interest rates.

As shown in Table 9.4, under the assumptions used to make these calculations, all the pension models produce a benefit equal to about 55 percent of final pay, which is the amount that a defined benefit plan would always pay.<sup>9</sup> Under the Swiss model unpredictable wage growth patterns introduce uncertainty. Cohorts experiencing relatively rapid wage increases early in their careers fare better than those with more rapid wage increases later in their careers because the earlier growth increases the relative size of the earliest contributions and generates larger final balances. The simulation suggests that as a result of this source of uncertainty, the standard deviation of the actual pension will be 9 percent of the mean.

Under the Swedish model workers can change pension fund managers at any time during their working years. Upon retirement, however, they are required to convert their account balance into an annuity to be provided by a monopoly supplier. Since the annuity provider is a monopoly, it can afford to offer annuities based on average bond yields, rather than constantly adjusting the price of its annuities. In this case uncertainty about the size of one's pension comes from both the variability in annual wage changes and the variability in annual returns during the work career.

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<sup>9</sup> Slight differences in the average replacement rate reflect the impact of the random numbers used in the exercise. Presumably, with a large enough sample, they would all approach 55 percent.

The simulation suggests that this increases the inherent variability of the actual pension so that the standard deviation rises to 38 percent of the mean.<sup>10</sup>

In Chile workers can select from competing pension fund managers as well as competing annuity providers. Competition among annuity providers introduces additional uncertainty into the pension benefit calculation through uncertainty about the cost of purchasing an annuity when an individual worker retires. The simulations suggest that this feature causes the standard deviation of the ultimate pension to rise to 45 percent of the mean.

This final simulation may overstate pension variability by assuming that annuity prices adjust rapidly to changes in interest rates, though no studies address that issue. Even if a better estimate is a standard deviation of just 40 percent of the mean, the model introduces substantial uncertainty in pension planning. If pensions replace an average of 55 percent of final pay but the standard deviation is 40 percent of that, or some 22 percentage points, the actual benefit will be less than 33 percent of final pay for one-sixth of retirees and more than 77 percent of final pay for another one-sixth of retirees. The other two-thirds of retirees will receive benefits equal to 33–77 percent of final pay.

### Comparison of Models

The various approaches outlined here are compared in Table 9.5 and 9.6. Table 9.5 rates each approach on four attributes: insulation of investment decisions from political interference, choice offered to workers, administrative costs, and pension predictability. No single approach is superior on all four dimensions.

Table 9.6 shows how the various responsibilities are divided between the government and the private sector under each model. In all cases asset management is assigned to the private sector and policy development to the public sector. The models differ in their assignment of other responsibilities. The particular strategy adopted in any country will depend on its preferences, priorities, and traditions. For example,

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<sup>10</sup> Using a different methodology, Alier and Vittas (1999) find that the annual variation in investment returns in a balanced portfolio produces a standard deviation equal to about 25 percent of the mean benefit. The authors did not consider the additional variability introduced by unpredictable annual wage increases or changes in the interest rate used to calculate annuities, however. Thus their results appear consistent with these.

**Table 9.5. Comparative Strengths of Different Funded Account Models**

Model	Political insulation	Worker choice	Low cost	Predictable pensions
Latin America	**	*		
United Kingdom	**	**		
Switzerland	**		**	*
Sweden	*	**	**	
Thrift plan	*	*	**	
Canada			**	**

it appears possible to develop models that produce relatively predictable pensions and insulate the funds effectively, without having high administrative costs, provided one is willing to sacrifice worker choice (as in Switzerland). Alternatively, it is possible to provide worker choice and low costs, provided one is willing to allow the government to play a major role in selecting investment options and maintaining worker accounts (as in Sweden and under the Thrift Plan). Finally, it is possible to insulate the government and offer wide choice, but the result may be high administrative costs and less predictable pensions (as in the United Kingdom).

Those interested in introducing funded individual accounts into a particular pension system will need to consider carefully the situation in their country. Is the institutional environment more conducive to the successful implementation of one of the models than the others? Which of the possible objectives are the most important to pursue in designing an approach? What is the best way to reduce the uncertainty in defined contribution approaches?

**Table 9.6. Allocation of Responsibilities under Different Funded Account Models**

Responsibility	Latin America	United Kingdom	Switzerland	Sweden	Thrift Plan
Set policy	Government	Government	Government	Government	Government
Collect contributions	Varies by country	Government	Private	Government	Government
Maintain records	Government	Private	Private	Government	Government
Manage assets	Private	Private	Private	Private	Private
Pay benefits	Private	Private	Private	Government	Government

## REFERENCES

- Aaron, Henry J. 1966. The Social Insurance Paradox. *Canadian Journal of Economics and Political Science* 32 (3): 371–74.
- Alier, Max, and Dimitri Vittas. 1999. Personal Pension Plans and Stock Market Volatility. Paper presented at the World Bank conference New Ideas about Old Age Security, 14–15 September, Washington, DC. [<http://www.worldbank.org/knowledge/chiefecon/conferen/secagend.htm>].
- Arenas de Mesa, Alberto. 1999. El sistema de pensiones en Chile: resultados y desafíos pendientes. Presented at the United Nations Economic Commission for Latin America and the Caribbean “Latin American and Caribbean Symposium on Older Persons,” 8–10 September, Santiago, Chile.
- Geanakoplos, John, Olivia Mitchell, and Stephen P. Zeldes. 1998. Would a Privatized Social Security System Really Pay a Higher Rate of Return? In R. Douglas Arnold, Michael J. Graetz, and Alicia H. Munnell (eds.), *Framing the Social Security Debate: Values, Politics and Economics*. Washington, DC.: National Academy of Social Insurance.
- Iglesias, Augusto, and Robert Palacios. 2000. Managing Public Pension Reserves. World Bank Pension Primer, Washington, DC. [[www.worldbank.org/pensions](http://www.worldbank.org/pensions)].
- James, Estelle, James Smalhout and Dimitri Vittas. 2001. Administrative Costs and the Organization of Individual Account Systems: A Comparative Perspective. In Robert Holzmann and Joseph Stiglitz (eds.), *New Ideas About Old Age Security*. Washington, DC: World Bank.
- Mitchell, Olivia S. 1996. Administrative Costs in Public and Private Retirement Systems. Working paper 96-4. Wharton School, Pension Research Council, Philadelphia, Penn.
- Mitchell, Olivia S., James Poterba, and Mark Warshawsky. 1999. New Evidence on the Money’s Worth of Individual Annuities. *American Economic Review* 89 (5): 1299–1318.
- Murthi, Mamta, J. Michael Orszag, and Peter R. Orszag. 1999. The Charge Ratio on Individual Accounts: Lessons from the U.K. Experience. Working Paper 99-2. Berbeck College, London.

- Thompson, Lawrence H. 1998. *Older and Wiser: The Economics of Public Pensions*. Washington, DC: Urban Institute.
- . 1999. Administering Individual Accounts in Social Security: The Role of Values and Objectives in Shaping Options. Occasional Paper 1. Urban Institute, The Retirement Project, Washington, DC.
- Whitehouse, Edward. 2000. Administrative Charges for Funded Pension: An International Comparison and Assessment. World Bank Pension Primer, Washington, DC. [[www.worldbank.org/pensions](http://www.worldbank.org/pensions)].

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## **Annuities and Pension Reform: Main Issues in Developing Countries\***

*Stefano Pettinato, Kenroy Dowers, and Pietro Masci*

Populations are aging rapidly in both industrial and developing countries, reflecting falling fertility rates and rising life expectancies. As a result people will spend larger portions of their lives in retirement. This trend has wide-ranging implications in industrial countries, as is evident in current efforts to restructure pension systems in the United States and other G-7 countries. But in the developing world this old age crisis is in some ways more severe, as these countries are expected to contain about 80 percent of the world's elderly by 2030. At the same time, inefficient management and underfunding of pension systems in developing countries reduce the chances of providing the income security needed for the elderly—exacerbating the old age crisis.<sup>1</sup>

In most countries facing an old age crisis, pensions are publicly managed. Benefits are allocated using a formula based on the retiree's highest past salary. Pension contributions by employees and employers—that is, payroll taxes—are perceived as taxes (World Bank 1994). This principle is associated with pay-as-you-go pension systems where funds are not accumulated, but transferred intergenerationally from current contributors to pensioners. Tightening the link between workers' contributions and old age pension benefits is generally considered a sensible option for

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<sup>1</sup> This chapter's aim is not to analyze alternative pension arrangements. Instead it focuses on the market for annuity products, viewing these products as critical tools for retirement income security and complements to publicly provided pensions. As part of that discussion the chapter touches on pension-related issues, including alternative pension scenarios.

policymakers, because it enhances a pension system's transparency and performance. Thus most countries are implementing this approach, along with a pay-as-you-go publicly managed pillar that covers those unable to accumulate enough for a minimum pension.<sup>2</sup>

Hence it is becoming increasingly important for workers to have access to financial instruments that help them insure against the risk of outliving their assets after they retire (longevity risk) and against the risk of depleting their assets while still alive (overconsumption risk). These instruments need to reduce risks both during the accumulation phase (when assets are building up) and during the payout period (when resources are being withdrawn). One product that can help in this regard is an annuity.<sup>3</sup>

The main purpose of this chapter is to examine how life annuity products operate in developing countries, concentrating on the constraints on the expansion of such products.<sup>4</sup> Emphasizing the need for a comprehensive approach to pension reform, the chapter reviews the various tradeoffs and offers policy suggestions for policymakers in Latin America and the Caribbean on how to consolidate such markets and reduce the risks linked to funded pension systems after they reach maturity.

The next section provides an overview of annuity products, including the various types and the way that their markets operate. After that the chapter presents a brief review of the literature on annuities. It then examines the two main uncertainties in annuity markets: longevity risk and investment risk. In the context of pension reform, the chapter then analyzes annuities in developing countries. Using the framework identified in previous sections, and in light of opinions expressed by experts and market operators, the next section studies annuity markets in Latin America and the Caribbean and the challenges facing small countries considering the introduction of annuity products in their economies. The final section concludes with policy recommendations.

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<sup>2</sup> For the advantages and disadvantages of these two systems, see World Bank (1994) and Gillion and others (2000).

<sup>3</sup> While single-premium annuities refer only to the decumulation period, the accumulation period involves deferred annuities (see below for definitions).

<sup>4</sup> Other annuity products designed to cover individuals before they reach retirement age—typically disability annuities—are not fully covered by this chapter. But after the implementation of fully funded pension systems, disability annuities play an important role in the development of annuity markets because they come into play soon after the introduction of the new system, hastening the decumulation process of the new schemes.

## **Annuities: An Overview**

An annuity is an insurance contract that states irrevocable financial obligations between the investor and an insurance company and entitles the annuitant to receive regular income for the rest of his or her life in exchange for a premium. The premium can be paid upfront or over the annuitant's working life. The most basic type of annuity entitles the annuitant to receive a regular flow of income for life, in exchange for a fixed sum of money to the insurer. In most cases a well-functioning old age pension system based on accumulation of savings for retirement—that is, a fully funded system following the defined contribution principle—cannot be complete without a properly functioning annuity market. (See Annex 10.1 for detailed information about how annuities work.)

Various economists have described the welfare gains that result from annuitization, because annuities permit individuals to have efficient, optimum consumption profiles over their lives, and an annuity product is superior to self-insurance for protecting against longevity and consumption risks (Yaari 1965; Barr 1998).

However, an efficient annuity market requires that certain conditions be met. These conditions are closely linked to the uncertainties stemming from the long-term nature of annuities. In particular, high-quality data on interest rates and annuitants' longevity are needed to price annuities properly. Interest rate risk originates from the need to incorporate an estimated interest rate in the annuity valuation. The term structure of interest rates is used to discount future annuity payments. Ideally, long-term and low-risk assets (such as long-maturity government bonds) are used to calculate the interest rate on the annuity. When these assets do not exist and the corporate bond market is thin, the rates used tend to be conservative—raising the value of annuity products (that is, lower interest rates in the denominator of the formula used to calculate the value of annuities mean higher present values for the annuities, and therefore higher premiums are requested).

Another important source of information involves assumptions about the life expectancy of the annuitant population. A lot of statistical information on mortality patterns, by age and sex, is required to develop the survival forecasts needed to value annuity products. For this purpose annuitant tables are constructed—statistical representations of the annuitant population's expected age structure and remaining lifespan. Reliable annuitant mortality tables, necessary to price annuities, are often

unavailable in developing countries. More common, yet still difficult to obtain, are general mortality tables, which observe and project mortality trends for the entire population. These may differ considerably from annuitant tables given the different characteristics of those who buy annuities and the overall population.

## Brief Literature Review

Rothschild and Stiglitz (1976) represent a basic work on the role of the insurance market and asymmetric information. Cutler (2001) and Chiappori and Salanié (2000) show how adverse selection affects other insurance markets (such as health).

Work on annuities has been growing, with most associated with the decumulation phase of pension plans. Given the rapid expansion of self-managed retirement accounts, workers will likely bear a growing share of the burden of managing their wealth after they retire. Looking at the United States, Poterba, Venti, and Wise (1999) estimate that the average retiree balance in 401(k) accounts—the most common employer-sponsored retirement account for U.S. workers—will increase 10-fold between 2000 and 2030. Self-managed retirement resources will be further encouraged by U.S. corporate pension plans that permit, and in some cases encourage, lump sum distributions when participants retire.

In the United States retirees' responsibility during the asset decumulation phase has become part of the policy debate on individual account pension programs that could supplement or replace government-provided social security. In this respect, as the Baby Boom generation approaches retirement, more attention will likely be paid to the development of financial products—such as annuities—that provide workers with a structured way to draw down the assets they have accumulated during their working lives.

Annuities have an increasingly relevant place in theoretical discussions of asset decumulation in life-cycle models. Economists have been baffled that the market for privately purchased annuities is thin and small, even in the United States, and thus provides an argument for market intervention due to market failure. Most elderly U.S. households receive social security benefits that provide a form of inflation-indexed lifetime annuity. Others collect nominal annuities from defined benefit company pension plans. Few elderly U.S. households convert financial assets accumulated outside defined benefit pension plans into annuities providing lifetime

retirement income. Instead, lump sum withdrawals are the most common distribution option.

Outside social security and company plans, the U.S. market for annuities is very small. In 1998 the American Council of Life Insurance reported that there were 1.6 million individual annuity policies in a payout or decumulation phase. The Life Insurance Marketing Research Association reported similar figures for policy owners currently receiving benefits (LIMRA 1999, as cited in Brown, Mitchell and Poterba 2000a). These policies covered 2.35 million people, with many of the policies joint and survivor annuities paying benefits to both members of a married couple.

Several studies have investigated annuity market failures, particularly in terms of the demand for annuity products, and evaluated aspects of annuity pricing. These studies include analyses of “money’s worth”—that is, the ratio of the expected present discounted value of the future payment stream associated with an annuity to its purchase price, or to the premium observable in the market. Money’s worth of 1 implies an actuarially fair annuity. Values below 1 imply that the present value of the annuity stream is less than the premium paid. If the value is 0.8, it means that the individual can expect to receive 80 cents in annuity income for every \$1 of premium paid.

Friedman and Warshawsky (1990); Mitchell and others (1999); Brown (2000a, 2000b); Brown, Mitchell, and Poterba (2000a, 2000b); and Brown and others (2001), among others, have looked at the issue of annuities and money’s worth. The main use of the “metric” of money’s worth is to understand the role of adverse selection: the tendency for annuitants (annuity buyers) to live longer than randomly selected individuals in the population. Poterba (2001) investigates adverse selection in annuity markets with a focus on the United Kingdom, which has an annuity market even more developed than that of the United States. To evaluate money’s worth, Murthi, Orszag, and Orszag (2000) calculate the returns that annuitants earn on their investments and compare them with other returns available in the market.

In an environment of developed capital markets, Lane (2001) shows how annuitization of part of the portfolio can help achieve the goal of providing retirement income. Yermo (2001) spells out the main issues and experiences of OECD countries in the development of annuity instruments. James and Vittas (1999) analyze annuity market and financial sector development in several medium and high-income countries (Australia, Canada, Chile, Singapore, Switzerland, and the United Kingdom), and find that the market is underdeveloped and mortality tables are distorted.

In addition, research has increasingly focused on pension reform in developing countries, particularly in Latin America and the Caribbean, and on the decumulation phase, the role of annuity products, and their links with capital market development. Mitchell (2000) identifies the requirements for pension reform in developing countries. Several studies have generated money's worth calculations for annuities in developed and developing countries (see James and Vittas 1999; Brown, Mitchell, and Poterba 2000a; Poterba 2001; and Yermo 2001, among others). The studies provide evidence that the money's worth values for annuities are lower than the premiums paid—that is, the money's worth ratio (MWR) of the value of the annuity to the premium paid is lower than 1.

Palacios and Rofman (2001) extensively examine annuities in emerging economies, studying them in the context of the multipillar pension systems of some Latin American countries. The authors emphasize the importance of the design of multipillar systems in making annuity markets effective. They explain the need to start reviewing the benefit stage of defined contribution programs even when it will not start for 10–20 years and, from a political point of view, the temptation is to postpone the debate.

Building on the work of Palacios and Rofman, and borrowing from them this chapter analyzes annuity products in the Latin American and Caribbean market, expands on their review of the region's countries—including features specific to small economies—and identifies policy issues and offers recommendations.

## **Annuity Designs and Uncertainties**

If a government manages the public pension system on a pay-as-you-go basis, workers receive a social security benefit throughout their retirement. Under a funded plan—which can be an alternative or a complement to a pay-as-you-go system—after having contributed during their working lives, new retirees are entitled to claim from their employer or pension fund manager the amount of accumulated savings. In designing these schemes, policymakers have to design—and participants have to choose among—various options for the accumulation and decumulation phases.

The design of the accumulation phase must specify features such as who must contribute to the system and how much, the tax treatment of contributions and account investment earnings, the products in which pension fund managers are al-

lowed to invest, the point at which the accumulation period ends, or whether to permit withdrawals.

In designing the decumulation phase, policymakers have to decide whether participants will be allowed to take some or all of their assets in a lump sum, if they will be required to acquire annuities, whether annuities will be nominal or protected against inflation, whether annuities will be guaranteed and if so how, the fiscal treatment of the various payout options, and whether the government will guarantee a minimum pension. This chapter covers some aspects of the design of the decumulation phase: lump sum payments versus annuities, types of annuities, and uncertainties associated with annuities.

Lump sum withdrawals are often carefully regulated, because some individuals who choose this option may be unable to manage their assets in a way that ensures sufficient income throughout their retirement years (longevity risk). Most individuals who withdraw the entire amount of their accumulated assets use the money to buy a home, pay off debt, or purchase other consumables. Moral hazard is more likely if the government provides a safety net for those who cannot cover their minimum needs.

Another way to use accumulated savings for retirement is to establish a plan for programmed withdrawals. Such a pension would be based on an estimate of the individual's life expectancy. The obvious risk is that if the pensioner outlives that estimate, he or she will run out of income.

Alternatively, a pensioner can transfer the accumulated funds to a life insurance company in exchange for an old age annuity. The most common type of annuity is a contract between a retiree and an insurance company for a guaranteed interest-bearing policy with guaranteed income options. The insurance company pays interest, and the investor does not pay taxes on the earnings until he or she makes a withdrawal or begins receiving annuity income. In most cases the annuity contract earns a competitive return that is safe relative to other types of investments. The ultimate goal for most participants is to maximize their income stream while eliminating the risk of outliving the principal of the investment.<sup>5</sup>

A first distinction should be made between deferred and immediate annuities, which are differentiated by the way that active participants pay premiums

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<sup>5</sup> An exception occurs when retirees want to leave bequests for their heirs. Unless specified in the annuity contract (in a survivorship clause), a retiree who purchases an annuity chooses not to leave an inheritance.

(Box 10.1). Deferred annuities are paid by workers over time, with periodic or occasional payments, until retirement, after which the principal and compounded earnings can be converted into a stream of payments. This operation also allows workers to defer tax payments on those earnings. Immediate annuities are purchased through

### Box 10.1. Basic Arithmetic of Annuities

The calculations required to understand the life cycle of a single-premium annuity contract require solving two diverging trends: the compound interest that builds up the account on one side and the depletion of the account (through annuity withdrawals) on the other. The premium is denoted as  $p$ . The periodic (generally monthly) withdrawal is  $w$ , and  $r$  is the discount rate (in this case also monthly, to be consistent with  $w$ ). While  $B_1$ , the balance for the first period, is  $p - w$ , in the second period the interest rate needs to be incorporated, so the balance for the second period is  $(p - w)r - w$ . In the following period the balance is given by  $[(p - w)r - w]r - w$ . This series of balances can be generalized for period  $i$  to produce:

$$B_i = p(1+r)^{i-1} - w \frac{(1+r)^i - 1}{r}$$

To understand pricing, we need to obtain the periodic withdrawal that makes the balance run out in the predetermined final period  $L$ , which can be interpreted as the life expectancy of the annuitant at contract sign-up. In other words, we need to find the  $w^*$  so that  $B_L(w^*) = 0$ . The above relationship can be solved for  $w$  to get the annuity (that is, periodic withdrawal) that the annuitant is “entitled to” given the initial disbursement  $p$  and the agreed discount rate  $r$ . The result is given by:

$$w^* = \frac{p(1+r)^{L-1}r}{(1+r)^L - 1}$$

The annuity withdrawal is higher for higher levels of  $p$  and  $r$  and for lower levels of  $L$ . The implications for pricing should be clear: for a given premium, higher life expectancy and lower discount rates reduce the amount of the periodic withdrawal and thus the value of the annuity. This formulation ignores risk premiums and operating fees that insurance companies may charge. In reality the uncertainties associated with life expectancy and discount rates lead to more conservative pricing by insurance companies. Life expectancy is assumed to be longer than what it probably is and the discount rate adopted is below the market rate level.

Annuity valuation is typically based on the “money’s worth” rule: the ratio of the present discounted value of the expected stream of benefits to the annuity premium paid. In particular, the present value calculation requires interest rate assumptions, while the expected benefit stream requires assumptions about longevity (that is, mortality rates of annuitants). If the money’s worth ratio is close to 1 (also taking into account administrative costs), then the annuity contract is fair.

Source: Mitchell and others (1999).



lump sum payments, after which annuitants are entitled to receive payments, generally on a monthly basis.

Annuities can also be voluntary or mandatory. With voluntary annuities, active participants are voluntarily saving after-tax income. With compulsory annuities, active participants are saving pre-tax income under the general framework of a recognized retirement plan. An example is a retirement annuity: its ultimate goal is to allow active participants to invest enough capital over time to ensure a regular income source during retirement.

Many voluntary participants buy immediate annuities. A lump sum of their after-tax money is given to an insurance company, which agrees to pay regular annual amounts, split into monthly payments. Investors who need to conform to certain retirement funding laws buy compulsory annuities. This generally occurs when the investor retires, and has to use a portion of the proceeds at retirement to buy a compulsory annuity from a retirement fund (such as a pension fund or retirement annuity fund). By doing this, income tax starts being applicable through monthly deductions and at lower rates.

Another product, nonguaranteed annuities, deserves special attention. Their value changes with the value of an established portfolio, allowing active participants to spread investment risk among different assets. For long-term risk-taking investors, variable performance-linked annuities can perform better than indexed products, outpacing inflation. The interest accumulated, together with the dividends and the capital gains, remain invested until withdrawals are made. This flexibility has made variable annuities increasingly popular.

Each of the different annuity products has advantages and disadvantages, and is more suitable for particular participants in specific markets (Box 10.2). Still, these products share a common feature. All are based, to varying degrees, on two sets of considerations and assumptions:

- Participants' demographic profile, depending on their life expectancy, gender, and so on. At the micro level this profile depends on private information about an individual annuitant's health history, and at the macro level on national mortality tables.
- The financial environment at the time of the contract as well as financial expectations.

### Box 10.2. Types of Annuities

A well-functioning annuity market offers a variety of products that depart from the simplest type of annuity (the single-premium annuity). Other types of annuities include:

- *Joint and survivor life annuity*: pension goes to the annuitant as well as his or her surviving spouse or other designated beneficiary.
- *Fixed annuity*: pays a fixed income stream to the annuitant until death. The insurer assumes the investment risk, so the annuitant is guaranteed the benefits.
- *Variable annuity*: typically provides an income stream until death, with payments contingent on portfolio performance. The annual increase or decrease in the annuity paid is determined by different criteria (such as inflation or investment adjustments, interest rates, and insurance company profits or losses), and the annuitant bears the risk of movements in these variables. A variable annuity is typically supported by two investment accounts. The general account provides a guaranteed return, while the separate account holds a variety of stocks and bonds that offer the potential for higher returns, but without any guarantees.
- *Index-linked annuity*: provides growing annuity payments in line with rising consumer prices. This annuity is often based on the investment of funds in index-linked bonds.
- *Limited price-indexed annuity*: similar to the index-linked annuity, but compensates for inflation only up to a preset ceiling (such as 5 percent a year).
- *Investment-linked annuity*: includes “with-profit” and “unit-linked” annuities. The main characteristic of these products is that the premium is invested in an equity fund, where part of the profits are allocated as a bonus to the annuitant.
- *Nonguaranteed annuity*: does not guarantee payments, and can be linked to some variable factor—typically the insurance company’s circumstances or a formula that includes dividends.

Like any other product, annuities need to be priced. Given the contractual nature of annuities, their price must include the “cost of certainty”: that is, the cost incurred if assumptions about longevity and investment prove wrong. These issues are analyzed below.

### *Longevity Risk*

Annuities reduce longevity risk—the risk of an individual of outliving his or her assets. At its basic level, the decision to annuitize implies a tradeoff between longevity risk and the bequest motive. The main advantage of annuitization is its reduction of longevity risk, while the main disadvantage is that a life annuity has no value after the death of the beneficiary.

Among other things, annuities should be priced on the basis of participants' longevity: the longer the expected lifespan, the higher the premium or the lower the annuity (see Box 10.1). Successful pricing depends on how well insurers assess annuitants' life expectancies. These assessments are made using data about similar individuals (such as those of the same age and gender). Mortality tables, when available, are the main source of such data. These tools allow insurers to better understand the structure of the population and the life expectancies of different parts of the population.

When devising a mortality table, it is necessary to collect a large dataset on deaths by age and sex in a population over a given period. These data are then used to calculate the probability  $q_x$  that a member of a particular cohort age  $x$  will die in the next year. The estimation of  $q_x$  can be done by fitting a hazard rate model to the empirical distribution of deaths in the population or by applying a smoothing algorithm to the raw maximum likelihood estimates of  $q_x$ . The smoothed estimates of  $q_x$  are used to construct a complete mortality table (see McCarthy and Mitchell 2000, 2002).

Because mortality tables are only estimates of the actual demographic profile, annuity markets can operate below optimal efficiency levels. Adverse selection, a common bias in both developing and industrial countries, is driven by information asymmetries between life insurance companies and annuitants. Annuitants have better information about their longevity, knowing their health and their families' medical history.

People who buy annuities voluntarily often live longer than the average pensioner—increasing the burden for annuity sellers, who raise prices that end up discouraging new purchases. To hedge this risk, insurers sometimes base annuity rates on a group that they believe is likely to buy annuities. But when mortality tables are unreliable, and the amount of unknown private information for potential annuitants is greater, life insurers may be unable to hedge properly. These distortions hamper the development of the annuity market. Evidence supports the existence of adverse selection: the cost of an annuity calculated using population life tables is 7–15 percent less than that observed in the market.<sup>6</sup>

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<sup>6</sup> Various empirical studies have estimated that the fair actuarial cost of annuities calculated on the basis of population mortality tables is 7–15 percent less than the observed market price of annuities (see Palacios and Rofman 2001). This difference is often believed to reflect the impact of adverse selection on the annuity market. See Friedman and Warshawsky (1990), Finkelstein and Poterba (1999), Mitchell and others (1999), Walliser (1998), and James and Vittas (1999).

### *Investment Risk*

Assumptions made about investments—and thus interest rates paid—are also critical in valuing annuities. Moreover, assumptions about mortality and investments are closely linked. When a person is expected to live only a few years, investment returns matter less. Conversely, interest rates gain enormous weight in the overall return from an annuity when a person's life expectancy is high. The projected interest component typically takes into account the future cash flows generated by current assets and reflects the current economic outlook to determine all future years' rates of return.

Insurance companies are careful when pricing their products using information from domestic and international financial markets. Ideally they hedge interest rate—and inflation rate—risk by purchasing assets with a term similar to that of the annuity (the annuitant's life expectancy). But due to market imperfections, assets with such terms are often not available in developing countries, forcing insurers to offer very conservative interest rates on annuities. Insurance companies typically are forced to take a certain amount of basis points off the assumed yield, making the annuitant lose significant retirement income. Only in this way can the companies guarantee—or at least increase the odds of—future solvency. As a result the interest rates paid on annuities are often below optimal levels, damaging consumers and discouraging market growth. This security margin allows insurers to hedge against risk using an approach similar to that taken by governments when issuing long-term securities.

Similarly, potential annuitants evaluate an annuity's price by comparing its returns with those from alternative financial assets. If a market offers secure and long-maturity bonds, life insurance companies are pressed to offer better annuity rates to make this option more competitive and attract investors. When investment alternatives are lacking, annuitants may be penalized by overly conservative assumptions in the valuation of annuities. This distortion is illustrated in more detail in the case studies below.

When designing a fully funded pension system that mandates the purchase of an annuity upon retirement, policymakers should take into account the instability of the interest rates paid on annuities and the overpricing of annuities in the absence of long-term securities (Box 10.3). As noted, when long-term securities are available,

### Box 10.3. Mandatory Annuities

A variety of countries have introduced mandatory defined contribution pension plans, including Argentina, Australia, Chile, Colombia, El Salvador, Mexico, Nicaragua, Peru, Poland, Sweden, and Switzerland. These new retirement systems are increasingly structured around a benefit plan that mandates—among other options—the purchase of an annuity upon retirement. Given their nonvoluntary nature, transactions and regulation of mandatory annuities require careful analysis.

Upon retirement, some affiliates of defined contribution pension plans have accumulated large sums of money that should enable them to support themselves in old age. But a significant portion of that money can be willfully or accidentally spent or lost—forcing the affiliates to rely on public assistance for their survival. This type of moral hazard is common because individuals tend to underestimate their life expectancies, avoid the purchase of annuities, and spend down their assets completely before they die. As a result mandatory life annuities are often deemed necessary because such behavior would overburden public support programs (see the debate between Palacios and Rofman 2001 and James and Vittas 1999).

The design of the payout system is controversial and politically sensitive. Not only does it have to be consistent with the new defined contribution system, it also has to reflect the socially accepted features of previous retirement arrangements. (For a comprehensive analysis of mandatory annuities, see Doyle and Piggott 2001.) In particular, since a defined contribution system aims to establish a close relationship between contributions and benefits, strict rules for system sustainability and risk coverage need to be taken into account in the payout design.

Defined contribution retirement plans often allow retirees to pick from two or more benefit structures. For example, in Chile's private defined contribution pillar, retiring workers can choose between a programmed withdrawal and a life annuity. Only retirees who have accumulated significant assets—with a total that provides a replacement rate of 70 percent and worth at least 120 percent of the minimum pension guarantee—can withdraw the remainder as a lump sum. Furthermore, retirees must opt for the programmed withdrawal if the annuity does not provide an income larger than the minimum pension. The annuity is the most common option, taken by 44 percent of beneficiaries.

annuity rates are intimately connected with the yields on (mainly government) bonds with similar long-term maturities. Those who retire when interest rates are low end up penalized because their stream of benefits is calculated using that interest rate level.<sup>7</sup> But if long-term maturities are not available, the overpricing of annuities might penalize pensioners.

Thus compulsory annuities are acceptable only when the rates paid on them are relatively stable and their prices are competitive. Otherwise, retirees should be entitled to choose other forms of repayment, including lump sum payments. Another policy implication is that, when introducing a fully funded pension system,

<sup>7</sup> Obviously only fixed rate annuities are affected by this.

access to long-term financial assets should be increased to mitigate some of the problems mentioned above.

### ***Life Expectancies, Interest Rates, and Annuity Premiums***

The discussion above indicates the crucial relationship between life expectancies, interest rates, and annuity premiums. Using work developed in the context of the “money’s worth” approach, it is possible to construct a basic formula that determines the expected present value of a nominal annuity with an annual payout of  $An$  purchased by an individual of age  $b$ , assuming that the individual will not live beyond 115 years:

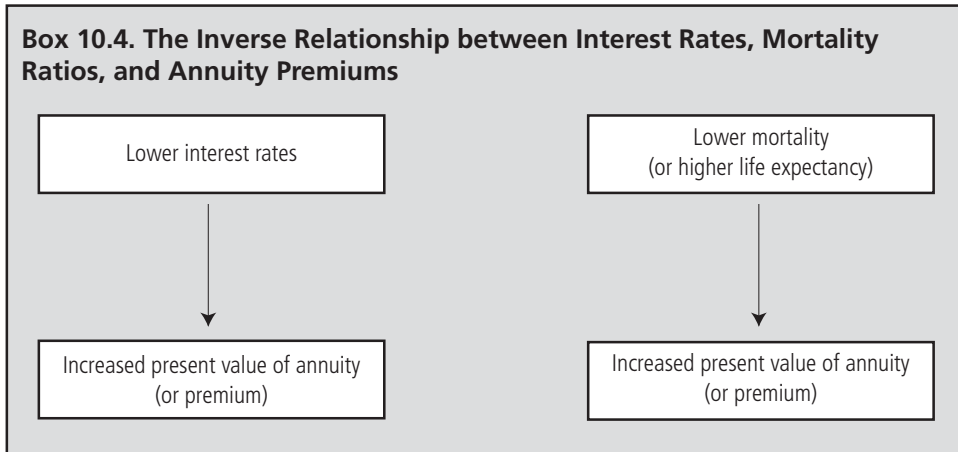
$$PV(An) = An * Pj / II (1 + ik),$$

where  $Pj$  indicates the probability that an individual of a given age at the time of the annuity purchase will live at least  $j$  years after buying the annuity. (This information comes from mortality tables.) The  $ik$  variable denotes the annual interest rate  $k$  years after the annuity purchase. The  $II$  variable denotes the use of a term structure for the interest rate rather than a flat rate. The functioning of the formula is illustrated in the examples in Annex 10.1 Table 2.

In equilibrium, the present value calculated in this formula (taking into consideration administrative costs) should constitute the premium charged for an annuity contract—that is, the premium observed in the market should not be significantly different from the present value calculations of the formula. But considerations related to “money’s worth” show that the present value calculated in the formula and the premium in the market are not aligned, and that the “money’s worth” of an annuity is less than the premium paid—which shows the imperfections of annuity markets, particularly the role of adverse selection.

But in interpreting the present value of an annuity as the premium to be paid for an annuity contract, the critical point that the formula highlights is the inverse relationship between interest rates and premiums and between mortality rates and premiums (Box 10.4). The formula shows that the lower the interest rate, the higher the premium charged.<sup>8</sup> Thus the selection of an interest rate not aligned with the

<sup>8</sup> Interest rates are in the denominator of the formula when calculating the value of annuities—so, when lower interest rates are used, present values are greater and premiums requested are higher.



market—a distinct possibility in emerging countries—would lead to an overly high premium, which could discourage the development of an efficient annuity market that responds to demand.

The formula also illustrates the inverse relationship between mortality rates (or life expectancies) and premiums. The lower the mortality rate is (and the higher the life expectancy), the higher the premium charged for an annuity contract will be—that is, the insurance company will pay a lower annual income the longer it expects to pay benefits. The use of mortality rates lower than those prevailing leads to higher premiums and discourages potential annuity buyers and annuity market development.

### **Annuity Markets and Pension Reform in Developing Countries**

In recent decades many countries have shifted toward privately managed defined contribution pension schemes, both voluntary and complementary to existing schemes. In 2000 more than 90 million workers around the world contributed to defined contribution plans (Palacios and Rofman 2001). Some developing countries have taken these reforms a step further, instituting multipillar pension systems, often with mandatory privately managed defined contribution plans that run parallel to defined benefit or minimum pension guarantee government plans.

Given their relatively recent introduction, defined contribution plans in the developing world are largely in the accumulation phase (that is, contributors have

generally not started to withdraw old age benefits from their pension funds). In the next few decades, however, an increasing number of contributors will retire and payout phases will start. Most retirees will be claiming benefits that will typically be paid out in the form of an annuity. (For evidence on these trends, see Doyle and Piggott 2001.)

Features common to many developing countries—including inadequate regulation, insufficient national demographic information, inefficient markets, low financial sector development, the role of disability annuities, and small economies—may threaten the desired development and functioning of newly established annuity markets. Each of these issues is examined below.

### ***Regulatory Requirements***

Proper regulation and understanding of how annuities work are crucial for annuity markets to work efficiently. But in most developing countries that have considered or are considering pension reform, life annuity products are rare or nonexistent. These countries will face the challenge of ensuring a decumulation phase that is cost-effective and consistent with people's preferences.

There is ample space for improvement at the regulatory level, where funding and disclosure requirements should be tightened and strictly enforced. Existing regulation for voluntary annuities has often proven inadequate for mandatory annuities, given their compulsory nature and the new actors and institutions involved in their provision and monitoring.

In countries that have introduced funded pension systems, the success of such efforts greatly depends on strengthening the insurance industry and creating conditions for more competitive pricing, product design, and reinsurance. For this reason it is of paramount importance that the regulatory framework and the industry be strengthened.

Analyzing annuity market regulation is beyond the scope of this chapter. Some of the key issues are financial regulation (especially information disclosure requirements and accounting standards regulation), degree of individual choice (in buying annuities or taking lump sums), inflation indexation, timing of annuitization, regulation of insurance companies' portfolios (such as limits on asset allocations to avoid overly risky investments), information disclosure rules and conduct of business regu-



lation, product design regulations, benchmarks on the returns paid by fund managers, and taxation issues (see Davis 2002).

A significant consideration when designing a pension system is the link between insurance companies that offer annuity products and pension funds that collect worker contributions. Fund brokers guide pensioners to insurance companies with which they are directly or indirectly linked (say, part of the same financial conglomerate). Because brokers are paid finder's fees when companies sell an annuity, they have an incentive to push products that provide the highest fees. These factors make annuities less valuable to buyers and discourage the expansion of annuity markets. Thus the regulatory and supervisory system have an important role in ensuring the avoidance of conflicts of interest and the development of the system.

### ***Demographic Features***

In some emerging countries the development of annuity markets may be hindered by the demographic uncertainty described in previous sections. In particular, reliable mortality tables are rare in these countries. Their availability is reduced by the limited resources available to extract and calculate data and by major changes in population structures over time. These changes are mainly the result of dramatic improvements in life expectancies—driven by better health conditions at all ages—and growing migration flows. For this reason actuaries must estimate both “period” mortality tables using past data and develop “cohort” tables by extrapolating future trends in mortality.

Most industrial countries have been producing, using, and updating mortality tables for several years. U.K. and U.S. tables are particularly reliable. As a result actuaries in developing countries use U.K. and U.S. tables as a basis for modeling local mortality and, by extension, valuing life insurance and annuity products.<sup>9</sup>

### ***Efficiency and Competition in the Market***

When it comes to the structure of the annuity market, one of the main issues is the minimum number of mandated providers, or their optimum number for the market

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<sup>9</sup> The nationality or school attended by the chief actuary (usually Canadian, U.K., or U.S.) is often the main determinant of the table used in the estimations.

to be efficient. In particular, the state's role in providing annuities should be examined. At one extreme the state could be a monopolistic provider of annuities; at the other a small group of competing, specially licensed providers might operate in the market (Blake 1999). When the state is a monopoly provider, substantial economies of scale are likely to lower unit costs. Furthermore, the government would bear the risks related to mortality improvements. As noted, lack of mortality information for private insurance companies distorts how markets operate in developing countries.<sup>10</sup> Still, this type of scenario is not advisable. There is no example of a state monopoly that is efficient in providing or pricing annuities.

Another possible structure for the annuity market is a small group of competing providers. This would allow the private sector to offer annuities and permit each provider to gain sufficient market share to justify entering the market. Efficiency results from the limited competition between these providers. However, collusion can arise if there is only a small number of providers. Furthermore, wasteful rather than efficiency-enhancing competition could hinder the system. This is seen in Chile, for example, where pension funds engage in costly marketing campaigns to attract new customers, with annuitants paying for the campaigns.

One way to avoid collusion is to artificially segment the market. Providers would have to compete for a particular segment, but the winner would be a monopoly provider in that segment. The segments could be along professional lines, industry lines, regional lines, or other means. Competitive forces would still operate because annuitants in one region, for example, could still compare their annuities with those being offered in another region by a competing company.

Government could help companies keep costs down by offering both index-linked and survivor bonds. But this might be difficult and costly, given the lack of good mortality data and the macroeconomic instability that affects many emerging markets.

### ***Financial Sector and Capital Market Development***

A well-developed financial sector is often considered a precondition for the successful introduction of annuities. Mitchell (2000) argues that having a strong stock mar-

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<sup>10</sup> The government could also issue survivor bonds linked to the demographic structure. As insurance companies purchased these bonds, the risk related to demographic uncertainty would be partly offset by the nature of such bonds. See Mitchell and others (2002).

ket facilitates retirement system reform—particularly if listed firms follow internationally accepted accounting standards, offering investors appropriate information on risk and return potential. In this respect, Mitchell indicates that stock market development is crucial when the pension system is a funded one with long-term investments. In this case the stock market values risky domestic assets. But Mitchell concludes that although many analysts agree that a stock market is useful for pension reform, it seems unlikely to be a necessary precondition.

Studies show that the accumulation of institutional capital—such as the establishment of pension funds—has important effects on capital market development (see Walker and Lefort 2000). There is evidence that pension reform is associated with a more dynamic legal framework, more professional investment decisionmaking, increased transparency, and a new corporate governance balance.

Musalem and Tressel (2003) and Karacadag, Sundararajan, and Elliot (2003) argue that contractual savings and institutional investors establish an investor base and create demand for long-term debt (with bonds as opposed to short-term instruments) and equity. In this context government securities may provide benchmarks and ultimately lead to the development of a yield curve that is the reference for pricing (and development) of stocks and corporate bonds. The excessive use of public sector debt may crowd out the private sector and attract the resources of pension funds in a form that de facto reestablishes a disguised public pension scheme.

So, while at least intuitively annuities are expected to perform better in sound financial markets, such markets are not essential for annuities to attain satisfactory efficiency levels. In fact, there is convincing evidence that even in underdeveloped financial systems, annuities can function effectively. James and Vittas (1999) point out how Chilean and Singaporean companies have offered competitive, stable annuity rates that have in some cases exceeded those in the United Kingdom and the United States.<sup>11</sup>

Chile's experience indicates that a pension system based on funded principles and increasingly hinging on annuity markets may contribute to the development of long-term investment instruments through its positive impact on the growth of institutional investors and capital markets. Moreover, voluntary or mandatory demand

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<sup>11</sup> This may be due to the mandatory nature of annuities in Chile and Singapore, relative to the voluntary annuities in the United Kingdom and the United States. See James and Vittas (1999).

for annuities will likely spur the supply of other long-term instruments, generating a virtuous circle of financial, capital, and insurance market development.

### ***Disability Annuities***

The topic of non-life annuities is often neglected when analyzing the development of insurance markets after the transition to fully funded systems. Yet new systems often mandate the purchase of term life and disability insurance either directly from an insurance company or indirectly from a pension fund manager. For that reason, in the initial phases after the introduction of a new system, disability and premature death annuities are the fastest-growing products and contribute the most to the development of insurance markets.

Evidence from Chile, a pioneer in pension reform, supports the high importance of disability and survivorship programs in the first years after reform (Figure 10.1). Only 10 years after the introduction of the new system did the number of affiliates of retirement programs (including the growing number of early retirees) surpass that of affiliates of disability and survivorship programs. The new system also may have increased the degree of freedom for workers to choose when to retire. In particular, the growth rate of the group who retired before reaching the expected retirement age increased dramatically after 1992, approximately a decade after the introduction of the new system. Nevertheless, such freedom may be the exclusive privilege of financially endowed workers who have accumulated enough to meet the legal requirements to withdraw the assets to purchase a pension.

### ***Issues for Small Emerging Economies***

In small emerging economies, adapting a U.K., U.S., or European mortality table to assumed local conditions has been considered easier and less costly than devising domestic mortality tables.<sup>12</sup> Typically, actuaries that cover annuity markets in these countries are familiar with U.K. or U.S. mortality data—depending on their nationality—and base their estimates on such tables. If life insurance market operators have

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<sup>12</sup> For a definition of small emerging economies and a discussion of their characteristics, see Dowers, Fassina, and Pettinato (2001).

**Figure 10.1. Number of Pensions Paid in Chile by Program, 1982–2000**



Source: Superintendencia de Administradoras de Fondos de Pensiones (2002).

enough demographic information, they can adapt foreign mortality tables and construct estimates that perform well.<sup>13</sup> In Singapore, for example, insurers use a dated U.K. pensioner mortality table to help value annuities (James and Vittas 1999; see also McCarthy and Mitchell 2002). In the English-speaking Caribbean virtually all insurance companies use mortality tables from the United Kingdom or, to a lesser extent, from the United States.

From a public policy point of view it is critical to understand whether the benefits of having domestic—or at least regional—mortality tables in small emerging economies, in the form of increased accuracy and public information, would outweigh the costs of generating such information. While the calculation of actual costs and benefits (through simulations) goes beyond the scope of this chapter, it is useful to examine some of the potential drawbacks of using poorly designed mortality tables, or tables not based directly on local mortality. These include:

<sup>13</sup> Insurance companies test their data (sampled from customer operations) by comparing them with foreign tables, producing weights to apply to the tables that are constantly fine-tuned as more local information becomes available.

- *Limited polarized market.* With a small market for annuities—given the voluntary nature of this market in small emerging economies and the frequent polarization of wealth among few—the gap between mortality data based on the entire population and data based on annuitants is likely to be large. In extreme cases the average annuitant in a small emerging economy may have a higher life expectancy than the average person in an industrial country. Polarization on the supply side can also distort prices, hindering market efficiency and competition.
- *Bias from low statistical significance.* Small emerging economies face the constraint of a small population dataset. To construct significant estimates for the oldest cohorts, a large number of lives must be observed. Because estimates of  $q_x$  are often based on small samples, particularly when  $x$  (the age of the annuitant) is a high number, the information is either based on insignificant estimations or is simply unavailable.
- *Distortions from excessive risk reserves.* When a country lacks mortality data, an insurer may use U.K. or U.S. tables but require a higher margin to reserve against greater uncertainty. Hence annuities could be worth less in a country where mortality data are difficult to obtain. Furthermore, the large reserves accumulated to hedge risks are often misallocated given shallow local capital markets. If, on the other hand, foreign tables were used without such reserves, unexpected mortality developments could quickly undermine the survival of the insurance sector.
- *Arbitrariness.* When U.K. or U.S. tables are used as a basis for modeling local mortality, actuarial adjustments are often applied in an attempt to make the tables more reflective of local reality. But in the absence of good mortality data, it is difficult to know what actuarial adjustments might be appropriate—making these modifications excessively arbitrary. Only companies with experience in the market and documented client histories may be able to produce high-quality weights.

In sum, if many of these distortions are not corrected for, annuity markets are likely to be inefficient in many developing countries, particularly small ones. Not only are high-quality data on population structure and mortality difficult to produce, but financial and capital markets are shallow. The latter aspect, when coupled with shaky

macroeconomic fundamentals, may reduce the possibility for governments to issue long-term bonds, essential for supporting long-term and secure investments such as annuities, and ultimately for ensuring the development of annuity markets.<sup>14</sup>

## **Annuity Markets in Latin America and the Caribbean**

This section focuses on the main features of annuity markets in Latin American countries that have adopted mandatory private defined contribution pension plans. The discussion first considers Argentina, Chile, Colombia, and Peru, which have the longest experience with reformed pension systems. It then briefly examines markets and products in Bolivia, Barbados, and Trinidad and Tobago, and the main issues facing small emerging economies. In all the countries in the region (except Uruguay, where the purchase of an annuity is mandatory at the end of the accumulation phase) members who have contributed to a private defined contribution pension plan have the option of taking scheduled withdrawals or buying annuities upon retirement. But only retirees who have accumulated enough funds to guarantee a minimum pension can purchase annuities. Accordingly, the region's annuity market is extremely thin, and suffers from weaknesses related to levels of interest rates and mortality rates (Table 10.1). In general, there is a prevalence of fixed annuity instruments, though variable annuities are available in some countries. Market inefficiencies are compounded by the fact that most resources of pension funds are invested in government bonds, with little diversification.

Critical characteristics of the four countries with the longest experience with mandatory (or quasi-mandatory) annuity plans are summarized in Table 10.2.<sup>15</sup> Figure 10.2 compares projections of the demand for annuities in these countries from the early 1990s to 2020. The progressive expansion of the pension systems generates a nearly exponential profile for the number of annuitants over time.<sup>16</sup>

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<sup>14</sup> This point remains controversial because in some notable cases (especially Chile) financial markets have been able to develop despite the absence of long-term bonds.

<sup>15</sup> While only Bolivia and Uruguay have pure mandatory annuity systems, here the definition of "mandatory" is extended to systems where annuities are optional, based on the observation that they are largely the preferred choice.

<sup>16</sup> Beyond 2020, as coverage reaches an "optimal" level, this pattern is expected to flatten.

**Table 10.1. Features of Annuity Markets in Various Latin American Countries**

Country	Origin of mortality tables				Market for annuities			
	Generated by the country	Based on data for other countries	Period generated	Interest rate	Retirees receiving annuities, December 2001		Amount paid for annuities, 2001	
					Feature	Level		
Bolivia	X	Based on European tables	1990s		Free	About 1,000	Less than \$20 million (2002)	
Brazil		X			Free	More than \$1 billion		
Chile	X		1980s		Free	100,000–500,000	More than \$500 million	
Colombia	x		1980s		Free	Less than 100,000	Less than \$500 million	
Honduras		x			Free			
El Salvador	x		1990s		Mandatory	Less than 100,000		
Mexico	x		1990s		Free	500,000–1,000,000		
Nicaragua						Less than 100,000	Less than \$500 million	
Peru		x	1980s		Free			
Uruguay	x		1990s		Mandatory	1.75%		
Venezuela	x		2001				500,000–1,000,000	

Source: Federación Inter-americana de Empresas de Seguros (FIDES) data (<http://www.fideseguros.com/>).



**Table 10.2. Features of Annuity Plans in Selected Latin American Countries**

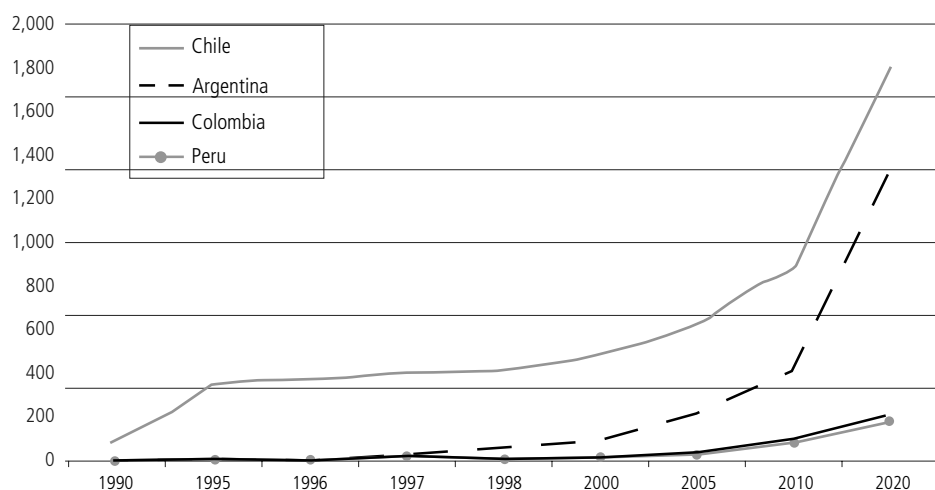
Feature	Argentina	Chile	Colombia	Peru
Additional life expectancy of 65-year-old males (years) from mortality table	15.11	16.65	15.94	16.65
From national table (1995–2000)	13.98	14.79	14.70	13.56
Indexation mechanism	Wage index adjustment	Explicit, using "UF," a basic inflation unit	Indexed with consumer price index	Indexed with Lima's consumer price index

Source: Palacios and Rofman (2001).

The patterns clearly indicate the relatively large demand for annuities in Chile. This is a direct consequence of the maturity of its funded pension system and its legal and regulatory framework, which make the annuity the most popular option at retirement. In the other countries many affiliates to the private systems are still in their working years, accumulating resources toward retirement to then purchase annuities.

**Figure 10.2. Projected Number of Annuitants in Various Latin American Countries, 1995–2002**

(Thousands)



Source: Palacios and Rofman (2001).

In the countries analyzed the two sources of uncertainty (demographic and financial) discussed above linked to annuity products are clearly targeted by public policy instruments. In particular, governments dictate which mortality table and interest rate are to be used in calculating annuities, making these preset levels major factors in the pricing decisions by insurance companies. Lower mortality rates are synonymous with higher life expectancy. By applying lower mortality rates, the premiums that annuitants will be charged will be higher than with higher mortality rates. The same is true for interest rates: if the interest rates used to calculate the premium are lower than those in the market, the premium will go up. Therefore, using misaligned mortality tables and inaccurate interest rates will misprice annuities (leading to higher premiums), discouraging the growth of the annuity market. More details are provided in the sections below.

### *Argentina*

Before reforming its social security system in 1994, Argentina was the only country among those examined here to have pension plans managed by private companies, known as Seguros de Retiro.<sup>17</sup> In 1994 Argentina introduced a system with a publicly managed pay-as-you-go pillar and a second mandatory pillar with two options: a defined benefit system managed by ANSES (Administración Nacional de Seguro Social) and a defined contribution system funded and managed by private pension fund management companies, or AFJPs (Administradoras de Fondos de Jubilaciones y Pensiones). As a result there are two types of retirement annuities: those deriving from Seguros de Retiro, made up of individual and group pension plans; and those associated with AFJPs.

Worsening economic conditions took their toll on the financial sector in the late 1980s and early 1990s, and by 1992 there were 26 companies in the market due to mergers and acquisitions. By December 1998 the leading provider, La Estrella, controlled about half the market, with the second largest, Siembra Retiro, controlling another third. For a regular (usually monthly) payment, affiliates have a right to a portion of a future pension, as of a date determined when the contract is drawn up. Both parties freely determine the conditions of the contract. Despite an initial slowdown in this market upon introduction of the AFJP, the system has continued to

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<sup>17</sup> Many details in this section come from Callund (1999), Palacios and Rofman (2001), and Rofman (2001).

grow. But the numbers are still small: in 1998 the total number of policies was 5,639, of which only 83 were individual policies.

The AFJP system was introduced in 1994. In 1995 pension reform annuities represented less than 0.2 percent of the Argentine insurance market, but by the end of 1998 this number had grown to 11 percent. Survivor and disability annuities are the leading sources of growth of the country's annuity market. Rapid growth is expected to continue over the next 20 years. As in Chile, Argentine law limits the choice of annuities to the joint and survivor annuity. The survivor benefit for spouses is set at 70 percent of the retiree's benefit, higher than in Chile and Peru but lower than in Colombia. In addition, Argentine workers have the option of taking a lump sum if the remainder of their balance is sufficient to purchase an annuity that provides a replacement rate of 70 percent.

The Argentine government specifies the mortality table to be used to calculate annuity costs. It is GAM71 (Group Annuity Mortality), a table prepared by North American actuaries in 1971, based on the mortality structure of annuitants in the United States during the 1950s and 1960s. The mortality rate of this table is 7.5 percent, lower than Argentina's national mortality level. The reasons for using this table are not fully understood. The overall benefits from preferring a higher-quality database like GAM71 to poor-quality national tables do not seem to outweigh the considerable distortions generated by the conservative life expectancy estimates of GAM71. What is clear is that the costs are ultimately transmitted to annuitants through higher prices that reduce consumer income.

A government decree approved in 2000 introduced various changes in the AFJP pension regulation. Until 2001 contributors to the AFJP system had three main options for receiving benefits at retirement: a life annuity, a standard programmed withdrawal, or a programmed withdrawal under which the member periodically draws down a fixed amount of about \$115 until the balance is used up—ideal for those with little savings. The two types of programmed withdrawals were by far the most common method for drawing an old age pension, with about 8,000 participants in March 1999.<sup>18</sup>

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<sup>18</sup> The 2000 decree limited programmed withdrawals to a maximum of five years after retirement. Thereafter all pensioners are required to purchase annuities. This limitation is expected to dramatically increase the size of the annuity market in Argentina. As recently as March 1999, only 50 of the 8,000 or so pensioners had purchased an annuity, with the rest choosing programmed withdrawals (although approximately half of survivor pensioners were drawing annuities). See Callund (1999).

Until 2001 the required interest rate for annuity returns was fixed at 4 percent. But Argentina also provided a unique feature allowing annuitants to participate in investment returns. If investments yielded a higher return, the gain from the spread was usually shared with customers. Some companies gave lump sum benefits; some increased monthly payments. Indeed, the method and extent of profit sharing was one of the sources of competition between providers. The 2000 decree eliminated the 4 percent ceiling to encourage fund managers to seek out higher returns, but they are still required to provide a minimum return of 4 percent. This change is also expected to increase competition between retirement insurance companies, encouraging them to compete on the basis of investment returns rather than on differences in their method of profit sharing. Another step in this direction is a mandate that all annuities be defined in similar terms, making it easier for customers to choose a provider.

These measures should lead to lower marketing costs, reducing costs for pensioners. However, allowing insurers to compete on the basis of investment returns can be very risky because higher returns are associated with higher solvency risk for insurers—in a way that consumers generally are not aware of due to information asymmetries. This risk might be a sufficient argument to regulate returns and portfolios, because in cases of insurer insolvency the government is likely to be forced to assume insurers' obligations to their clients.

The 2000 decree also addressed market concentration. Unlike its neighbors, Argentina requires specialized annuity providers that have separate balance sheets from pension managers. In mid-1998 there were 20 specialized companies selling pension annuities. But there was substantial market concentration, with almost 70 percent of beneficiaries belonging to just 5 companies. More than 80 percent of beneficiaries opted to buy an annuity from an insurance company affiliated with their AFJP, which explains the market concentration. AFJPs are legally required to inform their retiring members of the existence of different annuity providers. But AFJPs usually inform their related retirement insurance company of the existence of a new customer immediately, increasing the probability that the company will immediately market to and snap up the pensioner. The 2000 decree established a concentration limit of 27.5 percent of market share. This provision, however, risks implicitly subsidizing inefficient firms by constraining customer choices.

Argentina has also made a major change in how customers are assigned to AFJPs. Previously workers who did not choose were randomly assigned to AFJPs in

equal proportions, but now they are allocated to the lowest-cost provider. This move is expected to increase cost efficiency and competition between providers. In addition, AFJPs must now declare their fees as a percentage of contributors' income, as opposed to some doing this and some simply having a flat fee. This change is expected to make it easier for consumers to compare AFJPs. Finally, until 2001 annuity providers were supervised by the existing insurance supervision agency, separate from the supervisor of pension funds. Today, however, the Superintendency of AFJPs assumes partial responsibility, which should improve monitoring of the annuities industry.

One factor affecting the size and development of the annuity market is the coverage of the population by the pension system. In Argentina certain groups, such as the military, are exempt from joining the pension system. A bigger problem is the large informal labor force, because workers who are not formally employed are not covered by the system. High unemployment and underemployment also reduce coverage, and evasion has historically been a major issue. Palacios and Rofman (2001) estimate that less than half of required contributions are paid each month in Argentina.

Another factor that hindered the development of Argentina's annuity market was the decision not to use recognition bonds—as in Chile, where all workers received a recognition bond at the time of the country's pension reform (1981). The face value of each bond approximated the value of contributions if the worker had contributed to a fully funded scheme in the years before the reform. The bonds were fully paid upon retirement or when survivor or disability benefits were granted, making available to beneficiaries a large balance with which to buy an annuity. Argentina used transitional benefits rather than recognition bonds, reducing the assets in the annuity market.

There is an ongoing debate about the link between the size of annuity markets and the level of capital market development (see Mitchell 2000). While in Chile the accumulation of assets from pension funds was a major force driving the deepening of capital markets, in Argentina a concomitant expansion of the capital market is not evident. Furthermore, concerns have been raised about the availability of long-term instruments for the investment of pension funds, especially in light of the country's recent economic crisis.<sup>19</sup>

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<sup>19</sup> Unlike in other Latin American countries, Argentine annuity providers are allowed to invest up to 100 percent of their reserves in federal government bonds. There are limits on all other investment instruments: 60 percent for

The annuity market in Argentina was expected to grow rapidly over the next couple decades, with more than 1 million annuitants projected by 2020 (see Figure 10.2). The 2000 decree was a step toward a stronger annuity market, particularly in targeting market concentration and fostering competition between providers. But the expected growth must be reassessed given the current fragile state of the Argentine economy, particularly the financial sector, and the critical situation of the pension system. In late 2001, as its debt obligations increased, the Argentine government converted debt instruments held by private pension funds at terms that seriously undermined the values of the assets. Coupled with the government's poor performance, the public has become disillusioned with the system's functioning and is reluctant to provide pension contributions for investment.

Argentina's experience is a good example of how pension reform cannot occur in isolation, and shows that problems facing capital and annuity markets cannot be solved without a proper reworking of the economy.

### *Chile*

Chile introduced a fully funded privately managed pension system in 1981, abandoning its defined benefit system. Its long reform period makes Chile a useful case for examining the development of an annuity market. Many observers have pointed out that while the market for annuities was virtually nonexistent before the country's pension reform, it started soaring a few years later. In fact, some attribute much of the growth in the Chilean insurance sector to the expansion of the annuity market.<sup>20</sup>

Between 1991 and 1998 the number of Chilean life insurance companies increased by two-thirds to 28, with increasingly active participation by international firms (such as Aetna, AIG, and ING). Rapid market expansion reduced the concen-

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domestic corporate bonds, certificates of deposit, and mortgage-guaranteed bonds, 30 percent for local corporate bonds and mutual funds, 10 percent for three categories of foreign assets, and 2 percent for derivatives. In Chile annuity providers can invest up to 50 percent of their reserves in government bonds, 40 percent in domestic corporate bonds, stocks, or equity shares, and 10 percent in two categories of foreign assets. In Peru annuity providers can invest up to 30 percent in government bonds, foreign government and multilateral bonds, stocks or equity shares, real estate, mutual funds, or mortgage-guaranteed bonds, 20 percent in certificates of deposit, and 10 percent in corporate bonds (domestic or foreign).

<sup>20</sup> While in 1988 annuities represented less than 7 percent of the insurance market, in 1998 they accounted for 50 percent of it (Palacios and Rofman 2001).

tration of sales of policies and caused a 20 percent increase in premium income from life insurance. The rising number of annuitants has also been driven by the growing pool of early retirees, for whom the annuity is the only benefit option upon retirement (Devesa-Carpio and Vidal-Meliá 2001).

Although the annuity market has grown rapidly, two factors may have slowed its pace. First, affiliation to the Chilean pension system is mandatory only for employees. Self-employed workers can join voluntarily, but most have decided not to—and the percentage of self-employed workers is high. Second, about 40 percent of retiring contributors decide (or have) to opt for a programmed pension withdrawal, limiting the number of annuitants (see Acuña and Iglesias 2001). (Retiring Chileans can buy annuities only if their saved assets can pay for an annuity above the minimum pension. Otherwise they must contract with a pension fund manager, or AFP, for a programmed withdrawal that produces benefits equal to or above the minimum pension until their funds are extinguished. After that, if they have contributed to the system for at least 20 years, they can receive a minimum pension; see Palacios and Rofman 2001.)

There is a division of labor in Chile's private pension system. Companies that sell annuities are separate from AFPs (Administradoras de Fondos de Pensiones), which collect contributions and manage pension assets. This distinction is intended to limit AFPs' market power, which could otherwise create constraints when workers choose to switch among them. Thus retirement assets are locked into annuities from the beginning. But insurance companies can segment the market into different risk classes depending on life expectancy. For example, companies may price annuities differently for men and women or for people with different health status. In addition, workers can freely choose from annuities offered by different companies. The government guarantees 75 percent of pension (annuity) payments above the minimum pension if an annuity insurer defaults at any time. To reduce this risk on the government, annuity reserves are strictly regulated.

Upon retirement, affiliates are notified about their benefit options. They must choose between a programmed pension withdrawal or (if eligible) an immediate or deferred annuity. Insurance companies use extensive marketing campaigns to convince affiliates to join their plans, consulting a publicly available list of affiliates three months from retirement. Once payments start, the government guarantees life annuity payments up to 100 percent of the minimum pension, within certain limits.

Chilean retirees that opt for the annuity also receive coverage for survivorship. Upon the retiree's death, the surviving spouse will receive benefits from the insurance company. Depending on the contract between the insurance company and the annuitant, the spouse will receive the same benefit or a fraction of it, and will be covered indefinitely or for a limited period. Chilean pension benefits maintain their value over time because they are calculated using an accounting unit, the Unidad de Fomento (UF), linked to the cost of living.

Chile's pension system uses the RV85 mortality table (Renta Vitalicia), constructed using Chilean data from the 1970s. As in the other countries examined, the RV85 presents substantially higher life expectancy levels than those observed at the national level (see Table 10.2). This distortion greatly penalizes annuitants in terms of higher premiums, lower benefits, or both.

### ***Colombia***

Although Colombia's annuity market is growing rapidly, it remains relatively small—representing less than 3 percent of the insurance sector. Low coverage and low per capita incomes imply that the market will remain small in both absolute and relative terms, at least for the next few years. Pension coverage of the Colombian population is far from universal. Reasons include the large informal labor market, high unemployment, and the exemption of certain groups (such as the self-employed) from the mandatory system. Evasion rates are also high, with estimates surpassing even those of Argentina. All these factors hinder the expansion and efficiency of a market for annuities.

As in Argentina, most of the annuity business is related to survivor and disability benefits. Colombia's current market for annuities shares similarities with Chile's system in its early stages, after that country's 1981 pension reform. At the time of the reform in 1994 all Colombian workers received a recognition bond with a value roughly equivalent to what they would have accumulated had they been in a fully funded rather than a pay-as-you-go scheme. These bonds are a potential source of assets for annuitants. But only a limited number of new retirees are covered by the fully funded scheme, due to the age segmentation between the old and the new systems (73 percent of the members of the new system are 35 and younger). Until these workers retire, the decumulation of assets toward annuitants will be relatively small. This is



largely a consequence of the large number of workers under the old pay-as-you-go scheme, who at retirement will receive their benefits from the government under the old rules.

Compounding the problem is that workers in the new scheme are allowed to switch back to the pay-as-you-go system at any time. Another problem hindering the development of Colombia's annuity market is the option given to members of the new scheme to choose a programmed withdrawal rather than an annuity.<sup>21</sup> The survivor benefit for spouses in Colombia is 100 percent, the highest among the countries examined in this chapter. This benefit is biased in favor of the surviving spouse, usually female. Annuity payments are indexed to inflation.

The Colombian government requires annuity market operators to use the ISS90 mortality table when calculating annuity costs. This table was produced by Colombia's Institute of Social Security based on data from public pension scheme participants. The mortality rate from this table for men age 65 is almost 8 percent lower than the corresponding figure from the national table for 1995–2000. The interest rate used for calculations of reserves is fixed at 4 percent, while the rate for quotations is free, recently hovering around 4 percent as well. Anecdotal evidence throughout Latin America suggests that differences in quotation rates are due not so much to asset yield differences across countries as to differences in annuity market conditions, as well as the lobbying power of the insurance industry (see Palacios and Rofman 2001).

Like in Chile and Peru but unlike in Argentina, Colombian life insurance companies can participate in the annuity market. Participation tends to be concentrated among the largest life insurance companies, which in turn are often part of financial conglomerates that include pension fund managers (AFPs). Market concentration is evident when considering that the largest annuity provider, Suramericana, provides 35 percent of annuity products, and the second largest, Alfa, has a 17 percent market share. Among the nine issuers of annuities, the bottom five are very small.

Colombia's banking supervisory agency is responsible for supervising not only the financial sector but also pension funds, insurance companies, and annuity provid-

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<sup>21</sup> It should be noted that Colombia requires workers who have chosen programmed withdrawals to buy annuities if the balances in their accounts fall to the level required to buy a minimum pension. Furthermore, those who have chosen programmed withdrawals are permitted to switch to annuities at any time. The problem is that these switches might exacerbate the adverse selection problem.

ers. While Uruguay shares this approach, it is in sharp contrast to other Latin American countries (such as Chile and Peru), where pension funds have independent supervisory agencies and separate insurance supervisory agencies in charge of monitoring annuity providers. Colombia's approach may lead to more relaxed supervision. At the same time, given the links between pension management, insurance provision, and the financial sector, having a single supervisor may generate economies of scale.<sup>22</sup>

The Colombian government guarantees both annuities and the solvency of AFPs that offer scheduled withdrawals. Annuities are guaranteed by a government agency, which guarantees that the social security obligations of insurance companies receive priority in cases of bankruptcy. This mechanism is important for encouraging pensioners to opt for annuities. Studies of capital market development around the world suggest that a major contributing factor is the availability of large reserves of long-term savings for investment (such as pension savings). Colombia is not exempt from this trend, making the growth of annuity reserves an important factor for the development and deepening of its capital markets.<sup>23</sup>

Although Colombia's emerging annuity market is growing, it will likely never be as large as those of Argentina or Chile due to lower levels of coverage and income, as well as smaller population. At present the market suffers from concentration and lack of a competitive environment for providers. And while there are government guarantees, these will not be fully tested until the system matures—and overall supervision of the system appears weak. There is a possibility that these problems will not be easily alleviated if the market remains small.

### *Peru*

In 1993 the Peruvian government reformed the national pension system, introducing a privately managed defined contribution scheme to complement the publicly managed pay-as-you-go scheme. New employees had to join the system but could choose between the two schemes.

The pension reform law allows insurance companies to offer two types of annuities: personal and family. Personal annuities are less common and are issued by

<sup>22</sup> See Dowers, Fassina, and Pettinato (2001), who cite Demaestri and Guerrero (2002).

<sup>23</sup> Although this number is small in comparison to Argentina and Chile, the projected number of potential annuitants is expected to grow to 200,000 by 2020.

AFPs in the names of workers, while family annuities are in effect joint and survivor annuities issued by insurance companies. Many contract options are available to annuitants, including the type of currency in which contributions and benefits are paid, the mix between a scheduled (programmed) withdrawal and an annuity; and the number of years after retirement for which the annuity payments are guaranteed. Accordingly, a wide array of products is available in the market (see Palacios and Rofman 2001).

The Superintendent of Pension Funds, a new independent institution, regulates and monitors AFPs. It also authorizes them to issue annuities. The annuity market, however, is monitored by the insurance supervisory agency.<sup>24</sup> Insurance companies are the main annuity providers in Peru, and work closely—and are sometimes integrated—with AFPs, as is common in Argentina. In 1998 there were 16 insurance companies and AFPs in Peru.

As in Chile, Peruvian insurance companies must use the RV85 mortality table. But given the higher mortality rate (and so lower life expectancy) among Peruvians, this table is even less appropriate for evaluating annuities in Peru than it is in Chile. The resulting upward pressure on annuity prices may be one of the reasons for the small current and projected number of annuitants in Peru (see Figure 10.2), along with the country's large informal workforce and low average income.

### ***Bolivia***

In 2002 Bolivian life insurers began offering annuities to employees who had reached retirement. Retirees can buy annuities from authorized insurers using contributions that have accumulated in their accounts under the government pension fund (FCI), or they can leave the contributions and receive a variable annuity from the FCI. Two insurers have been authorized to sell annuities.

Although the life insurance market has played a dynamic role in capital markets elsewhere in the region (such as in Chile), it will not have as much impact in

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<sup>24</sup> This separation of supervision between pension managers (assigned to the SPF) and annuity issuers (old insurance supervisory agencies) can cause confusion in the responsibilities, given the frequent integration of AFPs and insurance companies. Furthermore, the regulation of the annuity market is obsolete and more suitable for small voluntary annuity markets. Chile and Argentina have changed and reviewed such rules transferring regulatory powers over annuities to the SPF.

Bolivia because it is expected to grow slowly for two reasons. First, the amount that can be spent on an annuity is based on employee accumulations in the FCI, and these have only just begun. Contributions made under the old pension system, the *Compensación de Cotizaciones (CC)*, will be capitalized upon retirement. Second, retirees can leave their contributions in the FCI and receive a variable annuity. Although the value of this benefit varies each year, the unused portion remains in the FCI. This feature may be more attractive than withdrawing all FCI contributions to buy an annuity managed by an insurance company.

### ***Barbados and Trinidad and Tobago***

Like other English-speaking Caribbean countries, Barbados and Trinidad and Tobago share features in their social security systems and annuity markets. This is despite major differences in their population sizes—Trinidad and Tobago’s population is five times that of Barbados—and income levels. Unlike in many Latin American countries, in both countries pension coverage is publicly managed and based on the defined benefit principle. Pension systems were designed in the late 1960s and early 1970s as comprehensive Beveridgian programs, managed by the state.<sup>25</sup> Another common idiosyncrasy is these countries’ rapidly changing demographic structures. The aging of their populations coexists with relatively shallow capital markets, small financial systems, and virtually nonexistent long-term government bonds. (For more details on both countries’ social security systems, see Inter-American Conference on Social Security 1995.)

In both countries the dominant structures for retirement income are publicly managed pay-as-you-go systems. Because these systems are not based on defined contributions or privately managed funds, annuity contracts are purchased voluntarily. But in part because of the low benefits that the state pension plans pay out, parallel schemes have become common, with the main purpose of complementing public pensions. Typically these are defined benefit schemes, where employers or occupational category associations manage the compensatory plans. Upon retirement, workers who

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<sup>25</sup> Designed to provide health care, old age, survivor, and disability coverage to the entire population, Beveridgian systems are aimed at protecting against adversities across generations. By contrast, Bismarckian systems focus on linking employee contributions with retirement benefits, generating sustainability within generations.

have contributed to these plans during their working years receive lump sums—generally proportional to their final salaries—that they can use to buy annuities.

Consequently, demand for retirement annuities is largely dominated by employer-based programs, dwarfing the number of voluntary individual purchases of annuities. Deferred annuity plans—where the employer contributes to an employee’s individual retirement account established through a contract between the employee and an insurance company or bank—are an exception. Occupational or, more generally, group insurance policies pool longevity risk across the members of a plan, reducing mortality-driven uncertainties in annuity products. These products are becoming increasingly common, especially in Trinidad and Tobago.

As discussed above, insurance companies require access to mortality data to assess and price annuities. Given the lack of quality data in both countries, insurers refer to both corporate information—produced within the company and based on past operations—and publicly available mortality tables, like the one used in Latin American countries. These are generally lagged to capture current domestic annuitants’ profiles by using past foreign ones. A company’s actuaries decide which source to use and how to adapt it to the local pool of annuitants.

Efforts are also being made to produce regional mortality tables and adapt them to the demographic profiles of individual Caribbean countries. The University of Waterloo is a leader in this area. But although such efforts reflect financial and actuarial cooperation among corporations, little information is available about these tables.

Some companies in Barbados and in Trinidad and Tobago manage mortality risk by comparing their own results (actual death claims) with published mortality tables (expected), which are used in the calculation of reserves. In most cases GAM71 is used and adapted to local conditions. Even when expenditures for death claims are higher than forecast, actual claims are generally about 99 percent of projected figures. Reference tables should continue to improve as further adjustments are made.

In addition to uncertainties at the demographic level, market operators and experts in both countries have described investment risk as the main source of uncertainty in the provision of annuities. The longest maturity for domestic bonds rarely reaches 10 years, and when it does, it lacks credibility because the securities include clauses that allow the government to redeem them before the term. The natural solution is to offer annuities using conservative discount rates and, at the same time, build-

ing up considerable security reserves. According to the 1999 annual report from Life of Barbados, the interest risk due to potential rate reductions is the most important margin affecting the reserve calculation. Furthermore, this margin is established in relation to the current economic and political environment. An additional interest margin is often added to allow for the impact of future dividend expectations of policyholders. The interest margin is also determined to allow for potential asset default.

Large insurance companies have an advantage in generating annuitant data from within, and in carrying out such precautionary measures. A few companies have considerable experience in these markets—sometimes through international operations in similar markets. Given their large scale of operations, they can gather mortality data and cover their risk using large reserves reinvested in local real estate. They are still able to profit from an increasingly lucrative industry.<sup>26</sup> The drawback is the difficulty for smaller and younger companies to enter or survive such markets. Given the expansion of annuity markets in recent years, most operators have declared that regulation of the institutions that invest and annuitize the retirement savings accumulated by workers is lax and incomplete, requiring major updates and additional clauses.

In Barbados major actors (along with insurance companies) in the deferred annuity market (the most common type) are commercial banks, credit unions, and trust companies. These institutions are growing in number and in customers, and manage registered retirement savings plans. These plans are the other main component of the third level of the retirement income system. Like occupational pension plans, registered retirement savings plans are intended to help people build up retirement income to replace a portion of their preretirement earnings. These plans encourage regular saving for retirement through tax breaks. People deduct the amount of their contributions from their taxable income each year, reducing their income taxes. The money that accrues from year to year on plan investments is also free from income tax until the plan is wound up. Furthermore, people can cash in registered retirement savings plans when they retire and use the proceeds to buy annuities that pay fixed amounts every month. The income from annuities is taxable, but since many people are in lower tax brackets after they retire, they pay less in taxes than they would have during their working lives.

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<sup>26</sup> In the two countries examined, the main companies providing annuities are Mutual, Life of Barbados, and Clico.

Both Trinidad and Tobago and Barbados will have to make some policy decisions in the near future on pension reform. When making choices, legislators, regulators, and policymakers will have to take into account the weaknesses of domestic annuity, financial, and capital markets. The problems that reforming countries have had to face in the past (and are remedying today) may provide lessons for small countries planning to reform their pensions in the same direction.

## Conclusion

Pension reform is increasingly debated by policymakers around the world, largely because of rising pressures from unfavorable demographic and structural trends. Growing elderly populations, poor management of public pay-as-you-go systems, and shortcomings of private systems indicate the need to reform the principles and structures guiding pension schemes. Pension reform is a complex undertaking that requires a comprehensive strategy, a commitment to macroeconomic and fiscal stability, and a careful balance between the various interventions (such as the first, second, and third pillars). This task is no less challenging for small economies, including when it comes to developing a sound annuity market—the focus of this chapter.

### *Policy Considerations for Voluntary Annuity Markets*

For various reasons, markets for voluntary annuities are underdeveloped in most developing countries. In addition to some of the institutional and supply-side factors described above, there are demand-driven elements such as:

- Adverse selection by annuitants (that is, potential annuitants choose to join when they have a higher life expectancy) weakens the market by raising prices or reducing returns.
- A desire by retirees to maintain assets to transfer to their heirs (that is, to make bequests).
- Informal protection networks (such as family-based support) that reduce the need for other income—especially if it would come from the formal sector, which is often looked on with skepticism.

- High poverty makes annuities unaffordable for many workers, or makes them prefer to have cash on hand to cover their basic needs.

Ultimately, two main policy decisions must be made when promoting annuity market development based on pension accounts. The first is how much freedom to give individual contributors when annuitizing their accumulated assets. In some countries individuals can withdraw a specified percentage of their assets as a lump sum, while the rest must be annuitized. More flexibility in this area would favor those who want to leave bequests or expect to die soon. Less flexibility (that is, mandatory annuitization) would reduce adverse selection.

The second decision involves the number of choices available to individuals upon retirement (programmed withdrawal, different types of annuities, and so on). Increasing the number of options generates a tradeoff between having the freedom of choosing the “optimal” product and the confusion of selecting the best product. This type of self-directed policy should include an information campaign that clearly explains scenarios and alternatives. Poor members of society would especially benefit from such campaigns.

### ***Data Needs***

Mandatory private pension plans are increasingly common in developing countries. These plans often require that retiring workers choose from among two or three forms of benefits that provide some minimum source of income. Annuities are the most popular option, causing rapid growth in this previously nonexistent market in Latin American countries that have implemented mandatory fully funded pension reforms. In Chile, the leader in private pension reform, annuities account for nearly half of the insurance business.

But as discussed throughout this chapter, the market for annuities in Latin America and the Caribbean faces two major technical problems: unsuitable mortality tables and artificially set interest rates. Given the rapid growth of annuitants, the development of more accurate mortality tables is crucial. Observed and expected changes in fertility, life expectancy, and other population features are critical, yet little information is available on these levels and trends.



### *Annuity and Capital Markets*

In contrast to the notion that a sound financial environment is required to develop an annuity market, evidence (particularly from Chile) suggests that this is not the case. In fact, despite the widespread initial immaturity of capital markets and financial and insurance sectors, annuity markets have evolved and steadily deepened in many developing countries. Disability and survivorship products have grown the most in the early years of reform.

Although Chile shows that an efficient capital market is not a prerequisite for annuity systems, policymakers there had a comprehensive vision of the various links among crucial sectors and activities—including pension systems, privatizations, capital market development, fiscal policies, and legal rules, including corporate governance and supervision. Reform of the pension system and the annuity market was considered part of a strategy that required the various elements to work synergistically. Bustamante (2004) shows the actions that Chile's legislative and executive branches and monetary authorities have taken since the initial pension reform of the early 1980s. For example, Parliament has passed legislation to improve pension fund investments, while the Central Bank has raised the limits on investments in various instruments to achieve diversification. Although inefficiencies still exist—particularly in administrative costs and in the annuity market—the main lesson of annuity and capital market development in Chile is that political determination and a comprehensive view are essential to the design and success of policies and strategies.

Although annuity products have grown even where capital and financial markets are underdeveloped, it is still advisable to deepen the financial environment when offering such products. The absence of long-term government or corporate bonds may undermine the efficiency of the annuity market, reducing investment returns for annuitants and limiting market development.

### *Insurance Companies*

Healthy insurance companies are an integral part of the financial environment. Thus regulation and supervision of such companies—such as applying industry standards and requiring appropriate reserves and transparent accounting—should be such that they do not threaten the solvency of the industry. Any solvency shortcoming in the

insurance industry would undermine a basic tenet of annuities: the ability of insurance companies to make long-term commitments to pay beneficiaries. If employers and workers do not believe that insurance companies will be able to deliver contractual benefits, they will have few incentives to pay taxes for the first pillar or to buy annuities. This consideration may create a need for rating agencies that provide grades to insurance carriers.

### ***Policy Tradeoffs and Recommendations***

From a public policy perspective, growth of annuity markets requires several conditions, for example, transparent regulation, efficient insurance supervision, and government consideration of formal health and disability systems, informal protection networks, cultural factors, poverty levels, and the overall institutional setting (such as supervision of financial markets, a solid banking sector, and actuarial capability). Such issues are also important for protecting annuitants and, together with sound macroeconomic policy, give the system credibility and enable it to grow. The countries examined still face enormous obstacles in many of these areas, which could jeopardize the future growth and stability of their annuity markets. In addition to these issues, legal and political institutions should encourage clarity in contract rules and terms so that potential annuitants can understand the advantages and drawbacks of annuity products.

As noted, and is especially clear from the experiences of industrial countries, adverse selection can reduce the potential of annuity markets. Solutions to this problem include having insurance companies offer differentiated annuity products and having the government make the purchase of annuities mandatory. But mandatory annuities create other problems, such as the risk categories that insurance companies would be allowed to use so that there is no cross-subsidization between groups (say, from low-risk to high-risk groups). Moreover, insurance companies should not be allowed to take only the lowest-risk clients and disregard the rest. On the other hand, insurance companies cannot be left only with high-risk clients that make them bankrupt. Imposing deadlines on the purchase of annuities (such as at the time of retirement) would put the risk in the hands of beneficiaries.

Another issue related to mandatory annuities is portability—that is, portable variable annuities. This is also an area where technical aspects intersect with public

policy decisions. But portability would be an insurmountable challenge for emerging and small markets, and would become feasible only as annuity markets acquired depth and sophistication. Such considerations show the complex technicalities involved in developing a successful annuity market, the public policy implications, and the need for sophisticated regulation and continuous oversight.

### *Application to Small Economies*

The importance of these issues is compounded for small economies such as those in the Caribbean, because the various challenges exist at both the regional and national levels. Bolivia shows how the implementation of a defined contribution system requires skilled staff and sophisticated companies—which may not be readily available in a small economy. Similarly, many Caribbean countries need to introduce second and third pillars as part of comprehensive pension reform, and in doing so must strike a delicate and difficult balance between the public and private sectors.

Because setting interest rate benchmarks at the national level would be too volatile, a viable alternative is to create regional benchmarks. Similarly, capital market development requires a regional approach to make reforms more effective and market functioning more sound, by promoting liquidity, allowing diversification of investments, and facilitating a smooth transition to international investments. This stance would still allow countries to pursue the goal of using regionally generated funds for domestic projects rather than transferring resources to industrial countries. But at some point small economies will have to consider extending investments beyond national and regional borders to achieve higher returns and more diversification. This move implies liberalizing the capital account and has to be undertaken in the context of a national and possibly regional (or subregional) economic strategy. By the same token, the definition of mortality tables can also be done at the regional level. In addition, imposing a regional mandatory requirement to partially invest in annuities would be more meaningful because a larger pool of annuitants would be served.

The fundamental public policy recommendation that emerges from this analysis is the need for comprehensive national and regional strategies that link the various requirements of pension reform and annuity market development—including macroeconomic and fiscal discipline, insurance system development, and capital market development—in a long-term perspective with continuous leadership from

policymakers. Against this background, pension reform and annuity market development should not be seen in isolation, but instead discussed with various social groups, coordinated with financial and capital market reforms, and designed to overcome political resistance.

These considerations are essential for small economies and Caribbean countries. Indeed, these countries suffer from highly underdeveloped capital markets, pension systems based on single public sector pillars, and insurance industries incapable of underwriting risks. Given these circumstances, strong political will and leadership are essential.

## ANNEX 10.1. ANNUITY VALUES AND CALCULATIONS

### *Present Value*

An annuity consists of a series of payments starting at time  $t=1$  period, and ending a  $t=n$  period. The present value of an annuity of  $n$  period is the summation of the discounted amounts of the certain cash flows (Annex 10.1 Table 1).

### *Future Value*

Suppose that a worker makes a periodic payment of a fixed amount into an investment fund and the fund earns a given interest rate for a period of time. How much will it amount to at the end of a given period? That value is called the future value of an annuity, or the accumulation. The payments that the worker will receive constitute an annuity certain, or the decumulation (Annex 10.1 Table 2). In the case of life annuities there is a contingency factor, so they are not considered annuities certain.

As time passes, the fund increases. But the contribution remains at \$1. After a while, depending on the fund's earning rate, the amount earned by the fund exceeds the amount contributed each period. Thus the management of the fund be-

**Annex 10.1 Table 1. Present Value of an Annuity**

Period	Interest rate (percent)			
	1.00	1.13	1.50	2.00
1	0.990	0.989	0.985	0.980
2	1.970	1.967	1.956	1.942
3	2.941	2.934	2.912	2.884
4	3.902	3.890	3.854	3.808
5	4.853	4.836	4.783	4.713
6	5.795	5.771	5.697	5.601
7	6.728	6.695	6.598	6.472
8	7.652	7.610	7.486	7.325

*Note:* Shows the present value of an annuity certain of \$1 ( $PMT=\$1 = 1 - (1/(1+i)^n) / i$ ). The present value of the annuity declines as interest rates increase. For any given interest rate the value of an annuity increases as time increases.

**Annex 10.1 Table 2. Future Value of an Annuity**

Period	Interest rate (percent)				
	1.00	1.13	1.50	2.00	6.00
1	1.000	1.000	1.000	1.000	1.000
2	2.010	2.011	2.015	2.020	2.060
3	3.030	3.034	3.045	3.060	3.184
4	4.060	4.068	4.091	4.122	4.375
5	5.101	5.114	5.152	5.204	5.637
6	6.152	6.171	6.230	6.308	6.975
7	7.214	7.241	7.323	7.434	8.394
8	8.286	8.322	8.433	8.583	9.897
9	9.369	9.416	9.559	9.755	11.491
10	10.462	10.522	10.703	10.950	13.181
11	11.567	11.640	11.863	12.169	14.972
12	12.683	12.771	13.041	13.412	16.870
13	13.809	13.915	14.237	14.680	18.882
14	14.947	15.071	15.450	15.974	21.015
15	16.097	16.241	16.682	17.293	23.276

Note: Shows the future value of annuity certain of \$1 (PMT=\$1).

comes more important than continuing the contribution, because the funds earn more than the contributions.

### *The Role of Interest Rates and Mortality Tables*

A person will receive a payment at the end of each year (that is, an annuity) if he or she is still alive. Payments will cease if the person dies. How much should a person be charged to pay for his or her benefits assuming a given interest rate and given mortality tables? Annex 10.1 Table 3 shows the probability of the person being alive at the end of each year so that he or she can receive the payment (annuity). This is a typical situation of a pension paid to a beneficiary by a private or public entity (such as a social security fund).

The simplified examples illustrate the relationship between interest rates, mortality rates, and premiums as articulated in the text. If the interest rates used to calculate the premium are lower than those prevailing in the market, they lead to

**Annex 10.1 Table 3. Calculating the Value of an Annuity**

Interest rates and mortality tables (life expectancy) influence the premium of the annuity

Year	Payment	Premium calculations at 8 percent interest rate		
		Present value (at 8 percent interest)	Probability of event occurring	Present value of payment
1	1	0.925925926	0.9	0.833333333
2	1	0.85733882	0.8	0.68587106
3	1	0.793832241	0.6	0.47629934
4	1	0.735029853	0.4	0.29401194
5	1	0.680583197	0	0
Total				2.28951568

With lower interest rates, the value of the annuity and the premium rise

Year	Payment	Premium calculations at 4 percent interest rate		
		Present value (at 4 percent interest)	Probability of event occurring	Present value of payment
1	1	0.961538462	0.9	0.86538462
2	1	0.924556213	0.8	0.73964497
3	1	0.888996359	0.6	0.53339782
4	1	0.854804191	0.4	0.34192168
5	1	0.821927107	0	0
Total				2.48034908

(continued)

**Annex 10.1 Table 3. Calculating the Value of an Annuity** *(continued)*

In case of higher mortality rates (lower life expectancy), with lower life expectancy, the value of the annuity and the premium fall

Premium calculations at higher mortality rates				
Year	Payment	Present value (at 8 percent interest)	Probability of event occurring (higher mortality)	Present value of payment
1	1	0.961538462	0.6	0.57692308
2	1	0.924556213	0.4	0.36982249
3	1	0.888996359	0.1	0.08889964
4	1	0.854804191	0.1	0.08548042
5	1	0.821927107	0	0
Total				1.12112562



overpriced annuities (higher premiums) and discourage the development of an annuity market. Similarly, the use of mortality tables with lower mortality rates (higher life expectancy) implies that a higher premium is required for annuity products and discourages the demand for them.

Mortality rates show the relationship between mortality—sometimes due to a precise cause—in a given population group and the main population. For example, the mortality rate of overweight people relative to the entire population offers a type of mortality rate or ratio. Mortality rates can also be evaluated by comparing heart attacks among overweight people and people of regular weight. Whatever the comparison, it is important that the parameters be carefully defined.

## BIBLIOGRAPHY

- Acuña, Rodrigo, and Augusto Iglesias. 2001. Chile's Pension Reform after 20 Years. Seminar presentation. World Bank, Washington, DC.
- Asociación Boliviana de Aseguradores. 2003. *Quincuagésima cuarta memoria*. Gestión Julio 2002–Junio 2003. La Paz.
- Barr, Nicholas. 1998. *The Economics of the Welfare State*. Stanford, Calif.: Stanford University Press.
- Blake, David. 1999. Annuities in Pension Plans. Commentary at World Bank Annuities Workshop, 7–8 June, Washington, DC.
- Brown, Jeffrey. 2000a. Differential Mortality and the Value of Individual Account Retirement Annuities. NBER Working Paper 7560. National Bureau of Economic Research, Cambridge, Mass.
- . 2000b. How Should We Insure Longevity Risk in Pensions and Social Security? Issue Brief. Boston College, Center for Retirement Research, Boston, Mass.
- Brown, Jeffrey, Olivia Mitchell, and James J. Poterba. 2000a. Mortality Risk, Inflation Risk, and Annuity Products. Working Paper 2000-10. Wharton School, Pension Research Council, Philadelphia, Penn.
- . 2000b. The Role of Real Annuities and Indexed Bonds in an Individual Accounts Retirement Program. In John Y. Campbell and Martin Feldstein (eds.), *Risk Aspects of Investment-Based Social Security Reform*. Chicago: University of Chicago Press.
- Brown, Jeffrey, Olivia Mitchell, James J. Poterba, and Mark Warshawsky. 1999. Taxing Retirement Income: Nonqualified Annuities and Distribution from Qualified Accounts. *National Tax Journal* LII3 (September): 563–92.
- . 2001. *The Role of Annuity Markets in Financing Retirement*. Cambridge, Mass.: MIT Press.
- Bustamante, Julio. 2004. *El sistema de pensiones en Chile*. Washington, DC: Inter-American Development Bank.
- Callund, Jonathan. 1999. Annuities in Latin America. Commentary at World Bank Annuities Workshop, 7–8 June, Washington, DC.
- Chiappori, Pierre André, and Bernard Salanié. 2000. Testing for Asymmetric Information in Insurance Markets. *Journal of Political Economy* 108 (February): 56–78.

- Cutler, David. 2001. Health Care and the Public Sector. In Alan Auerbach and Martin Feldstein, eds., *Handbook of Public Economics*. Amsterdam: Elsevier Science.
- Davis, E. Philip. 2002. Issues in the Regulation of Annuities Markets. Working Paper 26/02. Center for Research on Pensions and Welfare Policies, Moncalieri, Italy.
- Devesa-Carpio, José E., and Carlos Vidal-Meliá. 2001. The Reformed Pension Systems in Latin America. Pension Reform Primer Paper. World Bank, Washington, DC.
- Demaestri, Edgardo, and Federico Guerrero. 2002. The Rationale for Integrating Financial Regulation and Supervision in Latin America and the Caribbean. Working paper. Inter-American Development Bank, Washington, DC.
- Dowers, Kenroy, Stefano Fassina, and Stefano Pettinato. 2001. Pension Reform in Small Emerging Economies: Issues and Challenges. Working paper. Inter-American Development Bank, Washington, DC.
- Doyle, Suzanne, and John Piggott. 2001. Mandatory Annuity Design in Developing Economies. Pension Reform Primer Paper. World Bank, Washington, DC.
- . 2002. Integrating Payouts: Annuity Design and Public Pension Benefits in Mandatory Defined Contribution Plans. [<http://rider.wharton.upenn.edu/~prc/wp2002.html>].
- Doyle, Suzanne, Olivia Mitchell, and John Piggott. 2001. Annuity Values in Defined Contribution Retirement Systems: The Case of Singapore and Australia. Working Paper 2001-4. Wharton School, Pension Research Council, Philadelphia, Penn.
- Finkelstein, Amy, and James Poterba. 1999. Selection Effects in the Market for Individual Annuities: New Evidence from the United Kingdom. NBER Working Paper 7168. National Bureau of Economic Research, Cambridge, Mass.
- Friedman, F., and M. Warshawsky. 1990. The Cost of Annuities: Implications for Savings, Behavior and Bequests. *Quarterly Journal of Economics* (February): 133–54.
- Gillion, Colin, John Turner, Clive Bailey, and Dennis Latulippe. 2000. *Social Security Pensions: Development and Reform*. Geneva: International Labour Office.
- Gramlich, Edward M. 2001. *Is It Time to Reform Social Security?* University of Michigan Press.
- Inter-American Conference on Social Security. 1995. Social Security in the English-Speaking Caribbean. Monographic Series 19.

- Karacadag, Cem, V. Sundararajan, and Jennifer Elliot. 2003. Managing Risk in Financial Market Development: The Role of Sequencing. In Robert Litan, Michael Pomerleano, and V. Sundararajan (eds.), *The Future of Domestic Capital Markets in Developing Countries*. Washington, DC: Brookings Institution Press.
- James, Estelle, and Dimitri Vittas. 1999. *Annuities Markets in Comparative Perspective*. Paper presented at the World Bank Conference on New Ideas about Old Age Security, Washington, DC. [[www.worldbank.org/pensions](http://www.worldbank.org/pensions)].
- Lane, Michael F. 2001. Annuitization: An Eye Opening Analysis. *Journal of Retirement Planning* (May–June).
- Life of Barbados. 1999. *Annual Report*. Bridgetown, Barbados.
- McCarthy, David, and Olivia S. Mitchell. 2000. Assessing the Impact of Mortality Assumptions on Annuity Valuation: Cross-Country Evidence. Working Paper 2001-3. Wharton School, Pension Research Council, Philadelphia, Penn.
- . 2002. Estimating International Adverse Selection in Annuities. *North American Actuarial Journal* (October).
- Mitchell, Olivia S. 2000. Building an Environment for Pension Reform in Developing Countries. In Zvi Bodie and E. Phillip Davis (eds.), *Foundations of Pension Finance*. Cheltenham, U.K.: Edward Elgar.
- . 2001. Developments in Decumulation: The Role of Annuity Products in Financing Retirement. Working Paper 2001-9. Wharton School, Pension Research Council, Philadelphia, Penn.
- Mitchell, Olivia S., and David McCarthy. 2001. Estimating International Adverse Selection in Annuities.
- Mitchell, Olivia S., Zvi Bodie, P. Brett Hammond, and Stephen Zelder, eds. 2002. *Innovation in Retirement Financing*. Pension Research Council. Philadelphia, Penn.: Wharton School.
- Mitchell, Olivia S., James M. Poterba, Mark Warshawsky, and Jeffrey R. Brown. 1999. New Evidence on the Money's Worth of Individual Annuities. *American Economic Review* (December).
- Murthi, Mamta, J. Michael Orszag, and Peter R. Orszag. 2000. Annuity Margins in the UK. University of London, Birkbeck College, Center for Pensions and Social Insurance.
- Musalem, Alberto, and Thierry Tressel. 2003. Institutional Savings and Financial Markets: The Role of Contractual Savings Institutions. In Robert Litan, Michael

- Pomerleano, and V. Sundararajan (eds.), *The Future of Domestic Capital Markets in Developing Countries*. Washington, DC: Brookings Institution Press.
- OECD (Organisation for Economic Co-operation and Development). 2000. *Private Pension Systems and Policy Issues*. Paris.
- Orszag, Michael. 2000. Annuity: The Problems. Working paper. University of London, Birkbeck College.
- Palacios, Robert, and Rafael P. Rofman. 2001. Annuity Markets and Benefit Design in Multipillar Pension Schemes: Experience and Lessons from Four Latin American Countries. Pension Reform Primer Paper. World Bank, Washington, DC. [[www.worldbank.org/pensions](http://www.worldbank.org/pensions)].
- Poterba, James M. 2001. Annuity Markets and Retirement Security. Boston College, Center for Retirement Research. [<http://www.bc.edu/crr>].
- Poterba, James M., Steven F. Venti, and David A. Wise. 1999. Implications of Rising Personal Retirement Saving. NBER Working Paper 6295. National Bureau of Economic Research, Cambridge, Mass.
- Rofman, Rafael P. 2001. Annuitization in Pension Schemes: The Case of Argentina. Paper presented at the International Social Security Administration Seminar for Actuaries and Statisticians, 21–22 November, Montevideo.
- Rothschild, Michael, and Joseph Stiglitz. 1976. An Essay on the Economics of Imperfect Information. *Quarterly Journal of Economics* 90: 629–49.
- Society of Actuaries. 1999. Exposure Draft: The RP-2000 Mortality Tables. Working paper. Schaumburg, Ill.
- Superintendencia de Administradoras de Fondos de Pensiones. 2002. *Series Estadísticas*. Gobierno de Chile. [<http://www.safp.cl/>].
- Tuljapurkar, Shripad, and Carl Boe. 1998. Mortality Change and Forecasting: How Much and How Little Do We Know? *North American Actuarial Journal* 2 (4): 13–47.
- United Nations. 2001. *World Population Prospects (2000 Revision)*. New York: Department of Economic and Social Affairs, Population Division.
- Walker, Eduardo, and Fernando Lefort. 2000. Pension Reform and Capital Markets: Are There Any (Hard) Links? National Bureau of Economic Research, Cambridge, Mass.
- Walliser, J. 1998. The Effect of Privatization of Social Security on Private Annuity Markets. Working paper. Congressional Budget Office, Washington, DC.

- Weaver, R. Kent. 2003. *The Politics of Public Pension Reform*. Boston College, Center for Retirement Research. [<http://www.bc.edu-crr>].
- World Bank. 1994. *Averting the Old Age Crisis*. New York: Oxford University Press.
- . 2001. *Annuities: Regulating Withdrawals from Individual Pension Accounts*. Pension Reform Primer Paper. Washington, DC.
- Yaari, M. 1965. Uncertain Lifetime, Life Insurance and the Theory of the Consumer. *Review of Economic Studies* 32: 137–50.
- Yermo, Juan. 2001. *Private Annuity in OECD Countries*. Paris: Organisation for Economic Co-operation and Development.
- Zipt, Robert. 2003. *Fixed Income Economics*. San Diego, Calif.: Academic Press.

## **Social Security Schemes and Potential Reforms in Five Caribbean Countries**

*A. Charles Herbert*

**T**his chapter analyzes the broad differences between social security schemes in five Caribbean countries: Barbados, Grenada, Guyana, Jamaica, and St. Lucia. These countries were chosen due to their varying demographics, social security scheme designs, and economic frameworks. The chapter also models reforms that could address the challenges facing the schemes.

Except for Jamaica's, all the schemes reviewed provide generous benefits by international standards. The general target replacement rate for income at retirement is 60 percent of insured earnings, and at least 80 percent of participating populations have fully insured earnings. The schemes are also relatively young—with the oldest introduced in Barbados and Jamaica in the mid-1960s—but are starting to mature. In Barbados contribution rates have risen steadily, while in the younger schemes in Grenada and St. Lucia that has not happened. In Guyana and Jamaica contribution rates are lower than required, probably due to the difficult economic times these countries are experiencing. These factors, combined with aging populations, are producing pay-as-you-go rates projected to reach staggering levels over the next couple of decades—exceeding current contribution rates and eroding current assets. Thus all the schemes require reform.

All the schemes face similar problems of declining fertility and increasing longevity, which will reduce the ratio of contributors to pensioners in the future. All the schemes (except Jamaica's) are partially funded on a modified pay-as-you-go basis. That is, reserves are built up in the early years of the scheme when there are relatively few pensioners. As the schemes mature and the number of pensioners increase, reserves are used up. When reserves are exhausted, future generations of workers are

forced to make larger contributions to pay for the pensions of pensioners and themselves, to maintain benefit levels and access.

## **Barbados**

At the start of 2003 Barbados implemented parametric reforms to stabilize the financial position of its National Insurance Scheme over the next decade. These reforms were widely accepted—having been based on a three-year process of public consultations—even though they will cause the scheme’s costs to quickly rise to relatively high rates. The authorities are not interested in structural change.

### *Scheme Features*

The Barbados scheme provides long-term benefits (old age pensions and grants—including a noncontributory pension—disability pensions and grants, and survivor pensions and grants), short-term benefits (sickness benefits, maternity benefits and grants, and funeral grants), work-related injury benefits (injury benefits, disability benefits, death benefits, medical benefits, and funeral grants), and unemployment benefits (the only country in the group to offer this benefit) and administers a Severance Payments Scheme. (See the annex tables for more details.)

The most recent actuarial review of the Barbados National Insurance Scheme, issued at the end of 1999, projects the scheme’s financial position through 2060. Assuming no changes in contribution rates and benefit provisions, the review finds that:

- Starting in 2011, the scheme’s contribution income would not be able to cover benefits and expenditures.
- Starting in 2018, the scheme would have to liquidate assets to cover benefits and expenditures because contribution and investment income would be insufficient.
- The National Insurance Fund would be exhausted by 2028.

These findings assume annual increases in the insurable earnings ceiling and pension payments. Increases in insurable earnings were assumed to be in line with



wage increases, while increases in pensions were assumed to be in line with price inflation. With recent reforms, however, these projections are no longer accurate.

### *Demographic and Other Challenges*

The weak projected financial position of the National Insurance Scheme before the recent reforms was due to demographic features in Barbados, particularly its low birth rates and aging population. Fertility rates have fallen significantly since the scheme started. In the 1960s the average woman had 4 children; today the total fertility rate is 1.7 (almost at European and North American rates). Because a fertility rate of 2.1 is needed to maintain a stable population age profile, the Barbadian population will likely age then shrink, because people will live longer and there will be fewer births.

The National Insurance Scheme is compulsory for all Barbadian workers age 16–64. But not all workers are entitled to all scheme benefits: government workers are not entitled to sickness and unemployment benefits, self-employed workers are not entitled to employment injury and unemployment benefits, and workers under 16 and over 65 are covered only for employment injury benefits. From among the reform options offered, the public overwhelmingly favored increasing contribution rates by 3 percentage points (as a share of insurable earnings) and raising the retirement age from 65 to 67. The changes will be phased in over four years. The reform also provided for annual adjustments of the ceiling for insured earnings (in line with wage inflation) and for price indexation of benefits subject to affordability.

Before the most recent contribution increases, the average contribution rate—for all benefits offered by the scheme—was 13.9 percent of insurable earnings, which include basic salary and all other remuneration (including cash and bonuses) below the ceiling. Since 1967 contribution rates for sickness, maternity, invalid pension, survivor, and funeral benefits have risen from 3.0 percent to 5.25 percent of insurable earnings each for employees and employers in 2002 for “regular benefits”. Employees and employers also pay 2 percent each to support noncontributory pensions, 0.75 percent each for unemployment and employers pay 0.75 percent for employment injury benefits and 0.5 percent to the Severance Payment Scheme. Permanent government employees are excluded from sickness and unemployment benefits and pay lower rates. Similarly self-employed persons are excluded from employment injury and unemployment benefits and also contribute at modified rates. Over the past few

decades about 90 percent of workers—and often more—have contributed to the scheme. At the end of 2001 the share was 92 percent.

Employees and employers also contribute 0.75 percent of insurable earnings to the Unemployment Fund—a percentage that has varied considerably over the past two decades, in line with unemployment benefits. In addition, employers contribute 0.5 percent to the Severance Payment Fund, for workers who have lost their jobs because of redundancy, natural disaster, or termination of employment after a layoff period or short time. This contribution has also varied, reflecting instability in the unemployment rate and changes in the benefits provided by the fund.

## **Grenada**

Created in 1983, Grenada's National Insurance Scheme is the youngest of the systems studied. Still, the need for reform is clear, and early action will make it more effective and less demanding. If Grenada's experience is similar to that of Barbados, it should be relatively easy to stabilize the scheme's financial position for the longer term.

### ***Scheme Features***

Grenada's National Insurance Scheme provides short-term benefits (sickness benefits, maternity allowances and grants, and funeral grants), long-term benefits (old age, disability, and survivor pensions and grants), and work-related injury benefits (injury benefits, disability benefits, care allowances, medical expenses, death benefits, and funeral grants). (See the annex tables for details.)

The scheme covers regularly employed, self-employed, and voluntarily insured persons age 16–59. Regularly employed workers in the private and public sectors are covered for all contingencies, while self-employed workers and other voluntarily insured individuals are covered only for long-term benefits and funeral grants.

The annual ceiling on insurable earnings is \$13,333. In addition to salary, insurable earnings include overtime pay, cost of living allowances, commissions, gratuities, and service charge payments. Employees contribute 4 percent of insurable earnings, and employers contribute 5 percent and self-employed and voluntary contributors pay reduced rates.

## *Demographic and Other Challenges*

In 1999 Grenada's fertility rate was 2.5, and life expectancy at birth was 68.3 for men and 73.2 for women. The pension scheme is managed by the National Insurance Scheme, and has 10.8 contributors for each pensioner—indicating that the scheme is fairly young.

The scheme is expected to mature quickly, however, because of decreasing fertility and increasing longevity. The scheme is partially funded, meaning that any contributions above the pay-as-you-go rate are put aside to meet future benefits. Thus in the early life of the scheme large reserves build up that are used up as the covered population ages.

The most recent actuarial valuation, in 1999, said that without reforms the scheme would be exhausted by 2042. At that point future contributions would have to be used to pay benefits. Given the projected drop in the number of contributors to pensioners by that date (to 2.1), contribution rates would have to be increased to 16.2 percent of insurable earnings from 9 percent today to cover benefit obligations (unless rates were increased much earlier).

## **Guyana**

Guyana's National Insurance Scheme is close to crisis, and even with major reform will likely face short-term difficulties unless the economy recovers and the participation rate (currently 51 percent) increases significantly. Given the extent of the current crisis, structural reform to a defined contribution approach is worth considering.

## *Scheme Features*

Guyana's scheme offers short-term benefits (sickness and related medical benefits, and maternity allowances and grants), long-term benefits (old age pensions and grants, disability pensions and grants, survivor pensions and grants, and funeral grants), and work-related injury benefits (injury benefits, medical expenses, disability benefits, and death benefits). (See the annex tables for details.)

The scheme provides full coverage to people age 16–60 engaged in insurable employment who have fulfilled the scheme's residency requirement. Workers under

16 and over 60 receive only work-related benefits, while self-employed workers receive only short and long-term benefits. In addition, persons who cease employment before age 60 may voluntarily continue to contribute and accrue old age pensions.

The annual ceiling on insurable earnings has risen considerably in recent years, nearly doubling to \$5,255 between the end of 1998 and the start of 2003. Employees contribute 4.8 percent of insurable earnings, while employers provide 7.2 percent (1.45 percent for workers under 16 and over 60). Self-employed workers contribute 10.47 percent of their insurable earnings, while voluntary contributions are set at 8.17 percent of average earnings in the two years before they stopped working.

### *Demographic and Other Challenges*

Guyana has a relatively young population, with 57 percent of its people 30 and under and 64 percent between 15 and 59. Only 7 percent of the population is over 60. One reason is high emigration: in 1999 more than 12,000 people left Guyana. If net emigration continues, it could significantly affect Guyana's future population distribution. Another reason is Guyana's fertility rate—at 2.7, it is the highest among the five countries studied. A third reason is that life expectancy is the lowest of the five countries studied. Life expectancy at birth is 63.1 years for males and 69.4 years for females, while life expectancy at age 60 is 15.9 years for men and 18.8 years for women. Still, because of falling fertility and rising life expectancy, Guyana's population is expected to age in the reasonably near future.

The most recent actuarial review of Guyana's scheme found that without reforms, the fund will be exhausted in 2011. The scheme's low ratio of reserves to expenditures is surprising given Guyana's relatively young population, but this may be due to the scheme's relatively low coverage. The average contribution rate required to pay benefits until 2040 is 18.2 percent, compared with the current contribution rate of 12 percent (10.5 percent for self-employed persons).

### **Jamaica**

The Jamaican National Insurance Scheme, with its modest old age pension benefits and contribution rates, in 2003 reallocated 20 percent of contributions (1 percent of insured earnings) to a National Health Fund, which provides pharmaceutical drugs

to persons suffering from any of 14 listed chronic illnesses, and has not pursued pension reform or assessed the need for it. The absence of recent reports, which would provide reliable data and assumptions, made it difficult to model the benefits provided. Still, without reform the scheme could be in danger of failing by 2020. Historically high interest and inflation rates, combined with the career-long approach to calculating the earnings-related portion of the old age pension, make structural reform to a defined contribution system an option worth investigating.

### ***Scheme Features***

Jamaica's National Insurance Scheme was introduced in 1966. It provides short-term benefits (maternity allowances for domestics only and funeral grants), long-term benefits (old age pensions and grants, disability pensions and grants, sugar worker pensions, allowances for elderly spouses of old age or disabled pensioners, survivor pensions and grants, orphan pensions and grants, special children's pensions and grants, and special anniversary pensions for people born in Jamaica in 1906 or earlier), and work-related injury benefits (injury benefits, disability benefits, and death benefits). (See the annex tables for details.)

The scheme covers all workers over 18, including the self-employed, although members of the Jamaica Defense Force are not covered for work-related injuries. The annual ceiling on insurable earnings was doubled in 2003 to \$9,960, and employees and employers each contribute 2.5 percent of insurable earnings. (Members of the Jamaica Defense Force and domestic workers pay flat contributions of \$0.33 a week, while self-employed workers contribute \$0.33 a week plus 2.5 percent of their wages.) In 2003, 20 percent of contributions started being allocated to the National Health Fund. Thus contributions to the National Insurance Scheme equal 4 percent of insurable earnings.

The old age pension has two parts: a basic pension and an additional pension. Both are based on the amount of contributions made over a worker's life.

### ***Demographic and Other Challenges***

Because Jamaica's fertility rates are high—around 2.47—its population is young. Just under 9 percent of the population is old enough to receive benefits (but not all are

eligible). Men age 15–64 and women age 15–59 account for 59 percent of the population, and 58 percent of the population is under 30.

But the population is expected to age in the next couple of decades due to falling fertility and rising longevity. (Average life expectancy at birth is the highest among the countries studied: 73.5 years for men and 77.6 years for women.) Continued net emigration, which in 2002 reached 23,000 people, may also influence Jamaica's future population distribution.

Jamaica's National Insurance Scheme is intended to be fully funded, meaning that new contributions pay for benefits accruing in the same period and the value of the fund matches the present value of future accrued benefits. So, despite the expected aging of the Jamaican population, no intergenerational cross-subsidies are intended. It is questionable whether this policy is being achieved since it has not been tested for many years.

## **St. Lucia**

St. Lucia's scheme—provided through the National Insurance Corporation—is the youngest of all the countries studied except Grenada, but its benefits are the highest and its retirement age is only 60. The government recognizes the need for reforms, and has implemented some and is considering others. Projections show that it should be possible to stabilize the fund through parametric reform, but the government seems willing to consider all options, including structural reform.

### ***Scheme Features***

In mid-2000, when the most recent actuarial review was issued, the National Insurance Corporation provided long-term benefits (old age pensions and grants, disability pensions and grants, and survivor benefits and grants), short-term benefits (sickness and related medical benefits, maternity allowances and grants, and funeral grants), and work-related injury benefits (injury benefits, disability benefits, death benefits, and medical benefits). In recent years the level of the old age pension has changed; see the annex tables for details.

The scheme provides complete coverage for all regularly employed workers age 16–59, and covers self-employed workers, for whom participation is voluntary,

all contingencies except work-related injuries. Prior to February 2003 pensionable civil servants did not contribute to or benefit from benefits. The benefits provided include old age pensions and grants, medical benefits, maternity allowances and grants, and funeral grants. The annual ceiling on insurable earnings is \$22,222. Earnings include basic salary and all other remuneration in cash or in kind, such as overtime pay, allowances, sales commissions or profits, and service charges. Contributions equal 10 percent of insurable earnings for all workers. Regularly employed workers and their employers each provide 5 percent, while self-employed workers and voluntary contributors provide the entire 10 percent.

### ***Demographic and Other Challenges***

St. Lucia has a young population, with 59 percent of its people younger than 30. Just 10 percent of the population is over 60, and 59 percent is 15–59. But this population structure is expected to change in the next couple decades due to the aging population resulting from declining fertility, which is currently 2.2. Life expectancy at birth is 69.0 years for men and 72.9 years for women, while life expectancy at age 65 is 18.7 years for men and 20.6 years for women.

St. Lucia's high ratio of contributors to pensioners (12.8) and healthy ratio of reserves to expenditures (18.9) suggest that the National Insurance Corporation's pension scheme is in a good financial position. But the most recent actuarial review of the scheme concluded that, without changes, the fund would be exhausted by 2037—primarily because of St. Lucia's aging population. Continued improvements in mortality will also undermine the scheme's funding situation.

As noted, the National Insurance Corporation has introduced reforms since the most recent actuarial review, the most important one being raising the retirement age from 60 to 65. This increase is being phased in, and its effect on the scheme's future financial position has not been evaluated.

### **Potential Effects of Reforms**

The reform models presented below were calculated using the most recent actuarial reports and census data for each of the five countries studied. In some cases the census data used were more recent than those used in the actuarial reports. In other

cases data were not available, requiring the use of assumptions that seem appropriate to the circumstances.

Although all the results have been compared with those in the most recent actuarial reports, exact matches are unlikely. Moreover, the purpose of this chapter is to illustrate the potential effects of reforms, not to provide actuarial assessments of the effects of reforms. Schemes contemplating reforms should seek detailed guidance from their actuaries.

In illustrating the change to defined contribution structures, it has been assumed that future contribution rates will have two components: the main component, which is paid into each member's account, and a smaller component used to provide short-term and other benefits (such as for disability and survivors) that supplement member accounts.

The analysis considers six possibilities: a base (no change) scenario, three parametric reforms, a combination of those reforms, and a structural reform to a defined contribution system. I tried to make each reform option similar for each country to facilitate comparisons; this resulted in the reforms modeled not being set at levels that would make each scheme sustainable in the long term.

The base scenario is the scheme in place before any reform. Some of the schemes studied have already commenced or completed reforms, but here those steps have been ignored.

The first parametric reform is an increase in the contribution rate. The increase modeled assumes that the contribution rate increases by 0.4 percent of insured earnings every year for 20 years, resulting in an increase of 8 percentage points.

Under the second parametric reform, benefits are reduced. Over 10 years new benefit payments commencing are reduced by one-third. The goal is to cut benefit rates from current (approximate) levels of 60 percent of final average earnings to 40 percent.

The third parametric reform involves raising the retirement age to 70. In all cases this is done by increasing the age by one year every other year. For some countries this is an increase from 60 to 70, and for others from 65 to 70.

The fourth parametric reform combined the previous three as follows:

- Barbados: increase contributions by 4 percentage points over 20 years (from 13.9 percent average excluding unemployment, severance and employ-



- ment injury to 17.9 percent), gradually reduce benefits by one-sixth to a maximum rate of 50 percent, and gradually raise the retirement age to 67.
- Grenada: increase contributions by 4 percentage points over 10 years (from 8.7 percent average for employed and self-employed to 12.7 percent), gradually reduce benefits by one-sixth to a maximum rate of 50 percent, and gradually raise the retirement age to 67.
  - Guyana: increase contributions by 8 percentage points immediately (from 10 percent to 18 percent), gradually reduce benefits by one-third to a maximum rate of 40 percent, and gradually raise the retirement age to 67.
  - Jamaica: increase contributions by 4 percentage points over 10 years from 5 percent to 9 percent, reduce benefits from 24 percent of contributions to 18 percent, and raise the retirement age for women to match that of men (from 65 to 70).
  - St. Lucia: increase contributions by 8 percentage points over 20 years (from 10 percent to 18 percent), gradually reduce benefits by 15 points to a maximum rate of 50 percent, and gradually raise the retirement age to 67.

The models below also show the implications of moving to a defined contribution structure while maintaining current benefits. Obviously such reform could also involve changes in benefits or retirement ages. This structural reform assumes that:

- Current pensioners will continue to receive current benefits.
- Current contributors will be given defined contribution credits in recognition of benefits accrued under the previous scheme.
- Future contributions will be a level percentage of insured earnings.
- Shortfalls in covering current pensions and the credits to current contributors will be covered by contributions based on future insurable earnings over the next 60 years.

As an alternative I have considered smaller credits for current contributors, an approach equivalent to the benefits under the combined parametric reform above, because if the status quo without reform is not feasible, then converting to a defined contribution plan on that basis is likely not practical either.

For each country the models below present a table showing financial projections under the base scenario through 2060, where the general average premium is the contribution rate required to cover the cost of benefits payable over the next 60 years, a figure showing changes in reserve-expenditure ratios (defined as assets at the end of each year divided by benefits paid during the year) under the base scenario and the four parametric change scenarios through 2060, and a table showing the financial implications of structural change to a defined contribution scheme. The projections cover the period 2000 to 2060 and assume that reforms commence in 2001.

### ***Barbados***

The potential effects of reforms in Barbados are given in Tables 11.1 and 11.2 and Figure 11.1.

### ***Grenada***

The potential effects of reforms in Grenada are given in Tables 11.3 and 11.4 and Figure 11.2.

### ***Guyana***

The potential effects of reforms in Guyana are given in Tables 11.5 and 11.6 and Figure 11.3.

### ***Jamaica***

The potential effects of reforms in Jamaica are given in Tables 11.7 and 11.8 and Figure 11.4.

### ***St. Lucia***

The potential effects of reforms in St. Lucia are given in Tables 11.9 and 11.10 and Figure 11.5.

**Table 11.1. Financial Projections under the Base Scenario in Barbados, 2000–60**  
(Millions of Barbados dollars unless indicated otherwise)

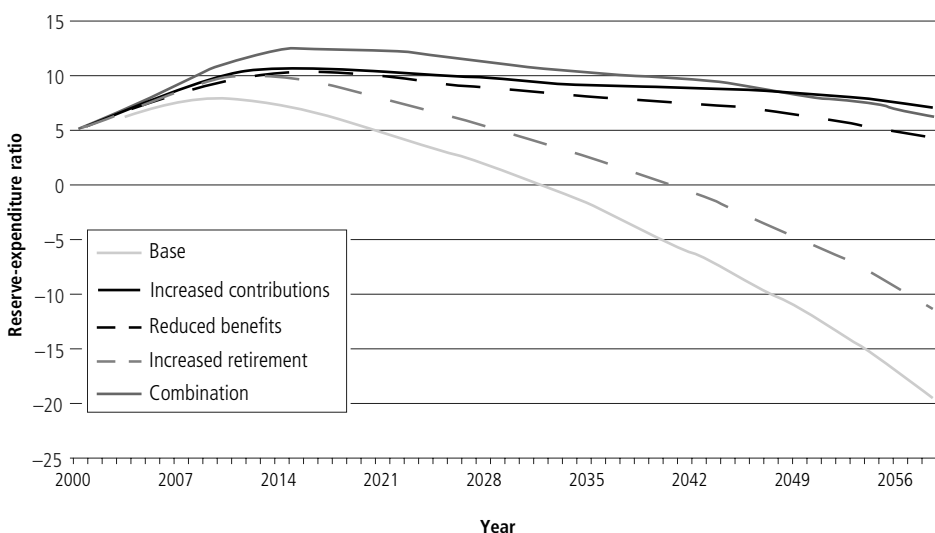
Year	Contribution income	Investment income	Benefits	Admin. expenses	Fund holdings at end of year	Reserve-expenditure ratio	Investment yield (percent)	Expense ratio (percent)	Pay-as-you-go rate (percent)
2000	333.76	82.84	234.06	17.03	1,258.27	5.0	7.25	3.00	10.5
2005	440.76	140.33	309.40	21.57	2,343.29	7.1	6.50	2.88	10.4
2010	571.60	231.97	454.83	28.23	3,830.84	7.9	6.50	2.75	11.7
2015	717.82	330.76	723.77	37.84	5,378.57	7.1	6.50	2.63	14.7
2020	889.45	397.02	1,134.64	50.60	6,331.87	5.3	6.50	2.50	18.5
2025	1,069.97	371.50	1,675.09	65.20	5,719.10	3.3	6.50	2.38	22.6
2030	1,287.58	190.07	2,285.01	80.38	2,535.19	1.1	6.50	2.25	25.5
2035	1,560.62	(208.98)	2,947.35	95.79	(4,213.22)	(1.4)	6.50	2.13	27.1
2040	1,892.90	(905.96)	3,668.46	111.23	(15,842.80)	(4.2)	6.50	2.00	27.8
2045	2,299.25	(2,018.17)	4,529.66	128.04	(34,310.24)	(7.4)	6.50	1.88	28.2
2050	2,758.43	(3,751.62)	5,653.62	147.21	(63,063.60)	(10.9)	6.50	1.75	29.2
2055	3,299.61	(6,407.32)	7,029.40	167.85	(107,014.27)	(14.9)	6.50	1.63	30.3
2060	3,962.05	(10,390.44)	8,632.93	188.92	(172,767.66)	(19.6)	6.50	1.50	30.9

General average premium 19.4

Current contribution rate 13.9

**Figure 11.1. Reserve-Expenditure Ratios under Parametric Reforms in Barbados, 2000–60**

(Percent)

**Table 11.2. Effects of Structural Reform to a Defined Contribution System in Barbados in 2001**

(Millions of Barbados dollars unless indicated otherwise)

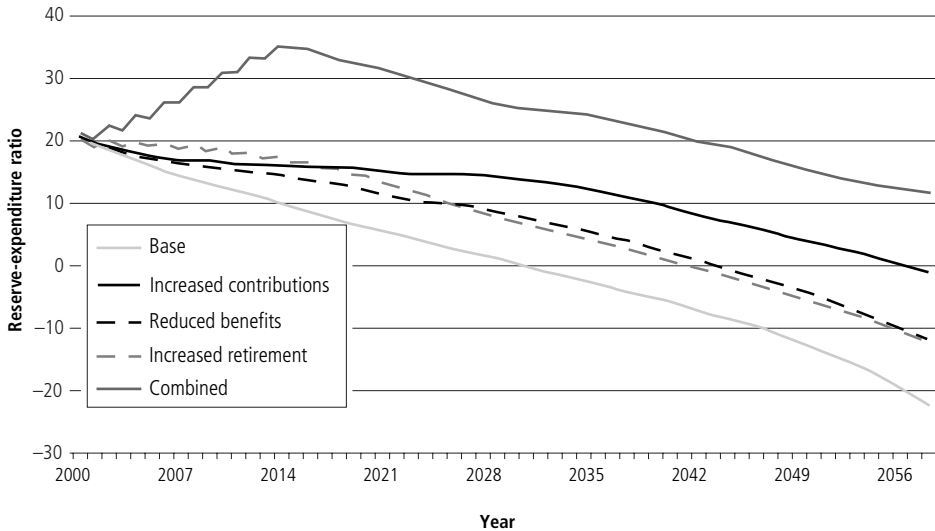
Indicator	Current benefits	After reform
<i>Current pensioners</i>		
Liability	2,560.07	2,560.07
Fund holdings	1,092.77	1,092.77
Surplus/deficit	-1,467.30	-1,467.30
<i>Current contributors</i>		
Liability	5,916.74	4,407.46
Balance of fund	0	0
Net liability	5,916.74	4,407.46
Total to be raised	7,384.04	5,874.76
Equivalent contribution over 60 years (percent)	8.7	6.9
Proposed defined contribution rate (percent)	13.9	11.7
Total contribution rate (percent)	22.6	18.7
Current contribution rate (percent)	13.9	13.9

**Table 11.3. Financial Projections under the Base Scenario in Grenada, 2000–60**  
(Millions of Eastern Caribbean dollars unless indicated otherwise)

Year	Contribution income	Investment income	Benefits	Admin. expenses	Fund holdings at end of year	Reserve-expenditure ratio	Investment yield (percent)	Pay-as-you-go rate (percent)
2000	25.37	13.30	8.20	2.67	223.90	20.6	6.50	2.9
2005	36.16	23.19	21.00	3.36	384.23	15.8	6.50	4.5
2010	52.24	35.39	42.11	4.09	580.87	12.6	6.50	5.9
2015	73.30	48.37	78.58	4.98	784.88	9.4	6.50	7.6
2020	98.33	57.12	137.21	6.05	910.37	6.4	6.50	9.8
2025	132.08	52.62	222.88	7.37	809.38	3.5	6.50	11.7
2030	175.81	24.55	337.59	8.96	312.31	0.9	6.50	13.2
2035	221.11	(52.06)	521.86	10.90	(1,014.32)	(1.9)	6.50	16.1
2040	272.57	(223.48)	803.12	13.27	(3,940.18)	(4.8)	6.50	20.1
2045	327.15	(568.72)	1,226.93	16.14	(9,784.30)	(7.9)	6.50	25.5
2050	388.19	(1,201.98)	1,762.87	19.64	(20,400.97)	(11.4)	6.50	30.8
2055	467.16	(2,245.95)	2,311.66	23.89	(37,745.11)	(16.2)	6.50	33.5
2060	569.47	(3,849.53)	2,863.25	29.07	(64,248.97)	(22.2)	6.50	34.0
General average premium (percent)		14.4						
Current contribution rate (percent)		6.7						

**Figure 11.2. Reserve-Expenditure Ratios under Parametric Reforms in Grenada, 2000–60**

(Percent)

**Table 11.4. Effects of Structural Reform to a Defined Contribution System in Grenada in 2001**

(Millions of Eastern Caribbean dollars unless indicated otherwise)

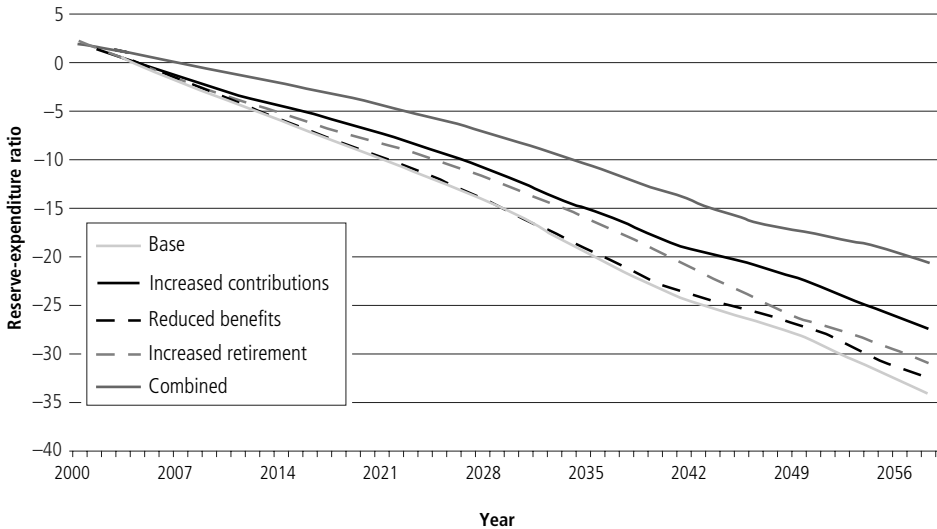
Indicator	Current benefits	After reform
<i>Current pensioners</i>		
Liability	66.63	66.63
Fund holdings	196.10	196.10
Surplus/deficit	129.47	129.47
<i>Current contributors</i>		
Liability	2,124.92	1,467.28
Balance of fund	129.47	129.47
Net liability	1,995.45	1,337.81
Total to be raised	1,865.98	1,208.33
Equivalent contribution over 60 years (percent)	9.4	6.1
Proposed defined contribution rate (percent)	13.9	11.7
Total contribution rate (percent)	23.3	17.8
Current contribution rate (percent)	6.7	6.7

**Table 11.5. Financial Projections under the Base Scenario in Guyana, 1999-2059**  
(Millions of Guyana dollars unless indicated otherwise)

Year	Contribution income	Investment income	Benefits	Admin. expenses	Fund holdings at end of year	Reserve-expenditure ratio	Investment yield (percent)	Expense ratio (percent)	Pay-as-you-go rate (percent)
1999	2,174.53	702.37	3,307.49	1,047.97	8,709.44	2.0	7.30	4.00	16.6
2004	2,924.86	(155.05)	5,356.96	1,409.57	(4,995.68)	(0.7)	7.00	4.00	19.2
2009	4,068.28	(2,318.58)	9,287.97	1,960.62	(40,011.68)	(3.6)	7.00	4.00	22.9
2014	5,567.06	(6,574.55)	15,805.81	2,682.92	(115,523.80)	(6.2)	6.50	4.00	27.6
2019	7,424.84	(15,262.03)	25,954.53	3,578.24	(262,905.50)	(8.9)	6.50	4.00	33.0
2024	9,945.95	(28,673.80)	40,128.52	4,793.23	(526,454.89)	(11.7)	6.00	4.00	37.5
2029	13,326.33	(52,671.80)	57,899.77	6,422.33	(959,244.15)	(14.9)	6.00	4.00	40.1
2034	17,956.68	(82,474.60)	77,461.60	8,653.82	(1,620,419.09)	(18.8)	5.50	4.00	39.8
2039	24,210.76	(131,684.45)	102,606.36	11,667.84	(2,576,812.78)	(22.5)	5.50	4.00	39.2
2044	32,003.45	(204,202.33)	141,164.38	15,423.35	(3,986,975.77)	(25.5)	5.50	4.00	40.6
2049	40,835.07	(312,823.73)	202,086.70	19,679.55	(6,100,833.19)	(27.5)	5.50	4.00	45.1
2054	51,968.16	(473,896.95)	275,035.02	25,044.90	(9,226,783.50)	(30.7)	5.50	4.00	47.9
2059	65,323.01	(707,715.99)	373,873.66	31,480.97	(13,761,035.81)	(33.9)	5.50	4.00	51.5
General average premium (percent)		34.7							
Current contribution rate (percent)		8.3							

**Figure 11.3. Reserve-Expenditure Ratios under Parametric Reforms in Guyana, 2000–60**

(Percent)

**Table 11.6. Effects of Structural Reform to a Defined Contribution System in Guyana in 2000**

(Millions of Guyana dollars unless indicated otherwise)

Indicator	Current benefits	After reform
<i>Current pensioners</i>		
Liability	49,314.95	49,314.95
Fund holdings	10,188.00	10,188.00
Surplus/deficit	-39,126.95	-39,126.95
<i>Current contributors</i>		
Liability	520,093.86	372,431.90
Balance of fund	0	0
Net liability	520,093.86	372,431.90
Total to be raised	\$559,220.81	\$411,558.85
Equivalent contribution over 60 years (percent)	37.4	27.6
Proposed defined contribution rate (percent)	13.9	11.7
Total contribution rate (percent)	51.3	39.3
Current contribution rate (percent)	8.3	8.3

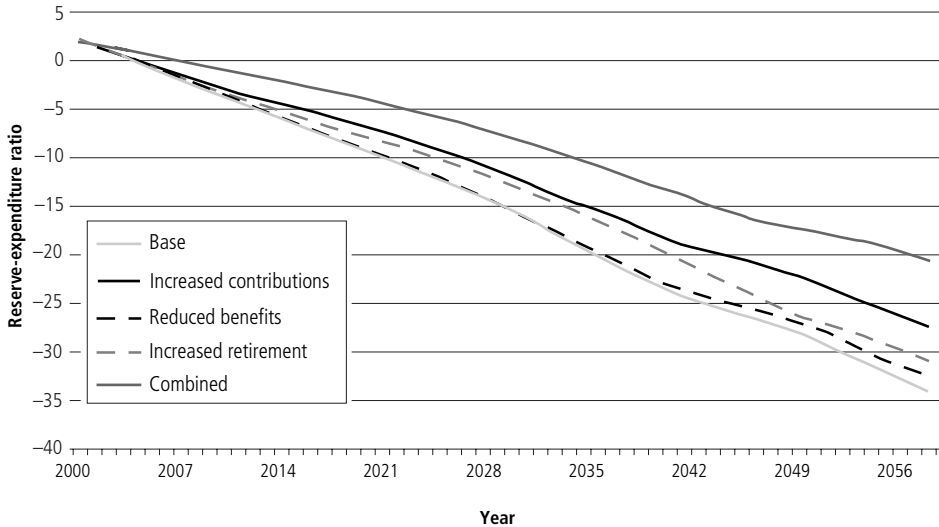


**Table 11.7. Financial Projections under the Base Scenario in Jamaica, 2003–63**  
(Millions of Jamaica dollars unless indicated otherwise)

Year	Contribution income	Investment income	Benefits	Admin. expenses	Fund holdings at end of year	Reserve-expenditure ratio	Investment yield (percent)	Expense ratio (percent)	Pay-as-you-go rate (percent)
2003	2,412.93	1,486.90	2,766.54	310.77	21,508.24	7.0	7.25	6.00	5.1
2008	3,138.16	1,553.10	3,842.51	410.11	24,684.72	5.8	6.50	5.88	5.4
2013	4,098.79	1,594.07	5,471.62	550.30	24,881.55	4.1	6.50	5.75	5.9
2018	5,283.63	1,214.40	8,194.65	758.15	17,683.87	2.0	6.50	5.63	6.8
2023	6,626.94	(236.60)	12,743.38	1,065.37	(8,000.23)	(0.6)	6.50	5.50	8.3
2028	8,163.00	(3,956.93)	19,943.11	1,510.70	(72,233.58)	(3.4)	6.50	5.38	10.5
2033	10,070.03	(11,691.78)	29,270.10	2,065.36	(203,230.65)	(6.5)	6.50	5.25	12.4
2038	12,563.74	(25,390.91)	39,887.67	2,688.13	(432,370.41)	(10.2)	6.50	5.13	13.6
2043	15,784.19	(47,421.20)	51,235.56	3,350.99	(798,054.80)	(14.6)	6.50	5.00	13.8
2048	19,793.72	(81,012.46)	64,727.15	4,120.39	(1,353,945.13)	(19.7)	6.50	4.88	13.9
2053	24,627.65	(131,516.83)	82,961.23	5,110.47	(2,189,130.00)	(24.9)	6.50	4.75	14.3
2058	30,539.14	(206,737.31)	106,319.38	6,329.71	(3,431,531.16)	(30.5)	6.50	4.63	14.8
2063	37,966.17	(317,460.49)	134,568.98	7,764.08	(5,257,533.55)	(36.9)	6.50	4.50	15.0
PV	\$91,179.49		\$205,744.51	\$15,653.59	(110,485.26)				
General average premium (percent)									9.7
Current contribution rate (percent)									4.0

**Figure 11.4. Reserve-Expenditure Ratios under Parametric Reforms in Jamaica, 2000–60**

(Percent)



**Table 11.8. Effects of Structural Reform to a Defined Contribution System in Jamaica in 2003**

(Millions of Jamaica dollars unless indicated otherwise)

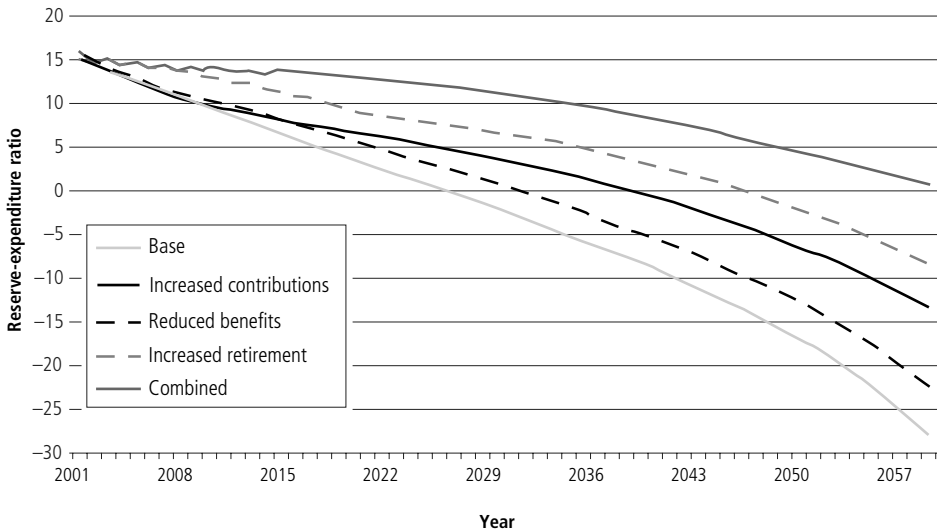
Indicator	Current benefits	After reform
<i>Current pensioners</i>		
Liability	28,685.31	28,685.31
Fund holdings	20,685.72	20,685.72
Surplus/deficit	-7,999.59	-7,999.59
<i>Current contributors</i>		
Liability	50,424.42	47,152.86
Balance of fund	0	0
Net liability	50,424.42	47,152.86
	58,424.01	55,152.45
Total to be raised (percent)	2.6	2.4
Equivalent contribution over 60 years (percent)	10.0	7.5
Proposed defined contribution rate (percent)	12.6	9.9
Total contribution rate (percent)	4.0	4.0
Current contribution rate		

**Table 11.9. Financial Projections under the Base Scenario in St. Lucia, 2001–61**  
(Millions of Eastern Caribbean dollars unless indicated otherwise)

Year	Contribution income	Investment income	Benefits	Admin. expenses	Fund holdings at end of year	Reserve-expenditure ratio	Investment yield (percent)	Expense ratio (percent)	Pay-as-you-go rate (percent)
2001	57.68	32.94	30.14	7.50	588.18	15.6	6.00	1.30	6.5
2005	70.85	45.38	53.99	8.95	801.17	12.7	6.00	1.26	8.9
2010	92.79	59.82	96.80	11.30	1,043.55	9.7	6.00	1.22	11.6
2015	120.36	69.12	159.08	14.10	1,187.69	6.9	6.00	1.17	14.4
2020	150.79	65.17	248.07	16.98	1,085.70	4.1	6.00	1.13	17.6
2025	190.02	35.19	370.56	20.52	510.97	1.3	6.00	1.08	20.6
2030	238.87	(38.43)	529.96	24.70	(849.23)	(1.5)	6.00	1.03	23.2
2040	370.72	(435.99)	1,020.73	34.94	(8,062.52)	(7.6)	6.00	0.94	28.5
2045	436.29	(864.86)	1,396.03	39.12	(15,798.27)	(11.0)	6.00	0.90	32.9
2050	508.62	(1,553.83)	1,834.60	43.28	(28,157.19)	(15.0)	6.00	0.85	36.9
2055	592.07	(2,607.40)	2,322.71	47.66	(46,977.07)	(19.8)	6.00	0.80	40.0
2060	703.69	(4,148.20)	2,791.03	53.42	(74,382.00)	(26.1)	6.00	0.76	40.4
2061	728.44	(4,527.95)	2,896.13	54.63	(81,132.27)	(27.5)	6.00	0.75	40.5
	\$2,147.48		\$4,210.81	\$231.73	(2,320.26)				
General average premium (percent)		20.7							
Current contribution rate (percent)		10.0							

**Figure 11.5. Reserve-Expenditure Ratios under Parametric Reforms in St. Lucia, 2001–61**

(Percent)



**Table 11.10. Effects of Structural Reform to a Defined Contribution System in St. Lucia in 2002**

(Millions of Eastern Caribbean dollars unless indicated otherwise)

Indicator	Current benefits	After reform
<i>Current pensioners</i>		
Liability	180.21	180.21
Fund holdings	535.20	535.20
Surplus/deficit	354.99	354.99
<i>Current contributors</i>		
Liability	3,778.03	2,394.88
Balance of fund	354.99	354.99
Net liability	3,423.04	2,039.89
Total to be raised	3,068.05	1,684.90
Equivalent contribution over 60 years (percent)	14.3	7.8
Proposed defined contribution rate (percent)	13.9	11.7
Total contribution rate (percent)	28.2	19.6
Current contribution rate (percent)	10.0	10.0

### Annex 11.1. Coverage, Benefits, and Contribution Rates for Old Age Pension Systems, December 31, 2002

Country	Retirement age	Total contribution rate <sup>a</sup> (percentage of insurable earnings)	Minimum annual benefit (U.S. dollars)	Maximum pension (percentage of insurable earnings)	Annual ceiling for insurable earnings (U.S. dollars)
Barbados	65	13.9	2,730	60	18,600
Grenada	60	8.7	770	60	13,333
Guyana	60	10.0	685	60	5,255
Jamaica	60–70	5.0	628	30	4,480
St. Lucia	60	10.0	889	65	22,222

a. Includes employee and employer contributions, averaged for employed, self-employed and voluntary contributors. Excludes unemployment and severance benefits in Barbados and employment injury where a separate contribution rate is known.

### Annex 11.2. Financial Status of Old Age Pension Systems, Last Available Actuarial Report Available in June 2003

Country	Holdings (millions of U.S. dollars)	Average annual nominal investment return (percent)	Projected year of exhaustion	Reserve/expenditure ratio	Contributors/pensioners
Barbados	546	7.2 (1994–99)	2028	4.6	3.4
Grenada	85	6.0 (1994–99)	2042	21.2	10.8
Guyana	100	21.9 (1998)	2011	4.1	4.42
Jamaica	370	17.0 (2001–02)	N/A	9.42	4.8
St. Lucia	221	7.0 (2001)	2037	18.9	12.8

### Annex 11.3. Scheme Participation and National Demographics, Latest Published Statistics, June 2003

Country	Contributors	Participation rate (contributors/workforce) (percent)	Life expectancy at birth (male/female)	Fertility rate
Barbados	114,766	92	71.8/76.8	1.7
Grenada	26,800	73	68.3/73.2	2.5
Guyana	233,000	51	63.1/69.4	2.7
Jamaica	300,000	32	73.5/77.6	2.47
St. Lucia	40,014	73	69.0/72.9	2.2

### Annex 11.4. Summary of Old Age Pension Benefits under National Insurance Schemes, Most Recent Available Actuarial Report as of June 2003 with Subsequent Reform Noted Separately

Country	Retirement age	Pension formula	Pension requirements	Minimum pension	Maximum pension	Policy on pension increases
Barbados (before reforms)	65	40 percent of average insurable earnings (over best 3 years) plus 1 percent of total earnings after the first 500 weekly contributions	500 weekly contributions, with at least 150 paid	BDS\$105 a week	60 percent of average insurable earnings	Ad hoc
Barbados (new)	Will increase by 6 months every 4 years starting in 2006 until reaching 67 in 2018. Early retirement with a reduced pension is allowed from age 64	2 percent of final average earnings (over best 5 years) for each of the first 20 years plus 1.25 percent of final average earnings from each year thereafter. This benefit will be phased in over 20 years, with pensioners receiving either 100 percent of the former benefit, 100 percent of the new benefit, or 50 percent of each.	500 weekly contributions, with at least 150 paid	BDS\$105 a week	60 percent of average insurable earnings	Increases targeted at changes in the Retail Price Index

(continued)

**Annex 11.4. Summary of Old Age Pension Benefits under National Insurance Schemes, Most Recent Available Actuarial Report as of June 2003 with Subsequent Reform Noted Separately** *(continued)*

Country	Retirement age	Pension formula	Pension requirements	Minimum pension	Maximum pension	Policy on pension increases
Grenada	60	30 percent of average insurable earnings (over best 3 of past 10 years) for the first 500 weeks of contributions, plus 1 percent for every 50 weeks over 500	500 weekly contributions (paid or credited). Until 2009 a reduced pension is payable if 150–500 contributions are credited	EC\$40 a week	60 percent of average insurable earnings	Ad hoc
Guyana	60	40 percent of average insurable earnings (over best 3 of past 5 years before age 60) plus 1 percent for every 50 weeks over 750	750 weekly contributions, with at least 150 paid	50 percent of minimum wage in public sector. Currently G\$10,972 a month	60 percent of average insurable earnings	Annual pension increases of the lesser of inflation and 10 percent
Jamaica	Benefits provided at 60 for retired women and 65 for retired men; otherwise 65 for women and 70 for men	Basic pension based on average number of weekly contributions each year plus 1.2 percent of average career-long insured earnings	156 weekly contributions, with at least 13 weeks of contributions (on average) for each year contributing to the scheme			Ad hoc increases to base pensions

*(continued)*

**Annex 11.4. Summary of Old Age Pension Benefits under National Insurance Schemes, Most Recent Available Actuarial Report as of June 2003 with Subsequent Reform Noted Separately** *(continued)*

Country	Retirement age	Pension formula	Pension requirements	Minimum pension	Maximum pension	Policy on pension increases
St. Lucia (before reforms)	60	40 percent of average insurable earnings (over best 5 years) plus 0.1 percent of average insurable earnings for each month paid or credited over 132	120 months paid contributions	EC\$200 a month	65 percent of average insurable earnings over best 5 years	Ad hoc – only adjusted twice since 1986
St. Lucia (new in 2003)	61 effective January 2003, increasing by 1 year every 3 years thereafter until reaching age 65. Early retirement with a reduced pension is allowed from age 60	40 percent of average insurable earnings (over best 5 years) plus 0.1 percent of average insurable earnings for each month paid or credited over 144	144 paid monthly contributions, increasing by 12 months every 3 years to 180 months in 2012. Retirees with 120 months of contributions but less than the number required for the pension receive a reduced pension	EC\$200 a month	65 percent of average insurable earnings over best 5 years	Ad hoc



### Annex 11.5. Summary of Disability Pension Benefits under National Insurance Schemes

Country	Pension formula	Duration of benefit
Barbados	Same as previous old age pension (but only requires 150 paid contributions, whereas the old age pension requires 500)	Converted to old age pension at age 65
Grenada	Same as old age pension	Payable for as long as the disability continues
Guyana	Requires 250 weekly contributions, with at least 150 paid. Covers workers age 16–59 who have not been able to work for 26 weeks and are probably permanently incapable of working. Pension is 30 percent of average insurable earnings (in best 3 of past 5 years) plus 1 percent for every 50 weeks over 250. 25 weekly contributions are credited for each year between start of disability and age 60. Minimum pension is 50 percent of the minimum wage; maximum is 60 percent of average earnings (in best 3 of past 5 years)	Converted to old age pension at age 60
Jamaica	Same as old age pension	Payable for as long as the disability continues
St. Lucia	59–119 months of contributions (must have contributed in the 36 months prior to disability): 35 percent of average insurable earnings. Average insurable earnings are the average of the best 36 months of insurable earnings in the past 60  120+ months of contributions: 40 percent of average insurable earnings plus 0.1 percent for each month over 120. Average insurable earnings are the average of the best 36 months of insurable earnings in the past 120	Payable for as long as the disability continues

### Annex 11.6. Summary of Survivor Pension Benefits under National Insurance Schemes

Country	Pension formula	Eligibility	Duration of benefit
Barbados	Share of disability pension: Spouse: 50 percent Child: 16.67 percent (maximum of 3 children) Orphan or disabled child: 33.33 percent Total benefit cannot exceed the disability pension	Deceased was receiving or eligible to receive an old age or disability pension (at least 150 weekly contributions paid) Spouse: married at least 3 years (common-law spouses are eligible) Children: under 16, or 21 if in full-time education	If spouse is under 50 and not disabled, benefit is payable for 1 year If spouse is over 50 or disabled, benefit is payable for life or until spouse is entitled to a larger old age pension If a child is disabled, benefit is payable as long as the disability continues
Grenada	Share of age pension being received or if working the disability pension that would have been paid on disability: Spouse: 75 percent Child: 25 percent (minimum EC\$8.5 a week) Orphan: 50 percent (minimum EC\$17.0 a week) Total benefit payable cannot exceed the old age or disability pension unless due to the payment of minimum pension	Deceased had paid at least 150 weekly contributions Widow: married at least 3 years (common-law spouses are eligible) Widower: married at least 3 years, disabled, and wholly maintained by the deceased (common-law spouses are eligible) Children: under 16, or 18 if in full-time education	If widow is under 50 and not disabled, or married for less than 3 years, benefit is payable for 1 year If widow is over 50 or disabled and married for at least 3 years, benefit is payable for life For as long as the widow maintains the children of the deceased and does not remarry For as long as the widower's disability continues For widows and widowers the benefit ceases upon remarriage or cohabitation If a child is disabled, benefit is payable as long as the disability continues
Guyana	Share of old age or disability pension: Widows and eligible widowers: 50 percent Child: 16.67 percent Orphan: 33.33 percent (maximum 3 children) Maximum benefit is 100 percent of old age or disability pension	Deceased must have been in receipt of an old age or disability pension or eligible to receive one, and have made at least 250 weekly contributions Widow: over 45 and married to the deceased for at least 6 months, permanently incapable of work, pregnant by the deceased, or has a child under 16	Payable for the lifetime of widow(er) and for children until age 18 or for life if disabled

### Annex 11.6. Summary of Survivor Pension Benefits under National Insurance Schemes (continued)

Country	Pension formula	Eligibility	Duration of benefit
Guyana		<p>Widower: over 55 and permanently incapable of work</p> <p>Children: unmarried, under 16</p> <p>Other family members: entitled to a lump sum benefit under special circumstances in the absence of a spouse and children</p>	
Jamaica	<p>Spouse entitled to basic pension plus 50 percent of additional pension</p> <p>Orphan and special children's pensions available in 2003</p>	<p>Same as for old age and disability pensions</p> <p>Both parents (or mother in the case of illegitimate child) have died and 1 parent has made 52 weekly contributions</p>	Payable for the lifetime of widow(er)
St. Lucia	<p>Share of disability pension:</p> <p>Spouse: 50 percent (75 percent if no other dependants exist)</p> <p>Child: 50 percent</p> <p>Parents: 50 percent (if no other dependants)</p> <p>Total benefit cannot exceed the disability pension that was or would have been payable to the deceased at the time of death</p>	<p>Deceased paid at least 60 monthly contributions or in receipt of an age pension</p> <p>Spouse: married at least 5 years (common-law spouses are eligible)</p> <p>Children: under 16, or 18 if in full-time education</p> <p>Parents: of pensionable age</p>	<p>If spouse is under 55 and not disabled, benefit is payable for 1 year</p> <p>If spouse is under 55 and disabled, benefit is payable as long as disability continues or for life upon reaching pensionable age</p> <p>If spouse is over 55 and married at least 5 years, benefit is payable for life</p> <p>If spouse is over 55, married at least 3 years, and an invalid, benefit is payable for life or until spouse is entitled to a larger old age pension</p> <p>Benefit ceases upon remarriage or cohabitation</p> <p>For spouse with eligible children: until the children cease to be dependents.</p> <p>If a child is disabled, benefit is payable as long as the disability continues</p>

## BIBLIOGRAPHY

- Barbados Statistical Service. 2002. *2000 Population and Housing Census Volume 1*. Barbados.
- Central Bank of Barbados. 1994. *Annual Statistical Digest 1994*. Barbados.
- . 1997. *Annual Statistical Digest 1997*. Barbados.
- . 2002. *Annual Statistical Digest 2002*. Barbados.
- International Labour Organization. 2000a. Barbados: Tenth Actuarial Review of the National Insurance Scheme as of 31 December 1999 and Supplement. Geneva.
- . 2000b. Guyana: Fifth Actuarial Review of the National Insurance Scheme as of 31 December 1998. Geneva.
- . 2001. Grenada: Sixth Actuarial Review of the National Insurance Scheme as of 31 December 1999. Geneva.
- . 2002. St. Lucia: Seventh Actuarial Review of the National Insurance Fund as of 30 June 2000. Geneva.
- National Insurance Board. Various years. *National Insurance Board Annual Report*. Barbados.
- National Insurance Corporation. 2001. *Annual Report 2001*. St. Lucia.
- Saint Lucia Government Statistics Department. 2002. *Vital Statistics Report 2001*. St. Lucia.
- Statistical Institute of Jamaica. 2003a. *Demographic Statistics 2002*. Jamaica.
- . 2003b. *Population Census 2001 Jamaica, Volume 1: Country Report*. Jamaica.

## **Old Age Pension Reform in the English-Speaking Caribbean: A Policy Assessment**

*Olivia S. Mitchell and Derek M. Osborne*

**P**olicymakers everywhere are beginning to realize that old age pension systems are subject to potent and growing stresses. Aging populations, combined with rising expectations and volatile capital markets, are seen by many as potentially undermining the promise of financial security in old age. This chapter evaluates the current status and future challenges for old age public pension systems in the English-speaking Caribbean.<sup>1</sup> It draws on recent studies sponsored by the Caribbean Development Bank and Inter-American Development Bank, as well as relevant literature in the broader pension field. The goal is to foster the development of more resilient institutions that can better protect against old age economic insecurity.

The chapter first summarizes the key goals of a retirement system and explains why reforms are needed—along with the constraints that reformers often face. After that it examines the structure of old age pensions in the English-speaking Caribbean, focusing on a few key countries. The discussion explores coverage, benefit formulas, and financing prospects for these systems. The chapter then evaluates steps that have been taken to strengthen old age pension systems, analyzing both unfunded and funded models. The conclusion discusses the key factors required for successful pension reform.

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<sup>1</sup> This chapter does not address private pension programs or schemes designed only for public sector workers. Few data are available on these, particularly for private systems managed by insurance companies, unit trusts, or individual firms. Future work should focus on the importance of these programs in providing retirement income, their costs and funded status, and other aspects.

## Global Overview of Old Age Pension Reform

To assess the proper direction for old age pension reform, it is essential to first clarify what a pension plan is, how it works, and whom it benefits.<sup>2</sup>

### *What Is the Pension Promise?*

A pension represents a long-term promise to pay a retired worker money to support old age consumption. In delivering on this promise, the literature distinguishes between pension plans based on defined contributions and defined benefits (McGill and others 1996). These approaches have different structures and impose different patterns of risk sharing on plan sponsors and participants. The sponsor of a defined contribution plan generally promises to deposit a specified amount into the plan periodically (such as every pay period), while the plan participant (the worker) often adds additional contributions and bears capital market risks associated with the investment returns on these deposits. A defined benefit sponsor, by contrast, promises to pay the participant a specified benefit upon retirement and assumes the risk of setting aside sufficient funds to pay the future benefit.

Neither type of plan is risk-free, because inflation can erode the promise both before and after retirement. For instance, when a defined benefit formula is not adjusted for inflation, or when a defined contribution plan pays a lump sum, retirees are exposed to payout uncertainty due to inflation shocks. Defined benefit plans also face the possibility that the plan sponsor will have insufficient funds to pay the promised benefits.

In the Western world most national programs have taken the defined benefits approach, at least when it comes to the social security pillar of old age retirement systems. These programs often link benefits to a participant's pay and years of employment. For instance, an illustrative formula for a retirement benefit amount ( $B$ ) payable in year  $t$ , granted to a retiree age  $A$  who retired at age  $R$ , could be formulated as:

$$B_t|A,R = b(A, YRS, FAP) * YRS * FAP.$$

<sup>2</sup> This discussion draws on Mitchell (2002), Bodie, Hammond, and Mitchell (2002), and Mitchell and Fields (1994).

Here the benefit ( $B$ ) payable at age  $A$  depends on the worker's retirement age ( $R$ ), years of employment at that date ( $YRS$ ), and final average pay ( $FAP$ ). Consequently,  $b(\bullet)$  represents a mathematical formula transforming the individual's age, years of employment at retirement, and earnings level into a benefit amount. The payout formula might be smooth (say, the worker accrues 1 percent of pay for each year of service), but more often it is nonlinear, with higher benefits for more years of employment and for pay above some threshold.

How generous the benefit promise is depends on what is adequate and affordable, which varies by country and over time. Many industrial nations with multipillar pension plans have found it feasible to provide a benefit of around 30 percent of average earnings from public pension plans, with another 30 percent or more provided by privately managed employer-sponsored plans (World Bank 1994).<sup>3</sup> Poorer countries, countries with much older populations, and countries with incomplete participation in the first-pillar social security system may not be able to do as well. In addition, countries that spend a large portion of pension contributions on inefficient and inequitable administrative structures have less left over to pay benefits.

Some defined benefit plans are funded—meaning that contributions and investment earnings on plan assets conform to actuarial standards, so that money for retirement benefits is segregated and protected. Others are underfunded, with inadequate assets to cover promised retirement benefits. Many national defined benefit plans began as funded schemes, but over time their assets have eroded such that they can cover only a fraction of projected benefit obligations. For example, the U.S. social security system faces an unfunded liability of about 100 percent of GDP (Cogan and Mitchell 2003; Gokhale and Smetters 2003), and other nations suffer from even larger funding shortfalls relative to national output. Another feature of many defined benefit plans is that they often pay benefits in the form of income flows, called annuities, over the life of the retiree. In addition, some countries permit retirees to take lump sums in lieu of annuity payments.

In recent years several countries have adopted defined contribution pension plans. Defined contribution plans tend not to specify a retirement income formula.

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<sup>3</sup> The earnings in question may be averaged over the worker's lifetime (as in career average formulas) or over some shorter period (such as the 5 or 10 highest years of earnings).

Rather, they stipulate a formula for pension fund contributions. Contribution rates vary widely. In Chile—which has one of the oldest national defined contribution plans—the mandatory pension contribution is 10 percent of pay. In Mexico the national system requires a contribution of 6 percent, and in Australia 9 percent. In Singapore the mandatory contribution has been as high as 40 percent of pay. Most defined contribution plans are technically funded, with contributions invested in capital market assets (stocks, bonds, or other financial instruments). Many employer pensions also take the defined contribution approach. For example, in U.S. corporate plans total contributions tend to equal 6–8 percent of pay, while public employee defined contribution plans have total contribution rates of 12–14 percent.<sup>4</sup>

Because defined contribution plan participants bear capital market risks, such schemes tend to offer a range of investment choices—though in some cases the options are restricted by government regulation. In Mexico pension accounts initially could be invested only in inflation-indexed government bonds. In Singapore the government has traditionally paid a specified return to all, while investing funds without participant discretion. Because investment returns are not known in advance, most defined contribution plans do not specify what retirees will receive. Rather, benefit amounts are determined upon retirement, and depend on how much has been contributed and how well invested assets have performed.

At retirement, most defined contribution participants take some or all of the assets as a lump sum (Brown and others 2001). Lump sums can be spent immediately or invested and drawn down based on anticipated life expectancy. (This is the programmed withdrawal or minimum distribution approach seen, for instance, in the Chilean and Mexican pension systems.) Otherwise, participants can convert their assets into annuities by purchasing these products in the retail market; in some cases plan sponsors also offer group annuities to plan participants.

Regardless of plan type, it is common for governments to establish a tax structure that favors pension saving, to encourage provision for retirement. Employer and employee pension contributions tend to be sheltered from income tax when the contributions are made, and investment earnings in pension funds are often permitted to grow on a tax-deferred basis. In such cases the pension plan is considered “tax

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<sup>4</sup> The higher U.S. public plan rates are partly a result of the fact that many public sector workers are not covered by the national social security scheme, whereas private sector workers are almost universally covered.



qualified”—where contributions and earnings are not subject to tax until retirement. Such tax qualification is most valuable to highly paid employees who otherwise would pay high marginal taxes.

Given that a pension is a long-term promise, experts concur that a well-run system is one that holds assets as collateral on participants’ behalf. Actuarial practice stipulates that a well-run plan must have segregated assets held in trust, managed separately from the plan sponsor’s other accounts. Under this interpretation, defined contribution plan assets are the same as plan liabilities, and a funded defined contribution plan is one where participants own contributions and investment earnings.

Similarly, a funded defined benefit plan has sufficient assets to cover promised benefits. Often, however, defined benefit plan sponsors fail to deposit sufficient contributions or earn sufficient returns on invested assets. In such cases current contributions may be used to support current retirees, in which case the plan is underfunded. The most extreme case of underfunding has no assets set aside, in which instance the plan is said to be a pay-as-you-go pension.<sup>5</sup> Many national pension schemes are substantially underfunded, and so face the possibility of running short of financing as the population ages. Thus underfunding poses risks to both plan participants and plan sponsors, who must make up funding shortfalls.

### ***How Can Pensions Help Manage Old Age Risks?***

To design better pension systems, it is useful to identify the main sources of economic insecurity in retirement. Taking a life-cycle perspective, economists hypothesize that workers will build up assets when they are young that they can rely on to finance consumption during retirement. In addition, in many poor countries individual assets are supplemented by informal support from family and community members.

Yet for many reasons this hypothesis may not be accurate. Idiosyncratic or individual risks bring shocks to earnings and health, along with the difficulty of dealing with an unknown life expectancy (Box 12.1). Moreover, some people—particu-

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<sup>5</sup> Most defined contribution pension plans are funded, though some countries (Latvia, Sweden) have adopted “notional” accounts where the government promises a fixed return on worker contributions, yet no individual accounts are invested on workers’ behalf.

larly the very poor—find it very hard to save, since doing so requires deferring consumption when current survival may be at stake. Others fail to save in the expectation that the government will provide old age income and health care. Myopia and procrastination are also problematic, compounded by the difficulty of obtaining and processing information about underlying risks. Another source of idiosyncratic risk is inadequate knowledge about financial markets. That is, ordinary people and their advisers may be poorly informed about volatility in asset returns and inflation rates. Lacking such information, people may make serious mistakes by not saving for their old age needs.

Efforts to plan for retirement and execute a plan are also influenced by systematic risks (see Box 12.1). These include, for example, nationwide (or international) developments in health that dramatically alter an entire cohort's longevity. They also include shocks to capital markets, whether country-specific (such as the recent Argentine devaluation and the Japanese real estate bubble) or global (the East Asian

### Box 12.1. Sources of Old Age Risk

Old age income and health care concerns are influenced by two types of risks: idiosyncratic and systematic.

Idiosyncratic risks derive from:

- *Labor market history*—earnings and benefit coverage patterns, employment and unemployment outcomes, retirement behavior
- *Saving and consumption patterns and asset allocation strategies*—ignorance about retirement goals, financial illiteracy, lack of access to various types of assets, risk preferences and discount rates
- *Morbidity and mortality characteristics*—genetic makeup, health habits, hobbies, workplace exposure, health care throughout life.

Systematic risks derive from:

- *Cohort changes*—unanticipated changes in life expectancies, unexpected increases in health care and long-term care costs
- *Portfolio developments*—unexpected changes in values of housing, pensions, and other assets
- *Macroeconomic performance*—economic booms or busts, increases in global volatility
- *Institutional innovations*—unanticipated changes in tax or government transfer policies (such as social security program insolvency) or in laws or regulations (such as imposition of asset tests to receive transfers).

Source: Derived from Bodie, Hammond, and Mitchell (2002).

financial crisis). Compounding these problems, many national old age systems face insolvency and hence may not be able to keep promises made to retirees without dramatic changes in taxes, benefits, or both.

Funded pension plans can help mitigate the risks of retirement. First, a pension helps workers save because it serves as a self-control device, representing a commitment to save automatically. Second, a pension can offer a cost-effective way to save due to scale economies. If a pension is granted tax benefits as described above, they too can spur asset accumulation.<sup>6</sup> Third, paying pensions in the form of life annuities protects retirees against longevity risk by pooling mortality risk across cohorts.

It is also worth noting that employers value pensions because deferred compensation can enhance productivity, inducing employees to work harder and to remain on the job until the desired retirement age. Yet labor mobility is also beneficial, and recent policy discussions suggest that an international defined contribution model may be recommended for the European Union. Other analysts have suggested devising a regional pension model for Central America and perhaps South America over the next decade. Finally, some employers induce greater effort from employees by requiring vesting, which means that workers become legally entitled to their pension only after a specified number of years of employment. This approach enables the employer to structure a pension that attracts, retains, and pays more to employees who subsequently reveal themselves to be low turnover, and hence more productive.

### ***Pension Reform: Why?***

What prompts pension reform? The key reason is usually system insolvency—meaning that promised benefits cannot be paid given current or projected financing. In Brazil, for instance, spending on pension benefits absorbs such a large portion of some states' revenue that very little financing remains for education, roads, public health care, and other needs (World Bank 2000). The next section discusses chal-

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<sup>6</sup> Indeed, in industrial countries pension saving is highly sensitive to tax deferral policies, with estimated tax elasticities ranging from  $-0.3$  to  $-0.8$ —meaning that a 10 percent reduction in taxes on pensions can boost pension saving by 3–8 percent. Although empirical elasticities are unavailable for developing countries, they may be even larger given the additional opportunities for system participants to evade taxes in countries with large informal labor markets.

lenges facing nations in the English-speaking Caribbean, where financial solvency issues are also important.

In addition to insolvency, several other rationales are offered for pension system reform, many tied to development and growth objectives. One is that moving from a partially to a fully funded system boosts household and national saving.<sup>7</sup> Another is that increased funding can promote deeper, more complete, more liquid financial markets. In addition, some pension systems require reform because schemes have been improperly invested: research shows that the real rate of return on many systems in emerging markets has been quite negative over the past two decades (Palacios 2002).

Still another concern is that unfunded schemes often embody labor market distortions that reduce efficiency and productivity, so pension reform that tightens links between benefits and contributions can be potentially beneficial. Sometimes countries must undertake pension reform when realigning public and private workers' pay and benefit levels, as part of broader efforts to modernize human resource policies and implement performance-based pay mechanisms. Pension reform sometimes also emerges as a byproduct of the global move to privatize state-owned enterprises, including banks, mines, electric utilities, and telecommunications entities.

Another factor driving pension reform in many countries is a growing interest in having workers manage their retirement funds on their own. In the United States popular 401(k) plans allow private workers to select their contribution levels and retirement asset allocations; about half of the U.S. population now owns stock in personal portfolios. Germany, Japan, and Sweden recently also adopted defined contribution plans as part of their national pension systems. Public employees have opted for similar control over their retirement funds—for instance, U.S. federal and military employees may invest their defined contribution plan assets in a range of capital market funds. Recent volatility in global capital markets has spurred interest in safer investments, including government bonds and so-called guaranteed investments (Turner and Rajnes 2003; Walliser 2003).

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<sup>7</sup> The theoretical economics literature indicates that unfunded old age pension systems depress saving because workers rely on future generations to support their old age benefits. Funded systems, by contrast, enhance saving and with it growth. Many empirical studies have been conducted on this issue, with the weight of the evidence supporting the conclusion that funded pensions enhance saving.

Additional objectives must be kept in mind when moving toward a well-designed old age system. Logically, the system must be seen as providing the most affordable balance of adequate benefits and insurance—that is, earnings-related payments in old age. Finally, the costs of managing pension plans are being driven down worldwide, enabling pension investment management to be handled for 10–20 basis points a year (0.1–0.2 percent of plan assets), and even less for large plans. In the English-speaking Caribbean pension management costs are several times higher, suggesting substantial room for increased efficiency.

### ***Pension Reform: What and How?***

What should be the goals of a reformed pension system? Looking across countries, there will always be differences between old age systems due to different emphases on social assistance and social insurance principles. That is, some countries emphasize antipoverty initiatives, while others emphasize earnings replacement. For example, many republics in the former Soviet Union offered generous earnings-linked pensions to workers from key occupational groups such as the military, civil servants, and miners, while retirees outside those groups received little or nothing. In contrast, the Australian government's old age pension system provides benefits primarily to poor people and supplies health care benefits regardless of income.

How redistributive a system is varies by country. For example, in Chile a minimum pension guarantee is financed by taxes, while a privately managed defined contribution pension is financed by payroll taxes. In Colombia 0.5–1.0 percent of worker contributions is used to fund defined contribution investments, while another portion finances a government-run redistributive “solidarity benefit” program. In general, social safety net programs do not handle long-term shortfalls, but rather target inadequate consumption by particular groups. Such programs vary but generally include targeted transfers of cash, food, services, and sometimes public employment.

One drawback of programs that focus on poverty among the elderly is that they are sometimes implemented hurriedly, without considering their long-term consequences for budgets or labor market behavior. In the 1980s, for instance, several European nations offered unemployment bonuses to redundant older workers that enabled them to remain unemployed until they became eligible for early retirement pension benefits. Once in place, these redundancy schemes garnered political

support and came to be viewed as long-term entitlements—making them extremely difficult to change or eliminate. Similarly, such programs can engender long-term changes in behavior, as when unemployment schemes encourage earlier and more costly claims on national old age pension systems.

Though social security and safety net programs are asked to address many diverse problems, the clearest goal of public economic security systems is to ensure minimally adequate consumption in old age. Private systems, by contrast, work best when they focus on the earnings replacement goal. Of course, determining which standard to use for adequate consumption is controversial. One benchmark is the amount of money below which an individual or family in a particular country is said to be in poverty. Alternatively, a standard of relative adequacy is sometimes used, where adequacy is judged relative to consumption before retirement. Because it makes a difference which standard is chosen, decisions must be made about which to adopt, how to design appropriate programs for each target group, and how to allocate budget resources among programs. Only with a national, mandatory system can a government spread income variability risk across generations.

An earnings replacement scheme has several shortcomings, including high costs, inequitable benefits, and often undesirable effects on labor and other markets. Too often, benefits are viewed as an entitlement rather than insurance, producing a clash in perspectives and conclusions. For example, from an insurance point of view, displaced civil servants in Eastern Europe would not be entitled to benefits if they had not paid into unemployment insurance systems. But under an entitlement perspective they could receive benefits if their jobs were declared redundant.

When deciding whom to insure, careful attention must be paid to the target group chosen. Three groups should be distinguished: the poor, the vulnerable, and the losers. Although some analysts speak of the “poor and vulnerable” as if they were the same people with identical economic security needs, this is often inaccurate. Some poor people have an assured income level that is simply very low. Conversely, some vulnerable people are quite well off, yet are vulnerable because their earnings are variable. Because some (but not all) poor people are vulnerable and some (but not all) vulnerable people are poor, policymakers must decide which of these groups to target with economic security systems. (To the extent that some of the largest losers are those who start in the best initial position, and hence have the most to lose, efforts to compensate them may be regressive.)

Turning to the management functions of a pension system, every pension plan has four crucial functions, regardless of what types of employees are covered or whether it is a defined benefit or defined contribution plan:

- Collecting contributions or taxes
- Managing investments
- Providing record-keeping and reporting
- Paying benefits to beneficiaries.

*Collecting contributions or taxes* refers to the way that funds enter the plan. This is often problematic in developing countries because of tax evasion and because government entities sometimes fail to deposit funds into pension accounts. Failure to contribute has been common among state-owned enterprises in Asia, leaving pension plans with little recourse to make benefit payments when funds are short. Mexico has managed to expedite the pension contribution process and curtail evasion by having employers submit payroll information electronically. It also requires that sponsors invest contributions within seven business days of receiving them.

A pension plan's second management function is to *manage investments*, or take plan assets to capital markets for investment purposes. This requires the plan to determine investment policy, select investment managers, pay investment management fees, and review performance. Some old age systems are required to invest their reserves according to stringent "legal lists" of approved investments, while others have freer rein to seek diversified investment portfolios. Most analysts agree that plan trustees should invest funds so as to earn strong returns without taking unnecessarily high risks, while maintaining sufficient liquidity.<sup>8</sup> In general, requiring that pension assets be invested only in government bonds or local assets exposes funds to a host of macroeconomic, tax, and other risks (Palacios 2002). Increasingly, regional and global investment diversification is considered a sensible approach (Cifuentes and Larrain 1999; Srinivas and Yermo 2000). In any case, it is essential to establish good governance requirements so that assets are invested transparently and in the best interests of plan participants (Useem and Mitchell 2000).

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<sup>8</sup> Global standards for investment performance have been devised; see [www.aimr.org/standards/pps/gips\\_standards.html#preamble](http://www.aimr.org/standards/pps/gips_standards.html#preamble).

The third pension plan management task is to *keep records and prepare reports for stakeholders*. This is essential for tracking employees and employers who have contributed (or had funds contributed on their behalf), for how long, and at what rates; such data are crucial for establishing benefit eligibility and determining benefit levels. In addition, investment activity requires periodic reports on plan assets and liabilities, current and projected, and these depend on accurate records in computer-readable formats. Reporting tasks also include assessments of services provided (such as taxes collected, investments managed, and benefits disbursed), of participant grievances and resolutions of these, and of system administrative costs and financial solvency.

The fourth pension management task is the plan's ultimate goal: *paying benefits to beneficiaries*. Plans are sometimes criticized for taking too long to determine eligibility for, award, and pay benefits. Some pension systems have also suffered charges of fraud and abuse, as when poor government record-keeping permits ineligible persons to receive benefits.

### ***Transition from Pay-as-You-Go to Funded Plans***

For several reasons the transition from an unfunded to a funded pension system is often far from simple (Demarco and Rofman 1999). First, in an unfunded scheme current workers support current retirees and expect their retirement benefits to be paid by the next generation of workers. Second, supplanting an unfunded with a funded system involves moving to a prefunded system, which generally requires cutting benefits or increasing contributions.

How such costs are allocated across generations depends on the specifics of the transition plan, and many options are available. One requires workers to “pay twice”—that is, continuing to support retirees (perhaps at reduced levels) while also contributing to funded investment accounts on their own behalf. Alternative approaches split transition costs between retirees and workers, and sometimes postpone costs by having unborn taxpayers bear some of the burden. How politically feasible these alternatives are generally depends on how constrained today's workers are in terms of access to capital markets, how myopic consumers are, and how willing tomorrow's workers are to support their parents in retirement.

Although there is no simple way to sidestep the transition costs of pension reform, there are ways to smooth them. For example, parametric changes could in-



clude expanding definitions of covered compensation (for example, including bonuses as well as basic pay when calculating contributions owed), boosting tax rates and earnings limits on contributions, increasing the number of years of required contributions, and raising other taxes dedicated to the public pension system. Simultaneously, mechanisms are often adopted to cut system costs and reduce underfunding—for example, curtailing benefit promises (for example, by raising the retirement age and linking it to life expectancy, as in Sweden), adjusting benefit formulas (as in Brazil), and limiting cost of living adjustments (as in the United States in 1983).<sup>9</sup>

If such parametric changes are insufficient to restore a pension system's solvency, more fundamental structural reforms may be attempted, following the lead of many Latin American nations over the past two decades. Chile, for instance, closed dozens of bankrupt, occupation-based pension schemes in 1981, replacing them with a mandatory national defined contribution system. Similar large-scale reforms were also implemented thereafter in Argentina, Bolivia, Colombia, Mexico, Peru, Uruguay, and several other countries, offering models of pension reform for other countries around the world (Barreto and Mitchell 1997).

How should participants' accrued rights and benefits be handled when moving to new pension systems? Many Latin American countries have issued recognition bonds, which are usually nonmarketable government bonds representing workers' claims on future retirement benefits, in recognition of past contributions. Such bonds are generally accompanied by reductions in benefits and increases in retirement ages and required years of contributions—reducing the unfunded liabilities of national social security systems.<sup>10</sup> But converting such implicit debt into explicit offerings may make it harder to adjust future benefits, if necessary, because formalizing benefit obligations may lead system participants to consider the promises more binding than otherwise. An alternative response to the acquired rights problem is to recast part of

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<sup>9</sup> Such adjustments sometimes reduce benefits for low-wage workers and those with short periods of labor market activity—such as women and informal sector workers.

<sup>10</sup> Recognition bonds tend to be used in the process of curtailing the implicit debt of an old public pension plan, making the system more solvent. For instance, in Chile active workers cannot redeem their recognition bonds until retirement. The bonds cannot be spent all at once, but instead are paid as life annuities based on their face value and a government-set interest rate. Most important, the value of the bonds was set after cutting benefits under the old system. In Peru recognition bonds generated by moving from old unfunded defined benefit plans to a national defined contribution system were frozen in nominal terms when the new system was implemented.

public employees' pension as a partially guaranteed government payment payable from the (continuing) first-pillar government-run system. (Uruguay did this, as did the United States under its federal employee plan; see Hustead and Mitchell 2000.)

Defined benefit and defined contribution pension systems differ in their promised benefits and in the nature of the risks borne by employees and plan sponsors. Defined benefit plans have been more traditional in past decades, but in many countries defined contribution pensions are now very popular. Moving to a long-term sustainable public pension system of either kind requires carefully assessing plan assets and liabilities, marking both to market, projecting plan revenue flows and asset stocks, and evaluating the sensitivity of projections to changes in future assumptions. Only with a full assessment of plan assets and the present value of the system's liabilities can the full extent of the underfunding problem be known. Thus a careful, complete projection exercise is essential to provide the impetus for reform and to assess the costs and benefits of any pension changes.

### **Old Age Pension Systems in the English-Speaking Caribbean**

Individual Caribbean governments are ultimately responsible for the operation of their countries' social security schemes. But quasi-government corporations—with boards of directors comprising representatives of government, labor, and employers—often oversee the administration of such schemes. For this reason the main role of central governments is to focus on making policies and legislating changes to the acts and regulations that govern these schemes.

All of the 16 English-speaking Caribbean countries have social security schemes that provide a wide array of pensions and short-term income replacement benefits and, in most cases, employment injury benefits as well.<sup>11</sup> Coverage tends to include both employed and self-employed persons, although compliance levels among self-employed (and informal sector) workers tend to be low. Employers and employees share contributions, with employers often paying slightly more than employees. Al-

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<sup>11</sup> This chapter defines the English-speaking Caribbean as Anguilla, Antigua and Barbuda, Bahamas, Barbados, Belize, British Virgin Islands, Dominica, Grenada, Guyana, Jamaica, Montserrat, St. Kitts and Nevis, St. Lucia, St. Vincent, Trinidad and Tobago, and Turks and Caicos. For good discussions of old age systems in the English-speaking Caribbean, see Alleyne (2001), Dowers, Fassina, and Pettinato (in this volume), Forde (2001), Osborne (2001); Pettinato (2003); and Working Group (2001).

though a single rate is charged for the bundled benefits package, accounting rules often separate revenue and spending for the various benefits. To the extent that short-term income replacement and employment injury systems are often funded on a pay-as-you-go basis, contributions to these tend to closely match expenditures. The balance of contributions not allocated to these benefits goes toward pensions. While most English-speaking Caribbean countries have overall combined contribution rates of 8–12 percent of insurable wages, the amount allocated to pensions is slightly lower, at 5–8 percent of insurable wages.

### *Costs and Challenges*

One factor that has contributed to the unsustainability of old age schemes in the English-speaking Caribbean is the high cost of plan administration. In many countries more than 15 percent of contributions goes toward administrative costs, representing 1–2 percent of insurable wages. The programs involved include old age, invalid, and survivor programs, and sometimes include noncontributory benefit schemes for people who fail to qualify for contributory pensions and who pass means tests.

Most pensions in the English-speaking Caribbean are based on a defined benefit structure, with monthly pensions usually based on the number of contributions and on the highest average wage over the three to five years before retirement. However, Trinidad and Tobago provides a nonindexed pension based on career earnings, while Jamaica provides flat rate plus earnings-related benefits. In most English-speaking Caribbean countries the normal retirement age is 60, but it is as high as 65 in a few cases (Table 12.1). In addition, many people can apply for old age benefits even if they have not fully withdrawn from the labor force.

Relative to U.S. and Canadian social security schemes, the pensions offered by English-speaking Caribbean countries tend to be quite generous in an earnings replacement sense. The maximum benefit is generally about 60 percent of participants' average insurable earnings in the final three to five years of employment, and this maximum can often be achieved after 30–35 years of contributions. In addition, benefits accrue quickly early in life, usually totaling 30–40 percent of earnings after 10 years of contributions, with 1 percent added each year thereafter. In the United States, by contrast, the social security system replacement rate averages 40 percent of preretirement pay after a typical working life of 40 years.

Table 12.1. Features of Old Age Pension Systems in the English-Speaking Caribbean

Country	Year started	Annual earnings ceiling (U.S. dollars)			Employees	Employers	After 10 years	Maximum	Normal (early) retirement age	Reserves/ spending, 2000	Admin. expenses (percentage of contribution), 2000	Real return, 1991–2000
		Employees	Employers	Maximum								
Anguilla	1982	22,472	5	5	5	30	60	65	16.5	16.9		
Antigua	1973	20,225	3	5	5	25	50	60	12.5	15.0		
Bahamas	1974	20,800	3.4	5.4	5.4	30	60	65 (60)	9.2	18.6	5.0	
Barbados	1967	18,788	7.25	8	8	40	60	65 (64)	5.0	6.2	4.7	
Belize	1980	8,320	1.0–3.5	3.5–6.0	3.5–6.0	30	60	65 (60)	8.7	52.2 <sup>a</sup>		
British Virgin Islands	1980	23,400	4	4.5	4.5	30	60	65	32.4	13.7		
Dominica	1976	22,472	3	7	7	30	70	60	8.5	18.4	3.6	
Grenada	1983	13,483	4	5	5	30	60	60	17.2	12.2	4.2	
Guyana	1969	5,064	4.8	7.2	7.2	40 <sup>b</sup>	60	60	4.0	16.2	5.2	
Jamaica	1966	4,464	2.5	2.5	2.5	12	50	60F, 65M	9.4 <sup>c</sup>	10.1 <sup>c</sup>		
Montserrat	1986	11,685	3.5	4	4	30	60	60	10.0 <sup>a</sup>	35.7		
St. Kitts and Nevis	1978	29,213	5	6	6	30	60	62	18.5	19.2	2.5	

(continued)

**Table 12.1. Features of Old Age Pension Systems in the English-Speaking Caribbean** (continued)

Country	Year started	Annual earnings ceiling (U.S. dollars)	Contribution rate (percent)		Replacement rate (percent)		Normal (early) retirement age	Reserves/spending, 2000	Admin. expenses (percentage of contribution), 2000	Real return, 1991–2000
			Employees	Employers	After 10 years	Maximum				
St. Lucia	1970	22,472	5	5	40 <sup>d</sup>	60	61 (60)	18.6	12.7	2.9
St. Vincent	1987	16,944	2.5	3.5	30	60	60	19.7	15.3	
Trinidad and Tobago	1972	6,873	2.8	5.6	30	60	60	16.1	7.1	
Turks and Caicos	1992	31,200	4	4	30	60	60	9.6 <sup>a</sup>	16.7	

a. Data are for 1999.

b. After 15 years.

c. Data are for 2002.

d. After 12 years; increasing to 15 years in 2012.

Source: Authors' calculations; various actuarial and annual reports.

Unlike in many industrial countries, in the English-speaking Caribbean ceilings on insurable earnings and benefits are not necessarily related to average wages (see Table 12.1). At the same time, tax and contribution ceilings are typically not increased automatically in the English-speaking Caribbean. For this reason periodic government interventions have been required to ensure that tax bases rise with earnings. Due to political pressures, contribution ceilings have often gone for as many as 15 years without being increased, making the programs less appealing to middle and high-income workers. On the other hand, benefit increases for pensioners have occurred more frequently and tend to compensate for inflation. Indeed, some benefit increases have exceeded changes in costs of living, adding extra long-term costs to the schemes. As a result the imbalance between increases in benefits and tax ceilings raises serious questions about the systems' long-term financial viability.

In the near term, however, many old age schemes in the English-speaking Caribbean are cash-flow solvent, having accumulated large pools of reserves due to contribution income exceeding spending in most years since they were established. Most pension fund reserves range from 4 to 20 times annual spending, and are more than 30 times spending in the British Virgin Islands. Though these schemes are nowhere near fully funded on an actuarial basis, their substantial reserves represent an important source of anticipated financing that will be important when system expenditures begin to exceed contributions and investment earnings.

One challenge facing English-speaking Caribbean schemes with large reserves is a lack of suitable investment opportunities. Until recently most schemes invested all their funds locally. Increasingly, however, some have devoted small portions of their assets to regional investments, with a few having small international portfolios. In general, the region's social security funds have been managed conservatively and passively. With few other investment vehicles available, many are highly concentrated in government securities or in fixed deposits at commercial banks with majority government ownership.

For schemes heavily invested in government securities, the financing challenge will begin long before reserves are exhausted. When cash-flow deficits first occur, sponsoring governments will have to choose between boosting general taxes or cutting spending, in order to redeem these bonds. Social security schemes could also raise their taxes—boosting contribution rates—to meet current expenditure needs.

Since the population that pays general taxes overlaps extensively with social security contributors, the economic effect of increasing general taxes or contribution rates could be similar.

By law, every social security fund in the English-speaking Caribbean undergoes an actuarial review every three to five years. In addition to financial and demographic projections, actuaries must provide policy advice on scheme designs, benefit provisions, and future operations. Only recently have some English-speaking Caribbean countries undertaken projections extending beyond 30 years. Accordingly, the extent of the long-term financial challenges confronting these schemes has typically not been revealed to sponsoring governments or future retirees.

U.S. social security actuaries recently adopted explicit long-term financial measures to reveal the actuarial status of the fund in perpetuity (Trustees of the Social Security Administration 2003). By contrast, actuaries in the English-speaking Caribbean are usually able to report that a scheme is adequately funded for the short term, but are not asked to evaluate its sustainability in perpetuity. Their reports do indicate when a fund is unsustainable for the long term at current contribution rates. They also indicate when cash-flow deficits are expected to begin, when a fund is likely to become exhausted, and projected pay-as-you-go rates to maintain solvency on a cash-flow basis. Unlike in the United States, the reports do not give the alternative view—that is, illustrating how much benefits would have to be cut to bring the system into financial balance.

Based on the best information, given current contribution rates and pension provisions as well as projected demographic changes, all the English-speaking Caribbean schemes reviewed here are likely to be unsustainable over the long term. While most countries in the region have relatively young populations, substantial declines in fertility over the past two decades—to near or below replacement rates—and improvements in life expectancy will produce dependency ratios like those in industrial countries over the next 50 years. Recent actuarial projections suggest that cash-flow deficits could begin within 20 years, and program funds could be exhausted in 25–35 years if reforms are not made.

The projected timing of these events and the growth pattern of expenditures depend on factors related to the schemes themselves—years of existence, contribution rates, current funding levels, eligibility for and benefit levels of pensions, investment returns, and administrative costs. While future economic growth and migration

will also have a major impact on the long-term viability of these schemes, depletion of reserves is expected due to contribution rates being below the average long-term cost of benefit promises, along with an expected drop in the number of contributors per pensioner.

For most schemes in the English-speaking Caribbean, contribution rates were initially established under the scaled premium method of financing for an initial period of equilibrium. Thus the framers anticipated that contribution rates would have to be raised in the future. Most of the region's schemes have not reached the point where expenditures exceed contributions, so no tax increases have been needed thus far. Among countries that have had to use portions of their investments to cover expenditures, only Guyana has made a small rate adjustment, while Barbados has adjusted contribution rates five times as well as changed the benefit formula to help cover growing expenditures.

Table 12.2 highlights findings from recent actuarial reviews for four English-speaking Caribbean countries. The data represent financial projections for the entire social security benefits package, including pensions, short-term payouts, and employment injury benefits. Although the current financial positions of the various schemes differ, their projected futures are the same, with depleted reserves and high pay-as-you-go rates forecasted. The countries have different demographics and economies as well as contribution and pension provisions, making a simple comparison less than fully informative. Nevertheless, in all four countries annual contributions are projected to be inadequate to cover annual benefits in the near term—with the due date already having passed in the Bahamas and just seven years away in Barbados and St Lucia. These near-term challenges were sufficient to prompt systemic reforms even though reserve ratios remained positive.

If governments in the English-speaking Caribbean want to maintain the defined benefit structure and bring long-term sustainability to pension programs, further reforms are needed to increase system revenues, reduce expenditures, or both. Such changes could include:

- Cutting promised benefits
- Reducing administrative costs
- Increasing investment returns
- Raising contributions.



**Table 12.2. Financial Indicators for Old Age Systems in Selected Caribbean Countries**

Country	Reserves/ spending, 2001	Contribution rate (percent), 2001	Year of contributions spending	First year of cash-flow deficit	Year reserves exhausted	Average premium needed (percent) <sup>a</sup>	Pay-as-you-go rate (percent) <sup>b</sup>	
							2001	2060
Bahamas	9	8.8	2001	2019	2029	16	9	24
Barbados (before 2003 reforms)	5	13.9	2011	2018	2028	21	12	30
Grenada	15	9.0	2016	2031	2042	12	6	22
St. Lucia (before 2001 reforms)	19	10	2011	2025	2037	18	5	31

a. Premium needed to cover expenditure over the projection period, which is 60 years for the Bahamas, Barbados, and St. Lucia and 50 years for Grenada.

b. Tax rate required to collect enough contributions to cover that year's spending.

Source: Bahamas 2001 actuarial review; Barbados 1999 actuarial review; Grenada 1999 actuarial review; St. Lucia 2000 actuarial review.

The first three changes require reviewing current systems, eventually leading to refined programs that offer reasonable, equitable, and affordable benefits, are operated efficiently, and maximize investment returns. Increasing contributions could then be seen as a final step toward strengthening programs for future generations. One nonfinancial reform that is also required is removing most political intervention, so that schemes keep up with changing socioeconomic conditions.

Specifically, governments currently decide on the timing and magnitude of increases in earning ceilings and pension payments. When such changes are made—or avoided—the decisions are often politically motivated. Moreover, there is often not a sound basis for whatever adjustments are made. For pensions especially, underfinanced benefit increases tend to occur with depressing regularity during election campaigns. If the rules governing such adjustments were guided by regulations, social security scheme coverage and benefits would more likely be affordable.

### ***Recent Reforms***

The structure and pension provisions of social security schemes in the English-speaking Caribbean are similar to those when the systems were established—in some cases almost 40 years ago (see Table 12.1). Several countries have proposed reforms in recent years, but only Barbados and St. Lucia have made meaningful changes aimed at strengthening their systems. Barbados introduced the following changes in January 2003:

- The contribution rate is being increased by 1 percentage point of insurable earnings each year for four years (shared equally by employees and employers).
- The ceiling on insurable earnings will now be increased in line with the annual increase in national average wages.
- The retirement age for a full pension will be raised by six months every four years starting in 2006, until reaching age 67 in 2018.
- A flexible retirement age was introduced, gradually allowing workers to become eligible for pensions at any age from 60 to 70 with actuarially adjusted pensions.
- The calculation of the old age pension became based on the average wage over the five highest years instead of the highest three.

- The replacement rate for the retirement pension will be changed over 20 years from 40 percent of average insurable wages after 10 years of contributions plus 1 percent for each year thereafter, to 2 percent of average insurable wages for each of the first 20 years of contributions plus 1.25 percent for each year thereafter.
- Pension benefits will now be increased each year by the lesser of the three-year average of wage or price increases.

In St. Lucia amendments made in 2001 increased the pensionable age from 60 to 65 over 15 years, gradually increased the number of years of contributions required to qualify for a pension from 10 to 15, and reduced the maximum benefit percentage from 65 to 60 percent.

The relatively young populations in the English-speaking Caribbean may be one reason social security systems have been perceived by the public primarily as providing insurance for loss of income during working years (sickness and maternity). In addition, the large reserves that have built up in the systems have tended to mask the looming financial challenges over the next 30 years. Actuarial reports are required by parliaments, yet reporting standards vary across countries—so information on the timing of fund depletion and projected costs may be difficult for the public to observe. And in some cases the challenges facing old age systems may appear so distant that governments have not bothered educating their citizens about the advantages of near-term reforms to avoid more drastic future changes.

The various paths for pension reform can be illustrated in terms of the differences between the alternatives, which span the following:

- Maintaining current pension provisions and contribution rates and when reserves are exhausted, cutting benefits to return to a pay-as-you-go system
- Raising contributions to a level considered affordable to employers and workers, then determining what pensions can be financed from those contributions.

Of course, one could also take an intermediate approach—namely, move to a sustainable pay-as-you-go system that maintains some cash-flow solvency, with reserves equal to around twice expenditures in 60 years.

Recent reforms in Barbados will result in the contribution rate rising from 15.25 percent of earnings currently to 18.25 percent by 2006. Thus it may be inferred that to Barbadians, this level of contributions for national short-term and employment injury benefits and pensions is acceptable.<sup>12</sup> About 3 percent is required for nonpension benefits and administrative costs, leaving 15 percent for old age benefits. In Latin America defined contribution pension schemes tend to charge about 10 percent of wages. Therefore, to illustrate the implications of each of the three alternatives described above, projections of the Bahamas National Insurance Scheme have been performed assuming that the maximum rate affordable for pensions only would be 15 percent under a partially prefunded scheme and 18 percent if the program remained pay-as-you-go.

The Seventh Actuarial Review of The Bahamas National Insurance Fund as of 31 December 2001 was recently released. Projections under the intermediate scenario suggest that the fund will encounter its first cash-flow deficit in 2019 and be depleted in 2029 if the current contribution rate and benefit provisions are not changed. The report also indicates that the level of the average premium required to cover benefits over the next 60 years is 15.5 percent, that the pay-as-you-go rate will increase from 9 percent in 2002 to almost 25 percent in 2061, and that the present value of the contribution shortfall is \$3.4 billion—three times current reserves.

Table 12.3 illustrates some alternatives that would result in a sustainable pay-as-you-go system for the Bahamas. The alternatives reveal that achieving pay-as-you-go sustainability, along with a reserve cushion, is possible through parametric reforms. But the necessary changes will be significant and more than likely unpopular. While the specific alternatives outlined for the Bahamas might not exactly match those needed for other countries in the region, similar reforms will be required in countries where the maximum benefit percentage exceeds 50 percent and contribution rates for pensions are less than 8 percent of covered earnings. Alternatively, where system revenues exceed benefit payments and reserve ratios are positive, there would be time and financing to move to a fully funded defined contribution system if this were deemed economically and politically sensible.

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<sup>12</sup> Compared to other countries, Barbados has a much older population and has made several increases to rates before.

**Table 12.3. Illustrative Parametric Reforms Sufficient to Sustain a Pay-as-You-Go System for the Bahamas**

Maintain current contribution rate and benefit provisions; when reserves are exhausted, cut benefits to sustain an affordable pay-as-you-go system	Raise contribution rate to 15 percent and reduce benefits to fit within that pay-as-you-go budget	Trim benefits and raise contribution rate to achieve pay-as-you-go system with long-term reserve ratio of twice annual expenditures
In 2029 reduce pension payouts by 30 percent	Raise contribution rate to 15 percent over seven years; reduce accrual rates and maximum benefit percentage from 60 to 50 percent	Raise contribution rate to 12 percent, reduce accrual rates and maximum benefit percentage from 60 to 50 percent, index pensions by 0.5 percent below inflation
Keep contribution rate under 18 percent	Higher reserves ratio: 15 times expenditures in 2061	Lower reserves ratio: 2 times expenditures in 2061

*Source:* Authors' calculations.

### The Path to Successful Reform

Numerous practical, economic, and political issues await would-be reformers of old age systems. Without a doubt, the first task is to conduct a comprehensive evaluation of old age system liabilities using modern actuarial techniques and practices. This should include not only the program conventionally known as social security benefit offerings, but also any public or quasi-public pension benefit promises—including statutory boards, which are prevalent in the English-speaking Caribbean. Only in this way will policymakers, taxpayers, employees, and retirees be fully aware of the health, or weaknesses, of the old age systems under which they live.

In the process the actuaries and policymakers must assess the path of costs and benefits of the existing system, and report results in a way that participants can understand. This often requires a process of education and communication, because politicians are often unaccustomed to having to take a 75-year or longer horizon when discussing program benefits and costs. Yet without a long horizon stakeholders may be lulled into complacency, thinking their system is well financed in the short term, when in fact it may be in serious arrears in the long term. And in pensions it is often essential to move with sufficient time to change rules, before a crisis hits.

### *Parametric Reforms*

Having estimated financial problems confronting the nation's old age system, the next step is often to undertake parametric reforms. The goal at this stage is usually to develop a menu of measures that can help control program expenditures and increase revenues, both for the short run and for the long term. These may include:

- Boosting pension system contributions and raising the income cap so that more earnings are subject to the contribution rate
- Increasing penalties for employers and employees who do not contribute
- Boosting the number of years of contributions required for benefit eligibility
- Raising the age of early retirement, normal retirement, or both
- Increasing the number of years of earnings included in the benefit formula
- Reducing benefit levels, indexing benefits, or both
- Indexing retirement ages to life expectancy
- Investing pension system trust funds to earn higher returns (Schwarz and Demirgüç-Kunt 1999).

In addition, cost savings can be achieved by containing administrative costs and enhancing service in existing social security systems. For example, international lending organizations have often found it beneficial to modernize and computerize national information systems, with better record-keeping for both the tax collection phase and the benefit payout phase. In addition, many pension systems in Latin America have not developed or implemented performance standards for their service delivery (Mitchell 1998a). As a result inefficiencies creep in and systems fail to maintain a client or customer perspective. Programs should also make a serious effort to devise favorable tax regimes (Dilnot 1996), as well as communications and education campaigns to raise public awareness about tradeoffs in retirement systems, financing problems, and anticipated benefit and tax changes.

### *Comprehensive and Systemic Reforms*

Although some countries will stop at this stage, others may have to undertake more comprehensive and systemic reforms of their old age retirement systems. This may

be because a first-pillar pay-as-you-go pension program needs to be supplemented by private or employer plans (or both), or it might be because there is political will to replace the pay-as-you-go system with a national defined contribution plan. While choosing this reform path poses some technical and political pitfalls, many Central and South American countries have gone this route, and there is much to be learned from their experiences (see Demarco and Rofman 1999).

Again, an initial requirement is to outline plans for a new, affordable, sustainable, and probably multipillar pension system providing a floor of protection, on top of which a funded and probably mandatory national second-pillar pension can be added. Many countries may also want to lay the groundwork for a third pillar of voluntary funded private accounts. To pave the way for comprehensive restructuring of the national retirement income system, it is necessary to estimate the cost of moving toward the new system and to devise a timetable and performance standards required in implementing the new system, including targets for international investment opportunities.

Countries that have moved from an underfunded public pension program to a funded pension pillar have found that the institutional strengthening and restructuring described above are also important here (Cifuentes and Larraín 1999). That is, the national insurance system must usually be modernized, records must be computerized and regulatory systems streamlined; and a blueprint must be developed of institutions supportive of a funded pension system. These institutions include complementary insurance and annuity markets, as well as the data needed to facilitate the smooth working of these important products.<sup>13</sup> The effort must also involve estimating costs for the transition process.

### *Drawing on Experiences Elsewhere*

Experiences from Latin American countries may be instructive. For example, Mexico introduced a national mandatory defined contribution system at the end of the 1990s, and the system appears to be working satisfactorily along many dimensions (Mitchell 1999). The system consists of a first-pillar minimum benefit guaranteed by the state

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<sup>13</sup> Issues related to insurance and annuity markets are elaborated in Mitchell (2002). In addition, one might anticipate that a market could develop to reinsure risks of pension systems, but at present this is not a reality.

and a second-pillar program with mandatory defined contribution individual accounts financed by a 6.5 percent employee payroll tax and a “social quota” provided by the government from general revenue, valued at about 2.2 percent of a low earner’s wage. Unlike the Chilean model, where individual agents were initially used to collect contributions, in Mexico the funds are collected from employers and then deposited in designated “receiving banks” that transfer the money to the Central Bank of Mexico. Subsequently the contributions are deposited with the privately operated pension fund manager selected by each worker. Initially there were 17 pension funds (known as AFOREs) that held mostly indexed government bonds, but over time there has been consolidation, and the remaining funds have slowly been permitted to liberalize their investment holdings. To hold down costs, discourage plan churning, and preserve scale economies, workers are not permitted to change their AFORE more than once a year.

The most innovative aspect of the new system is that reporting of financial flows is handled by a private data collection firm that centrally gathers daily fund flows and affiliate data. Supervisory responsibility for the system is assigned to a pension agency that oversees the entire private pension structure. Retirement benefits in the Mexican system are provided when workers are at least 65 and have contributed to the plan for at least 24 years. Benefits are a function of each worker’s AFORE accumulation, and can be used to purchase an annuity (from a private insurance company) or paid as a programmed withdrawal as long as the monthly payment is at least as large as the minimum pension guaranteed by the government. The guaranteed minimum pension is equal to the minimum wage in Mexico City or about 40 percent of the average wage. Early retirement is permitted only if a worker’s AFORE accumulation is sufficient to pay for a benefit equal to at least 130 percent of the minimum pension.

One positive feature of the Mexican pension reform is that contributions are centrally collected at relatively low administrative cost. Furthermore, money management is handled in a streamlined and transparent fashion, and record-keeping and reporting are public. An aspect of the program that may cause problems in the future is the government’s minimum benefit guarantee. It is unclear how it will work and how it will be financed in lean times. Other countries that have offered minimum benefit guarantees have found that they tend to cause financing problems (see Turner and Rajnes 2003 and Walliser 2003).



### *Environmental Risks and Opportunities*

While the main goal of this chapter is to discuss pension reform, many countries quickly discover that along that path they must also undertake several other reforms to support and sustain national old age pension institutions. Strengthening financial markets is often essential, even when a partially funded public plan remains a central element of an old age system. This is because employees and employers can still be encouraged to respond to the downsizing of national plan benefits by creating their own privately managed pensions (Mitchell 2000). This can help take the pressure off government-provided benefits and build the multipillar system.

In addition, moving to a fully funded system requires that investors have access to a store of value in which to invest the assets accumulating in pension funds. This generally means that a market for government securities is essential in the early stages of reform, but this concentration can be relaxed as capital markets are developed. That occurred in Chile, where bank reform and stock market development evolved in tandem with pension reform. On the other hand, there is substantial risk associated with holding pension assets entirely in government bonds, particularly in the nominal bonds of a small country. The danger is that the assets will be susceptible to political meddling.

Rather, participant funds are better transferred into more widely traded and valued financial assets with well-understood risk and return characteristics compatible with world capital markets (Mitchell 2000). A diversified pension portfolio can also help protect against domestic market risks, which are prevalent in small economies that have a limited number of investment opportunities, low diversification, lack of information, poor market structure, and little liquidity. A resilient pension system must rely on well-functioning financial markets and cannot work effectively when pension assets are concentrated in poorly developed and often risky markets.

The fiduciary responsibility of providing for old age security must outweigh the desire to funnel what might appear to be “low cost” contributions into the local economy. Development objectives should be served only if domestic risks and rewards warrant doing so. For example, Mexico has for many years directed substantial mandated contributions into a housing program with a poor history of results. Some experts have suggested that reforming exchange rate controls may also be critical to pension investments, to allow diversification into international assets. Allowing the pension system to invest internationally also enhances protection against political

risk, such as that seen when Argentina's pension participants were required to hold mainly domestic assets—which were then devalued by the government.

A strong insurance sector can also enhance the success of old age pension reform. Some would contend that governments can delay insurance reform in the pension context, since it takes a while to accumulate sufficient assets to retire and hence the demand for life annuities seems a long way off. But a poorly performing insurance system will weaken confidence in a funded pension program, so employees and employers will tend to evade participation where possible.

Many countries have also found that restructuring labor market institutions is helpful in supporting pension reform. Enhancing education and financial literacy is the best way to build lifetime earnings and saving potential, with logical spillovers for the old age program. Other reforms—such as tax reform and public pension rationalization—also tend to provide incentives to participate in the formal sector, and enhance employers' ability to hire and keep employees.

Reforming national pension systems should not be the task of governments alone. Although government should initiate and fully support the process, a nonpolitical and broadly based committee should be formed to hold discussions with key stakeholders so that recommendations are more likely to be accepted. Of course, government must have the political will to make the reforms that these public consultations recommend. It may also be beneficial to have the political opposition on board early. Finally, throughout the entire process, appropriate education is needed for civil society on all aspects of reform.<sup>14</sup>

Such a process of reform following extensive consultations was recently successfully completed in Barbados, where the process lasted more than three years. The reform exercise included polls, surveys, questionnaires, town meetings, panel discussions, and public education advertisements using various media. Following early discussions with the political opposition, groups directly involved in the reform included representatives of employers, workers, and retired persons. In late 2002 National Insurance Fund regulations were amended, enacting far-reaching reforms aimed at securing the fund's long-term viability.

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<sup>14</sup> Issues and approaches are discussed in several World Bank pension primer papers; see <http://wbln0018.worldbank.org/HDNet/HDdocs.nsf/view+to+link+webpages/1ff73e261420a8f4852568ac006bb4e9?OpenDocument#Issues>.

The 16 countries in the English-speaking Caribbean differ significantly in size, demographics, and economies. Their social security schemes also differ—by age, contribution rates, pension provisions, financing arrangements, and funded status. Thus the paths that the region's countries take in reforming their pension systems may differ. For example, a young and highly funded scheme may just consider parametric reforms. On the other hand, a scheme that provides low income replacement levels and is not well funded may consider changing its structure to include a defined contribution pillar. Once a government has committed to pension reform, regardless of the reform's extent, it should pursue extensive research and consultation to find solutions that best fit its population.

## Conclusion

Around the world, many nations are beginning to recognize the urgent need to reform their old age systems. Each nation must reform in ways that satisfy national expectations, given national priorities and institutions. This chapter has shown that even though there are many paths to reforming retirement systems, what matters is whether reforms improve system solvency and increase adequacy, efficiency, and equity.

One reason reform is difficult is that social security programs have been asked to address many diverse problems, including disability, unemployment, industrial restructuring, and old age poverty. Globally, public old age economic security systems have been most successful when they focus on ensuring minimum consumption in old age, usually with some degree of prefunding. Consequently, the goals of reform must be consistent with minimizing allocative distortions and contributing to macroeconomic stability by reducing fiscal imbalances, and promoting equity—both across generations and between income groups—particularly to ensure maximum protection against unemployment and life-cycle risks at minimum cost. To that end, key decisions need to be made about what standard of adequacy to adopt, how to design programs for each target group, and how to allocate budget resources among programs.

Although social security schemes in the English-speaking Caribbean are not experiencing crises, they are expected to face financing problems in the next few decades—driving the need for reform now. The size of these problems is predicted by

several indicators, including projected depletions of reserves, sharp increases in the pay-as-you-go rates needed to cover benefits, and benefit reductions that might be required to bring sustainability to these schemes if action is not taken soon (see Table 12.2). Best practice around the world indicates that old age benefits paid from a national defined benefit scheme must be complemented by other sources of income. These sources may include government-provided defined contribution accounts, as in much of Latin America, as well as employer-sponsored and personal retirement saving arrangements. English-speaking Caribbean countries would do well to introduce additional ways of encouraging retirement saving sooner rather than later. This need is especially strong in the region's smaller countries, which lack modern pension legislation.

Ultimately, designing a resilient old age pension system requires a long-term perspective. A system must build up workers' savings and investment returns over their working lives and ensure reliable flows of retirement consumption for decades in old age. Because of the long-term nature of pension contracts and the central role played by social security systems in retirees' well-being, it is prudent to begin reforms soon, to avoid drastic steps later. The first step is to conduct an actuarial assessment over a long horizon, and the second is to propose ways of restructuring the system to achieve long-term solvency. This will require not only investing in information technology to track taxes and benefits, but also developing and tracking performance standards and program efficiency.

Subsequently, advisers may propose moving to a fully funded system that tightens links between contributions and benefits. The ultimate goal is to increase participants' confidence in the national pension system as a long-term store of value, protected against political and capital market risks. Internationalization of a pension portfolio can help investors take advantage of modern accounting, regulatory, and risk pricing techniques, which explains why so many pension experts favor liberalization of this last frontier.

## REFERENCES

- Alleyne, Frank. 2001. Investing Social Security Surpluses in the English-Speaking Caribbean. Paper presented at the Caribbean Subregional Tripartite Meeting on Social Security Financing and Investment Policies for Pension Funds, October, Barbados.
- Barreto, Flavio A., and Olivia S. Mitchell. 1997. Privatizing Latin American Retirement Systems. *Benefits Quarterly* 13 (3): 83–85.
- Bodie, Zvi, Brett Hammond, and Olivia S. Mitchell (eds.). 2002. *Innovations in Financing Retirement*. Pension Research Council. Philadelphia: University of Pennsylvania Press.
- Brown, Jeffrey, Olivia S. Mitchell, James Poterba, and Mark Warshawsky. 2001. *The Role of Annuity Markets in Financing Retirement*. Cambridge, Mass.: MIT Press.
- Cifuentes, Rodrigo, and Felipe Larraín. 1999. Pension Reform in Central America: A Proposal. Development Discussion Paper 676. Harvard Institute for International Development, Cambridge, Mass. [<http://www.cid.harvard.edu/hiid/676.pdf>].
- Cogan, John F., and Olivia S. Mitchell. 2003. Perspectives from the President's Commission on Social Security Reform. *Journal of Economic Perspectives* 17 (2).
- Demarco, Gustavo, and Rafael Rofman. 1999. Implementing a Pension Reform: Practical Problems and Solutions. World Bank, Washington, DC. [<http://www.worldbank.org/wbi/pensions/courses/march2002/pdfreadings/implementation.pdf>].
- Dilnot, Andrew. 1996. The Taxation of Private Pensions. In Zvi Bodie, Olivia S. Mitchell, and John A. Turner (eds.), *Securing Employer-based Pensions: An International Perspective*. Pension Research Council. Philadelphia: University of Pennsylvania Press.
- Forde, Penelope. 2001. Investing Social Security Reserves in the Caribbean. Working paper.
- Gokhale, Jagadeesh, and Kent Smetters. 2003. *Fiscal and Generational Imbalances: New Budget Measures for New Budget Priorities*. Washington, DC.: American Enterprise Institute.
- Hustead, Edwin, and Olivia S. Mitchell. 2000. Public Sector Pension Plans: Lessons and Challenges for the 21st Century. In Olivia S. Mitchell and Edwin Hustead

- (eds.), *Pensions for the Public Sector*. Pension Research Council. Philadelphia: University of Pennsylvania Press.
- Iglesias, Augusto, and Robert Palacios. 1999. *Managing Public Pension Reserves—Part I*. World Bank, Washington, DC.
- McGill, Dan, Kyle Brown, John Haley, and Sylvester Schieber. 1996. *Fundamentals of Private Pensions*. 7th ed. Pension Research Council. Philadelphia: University of Pennsylvania Press.
- Mitchell, Olivia S. 1998a. Administrative Costs of Public and Private Pension Plans. In Martin Feldstein (ed.), *Privatizing Social Security*. Chicago: University of Chicago Press.
- . 1998b. Social Security Reform in Latin America. *Federal Reserve Bank of St. Louis Review* (March/April): 15–18.
- . 1999. Evaluating Administrative Costs in Mexico's AFORES Pension System. Pension Research Council Working Paper. [<http://rider.wharton.upenn.edu/~prc/PRC/WP/wp99-1.pdf>].
- . 2000. Building an Environment for Pension Reform in Developing Countries. In Zvi Bodie and E Phillip Davis (eds.), *Foundations of Pension Finance*. London: Edward Elgar.
- . 2002. Redesigning Public Sector Pensions in Developing Countries. Pension Research Council Working Paper. [<http://prc.wharton.upenn.edu/prc/PRC/WP/WP2002-9.pdf>].
- Mitchell, Olivia S., and Flavio Barreto. 1997. After Chile, What? Second-Round Social Security Reforms in Latin America. *Revista de Analisis Economico* 12 (2): 3–36.
- Mitchell, Olivia S., and Gary Fields. 1994. Designing Pension Systems for Developing Countries. Pension Research Council Working Paper. [<http://rider.wharton.upenn.edu/~prc/PRC/WP/Wp1995-14.pdf>].
- Mitchell, Olivia S., and Edwin Hustead (eds.). 2000. *Pensions for the Public Sector*. Pension Research Council. Philadelphia: University of Pennsylvania Press.
- National Insurance Board. 2001. 7th Actuarial Review of the National Insurance Fund: The Bahamas. Bahamas.
- . 1999. 10th Actuarial Review of the National Insurance Fund: Barbados.
- National Insurance Corporation. 2001. 7th Actuarial Review of the National Insurance Fund: St. Lucia. St. Lucia.

- Osborne, Derek. 2001. Financing Social Security: Options and Strategies. Paper presented at the Caribbean Subregional Tripartite Meeting on Social Security Financing and Investment Policies for Pension Funds, October, Barbados.
- Palacios, Robert. 2002. Securing Public Pension Promises through Funding. University of Pennsylvania, Wharton School. [<http://rider.wharton.upenn.edu/~prc/PRC/WP/WP2002-19.pdf>].
- Pettinato, Stefano. 2003. A Needs Assessment of Pension Systems in the English-speaking Caribbean. Inter-American Development Bank, Washington, DC.
- Schwarz, Anita M., and Asli Demirgüç-Kunt. 1999. Taking Stock of Pension Reforms around the World. Social Protection Discussion Paper 9917. World Bank, Washington, DC.
- Srinivas, P. S., Edward Whitehouse, and Juan Yermo. 2000. Regulating Private Pension Funds' Structure, Performance, and Investments: Cross-Country Evidence. Social Protection Discussion Paper. World Bank, Washington, DC.
- Theodore, Carl. 2001. Social Security Systems and the Macroeconomy: A Caribbean Perspective. Paper presented at the Caribbean Subregional Tripartite Meeting on Social Security Financing and Investment Policies for Pension Funds, October, Barbados.
- Trustees of the Social Security Administration. 2003. Annual Report of the Board of Trustees of the Federal Old-Age and Survivors Insurance and Disability Insurance Trust Funds. Washington, DC. [<http://www.ssa.gov/OACT/TR/TR03/trTOC.html>].
- Turner, John, and David Rajnes. 2003. Benefit Guarantees in Voluntary Defined Contribution Systems. In *The Pension Challenge: Risk Transfers and Retirement Income Security*. Philadelphia: University of Pennsylvania Press.
- Useem, Michael, and Olivia S. Mitchell. 2000. Holders of the Purse Strings: Governance and Performance of Public Retirement Systems. *Social Science Quarterly* 81 (2): 489–506.
- Walliser, Jan. 2003. Benefit Guarantees in Mandatory Defined Contribution Systems. In *The Pension Challenge: Risk Transfers and Retirement Income Security*. Philadelphia: University of Pennsylvania Press.
- Working Group. 2001. Guidelines on Social Security Financing and Investments in the Caribbean. Paper presented at the Caribbean Subregional Tripartite Meeting

on Social Security Financing and Investment Policies for Pension Funds, October, Barbados.

World Bank. 1994. *Averting the Old Age Crisis*. New York: Oxford University Press.

———. 2000. Brazil: Critical Issues in Social Security. Report 19641-BR. Brazil Country Management Unit, Washington, DC.



# **Section Four**

## **Conclusions and the Role of Multilateral Development Banks**

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## **Pension Reform and the Role of Multilateral Development Banks**

*Euric Allan Bobb and Pietro Masci*

**T**his chapter reviews the main issues of pension reform and identifies principles for action in the Caribbean. It also analyzes the role of multilateral development banks—particularly the Caribbean Development Bank and the Inter-American Development Bank—in the reform process.

The next section reviews the literature on pension reform. After that the chapter identifies reform themes and issues that are attracting attention worldwide. It then analyzes the main aspects of the reform experience in Latin America, pointing out how expectations that capital market development would solve some of the problems of funding retirement have not been realized. The chapter goes on to describe pension systems in the Caribbean, then details principles for pension reform and illustrates the political factors that affect it. The conclusion considers the role that multilateral development banks can play in the region's pension reform efforts.

### **Brief Literature Review**

The adoption of market-oriented economic policies coupled with the forces of globalization has severely tested the ability of governments to meet the costs of welfare systems (see Reich 1991; Cox 1997; Greider 1997; Gray 1998). Globalization implies more competition and puts pressure on wages, reducing the basis for contribution in the public sector pillar of pension plans. Rodrik (1997), for example, argues that companies in developed countries can move their operations to other countries where labor costs are lower and unions are weaker, thus putting downward pressure on

wages. On the other hand, some authors (Lora and Panizza 2002; Birdsall and de la Torre 2001) suggest that the globalization of financial markets does not preclude governments from pursuing progressive or redistributive programs, nor does it imply the demise of the welfare state (Garrett 1996, 1998; Rieger and Liebfried 1998; Hirst and Thompson 1999).

In Latin America, Chile has been the pioneer in pension reform, dismantling its pay-as-you-go public system in 1981 and replacing it with a defined contribution system managed by private pension fund administrators. The government chose to cover the transition cost from the old to the new system by issuing “recognition bonds.” This approach has been evaluated positively in the literature (Edwards 1998; Piñera 1992, 1999; Kritzer 1996).

While the Chilean model is generally held in high regard, some have pointed to shortcomings in the privatized system. High, regressive administrative costs reduce net returns for contributors (Diamond 1994; Graham 1998; Kay 1997) and distortions have arisen due to marketing costs and penalties for changing fund managers. There is no definitive answer in the literature whether Chilean-style pension reform has contributed to higher savings rates (Edwards 1998; Graham 1998; Kritzer 1996), but there is some consensus that it fostered innovation in the development of the capital market (Queisser 1999) and facilitated labor market flexibility (Graham 1998).

During the 1990s, following Chile’s experience, many other Latin American countries fully or partially privatized their social security systems—including Peru in 1993, Argentina in 1994, Uruguay in 1995, Mexico and Bolivia in 1997, and El Salvador in 1998. (See, for example, Cruz-Saco and Mesa-Lago 1998; Mesa-Lago 1997; Peirce 1997; Queisser 1998, 1999; Williamson and Pampel 1998; and Stanton and Whiteford 1998 for descriptions of the main features of these reforms). Many scholars emphasize the shortcomings of the fully funded pension systems. These include high administrative and marketing costs, similar asset allocations (perhaps due to limitations imposed on investments), imperfect worker control over the use of funds relative to individual retirement accounts in the United States (Queisser 1998; Reisen 1997), and regressive results, as reflected in female and low-wage workers benefiting relatively less than highly paid public sector workers (Graham 1998; Quessier 1998; Ayala Oramas 1997; Isuani and San Martino 1998). Above all, pension reform that introduces a strong degree of privatization shifts from the state to individuals the burden of a prolonged depression of stock and financial markets.

## Global Dimensions of Pension Reform

Pension reform is high on the agenda of countries around the world, including Brazil, China, Colombia, Czech Republic, El Salvador, Estonia, France, Germany, Japan, Latvia, Lithuania, Slovakia, and the United States. Related articles appear in the press almost daily, addressing a variety of issues:

- In the United States the Social Security and Medicare programs will present future generations with crushing debt absent deep reforms.
- In Germany pensioners will see their disposable incomes fall due to plans to slash 5 billion euros (\$5.9 billion) in state subsidies to the mandatory savings system.
- In some other euro zone countries—which continue to take inadequate approaches to pension reform—changing demographics will make the task harder as growing elderly populations use their voting power to block moves to reduce benefits or raise the retirement age.

Around the world, the basic problem facing pension systems is the erosion of financial sustainability because of demographic dynamics. In many countries life expectancy has been rising and fertility rates declining, causing a gradual decrease in the share of the working age population—and raising the specter of what is commonly referred to as the *old age crisis* for pension systems designed on a pay-as-you-go, defined benefit basis.

Countries are dealing with this issue differently, often taking several strategies. Policy responses include higher contributions (as in Colombia), lower subsidies (as in Germany), later retirement ages and increased years for contributors to qualify for pensions (as in Brazil, France, and Italy), and the introduction of multipillar structures, combining publicly financed welfare benefits and privately funded schemes.

The switch from a public pay-as-you-go model to a funded scheme imposes a fiscal burden during the transition, when the flow of contributions falls short of promised pension payments. This burden could have dire macroeconomic consequences—witness Bolivia, where a troubling fiscal imbalance partly reflects the switch to a funded pension system. Almost inevitably, efforts to put pension systems on a financially sustainable path spark deep and sometimes angry political debate—as in

France in the summer of 2003, where despite broad acceptance of the need for change, the public showed waning confidence in the government's ability to implement pension reform.

## **Pension Reform in Latin America and the Caribbean**

For the past two decades Latin America has been in the vanguard of global pension reform. Since Chile reformed its pension scheme in 1981, nine other countries in the region have introduced elements of individual capitalization in their pension systems: Argentina, Bolivia, Colombia, Costa Rica, the Dominican Republic, El Salvador, Mexico, Peru, and Uruguay. These reforms have had three broad objectives.

First, they have aimed at consolidating social safety nets, reducing the threat of sharp income reductions during old age and so alleviating old age poverty. This goal has been especially important due to the shortcomings of the old systems, which had low coverage and were often captured by certain occupational groups that reaped the benefits of the systems at the expense of other professions.

Second, the reforms have pursued microeconomic goals—eliminating distortions that pay-as-you-go systems created in labor markets. The new systems clearly link contributions to benefits, increasing the efficiency of the work and leisure decisions made by workers. Previous systems often treated occupational groups differently, generating rent seeking and additional distortions in labor markets.

Third, the reforms have pursued macroeconomic goals such as increasing savings rates, tackling the implicit public debt associated with previous pension systems, developing and widening financial and capital markets, and ultimately accelerating economic growth.

An extensive body of development economics literature has emphasized the importance of the development of financial markets in stimulating economic growth. A crucial issue is related to the links between pension system reform and domestic capital markets. The first link is related to the accumulation phase. With the transition toward a fully funded, privately managed system, as assets are built up, pension reform is expected to have a direct impact on the widening and deepening of financial markets.

Many Latin American countries have identified the transition to a mandatory, privately managed pension system as a means of capitalizing financial markets,

and thus of improving overall economic performance. A powerful indicator of the link between pension reform and financial market development is the volume of funds administered by the private sector under the framework of the new system. Table 13.1 shows the evolution over 1985–2002 of the value of pension assets in Latin American countries that have gone through reform and the value of the stocks traded on their stock exchanges.<sup>1</sup> Some of the data are rather impressive. In Chile, where reform has the longest history, the transformation of the pension system has been a key element in the development of financial and capital markets—and ultimately in the performance of the economy since the mid-1980s.

The expectation is that some of the benefits from reform in Chile could also be achieved in other countries in the region. But in most of the other countries the impact of pension reform on capital market development has been marginal at best. In fact, the value of stocks traded on stock exchanges in several Latin American countries indicates that capital market development has not materialized, despite the growth of pension assets. While pension assets have grown, the value of stocks has fallen in many cases. Table 13.2 looks at the growth of pension assets and of stocks traded in a few countries in other parts of the world—the Republic of Korea, Poland, Thailand, and South Africa.

Correlations between the value of stocks traded and pension assets for the various countries show that the growth of pension assets is highly correlated with the growth of the stock market in the Republic of Korea (with a correlation coefficient of 0.78). For Latin American countries that have introduced pension reforms with fully funded individual accounts, Table 13.3 shows a high positive correlation in Chile (0.76), a low correlation in the case of Mexico (0.33), and a negative correlation in the case of many other Latin American countries. The low or negative correlations between the two variables suggest that pension assets may have “detracted” from capital market development as most pension funds are invested in government securities. Although investments in government securities could help develop the bond market, which is a

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<sup>1</sup> Four countries (Bolivia, Chile, El Salvador, and Mexico) have privatized their public pension schemes; six others (Argentina, Colombia, Costa Rica, Dominican Republic, Peru, and Uruguay) have partially privatized them. With respect to the typology of pension systems, one could be more specific and identify four categories: full privatization; parallel public pay-as-you-go and private individual accounts; mixed systems; and pay-as-you-go. Some authors (for example, Mesa-Lago 2003) suggest three categories of pension systems: substitutive, parallel, and mixed.

**Table 13.1. Pension Fund Assets under Management and Stock Market Value Traded in Latin America, 1985–2002**  
(Millions of U.S. dollars)

Country	1985	1987	1989	1991	1993	1995	1997	1999	2000	2001	2002
<i>Argentina</i>											
Assets	—	—	—	—	—	2,497	8,827	16,787	20,381	20,786	11,409
Value traded	631	251	1,916	4,824	10,339	4,594	50,956	7,781	5,956	4,180	1,353
<i>Bolivia</i>											
Assets	—	—	—	—	—	—	98	535	842	936	1,144
Value traded	—	—	—	—	—	1	1	3	—	1	28
<i>Brazil</i>											
Assets	—	—	—	—	—	62,693	83,444	71,230	74,755	67,958	56,053
Value traded	21,484	9,608	16,762	13,373	57,409	79,186	202,450	87,276	101,282	65,090	48,203
<i>Chile</i>											
Assets	1,553	2,708	4,470	10,064	15,942	25,143	30,525	34,501	35,886	35,460	35,515
Value traded	57	503	866	1,900	2,797	11,072	7,425	6,874	6,083	4,220	3,120
<i>Colombia</i>											
Assets	—	—	—	—	—	265	1,367	2,887	3,584	4,955	5,482
Value traded	30	80	74	203	732	1,254	1,851	704	397	355	273
<i>Costa Rica</i>											
Assets	—	—	—	—	—	—	—	160	—	21	136
Value traded	—	1	4	9	11	16	—	216	—	—	—
<i>El Salvador</i>											
Assets	—	—	—	—	—	—	—	213	482	768	1,088
Value traded	—	—	—	—	—	—	15	48	26	23	24
<i>Mexico</i>											
Assets	—	—	—	—	—	—	615	11,509	17,012	27,146	31,748
Value traded	2,360	15,554	6,232	31,723	62,454	34,377	52,392	36,042	45,340	40,043	27,726
<i>Peru</i>											
Assets	—	—	—	—	29	583	1,510	2,406	2,752	3,622	4,527
Value traded	38	301	90	130	1,672	3,935	4,015	2,289	1,521	849	1,133
<i>Uruguay</i>											
Assets	—	—	—	—	—	—	191	591	811	1,045	893
Value traded	0.4	4	1	—	14	5	3	2	—	1	0

Source: Federación Internacional de Administradoras de Fondos de Pensiones, FIAP: <http://fiap.cl>; Standard & Poor's Emerging Stock Markets Fact Book.



**Table 13.2. Pension Fund Assets under Management and Stock Market Value Traded in Comparator Countries, 1985–2002**  
(Millions of U.S. dollars)

Country	1985	1987	1989	1991	1993	1995	1997	1999	2000	2001	2002
<i>Korea, Rep.</i>											
Assets	—	—	—	—	—	15,000	25,000	40,000	50,000	62,500	77,300
Value traded	4,162	24,919	121,264	85,464	211,710	185,197	172,018	825,827	1,067,669	703,960	873,692
<i>Poland</i>											
Assets	—	—	—	—	—	—	—	—	2,481	4,454	6,674
Value traded	—	—	—	—	2,170	2,770	7,951	11,149	14,631	7,432	5,842
<i>South Africa</i>											
Assets	—	—	—	—	—	—	32,913	34,319	33,289	24,012	—
Value traded	2,836	9,568	7,095	8,051	13,049	17,048	44,722	72,917	77,494	69,676	78,831
<i>Thailand</i>											
Assets	—	—	—	—	—	—	—	3,123	3,117	3,587	4,426
Value traded	568	4,633	13,452	30,089	86,934	57,000	24,206	41,604	23,258	35,705	47,612

Source: Federación Internacional de Administradoras de Fondos de Pensiones, FIAP: <http://fiap.ci>; Standard & Poor's Emerging Stock Markets Fact Book.

**Table 13.3. Correlations between Pension Fund Assets under Management and Stock Market Value Traded in Latin American and Comparator Countries, 1995–2002**

Country	Correlation
<i>Latin America</i>	
Argentina	-0.51320
Bolivia	-0.50689
Brazil	0.19557
Chile <sup>a</sup>	0.75870
Colombia	-0.88599
El Salvador <sup>b</sup>	-0.74105
Mexico	0.33430
Peru	-0.93024
Uruguay	-0.92835
<i>Comparator country</i>	
Korea, Rep.	0.78553
Poland	-0.92600
South Africa	-0.09683
Thailand <sup>b</sup>	0.21648

a. Data are for 1981–2001.

b. Data are for 1998–2001.

Note: Pension assets are lagged one period.

Source: Authors' calculations based on data from Federación Internacional de Administradoras de Fondos de Pensiones, Fiap <http://fiap.cl> and Standard & Poor's Emerging Stock Markets Fact Book.

building block of the capital market, the fundamental issue remains of creating a diversified portfolio—including private bond and equity holdings, which in turn require a further step in capital market development. Although the time span for observing the impact of pension assets on capital markets is relatively short in this sample (about 10 years), in most Latin American countries capital markets remain weak.

The second link between pension reform and financial markets is during the decumulation phase, which is the payout period when resources are being withdrawn from the system. Under fully funded systems, and in general for privately managed pension funds, variations in financial returns have a direct impact on the pensions paid to retirees. Until a few years ago mature economies such as the United States and Western European countries seemed to be much more concerned about the decumulation phase link between financial markets and pension systems. This was mainly due to demographic factors. With a younger population, Latin American and

**Table 13.4. Average Stock Market Returns and Volatility in Latin American and Comparator Countries, 1995–2002**

Country	Average return (annual percentage change)	Volatility (standard deviation)
<i>Latin America</i>		
Argentina	-4.29	31.08
Brazil	2.89	39.11
Chile	-2.28	20.16
Colombia	-4.60	29.70
Mexico	8.34	41.19
Peru	5.35	24.69
<i>Comparator country</i>		
Korea, Rep.	15.40	73.64
Poland	5.13	31.28
South Africa	5.03	34.22
Thailand	-15.04	43.31

Source: Authors' calculations based on <http://fiap.cl> and Standard & Poor's Emerging Stock Markets Fact Book.

Caribbean countries were less affected by the old age crisis, and thus were more focused on raising savings and building up financial markets.

However, in the context of the financial volatility that has affected Latin America in recent years, the decumulation phase link between financial markets and pension systems has become a major concern. In fact, one of the main objections to the new systems introduced in the region has been that they transfer investment risk to individual workers, who are then exposed to the vagaries of financial markets. This has led many to argue that the new personally funded systems are unable to provide universal coverage and satisfactory pension benefits to all retiring workers, thus failing to constitute an appropriate social safety net.

Table 13.4 tells two different stories. One is for average returns of stock markets in some Latin American countries, that is, low or negative returns (with the exception of Mexico, Peru, and Brazil) with significant annual volatility that ranges between 20 and 41 percent. The other is for returns of stock markets in the four countries of reference outside the region (the Republic of Korea, Poland, South Africa, and Thailand), which show positive and at times high returns (for example, Korea has an annual return of over 15 percent) and volatility higher than Latin American countries.

Despite the overall long-term positive aspects, certain obstacles need to be addressed to make reforms sustainable. In addition to the capital market issue discussed above, one of the most significant challenges has to do with the transition costs of pension reform. That is, moving from a public pay-as-you-go to a privately capitalized system implies that for a significant period the reform will drain fiscal resources, which are represented by the difference between pensions paid and the revenues lost when contributors (future pensioners) opt for private plans. Governments should thus be careful in planning this transition and making the fiscal adjustments needed to face the potential increasing deficits. Without appropriate planning and provisioning, transition costs could add to public debt sustainability problems, weakening the financial feasibility of such reforms. At present, after more than a decade of the reform of the pension systems, another challenge confronts policymakers. In fact, while the total amount of resources of the Latin American countries that opted for a total or partial private pension scheme is impressive (around US\$120 billion), between 50 and 80 percent is directed to government financing.<sup>2</sup>

In that context, there are other issues of consequence in the Latin America and Caribbean environment to take into consideration, such as the need to ensure fiscal discipline and to increase the competitiveness of the region's economies, as well as the need to establish a sound regulatory environment to ensure the sustainability of reform. These considerations call for adopting an approach to reform centered on the beneficiaries.

Despite the difficulties associated with political resistance and technical problems (especially those related to the fiscal burden associated with transition costs and the shift of resources invested by pension funds), governments in the region continue to be committed to such reforms. However, after 15 years of basic consensus on pension reform in Latin America, in recent years the debate has been reopened. There is disappointment with the results of reform in various countries. In particular, there is a preoccupation with the fiscal costs, the costs faced by beneficiaries due to financial volatility and depressed financial markets, and the financing needs of the real sector, particularly for infrastructure.

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<sup>2</sup> Argentina, Bolivia, Colombia, Costa Rica, Chile, Dominican Republic, El Salvador, Mexico, Peru, and Uruguay.

## Pension Reform in the English-Speaking Caribbean

The debate on pension reform in the English-speaking Caribbean countries is still in its early stages. National insurance systems were established only 30–40 years ago. Public sector employees have traditionally been covered by noncontributory pension schemes, and old age pension payments are straight transfers from government budgets. Leaving aside any judgment about the level and quality of benefits, financial sustainability has not been a pressing problem.

English-speaking Caribbean countries do not yet face the old age crisis that is becoming typical of many European countries. The pressure to reform pension systems has been relatively low, and political incentives weak. But there are strong arguments to give high priority to this issue now:

- The demographic window of opportunity is the best time to implement reform—the old age dependency ratio is still low, so there is more flexibility to use payroll taxes without eroding the competitiveness of the economy or driving activity into the informal sector.
- Systems in the English-speaking Caribbean display some serious inadequacies, such as low and unequal coverage, that cannot be easily remedied.
- The build-up of long-term savings will facilitate capital market development, but given the constraint of size, judicious diversification of asset holdings into global markets will be required.
- Reform in a mature society is likely to encounter much stronger opposition than in a society with a younger population.

## Principles for Reform

Based on the experiences of the past two decades and numerous studies, several principles can help ensure the sustainability of pension reforms:

- Strong political leadership and the active involvement of all major stakeholders in the development of a new model. This requires courage and vision.

- A solid regulatory framework and effective supervision to underpin the integrity of the system. This requires professional knowledge and integrity.
- Full appreciation of transition costs and adoption of appropriate fiscal policy to guard against an uncontrollable increase in public debt.
- A strict, enforced commitment that the resources of a funded scheme not be heavily invested in government paper—the fiscal trap will be set and waiting. This requires transparency and education.
- Unambiguous recognition of the need to factor in the cost of a robust social safety net to protect against old age poverty. This requires political skill.

Ultimately, successful reform requires the public sector to create appropriate incentives. The interests of the various parties in pension reform—workers, unions, and public sector employees—have been studied in various circumstances, and despite geographic and country differences are present everywhere and are part of the process of achieving better, more equitable pensions. There are important methodological and political considerations of how public policy should tackle this challenge. The debate should not be limited to policymakers and so-called experts but extended to beneficiaries who after all are the ones most affected by policy decisions. Target beneficiaries should be given the opportunity to understand the issues at stake and to be fully involved in the design of policies.

### **The Role of Multilateral Development Banks**

The Inter-American Development Bank has been actively involved in the construction of Latin American pension systems through the provision of technical assistance and sector loans. The Bank, given its origins and traditions, focuses on the region's social development while supporting the creation of an efficient economic environment. Thus, the Bank has struggled to deal with the two sides of the equation: equity and efficiency. During 1990–2003 the amount of Bank resources devoted to the pension sector surpassed \$3 billion.

Various factors explain the Bank's involvement in the region's pension systems. Pension systems are a crucial element of the social safety nets that the region needs to

fight poverty, which is a Bank priority. Pension reforms are also consistent with the other priorities that guide the Bank's activities in Latin America, such as modernization of the state. In addition, by helping the development of capital markets, pension reform could make economies more competitive—another Bank priority.

Much of the Bank's current support for pensions involves developing solid, effective regulation and supervision systems. In Nicaragua a \$30 million project is supporting the establishment of a financially sustainable defined contribution pension system. The project's components include establishing a legal framework for the new system as well as institutional arrangements for supervision and service provision. In the Dominican Republic, where pension reform began recently, a \$5 million technical cooperation loan is supporting the creation of a pension superintendency and an adequate normative framework. Another Bank pension reform activity is a technical cooperation loan in Bolivia aimed at developing adequate regulation for the sector.

The Bank is also conducting research projects to evaluate pension reforms in a number of Latin American countries and to develop a reform model for small emerging economies, such as those in the English-speaking Caribbean. These efforts complement several previous initiatives, such as research conducted in 1998 with the Economic Commission for Latin America and the Caribbean to assess the fiscal costs of pension reforms in the region.

Pension reform cannot be categorized in a specific sector because it involves fiscal policy, social welfare, capital and financial markets, and in many cases civil and military service reform, among other facets. It is a typical public policy issue, involving a variety of stakeholders and with a fundamental role for policies and politics. In that context, the Inter-American Development Bank has been involved in the full range of pension reform activities and debates, from setting agendas to devising policy alternatives and providing technical assistance and advice. The Bank's sustained research efforts aim to devise policy alternatives and reforms that improve the performance of current systems in line with the principles delineated above—and that have broad political acceptance and support in the region.

Together with the Caribbean Development Bank, the Inter-American Development Bank is ready to work with Latin American and Caribbean countries committed to pension reform. The essential first step, however, is country ownership: broad consensus across the nation, and a government ready to take the lead in making changes in a timely manner—before the demographic window shuts.

## BIBLIOGRAPHY

- Acuña, Rodrigo, and Augusto Iglesias. 2001. Chile's Pension Reform after 20 Years. World Bank, Washington, DC.
- Arenas de Mesa, A., and F. Bertranou. 1997. Learning from Social Security Reforms: Two Different Cases, Chile and Argentina. *World Development* 25: 329–48.
- Arenas de Mesa, A., and V. Montecinos. 1999. The Privatization of Social Security and Women's Welfare: Gender Effects of the Chilean Reform. *Latin American Research Review* 34.
- Ayala Oramus, U. 1997. *Reformas del sistema de pensiones y del sistema de la seguridad social en Colombia*. Santiago: CIEPLAN.
- Baker, D. 1997. The Privateer's Free Lunch. *American Prospect* (May–June): 81–84.
- Ball, R. M. 1997. Bridging the Centuries: The Case for Traditional Social Security. In E. R. Kingson and J. H. Schulz (eds.), *Social Security in the 21st Century*. New York: Oxford University Press.
- Barr, Nicholas. 1998. *The Economics of the Welfare State*. Stanford, Calif.: Stanford University Press.
- Barzelay, Michael. 2003. *The New Public Management*. Berkeley and New York: University of California Press and Russell Sage.
- Beard, S. 1996. *Restoring Hope in America: The Social Security Solution*. San Francisco: ICS Press.
- Birdsall, Nancy, and Augusto de la Torre with Rachel Menezes. 2001. *Washington Contentious. Economic Policies and Social Equity in Latin America*. Commission on Economic Reform in Unequal Latin American Societies, Carnegie Endowment for International Peace. Washington, DC.
- Bipartisan Commission on Entitlement and Tax Reform. 1995. *Bipartisan Commission on Entitlement and Tax Reform: Final Report*. Washington, DC: U.S. Government Printing Office.
- Borzutzky, S. 1998. Chile: The Politics of Privatization. In M. A. Cruz-Saco and C. Mesa-Lago (eds.), *Do Options Exist? The Reform of Pension and Health Care Systems in Latin America*. Pittsburgh, Penn.: University of Pittsburgh Press.
- Brown, Jeffrey. 2000. How Should We Insure Longevity Risk in Pensions and Social Security? Issue Brief 4. Boston College, Center for Retirement Research, Boston.



- Callund, Jonathan. 1999. Annuities in Latin America. Commentary presented at a World Bank annuities workshop, 7–8 June, Washington, DC.
- Cardenas Rivera, M. E. 1998. The Colombian Social Security Reform: Between Competition and Solidarity. In M. A. Cruz-Saco and C. Mesa-Lago (eds.), *Do Options Exist? The Reform of Pension and Health Care Systems in Latin America*. Pittsburgh, Penn.: University of Pittsburgh Press.
- Chiappori, Pierre André, and Bernard Salanié. 2000. Testing for Asymmetric Information in Insurance Markets. *Journal of Political Economy* 108 (February): 56–78.
- Cox, R. 1997. Economic Liberalization and the Limits to Liberal Democracy. In A. McGrew (ed.), *The Transformation of Democracy? Globalization and Territorial Democracy*. Cambridge: Polity Press.
- Cruz-Saco, M. A. 1998. The Pension System Reform in Peru: Economic Rationale versus Political Will. In M. A. Cruz-Saco and C. Mesa-Lago (eds.), *Do Options Exist? The Reform of Pension and Health Care Systems in Latin America*. Pittsburgh, Penn.: University of Pittsburgh Press.
- Cruz-Saco, M. A., and C. Mesa-Lago. 1998a. Conclusion: Conditioning Factors, Cross-Country Comparisons, and Recommendations. In M. A. Cruz-Saco and C. Mesa-Lago (eds.), *Do Options Exist? The Reform of Pension and Health Care Systems in Latin America*. Pittsburgh, Penn.: University of Pittsburgh Press.
- (eds.). 1998b. *Do Options Exist? The Reform of Pension and Health Care Systems in Latin America*. Pittsburgh, Penn.: University of Pittsburgh Press.
- Cutler, David. 2001. Health Care and the Public Sector. In Alan Auerbach and Martin Feldstein (eds.), *Handbook of Public Economics*. Amsterdam: Elsevier Science.
- Davis, E. Philip. 2002. Issues in the Regulation of Annuities Markets. Working Paper 26/02. Center for Research on Pensions and Welfare Policies, London.
- Davrieux, A. 1997. The Social Security Reform; the Uruguayan Model. *Seguridad Social* 209: 147–68.
- Demaestri, Edgardo, and Federico Guerrero. 2003. *The Rationale for Integrating Financial Regulation and Supervision in Latin America and the Caribbean*. Technical paper no. 135. Inter-American Development Bank, Department of Sustainable Development, Infrastructure and Financial Markets Division, Washington, DC.

- Devesa-Carpio, José E., and Carlos Vidal-Meliá. 2001. The Reformed Pension Systems in Latin America. Pension Reform Primer Paper. World Bank, Washington, DC. [www.worldbank.org/pensions].
- Diamond, P. A. 1994. Privatization of Social Security: Lessons from Chile. *Revista de Análisis Económico* 9: 21–33.
- . 1999. Proposals to Restructure Social Security. *Journal of Economic Perspectives* 10 (3): 66–88.
- Dowers, Kenroy, Stefano Fassina, and Stefano Pettinato. 2001. Pension Reform in Small Emerging Economies: Issues and Challenges. Technical paper no. 130. Inter-American Development Bank, Department of Sustainable Development, Infrastructure and Financial Markets Division, Washington, DC.
- Doyle, Suzanne, and John Piggott. 2001. Mandatory Annuity Design in Developing Economies. Pension Reform Primer Paper. World Bank, Washington, DC. [www.worldbank.org/pensions].
- . 2002. Integrating Payouts: Annuity Design and Public Pension Benefits in Mandatory Defined Contribution Plans. [http://rider.wharton.upenn.edu/~prc/wp2002.html].
- Edwards, Sebastian. 1998. The Chilean Pension Reform: A Pioneering Program. In M. Feldstein (ed.), *Privatizing Social Security*. Chicago: University of Chicago Press.
- Elter, D., and M.-H. Briant. 1995. *La situación de las mujeres en el nuevo sistema provisional chileno*. Santiago, Chile: Servicio Nacional de la Mujer, Departamento de Planificación y Estudios.
- Friedland, J. 1997. Chile's Celebrated Pension Fund System Has Growing Pains as Returns Decline. *Wall Street Journal*, 12 August, A10.
- García, C. 1998. Suman US 153,286 millones las Afores en el Mundo. *El Economista*, 5 November.
- Garret, G. 1996. Capital Mobility, Trade and the Domestic Politics of Economic Policy. In R.O.Keohane and H.V. Miller (eds.), *Internationalization and Domestic Politics*. Cambridge: Cambridge University Press.
- . 1998. Global Markets and National Politics. *International Organization* 52.
- Gillion, Colin, and Alejandro Bonilla. 1992. Analysis of a National Private Pension Scheme: The Case of Chile. *International Labour Review* 131: 171–95.

- Gillion, Colin, John Turner, Clive Bailey, and Dennis Latulippe. 2000. *Social Security Pensions: Development and Reform*. Geneva: International Labour Office.
- Graham, C. 1998. *Private Markets for Public Goods*. Washington, DC.: Brookings Institution Press.
- Gray, J. 1998. *False Dawn*. London: Granta.
- Greider, W. 1997. *One World. Ready or Not: The Manic Logic of Global Capitalism*. New York: Simon and Schuster.
- Hirst, P., and G. Thompson. 1999. *Globalization in Question* 2nd ed. Cambridge: Polity Press.
- Inglehart, R., M. Basañez, and A. Moreno. 1998. *Human Values and Beliefs: A Cross-Cultural Sourcebook*. Ann Arbor: University of Michigan Press.
- Isuani, Ernesto A., and J. A. San Martino. 1998. The New Argentine Social Security System: A Mixed Model. In M. A. Cruz-Saco and C. Mesa-Lago (eds.), *Do Options Exist? The Reform of Pension and Health Care Systems in Latin America*. Pittsburgh, Penn.: University of Pittsburgh Press.
- Iwasaki, M. L. 1996. *El sistema privado de pensiones peruano y el mecanismo de la pensión mínima*. Santiago: Departamento de Ingeniería Industrial.
- James, E. 1997. New Systems for Old Age Security: Theory, Practice, and Empirical Evidence. Policy Research Working Paper 1766. World Bank, Washington, DC.
- Kay, S. J. 1996. Unexpected Privatizations: Politics and Social Security Reform in the Southern Cone. Paper presented at the Annual Meeting of the Western Political Science Association, March, San Francisco.
- . 1997a. The Chile Con: Privatizing Social Security in South America. *American Prospect* (July–August): 48–51.
- . 1997b. The Future of Social Security for This Generation and the Next. Testimony before the Subcommittee on Social Security of the Committee on Ways and Means, U.S. House of Representatives, 18 September, Washington, DC.
- . 1997c. Globalization, Politics, and Social Security Reform in the Southern Cone. Paper presented at the annual meeting of the Latin American Studies Association, April, Guadalajara, Mexico.
- Kingdon, John. 1997. *Agendas, Alternatives and Public Policies*. Boston: Addison-Wesley.
- Klingvall, M. I. 1998. *Pension Reform in Sweden: A Short Summary*. Stockholm: National Social Insurance Board.
- Kotlikoff, L. J. 1992. *Generational Accounting*. New York: Free Press.

- Kritzer, B. E. 1996. Privatizing Social Security: The Chilean Experience. *Social Security Bulletin* 59 (3): 45–55.
- Liu, L. 1999. Retirement Income Security in the United Kingdom. *Social Security Bulletin* 62 (1): 23–46.
- Lora, Eduardo, and Ugo Panizza. 2002. Structural Reforms in Latin America Under Scrutiny. Inter-American Development Bank, Fortaleza, Brazil.
- Mesa-Lago, C. 1997. Comparative Analysis of Structural Pension Reforms in Eight Latin American Countries: Description, Evaluation, and Lessons. In M. H. Pearce (ed.), *Capitalization: a Bolivian Model of Social and Economic Reform*. Miami: University of Miami, North-South Center.
- . 2003. Reassessing Pension Reform in Chile and Other Countries in Latin America. Inter-American Development Bank, Washington, DC.
- Mitchell, Olivia S. 2000. Building an Environment for Pension Reform in Developing Countries. In Zvi Bodie and E. Phillip Davis (eds.), *Foundations of Pension Finance*. Cheltenham, U.K.: Edward Elgar.
- Mitchell, Olivia S., Zvi Bodie, Hammond P. Brett, and Stephen Zelde (eds.). 2002. *Innovation in Retirement Financing*. Philadelphia: University of Pennsylvania, Wharton School, Pension Research Council.
- Mujica, P, and O. Larrañaga. 1992. *Políticas sociales y de distribución del ingreso en Chile*. Documentos de Trabajo 106. Inter-American Development Bank, Washington, DC.
- Myers, R. J. 1992. Chile's Social Security Reform, After Ten Years. *Benefits Quarterly* (third quarter): 41–55.
- Myles, J., and P. Pierson. 2001. The Comparative Political Economy of Pension Reform. In P. Pierson (ed.), *The New Politics of the Welfare State*. New York: Oxford University Press.
- Myles, J., and J. Quadagno. 1997. Recent Trends in Public Pension Reform: A Comparative View. In K. G. Banting and R. Broadway (eds.), *Reform of Retirement Income Policy: International and Canadian Perspectives*. Kingston, Ontario: Queen's University, School of Policy Studies.
- Navarro, V. 1997. Chasing Chile—Right over the Cliff. *In These Times*, 3 March, 29–30.
- Palacios, Robert, and Rafael Rofman. 2001. Annuity Markets and Benefit Design in Multipillar Pension Schemes: Experience and Lessons from Four Latin Ameri-

- can Countries. Pension Reform Primer Paper. World Bank, Washington, DC. [[www.worldbank.org/pensions](http://www.worldbank.org/pensions)].
- Palmer, E. 2000. The Swedish Pension Reform Model: Framework and Issues. Social Protection Discussion Paper 12. World Bank, Washington, DC.
- Pearce, M. H. (ed.). 1997. *Capitalization: A Bolivian Model of Social and Economic Reform*. Miami: University of Miami, North-South Center.
- Pierson, D. Paul, and R. Kent Weaver. 1993. Pension Cuts in Proportional Representation Systems. In R. Kent and Bert Rockman (eds.), *Do Institutions Matter?* Washington, DC.: Brookings Institution Press.
- Piñera, J. 1992. *El cascabel al gato: La batalla por la reforma provisional*. Santiago: Editora Zig-Zag.
- . 1999. A Real Solution to the Social Security Crisis. Testimony before the Committee on Ways and Means, U.S. House of Representatives, 11 February, Washington, DC.
- Poterba, James M. 2001. *Annuity Markets and Retirement Security*. Boston: Boston College, Center for Retirement Research. [<http://www.bc.edu/crr>].
- Queisser, M. 1997. Pension Reform and Private Pension Funds in Peru and Colombia. Policy Research Working Paper 1853. World Bank, Washington, DC.
- . 1998. *The Second-Generation Pension Reforms in Latin America*. Paris: Organisation for Economic Co-operation and Development, Development Center.
- . 1999. Pension Reform: Lessons from Latin America. Policy Brief 15. Organisation for Economic Co-operation and Development, Development Center, Paris.
- Reich, R. 1991. *The Work of Nations*. New York: Simon and Schuster.
- Reisen, H. 1997. Liberalizing Foreign Investments by Pension Funds: Positive and Normative Aspects. Technical Paper 120. Organisation for Economic Co-operation and Development, Development Center, Paris.
- Rieger, E., and S. Liebriefd. 1998. Welfare Limits to Globalization. *Politics and Society* 26 (3).
- Rodrik, Dani. 1997. *Has Globalization Gone Too Far?* Institute for International Economics. Washington, DC.
- Rotella, S. 1998. Social Security Countdown: Taking a Hard Look at Chile's Privately Managed System. *Los Angeles Times*, 6 December, C1.

- Rothschild, Michael, and Joseph Stiglitz. 1976. An Essay on the Economics of Imperfect Information. *Quarterly Journal of Economics* 90: 629–49.
- Schulz, J. H., L. Rosenman, and S. E. Rix. 1999. International Developments in Social Security Privatization: What Risk to Women? *Journal of Cross Cultural Gerontology* 14: 25–42.
- Simone, V. J. 1983. Latin America: The Effect of Social, Economic and Political Trends on Benefit Planning. *Pension World* (April): 6–54.
- Stanton, D. I., and P. Whiteford. 1998. *Pension Systems and Policy in the APEC Economies: Vol. 2, Pension Systems and Policy—Discussion Papers*. Canberra, Australia: Department of Social Security.
- Sundén, A. 1998. The Swedish Pension Reform. Federal Reserve Board, Washington, DC.
- Superintendencia de Administradoras de Fondos de Pensiones. 2002. *Series Estadísticas*. Gobierno de Chile, Santiago. [<http://www.safp.cl/>].
- Superintendencia de Pensiones. 1999. Informe trimestral, enero-marzo, 1999 [Quarterly Report, January–March, 1999]. San Salvador.
- Thompson, L. H. 1999. Administering Individual Accounts in Social Security: The Role of Values and Objectives in Shaping Options. Occasional Paper 1. Urban Institute, Washington, DC.
- Tuljapurkar, Shripad, and Carl Boe. 1998. Mortality Change and Forecasting: How Much and How Little Do We Know? *North American Actuarial Journal* 2 (4): 13–47.
- United Nations. 2001. *World Population Prospects, 2000 Revision*. New York: Department of Economic and Social Affairs, Population Division.
- U.S. Social Security Administration. 1997. *Social Security Programs throughout the World—1997*. Washington, DC: U. S. Government Printing Office.
- Vittas, D. 1997. The Argentine Pension Reform and Its Relevance for Eastern Europe. Policy Research Working Paper 1819. World Bank, Washington, DC.
- Walliser, J. 1998. The Effect of Privatization of Social Security on Private Annuity Markets. Working Paper. Congressional Budget Office, Washington, DC.
- Weaver, R. K. 1998. Insights from Social Security Reform Abroad. In R. D. Arnold, M. J. Graetz, and A. H. Munnell (eds.), *Framing the Social Security Debate*. Washington, DC: National Academy of Social Insurance.
- . 2003. *The Politics of Public Pension Reform*. Boston: Boston College, Center for Retirement Research. [<http://www.bc.edu/crr/>].

- Williamson, J. B. 1997. A Critique of the Case for Privatizing Social Security. *Gerontologist* 37: 561–71.
- . 1999. *Privatizing Public Pension Systems: Lessons for the United States from Latin America*. Boston: Boston College, Center for Retirement Research. [<http://www.bc.edu/crr>].
- Williamson, J. B., and G. Hochman. 1995. Innovative Old-Age Security Models for Developing Nations: Chile and Brazil. *Journal of Aging Studies* 9: 245–62.
- Williamson, J. B., and F. C. Pampel. 1998. Does the Privatization of Social Security Make Sense for Developing Nations? *International Social Security Review* 51 (4/98): 3–30.
- World Bank. 1994. *Averting the Old Age Crisis*. New York: Oxford University Press.
- Yaari, M. 1965. Uncertain Lifetime, Life Insurance, and the Theory of Consumer. *Review of Economic Studies* 32: 137–50.
- Yermo, Juan. 2001. *Private Annuity in OECD Countries*. Paris: Organisation for Economic Co-operation and Development.
- Zapatta, F. 1999. *Mitos y realidades del sistema privado de pensiones en Chile (AFP)*. Santiago: LOM Ediciones.

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## **Annexes and Index**

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## Establishing Basic Pension Parameters

*Lawrence H. Thompson*

The biggest challenge in designing pension reform is balancing the desire for generous benefits with the need for affordable contribution rates. To be sustainable in the long run, pension benefits must be high enough to achieve the program's social purposes and preserve its political support. At the same time, contribution rates must not be so high that they cause undesirable economic and social side effects—such as discouraging the expansion of employment or encouraging the growth of the informal sector.

This annex helps reformers find sustainable benefit packages by supplying tools to calculate the likely long-term effects on contribution rates of changes in key pension design features. These features include the relationship between average retirement benefits and average wages, the retirement age, the rule used to adjust retirement benefits once they have been awarded, and the degree of advance funding.

Pension designs are linked to contribution rates through the interaction between basic pension finance principles and a country's demographic and economic characteristics. This annex begins with a review of these basic finance principles and an explanation of how they operate to determine the cost of different benefit packages. It then illustrates how these principles can be applied, using a series of practical exercises to assess the long-run implications of different pension design decisions. Readers not interested in the mathematical details can skip the next section and go directly to the exercises.

## Pension Mathematics

Two basic strategies are used to finance pensions: pay-as-you-go financing and full reserve financing. Some countries rely almost exclusively on one strategy or the other, while other countries use a mixed approach. The two strategies have interesting similarities as well as important differences.

### *Pay-as-You-Go Financing Principles*

Under pay-as-you-go financing the revenues collected each year are used mainly to finance that year's benefit payments. The pension system may hold modest financial reserves, but their primary purpose is to ensure that benefit payments will continue if there is a sudden, unexpected change in revenues. The reserves rarely amount to more than the equivalent of one year's benefit payments and are not considered a significant element in the pension system's financing plan.

The basic financing relationships under the pay-as-you-go approach derive from the fact that aggregate income each year is supposed to equal aggregate expenditures, or (leaving out administrative expenditures) that aggregate income equals aggregate benefit payments (Box A.1, equation 1).

If the system is financed entirely through employer and employee contributions, aggregate income can be expressed as the total amount of earnings on which contributions are levied (hereafter referred to as *covered earnings*) multiplied by the combined employer and employee contribution rate (see Box A.1, equation 2). Reorganizing the terms in equation 2 yields equation 3, showing that the contribution rate can be expressed as the ratio of aggregate benefit payments to aggregate covered earnings. The numerator in equation 3 is the product of average benefits times the number of beneficiaries, while the denominator is the product of average covered earnings times the number of workers (see equation 4 in Box A.1).

Two basic pension finance concepts are the system dependency ratio and the average replacement rate. The system dependency ratio is the ratio of beneficiaries to contributors, while the average replacement rate is the average benefit divided by average earnings under the system. Substituting these two concepts produces the result by which the contribution rate can be expressed as the product of the system dependency ratio multiplied by the average replacement rate (see equation 5 in Box A.1).

### Box A.1. Pay-as-You-Go Pension Mathematics

#### *Relationship between Contribution Rate, Dependency Ratio, and Replacement Rate*

Pay-as-you-go systems match annual income and annual expenditures:

- (1) Total expenditures (or total benefit payments) = total income.  
Because income is equal to the contribution rate multiplied by total covered earnings,
- (2) Total benefit payments = contribution rate \* total covered earnings.  
Reorganizing the equation:
- (3) Contribution rate =  $\frac{\text{total benefit payments}}{\text{total covered earnings}}$ .

Dividing total benefits and total earnings by the number of beneficiaries and workers multiplied by the average benefit and wage, respectively, leads to:

- (4) Contribution rate =  $\frac{\text{number of beneficiaries} * \text{average benefit}}{\text{number of workers} * \text{average wage}}$ .

Substituting two pension-related concepts—

- (4a)  $\frac{\text{number of beneficiaries}}{\text{number of workers}}$  is the system dependency ratio and

- (4b)  $\frac{\text{average benefit}}{\text{average wage}}$  is the average replacement rate—

yields one of the basic principles of pay-as-you-go financing:

- (5) Pay-as-you-go contribution rate = system dependency ratio \* average replacement rate.

#### *Relationship between System Dependency and Population Structure*

The system dependency ratio can be divided into its constituent parts:

- (6) System dependency ratio = 
$$\frac{\text{retirement age population} * \text{reciency rate}}{\text{working age population} * \text{labor force participation rate} * \text{employment rate} * \text{coverage rate}},$$

where reciency rate is the percentage of the retirement age population receiving benefits, labor force participation rate is the percentage of the working age population working or looking for work, employment rate is the percentage of the labor force that is employed (that is, 1 – the unemployment rate), and coverage rate is the percentage of workers covered by the pension system.

(continued)

**Box A.1. Pay-as-You-Go Pension Mathematics** *(continued)*

If the percentage of the retirement age population receiving benefits is approximately equal to the percentage of the working age population working or looking for work, the reciprocity rate, labor force participation rate, and coverage rate drop out of the equation, leaving:

$$(7a) \text{ System dependency ratio} = \frac{\text{retirement age population}}{\text{working age population} * \text{employment rate.}}$$

The ratio of the retirement age population to the working age population is also known as the population dependency ratio:

$$(7b) \text{ System dependency ratio} = \frac{\text{population dependency ratio}}{\text{employment rate}}$$

and:

$$(8) \text{ Contribution rate} = \frac{\text{population dependency ratio} * \text{replacement rate}}{\text{employment rate.}}$$

***System Dependency and the Population***

The next step is to explore the relationship between the system dependency ratio and the general structure of the population. For this purpose one can again divide both the numerator and the denominator into their constituent parts (equation 6 in Box A.1). The number of beneficiaries can be expressed as the product of the number of people in the age group eligible for retirement benefits multiplied by the reciprocity rate, which is the percentage of that population drawing benefits. Similarly, the number of contributing workers can be expressed as the product of the working age population, the labor force participation rate (the percentage of the population that is working or looking for work), the employment rate (the percentage of the labor force that is working), and the coverage rate (the percentage of workers covered by the pension system).

Focusing on the constituent parts of the numerator and denominator of equation 6 in Box A.1 reveals that the link between the system dependency ratio and the population dependency ratio depends primarily on the relationship between the reciprocity rate and the product of the coverage rate multiplied by the labor force participation rate. In a pension system's initial years, or in the years following an

expansion in coverage, the percentage of the working age population covered by the system generally exceeds the percentage of the population receiving benefits, causing the system dependency ratio to be lower than the population dependency ratio. Over time, however, the two ratios are likely to converge. Thus, if 90 percent of employed workers are covered by the system, eventually something like 90 percent of retired workers should be eligible for benefits.<sup>1</sup> When these two rates are the same, the reciprocity rate, labor force participation rate, and coverage rate drop out of the equation (equation 7a), and the system dependency ratio is simply the population dependency ratio divided by the employment rate (equation 7b). In this case the pay-as-you-go contribution rate is equal to the population dependency ratio multiplied by the average replacement rate and divided by the employment rate (equation 8).

### ***Interaction with Population Structure***

The pay-as-you-go contribution rate is determined by the generosity of the system (as measured by the average replacement rate) and the population dependency ratio. The population dependency ratio, in turn, is determined by the interaction of the retirement age and birth, death, and migration rates. A good place to begin exploring how these interact is with a life table, such as the one for Barbados reproduced as Table A.1.

The first two columns of Table A.1 define an age group. The first row refers to people from birth until age 1, the second row from age 1 to 5, and so on. The third and sixth columns show, for men and women, the percentage of people alive at the younger age that would be expected to die before reaching the older age, given the mortality rates prevailing for a particular year and country.

The fourth and seventh columns of the life table show for each sex the number of people alive at the initial age if there are 100,000 births (of each sex) each year. Thus, if 100,000 boys and 100,000 girls are born each year, at the Barbados 1999

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<sup>1</sup> Over time the reciprocity rate could rise above the product of the coverage rate and the labor force participation rate if a significant portion of workers spent part of their working careers in employment covered by the system and the other part out of the labor force or in employment not covered by the system. On the other hand, the percentage of the working age population covered by the system could exceed the reciprocity rate if a significant percentage of the people who work under the system do not work long enough to qualify for benefits. If the system includes benefits for nonworking dependents of retired workers, the reciprocity rate for all beneficiaries would exceed the percentage of the working age population covered by the system.

**Table A.1. Life Table for Barbados, 1999**

Age group		Men			Women		
x	x + n	${}_nq_x$	$l_x$	$e_x$	${}_nq_x$	$l_x$	$e_x$
0	1	0.0106	100,000	72.7	0.0088	100,000	77.8
1	5	0.0009	98,941	72.5	0.0014	99,121	77.5
5	10	0.0012	98,856	68.6	0.0003	98,978	73.6
10	15	0.0004	98,734	63.7	0.0007	98,944	68.6
15	20	0.0060	98,696	58.7	0.0024	98,878	63.7
20	25	0.0038	98,100	54.0	0.0028	98,637	58.8
25	30	0.0121	97,728	49.2	0.0023	98,364	54.0
30	35	0.0124	96,542	44.8	0.0049	98,134	49.1
35	40	0.0096	95,346	40.3	0.0076	97,652	44.3
40	45	0.0134	94,435	35.7	0.0090	96,907	39.6
45	50	0.0289	93,170	31.1	0.0181	96,032	35.0
50	55	0.0358	90,478	27.0	0.0230	94,294	30.6
55	60	0.0595	87,241	22.9	0.0245	92,126	26.2
60	65	0.0735	82,048	19.2	0.0517	89,872	21.8
65	70	0.1221	76,016	15.5	0.0767	85,228	17.9
70	75	0.1959	66,738	12.3	0.1279	78,687	14.2
75	80	0.2782	53,664	9.7	0.2222	68,626	10.9
80	85	0.3852	38,732	7.5	0.3290	53,379	8.3
85	120	1.0	23,813	5.6	1.0	35,815	6.1

Note: x = initial age of the group

x + n = end age of the group

${}_nq_x$  = percentage of people alive at the initial age who will die before reaching the end age

$l_x$  = number of people alive at age x if 100,000 are born each year

$e_x$  = life expectancy at age x.

Source: Lopez and others (1999).

mortality rates, 98,941 boys and 99,121 girls will survive to age 1, and 98,856 boys and 98,978 girls will survive to age 5. Columns five and eight show the life expectancy at the younger age in each age range, given the prevailing mortality rates.

It is easy to see the age structure of a country's population that will be produced if the number of births is constant each year by focusing on the  $l_x$  columns of a life table. If the table is expanded to show single years, the size of the retirement age population will be the sum of all the numbers in the  $l_x$  column beginning with the retirement age and continuing to the end of the table. Similarly, the size of the work-



ing age population will be the sum of all the numbers in the  $l_x$  column over the age range considered the normal working age. The population dependency ratio is the ratio of these two figures.

Table A.2 shows the results of such calculations using 1999 Barbados mortality rates, assuming 1,000 annual births of each sex. Looking at the two sexes combined, one sees that under these circumstances the total population between 21 and 59 would be 75,090 and the population age 60 and over would be 34,986. If the retirement age is set at age 60, the population dependency ratio will be the ratio of these two numbers, or 0.47. The population dependency ratio is quite sensitive to the choice of the retirement age. If the retirement age is lowered to 55, the dependency ratio rises to 0.70. If it is raised to 65, the ratio falls to 0.32.

It is relatively easy to translate the figures in Table A.2 into likely pay-as-you-go pension contribution rates by remembering that the contribution rate is equal to the average replacement rate multiplied by the population dependency ratio and divided by the employment rate. The calculation for different replacement rates and retirement ages is illustrated in Table A.3.

The population dependency ratios in the second column of Table A.3 are taken from Table A.2. They are divided by 0.94 to produce the corresponding system

**Table A.2. Population Age Structure in Barbados, 1999**

Age	Men	Women	Total
0–20	20,618	20,686	41,303
21–49	27,457	28,068	55,524
50–54	4,434	4,646	9,081
55–59	5,049	5,436	10,485
60–64	3,903	4,339	8,242
65–69	3,515	4,053	7,568
70+	8,147	11,030	19,176
<i>Population ratios (percent)</i>			
55+/21–54	0.65	0.76	0.70
60+/21–59	0.42	0.51	0.47
65+/21–64	0.29	0.36	0.32
70+/21–69	0.18	0.24	0.21

*Note:* Assumes constant annual births and 1999 mortality rates.

*Source:* Author's calculations using mortality rates in table A.1; assumes 1,000 births of each sex each year.

**Table A.3. Calculation of Contribution Rates**

Retirement age	Population dependency ratio	System dependency ratio <sup>a</sup>	Replacement rate	Contribution rate
55	0.70	0.75	0.50	0.37
60	0.47	0.50	0.50	0.25
65	0.32	0.34	0.50	0.17
70	0.21	0.22	0.50	0.11
65	0.32	0.34	0.75	0.26
65	0.32	0.34	0.40	0.14

a. Population dependency ratio divided by 0.94 (assumes 6 percent unemployment rate).

Source: Author's calculations using data in Table A.2.

dependency ratios in the third column, which reflect the assumption that the unemployment rate will average 6 percent. The last column is the product obtained by multiplying the third and fourth columns. It shows the contribution rates required to support the corresponding replacement rates at the particular retirement ages. For example, with a constant population, a system paying a 50 percent replacement rate at age 55 will require a contribution rate of 37 percent. The contribution rate falls to 25 percent if the retirement age is 60 and to 17 percent if the retirement age is 65. At a retirement age of 65, the required contribution rate is 26 percent if the replacement rate is 75 percent, but only 14 percent if the replacement rate is 40 percent.

### ***Impact of Population Growth***

Pay-as-you-go contribution rates are also affected by the rate of growth of a country's population, because growing populations have different age structures than do stable populations. Table A.4 shows the impact on the population age structure of different rates of population growth (assuming the 1999 mortality structure of Barbados). More rapid population growth increases the number of younger people relative to the number of older people, reducing the population dependency ratio associated with any given retirement age.

For instance, a country with a population growing at 1 percent a year with a retirement age of 60 would have a population dependency ratio of 0.36, whereas a

**Table A.4. Impact of Population Growth on Population Structure and Pension Contribution Rates**

Retirement age	Annual growth rate (percent)						
	-0.1	-0.5	0.0	0.5	1.0	1.5	2.0
<i>Population ratios</i>							
55+/21–54	0.97	0.83	0.70	0.60	0.51	0.44	0.37
60+/21–59	0.69	0.59	0.50	0.42	0.36	0.30	0.26
65+/21–64	0.48	0.41	0.35	0.29	0.25	0.21	0.17
70+/21–69	0.32	0.27	0.23	0.19	0.16	0.13	0.11
<i>Contribution rates (with 6 percent unemployment and 50 percent average replacement rate)</i>							
55+/21–54	0.52	0.44	0.37	0.32	0.27	0.23	0.20
60+/21–59	0.37	0.31	0.27	0.23	0.19	0.16	0.14
65+/21–64	0.26	0.22	0.18	0.16	0.13	0.11	0.09
70+/21–69	0.17	0.15	0.12	0.10	0.09	0.07	0.06

*Source:* Author's calculations using 1999 Barbados mortality rates; assumes that the number of births increases each year at the respective percentage rate.

country with the same retirement age but a stable population would have a population dependency ratio of 0.50. In this case a reduction in the population growth rate from 1 percent a year to zero population growth causes the population dependency ratio to rise by almost 40 percent and triggers a proportionate increase in the contribution rate required to finance any given replacement rate. The bottom rows in Table A.4 show contribution rates assuming a 50 percent average replacement rate and a 6 percent unemployment rate.

### ***Advance Funding Principles***

Under an advance funded financing strategy, the pension plan holds assets in reserve to finance future benefit payments. When a plan is fully funded, the assets held in reserve at any given time are sufficient to finance all the benefit promises that have been made as of that time. The contribution rate required to achieve this result is equal to the present value of all the benefits that have been promised to a given set of workers divided by the present value of all the wage payments that will be made to those same workers (Box A.2, equation 9). As with the pay-as-you-go formula, these two present values can be written as the product of the average benefit (or average

wage) each year multiplied by the number of cohort members that are working or drawing benefits that year (equation 10).

If wages and benefits grow at the same rate each year, here represented as rate  $w$ , the average benefit (or average wage) in any given year can be expressed as the average benefit (or average wage) in the initial year, increased by the quantity one plus the rate of growth of benefits (or wages) multiplied times itself for as many years as have elapsed, with the result reduced by the discount factor (see Box A.2, equations 11 and 12).

The contribution rate under the advance funding approach may be higher or lower than under the pay-as-you-go approach, depending on the rate of population growth and the relationship between the average rate at which wages rise and the average return earned on the assets held in the pension fund. To understand this relationship, consider the situation where the rate of growth of wages,  $w$ , is the same as the rate of return on the investment,  $r$ . When these two rates are identical, the growth terms and the discount terms fall out, leaving the simple result that the advance funded contribution rate is equal to the average replacement rate multiplied by the ratio of the total number of years the members of the group are retired to the total number of years that they work (see Box A.2, equation 13). Note, however, that the ratio of the total retirement years to the total working years is essentially the same as the ratio of the working age population to the retirement age population in a stable population, adjusted for periods of unemployment.

Consider the columns in Table A.1 showing the number of people surviving to each age. If there are 98,100 men and 98,978 women who enter employment at age 20, 82,048 men and 89,872 women will survive to age 60. The total number of years these men and women accumulate will equal the number alive at each age between 20 and 59 multiplied by the employment rate. If these workers begin to draw their pensions at age 60, the total number of pension-years drawn will equal the sum over the ages 60–120 of the number remaining alive. But these two figures are simply the total working age population (multiplied by the employment rate) and the total retirement age population in the stable population underlying Table A.1.

### Comparing the Two Financing Approaches

Analysis of these basic pension finance formulas leads to several important conclusions: First, the contribution rate for an advance funded pension and the contribu-

**Box A.2. Advance Funding Pension Mathematics**

(9) Contribution rate =  $\frac{\text{present value of future benefits}}{\text{present value of future wages}}$

$$(10) \text{ Contribution rate} = \frac{\sum_{t=1}^{t=R} B_t \cdot N_t \cdot (1/(l+r)^t)}{\sum_{t=1}^{t=D} W_t \cdot N_t \cdot (1/(l+r)^t)}$$

where:

$B_t$  = average benefit, year  $t$

$W_t$  = average wage, year  $t$

$N_t$  = number of cohort members surviving to year  $t$

$R$  = year of retirement

$D$  = year of death of the last surviving member of the cohort

$r$  = rate of return on investments

If wages and retirement benefits grow over time at the same rate,  $w$ , then:

$$(11) \text{ Contribution rate} = \frac{\sum_{t=1}^{t=R} B_0 \cdot (1+w)^t \cdot N_t \cdot (1/(l+r)^t)}{\sum_{t=1}^{t=D} W_0 \cdot (1+w)^t \cdot N_t \cdot (1/(l+r)^t)}$$

Or, if the terms are rearranged:

$$(12) \text{ Contribution rate} = \frac{\sum_{t=1}^{t=R} B_0 \cdot N_t \cdot ((1+w)^t / (l+r)^t)}{\sum_{t=1}^{t=D} W_0 \cdot N_t \cdot ((1+w)^t / (l+r)^t)}$$

Which means that, when the rate of return on assets,  $r$ , equals the rate of return on wages,  $w$ :

$$(13) \text{ Contribution rate} = \frac{\sum_{t=1}^{t=R} B_0 \cdot N_t}{\sum_{t=1}^{t=D} W_0 \cdot N_t} \quad \text{or} = \frac{B_0}{W_0} \times \frac{\sum_{t=1}^{t=R} N_t}{\sum_{t=1}^{t=D} N_t}$$

tion rate for a pay-as-you-go pension are the same when the size of the workforce is constant, wages and retirement benefits grow at the same rate, and the net rate of return on investments is equal to the rate of growth of wages.

Second, population (and therefore workforce) growth reduces the contribution rate required under a pay-as-you-go system, but has no impact on the contribution rate under an advance funded system. The recent interest in many parts of the world in greater use of the advance funding approach to pensions can be traced in part to the fact that the slowdown in population growth has reduced the advantage that pay-as-you-go financing previously enjoyed over advance funding.

Third, net investment returns higher than the growth rate of wages will reduce the contribution rate required under an advance funded plan. This can be seen in equations 10, 11, and 12 (Box A.2), where an increase in the rate of return will lower the present value of benefit payments by more than it lowers the present value of future earnings, since the benefit payments occur farther in the future.<sup>2</sup>

Finally, declines in elderly mortality will force contribution rates to increase under either approach to pension finance. They increase the ratio of the retired population to the working age population under pay-as-you-go financing and increase the ratio of years spent in retirement to years spent working under advance funding.

### **Exercise in Assessing Affordability**

One application of the principles explained here is to explore the likely consequences for future contribution rates of key pension benefit design elements and changes in the economic and demographic environment.

### ***Calculations for a Basic Pay-as-You-Go System***

The beginning point for such an exercise could involve the following sequence:

---

<sup>2</sup> Although not obvious from the equations presented here, the contribution rate will be lower under a pay-as-you-go system whenever the rate of growth of total earnings (essentially the rate of growth of the workforce plus the rate of growth of the average wage) exceeds the net rate of return (returns after administrative expenses) of an investment portfolio (Aaron 1966).

- Decide the rate of population growth the country is likely to experience over the next 50–75 years. This will determine the age structure of the population.
- Decide the average unemployment rate likely to prevail over the same period. This will determine the adjustment needed to convert the population structure into the system dependency ratio.
- Pick an arbitrary average replacement rate, such as 50 percent, and an arbitrary retirement age, such as 60, and calculate the contribution rate using the formula supplied below.
- Calculate the impact of changes in the average replacement rate and retirement age on the required contribution rate.
- Pick the retirement age and replacement rate package that seems to strike the best balance between the desire for adequate benefits and the need to keep contribution rates at reasonable levels.

Table A.5 shows the estimated average annual population growth rate of selected countries in the 1990s, information that may be helpful in deciding what rate of population growth to assume for the next 50–75 years in any particular country. Population growth has slowed dramatically in most of the developed world, and is expected to turn negative in the near future in a number of countries, including Germany, Japan, and Spain. Recent population growth rates in many Caribbean countries are similar to those in Japan and Western Europe, and some have already experienced periods of population decline. Even countries that have traditionally had high population growth rates are seeing them fall. For example, the population of the

**Table A.5. Population Growth Rates in Various Countries, 1990–2000**  
(Annual percentage change)

Country	Rate	Country	Rate
Spain	0.2	United States	1.2
Japan	0.3	Vietnam	1.6
Germany	0.3	Mexico	1.7
Barbados	0.4	India	1.8
Sweden	0.4	Philippines	2.1
Jamaica	0.7	Saudi Arabia	3.3

Source: U.S. Census Bureau, International Database ([www.census.gov/ipc/www/idbnew.html](http://www.census.gov/ipc/www/idbnew.html)).

Philippines grew by 3 percent a year in the 1960s and 1970s before beginning to slow. Given the worldwide trend toward slower population growth, it seems unlikely that any country will experience growth rates in excess of 1.5 percent a year over the next 50 years—and most will likely experience slower growth.

Once a population growth rate has been selected, the figures in the top half of Table A.4 can be used to develop an initial estimate of the contribution rate associated with a particular retirement age and benefit level. The figures in Table A.4 show the population ratios for four different retirement ages at six average population growth rates. These can be converted to long-run pension contribution rates by simply multiplying the population ratio at the selected retirement age and population growth rate by the average replacement rate selected, and then dividing the result by the employment rate ( $1 - \text{the unemployment rate}$ ). The figures in the bottom half of Table A.4 show the result when the replacement rate is 50 percent and the employment rate is 0.94.

Note that the average replacement rate used in these calculations is the actual average for the system as a whole. It is not necessarily the benefit that will be paid to an illustrative full career worker.

### ***Adjusting for Compliance Shortfalls***

The calculation just outlined includes several implicit assumptions about the structure of the pension system that readers may wish to alter. One is that the pension agency (or government, as the case may be) is able to collect all the pension contributions owed it. Where compliance problems cause collections to fall short of the theoretical maximum, contribution rates will have to be increased to generate the revenue needed to pay benefits, producing the desired replacement rate at the desired retirement age.

Compliance shortfalls have the same impact as unemployment and can be adjusted for in the same manner; the two adjustments are multiplicative. Thus if a country collects, on average, only 80 percent of the actual contribution liability and it has a 6 percent unemployment rate, the pension system's dependency ratio is the result determined by dividing the appropriate population ratio by 0.752, which is the compliance rate, 0.80, multiplied by the employment rate, 0.94.



**Table A.6. Reduction in Contribution Rate When Switching from Wage to Price Indexing**  
(Percent)

Retirement age	Real annual wage growth (percent)		
	1	2	3
55	0.11	0.22	0.30
60	0.10	0.18	0.26
65	0.08	0.15	0.22
70	0.06	0.12	0.18

Source: Lopez and others (1999).

### *Changing the Post-Retirement Adjustment*

Thus far the calculations have implicitly assumed that once benefits have been awarded, they will be adjusted each year at the same rate as wages are rising. Under normal circumstances, adjusting benefits after retirement to reflect only price increases will allow pensions to be financed with somewhat lower contribution rates. Since in most years the average wage rises more quickly than the price level, adjusting benefits only for price increases causes pensions of those already retired to gradually decline relative to the prevailing average wage. In effect, the average replacement rate across the entire retired population falls relative to the average replacement rate for newly retiring workers.

The impact of switching to price indexing of benefits depends on the difference between the average wage growth rate and the average price growth rate, and on the amount of time that the average person can expect to live after retiring. Table A.6 shows the impact on contribution rates of switching from wage indexing to price indexing at different retirement ages, using the Barbados life table. Thus, if wages rise on average at 1 percent a year above the inflation rate and the retirement age is 60, the switch to price indexing will allow the contribution rate to fall by 10 percent. Whereas the contribution rate might have been 20 percent under wage indexing, it would be 18 percent under price indexing.<sup>3</sup>

<sup>3</sup> At any given level of the replacement rate for newly retiring workers, the switch to price indexing will reduce the average replacement rate across the retired population as a whole by the same amount as it reduces the contribution rate.

### *Adding Survivor Benefits*

The assumption that the ratio of beneficiaries to workers is proportionate to the relevant population ratio assumes that the percentage of the population receiving benefits is the same as the percentage of the population employed or looking for work in employment covered by the pension system. But that will not be the case if benefits are paid to survivors of deceased workers. In that case the dependency ratio for the pension system will be higher than the dependency ratio for the population as a whole. The additional cost of paying survivor benefits will be equal to the ratio of survivor beneficiaries to retired workers, multiplied by the ratio of the average survivor benefit to the average retired worker benefit.

For example, if the number of survivor beneficiaries is 20 percent of the number of retired worker beneficiaries and the average survivor benefit is 75 percent of the average retired worker benefit, the contribution rate will have to be increased by 15 percent ( $0.20 \times 0.75$ ) to pay for survivor benefits. If the contribution rate would be 20 percent without survivor benefits, it would have to be increased to 23 percent to cover the survivor benefits.

### *Using Advance Funding*

Advance funding pension costs can allow a given benefit package to be financed with a lower contribution rate, particularly where population growth is slow and net investment returns are high.<sup>4</sup> The impact of advance funding depends on the relationship between the rate of growth of the average wage under the pension system and the net rate of return on the invested portfolio. Table A.7 shows rules of thumb that can be used to assess the impact of advance funding on contribution rates. The adjustment is from the contribution rate implied by the selected retirement age and replacement rate when the population is stable.

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<sup>4</sup> If a pension system is converted from pay-as-you-go to advance funding, the lower contribution rates may not mean that the total cost of the pension system is lower, since they may not reflect the one-time transition cost involved in creating the fund. For example, if a transition from a pay-as-you-go to a funded approach is financed by government borrowing or general fund taxation, any reduction in pension contribution rates will probably be offset by higher general fund taxes (see Geanakoplos, Mitchell, and Zeldes 1998).

For example, assume the retirement age is set at 60, the replacement rate is 50 percent, the unemployment rate is 6 percent, and the population will grow at 0.5 percent per year. As shown in Table A.4, this combination requires a contribution rate of 23 percent. The rule of thumb about the impact of advance funding operates off of the rate associated with a stable population. In this example the contribution rate with a stable population would be 27 percent. According to the rule of thumb, if net investment returns are, on average, 1 percentage point above the wage growth rate, the full reserve contribution rate would be roughly 25 percent lower than the stable population, pay-as-you-go rate, or 20.2 percent (0.75 times 27 percent).<sup>5</sup>

The data in Table A.7 show how sensitive the full reserve contribution rate is to seemingly modest variations in the wage-return gap. If net investment returns are as much as 3 percentage points above the average growth rate of wages, the contribution rate under full reserve financing will be less than half of the pay-as-you-go rate associated with a stable population. On the other hand, if wage growth is 1 percentage point above the net rate of return earned on the investments, full reserve financing will require a contribution rate one-third higher than the pay-as-you-go rate. These data also illustrate the importance of adopting a model that minimizes the cost of administering investments, if the full reserve financing model is selected.

**Table A.7. Approximate Impact of Full Reserve Funding on Contribution Rate**  
(Percentage change from pay-as-you-go rate for a stable population)

	-1	0	1	2	3	4
Return-wage gap	-1	0	1	2	3	4
Change in contribution rate	31	0	-25	-43	-58	-68

Source: Author's calculations based on 1999 Barbados mortality rates.

### ***Mortality Improvements***

All the calculations reported to this point are based on the 1999 Barbados mortality rates. But history suggests that mortality rates will decline in the future. Falling mor-

<sup>5</sup> Note that the full reserve contribution rate at the 1 percentage point wage-return gap is essentially the same as the pay-as-you-go contribution rate associated with population growth at 1 percent, illustrating the Aaron (1966) result.

tality rates increase the cost of any pension plan. Each worker lives longer after retiring, increasing the number of beneficiaries relative to the number of workers under pay-as-you-go financing and the ratio of retired years to work-years under full reserve financing.

In 1999 life expectancy at birth in Barbados was 72.7 years for men and 77.8 years for women. Actuaries who prepare cost projections for the U.S. Social Security Administration project that the cohort born in 1990 (who will begin retiring in 2052) will live, on average, for 78.5 years (men) and 83.4 years (women). Table A.8 compares some of the population ratios for Barbados that were presented in Table A.4 with the corresponding ratios produced by the mortality rates projected for the future in the United States. Although the impacts vary with different retirement ages, the reductions in mortality cause the population ratios in Barbados to rise by 15–25

**Table A.8. Impact of Reduced Mortality on Population Ratios in Barbados**

Population ratio	Population growth rate (annual percent)	
	0	0.5
<i>Population ratios, 1999 mortality</i>		
55+/21–54	0.70	0.60
60+/21–59	0.50	0.42
65+/21–64	0.35	0.29
70+/21–69	0.23	0.19
<i>Population ratios with reduced mortality<sup>a</sup></i>		
55+/21–54	0.84	0.71
60+/21–59	0.58	0.48
65+/21–64	0.41	0.35
70+/21–69	0.29	0.24
<i>Percentage increase in population ratios with reduced mortality</i>		
55+/21–54	0.19	0.18
60+/21–59	0.15	0.14
65+/21–64	0.19	0.18
70+/21–69	0.25	0.24

a. 1999 age-sex specific mortality rates reduced by 34 percent (men) and 37 percent (women) to produce life expectancy at birth of 78.5 years for men and 83.4 years for women.

Source: Author's calculations using data in Table A.4 and mortality projections from the U.S. Social Security Administration.

percent, which would translate into equal percentage increases in the contribution rate required for any given set of pension provisions.

These calculations suggest that assessments of the affordability of any given set of pension system parameters should build in a factor of at least 10–15 percent to allow for possible mortality improvements over the next half-century.

Mortality improvements increase the cost of all kinds of retirement income programs. For instance, the cost of purchasing a life annuity that guaranteed a specific monthly payment would rise by approximately the same percentage amount as the cost of the public pension program in response to mortality improvement. Even simply saving in advance for retirement will become more difficult since workers will have to save more each year in order to accumulate the higher account balance needed at retirement to support them for the additional years they can expect to live. No matter how a retirement income system is organized, an increase in life expectancy at retirement means that either contribution rates must be raised, monthly benefits reduced, or retirement delayed.

## Conclusion

Many pension systems are still maturing, and the impact of slower population growth rates has not been fully reflected in the population structure of many countries. Both cause current pension contribution rates to be lower than will be required in the future. The procedures outlined in this annex can be used to assess the longer-run implications of current pension system parameters, to see if they appear to be affordable in the long run and to test the affordability of adjustments in those parameters.

REFERENCES

- Aaron, Henry J. 1966. The Social Insurance Paradox. *Canadian Journal of Economics and Political Science* 32 (3): 371–74.
- Geanakoplos, John, Olivia S. Mitchell, and Stephen P. Zeldes. 1998. Would a Privatized Social Security System Really Pay a Higher Rate of Return? NBER Working Paper 6713. National Bureau of Economic Research, Cambridge, Mass.
- Lopez, Alan, Joshua Salomon, Omar Ahmad, Christopher JL Murray, and Doris Mafat. 1999. Life Tables for 191 Countries: Data, Methods and Results. GPE Discussion Paper 9. EIP/GPE/EBD. World Health Organization, Geneva.
- U.S. Bureau of the Census. International Database. Washington, DC. [[www.census.gov/ips/www/idbnew.html](http://www.census.gov/ips/www/idbnew.html)].

## Glossary of Planning and Pension Terms

**Accrued benefit:** Benefit earned to date based on years of employment or contributions to a retirement plan. The portion of accrued benefit contributions coming from an employer is subject to a vesting schedule.

**Actuarial balance:** An indication of whether a pension plan is in good financial condition. Can test for short-term viability and long-term sustainability, and often equals the present value of income minus outgo (see below).

**Actuarial equivalent:** A retirement plan may offer more than one type of benefit, such as a single life annuity, joint and survivor annuity, or lump sum distribution. It makes no difference to the plan which type is chosen because all are calculated to be actuarially equivalent—that is, they have the same value.

**Actuarial fairness:** A method of setting insurance premiums based on the true risks involved.

**Actuarial report:** An assessment signed by an actuary about a pension or insurance system that includes data, assumptions, histories, projections (including fund balances), and an opinion on the system's actuarial balance, including a sensitivity analysis and recommendations if the system is not in balance.

**Actuary:** A professional whose work includes making actuarial equivalent calculations and calculations to determine funding requirements for defined benefit pension plans.

**Adverse selection:** A problem stemming from insurers' inability to distinguish between high and low-risk customers. The price for insurance then reflects the average risk level, which leads low-risk individuals to opt out of the market and drives the price of insurance higher—until the insurance market breaks down.

**Annual balance:** Each year's income minus outgo in a pension system.

**Annuitize:** To arrange for gradual (say, monthly) payouts of an investment, such as a pension or annuity contract, over a stated number of years or for the remaining lives of the contributor or survivor, instead of taking it in a lump sum.

**Average effective retirement age:** Actual average retirement age, taking into account early retirement and special programs.

**Beneficiaries:** All people receiving benefits, including retirees, survivors, and recipients of medical and other income-type benefits.

**Benefit rate:** Ratio of the average pension to the average economywide wage or average covered wage.

**Calculation age:** Age used to calculate the present (lump sum) value of an annuity.

**Career average formula:** Method used to determine a defined benefit pension by multiplying a percentage of the employee's average wage over years of employment by years of service to the company.

**Compliance rate:** Percentage of covered workers who contribute to the pension program.

**Compounding:** Growth in principal left undisturbed as it gathers interest, and interest on that interest.

**Contributory flat rate pension:** A uniform pension based on years of service or residency that is not linked to earnings, with payroll contributions from employees, employers, or both.

**Contributory earnings-related pension:** A pension based on earnings, with payroll contributions from employees, employers or both.

**Cost of living adjustment (COLA):** An annual adjustment in wages or other regular payments (such as pension benefits) in line with the consumer price index or some other measure of inflation.

**Coverage rate:** Percentage of workers covered by a pension program.

**Covered workers:** Workers participating in a pension or other system.

**Defined benefit plan:** An employer pension plan that pays monthly benefits calculated using a formula defined in the plan document. Most plans allow the benefits to be paid in other ways, such as lump sums or joint and survivor annuities. U.S. benefits under defined benefit plans are guaranteed by the Pension Benefit Guarantee Corporation, a government agency.



**Defined contribution plan:** An employer pension plan that defines needed employee and employer contributions to each employee's account. Accounts grow based on contribution amounts and investment returns. The U.S. government does not guarantee payments to defined contribution plans.

**Demographic assumptions:** Involves a wide variety of analysis and assumptions, including about current and future mortality, fertility, immigration, marriage, divorce, disability, and termination, and their relevant changes for the labor force.

**Demographic transition:** The change that occurs as fertility and mortality rates decline, increasing the ratio of older to younger people.

**Dependency ratio:** Number of beneficiaries divided by number of covered workers.

**Disability incidence rate:** Rate of becoming disabled enough to receive a benefit.

**Disability termination rate:** Sum of probabilities of a disabled person dying or recovering.

**Disaggregation:** Breaking down large (say, national) groups of data into smaller groups based on age, sex, and type of benefit. Usually done to improve projections and to test proposals to change benefits for certain groups.

**Early retirement:** When a covered worker retires earlier than normal, leading to reduced pension benefits.

**Economic assumptions:** Assumptions unrelated to demographics, such as about unemployment, average earnings, inflation, interest rates, and productivity.

**Employment rate:** Percentage of labor force that is employed.

**Factors:** A way of breaking down big items (such as total outgo) into smaller components (such as number of beneficiaries and average benefits), just like 6 is factored into 3 and 2 ( $6 = 3 \times 2$ ). Usually done to improve projections or to test proposals that change one or more factors, such as number of beneficiaries or average benefits.

**Fertility rate:** Number of children born to 1,000 women of a certain age. The total fertility rate is the sum of fertility rates for all ages, and thus approximates the number of children a woman would have if she lived throughout her child-bearing years.

**Fiduciary:** An individual or institution responsible for holding and managing someone else's benefits, assets, or money.

**Flat benefits formula:** Method of determining a defined benefit pension that awards all employees a pension based on length of service, regardless of earnings.

**401(k) plan:** In the United States, employer-sponsored retirement plans that allow contributions from employees and employers to be invested and grow tax-free until withdrawal.

**403(b) plan:** Similar to 401(k) plans, but for public employees and employees of nonprofit organizations.

**Full funding:** When pension fund reserves equal or exceed the present value of liabilities to current members.

**Fund balance:** Assets of a pension fund.

**Implicit public pension debt (net):** Outstanding pension claims on the public sector minus accumulated pension reserves.

**Income:** May include only contribution income but may also include investment income; depends on context.

**Inflation rate:** Annual rate of price increase for a fixed basket of goods.

**Intragenerational distribution:** Income transfers within an age cohort.

**Joint and survivor pension:** Offers lower monthly payments than under a single life pension, but the payments continue after the covered worker's death, through the spouse's lifetime.

**Life expectancy:** Expected number of years that someone (usually a baby) will live.

**Labor force:** People who have a job or are not discouraged from seeking one. Same as the employed plus the unemployed, and does not include people who do not want a job.

**Labor force participation rate:** Percentage of the population in the labor force.

**Life table:** A set of data, derived by actuaries and demographers from  $q_x$  (the probability of living one more year), that gives life expectancy, the number of people alive  $N$  years after 100,000 births, and the approximate number that might die in the coming year. The  $q_x$  variable is based on census information from a specific group or country.

**Means-tested benefit:** A benefit paid if the recipient's income falls below a certain level.

**Mandatory private pension system:** A system legally requiring employers to provide private or occupational pensions.

**Mandatory savings system:** A compulsory defined contribution pension system that pays benefits as lump sums or annuities based on employee (and sometimes employer) contributions and investment returns. Examples include publicly managed provident funds and privately managed systems (as in Chile).

**Minimum pension guarantee:** A government guarantee to provide pensions of some minimum level, possibly by "topping up" the capital accumulation needed to fund them.

**Moral hazard:** When insured people do not protect themselves from risk as much as they would if they were not insured.

**Noncontributory means-tested pension:** A pension paid if the recipient's personal or household income (or assets) falls below a certain level; generally financed by government, with no contributions from employers or employees.

**Noncontributory flat rate universal pension:** A uniform pension based on years of service that is not linked to earnings, paid to residents or citizens who meet age or disability requirements and not financed with contributions from employers or employees.

**Normal retirement age:** Age where pension benefits are payable in full, as defined in plan documents. Most private pension plans define 65 as the normal retirement age.

**Old age dependency ratio:** Ratio of older to working age individuals, with ratios defined differently depending on the country.

**Outgo:** Total payments from a system, including administrative expenses.

**Pay-as-you-go:** In the strictest sense, a method of pension financing in which current benefits are paid out of current revenues from an earmarked tax, often a payroll tax.

**Pension coverage rate:** Number of workers contributing to a publicly mandated contributory or retirement scheme, divided by the estimated labor force.

**Pension spending:** Old age, retirement, survivor, death, and disability payments based on past contributions plus noncontributory, flat rate, universal, and means-tested programs targeting the elderly.

**Portability:** Ability to transfer accrued pension rights between plans.

**Present value (PV):** Current value of amount  $A$  to be paid  $N$  years in the future with probability  $P$  of getting it, based on discount rate  $i$ . The formula is  $PV = A(1 + I)^{NP}$ .

**Prevalence rate:** Percentage of a population receiving a benefit based on age and sex.

**Provident fund:** A fully funded, defined contribution scheme in which funds are managed by the public sector.

**Qualified joint and survivor annuity:** An instrument that requires an employer to pay an employee's pension to his or her spouse after the employee dies.

**Real wage growth:** Wage growth rate divided by inflation rate.

**Reciency rate:** Percentage of elderly population receiving benefits.

**Replacement rate:** A pension as a percentage of a worker's wage during some base period, such as in the last year or two before retirement or over the entire working lifetime. Also denotes the average pension of a group of pensioners relative to their average wage as a group.

**Replacement ratio:** Gross monthly income needed upon retirement, divided by gross monthly income just before retirement.

**Reserve ratio:** Annual pension fund spending, expressed as a percentage of the fund balance.

**Sensitivity analysis:** Using different assumptions about the future to see what effects they have on the results.

**Straight life annuity (also known as lifetime annuity):** An immediate annuity that pays until death.

**System dependency ratio:** The ratio of persons receiving pensions from a pension scheme divided by the number of workers contributing to the scheme in the same period.

**Universal flat benefit pension:** A pension paid solely on the basis of age and citizenship, without regard to prior work or contributions.

**Vesting:** Awarding accrued benefits to an employee after a certain number of years of service in a company.

**Voluntary individual accounts:** An advance funding mechanism that relies on employee and employer contributions invested to generate funds for future consumption during the years of retirement.

**Wage growth:** Annual rate of increase in wages.

*Source:* This glossary draws from the chapters in this book and the following sources:

Pension benefits website <http://www1.pensionbenefits.com/faqs/glossary>.

Social Security Administration. 1999. "Social Security Programs throughout the World." Office of Policy, Office of Research, Evaluation, and Statistics. Washington, DC.

World Bank. 1994. *Averting the Old Age Crisis*. A Policy Research Report. New York: Oxford University Press.

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# Index

- Absolute return guarantees, 142  
Accountability, 120–121  
Accrual rates, 133  
Accrued rights, 365–366  
Acquired rights, 241, 365–366  
Actuarial reviews, 371–372, 373*tab*, 375–376  
Actuaries, 101, 107, 120  
Administracion Nacional de Seguro Social (ANSES)(Argentina), 294  
Administradoras de Fondos de Jubilaciones y Pensiones (AFJPs)(Argentina), 294–297  
Advance funding, 247–249, 364–365, 415, 430–431. *See also* Defined contribution pension systems; Funded pension systems; Systemic pension reforms  
Adverse selection, 273, 279, 307–308, 310  
AETNA, 298  
Affordability, 426–433  
AFOREs, 380  
AFPs, 299, 301–303  
Africa, 23, 25, 50  
Aging, 103, 180–181, 249  
Agricultural labor force, 64, 66*tab*  
Agriculture, 34  
AIDS, 55, 107  
AIG, 298  
Alfa, 301  
Amato reform (Italy), 198  
American Council of Life Insurance, 273  
Anguilla, 368*tab*  
Annuitant tables, 271–272, 293*fig*  
Annuities. *See also under individual countries:*  
    arithmetic of, 276*box*  
    capital market development and, 286–288, 309  
    competition in market for, 285–286  
    conversion of defined contribution accounts into, 255  
    data lack as hindrance to use of, 308  
    deferred, 275–276, 305–306  
    definition, 271  
    demographics and, 285  
    designs of, 274–278  
    in developing countries, 269–270  
    disability, 270*n*4, 288  
    efficiency in market for, 285–286  
    employer-based programs, 305  
    features of markets for, 292*tab*  
    immediate, 276–277  
    insurance industry health and, 309–310  
    investment risk and, 280–282  
    Latin American/Caribbean markets, 291–307  
    life, 141  
    literature review, 272–274  
    longevity risk and, 278–279  
    lump sum withdrawals, 275  
    management of, 7–8  
    mandatory, 277, 281*box*, 291, 310  
    market concentration in sale of, 296  
    nonguaranteed, 277  
    overview of, 271–272  
    pension reform and, 162–164, 283–284  
    policy considerations for voluntary markets, 307–308  
    policy tradeoffs, 310  
    portability of, 310–311  
    premiums for, 282–283  
    programmed withdrawals, 275  
    regulation of, 142, 151, 284–285  
    risk and valuing of, 280–283, 290  
    in small emerging economies, 288–291, 311–312  
    types of, 275–277, 278*box*  
    unpopularity of, 272–273  
    values and calculations, 313–317  
    variable, 141  
    voluntary, 277, 305  
Antigua and Barbuda:  
    features of old-age pension system, 368*tab*  
    investment of pension funds, 105  
    productivity growth, 62

- regulation of pension plans, 111
- social insurance system, 69, 81–84*annex*
- socioeconomic conditions, 64
- stages of reform, 67
- Arab states, 23
- Argentina:
  - annuities, 141, 163, 281*box*, 294–298
  - capital market growth, 396*tab*, 398*tab*, 399*tab*
  - disabilities, 148–149
  - financing strategies, 154
  - funded pension systems, 40n15
  - payout period experiences, 162
  - pension guarantees, 142
  - pension reforms, 365, 392
  - political involvement in investment decisionmaking, 251n3
  - pre-reform conditions, 128
  - public pension institutions, 149
  - regulating management charges, 138*tab*, 139
  - replacement rates, 130*tab*, 131, 134
  - return guarantees, 142
  - Seguros de Retiro, 294
- Asia/Pacific region. *See also individual countries:*
  - informal structures for old-age income security, 25
  - motives for reform in, 246
  - old age dependency ratio, 23, 50
- Asset allocation regulations, 134–137
- Asset-liability management theory, 105
- ATP supplemental pension (Sweden), 188–189
- Auditors, 101, 106–107, 120
- Australia:
  - annuities, 281*box*
  - contribution rate, 356
  - health care benefits, 361
  - investment rules, 134
  - occupational plans, 145n14
  - payout options, 140
  - pension system, 361
- Austria, 184
- Average replacement rate, 416, 417*box*
- Bahamas:
  - actuarial review, 376, 377*tab*
  - features of old-age pension system, 368*tab*
  - financial indicators for, 373*tab*
  - regulation of pension plans, 111–112
- Baltic countries, 184
- Banco de Prevision Social (BPS)(Uruguay), 147
- Bank of Nova Scotia, 75
- Barbados:
  - annuities, 304–307
  - COLAs for pensions in, 79
  - contribution rates, 372
  - data on pension schemes, 345*annex*, 346*annex*
  - defined benefit pension systems, 52
  - demographics of, 77, 103, 304, 325, 427, 431–432
  - disability benefits, 324, 349*annex*
  - economic growth, 60
  - European influence on pension system design, 177
  - features of old-age pension system, 368*tab*
  - financial indicators for, 373*tab*
  - investment of pension funds, 105
  - national insurance systems in, 69–73
  - old age dependency ratio, 50–51
  - pension reform, 2003, 374–376, 382
  - population structure and system dependency, 419–422
  - potential reforms, 332–334, 335*tab*, 336*tab*
  - productivity growth, 62
  - regulation and supervision of private schemes, 98, 100, 102, 106, 108, 110, 113–114, 119
  - social insurance system, 75–76, 81–84*annex*, 323–326
  - socioeconomic conditions, 62–63
  - stages of reform, 52–54, 66
  - survivor benefits, 324, 350*annex*
- Belgium, 184
- Belize:
  - economic growth, 60
  - features of old-age pension system, 368*tab*
  - inflation, 62, 72
  - national insurance systems in, 69–72
  - as small emerging economy, 30
  - social insurance system, 81–84*annex*
  - socioeconomic conditions, 62–64



- Benefit claims, 248
- Benefit payout guarantees, 142–144, 275
- Benefit predictability, 260–264
- Beveridgian systems, 304
- Biagi Act (Italy), 185
- Bismarckian systems, 304n26
- Bolivia:
- annuities, 303–304
  - disabilities, 148
  - fiscal burden of reform, 393–394
  - IDB loan for pension reform, 403
  - investment rules, 135n4
  - payout period experiences, 163
  - pension guarantees, 142
  - pension reforms, 1997, 41*bax*, 43, 365, 392
  - political involvement in investment decisionmaking, 251n3
  - portfolio allocation, 161
  - as small emerging economy, 30
  - variable annuities, 141
- Bonds:
- catastrophe, 8
  - corporate, 137
  - government, 160–162
  - inflation-indexed, 8, 40
  - price-indexed, 255
  - recognition, 297, 300, 365
  - special, 137
  - survivor, 286n10
- Brasilia Charter, 237
- Brazil:
- capital market growth, 395, 396*tab*, 398*tab*, 399*tab*
  - complementary pension funds, 221, 225–226
  - coverage of elderly population, 222
  - demographics of, 223–225
  - early pension schemes, 218–219
  - Eloy Chaves Law, 219n1
  - informal labor in, 224–225
  - insolvency in pension systems, 359
  - noncontributory pensions, 220–222
  - old age dependency ratio in, 234
  - overview of pension system, 218–221
  - parametric reforms, 365
  - pay-as-you-go pension systems, 220, 222–225, 234, 240
  - private employee pension rules, 228*tab*
  - reform proposals of 2003, 218
  - reforms of 1998, 218
  - retirement age, 220, 239, 393
  - rural pensioners, 222
  - short-term concerns for pension system, 226
  - urban pensioners, 222
  - voluntary occupational funds, 145n14
  - Workers Party, 236–237
- Brazilian civil service pension systems:
- adoption of reforms, 2003, 236–238
  - benefits, 226–227, 229, 232*tab*
  - complexity of, 227
  - content of reforms, 238–240
  - contribution required for benefits, 229
  - coverage by government level, 235*tab*
  - deficits in, 229–233, 241
  - dependency ratios, 234
  - federal system, 231–232
  - future civil servants coverage reformed, 239–240
  - goals for reform, 236–237
  - judicial opposition to reform, 238, 241
  - for legislators and judiciary, 226, 232
  - media views of reform, 238
  - military personnel, 240
  - municipal systems, 234–235
  - number of civil servants, 231*tab*
  - police and fireman, 240
  - pre-1998 scheme, 220–221
  - rules of, 228*tab*, 235
  - safety and occupational health, 240
  - state systems, 232–234
- British American, 106
- British Virgin Islands, 368*tab*, 370
- Business groups dialoging on pension reform, 80
- Caja Costaricense de Seguridad Social (CSS), 147
- Canada Pension Plan, 251
- Capital constraints, 40
- Capital markets:
- annuities and development of, 286–288, 309
  - in the Caribbean area, 104
  - country risk and, 7
  - diversification of investments in, 169, 170*annex*, 171*annex*, 381

- efficiency in, 248
- growth of, 395–400
- pension reform's effect on, 167, 392, 394–395
- tax incentives and growth in, 41
- Cardoso, Fernando Henrique, 235–236
- Care allowances, 326
- Caribbean Association of Actuaries (CAA), 107
- Caribbean Common Market (CARICOM). *See* CARICOM Single Market and Economy; English-speaking Caribbean region
- Caribbean Court of Justice, 101
- Caribbean Development Bank, 353, 391, 403
- Caribbean Financial Action Task Force (CFATF), 110
- CARICOM Single Market and Economy. *See* also English-speaking Caribbean region:
  - legislative convergence in plan regulation, 108
  - portable benefits, 46, 54–55
  - as prerequisite for pension reform, 14
  - Social Security Agreement, 1996, 54
- Catastrophic risk, 8
- Cayman Islands, 100, 102, 116–117, 119
- Ceilings on contributions, 72
- Central America, 28, 163. *See also* individual countries
- Central Bank of Mexico, 380
- Central Bank of Uruguay, 46*box*
- Centralized collection agencies, 39–40
- Charge ratios, 156
- Children's benefits, 329
- Chile:
  - annuities, 7–8, 141, 163, 281*box*, 286–288, 298–300
  - capital markets, 169, 309, 381, 395, 396*tab*, 398*tab*, 399*tab*
  - contribution rate, 356
  - coverage as affected by reform, 165–166
  - disabilities, 148, 288
  - financing strategies, 154
  - investment rules, 135–137
  - management costs, 158
  - market capitalization, 36
  - minimum pension guarantee, 361
  - number of pensions paid by program in, 289*fig*
  - payout period experiences, 162
  - pension guarantees, 142*n10*
  - pension reform, 1981, 28, 67, 365, 392
  - portfolio allocation, 162
  - pre-reform conditions, 128
  - private management models, 256, 264
  - public pension institutions, 149
  - recognition bonds, 297
  - replacement rates, 130*tab*, 131, 134, 264
  - savings as affected by pension reform, 165
  - supervision of payments to funds, 146
  - transition costs of reform, 250, 364–366
- China, 140, 168
- Clico, 75, 106, 115, 306*n27*
- Cliff vesting, 145*n13*
- Closed group funds, 145*n14*
- Cohort mortality tables, 285
- Colombia:
  - annuities, 281*box*, 300–302
  - disabilities, 148
  - payout period experiences, 162–163
  - pension reforms, 365, 393
  - regulating management charges, 138, 140
  - replacement rates, 130*tab*, 131–132, 134
  - solidarity benefit program, 361
  - supervision of payments to funds, 147
- Compensacion de Cotizaciones (CC)(Bolivia), 304
- Competitiveness, 201
- Complementary pension funds, 221, 225–226
- Compliance shortfalls, 428
- Comprehensive reform, 26–27
- CONSAR, 139
- Consensus building, 183, 189–190, 193–194, 203
- Consequentialism, 200
- Consultancy contracts, 201*n21*
- Contingent liabilities, 254–255
- Contractual savings, 6
- Contribution gaps, 31–32
- Contribution rates:
  - advance funding's effect on, 247–249
  - calculation of, 422*tab*
  - in the English-speaking Caribbean, 356, 367, 372, 376

- increases in, 325, 328
- management models and, 258–260
- in pay-as-you-go systems, 416, 417*box*
- population growth's impact on, 422–423
- in switch from wage to price indexing, 429*tab*
- variability of, 356
- Corporate bonds, 137
- Cost of living adjustments (COLAs), 79, 365
- Costa Rica:
  - accumulation period in new systems in, 152, 154
  - annuity regulation, 142
  - capital market growth, 396*tab*
  - closed group funds, 145*n14*
  - disabilities, 148
  - financing strategies, 154
  - investment rules, 135*tab*, 136
  - management charges, 138, 140, 154, 156
  - payout period experiences, 163
  - pension guarantees, 142
  - public pension institutions, 149
  - replacement rates, 130*tab*, 131, 134
  - supervision of payments to funds, 146–147
- Country risk, 7–8
- Country size, 30, 32, 38. *See also* Economies of scale; Small emerging economies
- Coverage of pension systems:
- COLAs as incentives for expansion of, 79
- disparities in rates by country, 70
- eligibility for, 178
- in Latin America, 222, 223*tab*
- low levels of, 77
- rates of, 418–419
- reform's effect on, 165–166
- Covered earnings, 416
- Cross-subsidies, 139, 220
- Custodial trustees, 120
  
- De Michelis, Gianni, 206
- Decumulation, 275
- Defined benefit pension systems:
  - assets and liabilities of, 253–255
  - conversion to defined contributions, 110
  - definitions, 4, 354–355
  - and purchase of annuities, 304–305
- Defined contribution pension systems.
  - See also* Advance funding; Funded pension systems; Systemic pension reform:
    - assets and liabilities of, 253–255
    - conversion from defined benefits, 110
    - definitions, 4, 354–356
    - introduction in Italy of, 199
    - in Japan, 360
    - notional method, 203
    - in Sweden, 360
- Demographic shocks, 186–187
- Denmark, 183–184, 257
- Derivatives, 135
- Di Giesi, Michele, 206
- Direct regulation, 98*tab*, 100, 112–118
- Disabilities. *See also under individual countries:*
  - benefits in the Caribbean for, 324, 326–327, 329–330, 349*annex*
  - and cross-subsidies, 139*n5*
  - determining eligibility for, 148–149
  - noncontributory pensions for, 220–221
  - pay-as-you-go systems restricted to, 146
- Disability annuities, 270*n4*, 288
- Disjointed incrementalism, 10
- Dispute resolution, 122
- Diversification. *See also* Investment:
  - benefits of, 381
  - as constraint to investment in small economies, 14, 36
  - into international investments, 56, 137
  - in investment for annuities, 297*n20*
  - of investments by national insurance schemes, 77
  - of investments by private fund managers, 169, 170*annex*, 171*annex*
  - productive, 31
- Domestic workers, 329
- Dominica:
  - features of old-age pension system, 368*tab*
  - investment of pension funds, 105
  - national insurance systems in, 69
  - regulation and supervision of private schemes, 98, 114
  - as small emerging economy, 30
  - social insurance system, 81–84*annex*

- socioeconomic conditions, 64
- stages of reform, 67
- supervision of payments to funds, 146–147
- Dominican Republic:
  - accumulation period in new systems in, 152, 154
  - annuity regulation, 142
  - financing strategies, 154
  - IDB project for pension reform, 403
  - management charges, 138, 140, 154, 158
  - payout period experiences, 163
  - pension guarantees, 144–145, 150
  - pre-reform conditions, 128
  - public pension institutions, 149
  - replacement rates, 130*tab*, 131–132
  - supervision of payments to funds, 146
- Donat Cattin, Carlo, 207
- Draconian approach to asset regulation, 35*n11*, 42
- Drug coverage, 328–329
- Early retirement, 192
- Earnings replacement, 362
- Economic Commission for Latin America and the Caribbean (CEPAL), 132
- Economies of scale. *See also* Small emerging economies:
  - and country size, 32–34
  - in pension fund industry, 157, 158*fig*
  - specialized agencies and, 153–154
- Ecuador, 147–148, 150
- El Salvador:
  - annuities, 281*box*
  - annuity regulation, 142
  - capital market growth, 396*tab*, 398*tab*
  - financing strategies, 154
  - investment rules, 135*tab*, 137
  - management charges, 138, 140, 154
  - payout period experiences, 163
  - pension reform, 1998, 44, 392
  - portfolio allocation, 161
  - pre-reform conditions, 128
  - replacement rates, 130*tab*, 131, 134
  - as small emerging economy, 30
- Eligibility, 178
- Eloy Chaves Law (Brazil), 219*n1*
- Emigration, 31, 328, 330
- Employer-based pension schemes, 74–75, 305
- Employment rates, 418
- Endogenous solidarity, 132*n3*
- English Common Law, 101, 379–383
- English-speaking Caribbean region. *See also individual countries*; CARICOM Single Market and Economy:
  - actuarial reviews, 371–372, 373*tab*
  - administrative costs, 367
  - coverage rates, 70, 71*tab*
  - demographic pressures in, 76–77
  - European model's relevance for, 202–204
  - features of old-age pensions in, 368*tab*, 369*tab*
  - HIV/AIDS infection rates, 110
  - inflation in, 56, 62, 72
  - informal sector in, 69
  - investment challenges, 370
  - Kingdon model as applied to, 13
  - macroeconomic conditions in the 1990s in, 60–62
  - need for pension reform in, 49–52
  - old age dependency ratios in, 50–51, 64, 65*tab*, 68, 73*tab*, 401
  - parametric reforms, 378
  - pay-as-you-go systems as model for, 203
  - pension fund administration, 51, 97
  - pension reform in, 401
  - pension reform recommendations for, 77–80
  - pension systems in, 366–367
  - possible types of reforms, 52
  - potential effects of reform in, 331–344
  - solvency of pension systems, 370, 383–384
  - stages of reform in, 52–57, 66–68
  - structural socioeconomic conditions, 61*tab*, 62–64
  - systemic reforms, 378–379
  - threats to pension sustainability, 51
  - unemployment in, 64, 66*tab*, 104
  - uniformity vs. harmonization in schemes, 56–57
  - varied paths to reform, 383
- Enron, 56*n3*
- Entitlements, 362
- Environmental change, 31
- European Commission, 195

- European Monetary Union (EMU), 183, 204  
 Exchange rate risk, 7  
 Exogenous solidarity, 132*n*3
- Families, 25, 307  
 FCI (Bolivia), 303–304  
 Fertility rates, 63, 325, 327–328  
 Financial Action Task Force (FATF), 110  
 Financial markets. *See* Capital markets  
 Financial Services Commission (Jamaica), 112  
 Financial shocks, 182–183, 358–359  
 Financial systems, 34–36, 179  
 Financing strategies, 154–155  
 Finder's fees, 285  
 Finland, 184  
 Firefighters, 240  
 Fixed income instruments, 136  
 Foreign exchange controls, 105  
 Formica, Rino, 206  
 Foschi, Franco, 206  
 France:  
   lack of popular support for reform, 394  
   parametric reforms, 184  
   real return for stocks, 186*n*5  
   retirement age hike, 393  
   savings rates, 248*n*1  
 Free Trade Area of the Americas (FTAA), 110  
 Freedom of worker movement, 108–109  
 Full reserve financing, 416  
 Fund brokers, 285  
 Funded pension systems. *See also* Advance  
   funding; Defined contribution pension  
   systems; Systemic pension reforms:  
   current and projected assets of, 159–160  
   definition, 4  
   demographic shocks, 186–187  
   economic welfare of society as promoted  
   by, 186  
   real returns in, 185–186  
 Funeral grants, 324, 326–327, 329–330  
 Future value, 313–314
- GAM71 (Group Annual Mortality) table, 295,  
 305  
 General Agreement on Trade in Services  
 (GATS), 110  
 Germany:  
   benefit predictability, 261  
   defined contribution plans, 360  
   parametric reforms, 184  
   pension cuts, 393  
   population growth rates, 427  
   real return for stocks, 186*n*5  
   savings rates, 248*n*1  
   welfare reforms, 185  
 Gini coefficient, 64, 66*tab*  
 Globalization, 391–392  
 Greece, 184  
 Grenada:  
   data on pension schemes, 345*annex*,  
   347*annex*  
   demographics, 327  
   disability benefits, 326, 349*annex*  
   features of old-age pension system, 368*tab*  
   financial indicators for, 373*tab*  
   inflation, 62  
   investment of pension funds, 105  
   national insurance systems in, 69–70, 73,  
   326–327  
   potential reforms, 333–334, 337*tab*, 339*tab*  
   regulation and supervision of private  
   schemes, 98, 114  
   social insurance system, 84–87*annex*  
   socioeconomic conditions, 62  
   stages of reform, 67  
   survivor benefits, 326, 350*annex*  
 Guardian Life, 75, 106, 112, 115  
 Guyana:  
   contribution rates, 372  
   data on pension schemes, 345*annex*,  
   347*annex*  
   demographics of, 328  
   disability benefits, 327, 349*annex*  
   features of old-age pension system, 368*tab*  
   national insurance systems in, 69, 72, 323,  
   327–328  
   old age dependency ratio, 50  
   potential reforms, 333–334, 339*tab*, 340*fig*  
   productivity growth, 62  
   regulation and supervision of private  
   schemes, 98, 99*n*2, 100, 103, 116–117  
   as small emerging economy, 30  
   social insurance system, 84–87*annex*  
   socioeconomic conditions, 62, 64

- stages of reform, 66
  - survivor benefits, 350*annex*
- Haiti, 30
- Herding, 142
- HIV/AIDS, 55, 110
- Honduras, 30
- Hong Kong, 140, 145*n14*, 168
- Human development index (UNDP), 62, 102
- Hungary, 28, 256
- Income predictability, 260–264
- Incrementalism, 9–10
- Indexation of career earnings, 54
- Indexing:
  - of fund administration charges, 8, 40, 54, 56
  - for inflation, 79
  - of prices, 429*tab*
  - of wages, 131, 429*tab*
- Indirect regulation, 100–101
- Individual risk, 5–6
- Inflation:
  - in the English-speaking Caribbean, 56, 62, 72
  - indexing for, 79
- Inflation index bonds, 8, 40
- Inflation risk, 7
- Informal labor:
  - in Brazil, 224–225
  - in the English-speaking Caribbean region, 69–70, 104
  - forces driving employers to use of, 166
  - and pension system sustainability, 32
  - pensions for workers in, 220
- Informal protection networks, 307
- Informal regulation, 100, 118
- Information asymmetry, 5, 279, 296
- ING, 298
- Injury benefits, 324, 327, 329–330
- Institute of Chartered Accountants of the Caribbean (ICAC), 106–107
- Insurable earnings, 326, 328, 331
- Insurance companies, 106, 285, 309–310
- Insurance Corporation of Barbados, 74*n10*
- Insurance premiums and commissions, 155–158
- Insurance regulators, 100
- Insurance sector reform, 77, 382
- Inter-American Development Bank (IDB), 353, 391, 402–403
- Interest rates, annuities and, 282–283, 308, 314–317
- International Accounting Standards Board, 107
- International Actuarial Associations, 107
- International Federation of Accountants (IFAC), 106
- International Financial Reporting Standards, 107
- International Labor Organization (ILO), 69
- International Monetary Fund (IMF), 195
- Investment. *See also* Diversification:
  - development goals and, 104–105
  - diversification as constraint in small economies, 14, 36
  - diversification by private fund managers, 169, 170*annex*, 171*annex*
  - guaranteed, 360
  - management of, 39–40, 363
  - mandatory, 105
  - by national insurance schemes, 77
  - overseas, 105–106
  - policies on, 169
  - political involvement in decisionmaking for, 250–251, 254
  - returns on individual accounts, 161*tab*
- Italy:
  - Amato reform of 1992–1993, 198–199
  - challenges of and lessons from pension system, 200–202
  - competitiveness and economic growth in, 201
  - early pension schemes, 187, 194–196
  - financial crisis of 1992, 183, 197–198, 203
  - labor market reforms, 185, 202
  - old age dependency ratio, 192
  - pension system reforms in 1980s, 205–207
  - reform of 1995, 199–200
  - retirement age, 199, 393
  - secularization in, 197
  - social welfare system, 184–185
  - tax policies, 184–185
  - tax reforms, 208

- Jamaica:
- alternatives to national insurance pension schemes, 51
  - data on pension schemes, 345*annex*, 347*annex*
  - demographics, 329–330, 427
  - disability benefits, 329, 349*annex*
  - economic growth, 60
  - European influence on pension system design, 177
  - features of old-age pension system, 368*tab*
  - financial sector bailout, 7
  - inflation, 56, 62
  - investment of pension funds, 105
  - national insurance systems in, 68–72, 73*n9*, 328–330, 367
  - old age dependency ratio, 50
  - potential reforms, 333–334, 341*tab*, 342*fig*
  - productivity growth, 62
  - regulation and supervision of private schemes, 98–100, 102, 106, 108, 110, 112
  - as small emerging economy, 30
  - social insurance system, 75–76, 84–87*annex*
  - socioeconomic conditions, 62–63
  - stages of reform, 52, 67
  - survivor benefits, 329, 351*annex*
- Japan:
- benefit predictability, 261
  - debate on reform, 246
  - defined contribution plans, 360
  - population growth, 427
- Kazakhstan, 40*n15*, 256
- Kingdon Model, 8–11, 13–14
- Könberg, Bo, 189
- Korean capital market growth, 395, 397*tab*, 398*tab*, 399
- Kuran, Timor, 183
- La Estrella, 294
- Labor force:
- composition of, 64
  - mobility of, 31, 108–109, 188
  - participation rates, 418–419
  - percentage working in agriculture, 64, 66*tab*
- Labor markets:
- in Italy, 185, 202
  - pension reform's effect on, 165–167, 382, 392, 394
  - in small emerging economies, 32
- Labor unions:
- dialog on pension reform with, 80
  - and financial shocks, 183
  - pension reform role, 45, 202, 205
- Latin America/Caribbean region:
- annuity markets in, 291–307
  - coverage of elderly population, 222, 223*tab*
  - literature on annuities in, 274
  - market costs of fund management, 252
  - motives for reform in, 246
  - old age dependency ratio, 23, 50
  - pension reform in, 394–400
  - private management models, 256
- Latin American pension model, 27–32, 38–43
- Latvia, 28, 357*n5*
- Lebanon, 40*n15*
- Legislation for pension plan regulation, 108, 115–118
- Life expectancy, 63, 189, 271, 282–284
- Life Insurance Marketing Research Association (LIMRA), 273
- Life of Barbados, 306
- Life tables, 419–421
- Long-term benefits, 327, 329
- Longevity risk, 3, 270, 278–279
- Lump sum withdrawals, 275, 356
- Management of pension systems. *See* Pension fund administration; Private management models
- Mandatory investment, 105
- Marini, Franco, 207
- Market capitalization, 34–36, 225
- Market liquidity, 35–36
- Maternity benefits, 324, 327, 329–330
- Medicare (U.S.), 393
- Mexico:
- annuities, 281*box*
  - capital market growth, 395, 396*tab*, 398*tab*, 399
  - contribution rate, 356
  - disabilities, 148

- financing strategies, 154
- investment diversification in capital markets, 169
- investment rules, 135*tab*, 136, 356
- pension funds as development capital, 381
- pension guarantees, 142, 145, 150, 380
- pension reforms, 365, 379–380, 392
- pre-reform conditions, 128
- public pension institutions, 149
- regulation of management charges, 138–139, 156
- replacement rates, 131*n*2
- supervision of payments to funds, 146–147
- Minimum benefits, 133
- Minimum return guarantees, 142–145, 150, 380
- Monserrat, 368*tab*
- Mortality ratios, 283*box*, 301, 314–317, 431–433
- Mortality tables, 272, 279, 285, 288–291, 300, 305, 308
- Multilateral development banks, 402–403. *See also individual development banks*
- Mutual funds, 136, 257
  
- National Health Fund (Jamaica), 328–329
- National Institute for Social Security (INSS)(Brazil), 219–220
- National Insurance Corporation (St. Lucia), 330–331
- National Insurance Scheme (Bahamas), 376
- National Insurance Scheme (Barbados), 324–325
- National Insurance Scheme (Grenada), 326–327
- National Insurance Scheme (Guyana), 327–328
- National Insurance Scheme (Jamaica), 328–330
- Natural disasters, 30
- Nicaragua:
  - annuities, 281*box*
  - annuity regulation, 142
  - IDB project for pension reform, 403
  - payout period experiences, 163
  - pension reform, 2001, 45*box*
  - regulation of management charges, 138, 140
  - as small emerging economy, 30
  - supervision of payments to funds, 147
- Noncontributory pensions, 220–222
- Nondiversifiable risk, 8
- Nonlinear accrual rates, 133
  
- Occupational pension schemes, 74–75, 195
- Old age dependency ratios:
  - in Brazil, 234
  - in English-speaking Caribbean, 50–51, 64, 65*tab*, 68, 73*tab*, 401
  - increases in, 23–24
  - in Western Europe, 180–181, 192
  - worldwide, 23, 24*tab*, 393
- Old age risks, 357–359
- Organisation of Eastern Caribbean States, 52
- Organization for Economic Cooperation and Development (OECD) countries:
  - financing strategies, 155
  - Guidelines for Pension Fund Governance (2002), 97, 113, 117–122
- Italian pension system, 195
- old age dependency ratio, 23
- pension system crisis, 49–50
- portfolio allocation, 162
- structures for old-age income security, 25
- Organization for the English-Speaking Caribbean (OESC), 72
- Orphan benefits, 329
- Over-consumption risk, 3–4, 270
  
- Panama, 30
- Paraguay, 30
- Parametric reform, 26–27, 246–247, 332–333
- Part-time pensions, 188
- Pay-as-you-go pension systems:
  - assessing affordability in, 426–428
  - in Brazil, 220, 222–225, 234, 240
  - crisis in, 50
  - definition, 4
  - demographic shocks, 186–187
  - economic welfare of society as promoted by, 186
  - financing principles of, 416, 417*box*, 418*box*
  - Italian reform proposals of the 1980s, 205–207



- migration's effect on, 32
- as model for Caribbean countries, 203
- notional defined contribution method, 203
- real returns and, 185–186
- restricted to disabilities, 146
- Payroll taxes, 269, 380
- Pension fund administration:
  - benefit payments, 363–364
  - Caribbean comparisons, 97
  - centralized collection agencies, 39
  - centralized vs. decentralized, 259–260
  - charges for, 40, 51
  - collection of contributions, 363
  - consolidation of companies, 151–152
  - costs of changes in, 249–250
  - functions of, 363–364
  - institutional arrangements for, 145–149
  - investment management, 38–41, 363
  - market conditions, 152–153
  - operating efficiency, 251–252
  - private management models, 255–265
  - private vs. public, debate on, 245–246, 250–253
  - rationalizing costs for, 78–79
  - record-keeping, 363–364
  - regulation of charges, 138–140, 150, 155–160
  - service quality, 251
  - specialized agencies, 153–154
  - types of indexing of charges, 8, 40, 54, 56
  - in Western Europe, 179
- Pension reform:
  - agenda in small emerging economies for, 37–43
  - approaches to, 26–29
  - comparing new systems in Latin America, 129–151
  - conditions prior to, 128–129
  - design of, 12–13
  - economic effects of, 164–168
  - environmental risks and opportunities, 381–383
  - global dimensions of, 393–394
  - goals of, 361–364
  - indexing for inflation, 79
  - involving stakeholders in, 80
  - literature review on, 391–392
  - for managing old age risks, 357–359
  - models for, 38*tab*
  - options for, 372, 374
  - policy change models as applied to, 10–12
  - policy framework for, 5
  - policy options for, 11–12
  - potential effects of, 331–344
  - pressures for, 127–128, 217, 359–361
  - principles for, 401–402
  - recommendations for the Caribbean area, 77–80
  - in small emerging economies, 13–15, 23–32
  - transition costs from, 45, 249–250, 364–366, 400
  - urgency of, 353
  - Western European debate on, 182–187
- Pension regulators, 100
- Pension rights portability, 46, 54–55, 254
- Pension systems:
  - assets of, 159–160
  - basic elements of, 245
  - contractual approach to, 182
  - conversion of, 110
  - crisis in, 3, 14–15, 49–50
  - definition, 354
  - financial insolvency in, 359–360
  - in five Caribbean countries, 323–324
  - needs assessment of, 59–60
  - poor management in, 77
  - private, 74–75
  - public, 66–73
  - questionnaire on status and expectations for, 91–94
  - redistributive nature of, 361
  - simplification of, 79–80
  - social welfare theory, 178, 182
  - tax concessions for, 98–99
  - types of, 4
  - in Western Europe, 178–179
- Pension systems design:
  - advance funding principles and mathematics, 423–426, 430–431
  - affordability assessment, 426–433
  - basic parameters for application to, 415
  - compliance shortfalls, 428
  - European influence on, 177
  - mortality improvements, 431–433

- pay-as-you-go financing principles, 416, 417*box*, 418*box*
- pay-as-you-go systems, 426–428
- population growth's impact on, 422–423
- post-pension reform, 129
- post-retirement adjustment changes, 429
- private plans compared, 129
- survivor benefits, 430
- system dependency and population structure, 418–422
- Period mortality tables, 285
- Personal savings plans, 74
- Peru:
  - annuities, 163, 281*box*, 302–303
  - capital market growth, 396*tab*, 398*tab*, 399*tab*
  - disabilities, 148
  - pension guarantees, 143–144
  - portfolio allocation, 162
  - reforms, 1993, 302, 365, 392
  - supervision of payments to funds, 147
- Poland:
  - annuities, 281*box*
  - capital market growth, 395, 397*tab*, 398*tab*, 399*tab*
  - pension model, 28, 184, 256
- Police, 240
- Policy streams, 9, 11
- Political economy, 35, 37
- Political pressures, 16, 36, 250–251, 254
- Political streams, 9, 11
- Population dependency ratio, 419, 421–422
- Population growth, 422–423, 427–428
- Population structure, 417*box*, 418*box*
- Portfolio allocation, 56–57, 137–138, 160*tab*, 161–162
- Portugal, 184
- Poverty:
  - annuity purchase and, 308
  - and country size, 31
  - headcount, 64, 66*tab*
  - lifetime, 129, 132
  - redistributive pension programs and, 361–362
  - and saving for retirement, 357–358
- Preference falsification, 183
- Present value, 313
- Price indexing, 429*tab*
- Private management models:
  - administrative costs, 260*tab*
  - benefit predictability and, 260–264
  - comparison of, 264–265
  - contribution rates and, 258–260
  - descriptions of, 255–258
- Private pension plans:
  - accountability in supervision, 120–121
  - Canadian influence on, 102, 117
  - checks and balances for, 118
  - comparing designs of, 129
  - competition among managers, 254
  - costs of regulation, 109
  - development goals and investments, 104–105
  - dispute resolution, 122
  - expert advice for regulation of, 120
  - features of regulation, by country, 123–124
  - financial services regulation, 114–118, 253
  - formal regulation, 99, 117–118
  - governance systems and, 102–103
  - HIV/AIDS's effect on funding for, 110
  - internal controls, 121
  - legal reforms for enablement of, 79
  - legal systems for regulation of, 101–102
  - market costs, 252–253
  - oversight by tax authorities, 98–100, 112–116
  - providers of services to, 106–107, 119
  - regional integration issues in regulation of, 107–110, 118
  - regulation and supervision of, 98–103, 106, 108, 110, 112–119
  - reporting requirements, 121
  - responsibility for governance, 119
  - restrictions on foreign investment for, 105–106
  - restructuring of, 56
  - state-owned services in competition with, 149
  - worker choice of providers, 252, 257
- Private sector capacity, 31
- Private Truths, Public Lies: The Social Consequence of Preference Falsification* (Kuran), 183

- Privatization of public pension plans, 54
- Problem streams, 9–11
- Productive diversification, 31
- Productivity, 55, 62
- Property rights, 6
- Provident funds, 74
- Prudent man rule, 6
- Public policy, changing of, 8–12
- Public sector capacity, 31
- Reciprocity rates, 419
- Red Brigade terrorists, 185
- Regional integration:
  - as aid to local investment, 14
  - of European pension systems, 204, 359
  - private pension plan regulation and, 107–110, 118
  - of small emerging economies, 42–43
- Regulatory capture, 155
- Regulatory framework for reform, 38, 41–42, 46
- Relative return guarantees, 142
- Remittances, 32
- Replacement rates, 25, 130–131, 149–150, 260–264
- Reports, 121, 364, 375
- Reserve funds, 188
- Retirement age:
  - in Brazil, 220, 239, 393
  - early, 192
  - in France, 393
  - in Italy, 199, 393
  - productivity and, 55
  - in St. Lucia, 330–331, 375
  - in Sweden, 192
  - in Western Europe, 177, 179
- Risk:
  - catastrophic, 8
  - diversification through multiple pillars of, 191
  - as factor in defined contribution plans, 254
  - individual, 5–6
  - longevity, 4, 270, 278–279
  - nondiversifiable, 8
  - old age, 357–359
  - over-consumption, 4, 270
  - system, 6–7
  - types of, 5, 270
  - and valuing annuities, 280–283, 290, 305–306
- Rodrik, Dani, 183
- Russia, 168, 184
- RV85 mortality table, 300, 303
- Sagicor, 75, 106, 112–113
- St. Kitts and Nevis:
  - features of old-age pension system, 368*tab*
  - investment of pension funds, 105
  - national insurance systems in, 69, 72
  - productivity growth, 62
  - regulation of pension plans, 111, 114, 116
  - social insurance system, 84–87*annex*
  - socioeconomic conditions, 62–64
  - stages of reform, 67
- St. Lucia:
  - data on pension schemes, 345*annex*, 348*annex*
  - disability benefits, 330, 349*annex*
  - economic growth, 60
  - features of old-age pension system, 368*tab*
  - financial indicators for, 373*tab*
  - government-run provident accounts, 52
  - investment of pension funds, 105
  - old age dependency ratio, 50
  - pension reform, 2001, 374–375
  - potential reforms, 333–334, 343*tab*, 344*fig*
  - regulation and supervision of private schemes, 98, 100, 116
  - retirement age, 330–331, 375
  - as small emerging economy, 30
  - social insurance system, 87–90*annex*, 330–331
  - stages of reform, 67
  - survivor benefits, 330, 351*annex*
- St. Vincent and Grenadines:
  - demographics of, 76–77
  - features of old-age pension system, 368*tab*
  - investment of pension funds, 105
  - regulation and supervision of private schemes, 98, 114
  - as small emerging economy, 30
  - social insurance system, 87–90*annex*
  - socioeconomic conditions, 64
  - stages of reform, 67

- Saudi Arabia, 253n7
- Savings:
- national, 248
  - pension reform's effect on, 165, 392
  - personal, 248
  - in Sweden, 189, 192
- Savings accounts, 185
- Scandinavian welfare reforms, 185
- Scotti, Vincenzo, 205–206
- Securities, 136
- Securitization, 40
- Seguros de Retiro (Argentina), 294
- Self-employed persons and pension system participation, 70
- Self-managed retirement accounts, 272, 360
- September eleventh attacks, 60
- Severance Payment Scheme (Barbados), 324–326
- Short-term benefits, 324, 327, 330
- Siembra Retiro, 294
- Silva, Luis Ignacio “Lula,” 218, 236
- Singapore:
- annuities, 7, 287, 289
  - contribution rate, 356
- Small emerging economies. *See also* Economies of scale:
- annuities in, 288–291, 311–312
  - characteristics of, 29–32
  - demographic structure of, 31–32, 34*tab*
  - economic structure of, 32–34
  - financial systems, 34–36
  - Kingdon model in, 13, 15
  - labor markets, 32
  - Latin American pension model as applied to, 29–32, 37–43
  - pension reform in, 13–15, 23–32
  - political economy of, 36
  - regional integration of, 13–14, 42–43
- Social capital, 194, 203
- Social contracts, 102
- Social insurance systems, 75–76, 81–90*annex*, 323–326, 330–331
- Social quota, 380
- Social safety nets, 394
- Social Security Administration, U.S. (SSA), 251n4
- Social welfare theory, 178, 182, 200
- Solidarity benefit programs, 361
- South Africa, 395, 397*tab*, 398*tab*, 399*tab*
- Soviet Union, 361
- Spain:
- financial shocks, 183
  - parametric reforms, 184
  - population growth rates, 427
  - welfare reforms, 185
- Stability, 103
- Superintendent of Pension Funds (SPF)(Peru), 303
- Suramericana, 301
- Survivor benefits, 324, 326, 329–330, 350*annex*, 351*annex*, 430
- Sweden:
- annuities, 281*box*
  - ATP supplemental pension, 188–189
  - consensual process of reform, 183, 189–190, 193–194, 203
  - defined contribution plans, 360
  - early pension schemes, 187–188
  - future goals and challenges of pension system in, 191–193
  - household savings in, 189, 192
  - investment rules, 134
  - old age dependency ratio, 192
  - parametric reforms, 365
  - pension act of 1994, 190–191
  - pension fund administration, 40
  - pension system in, 168, 357n5
  - population growth rates, 427
  - private management models, 257, 263–265
  - reform of 1960, 187
  - transparency in, 191
  - women as affected by pension system, 193
  - working group for reform, 189
- Switzerland, 145n14, 257, 263, 281*box*
- Synthetic replacement rates, 130
- System risk, 6
- Systemic pension reforms. *See also* Advance funding; Defined contribution pension systems; Funded pension systems:
- accumulation period experiences, 151–162
  - advance funding, 247–250
  - comparing designs of systems after, 129
  - conditions prior to, 128–129

- implicit benefit schedules and
  - redistribution, 129–134
- investment rules, 134–138
- minimum return guarantees, 142–145, 150
- motives for, 127–128
- payout options, 140–142
- payout period experiences, 162–168
- regulating management charges, 138–140
- savings as impacted by, 164–165
- transition deficits, 165, 364–366
- Systems dependency ratio:
  - definition, 24–25
  - emigration and, 32
  - income support levels and, 68
  - and maturity of system, 73
  - in new systems, 418–419
  - in pay-as-you-go systems, 416, 417*box*
  - and population structure, 418–419
- Tax policies:
  - capital market growth and, 40
  - in countries without pension regulation, 111
  - for encouraging savings, 356, 359
  - in Italy, 184–185, 200, 202
  - private pension systems and, 98–99, 117
- Tax qualification, 357
- Thailand, 395, 397*tab*, 398*tab*, 399*tab*
- Transition costs from reform, 45, 364–366
- Transition deficits, 165, 364–366
- Transition economies, 23–24, 50
- Transparency, 138–139, 191
- Trinidad and Tobago:
  - alternatives to national insurance pension schemes, 51
  - annuities, 304–307
  - demographics of, 304
  - European influence on pension system design, 177
  - features of old-age pension system, 368*tab*
  - inflation, 72
  - investment of pension funds, 105
  - national insurance systems in, 68–72, 367
  - old age dependency ratio, 50
  - regulation and supervision of private schemes, 98, 100, 102, 106, 108, 114–116
  - social insurance system, 75–76, 87–90*annex*
  - socioeconomic conditions, 63–64
  - stages of reform, 52–54, 67–68
- Trust companies, 106, 119–120
- Trust Law, 101
- Trustee insurance, 6
- Turks and Caicos, 368*tab*
- Underindexation, 133, 165
- Unemployment:
  - benefits, 324, 326
  - in Caribbean countries, 64, 66*tab*, 104
  - and country size, 34
- Unemployment Fund (Barbados), 326
- Unfunded liabilities, 53
- Unfunded pension systems, 4
- Unidad de Fomento (UF), 300
- United Kingdom:
  - market costs of fund management, 252
  - occupational plans, 145*n14*
  - pension model, 27*n6*
  - pension reforms, 184
  - private management models, 256, 265
  - real return for stocks, 186*n5*
  - regulation of private pension accounts, 253
  - savings rates, 248*n1*
- United Nations Development Programme(UNDP), 62
- United States:
  - actuarial reviews, 371
  - administrative costs, 259
  - cost-of-living adjustments (COLAs), 365
  - 401(k) accounts, 272
  - market for annuities in, 272–273
  - pension model, 27*n6*
  - savings rates, 248*n1*
  - self-managed funds, 360
  - thrift savings plan, 257–258, 261, 265
  - unfunded liability of social security, 355, 393
- University of Waterloo, 305
- Uruguay:
  - annuitization in, 151
  - capital market growth, 396*tab*, 398*tab*
  - disabilities, 148
  - investment rules, 135*tab*, 136
  - payout options, 141

- pension guarantees, 142, 366
  - pension reform, 1995, 46*box*, 365, 392
  - pre-reform conditions, 128
  - public pension institutions, 149
  - replacement rates, 130*tab*, 131–134
  - supervision of payments to funds, 147, 150
- Vargas, Getúlio, 219n1
- Variable annuities, 141
- Venezuela, 45
- Vulnerability, 362
- Wage growth rates, 259*tab*, 260–261
- Wage indexing, 131, 429*tab*
- Welfare reforms, 184–185
- Welfare state, 392
- Western Europe. *See also individual countries:*
  - aging population in, 180–181, 192, 393
  - debate on reform, 182–187, 246
  - evolution of pension systems, 178–179
  - financial shocks in, 182–183, 197–198
  - pension fund administration, 179
  - pension model, 27
  - public spending by country on pensions, 181*tab*
  - regional cooperation by pension systems, 204, 359
  - retirement age, 177, 179
  - varying changes in pension systems, 177
- Whistle blowing, 117
- Women:
  - fertility rates, 63
  - pension reform's effect on, 392
  - Swedish pension system and, 193
- Working age population, 418–419
- World Bank, 50
- World Trade Organization (WTO), 110
- Youth, 31, 70, 103

## ECONOMIC DEVELOPMENT

Virtually all nations can expect to have a significant population of retired persons who will make a claim on the society's economic resources. This volume is geared to helping devise workable and efficient pension systems for the nations of the Caribbean. The requirements for reform are extremely complex and encompass political, policy, and technical issues. *Workable Pension Systems: Reforms in the Caribbean* offers specific discussions of instruments, programs, and experiences in various Latin American and Caribbean nations, and potential solutions that draw on the collective expertise and talent in the region.



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