SOCIAL EXPENDITURE IN CENTRAL AMERICA, PANAMA AND THE DOMINICAN REPUBLIC AT A GLANCE: 2007-2013

Editors
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FOREWORD

Social spending in Central America, Panama and Dominican Republic represents on average more than 50% of total public expenditure. This is a powerful expenditure for reducing poverty, allowing for greater equality and an increase in education and health, which entail enhancing productivity and improving the living conditions of a country's population.

Social Expenditure in Central America, Panama and Dominican Republic at a Glance: 2007- 2013 analyzes the evolution and composition of social spending in the region during a period comprising the financial crisis and the beginning of the recovery process, which is characterized by an economic acceleration and the deterioration of the fiscal situation. At the same time, it provides tools that examine in detail where the resources were funneled and hence, give a glance of the effectiveness of social policies.

This book uses a new database that makes it possible, for the first time ever for the countries of the region, to conduct an analysis of the distribution of spending, both at the national and departmental levels. At the same time, it examines the causes that trigged the increase on public sector wages, the biggest component of social spending in the region. Finally, it explores the influence that the institutional structure has in the ability of the Government to implement its agenda and the continuity of policies through time.

Gina Montiel
General Manager
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INTRODUCTION

To achieve their economic and social development objectives, countries need to implement public expenditure as efficiently as possible as a key element of their fiscal management. One of the main functions of public expenditure is to provide public goods that are not deemed profitable by the market, but that have considerable social value. This market failure covers various spheres: ranging from aspects of infrastructure (such as road construction and environmental conservation) to social aspects (such as guaranteeing universal healthcare and education). At the same time, the relationship between spending on health and education and human capital accumulation is key to increasing workforce productivity.

This book offers an analysis of different factors that determine levels of public expenditure, along with policy recommendations to enhance the use of existing resources. Understanding the mechanisms that determine social spending levels will enable the region's decision makers to improve the distribution of expenditure so as to maximize its impact on the population.

Chapter 1, written by Jordi Prat and Marco Solera, presents the current regional economic and fiscal context, examining how the region of Central America, Panama and the Dominican Republic responded to the international financial crisis and the consequences of that political response on public expenditure in the years that followed. The fiscal deterioration experienced since 2009 has reduced the fiscal space for responding to certain needs and has forced governments to evaluate their fiscal policy in view of the budgetary constraints.

Chapter 2, written by Víctor Dumas and Mariano Lafuente, presents an overview and analysis of the behavior of the most important component of public expenditure in the region: wages, which increased by up to 65% in real terms from 2007 to 2013. The chapter explores the causes of the payroll increase, due both to the number of personnel and to higher salaries, particularly focusing on the health, education and security sectors and the

civil service (administrative employees). Is the evolution of public employee numbers in keeping with international standards? Is each country's wage policy consistent with its fiscal capacity, with its service coverage needs and with salaries for similar occupations in the private sector? The chapter also offers some policy recommendations to improve the quality of spending on personal services (achieving more with the same level of resources), to strengthen the institutional framework of wage management in order to minimize the risk of fiscally unsustainable increases, and to reduce fiscal imbalances.

Chapter 3, written by Martín Ardanaz and Priscilla Gutiérrez, explores the progress made and challenges faced in social sector spending in the region at both national and subnational levels, with a view to addressing a key issue in public finance management: the efficient use of resources. Is social spending producing the best possible outcomes? Is there room for increasing the efficiency of public expenditure in these sectors? This chapter offers a preliminary analysis of social spending efficiency in the region and proposes policy options that could contribute to the definition of a more efficient and equitable social agenda in the countries of the region.

Finally, Chapter 4, written by Jorge Vargas Cullell and Esteban Durán, analyzes the complexity of public institutionality in the region and the impact it could have on the effective use of public resources. While a simple institutional framework could facilitate the communication and transmission of economic policy initiatives by the executive, greater institutional complexity can undermine the impact of the central government initiatives on the rest of the public sector. However, complex public systems can be stronger than simple systems in terms of achieving medium and long-term goals. In this context, we need to ask: what is the right level of complexity? Does it favor the efficient use of resources? These and other similar questions are addressed in this chapter.

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1 FISCAL CONSTRAINTS AND SOCIAL GAPS: THE CHALLENGE OF IMPROVING SOCIAL SPENDING

Jordi Prat
Marco Solera

Public spending is normally associated to the correction of market inefficiencies. The most visible face of public spending, social spending, has a wide range of benefits for society. As Dabla-Norris *et al.* (2015) explain, social spending allows countries to achieve economic growth that is broad-based that can benefit sectors outside of the groups with greater economic power. Finally, and most notably of all, social spending is a long-term investment that seeks to foster the accumulation of human capital, a key requirement for growth and economic development.

It is clear that both revenues and expenditures in Central America, Panama and Dominican Republic (CAPDR[1]) have responded to economic developments, including business cycles. For example, the first part of the 2000s enjoyed an economic acceleration that prompted a rise in fiscal revenues, which later fell during the financial crisis. The buoyancy of revenues, coupled with the financial crisis, triggered an increase in expenditure centered on current spending hard to revert. This dynamic was experienced in most countries of the region. Understanding the causes that prompted the fall and later increase in public debt, should shed some light on how to recover the fiscal buffers lost in recent times.

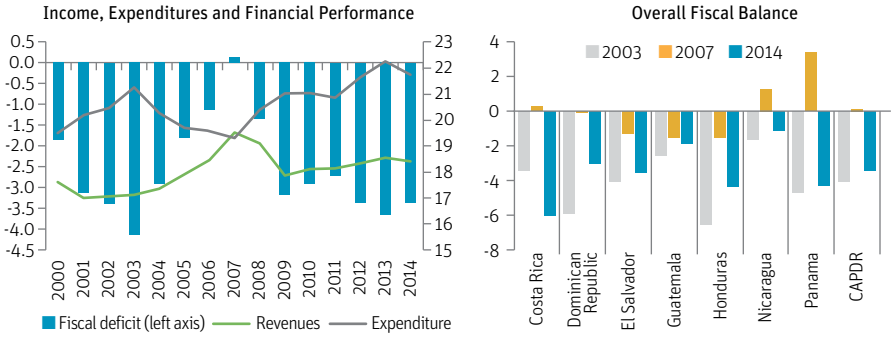
ECONOMIC GROWTH AND PUBLIC FINANCES

Between 2003 and 2007, the world economy experienced strong growth which benefited CAPDR. During these years, world growth exceeded 4%, and even reached a maximum of 5.7% in 2007. This peak was driven mainly by the expansion of the real estate sector in the United States,[2] due to the decrease in interest rates and taxes, and the deregulation of markets, as indicated in Sherman (2009). CAPDR experienced a boom in economic

[1] Or the region.
[2] Which, in turn, as will be mentioned below, culminated in the outbreak of the global crisis of 2008, with serious international repercussions.

activity, reaching growth of 6.5% in 2007, increases in international trade,[3] and historically low unemployment levels,[4] with decreases in domestic interest rates in most countries.[5]

FIGURE 1.1 Evolution of the Fiscal Accounts in CAPDR (% of GDP)



Source: CID/IDB with data from the IMF *World Economic Outlook* (April 2015).

In this context, the countries of the region improved their fiscal balances. Strong economic growth, combined with a series of fiscal improvements, translated into increases in tax revenues and a reduction in public spending. That allowed the region to move from a fiscal deficit equivalent to 4.1% of the regional gross domestic product (GDP) in 2003, to a zero fiscal balance in 2007. However, the economic slowdown during the crisis triggered a significant fall in tax revenues, an increase in spending, and a deterioration of the fiscal situation. In 2009, revenues fell to 17.8% of GDP, on average, compared to 19.4% in 2007.

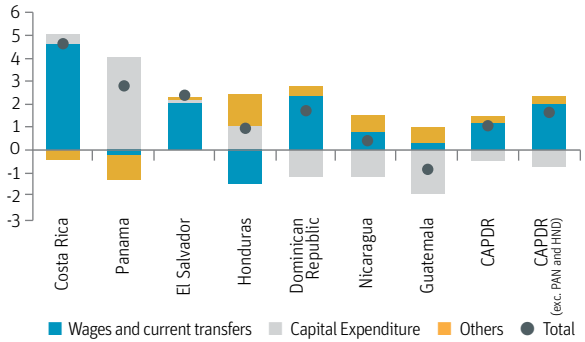
As stated in the 2013 regional macroeconomic report of the Inter-American Development Bank (IDB), the fiscal policy response to a temporary shock focused, in the majority of countries, on expenditure items difficult to reverse, such as current transfers and salaries. The result was a deterioration of 1.3 percentage points of GDP of the deficit in 2009, reaching 2.9% of GDP in 2010. Thus, the increase of CAPDR public spending between 2007 and 2014 was 1.1% of GDP.

3 According to the International Monetary Fund (IMF), CAPDR experienced growth rates in exports of up to 14.2% during the period under study.

4 According to the IMF, by 2007 the CAPDR countries (excluding Guatemala) recorded one of the lowest unemployment rates in their recent history: 5.8% of the work force.

5 According to the Secretaría Ejecutiva del Consejo Monetario Centroamericano [Executive Secretariat of the Central American Monetary Council] (SECMCA for its Spanish acronym), between 2003 and 2007, all the countries, with the exception of El Salvador, achieved an average decrease in active interest rates of 5.7%.

FIGURE 1.2 Variation in Primary Spending 2007-2014
(% of GDP)

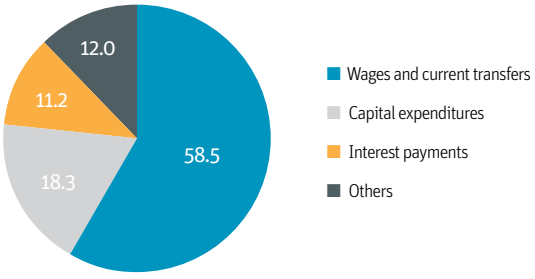


Source: CID/IDB with data from ECLAC (2015).

THE LEGACY OF THE CRISIS: HIGHER CURRENT TRANSFERS AND SALARIES

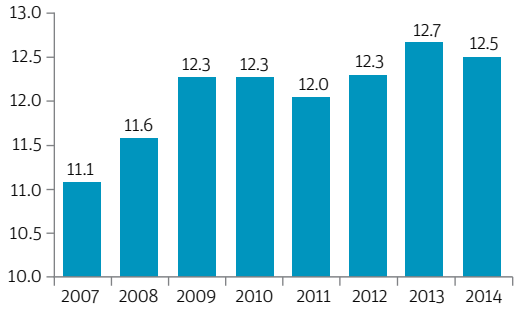
Current transfers and wages are the most important elements of public sector spending in the region. By 2014, average expenditures in these two categories amounted to 58.5% of total spending. It is worth noting that despite an increase in the levels of public sector debt, interest payments have remained relatively constant, due mainly to the decline in international interest rates. At the same time, with the exception of Panama, public investment has not exceeded 3.2% of GDP, compared to 4% in Latin America as a whole.

FIGURE 1.3 Distribution of Public Spending in CAPDR, 2014
(% of total spending)



Source: CID/IDB with data from ECLAC (2015).

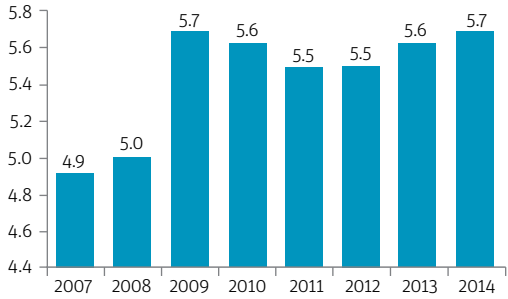
FIGURE 1.4 Current Primary Spending in CAPDR
(% of GDP)



Source: CID/IDB with data from ECLAC (2015).

Between 2007 and 2014, the majority of the countries increased current[6] inflexible primary spending. The increase in current transfers and salaries explains nearly 72% of the change in total spending in the region. The exception was Panama, where capital expenditures (related to construction works on the Canal) were much greater than the growth of the economy, while current transfers and salaries decreased as a percentage of GDP.

FIGURE 1.5 Public Sector Wages in CAPDR
(% of GDP)



Source: CID/IDB with data from ECLAC (2015).

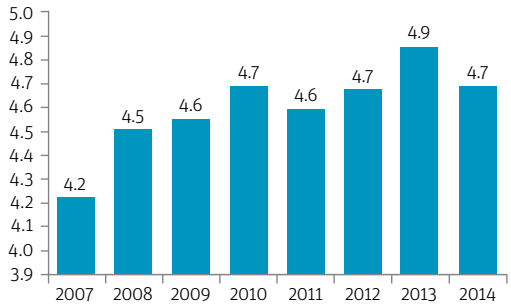
Between 2007 and 2014 there was an increase in salaries in most of the countries in the region. On average, the Central Government payroll in CAPDR increased by 0.76% of GDP, although it was not uniform in all countries. While in Costa Rica, it increased

[6] Current primary spending is current spending, excluding interest payments.

by 1.6% of GDP, in Panama it declined by 0.5% of GDP. These changes readjusted the structure of expenditures and reduced the percentage of total spending allocated to public sector investment. In Guatemala, investment came down, given the greater weight of the payroll.[7] In Panama, the opposite situation was true: a dynamic economy, higher tax revenues, and a relatively austere salary policy allowed public investment to increase without a corresponding increase in the fiscal deficit.

The reasons for the growth of payrolls were different in the countries of the region. If greater wage and salary payments are mainly explained by an increase in public sector employment, we could conclude that this increase could be the result of an expansion in the scope of public services provided by the State.[8] On the other hand, if the wage bill increase is due to a rise in the average wage, this could be associated mainly to an generous wage policy. The case of Costa Rica is an example of the former, where 73% of payroll growth between 2008 and 2013 was due to salary increases, while the rest was due to an expansion in public sector employment.[9]

FIGURE 1.6 Current Transfers in CAPDR (% of GDP)



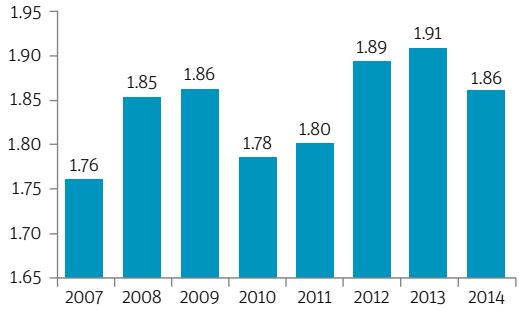
Source: CID/IDB with data from ECLAC (2015).

Between 2007 and 2014, current transfers[10] increased on average by 0.46% of GDP. As Izquierdo and Manzano (2012) explain, the increase in this item is due, in general, to a higher budget allocated to items such as conditional transfers, namely, scholarships and/or the payment of allowances to highly vulnerable groups. This type of expense

[7] See Box 2.3 in Chapter 2 for greater details on this displacement of investment.
[8] The efficiency of the increase in expenditures by country in CAPDR is analyzed in Chapter 3.
[9] The breakdown of wage bill evolution and the triggers of payroll spending will be analyzed in detail in Chapter 2.
[10] This heading mainly includes resources allocated to other institutions of the public or private sectors that, in turn, administer the payment of allowances/and or scholarships, for example.

is relatively inflexible since it normally forms part of a medium-term strategy and it is politically difficult to revert.

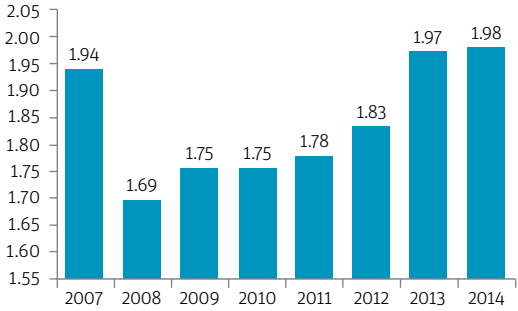
FIGURE 1.7 Purchase of public sector goods and services in CAPDR (% of GDP)



Source: CID/IDB with data from ECLAC (2015).

The purchase of goods and services showed a small increase between 2007 and 2014. Typical expenses under this heading include stationery, public services and those services outside of the principle activity of the State, such as cleaning and maintenance of infrastructure and equipment. During this period, these expenses increased, on average, by 0.10% of GDP for the countries in the region. An interesting characteristic of this expense is the heterogeneity in levels that the countries show. While Costa Rica is a country that spent less on goods and services (0.66% of GDP) in 2014, countries like Honduras and El Salvador allocated almost 2.5% of GDP.

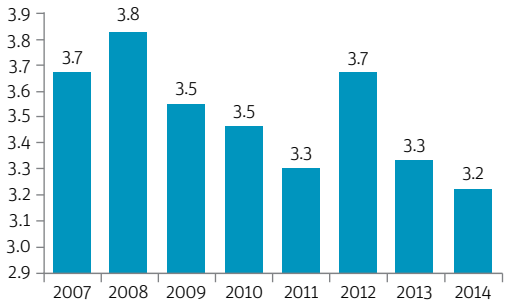
FIGURE 1.8 Public Sector Interest Payments in CAPDR (% of GDP)



Source: CID/IDB with data from ECLAC (2015).

Interest payments remained relatively constant between 2007 and 2014. This is noteworthy since the high deficits have brought about a continuous increase in public debt. However, the decrease in international interest rates is one of the key factors that has controlled the growth of this heading. It is important to indicate how interest payments differ significantly among countries in the region. Costa Rica was the country that allocated the greatest amount of resources to interest payments (2.6% of GDP) in 2014. On the other hand, Nicaragua allocated the least amount (0.9% of GDP), in part due to the alleviation of its debt given its condition as a highly indebted poor country (HIPC).

FIGURE 1.9 Public Investment in CAPDR/1 (% of GDP)



Source: CID/IDB with data from ECLAC (2015).
Note: /1Does not include Panama. Numbers correspond only to the Central Government.

As mentioned previously, public sector investment, with the exception of Panama, fell between 2007 and 2014. According to numbers from the Economic Commission for Latin America and the Caribbean (ECLAC), the region's capital expenditures contracted by approximately 0.5% of GDP, on average, but with significant differences between countries. While Panama increased capital spending by 4% of GDP during the period, reaching almost 8% of GDP, Guatemala reduced it by 2.3%, ending up at 2.9% of GDP.

GROWING PUBLIC DEBT

Public finances dynamic after 2007 has led to the increase of deficits and debt. Between 2007 and 2014 the average debt of CAPDR increased by 8.4% of GDP. The only countries that managed to lower their debt burden were Panama and Nicaragua. In the first case, high economic growth in Panama during this period enabled it to compensate the increase in nominal public debt. In the second case, the decrease in debt is associated with the debt relief related to its Highly Indebted Poor Country (HIPC) status. On the other side, the countries with the most significant increase in debt were El Salvador and Honduras. In

the first case, public debt increased by 25% reaching 62.4% of GDP in 2014, while in the second case, it rose by 23% of GDP in the same period.

External and domestic developments created the conditions for countries to increase their indebtedness. Low international interest rates have lower the cost of placing new debt. At the same time, countries in the region will able to reduce their public sector deficits, which led to reduction in public debts and improvements in the risk perception of CAPDR countries, which was reflected in better risk ratings (Lagarda *et al.*, 2014).[11] The combination of the previous factors helped the countries in the region gain access to international markets, allowing many of the countries in the region place bonds with

TABLE 1. Recent Placements in International Markets by CAPDR

Country	Issuance Date	Term (years)	Coupon	Amount (USD MM)
Costa Rica	11/21/2012	10	4.250	1,000
	4/30/2013	12	4.375	500
	4/30/2013	30	5.625	500
	4/4/2014	30	7.000	1,000
El Salvador	12/1/2009	10	7.375	800
	2/1/2011	30	7.625	654
	12/5/2012	12	5.875	800
	9/18/2014	12	6.375	800
Guatemala	6/6/2012	10	5.750	700
	2/13/2013	15	4.875	700
Honduras	3/15/2013	11	7.500	500
	12/16/2013	7	8.750	500
Panama	11/23/2009	10	5.200	1,500
	6/24/2011	7	5.000	994
	1/30/2012	10	5.625	1,364
	4/29/2013	40	4.300	750
	9/22/2014	10	4.000	1,250
Dominican Republic	5/6/2010	11	7.500	1,500
	4/18/2013	11	5.875	1,000
	10/28/2013	10	6.600	500
	4/30/2014	30	7.450	1,500

Source: CID/IDB with data from *Bloomberg* (2015).

[11] During this period, the Institutional Investor Rating (IIR) improved by 17%, on average, for CAPDR. The IIR is an index calculated by the Institutional Investor Magazine which evaluates the credit quality of countries. This index uses a scale from 0 to 100.

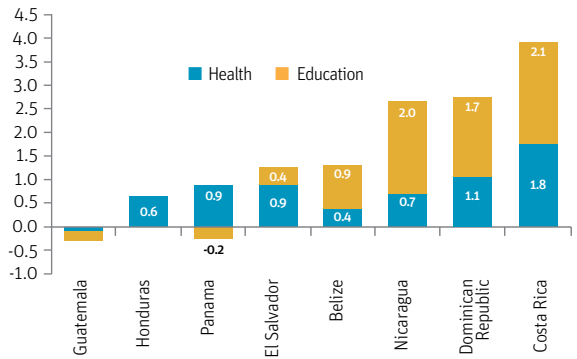
maturities as long as 40 years at historically low interest rates. In this way the CAPDR governments were able to decrease their participation in the domestic debt market, and consequently, the pressure they were exercising on domestic interest rates. Table 1.1 summarizes recent international placements in the region by issue date, term and amount.

Nonetheless, the continuous increase in public debt could entail risks to macroeconomic stability. A large part of the countries in the region increased their debt to finance salary and payroll increases, among other things. That has set off some warning signals, since many countries would have be financing recurring short-term expenses with debt. This dynamic involves a growing debt, requiring an increasing amount of resources to service it, which leads to pressure on interest rates, and, eventually crowding out private investment.

A BRIEF GLANCE AT SOCIAL EXPENDITURE

Increases in the level of public spending in the past eight years centered on social spending, particularly in education and health. In both sectors, this variation was skewed to the wage bill. Between 2007 and 2013, spending on education and health increased, on average, 1% and 0.8% of GDP, respectively. On the education side, approximately 45% of the increase can be explained by increases in wages, while for health 23%.[12]

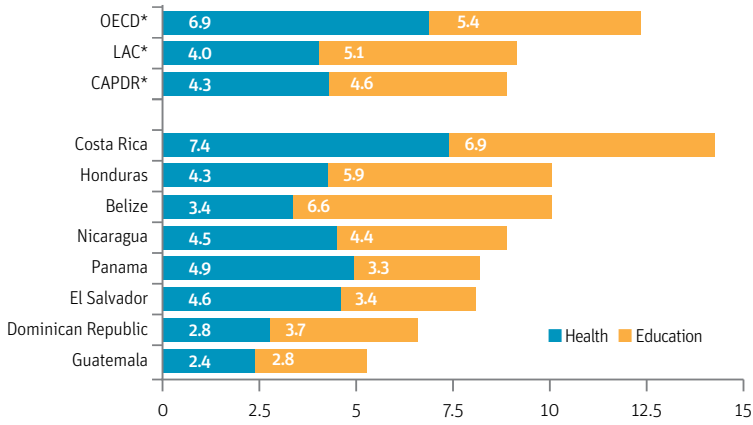
FIGURE 1.10 Increase in Public Spending to Health and Education (% of GDP)



Note: *No data for spending on education in Honduras is available prior to 2013.
Source: CID/IDB with data from the World Bank (2015).

[12] Chapter 2 analyzes the evolution of public sector wages. There is also an evaluation of its structure, composition and density of the human resources in both sectors, as well as of civil security and the civil service.

FIGURE 1.11 Public Spending in Health and Education, 2013 (% of GDP)



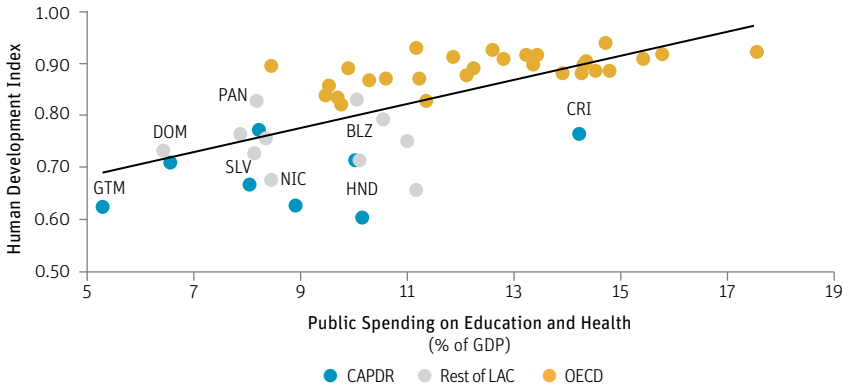
Note: *Simple average of the region.
Source: CID/IDB with data from the World Bank (2015).

In 2013, the countries of the CAPDR allocated, on average, 8.9% of GDP to the education and health sectors, but with important differences between countries. This amount is very similar to what has been observed in the rest of Latin America, although less than in countries of the Organization for Economic Co-operation and Development (OECD) which allocated, on average, 12.3%. For example, while Guatemala allocated 5.3% of GDP on both sectors in 2013, Costa Rica earmarked 14.3% of GDP, a high level even for the OECD countries.

Examining the Human Development Index (HDI)[13] is an indirect way of analyzing the impact of public policies. On a regional level, the HDI has improved in the past years, but not in the same way in each country. According to ECLAC data for the countries for which information is available, the average regional HDI improved by 5.1% between 2005 and 2012, while per capita social spending increased by almost 50%. We observe that in Costa Rica, social spending per capita increased by 66% between 2005 and 2012, however HDI increased only by 5.5%. Similarly, El Salvador and Guatemala experienced increases of 25.2% and 6.7% in social spending per capita during the same period, with variations in HDI of 8.7% and 3.2%, respectively. Graph 1.12 shows the relation between education and

[13] he HDI is a combination of indicators of life expectancy, educational achievement (average number of years of education, expected number of years of education) and standard of living (gross national income per capita). Each dimension of the index has a minimum and maximum value. The scores obtained for each one are added together to form a compound index.

FIGURE 1.12 Social Spending and Human Development Index, 2013



Note: *Simple average of the region.
Source: CID/IDB with data from the World Bank (2015).

health public spending as percentage of GDP and the HDI, where one can observe some evidence of, a positive relation between social spending and HDI.

FEW RESOURCES, GREAT NEEDS

The region fiscal problems could limit the ability of governments to satisfy social needs in the medium term. The governments capacity to maximize the impact of social spending is limited by the amount of resources it has, and the flexibility of expenditure to adapt to changes in priorities. Thus, a higher inflexibility in spending implies higher inertia, while a large fiscal deficit that implies growing public debt, could arise questions on fiscal sustainability over time.

Given resource constraints, governments have the obligation to identify the way to implement social policies with the highest impact. Maximizing spending effectiveness is a process which entails identifing sectors where the use of resources shows the best results. Authorities need to understand how spending is linked to the best outcomes of performance indicators.[14] Hence, different policy options to maximize the impact of public spending must be explored, taking into resource limitations.

Finally, a key factor that influences the quality and effectiveness of spending is the institutional complexity of the public sector.[15] A complex public system may limit

[14] Chapter 3 analyzes the heterogeneity of social spending from a departmental perspective, in contrast to other studies that make comparisons between countries at national levels. Previous studies have evaluated the efficiency of expenditures in CAPDR based on aggregated data per country.
[15] See Chapter 4 for a more detailed analysis of the institutional complexity in the countries in the region, and in the health and education sectors.

the effectiveness of the implementation of economic and social policy decisions that governments intend to carry out. For example, the institutional arrangements of the public sector of a country influence its ability to act. The more power the institutional environment confers to the executive branch, the greater its ability will be to implement its agenda. If the institutionality is such that the government must negotiate with a large number of entities to implement its agenda, its ability to act will be limited.

Improving the effectiveness and timeliness of public policies should help mitigate some of the socioeconomic problems of the region. A higher efficiency in social spending would imply that with the same level of resources, the authorities would achieve a larger impact on welfare indicators, which means a larger impact on the population, especially those with lower income.

2 MISSION IMPOSSIBLE?

HOW TO ACHIEVE BETTER RESULTS IN HEALTH AND EDUCATION

Víctor A. Dumas[1]
Mariano Lafuente

From a conceptual point of view, efficiency and quality in public spending involves an analysis of the relationship between inputs and results achieved. Such is the case, for example, of the relationship between public spending on education per student and the results of international standardized tests like the Program for International Student Assessment (PISA), or between public spending on health as a percentage of GDP and life expectancy at birth.

In the CAPDR countries, the central government spends more than a third of total annual expenditure, on average, on personal services or wages. Moreover, these countries increased their actual expenditure on wages by 65% from 2007 to 2013. What level of services, measured in terms of coverage, diversity of services and results obtained, has each country been able to achieve through such spending? What has this increase contributed in terms of improving the quality of life of the citizens of these countries?

This chapter offers a detailed analysis of public employee and wage policy in the civil service (public sector scheme), and specifically in education and health, and examines its evolution from 2007 to 2013.[2] We analyze how changes to the wage bill are attributable to: (i) changes in employment level (with the consequent effects on the coverage and quantity of services offered); and (ii) changes to the individual remuneration received by public sector employees (which theoretically has an effect on the capacity to attract and retain human talent in public services and, indirectly, on the quality of the services provided). In other words, we analyze the evolution and quality of the public sector wage

[1] This chapter analyzes and systematizes the main findings of national reports prepared by a multidisciplinary team of IDB specialists from 2013 to 2015.

[2] The emphasis placed on the education and health sectors is due first of all to the fact that these sectors, together with the security sector (discussed in Annex 1), concentrate between two thirds and three quarters of total spending on wages in the countries analyzed, and secondly, to the fact that the wage bill represents around 70% of total expenditure in each sector, with some variation from sector to sector and between countries. In other words, wage payments are the biggest expense incurred by the countries analyzed in the provision of educational, health and security services.

bill measured in terms of its rationality, and we present policy recommendations for improving the efficiency of human resources in the public sector.

This study seeks to determine the importance and contribution of the wage bill to the provision of public services; at the same time, it seeks to analyze payroll, public employment and wage policy behavior in each country with a view to increasing the efficiency of human resources in the State. Is the evolution in public employee numbers in the region adequate with respect to international standards? Is the wage policy of each country consistent with that country's fiscal capacity, its service coverage needs, and salaries for similar occupations in the private sector? This report is based on government sources (public sector payroll data) and offers a quantitative and qualitative analysis of public employment and wage policy in the central government. The period of analysis is from 2007 to 2013, wherever the information available allows, or only certain years within that period when information is lacking.

The chapter is divided into four sections. This first one offers a description of the scope and reasons for the study, and presents a macro-fiscal context, placing emphasis on certain aspects already mentioned in the first chapter. The second section analyzes public employment, wages and spending on wages at the aggregate level in each of the countries of the region. The third section provides similar information, but with a sectoral focus: education, health and the civil service (public sector scheme). Finally, we present some conclusions and recommendations.

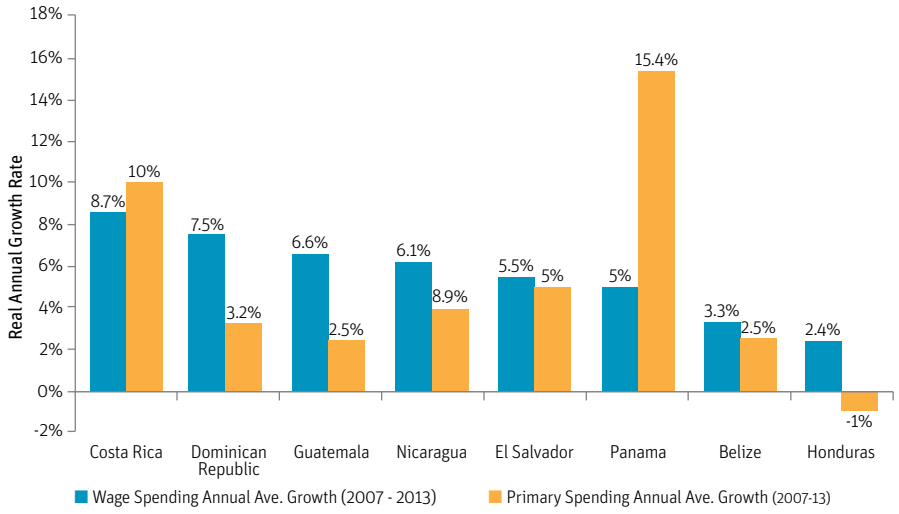
MOTIVATION AND FISCAL CONTEXT

In addition to the importance that the evolution of public employment and wage policy has for the main services provided to the population, it can also have significant repercussions at the macro-fiscal level. In fact, in an analysis of the evolution of public spending in the region from 2007 to 2012 (Izquierdo *et al.*, 2013), significant growth in spending on wages was identified in the CAPDR countries. Although the first chapter of this book already addressed the macro-fiscal situation with a detailed analysis of the macroeconomic outlook for the region, it is essential to restate some of the conclusions offered in that chapter for the purposes of establishing a context that is more directly relevant to the analysis presented in this chapter.

During the period 2007-2013, the real growth rate of the annual wage bill was higher than it was in any other category in most of the countries in the region (see Figure 2.1). In Costa Rica and the Dominican Republic, for example, the wage bill's average real growth rate was higher than 7% per year, and well above the annual real growth rate for non-salary expenditures (excluding interest). As outlined in Chapter 1, the growth in spending

has not been accompanied by comparable increases in tax revenue, partly due to the economic downturn resulting from the international crisis, which generated significant fiscal deficits in some countries. Another consequence of the dramatic increase in the wage bill is the displacement of other expenditures, as has been the case in Guatemala, where the growth rate of the wage bill was 2.5 times that of other categories of spending.

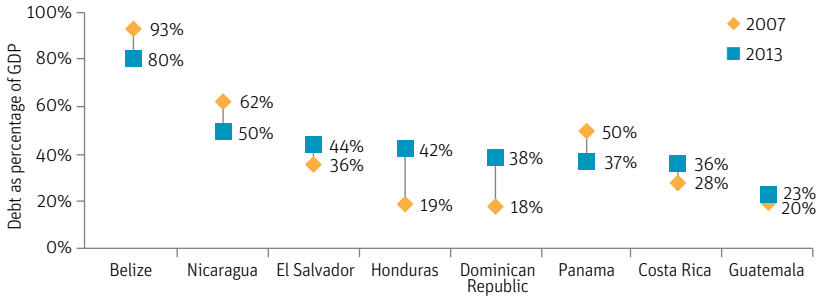
FIGURE 2.1 Average Real Annual Growth Rate of Wage Bill and Non-Salary Primary Expenditure for the Period 2007-2013



Source: own research based on each country's budget execution data.

In cases where the deficit has remained high, tax revenues have not increased at the same rate as expenditure (see Figure 2.2). Countries like Costa Rica and the Dominican Republic (the countries with the highest wage bill growth rates) experienced significant debt increases. The same was true for Honduras, in spite of significant efforts to contain payroll expenditure since 2010. In a context of international liquidity in which interest rates have hit historic lows, the financial cost of borrowing on international markets has become extremely attractive. However, high fiscal deficits have left some countries more vulnerable to eventual increases in international interest rates. A rise in interest rates would further deteriorate the financial deficit, which would prove difficult to reduce in a context in which expenditure has grown in rigid areas like wages.

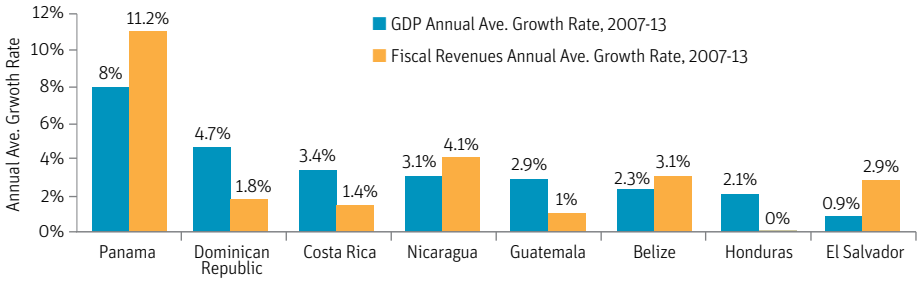
FIGURE 2.2 Public Debt as a Percentage of GDP 2007 and 2013



Source: own research based on data obtained from the finance ministries and central banks of each country.

The region has seen mixed results in terms of economic performance. On the one hand, Panama has achieved growth at an average rate of more than 8% per year, while, on the other hand, El Salvador's annual growth has been lower than 1%. The other countries of the region recorded annual GDP growth rates from 2% to 5% (see Figure 2.3). Unfortunately, economic growth in each country has not necessarily translated into increased tax revenue. While Panama, Nicaragua, El Salvador and Belize have seen a growth in tax revenues above that of their GDP, others, like the Dominican Republic, Costa Rica, Guatemala, and Honduras, have gone in the opposite direction, with a drop in tax revenue as a percentage of GDP. These factors also help explain the deterioration of the macro-fiscal situation in some countries.

FIGURE 2.3 Average Annual Growth Rate of GDP and Tax Revenues for the Period 2007-2013



Source: own research based on data obtained from the finance ministries and central banks of each country.

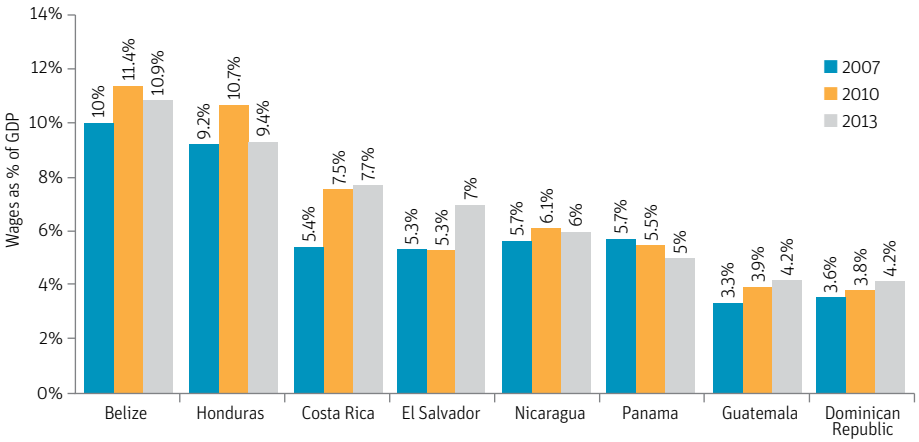
WAGE BILL IN CENTRAL AMERICA, PANAMA AND THE DOMINICAN REPUBLIC – GENERAL OUTLOOK AND TRENDS 2007-2013

This section uses a series of aggregate indicators to describe the general situation (payroll, public employment and average wages) in each of the CAPDR countries for the period 2007-2013.

Aggregate wage bill

In all of the countries included in this study except for Panama, the central government's payroll as a percentage of GDP increased from 2007 to 2013. In Figure 2.4, three groups of countries can be distinguished based on their wage expenditure. In the first group are Belize and Honduras, countries with a high percentage of GDP being spent on wages. In the second group are countries with a moderate level of payroll expenditure in 2007, but that have shown a significant increase in this indicator in recent years; in this group are Costa Rica and El Salvador. Finally, the third group includes countries with a lower level of payroll expenditure that has seen a more moderate increase or even a drop; this is the case of Guatemala, Nicaragua, Panama and the Dominican Republic.

FIGURE 2.4 Central Government Payroll as a Percentage of GDP, Selected Years



Source: own research based on data on fiscal execution obtained from each country[3].

[3] The payroll figures used to create the charts in this section have been designed to reflect the real wage bill in each country and make them comparable not only over time, but also between countries. Some of the corrections made are: (1) the inclusion of the payrolls of public hospitals in El Salvador, which are classified as decentralized public entities in that country; (2) the inclusion in Costa Rica's payroll of the transfer made by the Ministry of Health to the Caja Costarricense del Seguro Social (Costa Rican Social Security Fund), or CCSS (for its Spanish acronym); (3) the inclusion in Guatemala's payroll for 2007 and 2008 of the proportion allotted to wage payments in the transfers made to National Self-Management Program for Educational

In the first group of countries, which includes Belize and Honduras, there are two sub-periods: one of expansion and another of containment. The first of one is 2007-2010, when the proportion of GDP spent on wages increased, due partly to increases in expenditure and partly to a contraction in GDP. In the second sub-period (2010-2013), efforts to reverse policy related to wage bill expansion can be observed, resulting in a fall in this indicator. Box 2.1 presents an outline of the efforts made in Honduras to contain and reduce the relative size of its wage bill. Nevertheless, in spite of the progress made in the last few years, the level of the wage bill in these countries continues to be high in comparison with the rest of Central America, and with Latin America and the Caribbean in general.

BOX 2.1: EFFORTS TO CONTAIN THE RELATIVE SIZE OF THE PAYROLL IN HONDURAS

Following the implementation of generous multi-year wage agreements signed with the teachers' union in 2006, resulting in an annual wage increase equivalent to 20% in real terms from 2007 to 2009, and raises granted in the health sector (although with less impact on payroll expenditure), since 2010 the government has made significant efforts to contain payroll growth.

With respect to wage policy, the freezing of teachers' salaries for two years, unpegging them from the minimum salary levels in the private sector, and the inflation-based adjustments introduced as of 2012 generated annual savings equivalent to 7% of the wage bill. In the health sector, raises were suspended for some of the numerous statutes due to the deterioration of the fiscal situation.

These efforts were complemented with other measures. At the employment level, the Ministry of Finance strengthened controls on the creation of new job positions and implemented the Teacher Administration System (SAD for its Spanish acronym) to better manage human resources. These efforts have also continued in 2014 and 2015 in areas such as health, security, infrastructure and public works.

These measures, combined with economic growth, have led to a decrease in the payroll as a percentage of GDP by almost 2 percentage points over a short period of time. This downward trend was confirmed in 2014, falling to 9.1% of GDP, while for 2016 it was projected to reach 8.6%.

Source: Cortázar J.C., M. Lafuente and M. Sangines (2014).

Development (PRONADE for its Spanish acronym); and (4) the inclusion in Panama's payroll figure of the transfers made by the Ministry of Education to municipal schools. These corrections explain any differences between these figures and those published in other sources (e.g. in documents prepared by the IMF in the context of Article IV missions).

In the second group of countries that includes Costa Rica and El Salvador, the central governments' wage bill increased between 1.7 to 2.4 of GDP. Although both countries recorded a significant increase over this period, the reasons for this increase are different in each country. In the case of Costa Rica, the increase is due to the implementation of a wage policy called Percentil 50. This policy generated significant increases in salaries for most public sector employees, particularly for teachers and administrative employees (more details on this policy are presented in Box 2.2). In El Salvador, the increase is the result of an expansion in employee numbers in a context of low economic growth. From 2007 to 2013, this country recorded the lowest economic growth in the region (averaging less than 1% per year). However, during the same period, the country was able to increase its tax revenue, enabling it to spend a larger amount of resources on hiring additional public employees (see Figure 2.3).

The third group of countries, which includes Nicaragua, Panama, Guatemala and the Dominican Republic, spend 4% to 6% of their GDP on public sector wages. In this group, drop of the wage bill as percent of GDP Panama is particularly noteworthy. Panama's high economic growth during the period (averaging 8% per year; see Figure 2.3) explains this fall; however, it is also worth highlighting that the absolute amount of wage payments has increased by 34% in real terms (see Figure 2.6). In the case of Guatemala, wages increased by 0.9% of GDP in the period, while the increase was 0.6 percentage points of GDP in the Dominican Republic, and 0.3 percentage points of GDP in Nicaragua.

In every country in the region (except Panama), wage expenditure as a percentage of total expenditure was the same or higher at the end of the period studied. In Figure 2.5, two groups of countries can be distinguished: the first with percentages above a third of total expenditure (36% to 42%), comprising Honduras, Belize, Costa Rica, El Salvador and Nicaragua; and a second group of countries with a comparatively lower percentage (less than 30% of total expenditure) but with a sustained increase in wages, with the exception of Panama (which saw a fall of 7 percentage points in wage expenditure as a percentage of total expenditure).

BOX 2.2 UNEXPECTED CONSEQUENCES – THE EFFECTS OF THE PERCENTIL 50 WAGE POLICY ON COSTA RICA'S PUBLIC FINANCES

When a new government came to power in 2006, there was considerable wage dispersion in Costa Rica's public sector between professionals classified under the civil service scheme (which in Costa Rica refers only to public employees working in the executive branch of the central government) and their counterparts performing similar duties in the numerous autonomous entities, as a result of the high degree of discretion permitted in determining their salaries. This led to difficulties in attracting and retaining personnel in the executive, especially in professions for which there was a greater demand in the labor market.

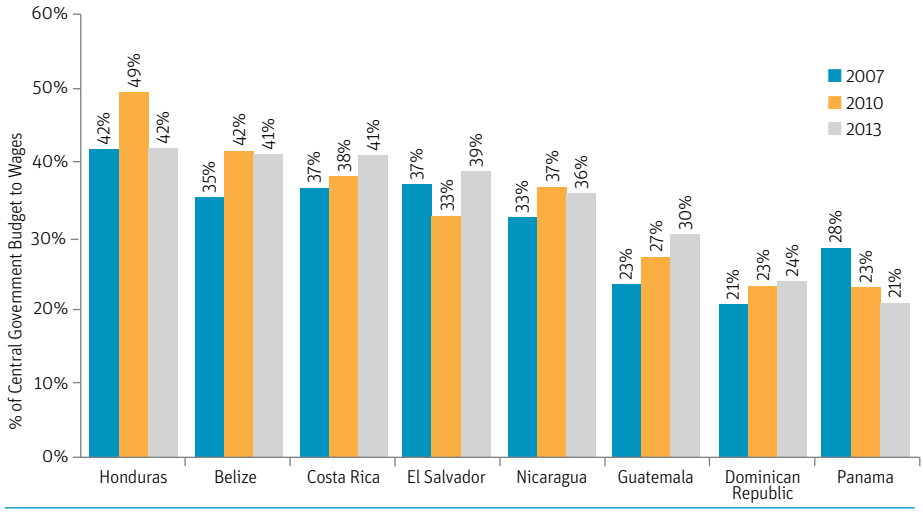
Following the preparation of several studies documenting the situation, and the confirmation of the available funds, the government enacted a reform affecting 7,400 professionals working for the executive branch, whose salaries would be raised gradually from 2008 to 2010 until they were positioned at the 50 percentile mark, or half the level of salaries in the consolidated public sector, including state-run companies, autonomous entities and the legislative and judicial branches, among others.

With the implementation of the first phase of raises in 2008, the Asociación de Profesores de Segunda Enseñanza (Secondary Teachers Association), or APSE for its Spanish acronym, called a strike to protest the exclusion of teaching professionals from this reform. After various negotiations, the government significantly increased salaries for a total of more than 100,000 employees. In 2009, non-professional workers also called for a review of their wages, ultimately achieving an increase of 4.9% in real terms.

Finally, as a result of the absence of a single governing body for the whole public sector and the autonomy of the decentralized entities, parallel increases were established in the public sector outside the civil service, either through raises (some of which were automatic, given that some entities already had a 75-percentile point policy, for example), or increases to the percentages applicable to the so-called "anualidades" (annual bonuses). As a result, while anecdotal evidence suggests that these salary increases improved the attraction and retention of professionals within the civil service, the other initiatives actually worked against the original objective of the reform (i.e. to achieve greater wage equity within the public sector), and with the aggravating factor of bringing about a new situation involving increased expenditure for the State, leading to a bigger fiscal deficit.

Source: Cortázar J.C., M. Lafuente and M. Sangines (2014).

FIGURE 2.5 Payroll as a Percentage of Total Central Government Expenditure, Selected Years



Source: own research based on data on fiscal execution obtained from each country.

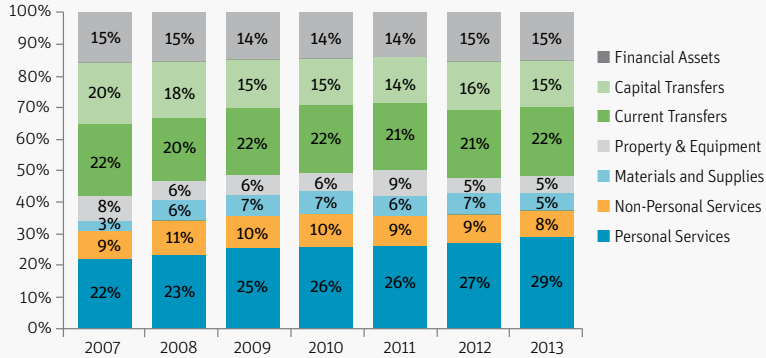
Changes to the composition of public expenditure usually also affect expenditures that are more discretionary and that generally include public investment. Indeed, the increase in the relative size of the payroll in Guatemala resulted in a crowding-out of investment spending, which could have long-term consequences for the country's economic growth and competitiveness (see Box 2.3). Although this payroll increase in Guatemala occurred in the context of a low coverage of services that would fully justify increased spending, the increased expenditure on wages could lead to difficult decisions about where to cut when fiscal space is limited. An opposite situation is observable in Panama, whose economic dynamism and consequent growth in tax revenue has been used precisely to increase public investment.

Although payroll is normally measured as a percentage of GDP, these indicators do not offer a picture of the absolute growth in the total amount spent on wages. How much more do the countries of the region spend on wages in real terms? As can be seen in Figure 2.6, every country in the region has increased its payroll in real terms from 2007 to 2013 by amounts ranging from 15% to 65%.

BOX 2.3 WHEN THE EXPANSION OF PUBLIC SERVICES AND THE CONSEQUENT INCREASE IN PAYROLL EXPENDITURE CROWDS OUT SPENDING IN PUBLIC INVESTMENT - THE GUATEMALA CASE

In Guatemala, between 2007 and 2013, the wage bill grew at a real rate of 56%, equivalent to a rate of 7.7% per year. This figure is much higher than the growth seen in all the other areas of expenditure (which increased by 2.8% per year). Consequently, spending on wages went from 22% of total expenditure in 2007 to 29% in 2013. This growth in the relative amount spent on salaries was associated with a drop in the proportion spent on financing capital expenditures. On the one hand, capital transfers fell by five percentage points in the same period, while spending on fixed assets dropped by three percentage points.

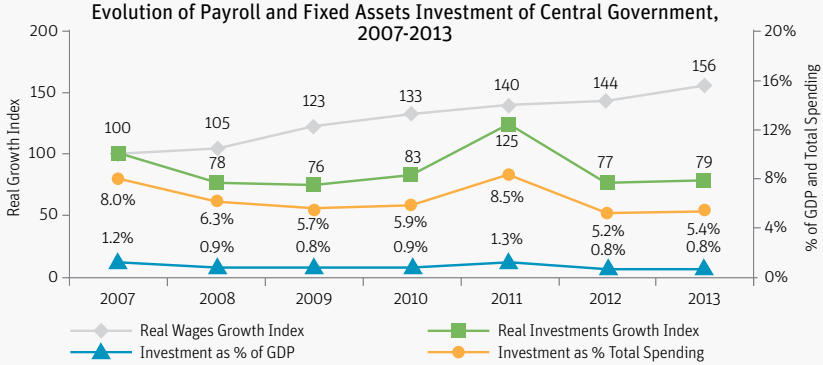
Guatemala Spending Composition According to Budgetary Accounts (Central Government), 2005 - 2013



Note: "Personal services" include salaries of teachers in PRONADE (National Self-Management Program for Educational Development) and medical and health services provided by MSPAS (Ministry of Public Health and Welfare).
Source: own research based on Ministry of Finance data.

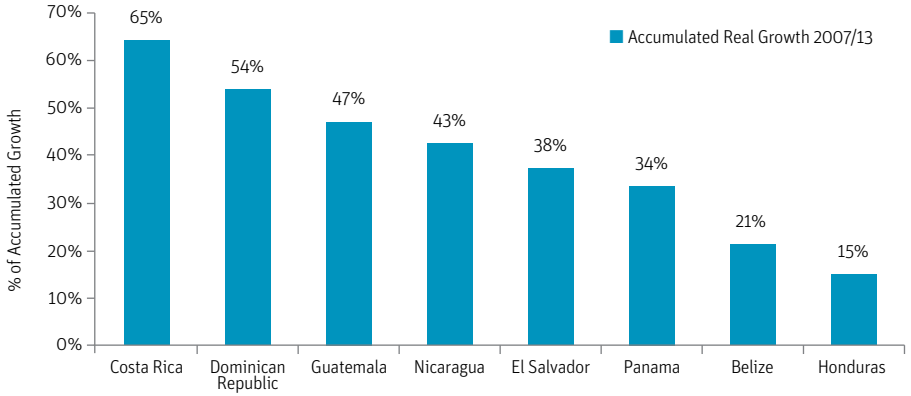
From 2007 to 2013, investment spending fell consistently, in both absolute and relative terms (with the exception of 2011, which seems to have been only a momentary change). While payroll grew by 56%, by the end of the period real spending on physical investment represented only 79% of the total invested at the beginning of the period. If the relative proportion of public investment is measured against GDP, this figure fell from 1.2% in 2007 to 0.8% in 2013

Evolution of Payroll and Fixed Assets Investment of Central Government, 2007-2013



Source: own research based on Ministry of Finance data.

FIGURE 2.6 Percentage of Cumulative Payroll Growth During the Period 2007-2013



Note: in some countries, in addition to expenditure on personal services, payroll includes other expenditures which, although not entered under the payroll account, do in fact constitute wage expenditures, such as certain non-personal services and current transfers for the payment of wages.
Source: own research based on each country's budget execution figures.

Costa Rica, the Dominican Republic and Guatemala are the countries in the region whose payrolls recorded the highest rate of cumulative real growth in the period. In view of the situation described in Box 2.2 on the unexpected effects of the Percentil 50 policy, it is unsurprising that Costa Rica should be in this category. However, it is interesting that real growth rates for the Dominican Republic and Guatemala were close to 50%. In 2013, both countries spent only 4.2% of GDP on public sector employee wages, the lowest figure in the CAPDR region. Moreover, with the exception of Panama, these two countries spent the lowest proportion of total public expenditure on wages. As noted above, in Guatemala this wage bill expansion has been at the expense of a reduction in public investment. However, in the Dominican Republic there was no noticeable change in the composition of this expenditure.

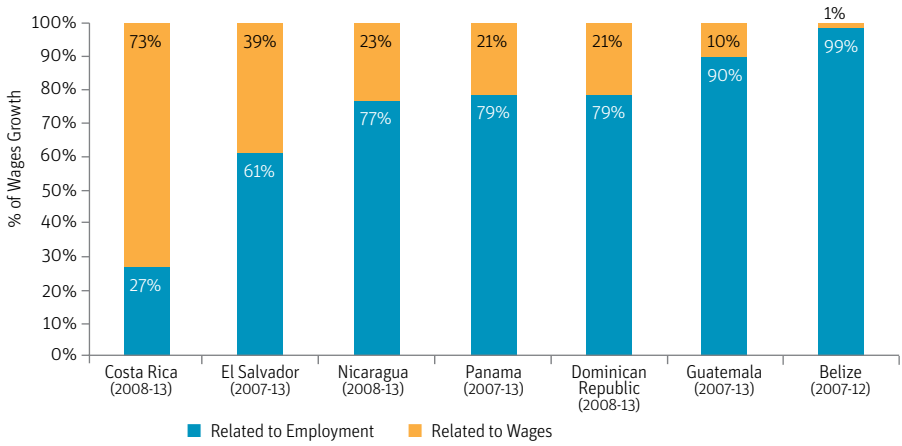
While in Guatemala non-wage expenditure increased at an average rate of 1% from 2007 to 2013, in the Dominican Republic this expenditure increased at an average rate of 4.4%. It is worth noting that in the period 2007-2013 total spending by the Dominican Republic's central government grew by 35%, while in Guatemala it increased by only 17%.

Figure 2.6 also shows that Honduras and Belize, which at the beginning of the period were spending a larger proportion of GDP and of total expenditure on wages, had the lowest payroll growth rates. This was due to the fact that the "fiscal space" available to hire additional personnel was very limited. In 2010, Honduras spent 97% of its tax revenues on paying wages and servicing its debt; this percentage fell to 90% in 2013.

What is the source of the payroll increase? More personnel or higher wages? A payroll increase as a result of increased employee numbers is generally accompanied by an expansion in the coverage of public services. On the other hand, wage increases do not necessarily have an immediate impact on the coverage or quality of the public services offered.[4]

A breakdown of the wage increase reveals that it was mainly the product of an expansion in employee numbers. In nearly all cases, the payroll expansion was the result of an express public policy whose objective was to expand the public services offered to the population. The only exception was Costa Rica, where 73% of payroll growth from 2008 to 2013 was attributable to wage increases, and the other 27% to an expansion in the number of public employees.

FIGURE 2.7 Breakdown of Payroll Growth Between Employee Numbers and Wages



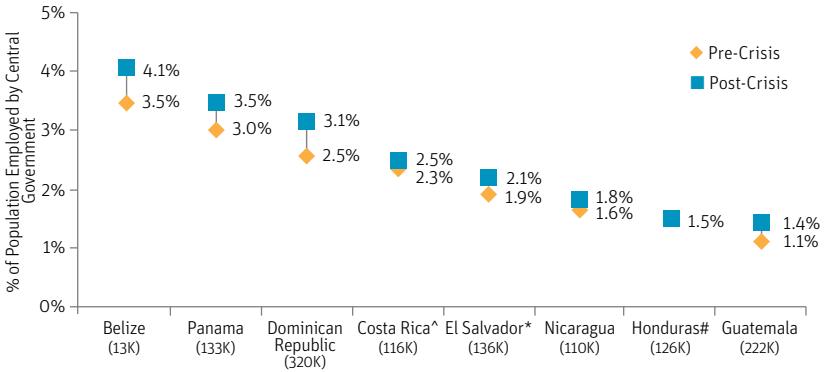
Note: data could not be obtained on the evolution of employee numbers in Honduras for the whole period, and it was therefore not possible to include the country in this chart.
Source: own research based on fiscal data and public employee payroll data obtained from each country.

[4] In the medium and long-term, wage increases would be expected to enhance the attraction, retention and motivation of better trained personnel; however, this would depend on the quality of human resource management, an area in which Latin America and the Caribbean (LAC) has not been notable for making significant advances. The IDB's civil service quality index recorded an average score for 16 LAC countries of 38 out of a total of 100 in 2013, compared to 30 out of 100 in 2004. In the case of the countries included in this study (except for Belize, which was not analyzed), the average was 32 out of 100 in 2013, compared to an average of 22 out of 100 in 2004 (Cortázar, Lafuente and Sangines, 2014).

Public employees

The workforce employed by the central government as a percentage of the total population (see Figure 2.8) has increased in every country in the region. In fact, even in Panama (where the payroll dropped from 5.7% to 5% of GDP from 2007 to 2013), the percentage of the population employed by the central government increased from 3% to 3.5%. Other countries with an increase in this indicator were Belize, the Dominican Republic and Guatemala.

FIGURE 2.8 Public Employees in the Central Government as a Percentage of the Population, Before and After the Financial Crisis



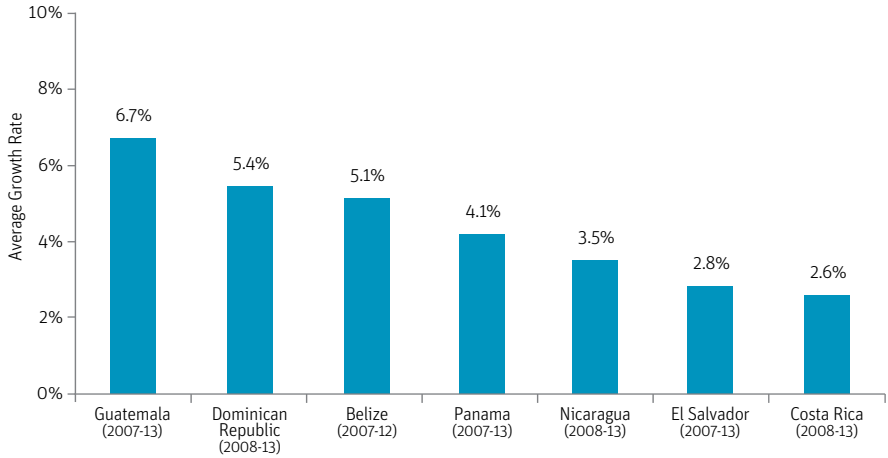
Notes: (#) For Honduras, the figures shown are for 2012 and include an estimate for the police and armed forces. (^) For Costa Rica, the figures do not include personnel in the CCSS (Social Security Fund). (*) For El Salvador, the figures include personnel working in the public hospital network.
Source: own research based on public employee payroll data obtained from each country.

A rise in the percentage of the population working in the public sector is normally associated with a government plan to expand the coverage of public services or the range of services offered. For example, in Guatemala, employee numbers increased significantly in all sectors: in education, the number of teachers rose by 44%; in security, the number of police officers increased by 66%; and in health, the number personnel nearly doubled (86%). On the other hand, in Panama the increase in employment numbers occurred mostly in the security and health sectors, where from 2007 to 2013 growth was 41% and 32%, respectively. In the Dominican Republic the most significant increase occurred among administrative employees in the education and health sectors. In the latter case, the employment expansion would not necessarily result in a better coverage of public services because, in general, administrative employees do not normally provide services

directly to the population. In the sectoral section we will review the distribution and functional evolution of public employee numbers in more detail.[5]

Compared with its employee numbers in 2007, Guatemala had the highest average annual growth rate in the region, with 6.7% (see Figure 2.9). Costa Rica recorded the lowest average growth rate of the countries in the region (2.6% per year), just slightly higher than the growth in the country's population, resulting in a low increase in public employee numbers relative to the population (from 2.3% in 2008 to 2.5% in 2013; see Figure 2.8).

FIGURE 2.9 Average Annual Growth Rate of Public Employee Numbers in the Central Government



Note: data on the evolution of employee numbers was not available for Honduras.
Source: own research based on public employee payroll data obtained from each country.

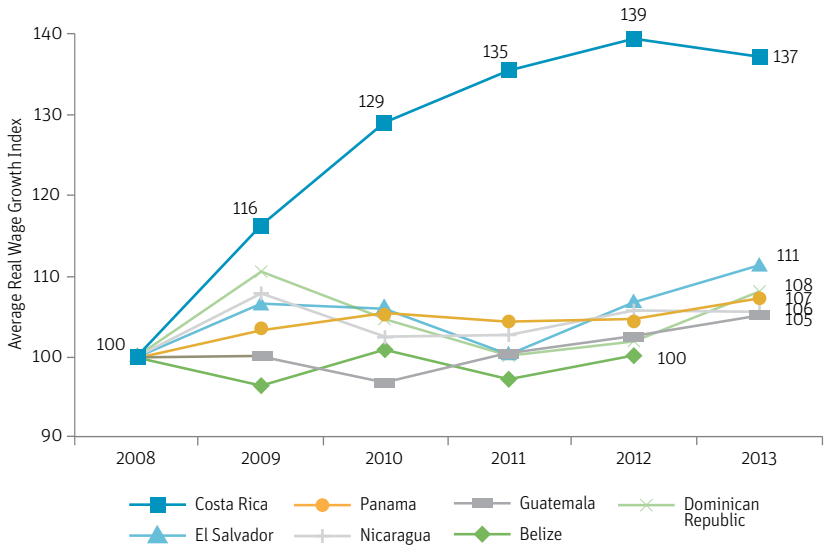
Wages

From 2008 to 2013, Costa Rica recorded the biggest cumulative increase in the average wage for its public sector employees (37% in real terms), while none of the other countries saw an increase of more than 11%. The rest of the countries of the region recorded more moderate growth in their average real wage, ranging from 5% to 11%. Belize is the only country that did not register real growth in its average wage (see Figure 2.10). The real annual growth rate of the average wage does not necessarily imply the existence of an

[5] Another point worth noting is that while Belize and Honduras both spend around 10% of GDP on public employee wages, the former employs 4.1% of its population, while the latter employs only 1.5%. This significant difference between the two countries suggests the existence of comparatively high relative salaries in the Honduran public sector. This point will be analyzed in greater detail in the next section.

extremely high level of remuneration, as it is possible that the real growth rate reflects a level that was previously extremely low. In order to control for this caveat, the average wage in the public sector relative to per capita GDP is presented for each country. Moreover, the average wage is not controlled for variations associated with the composition of the workforce; for example, in countries where there was a significant expansion in employee numbers (Guatemala or the Dominican Republic) it is highly likely that the hiring of employees at entry-level salaries (below the average) would result in a drop in the average wage. In cases where this effect has been significant, we opted to calculate an average wage based only on the personnel employed throughout the whole period. The figures using this correction will be presented in the sector analysis section.

FIGURE 2.10 Growth Rate of Average Real Wage in the Central Government, 2008-2013

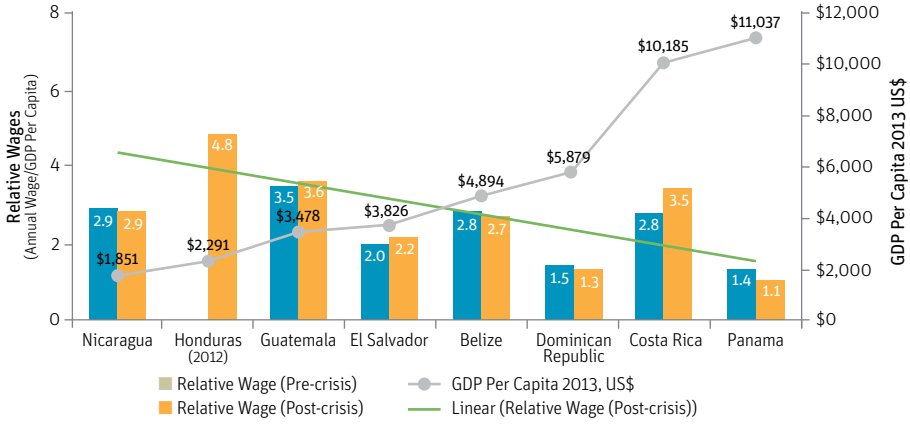


Note: data on the evolution of wages was not available for Honduras.
Source: own research based on public employee payroll data obtained from each country.

The relative wage level in each country depends on its per capita income level, among other variables. The lower a country's per capita income, the more qualified its workforce employed in the public sector tends to be in relation to the private sector, due to the fact that the latter tends to be dominated by agricultural industries or unskilled labor while service industries tend to be largely informal. When a country achieves a higher level of development, the private sector tends to employ a larger number of skilled and better paid

workers, and as a result the relative wage in the public sector tends to fall in relation to per capita GDP. This decreasing relationship between the relative public sector wage and per capita GDP is observable in Figure 2.11: the higher the per capita GDP (green line), the lower the expected value of the relative wage (trend line).

FIGURE 2.11 Average Relative Wage in the Central Government, Before and After the Crisis



Note: the pre-crisis figure is for 2008: the post-crisis figure is for 2013, for all countries except for Belize and Honduras, for which the 2012 figure was used.
Source: own research based on public employee payroll data obtained from each country and on data obtained from the World Bank's World Development Indicators.

Honduras and Costa Rica are two exceptions to the tendency in the relative wage. While Honduras has a per capita income comparable to Nicaragua's or Guatemala's, its relative wage is approximately twice as high, which is consistent with the fact that in Honduras a larger proportion of GDP is spent on public sector wages (10%) even though this sector employs a smaller proportion of its population (1.5%). Costa Rica is the exception on the other end of the income scale: while its per capita income is only slightly below that of Panama, its relative wage in 2013 was more than triple Panama's, representing a considerable increase on the 2008 level, when it was only double the wage in Panama.

In most of the countries, the average real wage in the public sector has increased at a faster rate than per capita GDP. In fact, only in Belize, the Dominican Republic and Panama is the relative wage after the crisis, compared to per capita GDP, lower than the

amount recorded for 2008.[6] While the increase recorded in the rest of the countries of the region has been moderate, in Costa Rica there has been an increase in the relative wage of 22%, suggesting that wages in the public sector increased at a significantly faster rate than per capita GDP growth.

SECTOR ANALYSIS

This section extends the analysis to the sector level in order to provide further detail not only on payroll, employee numbers and wage policy, but also on other sectoral indicators that shed light on the level and coverage of the public services offered.

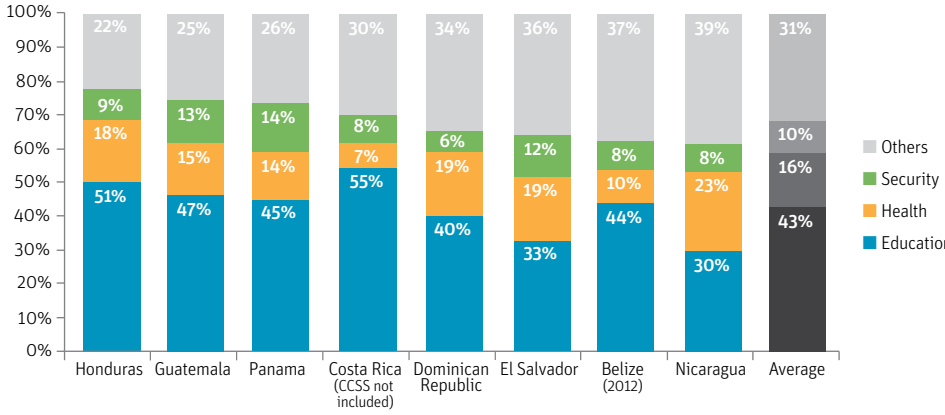
On average, the CAPDR countries spend 43% of total expenditure on wages in the education sector (including both teachers and administrative personnel), while in health and security[7] they spend an average of 16% and 10%, respectively. All together, these three sectors represented 69% of total expenditure on wages in 2013 (see Figure 2.12). The regional average conceals vast differences between countries. In 2013, for example, Honduras spent 51% of its wage expenditure on the education sector, while Nicaragua spent only 30% on this sector. At the same time, Nicaragua spent the highest proportion of its wage expenditure on the health sector.

There are various factors explaining the differences between countries. First of all, one factor is the existence of different needs and, therefore, strategic priorities in each country on the part of the authorities. Another explanation is the existence of different human resource management models, which make resource accounting more difficult. For example, the structure of the police force in one country may be highly vertical, where the vast majority of the personnel are base-level staff and there is only a limited number of senior officers, while other countries may have a more horizontal structure, where senior officers represent a larger relative proportion of the total force. Finally, a third factor could be differences in the relative wage of personnel in one sector vis-à-vis the others. Thus, the relative wage of police personnel in Guatemala is comparatively high within the public sector, which explains the high percentage of payroll spending concentrated in this sector.

[6] As mentioned previously, the effect of the composition of the workforce or the hiring of a large number of new public servants at entry-level salaries partly explains this trend in the case of these three countries.

[7] See an analysis of the security sector in the Annex to this chapter.

GRAPHIC 2.12 Percentile Distribution of Total Expenditure on Wages in the Central Government by Sector, 2013



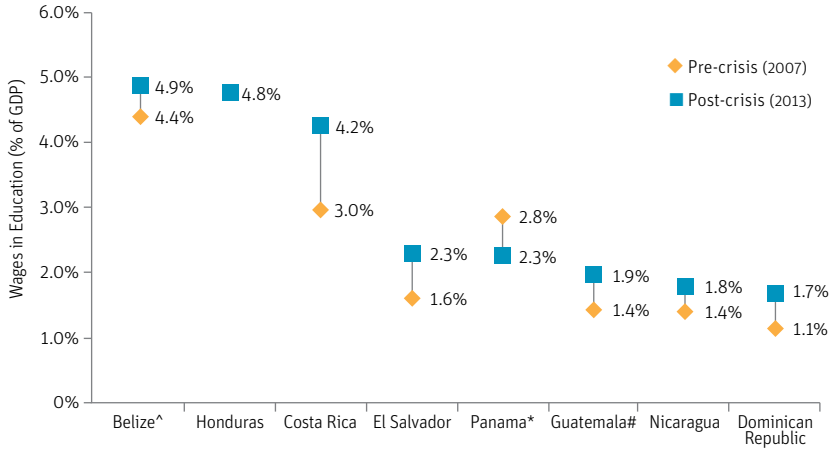
Notes: for Costa Rica, the CCSS (Social Security Fund) payroll is not included as it is financed by social security taxes not collected by the central government. For El Salvador, expenditure on personnel in the public hospital network is included. The data for Belize is for 2012.
Source: own research based on fiscal data obtained from each country.

Education

On the basis of wage bill levels in the education sector, the countries of the region can be grouped into two categories: (i) countries that spend 4% to 5% of GDP (Belize, Honduras and Costa Rica); and (ii) countries that spend 1.5% to 2.5% of GDP (see Figure 2.13). Within the first group, Costa Rica had the biggest growth in spending on wages in education as a proportion of GDP. From 2007 to 2013, this indicator increased from 3% to 4.2% of GDP. In this period, only Panama experienced a drop in this indicator, thanks to very robust economic growth, although the education wage bill has increased significantly in real terms. On the other hand, in Honduras the wage bill as a percentage of GDP remained unchanged, increasing from 2007 to 2009 but then showing a reversal of this trend from 2010 to 2013.

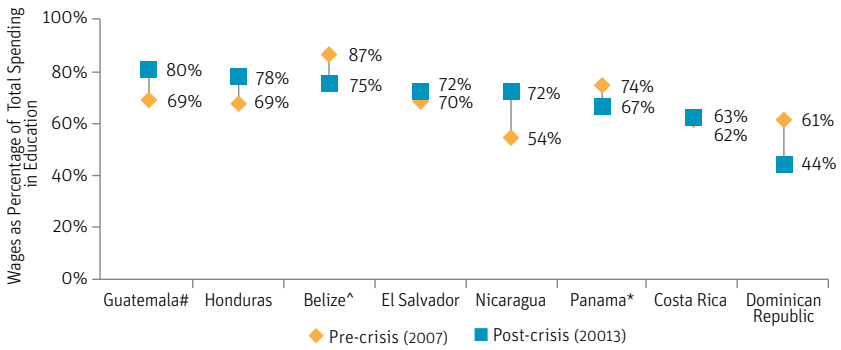
Between 60% and 80% of total expenditure in the education sector is spent on wages (see Figure 2.14). The differences between countries are due in part to the different levels of public investment in school infrastructure, which can vary greatly from year to year (e.g. the major initiatives undertaken in Panama and the Dominican Republic in 2013). A rate closer to 80%, as in Honduras and Guatemala, could be symptomatic of a crowding-out effect, with wages effectively crowding out investment in school infrastructure (see Box 2.3).

FIGURE 2.13 Percentage of GDP Spent on Wages in Education, Before and After the Crisis



Notes: (#) For Guatemala, the pre-crisis figure includes the amount of current transfers to PRONADE (National Self-Management Program for Educational Development) to cover wages. (*) For Panama, the figures include current transfers to municipalities. (^) For Belize, the post-crisis figure refers to 2012.
Source: own research based on fiscal data obtained from each country.

FIGURE 2.14 Percentage of Total Expenditure in Education Spent on Wages, Before and After the Crisis



Notes: (#) For Guatemala, the pre-crisis figure includes the amount of current transfers to PRONADE (National Self-Management Program for Educational Development) to cover wages. (*) For Panama, the figures include current transfers to municipalities. (^) For Belize, the post-crisis figure refers to 2012.
Source: own research based on fiscal data obtained from each country.

The total expenditure on education as a percentage of GDP is one of the main indicators for measuring the level of effort made by each country in the area of education. In some countries, political leaders use this indicator to set constitutional spending minimums

and thus "protect" the level of spending from fluctuations associated with economic and even political cycles. The various studies examining fiscal policy management have highlighted the risks associated with an inflexible fiscal policy and, in particular, with the use of constitutional rules on expenditure.[8] Box 2.4 outlines the experience following the adoption of constitutional rules on education spending in Costa Rica, and subsequently in the Dominican Republic, and their effects on the evolution of total payroll in the sector and, in particular, for teachers.

One of the disadvantages of placing excessive emphasis on an expenditure indicator is that this does not necessarily shed any light on the degree of efficiency with which these resources are applied. The indicator does not say much about what each country is capable of achieving with these resources. How many teachers are employed with this expenditure and what salary do they receive? What percentage of the school-age population is attending publicly funded schools? What is the ratio of students to teachers in publicly funded schools? Do the countries with better paid teachers achieve better results in international tests measuring quality of education? Figure 2.15 shows that almost all of the countries increased their education wage bill as a percentage of GDP; some, like Costa Rica, increased it substantially. However, the more important question is whether any improvement in quality was achieved with this increase.

In theory, a bigger education wage bill should result in certain improvements to education services, assuming that school enrollment increases at the same rate as the natural growth of the school-age population; for example, a reduction in the student-teacher ratio (smaller classes at any level of education); an increase in educational services offered and an expansion in school coverage (more teachers for pre-school or secondary level); an increase in the average individual salary of teachers that results in greater attraction, retention and motivation of suitable personnel, or a combination of these factors.

Most of the countries succeeded in reducing their student-teacher ratio. Guatemala achieved a significant reduction in its student-teacher ratio (from 28.2 in 2008 to 22.7 in 2013) with an increase in its education wage bill as a percentage of GDP of 0.5 percentage points (from 1.4% of GDP in 2008 to 1.9% in 2013). On the other hand, Costa Rica increased its spending by more than 1% of GDP (double Guatemala's increase) and was also able to reduce its student-teacher ratio (from 18.6 in 2008 to 16.9 in 2013). Among the countries with a lower student-teacher ratio (Panama, Costa Rica and Belize), significant differences are observable in terms of the percentage of GDP spent on wages. Indeed, in 2008, all three countries recorded quite a similar student-teacher ratio (19 for Panama, 18.6 for Costa Rica and 19.9 for Belize); however, Panama spent only 2.7% of its

[8] See, for example, IMF (2015), Fiscal Policy in Latin America: Lessons and Legacies of the Global Financial Crisis, Washington, DC.

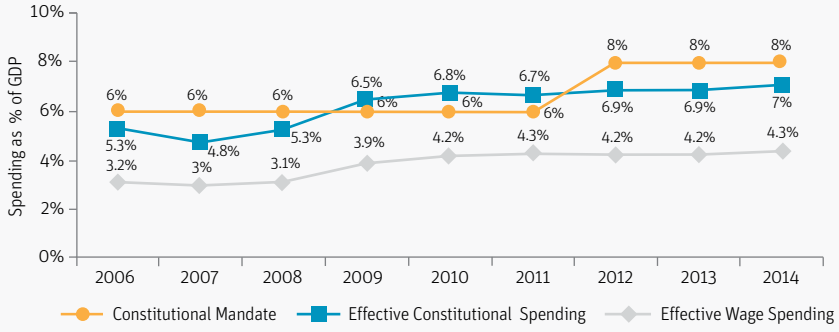
BOX 2.4 THE USE OF CONSTITUTIONAL RULES TO DETERMINE EDUCATION SPENDING AND ITS IMPACT ON PAYROLL – THE COSTA RICA EXPERIENCE

On July 23, 1997, a law was enacted reforming Article 78 of the Political Constitution, stipulating that: "Pre-school and elementary education is compulsory. These levels and the diversified education offered in the public system are free and paid for by the Nation. In state education, including higher education, public expenditure may not be less than 6% per year of gross domestic product."

On April 27, 2007, the Comptroller General of the Republic filed an action of unconstitutionality against the Executive for failing "on repeated occasions" to fulfill the constitutional obligation established by this law. On May 18, 2012, by means of Resolution No. 006416-2012, the Constitutional Court declared the unconstitutionality of the Ordinary and Extraordinary Budget Laws of the Republic for the fiscal years 2007 and 2008 for failing to provide an amount equal to or greater than 6% of annual GDP for state education.

In 2009, while the dispute was being heard in the Constitutional Court, real expenditure on education increased significantly, rising to 6.5% of GDP. This increase over the previous year (5.3% of GDP) was due largely to a rise in wages, which increased from 3.1% of GDP in 2008 to 3.9% in 2009.

Constitutional Mandate on Education Expenditure and Real Expenditure (Total and in Wages) 2006-2014

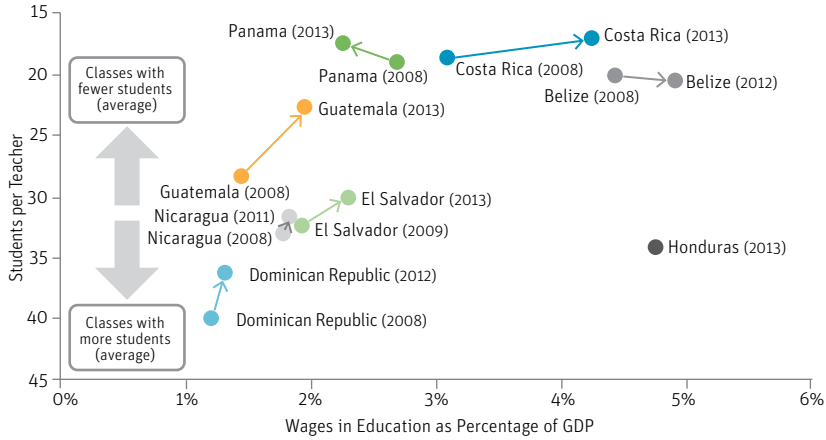


Source: Ministry of Finance.

In 2011, Article 78 of the Constitution was amended again, increasing the mandate on education expenditure to 8% of GDP or higher (Law No. 8954, enacted May 26, 2011). A transitional article in this law stipulates that "public expenditure on education may be lower than 8% in fiscal years prior to 2014. However, under no circumstances may the percentage of gross domestic product spent on education be less than that of the previous year." As shown in the chart, in 2014 real expenditure was 7% of GDP, while for 2015 it was estimated at 7.3%. Increasing pressure is expected in coming years until the goal of 8% is reached. Given the production function in education, where around 70% of expenditure goes on wages and salaries, the pressure to increase wages or employee numbers will be very high.

GDP on teachers' salaries, while Costa Rica and Belize spent 3.1% and 4.4%, respectively. By the end of the period studied, these differences had widened even further. In contrast, only Belize recorded both a higher wage bill and a higher (and therefore worse) student-teacher ratio at the end of the period.

FIGURE 2.15 Relationship Between Payroll as a Percentage of GDP and Student-Teacher Ratio (Elementary and Secondary), Before and After the Crisis



Source: own research based on data on fiscal execution, enrollment and employee payroll obtained from each country.

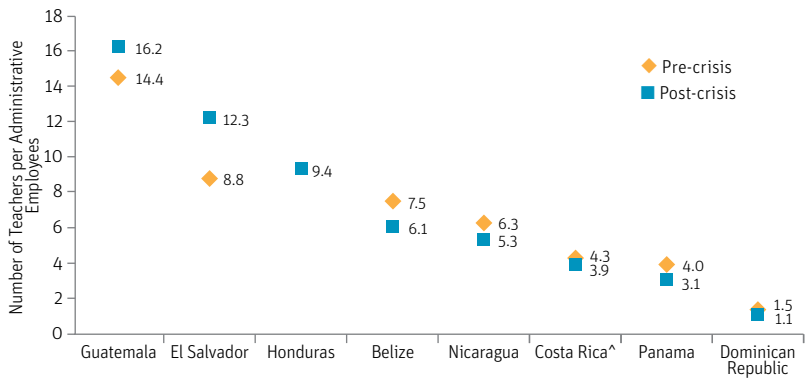
The level and distribution of the education wage bill in Costa Rica and Honduras suggests that there is potential for improved efficiency. The increase in the wage bill in Costa Rica was due largely to increases in salaries that were already high in comparative terms and to an increase in the number of administrative personnel. On the one hand, it is difficult to justify the uncompetitive nature of salaries in 2008; and on the other, it is unlikely that an increase in administrative personnel would result in increased coverage. Honduras is another country with results that suggest inefficiencies. In 2013, the country spent more than 4.8% of GDP on wages in the education sector, but recorded a student-teacher ratio of more than 34 in the public system, a figure similar to that of countries like Nicaragua and El Salvador, which spent less than 2% of GDP on wages.

While the Dominican Republic and Guatemala have similar levels of expenditure as a percentage of GDP, Guatemala has 8 fewer students per teacher. In 2008, both countries allocated around 1.5% of GDP on the education wage bill, but the Dominican Republic had an average of 36.2 students to every teacher, while Guatemala had 28.2 students per teacher. The significant difference in this indicator between the two countries (and

even compared to Nicaragua or El Salvador) is due to the higher number of administrative employees in the Dominican education sector compared to the number of teachers (see Figure 2.16). In 2013, the ratio of administrative employees to teachers in the Dominican Republic was practically 1:1, while in the rest of the region this ratio ranged from 3 to 16 teachers per administrative employee.

It is important to highlight that a larger proportion of administrative employees among total personnel does not necessarily result in lower efficiency. There is a possibility that the countries with better coverage at the different levels of education achieve those results thanks to the presence of one-teacher schools or very small schools in rural areas, where the ratio of teachers to administrative employees would be lower. Countries with networks of schools in urban areas tend to benefit more from the economies of scale associated with educational institutions with larger student numbers. Another factor that should be considered is the range of services offered in the education system. For example, the number of administrative employees may be higher in countries where lunch is offered to students. Finally, when analyzing this data it is important to consider the possibility that in Guatemala and El Salvador many of the administrative services in educational institutions (guards, cleaning and maintenance staff, etc.) may not be on the payroll but contracted as service providers or paid for directly by resources managed by the principal of each institution, which would make for a lower number of administrative employees in the sector.

FIGURE 2.16 Ratio of Teachers Per Administrative Employee, Before and After the Crisis



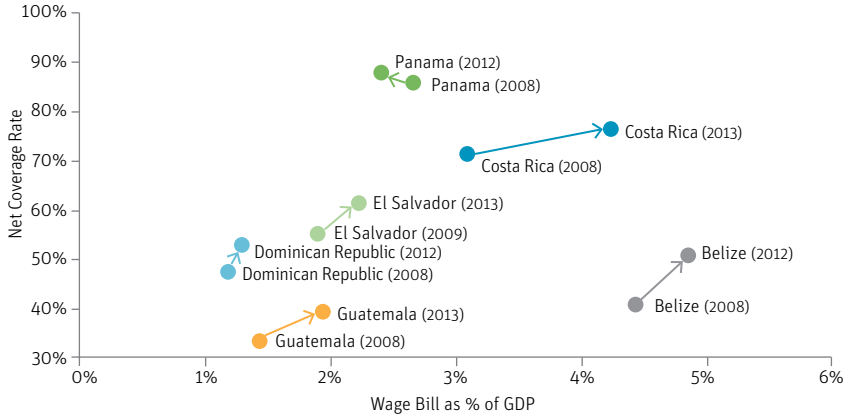
Note: the pre-crisis figures are from 2007 for all countries except for Costa Rica, Nicaragua and the Dominican Republic (for which 2008 figures are used). The post-crisis figures are from 2013 for all countries, except for Belize (2012).

Source: own research based on employee payroll data from each country.

In terms of coverage, all countries focused their efforts on expansion at secondary and pre-school levels. The net coverage rate for elementary education was not included in the analysis, as in most of the countries this rate is above 95%, which is considered practically universal coverage.

The ratio between coverage and wage bill for secondary education reveals a wide range in levels of coverage in the region, even between countries with similar wage bills (see Figure 2.17). With a very similar level of expenditure, the Dominican Republic recorded a secondary coverage rate in 2012 that was 20 percentage points higher than that of Guatemala in 2008. If we integrate this result with the information from the previous chart, it is clear that the emphasis in Guatemala has been on reducing average class sizes, while in the Dominican Republic it has been on achieving a high level of coverage, which is also observable if we compare Guatemala and El Salvador. The wage bill in El Salvador in 2009 was identical to that recorded by Guatemala in 2013, and while the former had a net coverage rate for secondary education of 55%, Guatemala's was only 39%. This must be partly due to difficulties of access associated with the dearth of secondary schools in rural areas. In this context it is unsurprising that Guatemala should be one of the countries with the lowest proportion of its education expenditure spent on public investment (see Figure 2.17 and Box 2.3).

FIGURE 2.17 Relationship Between Payroll as a Percentage of Gdp and Net Coverage of Secondary Education, Before and After the Crisis

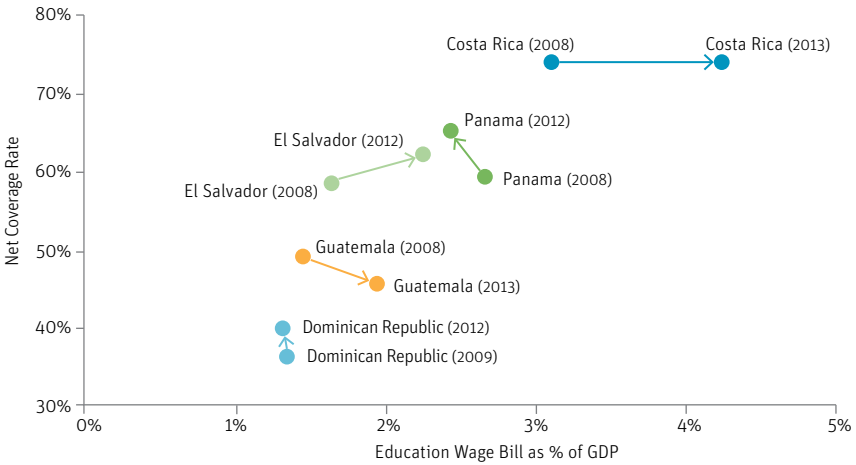


Source: own research based on data on fiscal execution, enrollment and employee payroll obtained from each country.

At the pre-school level, the increase in spending on wages did not, on average, result in increased coverage. For example, in Costa Rica the higher level of spending on wages (as a percentage of GDP) did not translate into a change in the net coverage rate, and in

Guatemala the net coverage rate even fell (see Figure 2.18). In El Salvador and Panama an increase in the coverage rate is observable, which is the result of public policy focusing specifically on this issue.

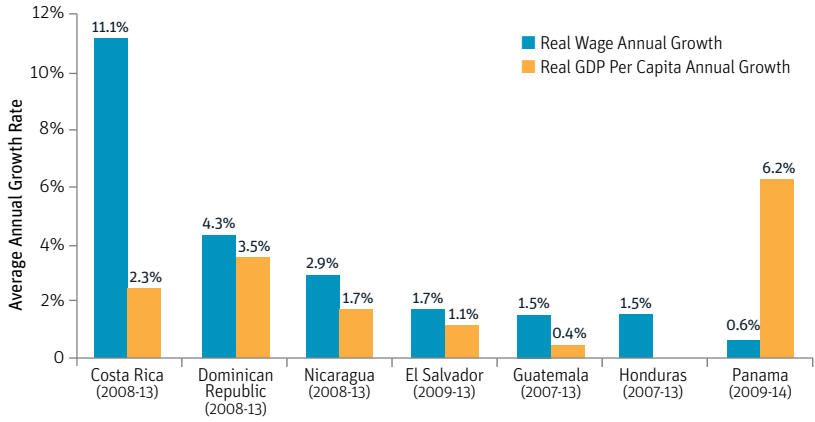
FIGURE 2.18 Relationship Between Total Expenditure on Wages and Net Pre-School Coverage Rate



Source: own research based on data on fiscal execution, enrollment and employee payroll obtained from each country.

A comparison of the real average annual increase in public teachers' salaries reveals that it has been higher than the average growth rate of real per capita GDP in every country, except Panama (see Figure 2.19). The biggest difference is seen in Costa Rica: while real per capita GDP increased by 2.3% each year, teachers' real salaries increased by 11.1% annually. In the rest of the countries, the difference is significantly lower. In theory, the salary increases received should bear some degree of equity and competitiveness in the context of the economy of the country as a whole and, where there are equal conditions in terms of training and experience, with similar occupations in the private sector. We have therefore compiled information using the salary divided by per capita GDP to determine a measure for the relative wage level.

FIGURE 2.19 Annual Growth Rate of Real Wages of Teachers and Annual Growth Rate of per Capita GDP



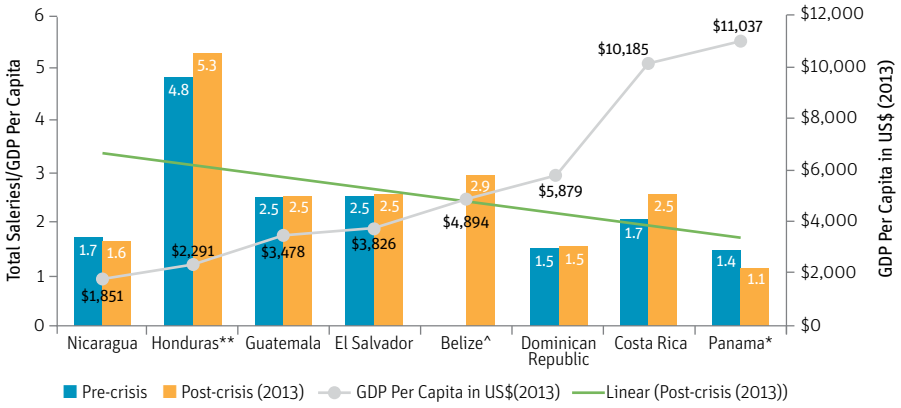
Source: own research based on public employee payroll data obtained from each country and on the World Bank's World Development Indicators.

An examination of the ratio of teachers' salaries to per capita GDP (see Figure 2.20) reveals that Honduras and Costa Rica saw the biggest increases, while the rest of the countries of the region remained relatively constant. In 2013, Honduras was the country with the highest teachers' salaries in relation to per capita GDP (more than 5 times), in spite of its successful efforts to contain the wage bill. In second place is Belize, with a relative salary 2.9 times the per capita GDP, followed by Costa Rica. Specifically, Costa Rica recorded the biggest rise in this indicator, increasing from 1.7 times in 2008 to 2.5 times in 2013 (see Figure 2.20). The rest of the countries raised teachers' salaries in line with their per capita income. It is worth highlighting that in Panama the relative salary decreased slightly, falling in 2013 to 1.1, a very similar figure to the average in OECD countries.[9]

Finally, another way of assessing the level of public teachers' salaries is to compare them with teachers in the private sector, analyzing their external competitiveness. Figure 2.21 presents the wage premium for teachers in the public sector compared with the private sector. An average teacher in the public sector in Costa Rica, Guatemala, the Dominican Republic and Panama receives a salary approximately 60% higher than in the

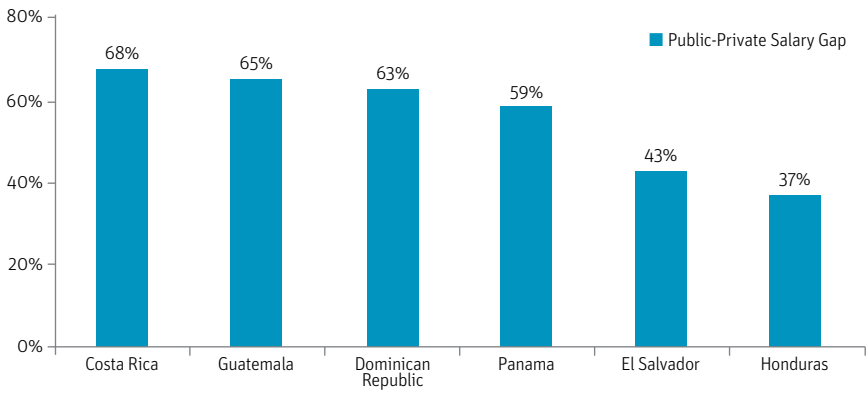
[9] Our own calculation for 33 OECD countries determined a relative salary of 1.08 times the per capita income. At the top of the sample is Mexico, with a relative salary of 1.35, while the lowest is the United States, with 0.92 of the per capita income.

FIGURE 2.20 Relative Teachers' Salary, Before and After the Crisis



Notes: pre-crisis figures are from 2007 or 2008, depending on the country. (**) For Honduras, the figures are the result of a wage simulation based on the pay raises granted. (*) For Panama, the figures exclude teachers hired after 2007. (^) For Belize, the post-crisis figure refers to 2012.
Source: own research based on public employee payroll data on each country.

FIGURE 2.21 Public-Private Wage Gap for Teachers, 2013



Source: Household and employment surveys from each country.

private sector in these countries. On the other hand, in El Salvador and Honduras the wage gap is 43% and 37%, respectively.[10]

[10] Although most of the household surveys from the countries analyzed make it possible to control for training, years of experience and number of hours worked per week, for some countries there was only partial information. In addition to the stronger bargaining power held by teachers in the public sector, another factor could be the inclusion in the private sector sample of relatively informal schools, or religious schools, where teachers would receive lower salaries.

Health

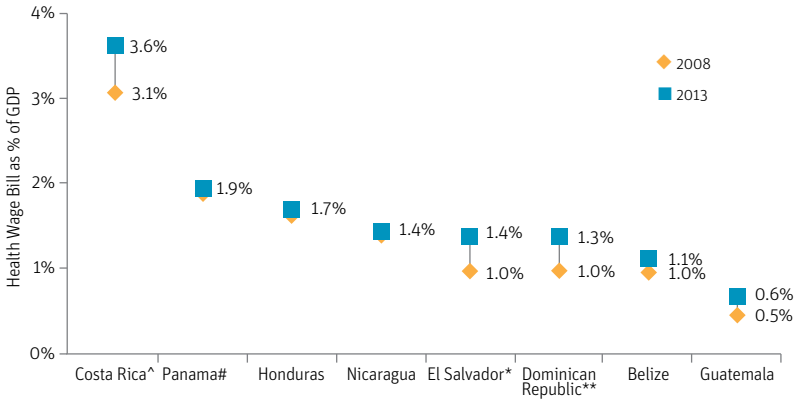
The analysis of the management and financing of human resources in the health sector poses significant challenges due to the many different management models. In Costa Rica, the Caja Costarricense del Seguro Social (Costa Rican Social Security Administration), or CCSS, is the entity responsible for the provision of health services to the whole population, while the Ministry of Health acts only as a policy setting authority. In El Salvador, the Ministry of Health is responsible for the management of primary health care centers; however, hospitals are decentralized entities with their own budgets and are not part of the central government. In Panama, Guatemala and the Dominican Republic, institutions operated by the ministries of health coexist with others managed by their respective social security administrations or funds. In view of this situation and the difficulty in compiling information on the countries of the region, it is possible that the data presented in some cases may underestimate the actual figures. This could be the case of Guatemala or the Dominican Republic, for which access to the data of the social security administration was not available.[11]

An examination of the health wage bill as a percentage of GDP reveals an increase in every country of the region from 2008 to 2013 (see Figure 2.22). Costa Rica spent a larger proportion of its GDP on wages for health personnel in 2013 (3.6%), and was also the country with the biggest increase since 2007. In second place, El Salvador increased by 0.4% of GDP and the Dominican Republic by 0.3%. The other countries had only marginal increases. On the other hand, Panama spent the second highest proportion of its resources to wages in the sector at 1.9% of GDP, although this rate remained constant over the period. As in the case of the education sector, it is essential to determine whether changes in this indicator were due to a change in wages or an increase in employee numbers.

While most of the countries analyzed have made progress in terms of the density of human resources in the health sector, only Panama would pass the World Health Organization (WHO) standard of 23 health professionals for every 10,000 people. In other countries of the region, such as Nicaragua, Guatemala and Honduras, there is still a very low level of density (see Figure 2.23). Behind Panama is El Salvador, which in 2013 had a density of 20 health professionals for every 10,000 people. The case of this country is particularly notable, as growth in the density of health professionals has focused on enhancing the level of primary care in remote locations and areas with a lower density of human resources (see Box 2.5).

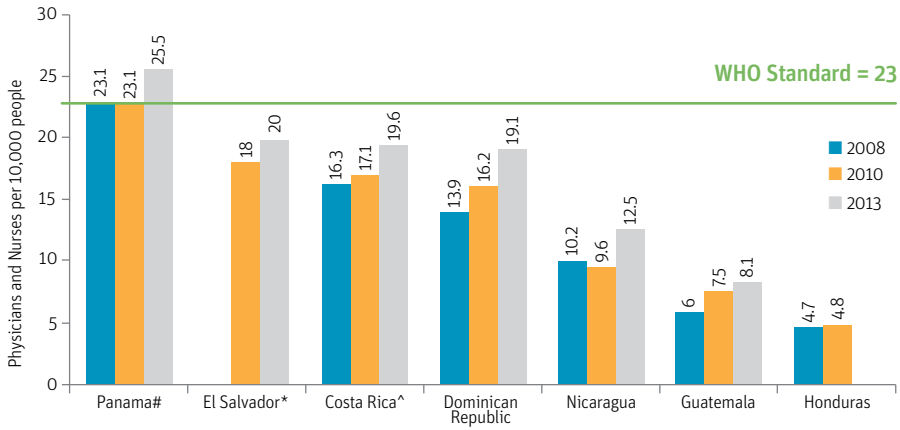
[11] Although financing for social security institutes or funds comes mostly from social security taxes deducted from each employee (formal sector), in some cases they also receive transfers from the central government. In cases where it was necessary to consolidate budgetary information, corrections have been made to avoid counting the same expenditure twice. The same consideration has been made for figures on health personnel who may work in both institutions.

FIGURE 2.22 Health Wage Bill as a Percentage of GDP, 2008 and 2013



Notes: (^) For Costa Rica, the figures shown are for spending on wages by the CCSS (Social Security Administration). (#) For Panama, the figure combines spending by the Ministry of Health and the Social Security Administration. (*) For El Salvador, the wage bill includes the Ministry of Health and the network of decentralized public hospitals. (**) For the Dominican Republic, the figure includes the wage bill of the Ministry of Health and current transfers to autonomous hospitals to cover wages. (***) For Guatemala, the figure only includes data from the Ministry of Health; however, in addition to permanent staff, the figure also includes personnel who provide health services on a contract basis under categories 182 and 189.
Source: own research based on fiscal data obtained from each country.

FIGURE 2.23 Health Professionals per 10,000 People, Selected Years



Notes: (^) For Costa Rica, the figures shown are for personnel with the CCSS (Social Security Fund). (#) For Panama, the figures shown are for personnel with the Ministry of Health and the Social Security Fund. (*) For El Salvador, the figures include all personnel in the National Health System (SNS), i.e. Ministry of Health (MINSA), Social Security Institute (ISSS), Solidary Health Fund (FOSALUD), Military Health Command, Rehabilitation Institute (ISRI) and the education sector's Welfare Institute (ISBM). (**) For the Dominican Republic, the figures include personnel in the Ministry of Health and autonomous hospitals that receive public funding. (***) For Guatemala, the figure only includes data from the Ministry of Health; however, in addition to permanent staff, the figure also includes personnel who provide health services on a contract basis under categories 182 and 189.
Source: own research based on employee payroll data obtained from each country.

BOX 2.5 HUMAN RESOURCES IN HEALTH IN EL SALVADOR: THE RESULTS OF A DELIBERATE POLICY TO ENHANCE PRIMARY CARE IN REGIONS WITH A LOWER DENSITY OF PHYSICIANS PER PERSON

In May 2009, El Salvador's Ministry of Health (MSPAS, for its Spanish acronym) published the document "Construyendo la esperanza: estrategias y recomendaciones de salud del nuevo Gobierno" ("Building Hope: The New Government's Healthcare Strategies and Recommendations"), which sought to *"provide general guidelines for assured progress towards a unified National Health System, with universal coverage and access, based on an Integral Primary Health Care strategy."* The first strategy outlined in this document was defined as *"building a national health system based on integral primary health care as a key strategy to achieve the Millennium Development Goals (MDGs) and effectively address factors determining health and inequities."*

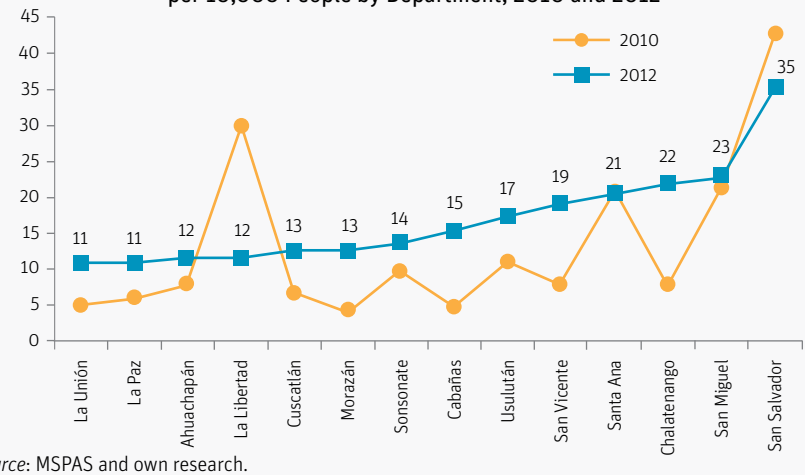
Four years later, the number of physicians and nurses belonging to MSPAS had increased significantly and, consistent with the strategy, this increase was especially notable in primary care:

Number of physicians and nurses in MSPAS by level of care

	2009	2010	2011	2012	2013	Growth rate
Primary care physicians	1,463	1,540	1,756	1,779	1,715	**17%**
Hospital physicians	2,397	2,444	2,635	2,704	2,758	**15%**
Primary care nurses	738	816	1,020	1,048	1,095	**48%**
Hospital nurses	1,484	1,505	1,731	1,819	1,830	**23%**

It is worth noting that this strategy increased the total number of physicians and nurses in primary care and considerably improved their distribution and density across the country, and especially in those regions (departments) that had previously shown the lowest density in the country:

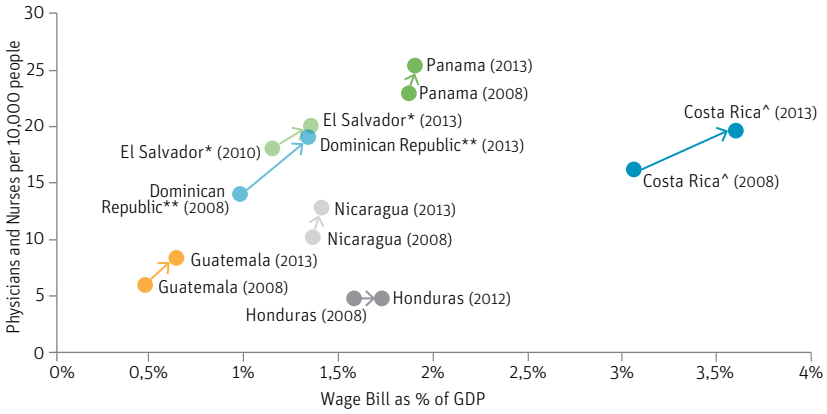
Density of Physicians and Nurses in the National Health System per 10,000 People by Department, 2010 and 2012



Source: MSPAS and own research.

From 2007 to 2013, the countries of the region increased the density of human resources in the health sector, albeit with varying degrees of efficiency (see Figure 2.24). For example, Costa Rica and Honduras have a comparatively high wage bill as a percentage of GDP for the level of density of professional human resources shown. Both El Salvador and Panama have a density equal to or higher than Costa Rica with a much lower expenditure.[12] The same situation is evident when comparing Honduras with Guatemala. Although all of the countries increased their health wage bill, Honduras was the only one to see only a slight improvement in the number of health personnel per 10,000 people.

FIGURE 2.24 Ratio of Wage Bill to Density of Human Resources in Health Sector



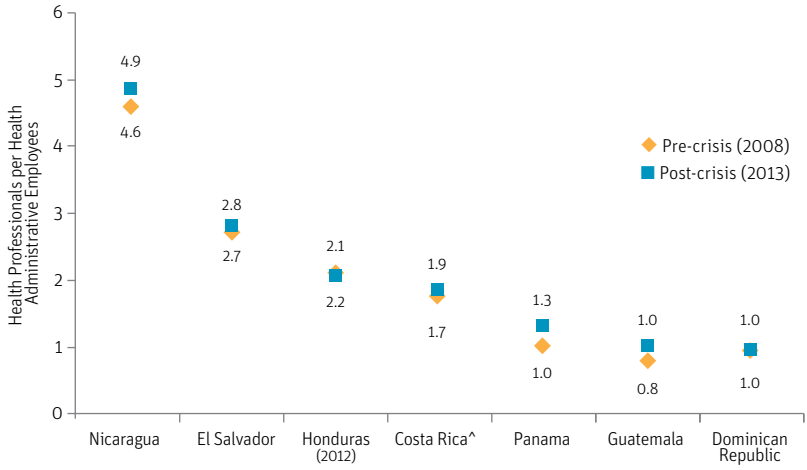
Notes: (^) For Costa Rica, the figures are for the CCSS (Social Security Administration). (#) For Panama, the figures include both the Ministry of Health and the Social Security Administration. (*) For El Salvador, the figures include all personnel in the National Health System (SNS), i.e. Ministry of Health (MINSA), Social Security Institute (ISSS), Solidary Health Fund (FOSALUD), Military Health Command, Rehabilitation Institute (ISRI) and the education sector's Welfare Institute (ISBM). (**) For the Dominican Republic, the figures include the Ministry of Health and autonomous hospitals that receive public funding. (***) For Guatemala, the figure only includes data from the Ministry of Health; however, in addition to permanent staff, the figure also includes personnel who provide health services on a contract basis under categories 182 and 189.
Source: own research based on data obtained from each country.

The significant differences in density could be explained on the basis of two arguments: overhead in administrative services, or wage levels. The first argument refers to the higher costs associated with administrative services related to the provision of health services, which would include administrative personnel in each ministry and social security administration (including branch personnel), as well as personnel performing

[12] It is possible that part of Costa Rica's bigger wage bill relates to a higher density of other personnel, such as pharmaceutical chemists, nursing assistants, technologists and dentists. However, this would only explain a small part of the gap.

non-health-related duties at health centers (e.g. cooking, laundry and maintenance). The second argument refers to the differences in wage levels from one country to another.

FIGURE 2.25 Personnel Performing Healthcare Duties per Administrative Employee, Before and After the Crisis

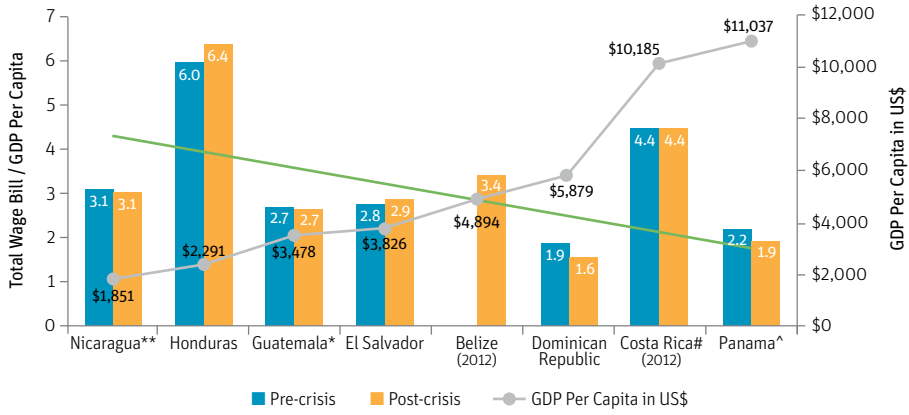


Notes: (^) For Costa Rica, the figures shown are for personnel with the CCSS (Social Security Fund). (#) For Panama, the figures shown are for personnel with the Ministry of Health and the Social Security Fund. (*) For El Salvador, the figures include personnel with the Ministry of Health and the network of decentralized public hospitals. (**) For the Dominican Republic, the figures include personnel in the Ministry of Health and autonomous hospitals that receive public funding. (***) For Guatemala, the figures only include the Ministry of Health; however, in addition to permanent staff, the figures also include personnel who provide health services on a contract basis under sections 182 and 189.
Source: own research based on employee payroll data obtained from each country.

A preliminary hypothesis to explain the differences between countries in the ratio of health personnel compared to administrative personnel in each country. The international mean is two health professionals for every administrative employee (Dal Poz *et al.*, 2007). Nicaragua has the highest number of professionals in health services for every administrative employee (4.9), which would suggest a higher level of administrative efficiency, while in Dominican Republic and Guatemala the ratio is 1:1 (see Figure 2.25). While social security administrations tend to need a larger number of administrative employees for collection and support services in branches for contributors, this argument could only explain why the ratio of health professionals to administrative personnel is lower in Panama and Costa Rica (the figures which include data on the countries' social security administration). This argument, however, does not justify the low figures shown in Guatemala and the Dominican Republic.

With respect to wages, both Honduras and Costa Rica recorded significantly higher relative salaries for their health personnel in relation to GDP than the other countries in 2013 (see Figure 2.26). The relative wage for health personnel in Honduras was 6.4 times the per capita income, while in Costa Rica it was 4.4 times as much. This tends to support the hypothesis that differences in relative wage levels could explain the differences in efficiency with which the countries have been able to transform their fiscal effort into density of human resources in the health sector. Belize is another country that appears to have a higher relative wage level than would be expected given its income levels. Honduras, in addition to having the highest relative wage, also experienced an increase.

FIGURE 2.26 Relative Wages for Health Personnel, Before and After the Crisis, and GDP per Capita

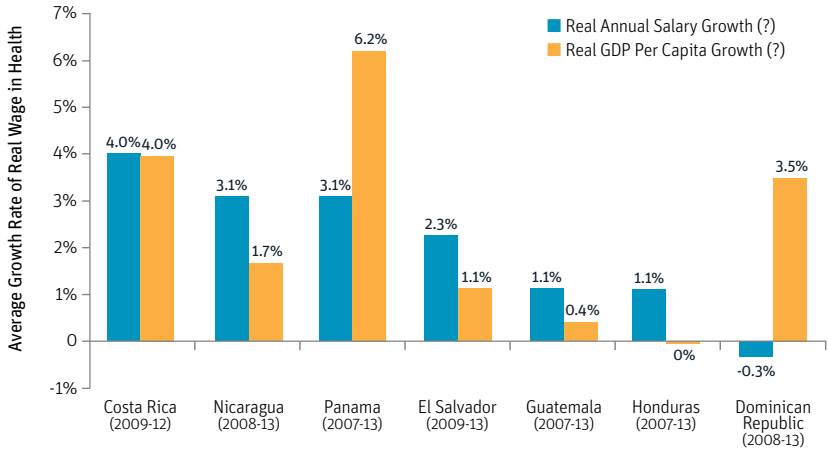


Notes: (^) For Costa Rica, the figures reflect the weighted average of Medical Sciences personnel and Nursing and Support personnel in the CCSS (Social Security Fund). Also, the post-crisis figure refers to 2012. (#) For Panama and the Dominican Republic, the figures do not include personnel hired after January 2007. (*) For El Salvador, the figures include personnel with the Ministry of Health and the network of decentralized public hospitals. (**) For Nicaragua, a weighted average was used for physicians, professional nurses and nursing assistants. (***) For Guatemala, the figures only include data on health personnel with the Ministry of Health under the permanent (011) and contract (022) categories.
Source: own research based on employee payroll data obtained from each country.

With respect to the evolution of real wages, Costa Rica had the highest average increase; in spite of already recording high wage levels in 2008 (see Figure 2.27). The wages of health personnel increased at a faster rate than economic growth in all countries, except Panama and the Dominican Republic; in the latter case it fell by 0.3% per year. This is a significant expansion in the health wage bill, which explains the considerable increase in the density of human resources in the health sector (see

Figure 2.24). This raises the question of how much this density could be increased if the country were able to reduce the proportion of administrative employees working in the Ministry of Health (see Figure 2.25).

FIGURE 2.27 Real Wage Growth Rate in Health Sector and per Capita GDP



Notes: (^) For Costa Rica, the figures reflect the weighted average of Medical Sciences personnel and Nursing and Support personnel in the CCSS (Social Security Fund). Also, the post-crisis figure refers to 2012. (#) For Panama and the Dominican Republic, the figures do not include personnel hired after January 2007. (*) For El Salvador, the figures include personnel with the Ministry of Health and the network of decentralized public hospitals. (**) For Nicaragua, a weighted average was used for physicians, professional nurses and nursing assistants. (***) For Guatemala, the figures only include data on health personnel with the Ministry of Health under the permanent (011) and contract (022) categories.
Source: own research based on employee payroll data obtained from each country.

In most of the countries analyzed, the salary for the main occupations in the public health sector is higher than it is in the private sector (see Figure 2.28). This wage premium is present throughout the region, with the exception of Panama, where the difference does not appear to be significant. While in Honduras physicians in the public sector have salaries that are 65% higher than in the private sector, in the Dominican Republic nurses receive 80% more than their counterparts in the private sector.

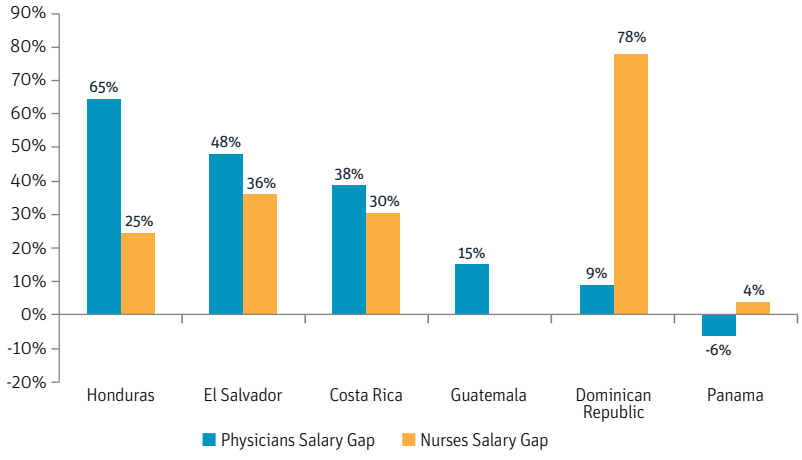
BOX 2.6 WAGE BARGAINING IN A CONTEXT OF MULTIPLE LABOR STATUTES: THE HEALTH SECTOR IN PANAMA AND HONDURAS

In Panama, the unions representing healthcare personnel achieved annual wage increases equal to 3.1% in real terms, while in the same period the teachers' union obtained an increase of only 0.6% (see Figure 2.18). One of the main reasons for this difference is the existence of multiple statutes (45 different employment schemes) governing the different occupations in the health sector, and the fact that multiple instances of bargaining with each union result in a multiplying effect on wage increases due to competition between groups, or "leapfrogging". Moreover, in Panama the increases granted by the Social Security Administration to its workers became the de facto baseline for the salary increases negotiated by personnel working for the Ministry of Health.

A similar situation occurred in Honduras, where the existence of multiple labor statutes for different occupations in the health sector generated real increases in spite of the fact that the country recorded only modest economic growth, and a wage bill of more than 10% of its GDP (along with Belize, the highest in the region). In the case of some occupations (for example, pharmaceutical chemists), the statute establishes "a 20% increase for each year of service in the same position" (Article 6 of the Regulations for the Pharmaceutical Chemist Statute Law of October 19, 1996). This automatic annual increase places immediate pressure on the wages of all the other occupations in the sector and lays the baseline for negotiating any wage increase.

Source: own research.

FIGURE 2.28 Public-Private Wage Gap for Physicians and Nurses, 2013



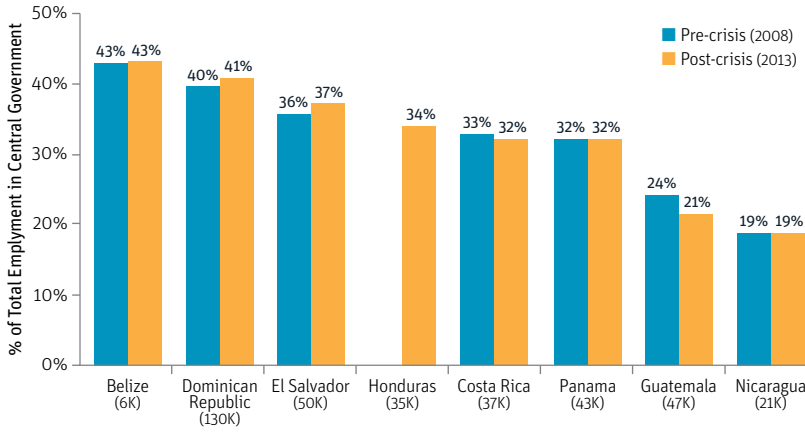
Source: own research based on data from multipurpose household surveys and workforce surveys.

Civil service

This study defines "civil service" as public servants within the administrative branch of the central government or those not covered under special statue.[13] The civil service therefore includes all professional and administrative personnel in the ministries, including the ministries of education and health, and support staff (cooking, laundry, maintenance) working in educational institutions or health centers (clinics or hospitals). The civil service does not include public employees covered under the teachers' statute or personnel responsible for healthcare duties in healthcare facilities.

Between 19% and 43% of public employees in the central governments of the CAPDR countries belong to the civil service. Belize is the country with the highest proportion, with 43% of the total, while Nicaragua has the lowest, at 19% (see Figure 2.29, which covers all civil service employees in all central government ministries and institutions, including education and health).

FIGURE 2.29 Employees in the Civil Service as a Percentage of Total Central Government Employees, Before and After the Crisis

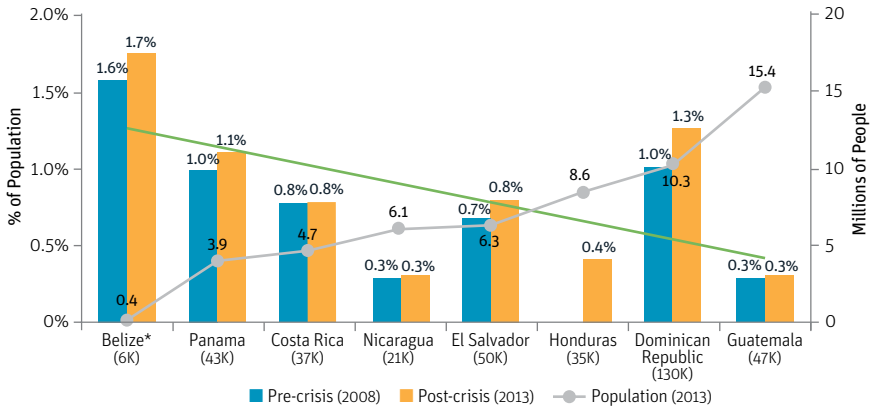


Notes: (*) For Belize the figures include armed forces personnel, and the post-crisis figure is for the year 2012. For all other countries, the post-crisis figure is for the year 2013. The figure in parentheses under each country is the total number of employees in the civil service in the year 2013 (2012 in the case of Belize). "K" = thousand.
Source: own research based on employee payroll data obtained from each country.

[13] In some countries, the administrative branch of the public sector includes health personnel who, in such cases, are not covered by their own special scheme; therefore, in order to ensure comparability between countries and avoid duplication of the analysis of certain occupations, this definition is used. Special schemes generally include: teachers, diplomats, police officers, judges, physicians, etc.

In conceptual terms, civil service employees are the ones responsible for designing, overseeing and implementing public policies, but rarely provide services directly to the population. The civil service performs the back office duties of the state apparatus, while teachers, health personnel and police officers generally provide "front office" services, or services directly to the public. Given the nature of the duties that civil service employees generally perform, significant economies of scale should exist for the performance of these tasks. For example, a country's budget office or education planning office should have a very similar number of employees, regardless of whether the national budget is US$100 million or US$1 billion, or whether the school-age population is 200,000 or 1 million.

FIGURE 2.30 Civil Service Employees as a Percentage of the Population, Before and After the Crisis

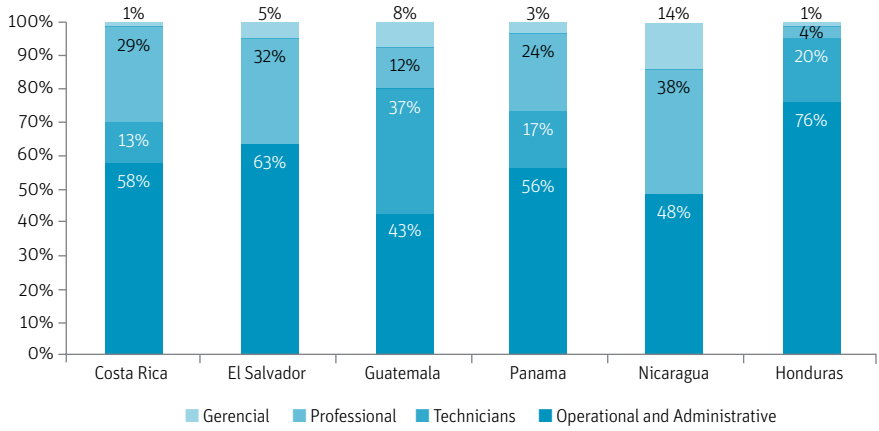


Note: 2013 population line expressed in millions of people.
Source: own research based on employee payroll and on statistics office and census figures from each country.

The main exception to this tendency is the Dominican Republic, where 1.3% of the population (130,000 employees) is in the civil service, a much higher percentage than in any other country of the region (see Figure 2.30). This situation is consistent with the information outlined in Box 2.5 and Figure 2.28 on the high number of administrative employees in the Dominican central government. Moreover, the proportion of employees in the civil service increased significantly from 2008 to 2013. On the other hand, Nicaragua appears to be in the opposite situation, with a low ratio of civil service employees to its population.

The distribution between technical, professional, management and operations personnel in the civil service varies significantly between one country and another.[14] In Honduras, 76% of civil service employees belong to the administration and operations group, while only 5% performs professional or directorial/management duties in a central government institution. At the other extreme is Nicaragua's civil service, with 38% professionals and 14% in management positions (see Figure 2.31). The share of professionals in Panama, Costa Rica and El Salvador is approximately 30%, while Guatemala has a lower percentage of professionals.

FIGURE 2.31 Distribution of Employees by Occupation Type, After the Global Financial Crisis



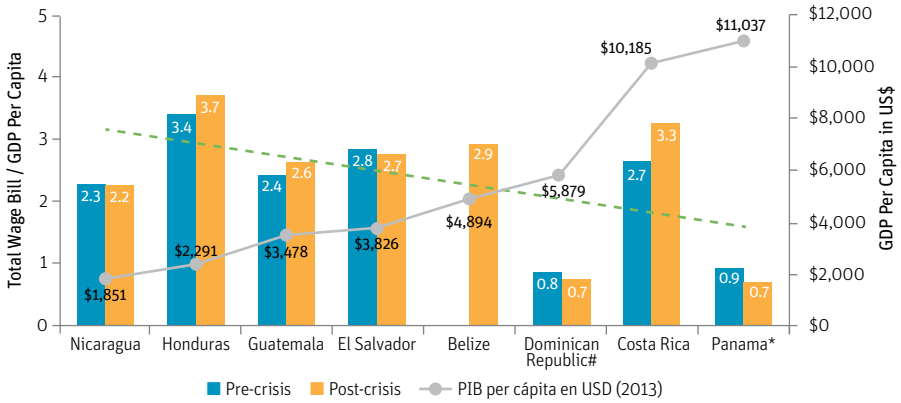
Source: own research based on public employee payroll from each country.

Costa Rica and Honduras are the countries that increased their average civil service wage compared to per capita GDP the most, followed by Guatemala (see Figure 2.32). As analyzed in previous sections, Costa Rica implemented the *Percentil* 50 policy, which involved an increase in the salaries of public servants, while in countries like Panama, civil service employees have not achieved similar increases. The increase in Honduras needs to be broken down in more detail, since three out of every four civil service employees perform operations duties (cleaning, maintenance, security, drivers) or administrative duties (secretaries, office workers), a proportion that is quite different from all other countries. Finally, the low relative wage in the Dominican Republic is particularly striking.

[14] It should be borne in mind that this is an estimate based on the categories used in the payroll data.

However, this level would seem to be the result of the large number of administrative workers employed on a part-time basis, usually paid with *nominillas*.[15]

FIGURE 2.32 Relative Wage for Civil Service Employees, Beforeand After the Crisis

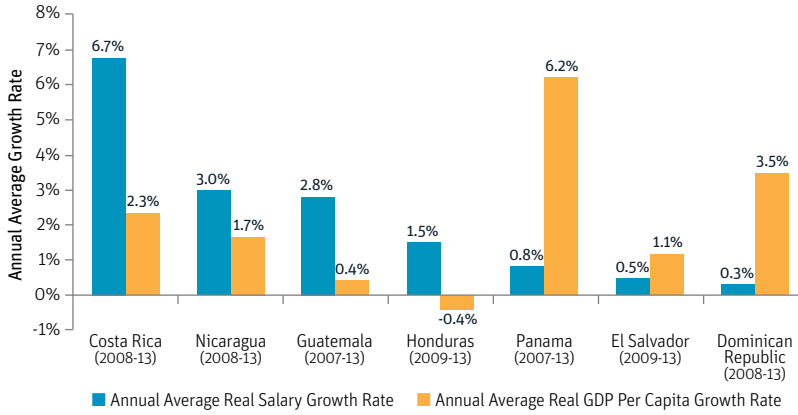


Source: own research based on employee payroll figures.

Costa Rica is the country where the average real wage of civil service employees has grown the fastest. From 2008 to 2013, the average real wage increased at a rate of 6.7% per year, much more than the 2.3% growth of the country's real per capita GDP (see Figure 2.33), mainly as a result of the *Percentil* 50 policy. On the other hand, in Panama, the growth of the average real wage of civil service employees has been lower than the growth in real per capita GDP, partly due to the high level of economic growth seen in the country. The rest of the countries in the region recorded a mixed result: Nicaragua, Guatemala and Honduras show increases above real per capita GDP growth, while El Salvador and the Dominican Republic have followed the same trend as Panama, recording increases below per capita GDP growth. This growth in average wages is not controlled for the composition effect, i.e. in the countries with the biggest growth in employee numbers (with a high number of new employees receiving entry-level salaries), the average wage will be lower compared to countries where the composition of the workforce has remained relatively stable (as in Costa Rica, for example).

[15] The term '*nominillas*' is unique to the Dominican Republic, referring to personnel paid directly out of the revenues collected by each entity. Such employees form part of the payroll, and are therefore included in the employee figures. However, neither the tasks/duties they perform nor the number of hours they work is subject to the same level of control that the Ministry of Public Administration has over personnel paid out of the general budget.

FIGURE 2.33 Average Real Wage Growth Rate for Civil Service Employees and per Capita GDP



Source: own research based on employee payroll data obtained from each country.

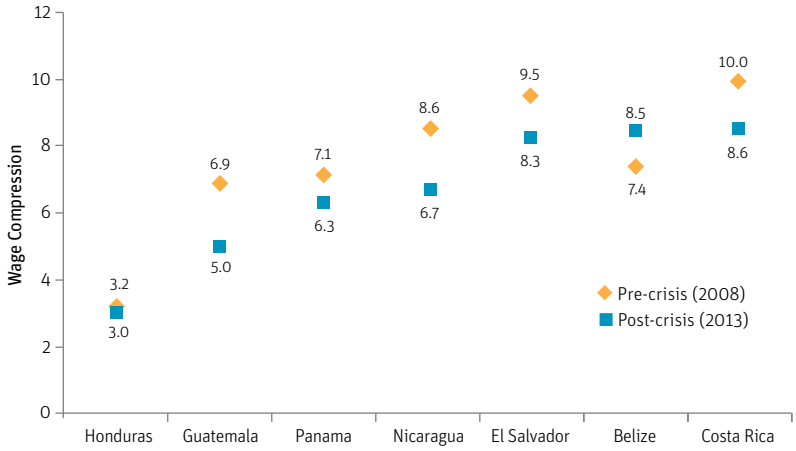
An analysis of the evolution of wage compression reveals that the countries analyzed show an increase in pay scale compression from 2007 to 2013, except in Belize (see Figure 2.34).[16] A higher wage compression (a lower ratio reflecting a smaller wage gap between management level and operations/support level) is associated with greater difficulties in attracting, retaining and motivating personnel to progress in the service, due to the fact that the increased responsibility is not adequately compensated. It is worth noting that most of the countries are around the international median of 7[17] with the exception of Honduras and Guatemala, which have considerably more compressed wage policies.

The reasons for this higher level of compression relate to higher relative wage increases given to workers at lower income levels, which have in some cases led to vertical inequities (a subordinate earning the same as or more than a supervisor). Added to these are horizontal inequities (different payments for positions with similar responsibilities in different institutions) within the civil service, in breach of the principle of equal pay for equal work. Box 2.7 presents some of the circumstances that have generated wage inequalities in Honduras and El Salvador.

[16] This chapter defines "wage compression" as the gap between average wages at the highest and lowest hierarchical levels of the civil service.

[17] See, for example, Schiavo-Campo (1997), which indicates a global mean of 7 for this index.

FIGURE 2.34 Wage Compression Ratios in the Civil Service, Before and After the Crisis



Source: own research based on employee payroll data obtained from each country.

A comparison of the wages for administrative and operations positions in the civil service with the private sector reveals that jobs requiring fewer qualifications are better paid in the public sector (see Figure 2.35). The average gap for the three occupations analyzed (secretaries, office workers and drivers) was the widest in El Salvador and the Dominican Republic, and the narrowest in Panama. The situation in Panama is paradoxical, since although the relative average salary in the civil service is comparatively low, it is still higher than it is in the country's private sector. It is unsurprising that the gap would be narrower in Panama, given that the economic dynamism that the country has enjoyed has pushed wages up at all skills levels.

BOX 2.7 HORIZONTAL AND VERTICAL INEQUITIES: CONSEQUENCES OF POLICY ON WAGE INCREASES IN HONDURAS AND EL SALVADOR

IIn the absence of a single pay scale for the administrative branch or the civil service, it is common to find differences between nominally similar positions. This horizontal inequity can pose a significant risk and/or fiscal cost when the country decides to implement a single pay scale or when cuts in the country impose the obligation to equalize wages. While the existence of a single pay scale is a generally desirable policy, this does not always mean that its implementation would eliminate any possibility of horizontal disparity, for example, when there are specific bonuses or benefits for certain institutions that do not form part of the single pay scale (as is the

case in Chile). Below we present the circumstances that have resulted in significant horizontal wage inequities in Honduras and El Salvador.

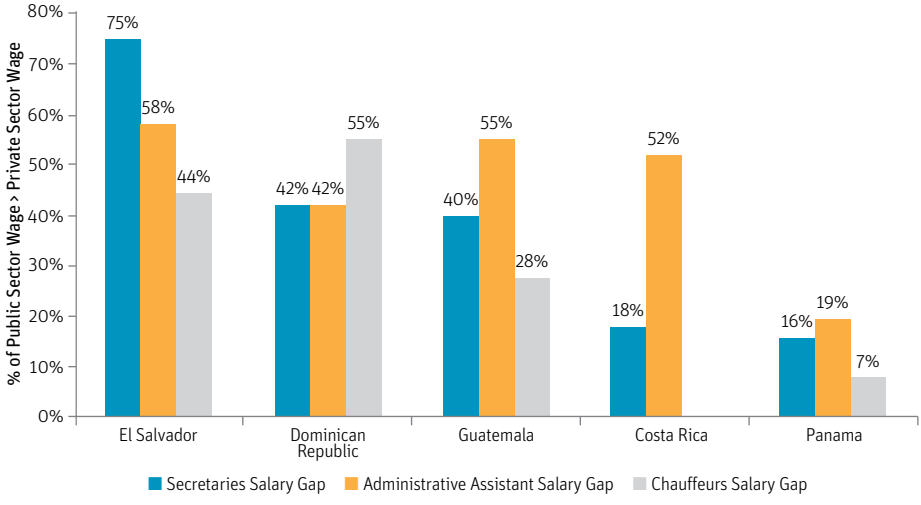
Honduras – The country does not have a single pay scale. Although the General Directorate of the Civil Service has benchmark pay levels for each hierarchical level and grade, the wage bargaining process is bilateral between the employees and the institution that employs them. This has resulted in institutions with more resources being able to pay better salaries for the same level. Moreover, once hired, an employee's salary becomes subject to the nominal increases that are established by decree. In the case of managerial and specialist professional personnel, their salaries were quickly eroded because nominal increases were granted that were directed mainly at less skilled occupations. Consequently, these increases have resulted in proportionately greater increases for occupations with lower salaries, which in turn has resulted in increased wage compression.

El Salvador – The country's wage policy establishes differentiated pay scales (increases for each year of service) for employees in the administrative branch or civil service, according to the institution they work for. Thus, while the vast majority of employees in the administrative branch do not earn salaries based on pay scales (years of service), an administrative employee with the Ministry of Health receives a pay-scale increase that ranges from 3% to 8% per year based on the result of a performance assessment which, in practice, normally means close to the full 8% for all employees. Similarly, a civil service employee working for the Ministry of Education receives a pay-scale increase equal to 4% of the base salary for every three years of service, up to a maximum of 11 increases or 44%. As a consequence of this policy, from 2007 to 2013 the salaries of administrative personnel in the health sector increased by 13% in real terms, while in education they remained constant and in the rest of the civil service they fell by 3%.

Source: own research based on a review of wage policy in each country

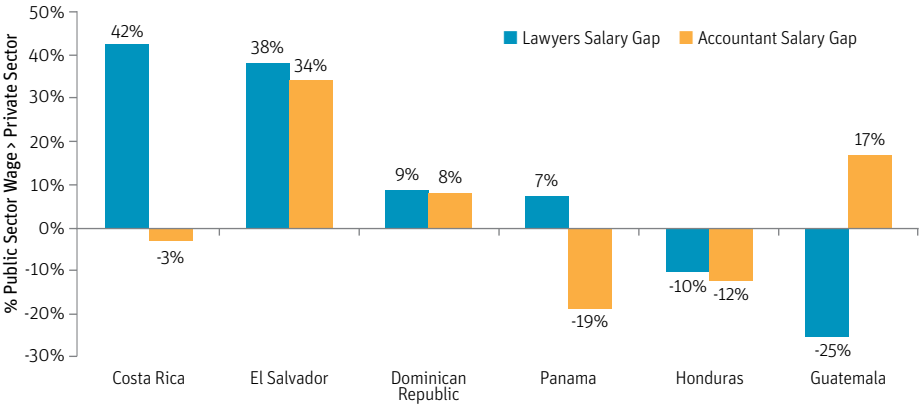
The public-private wage gap between occupations requiring higher qualifications (professional) tends to be significantly narrower in most countries in the region (see Figure 2.36). In El Salvador, there appears to be a significant wage premium for professionals working in the public sector. In Costa Rica, there is a positive gap for lawyers but not for accountants. The situation in these occupations is also consistent with global tendencies, which suggest that the occupations requiring higher qualifications tend to be better paid in the private sector.

FIGURE 2.35 Public-Private Wage Gap for Administrative and Operations Positions in the Civil Service, 2013



Source: own research based on data obtained in workplace surveys or household surveys in each country.

FIGURE 2.36 Public-Private Wage Gap for Professional Occupations in the Civil Service: Lawyers and Accountants, 2013



Source: own research based on data obtained in workplace surveys or household surveys in each country.

POLICY RECOMMENDATIONS: HOW TO IMPROVE PUBLIC POLICY RESULTS THROUGH BETTER MANAGEMENT OF WAGE POLICY AND HUMAN RESOURCES

The purpose of the preceding sections of this chapter has been to present a detailed overview of the situation related to expenditure on personal services, employees and wages in the CAPDR countries. This comparative diagnosis, both at the general level of the central government and at the sectoral level of education, health and the civil service, has been presented to provide the context necessary to identify the challenges faced by each country with respect to the administration of compensation for its public employees. On the basis of this comparative diagnosis, we now present some policy recommendations applicable both at the general level and at the sectoral level, focusing on the sectors of education, health and the civil service.

The general and sector-based recommendations aim to contribute to three objectives: (i) to improve the quality of expenditure on personal services, proposing options that will help make current spending go further, and thus not taking a fiscal approach aimed merely at "cutting" spending; (ii) to strengthen the institutional aspects of compensation administration, suggesting rules and procedures aimed at strengthening the institutional framework in order to minimize the risk of the total expenditure on wages increasing to fiscally unsustainable levels in the future; and (iii) to reduce fiscal imbalances, correcting situations that pose a high risk to public finance and place the countries in a situation of greater economic vulnerability.

General level

(i) Technically strengthen the bodies governing public employment and the units in fiscal institutions responsible for controlling the number of positions, wages and expenditure on personnel, as well as the human resources units in the institutions of each sector.

(ii) Improve employee databases by incorporating key information for the management of human potential and ensuring a centralized base and an automated payroll mechanism that covers all employment schemes in the central government.

(iii) Introduce budget ceilings for expenditure on personnel at the level of each institution. One way of doing this would be to establish an explicit payroll ceiling as a percentage of current expenditure or of GDP. This ceiling would provide a benchmark or reference point against which each proposal to create new positions or introduce real wage increases could be assessed.

(iv) Perform payroll audits in the main sectors in order to ensure there are no irregularities.

(v) Discontinue variable pay schemes in sectors where it is more difficult to quantify performance and where it becomes a fixed component of the wage.
(vi) Eliminate collective agreements by institution (e.g. between a sectoral ministry and the association of employees in that ministry) that contain any decision related to wages, in order to discourage further wage fragmentation and competition between groups due to rent extraction.
(vii) Make wages transparent as a way of identifying potential abuses or inequities, and to promote a higher level of oversight in the interests of a more efficient public sector.

Sectoral level

Education

(i) Freeze the number of positions for elementary classroom teachers in countries with good coverage, reasonable levels of students per teacher (less than 30) and stable or decreasing student enrollments and, in such cases, prioritize the creation of new positions exclusively at secondary and pre-school levels.
(i) Expand employment in regions where the student-teacher ratio is higher (considering rural factors) and where there is a low level of coverage. Reassign existing teaching personnel to promote greater equity.
(iii) In countries where wage levels appear high compared to the private sector, per capita GDP or other parameters, consider a temporary payroll freeze and redirect the consequent savings to expansion of the workforce in order to improve coverage at pre-school and secondary levels.
(iv) In countries where higher spending on personnel has generated a crowding out effect, explicitly determine a budget benchmark for investment or a current expenditure ceiling, in order to protect these resources (the construction of new schools is essential to expand secondary and pre-school coverage).
(v) Control the number of administrative employees in the sector to leave room to increase classroom teaching personnel as necessary. In the case of countries with higher numbers of administrative employees, eliminate administrative positions when they become vacant and/or consider a voluntary retirement program.
(vi) Determine a maximum number of teachers who can be in the top categories in order to make promotions available based on the fiscal capacity of the State and/or (for example) the performance of the educational institution in standardized tests, and not solely upon meeting the formal training criteria.

Health

(i) For countries falling below the WHO standard, prioritize the expansion of the workforce of health professionals (physicians and nurses).
Improve equity in the distribution of professional health personnel in the country.

(ii) Control the number of administrative employees in the sector and, in cases of countries with higher numbers of administrative employees, eliminate administrative positions when they become vacant and/or consider a voluntary retirement program.

(iii) Control salaries for administrative personnel in order to prevent horizontal inequities with the rest of the administrative branch.

(iv) In countries with a higher level of fragmentation, work on the consolidation of the different statutes in the sector, or at least prevent further fragmentation.

Civil service

(i) Request and evaluate justifications for the creation of new positions or the filling of any administrative or operations position that becomes vacant.

(ii) Continue with the professionalization of the workforce in the public sector, introducing merit competitions and performance assessments to ensure a higher level of professionalization.

(iii) In countries with greater wage compression, take measures to decompress pay levels, using information on the labor market to ensure competitive salaries at managerial and professional levels, especially in priority sectors.

ANNEX 2.1 Security

Although the organization of the security sector in the countries analyzed is not as diverse as the health sector, certain differences between countries do exist.[18] In order to make the figures from each country compatible, we chose to use a definition of security as law and order services, i.e. employees whose main duty is the protection and safety of the population, excluding, for example, investigative or judiciary police, and officers assigned to the protection of personalities, authorities and institutions.[19]

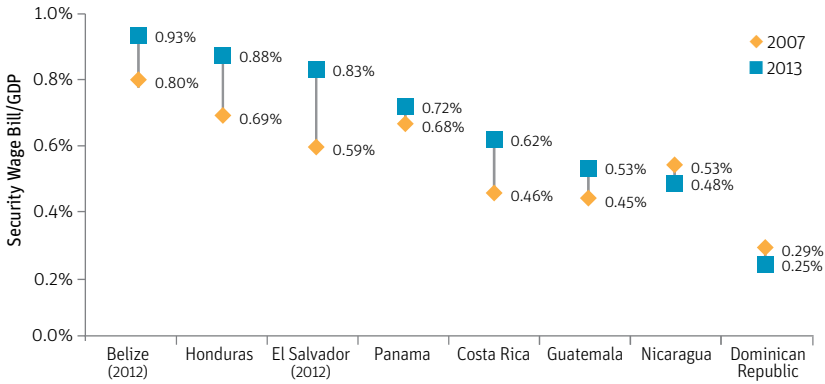
The security wage bill did not exceed 1% of GDP in any of the countries analyzed in this study. Belize and Honduras spent the biggest proportion of GDP on the security sector, at 0.9%. Behind them was El Salvador with 0.8% and Panama with 0.7%. The Dominican Republic is the country that spent the lowest proportion, at 0.2% of GDP (see Figure A1). From 2007 to 2013, most of the countries of the region increased the proportion of GDP spent on wages in the security sector; only the Dominican Republic and Nicaragua saw a decrease in that proportion. On the other hand, Honduras and El Salvador saw the biggest increase in the proportion of GDP spent on the security sector, at 0.2 percentage points.

In terms of police density, Panama is the country with the largest number of police officers per 1,000 people, with 5.9. The other countries of the region have a density ranging from 3.7 to 1.9 police officers per 1,000 people (see Figure A2). The case of Panama is notable because from 2008 to 2013 this country was able to increase police density from 4.7 to 5.9 for every 1,000 people with the same proportion of GDP spent on wages in the sector. This result underscores the importance that the achievement of higher rates of economic growth can have in terms of the provision of public services. Although all the countries in the region have seen an increase in the number of police officers for every 1,000 people, the increases have been small, ranging from 0.37 to 0.7 additional police officers per 1,000 people.

[18] In Costa Rica, for example, there is a police statute that covers all security services of the public administration; however, not all these services form part of the Ministry of Security. For example, traffic police are controlled by the Ministry of Public Works, tax police by the Ministry of Finance and police covering schools by the Ministry of Education. There is a similar situation in Guatemala, where the classification of security forces includes several institutions, the National Directorate of Police being the most important, but also including the presidential palace guard and intelligence services. In Panama there is a judicial investigation service controlled by the judiciary and an investigative police force attached to the attorney general's office.

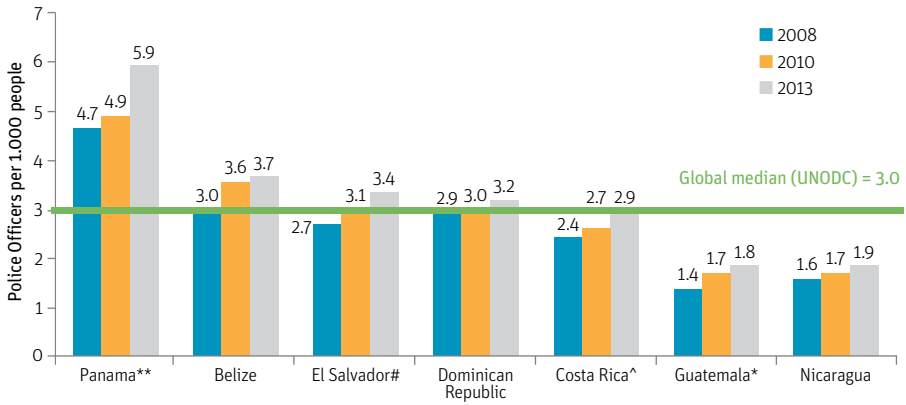
[19] This last example of services for the protection of VIPs or specific institutions exists in Panama (institutional protection services officers), in El Salvador (supernumerary officers or "important personality police") and in Honduras. These employees were excluded from the figures, since the type of services they provide do not necessarily fall within the category of law and order, but are closer to private security or bodyguard services.

FIGURE A1 Security Sector Payroll as a Percentage of GDP, 2007 and 2013



Notes: this chart shows total expenditure on wages for the ministry or institution in charge of the civil police and forces responsible for law and order, which is normally the Ministry of Public Security or the Ministry of the Interior in each country. It is important to note that this expenditure includes wages for administrative personnel in each ministry, and also for personnel with security duties not included in the definition of law and order used; for example, wages for supernumerary personnel in El Salvador, who provide protection for personalities and institutions.
Source: own research based on fiscal information obtained from each country.

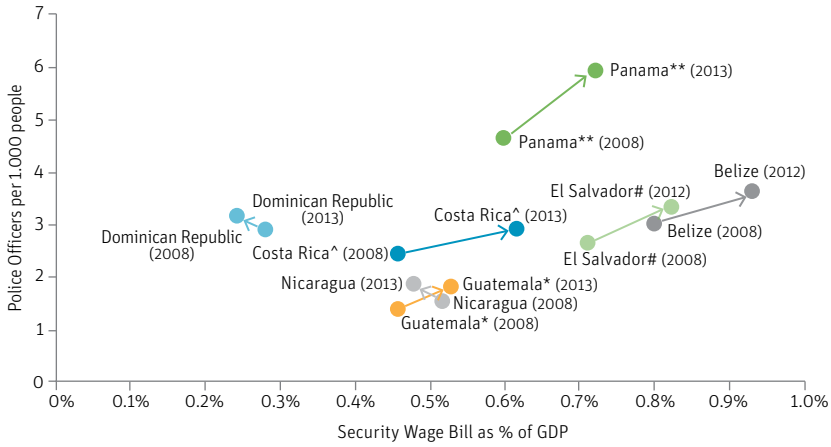
FIGURE A2 Police Officers per 1,000 People in Selected Years



Notes: (^) For Costa Rica, the figures only include police officers attached to the Ministry of Security, and not all officers covered by the police statute. (*) For Guatemala, the figures only include officers with the General Directorate of Police, to the exclusion of other security forces. (**) For Panama, the figures include officers in the National Police but exclude those in the institutional protection service. (#) For El Salvador, the figures exclude supernumerary personnel responsible for the protection of institutions and personalities. No information was received on personnel in the security sector for Honduras.
Source: own research based on employee payroll data obtained from each country.

Among the countries that spent more than 0.5% of their GDP on wages in the security sector, Panama stands out as having the highest density of police officers while maintaining a very similar level of expenditure to that of the other countries (see Figure A3). The Dominican Republic is also an interesting case as it has a density of 3.2 police officers per 1,000 people, very similar to Costa Rica, El Salvador and Belize, but at only a fraction of the expenditure recorded for those countries. Finally, at the bottom of the list in terms of police density, Nicaragua and Guatemala recorded very similar levels of expenditure and density (see Figure A3).

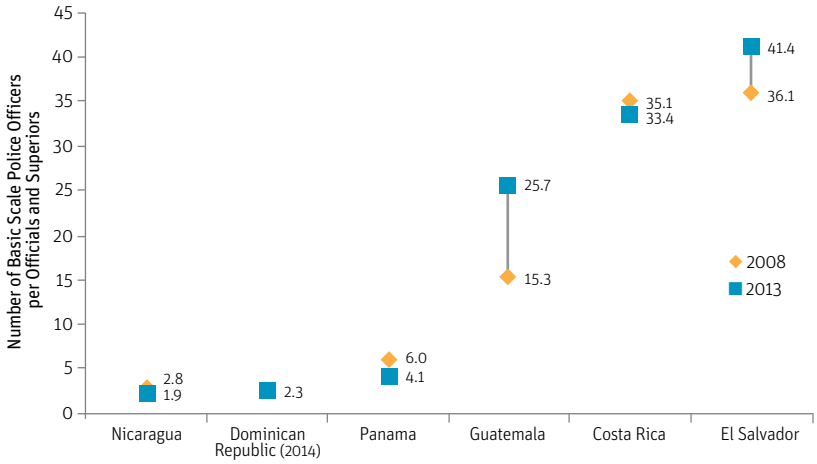
FIGURE A3 Ratio Between Security Payroll and Police Officers per 1,000 People



Notes: (^) For Costa Rica, the figures only include police officers attached to the Ministry of Security, and not all officers covered by the police statute. (*) For Guatemala, the figures only include officers with the General Directorate of Police, to the exclusion of other security forces. (**) For Panama, the figures include officers in the National Police but exclude those in the institutional protection service. (#) For El Salvador, the figures exclude supernumerary personnel responsible for the protection of institutions and personalities.
Source: own research based on employee payroll data obtained from each country.

Two of the main variables determining the results presented in the above chart are: (i) the internal structure of the police force in each country; and (ii) wage levels. In terms of structure, with an equal number of personnel, if the police force has a pyramid or wide-based structure, with the vast majority of personnel at the basic level (officers and deputies), this would result in a lower cost than if the police force was organized in a "cylinder" structure, with a larger number of senior officers. Figure A4 presents the data on the number of junior police officers for every senior officer or superior; in other words, the number of police officers that each senior officer, on average, is in charge of.

FIGURE A4 Number of Police Officers and Deputies per Senior Officer in the Institution, 2008 and 2013



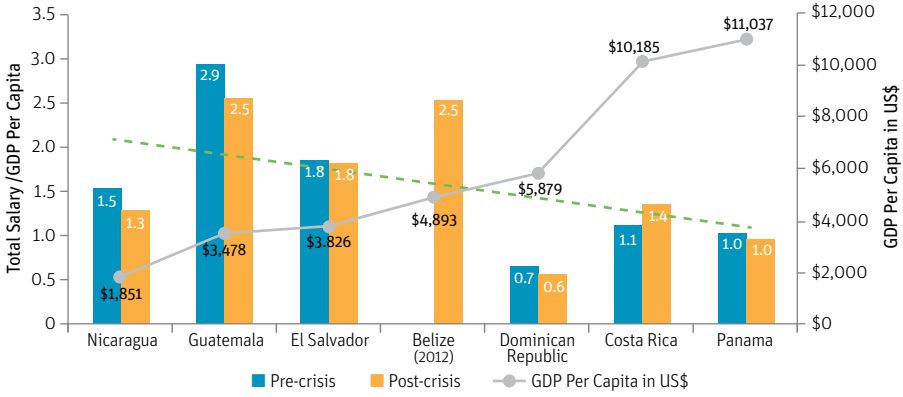
Note: the figures for each country only include personnel with a police rank and exclude personnel who do not belong to the police force. No information was received on personnel in the security sector for Honduras.
Source: own research based on employee payroll data obtained from each country.

Figure A4 reveals two very different realities: one group of countries with a higher number of police officers per senior officer, including Guatemala, Costa Rica and El Salvador; and a second group in which the number of junior police officers per senior officer is less than 6, including Nicaragua, the Dominican Republic and Panama. This result is paradoxical, as the two countries with the greatest capacity to transform the wage bill into density of police officers (Panama and the Dominican Republic) both have a structure which, in principle, would be more costly than that of the other countries. Another interesting point is that in both Guatemala and El Salvador the rise in the number of police officers per 1,000 people has been focused mainly on the number of junior officers, while in the other countries, the expansion occurred at all levels and ranks within the police force, and even in Panama the expansion was slightly higher among senior officers, as the proportion fell from 6 officers per senior officer in 2008 to 4.1 in 2013.

The countries with the largest number of officers per senior officer are those that pay the highest relative average wage (see Figure A5). In Guatemala, in 2013, out of every 100 police officers, 92 were agents (the lowest rank in the police force); however, the relative average wage of all police employees was equal to 2.5 times the country's per capita income. This contrasts radically with the situation in Panama, where only 34 of every 100 police officers belonged to the lowest rank, and nevertheless the relative average wage of all police officers was equal to the per capital income in the country. From 2008 to 2013

the relative average wage in Guatemala fell from 2.9 to 2.5 times the per capita income. However, along with Belize, it continues to have the highest wage among the countries for which data exists, and above the level expected based on its per capita GDP.

FIGURE A5 Relative Wage of Police Personnel, Before and After the Crisis



Note: no information was received on personnel in the security sector for Honduras.
Source: own research based on wages reflected in the employee payroll of each country.

Costa Rica is the only other country where the relative police wage increased during the period (from 1.1 to 1.4 times the per capita income). This situation would partly explain why the increase in police officers per 1,000 people in Costa Rica was marginal, given the increase recorded in the sector's wage bill as a percentage of GDP (the change in Costa Rica was mostly horizontal in Figure A5). On the other hand, the low relative wage shown in the Dominican Republic explains how this country has been able to achieve police density rates similar to or higher than the rest of the countries of the region at a fraction of the cost.

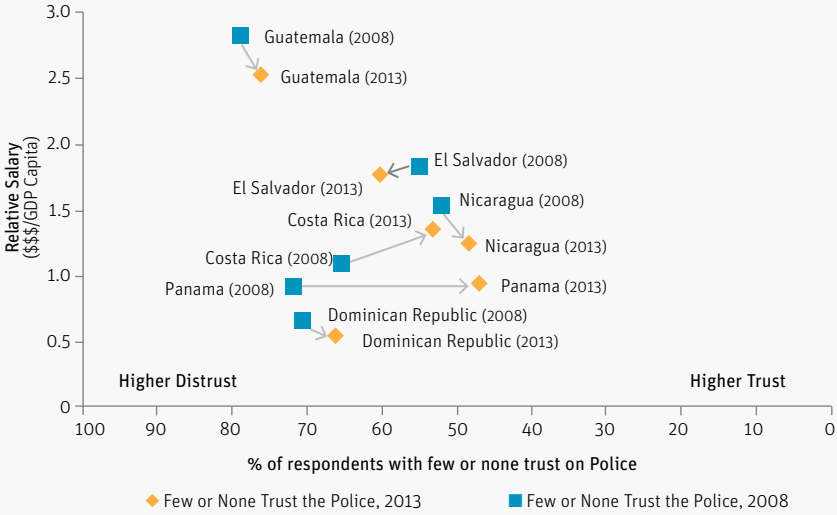
In the area of security, and in particular in the case of the police force, low wage levels are generally linked to acts of corruption that result in a low level of public confidence in the police force. However, higher wages alone are not enough to regain the confidence of the population (see Box A1).

Unlike the education and health sectors, where the trend has been to grant pay raises higher than real economic growth, in most countries of the region wage increases for police officers have been lower than real growth in per capita income, and even negative for four of the six countries on which information is available: Nicaragua, the Dominican Republic, Guatemala and El Salvador (see Figure A6). Only Costa Rica and Panama granted positive

BOX A1 THE RELATIONSHIP BETWEEN WAGES AND THE LEVEL OF CONFIDENCE IN THE POLICE

In Guatemala, the relative wage of police officers is significantly higher than in the rest of the countries of the region; however, this is the country whose police force has the lowest level of public confidence (see Figure A1.1). If Guatemala is excluded from the sample of countries, a direct relationship can be identified between relative wages and confidence in the police force; i.e. public confidence increases as the relative wage for police officers increases. However, if the Dominican Republic is also excluded from the sample for 2013, this relationship is inverted, with public confidence increasing as relative wages decrease.

A1.1 Relationship Between Relative Wage and Confidence in the Police, 2008 and 2013



Source: own research based on payroll figures and the "Encuesta Latinobarómetro" survey.

Although the evidence presented here does not establish causality, the unstable relationship that appears to exist between wages (proxy for professionalization of the police force) and confidence (proxy for corruption) would suggest that any effort to professionalize the police force and raise public confidence would require a whole range of initiatives (many of them institutional) and does not depend exclusively on increasing police wages. This claim is consistent with the evidence presented in studies conducted in this area.[1]

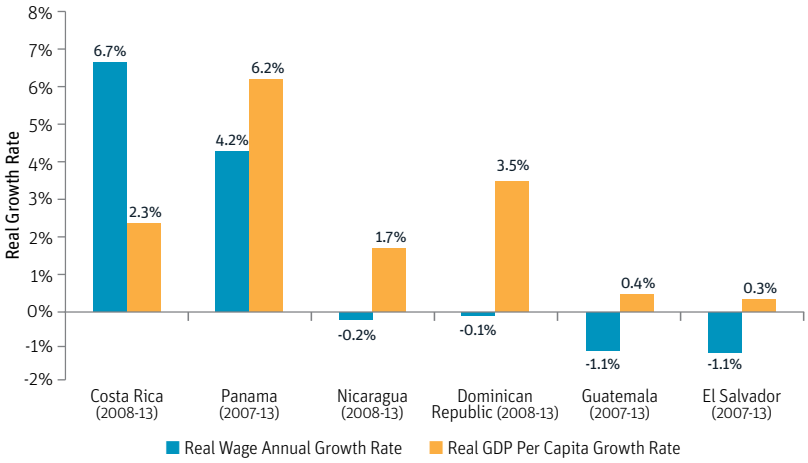
Panama is the country with the biggest rise in public confidence, and although the relative wage remained practically constant, the wage for police officers saw a significant real increase in absolute terms. Costa Rica is another country where there was a noticeable improvement in confidence together with an increase in the relative wage. Nicaragua, on the other hand, recorded an increase in confidence in spite of a decrease in the relative wage of police officers in the period.

Source: own research

[1]See http://www.insightcrime.org/news-analysis/pay-rises-alone-wont-break-chain-of-police-corruption

wage increases, and only in the first case was the growth rate in police wages higher than growth in real per capita income. In the case of Guatemala and El Salvador, the low growth rate in the average wage may be influenced by the composition effect (i.e. a high number of police officers joining the force at entry-level positions).

FIGURE A6 Annual Real Growth Rate of Police Wages and of per Capita GDP



Note: no information was received on personnel in the security sector for Honduras.
Source: own research based on wages reflected in the employee payroll of each country.

RECOMMENDATIONS FOR THE SECURITY SECTOR:

(i) In countries where a reasonable rate of police officers per 1,000 people has been achieved, i.e. above the international mean reported by the UN Office on Drugs and Crime (UNODC), concentrate new resources and initiatives on technical development, training, equipment and better distribution of the existing police force, which includes raising admission requirements related to education or months or years of training.

(ii) Review the distribution of personnel across the hierarchical structure to ensure a reasonable level of senior officers and agents in keeping with the context of each country.

(iii) Ensure reasonable wages for police personnel in order to attract and retain suitable people for these duties.

(iv) Prioritize training and equipment over rapidly increasing the number of officers with minimum requirements.

3 EVOLUTION OF SOCIAL SPENDING AND OUTCOMES: A TERRITORIAL APPROACH[1]

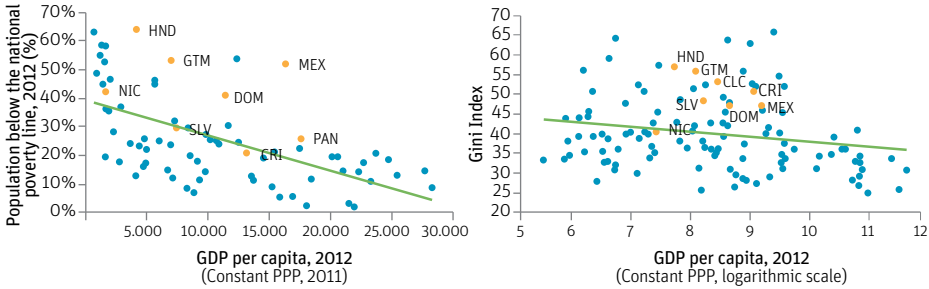
Martín Ardanaz
Priscilla Gutiérrez

In spite of the progress made in the main social indicators over the last decade, the countries of Central America, Panama and the Dominican Republic are still lagging behind in terms of poverty and inequality compared to other countries with similar income. Most of these countries have a higher percentage of population below the national poverty line,[2] averaging around 44%, with the highest levels being in Honduras and Guatemala. This proportion is higher than in other countries of Latin America and the Caribbean (LAC), such as Bolivia, Jamaica and Paraguay, and higher than in Southeast Asian countries like the Philippines, Vietnam and Indonesia. This underdevelopment is also evident in income distribution. The ratio of inequality, as measured by the Gini coefficient[3] and the per capita income level, suggests that countries in the region have levels of economic inequality that are generally higher than would be expected for their income levels (see Figure 3.1).

The evolution of some education and health indicators reflects the progress made in the countries of the region over the last decade; however, they are still below average performance[4] in Latin America and the Caribbean. In the area of education, one of the Millennium Development Goals (MDGs) aimed at ensuring that by 2015 children would be able to complete a full course of primary schooling. Moving toward the fulfillment of

[1] Although most definitions of social spending include the social protection and housing sectors, for the purposes of this chapter, it will be defined only as public expenditure on education and health.
[2] The national poverty rate is defined as the percentage of people living under the national poverty line. The poverty line or poverty threshold is the minimum income level needed for an adequate standard of living in a given country. As this measure is national and the estimates are based on household surveys conducted in each country, therefore the definition of the poverty line may vary considerably between nations.
[3] The Gini coefficient measures how far income distribution among individuals and households within an economy is from perfectly equal distribution. A value of 0 represents perfect equality, while a value of 100 represents maximum inequality.
[4] All averages have been weighted according to population.

FIGURE 3.1 GDP per Capita and Social Indicators



Source: World Development Indicators (World Bank, 2015).

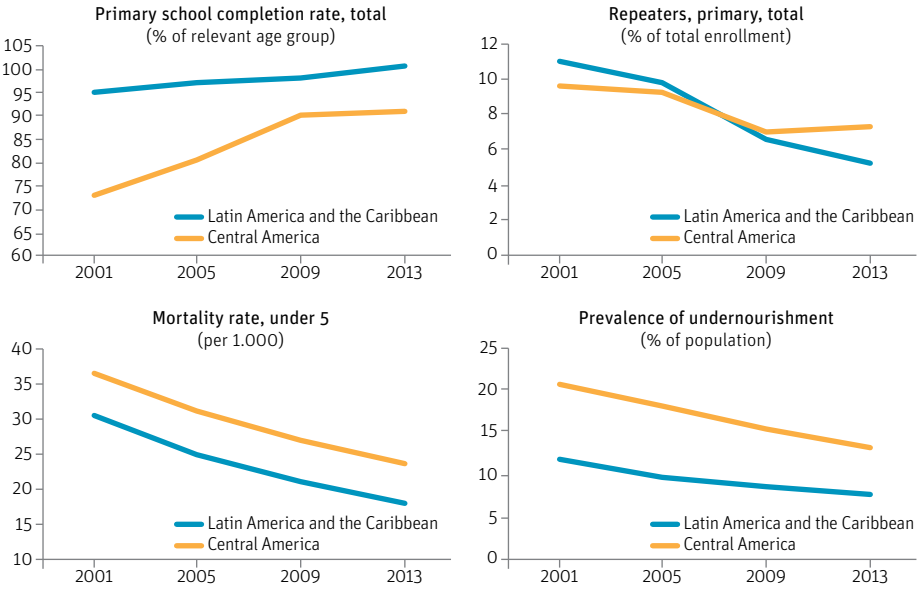
this goal, the primary school completion rate[5] in the region has been rising; by 2013 it had reached levels above 80% of the school-age population, compared to 73% in 2001. However, the LAC measure was close to 101% in 2013. In particular, Guatemala, Nicaragua and Dominican Republic, despite having made some progress, have not yet achieved the goal. Nicaragua and Guatemala are lagging a long way behind in this indicator, as both countries are now at levels similar to the averages recorded in LAC more than 20 years ago. At the same time, the region began the last decade with a proportion of 9.2% of primary students repeating grades, lower than the LAC average of nearly 11% for that year. However, by 2007 grade repetition rates had worsened to the LAC level, and are now even higher (see Figure 3.2). This situation has negative repercussions on the efficiency of the education system as a whole, as the repetition of grades reduces the system's capacity for new student enrollments, or otherwise raises the general costs of providing education.

In the area of health, the mortality rate among children under five and the prevalence of malnutrition have been in constant decline since 2001, but are still above the LAC average. Another of the MDGs was to reduce the under-five mortality rate by two thirds between 1990 and 2015. In fact, all of the countries of the region have achieved considerable reductions in the mortality rate for children in this age group. Although El Salvador is the only country in the region to have already met the goal, it is expected that most of the countries of Central America will have reached it by 2015. In the period 2001-2013, this rate fell from 36.7 to 23.7 deaths per 1,000 children in the region, while it was lower in LAC as a whole, falling from 30.6 to 18.0 deaths for every 1,000 children. Meanwhile, the prevalence of malnutrition, whose eradication is also an MDG target, has remained

[5] The primary school completion rate is the total number of students enrolled in the last year of primary education, regardless of age, expressed as a percentage of the official total population of enrollment age for that grade. It is also referred to as "gross intake ratio to last grade of primary education". This ratio can be higher than 100% due to children above or below the official enrollment age who have begun primary education early or late and/or have repeated grades.

above LAC levels, falling from 20.7% to 13.2% of the total population from 2001 to 2013. In LAC, the malnutrition rate fell from 9.7% to 7.7% over the same period (see Figure 3.2). In general, the results of the fight against malnutrition in the region have been mixed. Honduras, Mexico, Nicaragua and Panama have already met the goal, while the Dominican Republic is close to achieving it. Belize and El Salvador have also reduced malnutrition, but not enough to meet this MDG. Guatemala shows mixed results: the malnutrition rate has increased substantially over the period studied, although the country has made significant reductions in this area among children under five. From 1995 to 2009, the percentage of children under five with malnutrition (measured by weight-for-age) fell from 22% to 13%,[6] but malnutrition among the total population rose from 16% in 1991 to 30% in 2011.[7] It is worth noting that with the exception of Costa Rica, Mexico and Belize, all of the countries continue to be above the LAC average, with Guatemala being the most extreme case.

FIGURE 3.2 Evolution of Social Indicators



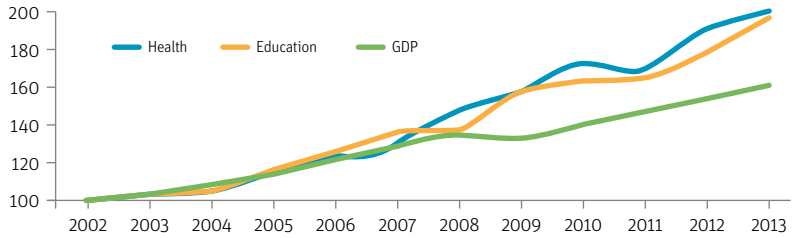
Source: World Development Indicators (World Bank, 2015).

[6] However, according to World Bank data, Guatemala has one of the highest chronic malnutrition rates in the world (54.5%), which is aggravated among indigenous children, 8 out of 10 of whom suffer from malnutrition, compared to 4 out of 10 non-indigenous children.

[7] United Nations Statistics. This information has been obtained from the report on progress on the Millennium Development Goals in Central America, Panama and the Dominican Republic prepared by the IDB in 2013. It is worth highlighting that the data from the World Bank (2011) contains different information on Guatemala, with a malnutrition rate of 14.9% in 1991 and 14.5% in 2011.

At the same time, social spending in the region has increased at a faster rate than economic growth. Spending on education and health has increased at a faster rate than Gross Domestic Product (GDP), especially since 2007. In fact, from 2007 to 2013, spending in both sectors as a percentage of GDP rose by 0.3 to 2.7 percentage points (see Figure 3.3), with wages being the expense that grew the most. As described in Chapter 2, from 2007 to 2013 spending on wages and salaries experienced a growth of around 1.2%[8] of GDP in the case of education, while in the health sector, this increase ranged from 0% to 0.5% of GDP.

FIGURE 3.3 Growth in Social Spending and GDP (2002=100)



Source: official data and World Economic Outlook (IMF, 2015).

Added to these trends is the negative public perception of efficiency in the use of resources by the public sector. Each year, the World Economic Forum calculates a Global Competitiveness Index (GCI),[9] based on a sample of more than 150 countries. This sample is ordered according to survey opinions on a series of indicators, including efficiency of government spending,[10] with the governments perceived as the most efficient placed in the top positions. Opinions[11] for the region are far from favorable. Panama and El Salvador, and to a lesser extent Nicaragua, hold positions around the middle of the list, while Guatemala and Honduras are both below the average for Latin American and the

[8] Panama was the only country in the region that experienced a contraction in payroll spending measured as a percentage of GDP.

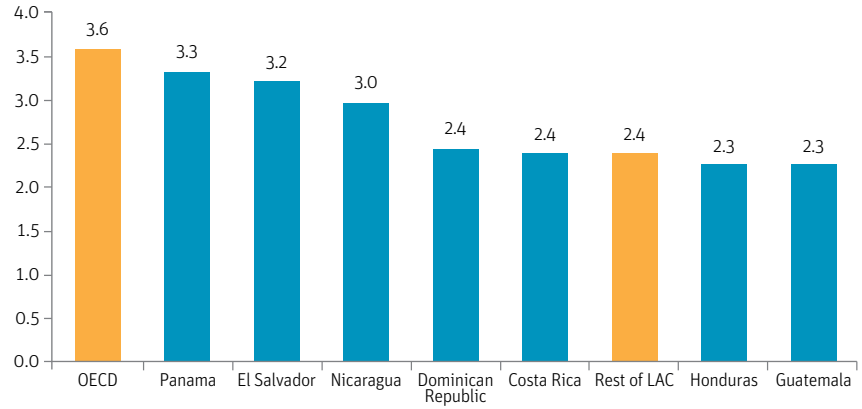
[9] The World Economic Forum constructs a *Global Competitiveness Index* based on 12 pillars, which include: Institutions, Health and Primary Education, Higher Education and Training. Categorized under each pillar are various sub-pillars, each one related to a question. The GCI is constructed as a weighted average of the subindexes.

[10] The question in the survey, which is conducted on business executives only (*World Economic Forum, Executive Opinion Survey*), is as follows: In your country, how efficiently does the government spend public revenue? Where 1 = extremely inefficient; 7 = extremely efficient in providing goods and services.

[11] Opinions expressed in public opinion surveys should be taken with caution. However, these surveys make clear not only the lack of public trust in the government's ability to manage public sector revenues, but also the need to improve social spending outcomes.

Caribbean (see Figure 3.4). An analysis of these positions over time reveals that only Nicaragua and the Dominican Republic improved in the period 2014-2015 compared to previous years.

FIGURE 3.4 Perception of Public Spending Efficiency 2014-15

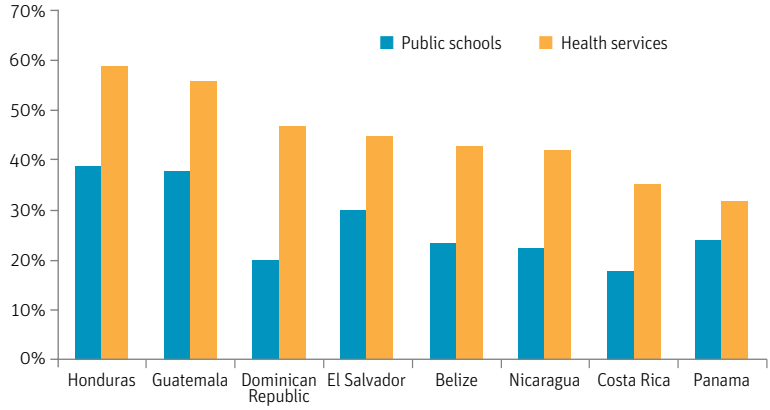


Source: Global Competitiveness Report, 2014-2015.

At the same time, a significant percentage of citizens are dissatisfied with the quality of public education and health services. According to the LAPOP survey[12] (2014), the proportion of households that were "dissatisfied" or "very dissatisfied" with health and education services averaged around 25% and 45%, respectively. This discontent is more evident in Honduras and Guatemala, where the dissatisfaction of households with the quality of health services reaches levels close to 60%, while for the services provided by public schools the level is almost 40%. On the other hand, Panama and Costa Rica have lower percentages of dissatisfied households. In particular, for education services, Panama and Costa Rica register dissatisfaction levels below 25%, while for health services both countries are around 35% (see Figure 3.5).

[12] *Latin American Public Opinion Project.*

FIGURE 3.5 Quality of Public Services (% Dissatisfied or Very Dissatisfied)



Source: LAPOP (2014).

Although the progress and the challenges faced by the social sector and spending in the region at national levels are well known (Duryea, 2015; Levy and Schady, 2013),[13] very little is known about the evolution of these variables within each country, making it harder to shed light on territorial dispersion between different subnational regions or departments.[14] Given the fact that examining the geographical distribution of social spending and outcomes at the territorial level is important not only to analyze spending efficiency but also to address questions of equality, we analyze in this chapter the evolution of some output indicators in education and health, while also studying spending in these sectors with a focus on the subnational regions (departments) of each country. Using an original database that includes information on geographical distribution of inputs and outputs in both sectors, a preliminary analysis of spending efficiency was conducted on all eight CAPDR countries at the territorial (i.e. subnational) level. This chapter documents and analyzes the progress made in various development indicators in the countries of the Central American region compared with results in countries with similar incomes. It also characterizes the challenges for the social sector at both national and subnational levels, and presents trends in the level and composition of public social spending in the region. The chapter then offers a preliminary approach to the issue of the differential performance

[13] On the challenges faced by the educational and health-nutrition sectors in Latin America and the Caribbean, see IDB (2013a; 2013b).

[14] The countries of the region use different names for their respective administrative divisions. For example, Costa Rica, Panama and the Dominican Republic are divided into provinces, while Belize is divided into districts. The rest of the countries in the region are divided into departments. Therefore, given the multiplicity of names, the term "department" will be used generally to refer to the administrative divisions of each country.

of public expenditure at the geographical level, based on a frontier analysis of spending efficiency. Although the methodology of efficiency frontier analysis has certain limitations, it is useful as a first step toward the identification of areas for improvement and to support more in-depth studies that may be conducted in the future.

This chapter is structured as follows: the first section presents a brief conceptual framework that serves as a reference for the analysis and describes the main characteristics of the database used. The second section details the evolution of education and health indicators at national levels, along with the levels and composition of public expenditure in each sector; the third section analyses territorial (i.e. subnational) variations in these results; the fourth section offers a preliminary analysis of efficiency levels, combining information on inputs and outputs at the territorial level. Finally, the last section outlines recommendations aimed at improving social spending efficiency.

CONCEPTUAL FRAMEWORK AND DATA COLLECTION

Although the "production function" of education and health services contains elements specific to each sector, it is possible to identify three general key factors: the physical and human inputs; the level of effort exerted by front line service providers (teachers, doctors); and their level of competence, knowledge or, more generally, quality (Bold *et al.*, 2010). For example, the level of competence or knowledge of teachers and medical personnel is an essential factor determining the productivity of social spending. Recent studies have shown that higher competence levels are not predicted by easily observable or standard characteristics (such as level of formal education or years of experience), but by behaviors (e.g. quality of teacher-student interactions) or the specific knowledge of the subject matter, which are important for the improvement of outcomes (Araujo *et al.*, 2014; Das *et al.*, 2008). Of course, the outcomes related to this function (e.g. learning; better health and nutrition conditions) are partially affected by factors which are external to the service delivery units or systems, such as the behavior and characteristics of households. However, based on the measurement of indicators for all three factors, ideally at the most disaggregated level possible (e.g. school; medical clinic), it is possible to gain a basic idea of the "micro" functioning of the service delivery chain and, at the same time, detect any deficiencies hindering the achievement of the best possible social outcomes.

In spite of the importance accorded by the literature in the field to the variables of effort and competence for explaining variations in social outcomes, the establishment of proxies to measure these dimensions is not common.[15] The difficulties in identifying these

[15] On the other hand, it is easier to identify quantity indicators for physical and human inputs in the provision of social services. Although there is a debate over the relative importance of inputs vis-à-vis other production function factors, it is clear that the former constitute at least a necessary condition for the implementation of activities related to the provision of services and, hence, contribute to the improvement of social outcomes.

kinds of indicators are even greater when the unit of analysis is no longer the country, and the search is focused on disaggregated data at the subnational level.[16] In the absence of indicators for all the factors in the production function, this chapter focuses on the measurement of variables for which comparative information has been obtained.

This chapter is based mainly on an original database, constructed using a series of studies reviewing public expenditure in the education and health sectors.[17] These studies examine the evolution of spending in the education and health sectors, as well as the performance of the main output indicators for each sector, not only at the national level but also from a territorial perspective. This allows to show the subnational heterogeneity concealed behind national trends. In terms of time frame, the database covers the period 2003-2013 when possible.

The output indicators for each sector were selected based on their identification in the countries´ human and social development plans, as well as their inclusion in IDB strategies and sector frameworks for the region. This laid the foundations for ensuring relevant indicators in the areas of delivery, coverage and quality of public services in education and health, encompassing the dimensions of inputs (spending), products and outputs, both at the national level and at disaggregated subnational levels. For example, in the case of the education sector, we obtained data on public expenditure and distribution at educational levels as inputs, and, teacher and student numbers per educational level and enrollment, dropout and grade repetition rates as outputs. Meanwhile, in the health sector, we needed data on public expenditure and distribution, information on the number of healthcare facilities, beds and physicians per 10,000 people as inputs, and data on life expectancy and infant mortality rates as outputs.

[16] In general, there was no information at all on public spending at the subnational level, making the analysis more difficult and necessitating an approach using certain input indicators closely correlated with expenditure. Moreover, the countries of the region suffer from deficiencies in the production and collection of reliable statistics, but particularly at subnational levels, on coverage and quality of public services, as well as output indicators in both sectors.

[17] The studies were conducted by various think tanks and specialist consulting firms in order to benefit from the knowledge of local experts on the subject matter, and using the same terms of reference to facilitate standardization of the information presented. Each study was also accompanied by a database on each country, with the national and subnational information of the main analysis variables.

Lastly, it should be noted that unlike country-specific public expenditure reviews,[18] this analysis does not explore the specific characteristics of the countries under study, but aims at identifying general trends in terms of public expenditure and outcomes, offering a comparative overview of the issue of efficiency. In view of these considerations, the discussion will now turn to a more detailed exploration of the challenges faced in the region in terms of its main education and health indicators and their relationship to the evolution of public expenditure in the sectors studied.

EXPENDITURE AND OUTCOMES IN THE EDUCATION AND HEALTH SECTORS: NATIONAL TRENDS

Level and composition of public social spending

Education expenditure as a proportion of GDP has shown an increase since 2006, except in Honduras and Panama. For most countries in the region, education expenditure as a percentage of GDP is less than 4.5%, around the same as the average level of spending for Latin America and the Caribbean as a whole. Education spending averaged around 4.0% in the region in 2013,[19] with Costa Rica[20] and Belize being the only countries to have maintained a level above 6% since 2009. Of particular interest is the case of Honduras, whose public expenditure on education has exhibited a downward trend as a percentage of GDP and total expenditure. Public expenditure on education as a percentage of GDP fell from approximately 6% in 2003 to 4.8% in 2013, and from 20.1% of total public sector spending in 2004 to 12.5% in 2013. On the other hand, Guatemala[21] had the lowest level of expenditure as a percentage of GDP in the region, at less than 3%.

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[18] Panama: Public Expenditure Review (World Bank, 2006); Nicaragua: Public Expenditure Review 2001-2006 (World Bank, 2008); Costa Rica: Public Expenditure Review: Enhancing the Efficiency of Expenditures (World Bank and IDB, 2008); El Salvador: Public Expenditure Review: Enhancing the Efficiency and Targeting of Expenditures (World Bank and IDB, 2011); Dominican Republic: Public Expenditure Review (IDB, 2012); Dominican Republic: Improving the Quality of Public Expenditure (World Bank, 2012); Guatemala: Public Expenditure Review: Towards Better Expenditure Quality (World Bank, 2013); Honduras: Public Expenditure Review: Towards Restoring Fiscal Consolidation (World Bank, 2013).

[19] Excluding Nicaragua and the Dominican Republic.

[20] In 1997 and in 2011, reforms to the Costa Rican Constitution of 1949 (currently in force) established an obligation upon the State to dedicate annual resources to education expenditure initially equal to 6.0% of GDP and subsequently equal to 8.0% of GDP.

[21] Public expenditure on education has averaged 3.0% of GDP in the last decade (US$143 per capita). From 2007 to 2013, the payment of wages in the education sector rose from 52.7% to 69.1% of total expenditure, while current transfers fell from 34% to 19% over the same period. Under Guatemala's Ley *Nacional de Educación* (National Education Act), the State is required to take actions to raise the budgetary allocation to 7% of GDP. However, the Ministry of Education implements only 80% of education expenditure, which reflects difficulties in the management and use of resources (especially for auxiliary educational services). The main weaknesses in budget execution are due to the limitations of the *Ley de Compras y Contrataciones del Estado* (State Purchasing and Procurement Act) and the lack of training of personnel responsible for bidding and award processes. At the same time, commitments assumed under collective agreements take funds away from capital expenditure.

Per student expenditure in primary education shows a downward trend in most countries in the region, while for secondary education the results are mixed. For primary education, in 2001 expenditure was US$1,198 in constant 2013 international dollars (PPP 2013), while for secondary education it was US$1,598. El Salvador experienced the biggest fall in primary education spending per student (23%), in spite of the fact that it showed a drop in absolute enrollment levels in primary schools. For Costa Rica[22] and the Dominican Republic, on the other hand, spending in this area has increased since 2007, not only at the primary level but also for secondary education. Guatemala, Nicaragua and Honduras are the countries spending the least on each level per capita. In 2013, Guatemala had a per student expenditure in secondary of US$340 (PPP 2013); in Nicaragua it was US$202 (PPP 2013) in 2011, and in Honduras[23] it was US$769 (PPP 2013) in 2012. For secondary education, again Costa Rica and El Salvador, along with the Dominican Republic, were the countries in the region that spent most per student, averaging US$2,408 (PPP 2013) from 2007 to 2013. It is worth noting that spending per student has dropped in at least four countries. This could be explained by the increase in secondary enrollments, which has occurred throughout the countries of Central America. Guatemala and Nicaragua are the countries spending the least per student on secondary education (see Figure 3.6).

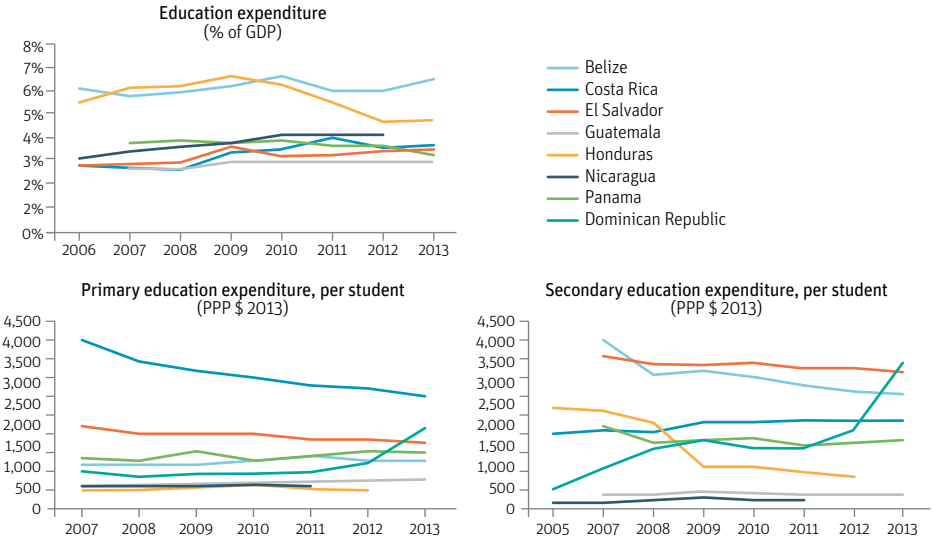
The increased spending on education has been allocated mainly to wages. The wage component has been markedly heterogeneous across the region. As explained in more detail in Chapter 2, while in countries like Costa Rica payroll growth has been associated with significant wage increases, in other countries like Guatemala, growth has been almost entirely attributable to an increase in the number of employees.

Health expenditure as a percentage of GDP, which rose from 3.4% in 2003 to 3.9% in 2013, is characterized by considerable heterogeneity across the region. Costa Rica and Panama are the countries spending the largest proportion of resources on the health sector, and the ones with the best outcomes in infant mortality and life expectancy indicators. The spending gap between these countries has grown in recent years, with Costa Rica being the only country in the region spending more than 7% of GDP. At the opposite end of the spectrum are the Dominican Republic and Guatemala, which are spending less than 3% of GDP. These countries, along with others with lower incomes like Honduras and Nicaragua, performed the worst in infant mortality and life expectancy. On the other hand, El Salvador has the second worst infant mortality and life expectancy indicators in the

[22] As a percentage of GDP, spending on primary education rose from 1.7% in 2006 to 2.1% in 2013. Meanwhile, in the case of secondary and higher education, expenditure increased from 1.0% of GDP in 2006 to almost 1.5% of GDP in 2013, in each case.

[23] It is likely that the problems with closing the fiscal gap have imposed budgetary restrictions affecting compliance with the Honduran Teachers' Statute. The worsening fiscal problem means choosing between failing to honor the wage increases stipulated in the Teachers' Statute and neglecting to replace educational equipment and supplies (CID individual country report, 2015).

FIGURE 3.6 Education Expenditure per Country



Source: World Development Indicators (World Bank, 2015).

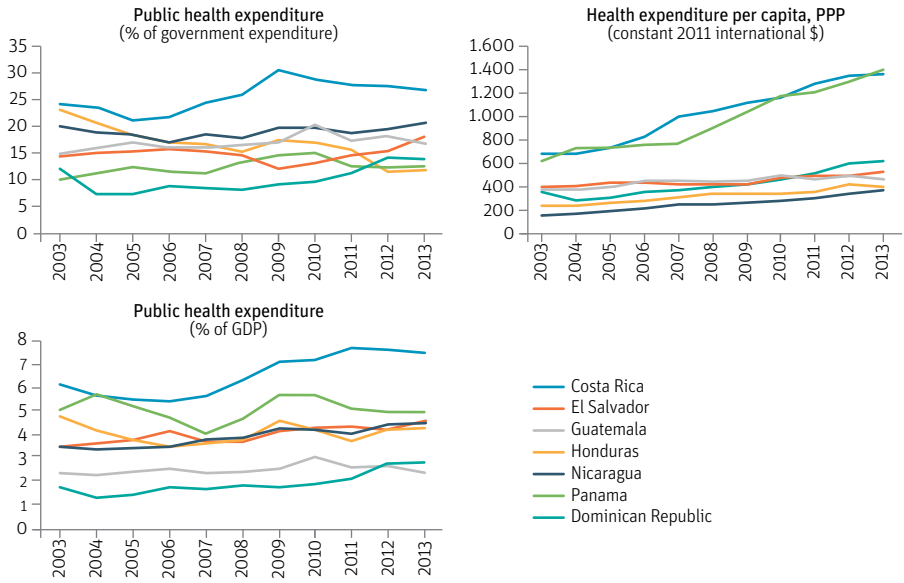
region, despite having spent more on health than other countries with better indicators. Among OECD countries, health spending as a percentage of GDP averaged 7.6% in 2013, while in Latin America and the Caribbean it was 4.3%.

For most countries in the region, spending on health as a proportion of total public expenditure has averaged between 10% and 20% during 2003-2013, with Costa Rica being the only country spending more than 25%. This rate has been maintained at these levels since 2003, except in Costa Rica, where it has increased significantly, rising above 30% in 2009. Nicaragua is in second place, while the Dominican Republic, which was the country with the lowest proportion from 2004 to 2010, overtook Panama and Honduras in 2012. In 2012, health spending in OECD countries averaged 17.5% of total public expenditure. It is worth highlighting that public spending patterns in the health sector in the different countries reflect increased spending on wages which explains the relatively modest outcomes achieved in health sector indicators. This was explored in more detail in Chapter 2.

Health expenditure per capita has seen sustained growth since 2003 in all countries; however, there is a pronounced gap between Costa Rica and Panama and the rest of the region. The increase in health expenditure may be due to various factors. One could be

the increased cost in public services,[24] thereby reducing their efficiency. From 2003 to 2013, a faster rate of growth in per capita spending is observable for the countries in the region with the highest incomes. Costa Rica's per capita expenditure is almost four times the lowest national spending levels, found in Nicaragua and Honduras. Especially notable is the case of the Dominican Republic, which, around the beginning of the last decade, had the third lowest expenditure per capita in the region, while ten years later it has the third highest (see Figure 3.7). For reference, this indicator was US$4,597, PPP (constant 2011 dollars) in 2013, while in Latin America and the Caribbean it was US$1,133 (PPP 2011), also in 2013.

FIGURE 3.7 Health Expenditure per Country



Source: World Development Indicators (World Bank, 2015).

The composition of expenditure in the social sectors reflects the importance of human resources in the distribution of public resources. According to the economic classification of expenditures, wage payments are identified as the most significant expense in both sectors (for further details, see Chapter 2). It is estimated that by 2013 around 66% of

[24] This is known as the Baumol Effect, which explains that because salaries also increase over time in sectors with limited increases in productivity, such increases are necessarily financed by higher prices. This behavior is typical in more labor-intensive and traditional sectors, which describes most public services.

education expenditure was spent on wages, while in the health sector it was slightly above 50% of total expenditure. Current transfers,[25] which represented 21.5% of total expenditure in 2013, were the second most significant expense in the education sector, while in the health sector this position was occupied by the procurement of goods and services, purchases of drugs and medical supplies, and outsourcing of health services that are not provided by the public sector. All these categories represented 26.6% of total health expenditure.

Outcomes in the education and health sectors: recent trends

Education sector

Over the last few years, the main education indicators in the region have evolved positively, particularly with respect to coverage. The governments of the region have made significant efforts to increase primary and secondary education coverage. These efforts are reflected in a rise in the number of children attending school, and in the number of teachers and schools. Several countries in the region have also made significant advances in the development of standards and in the implementation of periodic student performance assessments. Some have shown progress in teacher training or certification, which is linked to the quality of the educational services they deliver.

From 2007 to 2013, the number of primary teachers increased and the student-teacher ratio decreased, and there was also an increase in the number of certified teachers. The number of teachers rose on average by 16% over this period; however, this growth has been more modest in the last few years. Guatemala has been the country with the biggest rise in teacher numbers over the period 2007-2013, with a total increase of 35%; conversely, El Salvador saw a 2% drop in the number of primary teachers over the same period. In the case of Costa Rica, from 2006 to 2011 the number of teachers increased in total by 5%,[26] rising from 25,672 to 26,957, and along with this increase the proportion of qualified teachers also increased.[27] Panama's teachers have a high level of specialization. According to the United Nations Children's Fund (UNICEF), at least nine out of every ten teachers have the necessary qualification to teach at the primary level, and the country's goal is to reach 100% qualified teachers by 2021. El Salvador has very

[25] Current transfers mainly comprise scholarships and other types of government assistance.

[26] This growth was reflected in a fall in the average number of students per teacher. In the case of primary schools, the national average dropped from 24 students per teacher in 2003 to 19 in 2011, while in secondary schools it fell from 21 to 17 students per teacher over the same period.

[27] In 2002, 88.2% of educators (at all levels) held a teaching qualification, a proportion that had risen to 95.6% by 2011. In primary schools, the percentage of qualified teachers rose from 91.2% in 2002 to 96.0% in 2011.

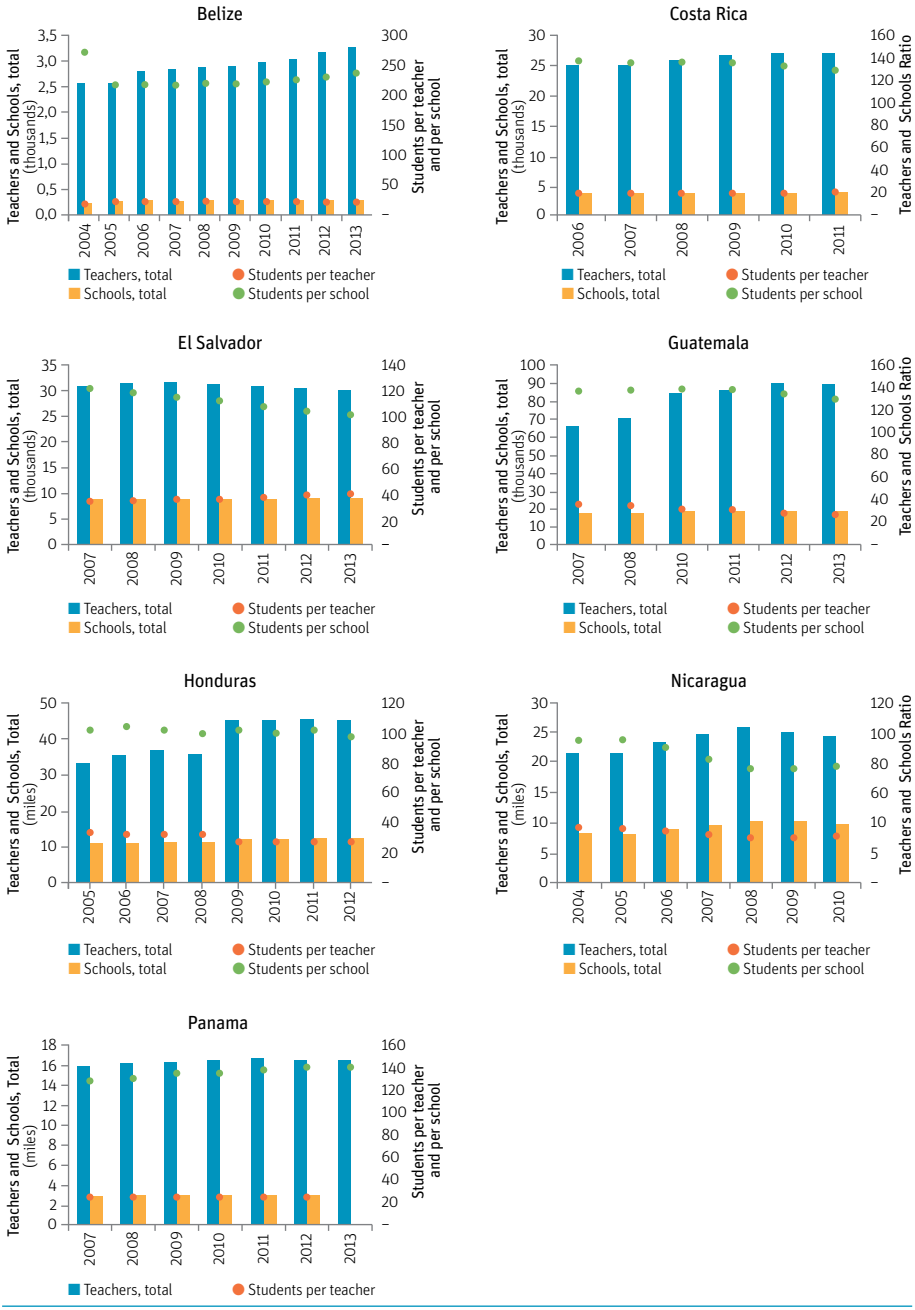
few uncertified teachers,[28] since all teachers must pass the *Evaluación de las Competencias Académicas y Pedagógicas* (Academic and Pedagogical Competencies Assessment), or ECAP, which assesses the competence levels of beginner teachers.[29] With respect to the student-teacher ratio, there has been a downward trend in all countries. The lowest ratios are found in Costa Rica, Panama and Belize, with levels around 20 students per teacher. Conversely, Nicaragua and El Salvador both have levels above 30 students per teacher (see Figure 3.8). It is worth noting that in 2013 in Latin America and the Caribbean as a whole the average student-teacher ratio was 22, while in OECD countries this ratio was 15.9 students per teacher.[30]

At the same time, the number of primary schools in the region has seen a moderate increase. The number of students per school has remained relatively stable, with Nicaragua being one of the countries where this ratio has decreased most over the period studied. It is important to note that in this country, during 2003-2011, primary school enrollments fell by 0.03% on average per year. In Costa Rica, for example, the number of educational institutions increased by 2.6% per year from 2003 to 2013, while total primary school enrollments fell by 1.5% per year (due to demographic changes), resulting in a significant fall in the average number of students per school[31] (see Figure 3.8).

At the secondary level, there was a bigger increase in teacher numbers, which rose on average by 31% over the period 2007-2013.[32] Although the number of teachers at primary level is higher than those of other educational levels, the biggest increase in staff numbers has been at the secondary level. The country with the biggest growth in the period was Guatemala, which more than doubled the number of teachers, while the country with the smallest increase was Costa Rica, with 16% (see Figure 3.9). In the latter, the growth in teacher numbers was reflected in a fall in the average number of students per teacher. Along with the increase in teacher numbers, the proportion of teachers with teaching qualifications also increased, rising from 88.2% in 2002 to 95.6% in 2011. In El Salvador, the best qualified teachers represented 91.4% of the total in 2013.

[28] Uncertified teachers are teachers who do not have specific training. In many cases they are hired on a temporary basis to fill immediate needs. These teachers are especially common in rural areas, where it is difficult to find teachers with qualifications or university degrees. World Bank (2001).
[29] In 2013, 90.6% of primary teachers had completed higher education (bachelor's or master's degree).
[30] This issue was explored in more detail in Chapter 2.
[31] This also reflects the fall in primary school enrollments due to demographic change.
[32] The first year for Honduras is 2010, while the last years for Nicaragua, Honduras and Costa Rica are 2010, 2012 and 2011, respectively.

FIGURE 3.8 Number of Primary Teachers and Schools and Number of Students per Teacher and per School



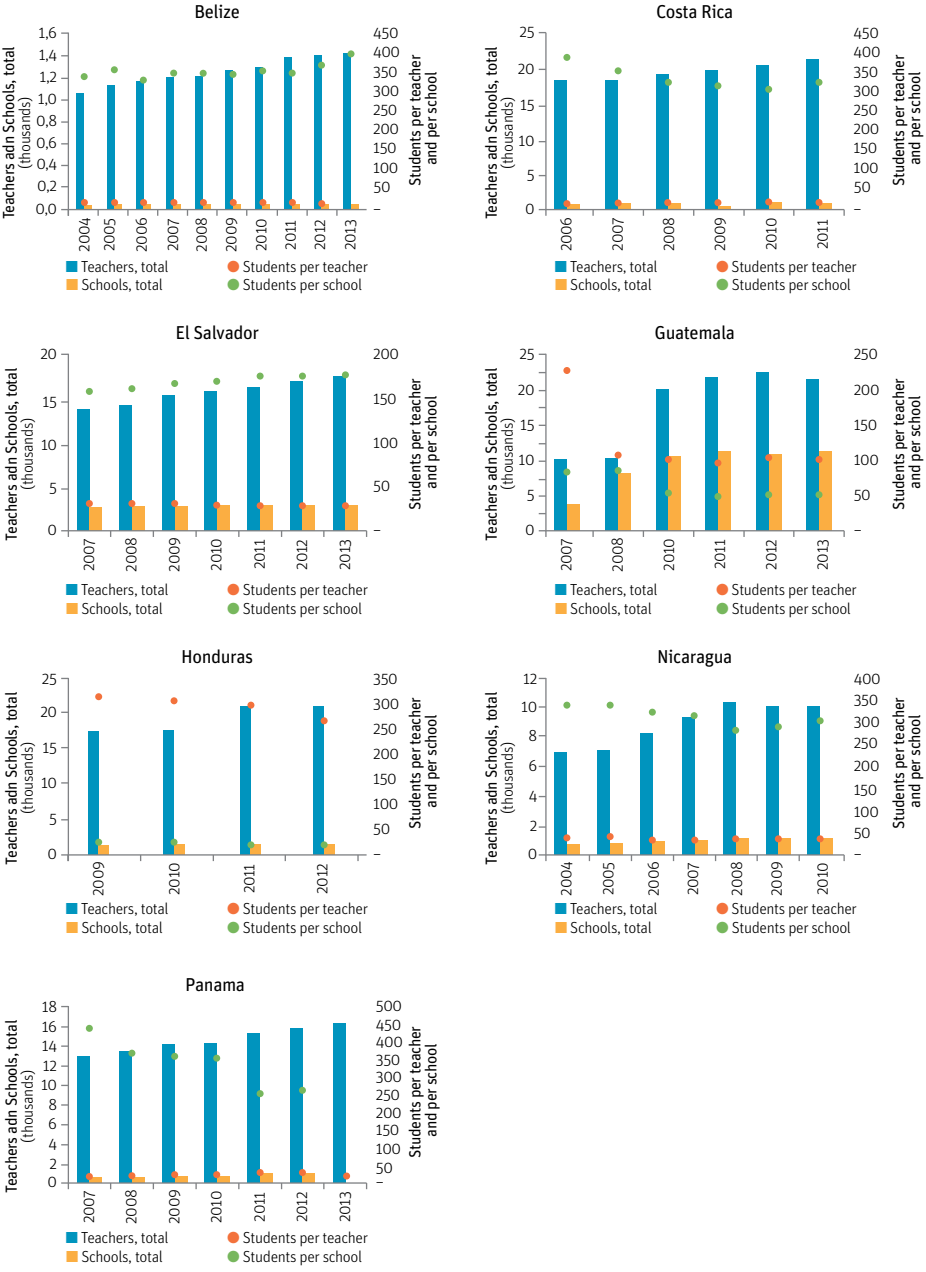
Source: own calculations based on individual country reports.

The number of secondary schools has also increased, particularly in Guatemala, Honduras and Panama. From 2007 to 2013, the number of secondary schools increased by approximately 200% in Guatemala and 92% in Panama. In Honduras, it increased by 89% from 2003 and 2012. In Costa Rica, school numbers increased by 24.5% from 2006 to 2011 in a context of a 7.7% rise in total enrollments, which was reflected in a significant reduction in the average number of students per school. In the same context, all countries saw a reduction in their student-teacher ratio in the last few years (see Figure 3.9). In this respect, the region has shown an improvement compared to other LAC countries. While in 2007 the number of students per teacher was 20.3 in the CAPDR countries and 17.0 in the rest of LAC, by 2013 this ratio was 16.6 in CAPDR and 17.8 in LAC. In OECD countries, the average ratio was 13.9 in 2013, while in LAC it was 16.9 in the same year.

While gross[33] and net[34] enrollments at secondary level have shown a sustained increase over the last decade, they continue to be lower than the levels observed at the primary level. Of the seven countries with information available on this indicator, only Honduras had a gross enrollment ratio at the primary level lower than 100% before 2011. All of the countries except for the Dominican Republic have also shown a downward trend in this variable, which has been particularly pronounced since 2011. In Honduras, for example, this indicator fell from 102% in 2011 to 93% in 2013, while in Guatemala it dropped from 114% to 103% in the same period. Guatemala, despite having reached maximum enrollment ratios in 2009 thanks to the implementation of a conditional cash transfer program, subsequently experienced a drop in these rates due to a lack of expansion in public education delivery, consistent with the increases in enrollment observed. At the secondary level, as shown in Figure 3.10, the gross enrollment ratio has shown a moderate increase since 2006, stabilizing since 2011 at an average of almost 68% in the region. The net ratio, on the other hand, has seen sustained growth in all countries, all of which record an increasing number of students enrolled in secondary schools. However, at this educational level enrollment ratios are lower than at the primary level. In general terms, when students complete their primary studies, their chances of going on to secondary studies are low. This is largely due to early entry into the workforce

[33] The gross enrollment ratio is defined as the total number of students enrolled in primary education, regardless of age, expressed as a percentage of the total primary school-age population.
[34] The net enrollment ratio is the proportion of the number of primary school-age students enrolled in that level, and the total primary school-age population. By definition, the net ratio is never higher than 100%. A ratio of 100% would mean that all primary school-age children are attending school.

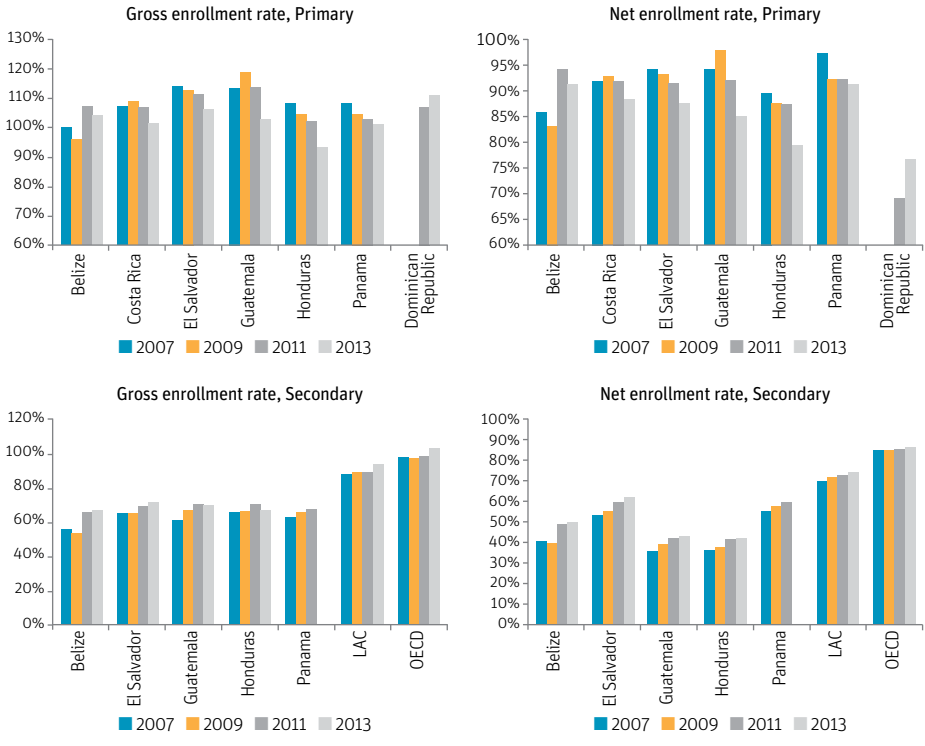
FIGURE 3.9 Number of Primary Teachers and Schools and Number of Students per Teacher and per School



Source: own calculations based on individual country reports.

as a result of unfavorable economic conditions in the home, or otherwise to the limited public education options available in most countries in the region. The number of schools and of teachers has increased, however, at both levels[35] (see Figure 3.10).

FIGURE 3.10 Primary and Secondary Enrolment Ratios



Source: own calculations based on individual country reports.

In terms of total enrollment, most countries have seen a drop at the primary level and a rise at the secondary level. The fall in absolute enrollment in primary schools is due in part to the demographic transition being experienced in the countries of the region, resulting in fewer primary school-age children. In the case of Nicaragua, for example, the demographic changes in the country are associated with the "demographic bonus". This bonus results in a change in the country's age group structures caused by a drop in

[35] Individual country reports (CID, 2015).

mortality and birth rates, and theoretically associated with higher economic growth.[36] The demographic bonus is therefore reflected in a drop in the dependency ratio, involving a lower number of school-age children and a successive reduction in the demand for education in each household, as well as a potential increase in family incomes with growth in the number of working-age people. In the case of El Salvador, violence and insecurity, as well as emigration, have affected teachers and students in the education system, resulting in a reduction in primary enrollments[37] (see Figure 3.11).

FIGURE 3.11 Total Primary and Secondary Enrollment

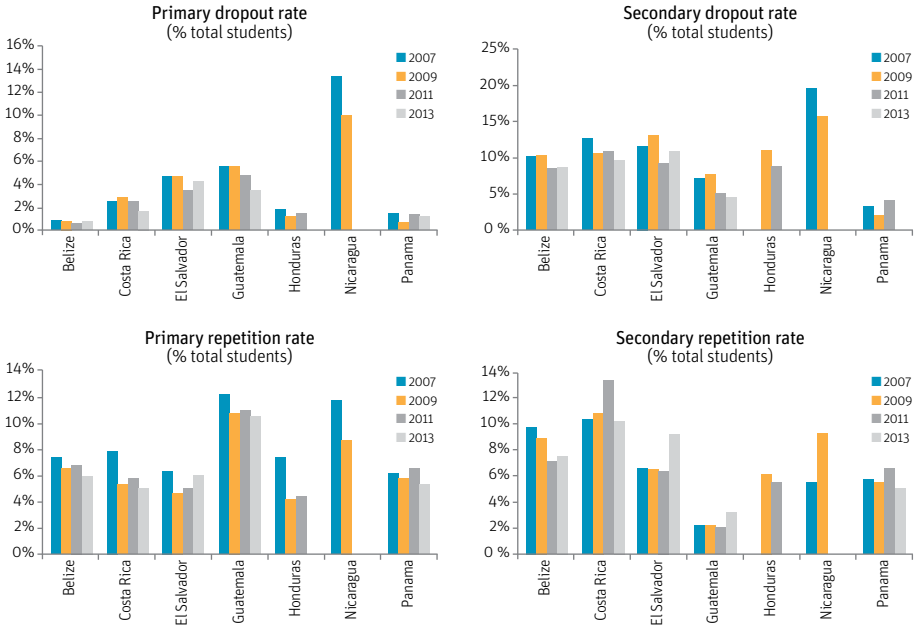
Source: own calculations based on individual country reports.

Despite having fallen from 2007 to 2013, the school dropout rate at the primary level is lower than at the secondary level. While the results vary from country to country, progress is observable in this indicator. Honduras (at secondary level) and Nicaragua (at both levels) are the countries with both the highest school dropout rate and the largest decreases in this indicator. The case of Nicaragua is especially notable, as it has the highest dropout rate at primary level (13.9% in 2006 and 9.4% in 2010), generating a gap with the other countries of the region. Some signs of the causes of school dropouts can be identified in an analysis based on the Encuesta de Medición del Nivel de Vida (EMNV 2009)[38] related to the reasons given for children from 6 to 12, and from 13 to 17 (secondary school age), not attending school. Among primary school-age children not attending school, 32.6% cite economic reasons. The second biggest reason is distance

[36] (Mahmood, 2011).
[37] Individual country study (CID, 2015).
[38] The Nicaraguan Living Standards Measurement Survey prepared every 5 years by the Instituto Nacional de Información de Desarrollo (National Institute for Information on Development), or INIDE.

from school (22.3%), revealing problems with the delivery of education services. On the other hand, Honduras recorded a primary school dropout rate of 1.4% in 2011, one of the lowest in the region, while at the secondary level it has succeeded in reducing the dropout rate from almost 11% in 2009 to 8.7% in 2011, placing it below Costa Rica, whose dropout rate was 10.8% in 2011 (see Figure 3.12). Although the dropout rate is low in Honduras, the factors underlying this rate relate to a worsening of the socioeconomic situation, frequent episodes of ungovernability in the education system, movement and/or migration to other departments of the country, and rural employment cycles (harvest time for coffee, rice, melon, sugar, etc.). In this respect, in the last few years, the country has taken actions to reduce both dropout and grade repetition rates at both educational levels, through school lunches, scholarships, healthy school programs, donations of school supplies and shoes, and other initiatives.

FIGURE 3.12 Reasons for Dropouts and Repetitions



Source: own calculations based on individual country reports.

The proportion of students repeating primary grades has seen a reduction in all countries, except for Nicaragua, while the percentage of students repeating secondary grades has increased in three countries of the region. Guatemala and Nicaragua have the highest primary grade repetition rates in the region, at 10.5% in Guatemala in 2013

and 8.7% in Nicaragua in 2010. On the other hand, Costa Rica is the country that made the biggest progress in this indicator in the period 2007-2013, reporting a primary grade repetition rate of 7.9% in 2007 and 5.1% in 2013. Honduras has reported progress in this indicator as well, with a fall from 7.4% in 2007 to 4.4% in 2011. At the secondary level, El Salvador, Guatemala and Nicaragua have all seen an increase since 2007 in the proportion of students repeating grades, as can be seen in Figure 3.12. Honduras has one of the lowest proportions of students repeating grades in the region, falling from 6.2% in 2009 to 5.6% in 2011, the second lowest rate among CAPDR countries. However, preliminary information for 2013 suggests that the levels of repeating students experienced a rise in Honduras, possibly associated with the severe political instability of the last five years, in which teachers have played a major role with their refusal to adhere to government guidelines and to comply with the minimum standards for school attendance.[39]

Although education coverage and provision have increased, there are significant challenges and areas for improvement in education quality. UNESCO's Third Regional Comparative and Explanatory Study (TERCE)[40] analyzes student performance in third and sixth grades in Latin American and the Caribbean[41] in mathematics, language and science. This study explores the characteristics of students, classrooms and schools associated with the outcomes obtained in each of the areas evaluated. According to the data gathered for this study, most of the participating countries in the region (except for Costa Rica) fell below the average[42] for all countries evaluated both in 2006 and in 2013. In both reading and math tests[43] for third and sixth grades of primary level, the countries of the region showed a slight improvement in their scores from 2006 to 2013, although there is still a gap between their performance and that of LAC as a whole. The only exception is Costa Rica, which was above the LAC average in both years.[44] The Dominican Republic and Nicaragua are among the biggest stragglers in the region (see Figure 3.13). For the

[39] With respect to grade repetition and the government guidelines related to it, the goals of the government plan included a proposition to carry out actions by 2014 to reduce the repetition rate to 0.9% in first to sixth grade and to comply with the established school calendar of 200 days of classes.

[40] The objectives of the TERCE were to analyze student learning in the countries of the region from a comparative perspective (with reference to local curricula) and to report on the variables associated with learning levels.

[41] The countries evaluated were Argentina, Brazil, Chile, Colombia, Costa Rica, the Dominican Republic, Ecuador, Guatemala, Honduras, Mexico, Nicaragua, Panama, Paraguay, Peru, and Uruguay, as well as the State of Nuevo León (in Mexico).

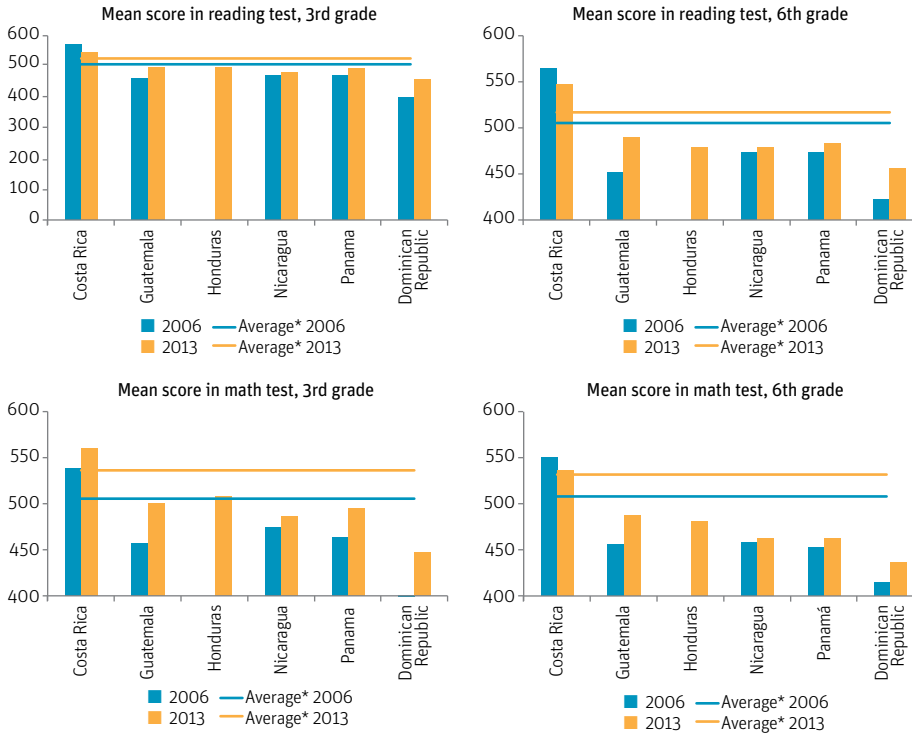
[42] Simple average of non-Central American countries. Includes: Argentina, Brazil, Chile, Colombia, Ecuador, Mexico, Paraguay, Peru and Uruguay.

[43] The data on the science tests is not yet comparable for most counties of the region.

[44] However, it is worth noting that Costa Rica, the only country in the region with PISA tests, shows results in those tests that are lower than expected given the levels of public investment in the education sector.

purposes of comparing countries, the results of the TERCE for its Spanish acronym are analyzed based on four skills levels for each subject. For example, in math a sixth-grade student ranked at Level IV has all the skills required for this level (which include the ability to find averages, identify parallelism and perpendicularity, and solve problems involving properties of angles and fractions), as well as all the skills required for the first three levels. Conversely, at Level I are students who possess only minimum skills in the subjects analyzed. An analysis of the results by level concluded that the countries of Central America, excluding Costa Rica, have the highest proportion of students below Level I, i.e. that do not possess even the minimum skills measured by the test. Moreover, the countries with the lowest proportion of students achieving Level IV are also the countries

FIGURE 3.13 Mean Scores in Reading and Math in the SERCE (2006) and TERCE (2013) Tests



Source: Third Regional Comparative and Explanatory Study, United Nations Educational, Scientific and Cultural Organization. The averages are only for non-Central American countries, including Argentina, Brazil, Chile, Colombia, Ecuador, Mexico, Paraguay, Peru and Uruguay.

of Central America, again with the exception of Costa Rica. Consequently, students in Guatemala, Honduras, Nicaragua, Panama and the Dominican Republic lack more of the skills measured by the test than students in the rest of Latin America[45].

Health sector

An analysis of the services provided by health systems in the region reveals mixed results. On one hand, the number of health professionals[46] for every 10,000 people has increased, particularly in El Salvador and Panama. In El Salvador, this ratio rose from 18.1 in 2010 to 20.9 in 2013, while in Panama it rose from 21.8 in 2007 to 25.4 in 2013. The Pan-American Health Organization indicates that countries with fewer than 25 health professionals per 10,000 people face difficulties in achieving minimum health targets related to the Millennium Development Goals.[47] On the other hand, the number of beds per 10,000 people has stagnated or even fallen for some countries like Belize, where it has gone from 12.8 to 11.1. For reference, in OECD countries the average for this indicator was 20 beds for every 10,000 people, while in Latin America and the Caribbean it was 38 beds per 10,000 people. Finally, the number of healthcare facilities[48] for every 100,000 people has remained relatively unchanged, except in Guatemala, which has seen the biggest increase in the region, rising from 10.5 in 2010 to 13.6 in 2013 (see Figure 3.14).

The evolution of under-five mortality and life expectancy indicators shows improvements. In all the countries of the region, mortality rates among children aged five and under have decreased since 2003, averaging 21.1 per 1,000 children in 2013. In 2003, the average was 30.3 per 1,000 children. Costa Rica continues to display the lowest mortality rate, with 9.6 per 1,000 live births; it also shows the smallest improvement,

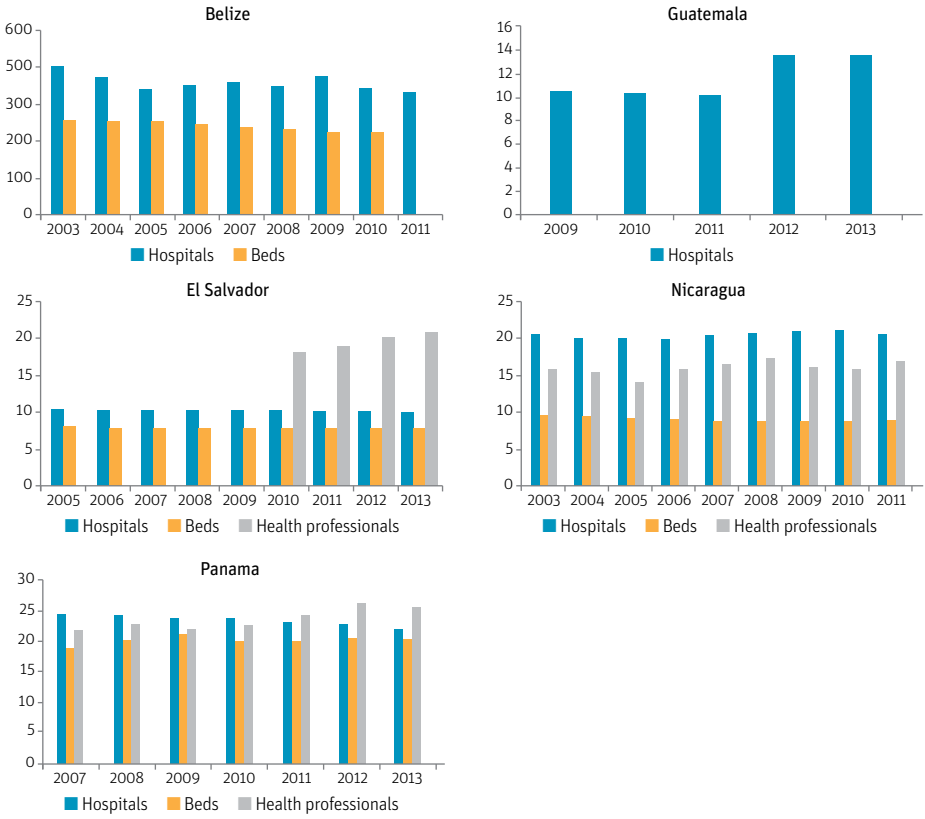
[45] Similar studies on secondary student performance including students in the Central American region are not available. In the last PISA test (2012), the only country in the region to participate was Costa Rica, whose average performance in reading, math and science was 441, 407 and 429 points, respectively, below the OECD average of 496, 494 and 501 points in these three categories. Panama, on the other hand, participated in the PISA test for 2009. Its average performance in reading, math and science was 371, 360 and 376 points, respectively, compared to 493, 496 and 501 points for OECD countries in the same categories.

[46] Number of physicians, including general practitioners and medical specialists, for every 10,000 people.

[47] Handbook on Measurement and Monitoring. Indicators of the Regional Goals for Human Resources for Health. (PAHO, May 2011). It should be noted that although the World Health Organization's *Joint Learning Initiative* (JLI) establishes a threshold of 25 health professionals per 10,000 people, a minimum of 23 professionals is considered acceptable.

[48] Number of hospitals (including rural, provincial, specialist, teaching and research hospitals) in both the public and private sectors for every 100,000 people.

FIGURE 3.14 Number of Healthcare Facilities (per 100,000 People), Hospital Beds and Health Professionals per 10,000 People



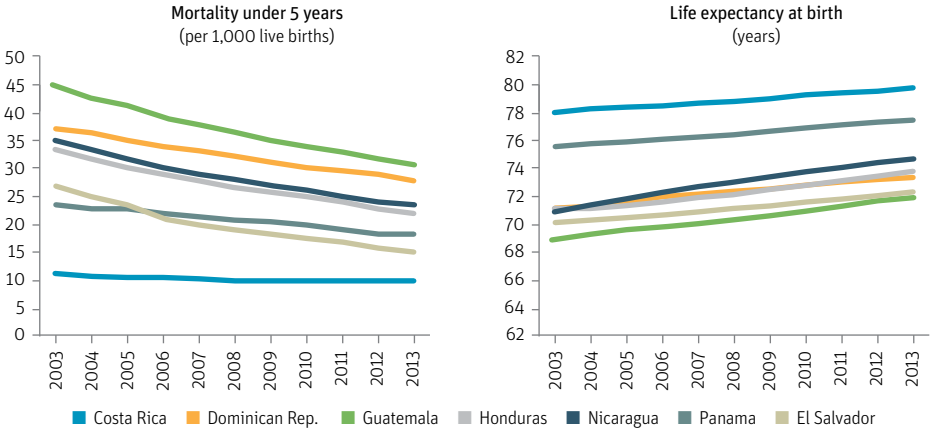
Source: own calculations based on individual country reports.

partly due to its initially low level. In contrast, Guatemala[49] has achieved a considerable reduction in this indicator, from 44.9 to 31 deaths per 1,000, although it is still the country

[49] In Guatemala, although year on year more underweight births are reported and vaccination coverage has deteriorated, mortality rates in children from one to five years of age have shown a different trend. At the national level, 25.6 deaths were recorded for every 1,000 live births, with the Department of Guatemala being the subnational region with the highest level observed. In 2013, of the causes identified for deaths of children under 1 year of age, half related to problems associated with pneumonia (26.4%), respiratory difficulties (9.3%), neonatal sepsis (8.5%), diarrhea and gastroenteritis of presumed infectious origin (7.1%) or congenital pneumonia (6.7%). For deaths identified among children from 1 to 4 years of age, pneumonia was also the top cause, responsible for 27.5% of total deaths. Meanwhile, complications associated with diarrhea and gastroenteritis of presumed infectious origin were the second biggest cause of death, representing at least one fifth of total deaths with identified causes. Both causes, which together account for nearly half of the total number of deaths, are associated with problems of malnutrition, and are preventable.

with the highest under-5 mortality rates in the region. Panama[50] and El Salvador have also progressed in this indicator, showing the lowest rates of all after Costa Rica, at 17.9 and 15.7, respectively, in 2013. However, in the last few years, El Salvador[51] has achieved lower rates than Panama. The other countries[52] have also achieved reductions in this indicator, although their rates are still between 20 and 30 per 1,000 live births (see Figure 3.15). It is worth noting that in 2013 this indicator was 18.9 deaths per 1,000 children in Latin America and the Caribbean, while in OECD countries it was 7.5 deaths. On the other

FIGURE 3.15 National Health Indicators



Source: World Development Indicators (World Bank, 2015).

[50] In Panama, child mortality data at the provincial level reveals a different reality, as the most serious cases are three to six times as prevalent as those observed both at the national and Central American levels. According to the most recent health indicators prepared by the Pan-American Health Organization (PAHO 2014), Panama has the second lowest under-five mortality rate in Central America (24.0), and is around one point below the Latin American average (19.4).

[51] In El Salvador, the biggest improvement has been in the under-five mortality rate, which fell from 26.9 deaths per 1,000 live births in 2003 to 15.7 in 2013; however, the annual reductions seen in this rate have been more modest over the course of the decade.

[52] In the Dominican Republic, child mortality (probability of death at 5 years of age) has been practically cut in half (-48%). According to the MDG report, the biggest cause of child death is sepsis, which is responsible for 87% of deaths among children. Moreover, a comparison of the 33 countries of Latin America and the Caribbean places the Dominican Republic in fifth place among the highest under-5 mortality rates for 2002, and it held the same position in 2007. In 2013, in spite of an 18% reduction in the rate, the Dominican Republic had the fourth highest mortality rate among LAC countries. In Nicaragua, the reduction in infant and child mortality (under 5 years of age) has been notable. The child mortality rate (number of deaths among children under five for every 1,000 live births) fell from 41 in 2006 to 25 in 2012. According to the ENDESA (Nicaraguan Demographic and Health Survey) reports for 2006/07 and 2011/12, the national reduction in the infant mortality rate is the result of vaccination programs and expanded access to healthcare services. In Honduras, a significant reduction is observable in infant mortality; however, the country still has higher levels than El Salvador, Panama and Costa Rica.

hand, all of the countries show a considerable increase in life expectancy at birth, with Costa Rica[53] and Panama leading the region, with life expectancies of 79.9 and 77.6 years, respectively. On average in the region, this indicator reached 74 years in 2013. However, there is still a gap between these two countries and the rest of the region.[54] The average life expectancy in OECD countries is 80 years, while the average for Latin America and the Caribbean is 74.9 years (see Figure 3.15).

Although the evolution of the main social indicators for the region have shown quite different results in each country, significant progress is observable over the past decade; however, there are still gaps to be closed to catch up with the rest of LAC. With the exception of Costa Rica, and in some cases Panama, the region continues to fall below the average for the LAC region as a whole in the most important social indicators. Indeed, some countries have regressed, in spite of commitments made by their governments in various international meetings and forums to improve their outcomes. This section documents the main national trends; however, the real heterogeneity of outcomes is revealed by the territorial differences within each country. It is precisely these differences that will make it possible to identify the areas for improvement in public spending efficiency at subnational levels. The next section explores this question in greater detail.

IDENTIFYING TERRITORIAL HETEROGENEITY IN THE MAIN EDUCATION AND HEALTH INDICATORS

Although the above discussion offers an initial overview of the progress made in the region, it fails to explore the heterogeneity and disparities found within each country. In this respect, it is worth highlighting that even when countries have improved certain social sector indicators at a national level, this is not the case when the data is disaggregated to the territorial (i.e. subnational) level.

In terms of service delivery, the student-teacher ratio in primary and secondary schools shows very little territorial dispersion within countries, except in Honduras. This country has the student-teacher ratio with the greatest territorial dispersion in the region at both educational levels. At the primary level, Ocotepeque Department has 7.4 students per teacher, while the Intibucá Department has 74.7 students per teacher. At secondary level, Guatemala has the highest student-teacher ratio in the region, with Guatemala Department (the nation's capital city) having the highest ratio within the

[53] In Costa Rica, life expectancy at birth remained basically unchanged from 2004 to 2013, while healthy life expectancy improved, reaching around 79 years at the national level. Healthy life expectancy showed an improvement in the last ten years, rising from 67 nationally in 2000 to 69 in 2012, according to estimates by the World Health Organization (WHO).

[54] In Nicaragua, life expectancy at birth has increased, averaging 77.66 for women and 71.51 for men in 2013. Extraordinary progress has been made in Honduras, where this indicator for 2013 was 74, higher than in the Dominican Republic, El Salvador and Guatemala.

country (82.4). This is partly explained by the limited availability of public education, as the places available for secondary students are slightly less than one fifth the number of places available at the primary level.[55] Also notable is the case of Belize, which has the least territorial dispersion in this indicator, recording a difference of only 1.8 students per teacher between the departments with the highest and lowest student-teacher ratios in the country (see Figure 3.16). In terms of qualified teachers,[56] Nicaragua faces significant challenges at the territorial level, particularly in the Caribbean coastal zone (RAAN and RAAS regions[57]), where the percentage of qualified primary teachers is less than 65%. More worrying still is the situation at the secondary level, as only 26% of teachers in the RAAS region hold formal qualifications.

On the other hand, the ratio of students per school at both primary and secondary levels shows a higher level of territorial dispersion, with Honduras and Panama being the countries with the widest subnational variations in this indicator. In general terms, Guatemala and Belize have the highest ratio of students per primary school, with an average of 232.5 and 129.9 students per school, respectively, while El Salvador and Panama show the widest internal variations in this indicator, with departments with ratios as low as 48.4 and 50.5, respectively, and other departments with ratios of students to school of 186.2 and 297.9, respectively. In the case of secondary schools, Honduras and Panama have the widest territorial variations in the indicator, with maximums of 1,529.4 and 501.2, respectively and minimums of 42.9 and 46.0, respectively. Costa Rica, Belize and Nicaragua have the departments with the highest ratios of students per school in the region, with average levels of 784.4, 546.6 and 475.8, respectively (see Figure 3.16).

Primary and secondary dropout rates[58] show considerable territorial dispersion between countries, with Nicaragua having the department with the highest rates in the region. For example, at the primary level, the department of Chalatenango in El Salvador, which is the department with the highest student dropout rate in the country, is at the same level as the average department in Nicaragua. Moreover, the highest dropout rate at both educational levels is found in Nicaragua's Caribbean coastal region, which has historically been the region with the biggest developmental challenges in the country,

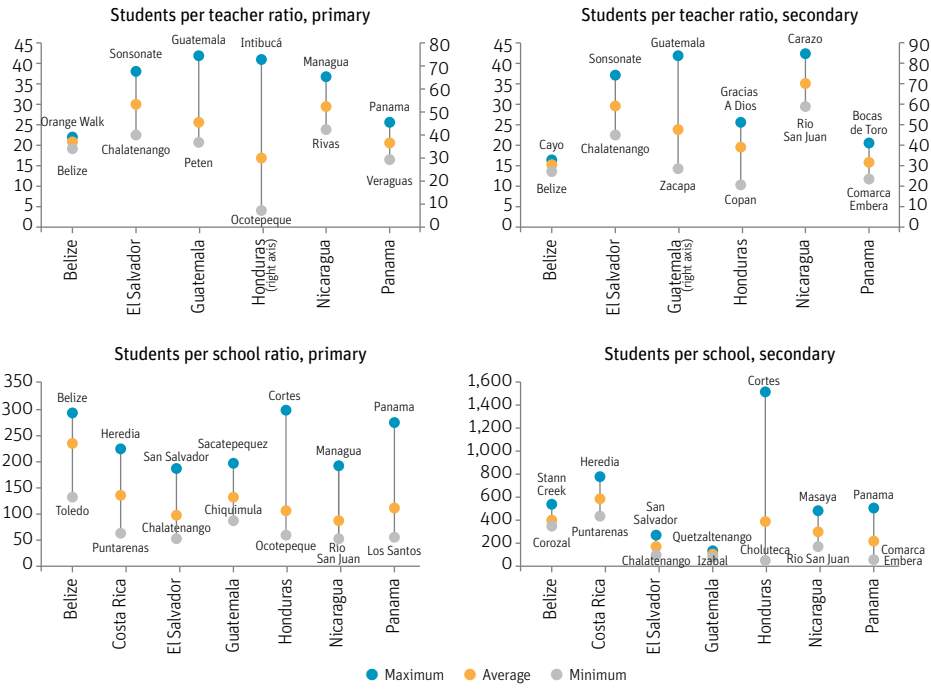
[55] In Guatemala, the private sector absorbs almost 80% of secondary school enrollments and a much smaller proportion at the primary level (Education Sector, IDB, 2015).

[56] Teachers are considered "qualified/certified" when they hold a university qualification, which may be a secondary teaching degree, an advanced diploma or a bachelor's degree in education. These programs train and certify teachers in the pedagogy and content required to teach classes at different educational levels. On the other hand, teachers are deemed "experiential" when they do not have this certification; i.e. when they have not pursued or completed studies in education. Thus, a high school graduate or person with an engineering degree who teaches classes in a primary school would be classified "experiential" (Laguna, 2005).

[57] RAAN = Región Autónoma del Atlántico Norte (North Atlantic Autonomous Region); RAAS = Región Autónoma del Atlántico Sur (South Atlantic Autonomous Region).

[58] Data to 2013. (Individual country reports, CID, 2015).

FIGURE 3.16 Ratio of Primary and Secondary Students per Teacher and per School



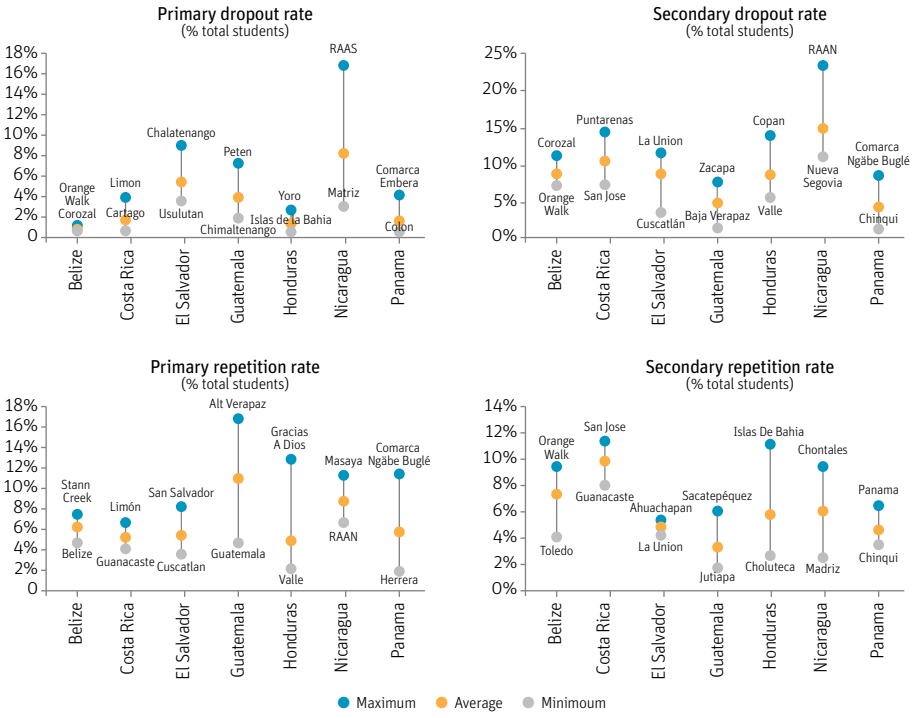
Source: own calculations based on individual country reports.

and with the highest poverty levels. Although a reduction in the dropout rate is positive news, it is important to bear in mind that a progressive reduction in the enrollment ratio can generate an illusory effect that translates into fewer dropouts: in relative terms, the number of students enrolled is falling, and it is therefore likely that the total number of dropouts will also fall.

The number of students repeating grades at primary and secondary levels as a proportion of total students in those levels shows the widest territorial variations in Guatemala and Honduras. At the primary level, Guatemala has the department with the highest percentage of students repeating grades: Alta Verapaz, with 16.8% of the total number of students at this educational level in 2013. This proportion is higher than the percentage for this department in 2007, which was 16.0%. Alta Verapaz is the only department in the country for which this indicator has worsened. Moreover, the departmental average in Guatemala is the highest in the region, at 10.9% of the total number of primary students. Also notable is the case of Honduras, which has the department with the lowest repetition rate (Valle, with 2.0%), but also the department

with the second highest repetition rate (Gracias a Dios, with 13%). At the secondary level, Costa Rica, and in particular the province of San José, has the highest repetition rate (11.5%) of all departments of all the countries in the region. Honduras, on the other hand, has the widest range of repetition rates (see Figure 3.17), with a difference of 8.6 percentage points between the department with the highest rate (Islas de Bahía, with 11.2%) and the department with the lowest (Choluteca, with 2.7%). In Guatemala, at the secondary level, the repetition percentages reflect the deterioration of the achievement tests.[59] From 2007 to 2013, all Guatemala's departments recorded a rise in repetition rates.

FIGURE 3.17 Student Dropout Rate

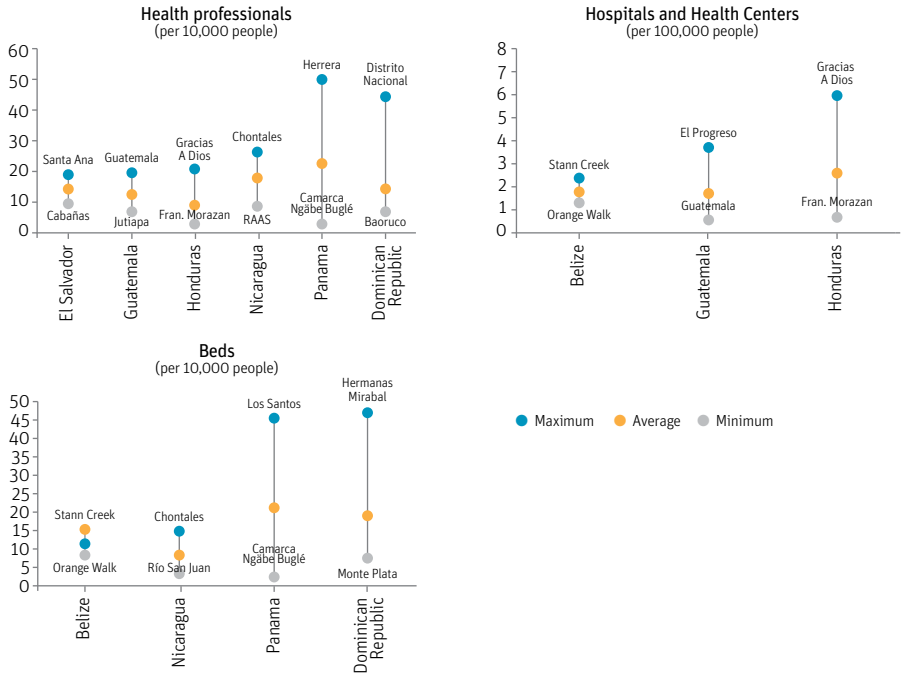


Source: own calculations based on individual country reports.

[59] One possible explanation for this deterioration is the fact that in 2008 the country began an expansion of lower secondary education through various modes of delivery: the Telesecundaria distance education program, the Nufed and Cemucaf programs, the formal education system, and scholarships for private schools. Not all these programs have the same results and educational efforts can be diluted by the use of multiple modes. However, the Ministry of Education, through the Dirección General de Calidad Educativa (General Directorate of Educational Quality), or DIGEDUCA, has not produced an official document explaining this deterioration (individual country study, CID, 2015).

The delivery of health services, measured by the number of health professionals, healthcare facilities and beds, shows a moderate level of variation at the departmental level, except in Panama and the Dominican Republic. Although the lower level of territorial variation is reflected in the number of healthcare facilities, there are considerable gaps between the countries analyzed. Thus, the Honduran department with the highest proportion of healthcare facilities (Gracias a Dios with 5.9 hospitals per 10,000 people) has more than twice the proportion observed in Belize, whose highest ratio is 2.3, in Stann Creek District. On the other hand, the proportion of health professionals and beds is characterized by wide subnational variations in Panama and the Dominican Republic, where the highest levels are in Herrera in Panama and Distrito Nacional in the Dominican Republic with 49.8 and 44.0, respectively (see Figure 3.19). If the standard recommended by the PAHO of 25 health professionals per 10,000 people is taken as a reference, we find that 100% of the departments of El Salvador, Guatemala and Honduras fall below this threshold, while 90% of departments in Nicaragua, Panama and the Dominican Republic also fail to meet this recommendation.[60]

FIGURE 3.18 Human and Physical Resources in the Health Sector



Source: own calculations based on individual country reports. 2013 data, except for Belize (2010), Costa Rica (2011) and Nicaragua (2012).

[60] In Nicaragua, only 1 out of 15 departments and 2 autonomous regions meet the standard, while in Panama the proportion is 4 out of 11 departments and in the Dominican Republic 1 out of 32 departments.

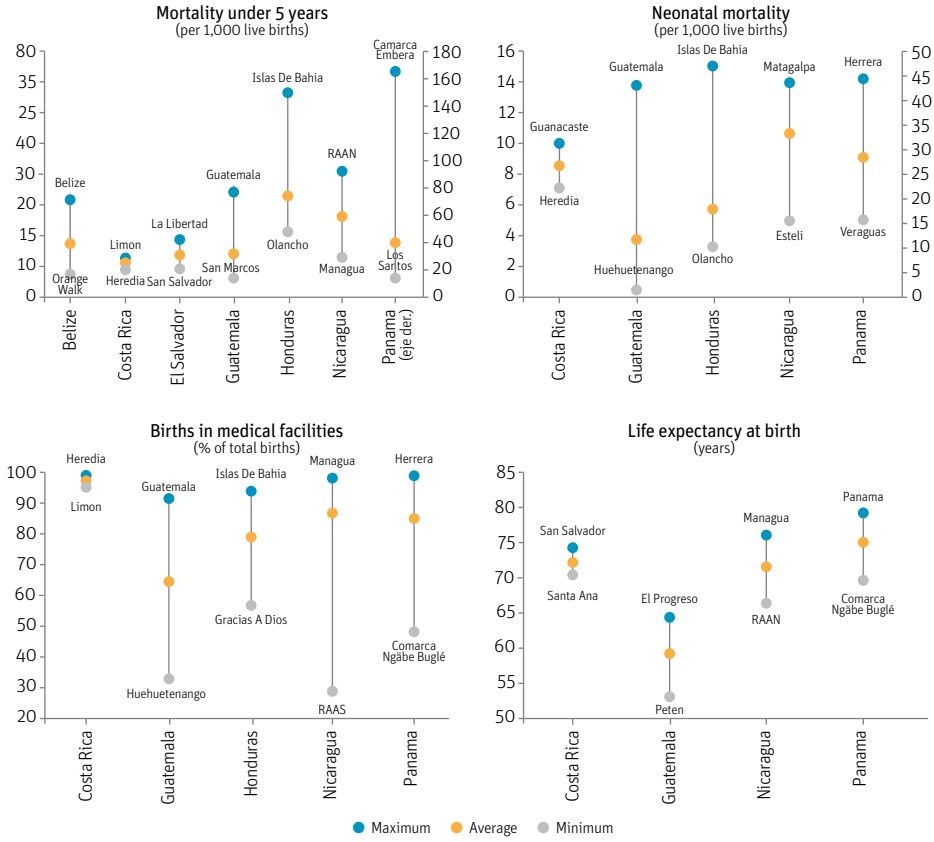
Subnational indicators for child and infant mortality reveal considerable territorial dispersion in all countries, with Panama being the country with the widest range of values in the first indicator and Honduras in the second. In this context, the dispersion in the case of Panama is clear, as some of its departments have the highest child mortality rates (under five) in the Central American region, while others record the lowest levels in this indicator. Costa Rica, meanwhile, once again leads the region, with the lowest child mortality rates at departmental levels. With respect to the infant mortality indicator (number of infants who die in their first year of life for every 1,000 live births), Honduras has the department with the highest rate (Islas de Bahía), with 47 deaths per 1,000 live births, while it also has one of the departments with the lowest infant mortality rate (Choluteca, with 10 deaths per 1,000 live births).[61] Although Honduras has been implementing neonatal care standards since 2010, there continue to be pronounced departmental disparities, with several departments well above the national average, and rates in some departments even worsening in recent years.

The percentage of births in medical facilities in the departments of the region is on average higher than 70%; however, some departments in Guatemala and Nicaragua have percentages barely over 30%. Nicaragua's South Caribbean Coast Autonomous Region has the lowest percentage of births in medical facilities, with 29.1%, while Managua is close to 100%. This dispersion is also evident in the case of Guatemala, where Huehuetenango Department has the lowest percentage in the country, with 32.8%. In Costa Rica, on the other hand, all departments have percentages of births in medical facilities above 95%

Lastly, life expectancy at birth shows similar levels among departments in every country except for Guatemala. There are departments in Panama whose populations have an average life expectancy of 80 years, while in Guatemala there are departments where it barely exceeds 50 years. It is interesting to note that Nicaragua's North Atlantic Autonomous Region (RAAN), which is lagging significantly behind in terms of development and has the lowest life expectancy in the country, nevertheless has a higher life expectancy at birth than the highest level in Guatemala. It is also worth noting that most of the national averages in the region are around 70 years (see Figure 3.19).

[61] The level recorded in Islas de la Bahía is atypical of Central America, suggesting a need for an in-depth study of its causes.

FIGURE 3.19 Health Indicators



Source: own calculations based on individual country reports.

EFFICIENCY OF SOCIAL SPENDING: A TERRITORIAL PERSPECTIVE

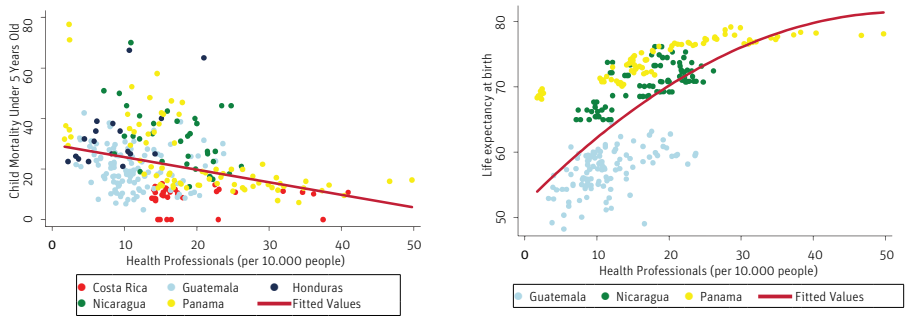
It is essential to assess the efficiency of social spending in order to determine how governments are using one of the most important tools for achieving improvements in social indicators. Although there are previous studies that document the relationship between inputs and outputs in Central American countries for different components of public expenditure (Izquierdo *et al.* 2013; Corbacho and Davoodi, 2002), such studies have been limited to comparisons between countries, while overlooking the question of the heterogeneity existing within each country. To fill this gap, the rest of this chapter will offer a preliminary analysis of the efficiency of public spending from a territorial perspective; i.e. analyzing information at the level of subnational departments on public expenditure in the education and health sectors and outcomes in each sector. To make

the comparison and ensure the most representative picture possible of each country, we use information on territorial distribution of inputs (teachers, medical professionals) rather than budget execution levels.[62] This approach is also justified by the fact that the wage component is the biggest component of expenditure in both sectors (see Chapter 2). Finally, it is important to note that the focus is on a limited number of output measures that are available for most (if not all) of the countries of the region: dropout and grade repetition rates at different educational levels, and the child mortality rate in the case of the health sector.

EFFICIENCY OF EXPENDITURE AT THE TERRITORIAL LEVEL: A PRELIMINARY ANALYSIS

In the case of health, in aggregate, child mortality (life expectancy) tends to be lower (higher) in regions with a higher number of health personnel (see Figure 3.20). However, it should be noted that similar health outcomes are achievable at very different levels of spending. For example, it is possible to achieve the average child mortality rate during 2007-2013 (21) with a range of 3 to 30 medical professionals (per 10,000 people). At the same time, the same level of inputs is associated with a wide range of outputs. For example, the average number of medical professionals in the same period is associated

FIGURE 3.20 Health Inputs and Outputs (2007-2013)



Source: own calculations based on individual country reports.

[62] For the countries for which we have information on budget execution and inputs, a strong correlation is observable in the expected direction between these variables. For example, in the case of primary education in Costa Rica, the correlation between expenditure per student and the student-teacher ratio is -0.83, while in the case of El Salvador, the correlation coefficient is -0.77. In the case of health, the correlation between per capita expenditure and the number of medical professionals is 0.65 in Honduras. Although it is important to be able to quantify cost differentials at the territorial level, information on this dimension is not readily available.

with life expectancy levels ranging from 50 to 75 years. Lastly, within the countries analyzed, in no case was the number of medical professionals a significant determining factor in health outcomes, after controlling for the passage of time and fixed effects by department (see Annex 1).

A similar outcome is obtained in primary education, where the student-teacher ratio at the departmental level is not linked to dropout or grade repetition rates over time (see Figure 3.21).[63]

TABLE 3.1 Primary Education Inputs and Outputs: Panel Data Regressions (2005-2013)

Country	Belize	Costa Rica	El Salvador	Guatemala	Honduras	Nicaragua	Panama
Output				Dropout Rate (Primary)			
Students per teacher (Primary)	-0.055	-0.241	0.192	0.004	-0.003	0.314	0.164
	-0.044	-0.164	-0.149	-0.055	-0.011	-0.224	-0.777
Output				Dropout Rate (Primary)			
Students per teacher (Primary)	-0.468	-0.0922	-0.0766	0.0921	-0.0149	0.1556	-0.8618
	-0.042	-0.185	-0.117	-0.069	-0.023	-0.012	-0.012
Fixed Effects (Department)	YES	YES	YES	YES	YES	YES	YES
Fixed Effects (Time)	YES	YES	YES	YES	YES	YES	YES
Observations	60	49	98	154	126	119	84
Number of Departments	6	7	14	22	18	17	12

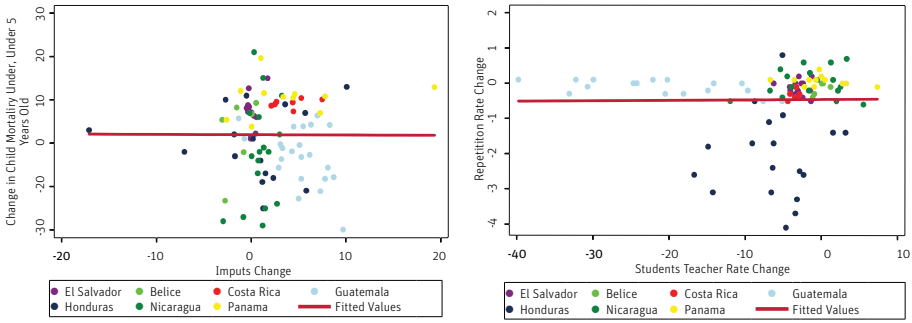
Standard errors in parenthesis

***p<0,01; **p<0,05; *p<0,1 (*Note*: coefficients multiplied by 100).

Secondly, in the universe of nearly 100 departmental districts analyzed, the number of inputs (physicians or beds) increased by 80% from 2006 to 2013. However, child mortality fell in only half of the districts that benefited from increased spending. At the same time, mortality also fell in districts where inputs suffered reductions, suggesting no relationship between increased inputs and changes in health outputs (see Figure 3.21). A similar situation is observable with the spending dynamic and educational outcomes. In the same period of analysis, 80% of the districts saw reductions in the student-teacher ratio. However, nearly 40% of those districts experienced increases in dropout rates. Therefore, as in the case of health, the relationship between educational inputs and outputs tends to be weak (see Figure 3.21).

[63] It is generally expected that a higher level of inputs (teachers) and the consequent reduction in the student-teacher ratio will have a positive impact on educational results (lower grade repetition and dropout rates). In the case of secondary education, the coefficient of the student-teacher variable is significant for the expected direction in only two countries, and runs contrary to expectations in another two, where the dependent variable is the grade repetition rate (see Annex 2)

FIGURE 3.21 Changes in Health and Education Inputs and Outputs (2006-2013)



Source: own calculations based on individual country reports.

EFFICIENCY OF EXPENDITURE: FRONTIER ANALYSIS

The above analysis shows that health and education outputs bear little relation to public expenditure levels or changes, measured in terms of territorial distribution of physical and human inputs. In order to quantify the opportunities available for increasing efficiency of expenditure at the territorial level, a Data Envelopment Analysis (DEA) was conducted, involving the definition of efficiency based on the relative distance between current performance and a frontier that represents the optimal combinations between inputs and outputs.[64] This analysis is by nature comparative. In this case, the performance of each department or district is compared with the other districts within the same country. The analysis produces an efficiency index ranging from 0 to 1, indicating how far the department in question is from its potential. This result, when input-oriented, indicates that current production is achievable using x% of the inputs employed. In turn, when the result is output-oriented it indicates how much (1-x%) the result could be improved, given current inputs.[65] Frontier methods like DEA (and other similar techniques) are not unproblematic, and therefore the results need to be interpreted with caution. The main limitation is that the analysis attributes the distance from the frontier exclusively to a problem of efficiency, omitting environmental factors that are beyond the control of the decision makers but that have the potential to affect spending productivity (Álvarez Parra and St. Aubyn, 2012). In spite of these limitations, DEA is useful for an initial identification of potential problems of inefficiency in public expenditure and is the most common method used in the literature

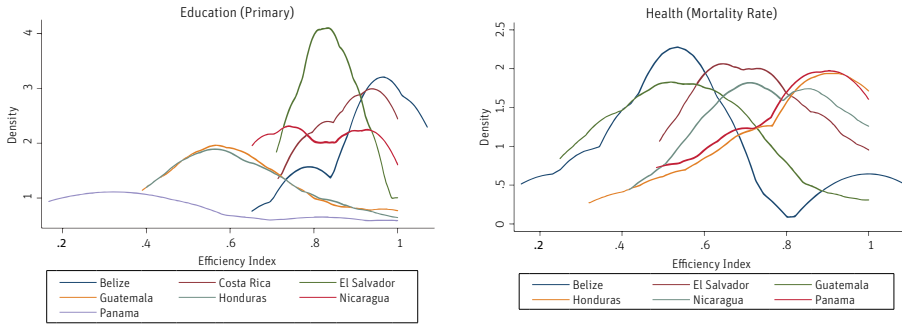
[64] For further details on technique, see Herrera and Pang (2005).

[65] In the exercises that follow, output-oriented efficiency indexes have been measured. In the case of education, two outputs are used simultaneously (dropout and grade repetition rates), while in the case of health, child mortality rates are used.

to estimate efficiency at both national and subnational levels in different sectors (IMF, 2015; Afonso *et al.*, 2010; Herrera and Pang, 2005).

Based on information on inputs and outputs for the period 2007-2013 in 96 districts, it was found that on average the opportunities for improving efficiency of social expenditure at the territorial level are extensive.[66] In the cases of health and education, the districts show an average efficiency of 0.73 and 0.72, respectively, suggesting that with the same level of public inputs, a typical district could reduce its dropout/repetition rates and child mortality rates by more than 25%. These averages in turn conceal a high level of territorial heterogeneity, with wide variations in efficiency levels within each country. For example, nearly 60% of the districts show considerably low efficiency levels (below 0.8). More detail on this is given in Annex 3, which presents the frontiers for each country and sector, identifying the departments with the most and least efficient spending.

FIGURE 3.22 Public Expenditure Efficiency Indexes by Sector and Distribution

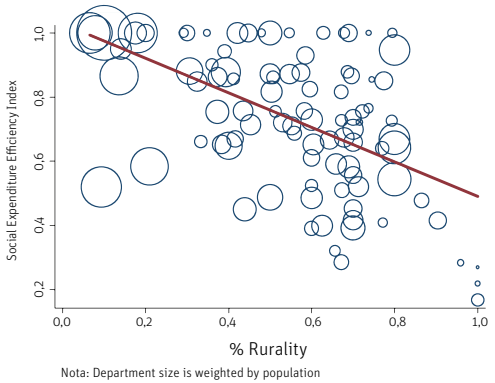


Source: own calculations based on individual country reports.

Among the socioeconomic factors determining efficiency levels, it was found that the most predominantly rural districts tend to have lower spending productivity indexes (see Figure 3.23). For example, an increase in levels of rurality of a standard deviation from the mean is associated with reductions of 15% in the efficiency index for spending on primary education.

[66] To obtain efficiency indexes, older information on inputs was combined with the latest data available on outputs. For example, to calculate efficiency in the health sector, the output used was the child mortality rate in 2013, while the information on inputs (medical professionals) used was the average for the period 2007-2012 (see Annex 4).

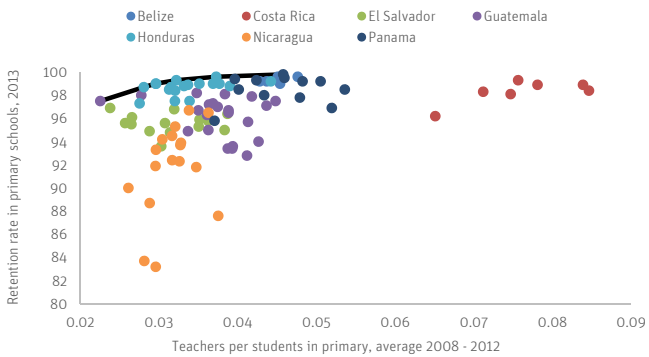
FIGURE 3.23 Rurality and Efficiency of Education Expenditure (Primary)



Source: own calculations based on individual country reports.

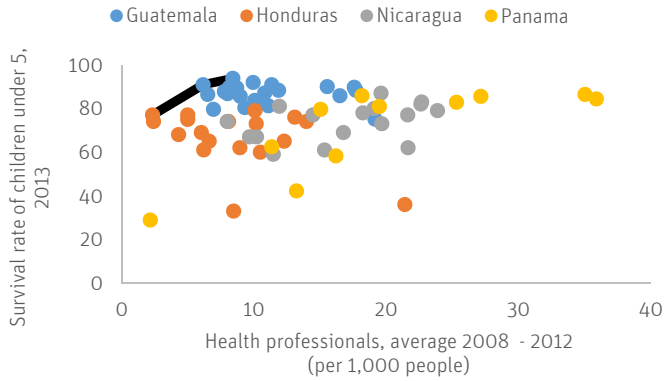
Until now, efficiency has been measured in separate or individual fiscal years for each country. However, given the homogeneity of the available data, it is possible to construct a single efficiency frontier which, irrespective of the country of origin, allows comparison of spending productivity between the different districts of Central America.[67] This analysis offers the opportunity to examine input and output levels in the districts of each country from a broader comparative perspective. For example, the frontier in health is defined by three districts: Francisco Morazán (Honduras), and San Marcos and Huehetenango (Guatemala). In the case of education, 11 districts in Honduras, Guatemala and Panama offer the most efficient input-output combinations (see Figures 3.24 and 3.25).

FIGURE 3.24 Aggregate Efficiency Frontiers in Education



[67] In robustness exercises, the indexes were recalculated with the same inputs and outputs, but adding an environment variable: % of urban population. The correlation with the original index is 0.95 in the case of education and 0.8 in the case of health.

FIGURE 3.25 Aggregate Efficiency Frontiers in Health



POLICY OPTIONS TO IMPROVE SOCIAL SPENDING EFFICIENCY AND THE UNFINISHED AGENDA

The traditional approach to the achievement of better outputs in the social sectors has usually been based on the provision of additional inputs (schools and hospitals) or human resources (teachers and doctors). However, changes in physical inputs and human resources are not generally accompanied by better outputs (Glewwe *et al.*, 2012; Bruns *et al.*, 2011; Filmer and Pritchett 1999). As documented in the previous section, this outcome is also observable in the countries of Central America and the Dominican Republic, where there are wide variations at the subnational level in the productivity of the inputs used. Why is there such a weak correlation between expenditure and the quality of educational and health services? What are the most promising programs that could help improve spending efficiency and effectiveness? What are some of the preconditions for their implementation?

Common weaknesses in the educational and health service supply chain

On the basis of the key factors of the production function (see Section 1.1), recent literature on successful or unsuccessful programs in terms of learning or health outcomes shows that the provision of additional physical inputs, in the absence of complementary mechanisms oriented toward improving the efforts and/or competencies of front line service providers, does not contribute to improving outputs (Todd and Svensson, 2013). Therefore, improving spending efficiency firstly requires a change of approach, paying particular attention to the structure of the incentives offered to the different actors,

providers and final users involved in the provision and consumption of services. In particular, several studies have identified a series of deficiencies in the public service supply chain that explain why additional public expenditure does not necessarily produce better outcomes.

First of all, monetary resources (e.g. the budget) do not always successfully reach the centers where front line services are provided. Different studies have used tools such as Public Expenditure Tracking Surveys (PETS) to track the flow of financial resources, and have found significant discrepancies between the resources originally transferred to schools and healthcare facilities and those effectively received (Reinika and Svensson, 2004; Gauthier and Wane, 2009). Such discrepancies are in turn associated with lower levels of services offered to the community,a lack of essential inputs and, in some cases, worse outcomes, e.g. lower learning levels (Ferraz *et al.*, 2012). In general, vulnerable groups are the hardest hit by the lack of transparency and accountability, highlighting the importance of providing information to ensure greater efficiency in the use of public resources (Keefer and Khemani, 2005).

Secondly, even when essential inputs are not lacking, the effort made by educational and health service providers is not always adequate. One measure of the effort made by providers is the level of absenteeism from schools or medical clinics. In a study on six developing countries, it was found that on average 20% of teachers and 35% of physicians were absent from work when unannounced visits were performed (Chaudhury *et al.*, 2006). In the case of education, there is evidence of the negative impact that teacher absenteeism has on learning levels at school, in both developed and developing countries (Miller *et al.*, 2007; Duflo *et al.*, 2012).

Thirdly, even assuming a workforce present in the schools or medical clinics, the time spent in the classroom or hospital may be used for matters other than teaching or patient care. Using a standardized observation instrument that makes it possible to take a "snapshot" of the class and generate data that can be compared between countries on relative teacher efforts, it was found that none of the school systems in Latin America and the Caribbean come close to the instruction times associated with higher levels of learning (Bruns and Luque, 2014).[68] In the case of health, efforts made by medical personnel in developing countries (measured by the average time or duration of a medical visit or the number of questions asked by personnel) vary dramatically, are not associated with the severity of the condition and, in some cases, are partly explained by the institutional affiliation (public/private) of personnel (Das y Hammer, 2005). Lastly, if we add the question of the quality of key personnel to the issue of effort or incentives, it becomes clearer why a change in inputs does not always produce the outputs desired.

[68] The reference value establishes a parameter of 85% of total class time dedicated to instruction. In Latin America, this value ranges from 50% to 65%.

Options for improving efficiency of social public expenditure: international evidence

Given that the productivity of public expenditure depends on the interrelationships between physical inputs and levels of effort and competence of the human resources, any attempts to improve spending efficiency limited to taking action on one specific dimension may have only a limited impact on outputs. With this in mind, the new public policy approaches that are being designed tend to combine initiatives which, on the one hand, affect the structure of incentives for service providers to improve their levels of effort and competence and, on the other hand, provide the public with tools for accessing information on the quality of the services received, thus implementing measures aimed at improving the accountability of providers and politicians. In general, these types of programs focus on the key point of intersection between provision and consumption of education and health services.[69]

First, there is room for experimentation with the introduction of new monetary incentives to improve the productivity levels of the personnel concerned. For example, mechanisms such as payment by results (PBR) constitute a tool with the potential to improve the efficiency and quality of services. For the health sector, PBR involves offering money, material goods or other rewards to subnational jurisdictions, healthcare providers, households or patients for performing actions or meeting performance goals related to health. PBR can be effective for increasing the production of priority services, such as immunizations, prenatal care and institutional births (IDB, 2013b). For the education sector, there is evidence on the impact of paying teachers based on attendance levels in rural areas: absenteeism rates fell by 50% and learning outcomes increased in the schools participating in the program (Duflo *et al.*, 2012).

Secondly, the evidence shows that mechanisms geared toward providing the public with more information and empowerment can improve accountability in the delivery of services. In particular, the dissemination of information has proven useful for identifying problems related to the flow of financial resources between the central government and front line service providers (schools, healthcare facilities). For example, a seminal study found that only 13% of capital transfers originating from the central government effectively reached schools (Reinikka and Svensson, 2004), while in the health sector, the differences between the resources originally made available and the expenditure effectively implemented in medical clinics could be even greater (Gauthier and Wane, 2009).

[69] Of course, there are elements unique to the sector in question that can shed light on this issue. See, for example, Yip and Hafez (2015) and Chisholm and Evans (2010) for the health sector; and Cristophe *et al.* (2015) for education. In this chapter, emphasis has been placed on aspects that are more general and/or common to both sectors.

To respond to these problems, a public communication campaign was implemented to provide information on the use of educational resources. This led to a reduction in the opportunistic use of these funds and had positive effects on educational coverage (and, to a lesser extent, quality) levels (Reinika and Svensson, 2005; 2011). In health, an initiative to distribute newsletters with quantitative information on the performance of service providers and to encourage public participation in an action plan to address local problems resulted in increased use of preventive services and reductions in child mortality rates over the long term (Bjorkman and Svensson, 2009; Bjorkman *et al.*, 2014).

The unfinished agenda: toward the micro-analysis of public expenditure

The pursuit of initiatives that affect dimensions beyond the provision of inputs requires, first of all, the collection and systematization of information which, unfortunately, is not yet available on the CAPDR countries. For example, the scores achieved by the countries of the region in the PEFA indicator measuring the availability of information on expenditure received by service delivery units (PI-23) are generally lower than other dimensions of public finances assessed by this instrument in each country[70]. It is therefore essential to gather information that will facilitate a diagnosis at the territorial level, providing precise information on the allocation, execution and distribution of public resources, from their origin through to their final destination. To do this, it is important to reinforce the financial management instruments that facilitate a system of detailed periodic monitoring at the level of departments or districts of the distribution of human resources, equipment, infrastructure and other inputs, which will make it possible to attend to the areas that are lagging behind the most. One way of beginning to work in this direction is through the implementation of survey instruments, such as Public Expenditure Tracking Surveys (PETS), which are widely used in developing countries but not in this region, where there is very little experience with the use of these types of instruments.

Secondly, in addition to monitoring financial flows, it is important to measure dimensions like productivity or effort and quality of the human resources that participate in the provision of educational and health services. To this end, standard surveys can also be used in schools and medical clinics, in order to obtain standardized measures of behavior (such as absentee levels of key personnel, their level of knowledge, effort and the quality of the services offered), and to be able to make comparisons at the regional level of the distribution of these characteristics within each country. These inputs will make it possible to examine the allocation of resources at the subnational level in more detail, with a view to channeling resources where the needs are greatest. Although budget

[70] See https://www.pefa.org/en/stats

allocation processes could suffer from elements of inertia, central authorities need to have the capacity to target spending at the territories that are lagging behind the most and that have the greatest needs for public resources. In this respect, it will be essential to implement a national strategy that allows the government to prioritize the allocation of spending based on the social and economic conditions of each department of the country, and to redesign intergovernmental transfer systems in order to incorporate criteria that facilitate the closure of gaps in development between territories.

Last of all, it is important for public expenditure to be subject to periodic systematic and transparent evaluations. By evaluating public expenditure, governments will be able to continuously adapt the allocation of resources according to the needs of the population. A periodic evaluation of social spending could be an element that will contribute to the definition of the social agenda of the countries in more equitable and efficient terms over time.

ANNEX 3.1 Health Inputs and Outputs (Cross-Sectional Analysis)

Dependent Variable:	Child Mortality				
	Costa Rica	Guatemala	Honduras	Nicaragua	Panama
Physicians	0.678	-0.09	0.033	1.502	0.236
	-0.449	-0.289	-0.384	-1.438	-0.404
Time Tendency	-0.174***	-0.114***	-0.094***	-0.174***	-0.004
	-0.051	-0.025	-0.021	-0.035	-0.047
Fixed Effects (Departments)	YES	YES	YES	YES	YES
Observations	56	110	34	51	77
Squared R	0.298	0.551	0.876	0.797	0.719

Standard errors in parenthesis

***p<0.01, **p<0.05, *p<0.1

ANNEX 3.2 Education Inputs and Outputs: Panel Data Analysis (2005-2013)

Country	Belize	Costa Rica	El Salvador	Guatemala	Honduras	Nicaragua	Panama
Output	Dropout Rate (secondary)						
Student per teacher (secondary)	-0.278	0.207	1.026***	0.008	0.117	0.099	-0.31*
	(0.606)	(0.278)	(0.265)	(0.012)	(0.188)	(0.088)	(0.164)
Output	Dropout Rate (secondary)						
Student per teacher (secondary)	-0.638***	0.431	0.101	0.006***	-0.091	-0.0988*	-0.299
	(0.088)		(0.038)	(0.002)	(0.099)	(0.050)	(0.012)
Fixed Effects (Department)	YES	YES	YES	YES	YES	YES	YES
Fixed Effects (Time)	YES	YES	YES	YES	YES	YES	YES
Observations	60	49	98	154	72	119	82
Number of departments	6	7	14	22	18	17	12

Standard errors in parenthesis

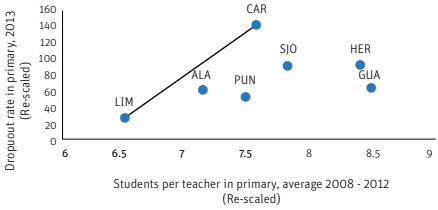
***p<0.01, **p<0.05, *p<0.1

ANNEX 3.3 Efficiency Frontiers by Country and Sector

Costa Rica

Education Sector

Data Envelopment Analysis Efficiency Frontier

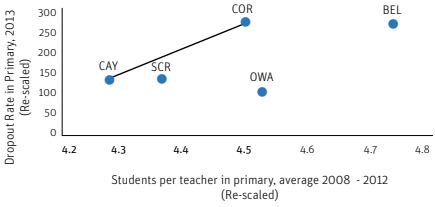


Health Sector

Belize

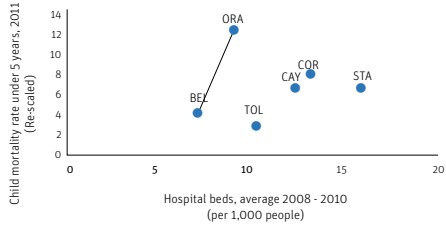
Education Sector

Data Envelopment Analysis Efficiency Frontier



Health Sector

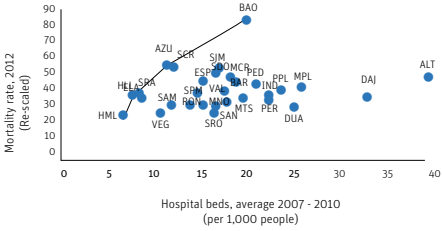
Data Envelopment Analysis Efficiency Frontier



Dominican Republic

Education Sector

Data Envelopment Analysis Efficiency Frontier

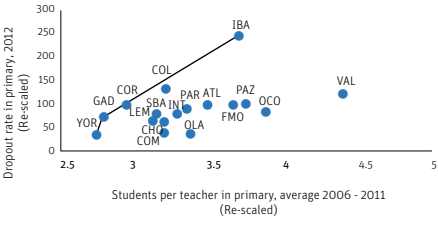


Health Sector

Honduras

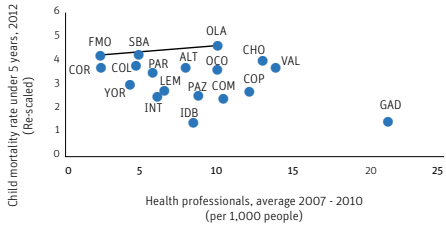
Education Sector

Data Envelopment Analysis Efficiency Frontier



Health Sector

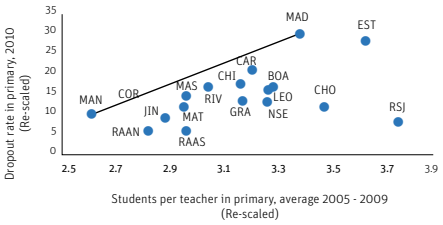
Data Envelopment Analysis Efficiency Frontier



Nicaragua

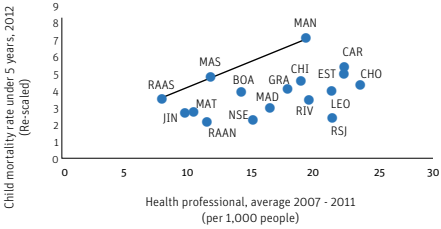
Education Sector

Data Envelopment Analysis Efficiency Frontier



Health Sector

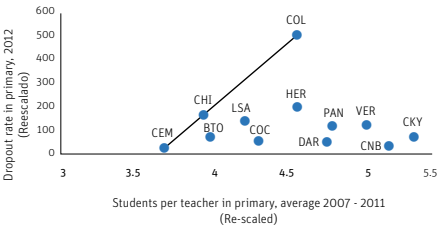
Data Envelopment Analysis Efficiency Frontier



Panama

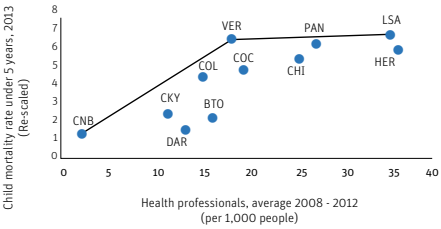
Education Sector

Data Envelopment Analysis Efficiency Frontier



Health Sector

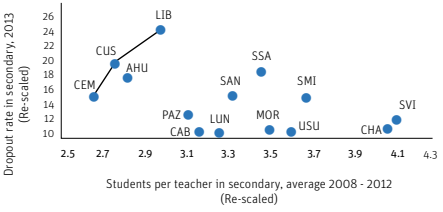
Data Envelopment Analysis Efficiency Frontier



El Salvador

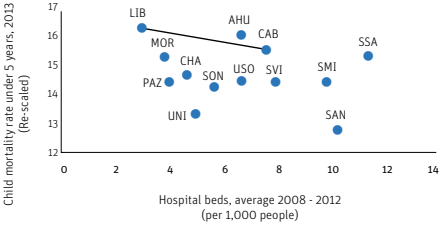
Education Sector

Data Envelopment Analysis Efficiency Frontier



Health Sector

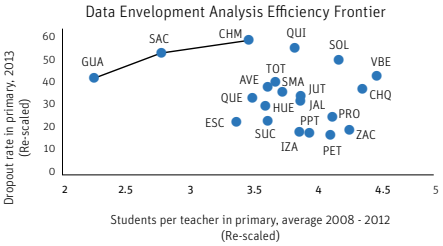
Data Envelopment Analysis Efficiency Frontier



Guatemala

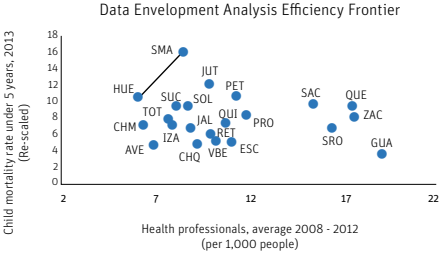
Education Sector

Data Envelopment Analysis Efficiency Frontier



Health Sector

Data Envelopment Analysis Efficiency Frontier



List of departments abbreviations

Country	Department	Abbreviation
Dominican Rep.	Distrito Nacional	DNC
Dominican Rep.	Azua	AZU
Dominican Rep.	Baoruco	BAO
Dominican Rep.	Barahona	BAR
Dominican Rep.	Dajabón	DAJ
Dominican Rep.	Duarte	DUA
Dominican Rep.	Elías Piña	ELI
Dominican Rep.	Espaillat	ESP
Dominican Rep.	Independencia	IND
Dominican Rep.	La Altagracia	ALT
Dominican Rep.	La Romana	ROM
Dominican Rep.	La Vega	VEG
Dominican Rep.	Maria Trinidad Sanchez	MTS
Dominican Rep.	Monte Cristi	MCR
Dominican Rep.	Pedernales	PED
Dominican Rep.	Peravia	PER
Dominican Rep.	Puerto Plata	PPL
Dominican Rep.	Hermanas Mirabal	HMI
Dominican Rep.	Samaná	SAM
Dominican Rep.	San Cristobal	SCR
Dominican Rep.	San Juan de la Maguana	SJM
Dominican Rep.	San Pedro de Macoris	SPM
Dominican Rep.	Sanchez Ramírez	SRA
Dominican Rep.	Santiago	SAN
Dominican Rep.	Santiago Rodríguez	SRO
Dominican Rep.	Valverde	VAL
Dominican Rep.	Monseñor Nouel	MNO
Dominican Rep.	Monte Plata	MPL
Dominican Rep.	Hato Mayor	HMA
Dominican Rep.	Santo Domingo	SDO
RDominican Rep.	San Jose de Ocoa	SJC

Country	Department	Abbreviation
El Salvador	Ahuachapán	AHU
El Salvador	Cabañas	CAB
El Salvador	Chalatenango	CHA
El Salvador	Cuscatlán	CUS
El Salvador	La Libertad	LIB
El Salvador	La Paz	PAZ
El Salvador	La Unión	UNI
El Salvador	Morazán	MOR
El Salvador	San Miguel	SMI
El Salvador	San Salvador	SSA
El Salvador	San Vicente	SVI
El Salvador	Santa Ana	SAN
El Salvador	Sonsonate	SON
El Salvador	Usulután	USU
Guatemala	Alta Verapaz	AVE
Guatemala	Baja Verapaz	VBE
Guatemala	Chimaltenango	CHM
Guatemala	Chiquimula	CHQ
Guatemala	El Progreso	PRO
Guatemala	Escuintla	ESC
Guatemala	Guatemala	GUA
Guatemala	Huehuetenango	HUE
Guatemala	Izabal	IZA
Guatemala	Jalapa	JAL
Guatemala	Jutiapa	JUT
Guatemala	Petén	PET
Guatemala	Quetzaltenango	QUE
Guatemala	Quiché	QUI
Guatemala	Retalhuleu	RET
Guatemala	Sacatepéquez	SAC
Guatemala	San Marcos	SMA
Guatemala	Santa Rosa	SRO
Guatemala	Sololá	SOL

Country	Department	Abbreviation
Guatemala	Suchitepéquez	SUC
Guatemala	Totonicapán	TOT
Guatemala	Zacapa	ZAC
Nicaragua	Boaco	BOA
Nicaragua	Carazo	CAR
Nicaragua	Chinandega	CHI
Nicaragua	Chontales	CHO
Nicaragua	Estelí	EST
Nicaragua	Granada	GRA
Nicaragua	Jinotega	JIN
Nicaragua	León	LEO
Nicaragua	Madriz	MAD
Nicaragua	Managua	MAN
Nicaragua	Masaya	MAS
Nicaragua	Matagalpa	MAT
Nicaragua	Nueva Segovia	NSE
Nicaragua	Región Aut. Atlántico Norte	RAAN
Nicaragua	Región Aut. Costa Caribe Sur	RAAS
Nicaragua	Río San Juan	RSJ
Nicaragua	Rivas	RIV
Belize	Belice	BEL
Belize	Cayo	CAY
Belize	Corozal	COR
Belize	Orange Walk	OWA
Belize	Stann Creek	SCR
Belize	Toledo	TOL
Honduras	Atlántida	ATL
Honduras	Choluteca	CHO
Honduras	Colón	COL
Honduras	Comayagua	COM
Honduras	Copán	COP

Country	Department	Abbreviation
Honduras	Cortés	COR
Honduras	El Paraíso	PAR
Honduras	Franc. Morazán	FMO
Honduras	Gracias a Dios	GAD
Honduras	Intibucá	INT
Honduras	Islas de Bahía	IBA
Honduras	La Paz	PAZ
Honduras	Lempira	LEM
Honduras	Ocotepeque	OCO
Honduras	Olancho	OLA
Honduras	Santa Bárbara	SBA
Honduras	Valle	VAL
Honduras	Yoro	YOR
Costa Rica	San José	SJO
Costa Rica	Alajuela	ALA
Costa Rica	Cartago	CAR
Costa Rica	Heredia	HER
Costa Rica	Guanacaste	GUA
Costa Rica	Puntarenas	PUN
Costa Rica	Limón	LIM
Panama	Bocas del Toro	BTO
Panama	Chiriquí	CHI
Panama	Cocle	COC
Panama	Colón	COL
Panama	Comarca Embera	CEM
Panama	Comarca Kuna Yala	CKY
Panama	Comarca Ngobe Buglé	CNB
Panama	Dario	DAR
Panama	Herrera	HER
Panama	Los Santos	LSA
Panama	Panamá	PAN
Panama	Veraguas	VER

ANNEX 3.4 Definition of Variables and Methodology

Education sector	
Inputs	**Outputs**
	Nota: Due to the use of the DEA methodology, some of the final indicators (outputs) were rescaled so that a higher figure reflects a better output. For example, a high dropout rate is not an ideal scenario, and therefore it is inverted. Where so indicated, the rescaling was estimated as follows: $Output_R = 1/Output \cdot 100$ Where $Output_R$ is the rescaled output and Output is the original data
Primary students per teacher Secondary students per teacher **Periodicity of data** • Belize, average from 2008 to 2012 • Costa Rica, average from 2008 to 2012 • El Salvador, average from 2008 to 2012 • Guatemala, average from 2008 to 2012 • Honduras, average from 2006 to 2011 • Nicaragua, average from 2005 to 2009 • Panama, average from 2007 to 2011	Primary dropout rate Primary repetition rate Secondary dropout rate Secondary repetition rate **Periodicity of data** • Belize, 2013 • Costa Rica, 2013 • El Salvador, 2013 • Guatemala, 2013 • Honduras, 2012 • Nicaragua, 2010 • Panama, 2012
Source of data	
Panama • Comptroller General of the Republic of Panama • Panamanian Ministry of Education **Costa Rica** • Costa Rican Social Security Fund • Comptroller General of the Republic of Costa Rica • National Statistics and Census Institute • Ministry of Public Education, Department of Statistical Analysis **Honduras** • Central Bank of Honduras, Honduras in Figures • Permanent Multi-purpose Household Survey • National Statistics Institute • Ministry of Education	**Nicaragua** • Central Bank of Nicaragua • Nicaraguan Demographic and Health Survey • National Institute of Information on Development • Ministry of Education **El Salvador** • Central Reserve Bank of El Salvador • General Directorate of Statistics and Censuses • Multi-purpose and Household Survey • Report on Financial Management of the State • Ministry of Education **Guatemala** • National Literacy Committee • Guatemalan Ministry of Education

Definitions	
Students per teacher	Ratio between the number of students and teachers at a specific educational level.
Dropout rate	Ratio between the number of students who have dropped out of a specific educational level and the total number of students enrolled at the beginning of the school year.
Repetition rate	Ratio between the number of students who do not meet the minimum knowledge requirements for a specific educational level who must therefore repeat that level and the total number of students enrolled.

Data Envelopment Analysis		
Health sector Due to the lack of uniformity of the data, inputs and outputs vary between CAPDR countries		
Country	**Inputs**	**Outputs**
		Note: due to the use of the DEA methodology, some of the final indicators (outputs) were rescaled so that a higher figure reflects a better output. For example, a high dropout rate is not an ideal scenario, and therefore it is inverted. Where so indicated, the rescaling was estimated as follows: $Output_R = 1/Output \cdot 100$ Where $Output_R$ is the rescaled output and Output is the original data
Honduras	Number of health professionals (per 1,000 people) **Periodicity of data** Average from 2007 to 2010	Mortality rate in children under 5 (per 1,000 live births) Child mortality rate at birth (per 1,000 live births) **Periodicity of data** Period 2012
Guatemala	Number of health professionals (per 1,000 people) Number of hospital beds (per 1,000 people) **Periodicity of data** Average from 2009 to 2012	Mortality rate in children under 5 (per 1,000 live births) Child mortality rate at birth (per 1,000 live births) General mortality rate (per 1,000 people) Life expectancy at birth (in years) **Periodicity of data** Period 2013
Nicaragua	Number of hospital beds (per 1,000 people) **Periodicity of data** Average from 2007 to 2011	Mortality rate in children under 5 (per 1,000 live births) Child mortality rate at birth (per 1,000 live births) Life expectancy at birth (in years) **Periodicity of data** Period 2012
Panama	Number of health professionals (per 1,000 people) Number of hospital beds (per 1,000 people) **Periodicity of data** Average from 2008 to 2012	Mortality rate in children under 5 (per 1,000 live births) Child mortality rate at birth (per 1,000 live births) General mortality rate (per 1,000 people) Life expectancy at birth (in years) **Periodicity of data** Period 2013
Dominican Republic	Number of health professionals (per 1,000 people) Number of hospital beds (per 1,000 people) **Periodicity of data** Average from 2007 to 2010	General mortality rate (per 1,000 people) **Periodicity of data** Period 2012

Data Envelopment Analysis		
Health secto Due to the lack of uniformity of the data, inputs and outputs vary between CAPDR countries		
Country	**Inputs**	**Outputs**
El Salvador	Number of hospital beds (per 1,000 people) **Periodicity of data** Average from 2008 to 2012	Mortality rate in children under 5 (per 1,000 live births) Life expectancy at birth (in years) **Periodicity of data** Period 2013
Belize	Number of hospital beds (per 1,000 people) **Periodicity of data** Average from 2008 to 2010	Tasa de mortalidad infantil en niños menores de 5 años (por cada 1.000 nacimientos vivos) **Periodicity of data** Period 2011
Costa Rica	**Periodicity of data** Average from 2006 to 2010	Tasa de mortalidad infantil en niños menores de 5 años (por cada 1.000 nacimientos vivos) Tasa de mortalidad infantil al nacer (por cada 1.000 nacimientos vivos) Tasa de mortalidad general (por cada 1.000 habitantes) **Periodicity of data** Period 2011

Source of data	
Panama • Comptroller General of the Republic of Panama • Living Standards Survey • Panamanian Ministry of Health **Costa Rica** • Costa Rican Social Security Fund • Comptroller General of the Republic of Costa Rica • National Statistics and Census Institute • Ministry of Health **Nicaragua** • Nicaraguan Demographic and Health Survey • National Institute of Information on Development • Ministry of Finance and Public Credit • Ministry of Health **Guatemala** • National Maternal-Child Health Survey • State of the Nation, Social Statistics • National Statistics Institute • Guatemalan Ministry of Public Health • Guatemalan Ministry of Planning and Programming **República Dominicana** • Health Situation Analysis Unit, General Directorate of Epidemiology	**El Salvador** • National Health System Indicator Bulletins • General Directorate of Statistics and Censuses • Multi-purpose and Household Survey • United Nations Population Fund • Health Solidarity Fund • Salvadoran Social Security Institute • Salvadoran Ministry of Health • Observatory of Human Resources in Health **Honduras** • Central Bank of Honduras, Honduras in Figures • National Demographic and Health Survey • Ministry of Education, Registry of Service Production Units • Ministry of Finance • Honduran Ministry of Health • Honduran Observatory of Human Resources in Health • Pan-American Health Organization, Outpatient Clinic Newsletter, Honduras
Definitions	
Life expectancy at birth (in years)	Number of years that a newborn could live if current mortality patterns were to prevail for the rest of its life
Number of hospital beds (per 1,000 people)	Number of hospital beds in the public health system for every 1,000 people
Number of health professionals (per 1,000 people)	Number of medical professionals for every 1,000 people
Average number of medical visits per person	Number of medical visits in the public health system among the total population
Percentage of births with medical assistance (percentage of total)	Ratio of births with medical assistance to total number of births
Mortality rate in children under 5 (per 1,000 live births)	Number of children who die before the age of 5 for every 1,000 births
Child mortality rate at birth (per 1,000 live births)	Number of newborns who die in less than 28 days after birth, for every 1,000 births
General mortality rate (per 1,000 people)	Total number of deaths for every 1,000 people

INSTITUTIONALITY IN THE STATES OF CENTRAL AMERICA AND PANAMA 4

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With the support of Javier Beverinotti

This chapter deals with the institutional capacities available to governments in order to implement public policies. When a government sets certain social or economic goals, to what extent does the public sector provide a robust platform for the actions being pursued? To answer this question, it is not our intention to trigger debate on the best public policy options to achieve such goals, the relevance of such goals or the identification of factors affecting the levels of development of a given country. Instead, we approach this question from the following perspective: if a government wishes to pursue certain public policy goals, whatever they may be, what institutional capacity does it have to achieve them?

Institutional capacity is defined here as the pool of technical, human, financial and legal resources that a State possesses to implement its functions (Luna and Soifer, 2015). The concept of capacity is used in the sense of a set of properties or attributes inherent to the nature of an institution, and not to the talent, willingness or ability of the authorities and bureaucracy to achieve certain ends (Vargas Cullell, 2013).[2] This notion of

[1] We would like to express our thanks to Javier Beverinotti for his contribution, the value of which compels us to acknowledge it here at the beginning of the chapter. We are also thankful to Jordi Prat for the opportunity to prepare this work, and to Alberto Mora Román, research coordinator of the State of the Region, an initiative that is part of the State of the Nation Program, for providing the main source of information for this study, and to all the other researchers and interns who have helped to keep it up to date.

[2] The concept of capacity has two distinct definitions. According to the first, capacity may be viewed as a pool of resources or attributes an object possesses that determine the scope of its strength, speed or behavior (for example, the volume of a container, the capacity of a living being to fly).From this more structural perspective, the definition of capacity is closer to the notion of "space" or "size", and the emphasis is on the identification of the resources at hand to achieve any objective that may be pursued. According to the second definition, capacity is the potential that a living being has to do certain things, not only by virtue of its pool of resources and attributes, but, crucially, to its skills, talents and abilities. From this point of view, the pool of resources may act as an absolute limit, but volition, skills and virtues play a decisive role in achieving goals. By this definition, capacity is closer to the notion of "talent" or "competence", a functional

institutional capacity derives from a wider concept of infrastructural power of the State, i.e. its capacity to penetrate and centrally coordinate the activities of the society and, from a logistical point of view, to implement policy decisions in the territory under its legal control (Mann, 1984; 2010).

A State with ample institutional capacities should be more likely to achieve relevant objectives than a State with a very limited public sector, as the former will be able to mobilize more technical, financial, logistic, physical and legal resources to achieve the objectives pursued. However, the history is, of course, more complex. Both the general idea of infrastructural power defined above and the more specific notion of institutional capacity of a State are broad and multidimensional (Soifer and Vom Haw, 2008; Luna and Soifer, 2015). In this respect, an examination of the institutional capacities of the States of Central America and Panama is quite simply beyond the scope of this chapter. For example, information is not available on the geographical coverage of court offices, health centers, elementary and secondary schools, aqueducts and roads. All of this information is essential to assess the penetration of the State into its national territory; however, it is only available for certain aspects and countries (PEN, 2016).[3]

Moreover, the institutional capacities of a State cannot necessarily be inferred from its pool of resources. There is a factor that affects the relationship between the range of resources and the institutional capacity of the public sector, as the latter depends on how those resources are organized. For example, two States may have the same pool of resources, but very different organizational rules, which in one case may foster, and in the other may hinder, the use of public expenditure to achieve the goals of public policy. These organizational rules are referred to here as "the institutional design of a State", alluding to the structure of its public sector based on the country's political constitution and laws; this structure constitutes the tool available to governments for the mobilization of the public resources they manage.

approach to the concept which is, incidentally, the one adopted by Amartya Sen in his reflections on human development (Sen, 2009).

[3] Research in this area under the State of the Nation Program (PEN for its Spanish acronym) has made significant progress. The 5th State of the Region Report, to be published in 2016, will present a georeferenced analysis of the network of education centers in Central America and Panama. In Costa Rica, the *I Informe Estado de la Justicia* (First State of Justice Report) conducted an analysis of personnel, offices and budgets of this country's judiciary throughout the 20th century (there is no similar data on other countries). The Urban Development Program (PRODUS for its Spanish acronym) run by the University of Costa Rica (PRODUS-UCR) has succeeded in georeferencing a great deal of information on public infrastructure, but only for Costa Rica. For the rest of Central America and Panama, a territorial analysis of the States has yet to be completed.

This chapter uses a comparative approach to identify the challenges faced in public administration by the countries of Central America and Panama that arise from the institutional design of their States in order to analyze the different capacities of each country to promote development. We begin with a description of the institutional apparatus of the public sector in the region, based on the size, legal bases, organization and competences of the entities that form part of that apparatus. This will make it possible to classify the States by type, based on the attributes of its institutional organization. In line with the analysis in Chapter 3, this chapter also uses a sectoral approach (in education and health, the latter from the perspective of social security) to study government spending at a regional level. The facts examined in Chapter 3 will be complemented here with an analysis of the institutional organization of the State. The indicators for health and education in most countries of Central and Panama are among the weakest in Latin America, except for Costa Rica and, to a lesser extent, Panama (PEN, 2011). At the same time, describing the size of the States and clarifying the difficulties they face in managing power and resources will help better understand the challenges that governments may experience in cases where they have to reverse public employment policies implemented in the period 2007-2013 (as described in chapter 2). These challenges will largely depend on factors such as the size of the State and its capacity to carry out reforms.

This chapter is divided into four sections. The second section outlines the methodology and information sources used. The third section offers a comparative description of the public sectors of the States of Central America and Panama. Section four presents an analysis of the constraints that the institutional design places on public administration and outlines an analytical proposal on this issue. In this section we provide a brief, preliminary examination of the institutional configuration of public health and education sectors in the region. The fifth and last section presents the main conclusions of this chapter.

METHODOLOGY AND SOURCES

The comparative study of the institutional capacities of States often relies on indirect measures (Vargas Cullell, 2013). Such measures aim to infer capacities from the information provided by selected public policy performance indicators, or from expert opinions or citizens' evaluations about how well a State is performing its functions (World Economic Forum, 2015; Bertelsmann Stiftung, 2015; World Bank, 2015; Luna and Soifer, 2015). For example, murder rates are often used as an indicator of the State's capacity to ensure law and order. These measures offer a starting point for the assessment of the infrastructural power of the State because, in many cases, they constitute the only information available given the lack of data.

However, such indirect measures have limitations that need to be highlighted. To begin with, the results of public policy and the institutional capacities of a State are, from an analytical point of view, two different things. Similar murder or infant mortality rates may be caused by two different situations. First, it might be the case that institutional capacities are too weak to carry out the associated public functions, or a government may lack the commitment to use the resources effectively available that would make better outcomes possible. Expert opinions on how a State performs its functions may be influenced by their ideologies and expectations, thus raising the issue of endogeneity and independence of these indicators. Finally, citizen perceptions of public sector capacities are influenced by various factors, such as the evaluations people make of a government's performance and their party affiliations.

The analysis of the States of Central America and Panama conducted here is based on another type of strategy: direct measures of institutional capacities. Direct measure refers to the examination of institutional capacities based on observation and quantification of available resources (financial, organizational, and technical) and the way a State uses such resources. These types of measures shed light on the means that the authorities have to achieve the public policy objectives they pursue. They have the capacity to either correct or clarify the view offered by indirect measures. Luna and Soifer (2015) have recently demonstrated how information taken from public opinion polls can be used to develop direct measures of institutional capacity. However, there is little systematic information available on the resources and organization of the States based on administrative records, other than aggregate government revenue and spending indicators, occasional studies and opinion polls.

To study the institutional capacities of the States of Central America and Panama, this chapter uses a new database (2014) that lists the entities with legal personality that constitute the public sector in the region.[4] The 2011 version covers all six Central America and Panama countries; however, Belize is not included in the 2014 version. In order not to exclude Belize, the 2011 database is used (containing information from the 2009 budget) to assess the institutional configuration of its State, thus entailing the acceptance of a certain level of inaccuracy.[5] The budget data is current to 2013 (see Annex 2).

The database makes it possible to establish a detailed description of the institutional design of the States of Central America and Panama. To this end, a network analysis was used; specifically, the study uses affiliate or bimodal networks to describe the links

[4] This information source is the database of public entities in the State of the Nation of Central America and Panama Program coordinated by Costa Rica's Consejo Nacional de Rectores (National Council of University Presidents) and Defensoría de los Habitantes (Costa Rican Ombudsman's Office) (see Annex 1).

[5] There is information available for most countries of the CAPDR region, with the exception of the Dominican Republic.

between these two clusters of nodes (or types of institutions) with a different legal status.[6] The analysis of networks includes the variable of "budget size" as a synthetic proxy for the institutional capacities of public entities. This information is then combined with other relevant institutional design variables such as financing sources, legal status and rules for the appointment of the senior officials of public entities. Although this work builds on the information and analysis of previous studies (PEN, 2011; Vargas Cullell, 2013), the resulting picture offers a fresh perspective on the institutional factors conditioning public administration in the region.

GENERAL CHARACTERISTICS OF INSTITUTIONALITY IN CENTRAL AMERICA AND PANAMA

Central America and Panama is a region made up of seven small countries. In 2013, its regional GDP, at nearly US$194 billion (see Table 4.1.), was one twelfth that of Brazil and slightly more than half the GDP of Colombia, a country with a population similar to that of Central America and Panama (World Bank, 2015).[7] The fact that the region is made up of small countries does not mean that its economies and States have similar sizes or levels of development. Actually, there are significant intra-regional asymmetries that need to be analyzed in order to understand the public sectors of these countries.

First of all, there are significant differences between the countries of the region in terms of their populations and productive capacities. Even excluding Belize, given its smaller size, one in three people in Central America and Panama is Guatemalan and the population of this country is more than four times that of Panama, the least populous country. Furthermore, there is a similar difference between the size of the largest economy (Guatemala) and the smallest (Nicaragua). The intra-regional gaps in economic and human development are even larger than the absolute differences described above. The GDP per capita (PPP USD) of Panama (the most developed country in the region) and Costa Rica is almost seven times larger than the combined GDP of Honduras and Nicaragua (the two biggest stragglers).

An analysis of this development over the long term makes it clear that these gaps have increased significantly. In 1960, among the countries of Central America and Panama, the highest per capita GDP (Costa Rica) had a GDP 2.5 times higher than the lowest in the region (Honduras), while fifty years later, the largest GDP per capita (Panama's) is seven times the lowest (Nicaragua's) (PEN, 2014; 2011; 2008). Finally, there are two countries in the region with a high rate of human development (Panama and Costa Rica), both with an

[6] A detailed explanation of this analysis is offered in Annex 3.

[7] The information on the GDP of the countries is for 2014. However, the authors have chosen to present 2013 data so that it is compatible with the latest information available in the database of public entities of Central America and Panama (2013).

outstanding performance in the Latin American context, while four countries are among the least developed in Latin America: Nicaragua, Honduras, El Salvador and Guatemala (UNDP, 2015). In terms of human development, Belize is an intermediate case between these two extremes.

At the same time, this chapter explores the differences in the composition of public sectors in Central America and Panama. In 2013, there were 1,020 public entities with their own legal personality in the seven countries of Central America and Panama, nearly fifty more than the 968 registered in 2009 (PEN, 2011).[8] A primary indicator of the institutional complexity of these States, the number of public entities is almost three times larger in Costa Rica (276) than in Honduras (92).

It is worth noting that in Central America and Panama there does not seem to be a simple and direct relation between the size of the population, the economy and the state of development a society has achieved and the number of public institutions that form part of their respective States. On the one hand, although Costa Rica has many more public institutions than countries with a lower level of social and economic development, the public sector in Panama – which has a GDP similar to that of Costa Rica – has a public sector that is not very different from those of the other countries. On the other hand, El Salvador occupies a position between Costa Rica and the other countries, yet its social and economic indicators are similar to those of Honduras, Guatemala and Nicaragua (see Table 4.1). Unfortunately, there is no information for a wider group of countries that would allow a deeper examination of this question.[9] Nevertheless, it is a reasonable hypothesis that, in addition to structural factors such as the level of development achieved and the size of the population, the political decisions adopted by a country in critical moments influence the configuration of its public sector.[10]

[8] The aggregate number of 1,020 public entities in Central America and Panama breaks down as follows: 918 registered entities for six countries of Central America and Panama in the 2014 database (Costa Rica, El Salvador, Guatemala, Honduras and Panama). Added to this are 102 public entities for Belize in the 2011 database. Since the entities created in this country during the three-year period 2011-2014 have not been taken into account, the overall figure on record, both for Central America and Panama and for Belize, may differ slightly from the actual number of entities in the last year examined.

[9] A preliminary inventory of public institutions in Chile in 2009 listed 240 institutions at the central government level, excluding municipal bodies (PEN, 2011); in principle, this figure is similar to that of Costa Rica, for a country with four times its population and a higher level of human development according to the UNDP Human Development Index.

[10] For example, after the Civil War in 1948 in Costa Rica, the victorious de facto government decided to further the reform program of the government it had overthrown, rather than reverse the decision, which led to the rapid expansion of the public sector over the following decades.

TABLE 4.1 Central America and Panama: Population, Gross Domestic Product and Number of Public Institutions, 2013

Country	Population (thousands)	%	Nominal GDP (millions $)	%	Public institutions total	%
Belize	350	1%	1.317,5	1%	102	10%
Costa Rica	4,713	10%	45,314.3	23%	276	27%
El Salvador	6,290	14%	24,259.1	12%	168	17%
Guatemala	15,438	34%	50,605.5	26%	127	12%
Honduras	8,555	19%	18,551.9	10%	92	9%
Nicaragua	6,134	14%	11,255.6	6%	125	12%
Panama	3,851	8%	42,648.1	22%	130	13%
Total	**45,331**	**100%**	**193,952.0**	**100%**	**1,020**	**100%**

Note: as indicated in the section on methodology and information sources, the Dominican Republic is not included.
Source: PEN (2015) for population and nominal GDP figures. Public institutions: 2014 database of Central America and Panama public entities.

TABLE 4.2 Central America and Panama: Public Institutions Existing in 2013, by Decade of Creation

Period	Institutions	Cumulative	Period
Before 1900	62	62	
1900-1909	13	75	
1910-1919	13	88	
1920-1929	17	105	
1930-1939	21	126	
1940-1949	55	181	
1950-1959	68	249	Agricultural Exports
1960-1969	78	327	
1970-1979	109	436	Common Market
1980-1989	115	551	Civil Wars
1990-1999	246	797	
2000-2009	184	981	
2010-2014	36	1,017	Post-War Period
Total [a/b/]	**1,017**		

[a/] 2013, except for Belize, for which information is for 2009.
[b/] There are three entities for which an exact date of founding could not be identified.
Source: own research based on the 2014 database of Central America and Panama public entities issued by the State of the Nation Program. The data for Belize was taken from the 2011 database.

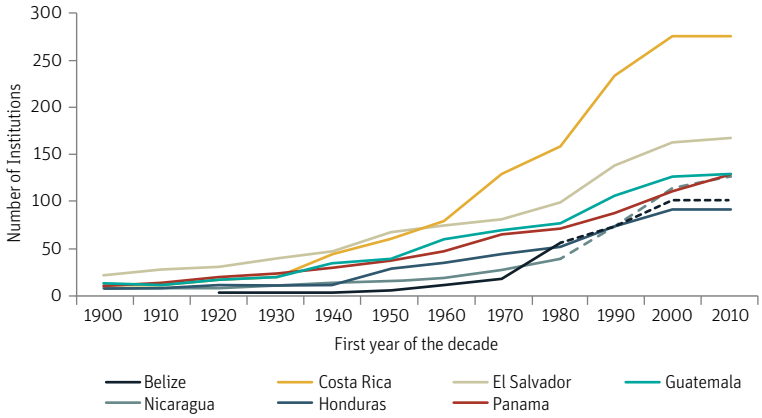
Public institutions in Central America and Panama created over a long period (see Table 4.2.) surpassed 1,000 in 2013. Around a quarter of these institutions were established in a period dominated by a development model based on agricultural exports (coffee and bananas) in the region, between the second half of the 1800s and the end of the 1950s, when an import substitution industrialization model was introduced (Torres Rivas, 1971; Mahoney, 2003). During the import substitution industrialization phase and the period of the Central American Common Market, or Mercomún (1960-1979), around 20% of the existing public institutions were created. The rate of creation of institutions did not slow down in the 1980s, when civil wars and the impact of the international economic crisis led to the collapse of the common market, and in this period around 100 new institutions were created. Nevertheless, the highest creation rate was seen during the establishment of peace in the region and the rise of electoral democracies toward the end of the 20th century and early 21st century (Lehoucq, 2012). In the twenty years following 1990, a total of 466 public entities – almost half the current total – were established.

The levels and rates at which institutions were created varied significantly across countries. Until the middle of the 20th century, there were no major differences in the public sectors of the countries in the region in terms of the number of institutions that comprised them. During the second half of the 20th century, however, Costa Rica's public sector underwent rapid institutional expansion (see Table 4.1). The process began after the 1948 Civil War, and was intensified with the democratization of the political system, followed by a period of political stability that has continued to the present, as well as the development of a welfare system (Martínez *et al.*, 2014). It is important to point out that in the 1990s, with a forty-year lag behind Costa Rica, the other countries underwent an intense process of institutional expansion, which went hand-in-hand with the democratization of their political systems.

Nicaragua and Belize deserve special mention. In Nicaragua, there was an upheaval with the revolution in 1979, and later, in 1990, the abandonment of the revolutionary process (Martí i Puig, 2011). Both events were related to strong initiatives to create institutions: in the first, the process was associated with the objective of dismantling the old State of the Somoza dynasty; in the second, the objective was to replace or redefine the State's functions, moving away from the revolutionary focus of the 1980s. On the other hand, Belize gained independence from Great Britain in 1981 and its institutional growth has been associated with its establishment as a nation state and the replacement of the old colonial government.

It is worth highlighting the types of entities created over the last two decades, the period with the highest rate of institutional expansion in the history of the region. According to Ramírez (2011), they are mostly associated with mechanisms implemented by the Executive Branch to take specific action on particular areas and issues. These new institutions are, therefore, not responsible for governing or managing whole spheres of public activity, as

FIGURE 4.1 Central America and Panama: Period of Creation of the Current Public Institutions (1900-2010)



Note: the dotted lines represent the period after independence in Belize (1981) and after the revolutionary uprising against the Somoza dynasty in Nicaragua (1979).
Source: own research based on the 2014 database of Central America and Panama public entities issued by the State of the Nation Program. The data for Belize was taken from the 2011 database.

was characteristic of the entities created in the mid-20th century, but had a scope of action that was much more limited. The mid-20th century saw the creation of comptroller's offices, the ministries in charge of different sectors of government, and the institutions responsible for electricity and drinking water services, among others. Conversely, in the last few decades there has been a proliferation of international loan agencies with their own legal personality, special funds with specific resource allocations (Social Investment Funds) and entities specializing in specific areas of public policy (agricultural planning and development programs). According to Ramírez (2011), there is not enough evidence to identify the impact, implications and considerations related to the creation and operation of such entities for public administration, and how they facilitate (or hinder) the management of government spending. Further research is needed on this question.[11]

[11] Ramírez argues: "There are many possible explanations. The first is that these entities arise from institutional or extra-institutional requirements for the control and application of funds, especially if they come from external sources. This is the case for El Salvador's Fondo de Desafío del Milenio (Millenium Challenge Fund) or Costa Rica's Programa Regulador Urbano de la Gran Área Metropolitana (Urban Regulation Program for the San José Metropolitan Area). Another explanation would be related to efforts by the executive or by other public entities to coordinate their own public actions in conjunction with other centralized or decentralized entities, in areas of overlapping political functions (...) the commissions to address emergencies that coordinate the actions of various entities in specific situations, or to relieve other institutional channels in order to attend to demands. This would be the case for entities created to address specific issues and where there are multiple conflicts, such as offices that manage systems of protected areas" (2011:49).

Most public entities existing in Central America and Panama have no statutory backgrounds; that is, the law establishing the entity was enacted for the performance of functions that had not been assigned to any public institution until that time.[12] This lack of statutory background suggests that the expansion of the public sector in Central America and Panama, especially at the end of the last century, was associated with a major process of institutional experimentation, which formalized (codified) new functions and responsibilities for the State and, consequently, created the mechanisms and entities that were to carry out such functions (see Table 4.3.). It is therefore necessary to analyze the structure and functions of these relatively "young" entities from a legal and institutional point of view.[13]

TABLE 4.3 Central America and Panama: Statutory Backgrounds[a/] of Public Institutions Existing in 2013

Country	Yes	No	Total	% Yes
Belize	18	84	102	18%
Costa Rica	96	180	276	35%
El Salvador	47	120	167	28%
Guatemala	35	87	122	29%
Honduras	49	43	92	53%
Nicaragua	58	67	125	46%
Panama	66	59	125	53%
Total [b/]	**369**	**640**	**1,009**	**37%**

Notes: [a/] Statutory background: the entity is created by a law, approved by the competent authority, which expressly repeals or reforms a previously existing institution. The absence of a statutory background therefore implies that the law creating the entity neither repeals nor reforms any prior statute.
[b/] 11 entities with no information.
Source: own research based on the 2014 database of Central America and Panama public entities issued by the State of the Nation Program. The data for Belize was taken from the 2011 database.

However, there are significant differences between the countries of Central America and Panama. As would be expected, the establishment of an independent nation state in Belize coincided with intense institutional experimentation; indeed, the most intense in the region, as only 18% of its institutions have prior statutory backgrounds. Surprisingly,

[12] This is the case for almost two thirds of the public institutions existing in 2013 (640 of the 1,009 entities on which information is available, as there was no information on the backgrounds of 11 of them).
[13] No specific information is available to determine whether the intense institutional experimentation occurring in Central America and Panama at the end of the 20th century was an isolated process or whether other regions around the world went through similar processes.

on the other hand, in Nicaragua, despite the upheaval of the revolution and the subsequent abandonment of the revolutionary process, almost half of the current institutions (46% of the total) have clearly traceable prior statutory backgrounds, suggesting a more organic development of its institutions than the revolution of 1979 might lead us to expect. Along with Nicaragua, Panama and Honduras are countries whose institutions have longer historical backgrounds. The opposite holds true for Costa Rica, El Salvador and Guatemala, where the expansion of their institutional frameworks, each in different periods and with different scopes, may be described as an institutional experimentation process, since the new entities created have no statutory backgrounds.

Do the public sector expansion processes in Central America and Panama imply a significant dissolution of entities or, in other words, a high institutional mortality rate? It is important to clarify that institutional mortality in itself may be associated with at least three very different processes: a reduction of the public sector due to the transfer of its functions to the private sector; a consolidation of the institutional apparatus aimed at more efficient service performance, without privatizing public functions (e.g. eliminating duplication of competencies); or an ongoing process of replacement of entities, aimed at improving institutional designs for the policies pursued. When studying institutional mortality it is extremely important to determine which of these scenarios is the underlying factor. This issue will not be explored here because it is beyond the scope of this chapter. However, whatever the relevant scenario for the cases under study may be, the dissolution of public entities undermines the stability of the institutional design of the States. Therefore, high and sustained levels of institutional mortality may generate instability in the configuration of the public apparatus, and constant regulatory changes that lead to uncertainty as to the game rules to be observed by the social and political actors involved. Conversely, very low levels of institutional mortality would suggest that, once created, the State institutions survive under changing circumstances; this is an issue that should be examined closely from the perspective of the institutional design of the State when an entity is being created. In conceptual terms, this would establish a path of dependence that would be very difficult to change.[14]

Unfortunately, there is no information on institutional mortality for all of the countries in the region, since the database is current only to 2009.[15] The data available for four

[14] It could be hypothetically argued that there are actors that operate to prohibit reforms to the institutional "framework". However, this is an unresolved question that should be explored in depth through case studies.

[15] Mortality rates may be underestimated in the 2011 database. This database tracks the institutional development of the States, with the current configuration of the State as its starting point ("backward strategy"). In this way, the process identifies the statutory precedents and, at the same time, the entities that were dissolved to give rise to new institutions, as well as entities that were reformed. However, this process excludes a broad category of institutions: those that were created and later dissolved, but were not replaced by any new entity. To identify this category it would be necessary to work with historians in order to reconstruct, through a review of the files of the period, the institutions which existed at the time of each

countries points to the existence of a survival threshold. If an entity is more than 40 years old, the odds that it will disappear decline significantly: 73% of the entities dissolved in the period 1900-2009 had a lifespan of less than four decades (see Table 4.4). Belize records the lowest mortality rate, which is consistent with its short life as an independent nation. Guatemala records the largest institutional mortality rate (more than 50%), which suggests the design of its institutional apparatus is highly unstable. On the other hand, El Salvador and, to a lesser extent, Costa Rica have the lowest level of institutional mortality. It is clear that, in absolute terms, Costa Rica is, after Guatemala, one of the countries where the most institutions have been dissolved over the course of the 20th century and the beginning of the 21st century (48 institutions); yet in relative terms, because it has the largest institutional apparatus, the mortality rate is relatively low (17%).

TABLE 4.4 Central America and Panama: Institutions Dissolved in 4 Countries in the Period 1900-2009

Institutional life	Belize	Costa Rica	El Salvador	Guatemala	Total
Institutions dissolved with registered date [1/]	4	48	19	41	112
Institutions dissolved with no registered date	1	0	1	12	16
Total dissolved	5	48	20	53	128
20 years or less	20%	56%	55%	30%	43%
21 to 40 years	40%	35%	20%	28%	30%
41 to 60 years	20%	4%	5%	9%	7%
61 to 110 years	0%	4%	15%	8%	7%
111 to 188 years	0%	0%	0%	2%	1%
Total existing institutions	102	276	162	96	636
Dissolved/existing as at 2009	5%	17%	12%	55%	20%

Note: [1/] The competent authority (Congress or Executive) dissolves the institution in an express act, either to set up a new entity or simply to liquidate the existing entity.
Average institutional life: lifespan (in years) from the date of creation to the date of dissolution by means of a statute.
Source: own research with information taken from the 2011 database of public entities in Central America and Panama, "Database of dissolved entities" section.

country's independence and to see how they evolved over time ("forward" strategy). Once completed, the two series could be fit together.

In summary, institutional expansion in the States of Central America and Panama not only evolved over different time-spans, but also involved institutional experimentation processes of widely varying intensities. Belize is the country with the fastest pace of expansion, the least statutory background and the lowest institutional mortality rate; this suggests that, despite the fact that its independence is quite recent, the development of its State does not at this point appear to be associated with problems of instability in institutional design (resulting from a constant replacement of institutions), but rather with the explicit creation of new public sector functions and duties. The expansion of the public sector in Guatemala was associated both with intense institutional experimentation (limited statutory background of new entities) and with instability in institutional design (high mortality rate). In Nicaragua, there has been much less institutional experimentation and, despite the revolutionary upheaval in 1979, institutional instability has been much lower. Institutional expansion in both El Salvador and Costa Rica (the country with the biggest public sector in the region) has been associated with intense experimentation, but with stability in institutional design. According to the information on Honduras, its institutions have the most extensive statutory background in the region.

So far, the size of the institutional apparatus of the States has been analyzed based on the number of public entities. This constitutes a first, but insufficient approach to the question of the design or configuration of the States. What about the size of the States in terms of the resources they manage? A country may have a State with only a few institutions and large budgets, which, in practice, translates into a larger institutional apparatus than other countries with many smaller entities. When the issue of budgets is introduced into the analysis, the picture of the institutional capacities of the States of Central America and Panama becomes more complete. It is thus necessary to analyze the size of the institutional apparatus of the State by complementing data on the number of public entities with the size of the State in terms of the size of its budget.

A preliminary point to make on this issue relates to the question of transparency in public administration. It is not possible to determine the budget of a third of the public entities in the region, either because many of the legally established entities do not have their own budgets, or because their budgets are subsumed within that of a larger entity to which they are attached (Costa Rica),[16] or because their budgets are not published (Nicaragua). Costa Rica is the most problematic country in this respect (only 53% of public entities have identifiable budgets), while Honduras (92%) is the country with the most information available on the budgets of public institutions.

[16] This suggests that the size of the budget of the Costa Rican State analyzed in the following pages is not seriously underestimated.

To begin with, the consolidated central budget of the States of Central America and Panama would amount to US$68.41 billion in 2013 or the nearest date thereto (see Table 4.5). The public sector of Costa Rica, which accounts for 27% of the public entities in the region, represented 39% of the budget of Central America and Panama in 2013 (compared to 43% in 2009).[17] It is followed by Panama, with a 24% share of the regional total, and much further behind by Honduras, Guatemala and El Salvador, with similar proportions of around 11%-12%. Last on the list are Nicaragua and Belize (2% and 1%, respectively). It should be noted that Nicaragua is underestimated due to the lack of recent information on the budget of a major institution, the Instituto Nicaragüense de Seguridad Social (Social Security Institute of Nicaragua), the country's largest public entity (which has not published information on its budgetary spending since 2009).[18] According to 2009 figures, its proportion of the budget was 6%, which is probably closer to its real share of the regional total (Vargas Cullell, 2013).

TABLE 4.5 Central America and Panama: Public Institutions and Budgets, 2013

Country	Total institutions		Known budget		Budget 2013	
	number	%	institutions	%	(millions $)	%
Belize*	102	10%	61	60%	366	1%
Costa Rica	276	27%	147	53%	26,790	39%
El Salvador	168	16%	109	65%	7,704	11%
Guatemala	127	12%	104	82%	8,138	12%
Honduras	92	9%	85	92%	7,550	11%
Nicaragua	125	12%	84	67%	1,483	2%
Panama	130	13%	80	62%	16,376	24%
Total	**1,020**	**100%**	**670**	**66%**	**68,406**	**100%**

Note: Belize, 2009.
Source: own research based on the 2014 database of Central America and Panama public entities. The data for Belize was taken from the 2011 database.

Half of the public entities in Central America and Panama with available budgetary information can be classified as very small institutions, as they operate with annual budgets equal to or lower than US$10 million (see Table 4.6 and its notes for the budget size scales). If we add entities with budgets under US$100 million to this group, more than eight in ten public entities in the region are small or very small.

[17] Vargas Cullell (2013).
[18] The only available data is the budget approved in 2009 in the amount of US$339.4 million.

There are only 32 large or very large public entities (4.8%) that manage budgets above US$500 million. Of these, more than twenty (20) are in Costa Rica and Panama. All but one of the very large entities belong to these two countries. Some of them, such as the Caja Costarricense de Seguridad Social (Costa Rican Social Security Institute) or the Instituto Costarricense de Electricidad (Costa Rican Electricity Institute) manage budgets that represent more than 2% of the regional GDP. Each of these institutions has a budget proportion similar to the whole public sector of Nicaragua (based on the budget information available in the 2011 database) and, when added together, their size is similar to that of the public sectors of Honduras, Guatemala and El Salvador combined. There are only a few very large public entities, and these are located in the countries with the highest levels of economic and social development in the region. These findings underline the importance of conducting a detailed examination of the questions already seen in Chapters 2 and 3.

TABLE 4.6 Central America and Panama: Public Institutions and Budget Size of Institutions, 2013

Size	Very large	Large	Medium	Small	Very small	Total	%
Belize			1	3	57	61	9.1
Costa Rica	4	7	18	56	62	147	21.9
El Salvador		4	13	39	53	109	16.3
Guatemala		5	9	40	50	104	15.5
Honduras	1	2	14	37	31	85	12.7
Nicaragua			3	22	59	84	12.5
Panama	3	6	13	36	22	80	11.9
Total	**8**	**24**	**71**	**233**	**334**	**670**	**100.0**
%	**1.2**	**3.6**	**10.6**	**34.8**	**49.9**		

Note: only entities with available budget data are included in the totals (670 of 1,020).
The scale applied is as follows: very small: budget approved in 2013 lower than US$10 million; small: budget approved in 2013 equal to or higher than US$10 million but lower than US$100 million; medium: budget equal to or higher than US$100 million but lower than US$500 million; large: budget equal to or higher than US$500 million but lower than US$1.5 billion; very large: budget equal or higher than US$1.5 billion.
Belize: 2009 budget.
Source: own research based on the 2014 database of Central America and Panama Public Entities. The data for Belize was taken from the 2011 database.

This initial overview of aggregate indicators for the institutional arrangements of Central America and Panama countries makes it possible to draw some preliminary conclusions. First of all, the States have very different sizes. Costa Rica has the largest

and most complex institutional apparatus in the region, while the countries in the north and central part of the isthmus (CA-4),[19] irrespective of the size of their population and economy, have small public sectors, both in terms of the number of institutions and the budgets they manage. Moreover, some Costa Rican and Panamanian public institutions have budgets as large as that of all of these States combined. On the other hand, even though Panama is a State with few institutions, like the CA-4 countries in this respect, the budget of its State is much larger than the budgets of these countries. Secondly, it is not true that the States of Central America and Panama have archaic institutional frameworks with features hearkening back to the 19th and early 20th centuries. On the contrary, their current configurations are the result of processes of institutional innovation – albeit at very different rates and intensities – which took place mainly in the second half of the 20th century. However, there is a noteworthy difference in this respect between Costa Rica, an early institutional experimenter (which started the renewal of its public sector by the middle of the previous century), and the other countries which, for different reasons, have experienced their highest levels of innovation over the past 20 years. Finally, most of the thousand public institutions are either small or very small entities. In other words, the authorities of Central America and Panama preside over institutional apparatuses made up of a myriad of tiny units and only a few of them (less than 5% of the total) have annual budgets in excess of US$500 million.

INSTITUTIONAL CONSTRAINTS ON PUBLIC ADMINISTRATION

The States of Central America and Panama differ in terms of size, development processes, and the complexity of their institutional networks. In this context, complexity means the extent to which an institutional apparatus is made up of a larger (or smaller) number of entities, each with its own legal status and sources of financing. The more complex a State is, the more challenges the central authority faces in defining a specific direction for the whole institutional apparatus, since there are entire segments within that apparatus that are self-governing and manage their own resources. In a complex State, it is crucial to consider the configuration of its institutional apparatus because, in principle, power is more decentralized across institutional networks as a result of the frameworks established in its constitution or statutory law.

In terms of economic and social development, there are two very different realities in the CAPDR region. The United Nations Development Program (UNDP) identifies Panama, Costa Rica and the Dominican Republic as belonging to the "High Human Development" group of countries, while the other countries of the region belong to the "Medium Human

[19] CA-4 refers to Guatemala, El Salvador, Honduras and Nicaragua; within the integration system of Central America and Panama, these countries have signed a specific immigration agreement which allows people to move freely across their borders.

TABLE 4.7 Selected Economic and Social Indicators, 2013[/1]

County	Per Capita GDP (Purchasing Power Parity)	Democracy Index	Hospital Beds (per 1,000 Inhabitants)	Average no. of Years of Education (Economically Active Population)
Panama	19,714.2	7.08	2.3	10.5
Costa Rica	14,360.5	8.03	1.1	9.3
Dominican Rep.	12,325.1	6.74	1.6	9.1
Belize	8,183.6	n.a.	0.9	n.a.
El Salvador	8,097.4	6.53	1.1	7.9
Guatemala	7,193.4	5.81	0.6	5.4
Honduras	4,760.6	5.84	0.7	6.4
Nicaragua	4,683.0	5.46	0.9	6.7

Source: World Bank World Economic Indicators (2016), The Economic Intelligence Unit, Pan American Health Organization (2016) and the Economic Commission for Latin America and the Caribbean (2016).
Note: [/1] Education data from Nicaragua and Honduras pertain to 2009 and 2010, respectively.

Development" group. This difference is reflected in various economic and social indicators. For example, the gap between Panama and Honduras in terms of GDP per capita is more than 400%. Moreover, democratic progress in the region is extremely polarized. According to *The Economist Intelligence Unit* for 2013, the only country in the region that could be considered a fully-fledged democracy was Costa Rica, which ranked 24 in a list of 167 countries. These weaknesses and dissimilarities, on both the social and economic fronts, exacerbate an already weak institutionality in the region.

It should be noted that the size of a State is not the same as its complexity. Size relates to metrics such as the number of institutions or budget amounts. Complexity refers to the nature of the parts that make up a public system. Clearly, size and complexity are interacting factors and, although there is no theory on this point, this chapter will assume that such interaction poses very different challenges for public administration. In principle, it is argued that a larger and more complex institutional apparatus has more capacity to intervene in the social and economic life of a country, because its networks extend throughout society. However, due precisely to this interaction, more favorable conditions are created for public policy inertia and the possibilities of easily changing course are much lower. Conversely, a small and less complex institutional apparatus has weaker capacities to exert a decisive influence on the social and economic life of a country, but its simple nature creates conditions that are more favorable for changing the direction of public policies.

In any case, an analysis of institutional complexity makes it clear that contemporary States long ago exceeded the three-branch design originally conceived by Montesquieu as the foundation of the architecture of a republican State. Today, public institutions can no longer be pigeonholed into one of these three categories, a point noted by Ackerman (2000) when he coined the term "the new separation of powers" to refer to the development of decentralized sectors in modern States, made up of functionally autonomous entities.

This theoretical point can be illustrated by examining the wide variety of public institutions, in terms of their legal status, in Central America and Panama (see Table 4.8). "Classical" institutions of the State, such as the so-called "branches" (legislative, executive and judicial) and ministries (or secretariats) that form part of the Executive Cabinet account for only 12% of the public entities in the region (120). Added to these are the devolved bodies of centralized entities (ministries or branches), a type of institution specializing in performing clearly defined functions, which –although attached to a "parent" entity – are to a certain extent functionally autonomous and self-governing (282). In other words, the classical branches of the State are today very different from those conceived traditionally, as they include new types of institutions. This whole sector is referred to as the "centralized public sector" as it is the segment that is under the direct aegis of the classical branches of the State, and most of them are controlled by the authorities directing the executive branch.

In addition to the centralized public sector, there is a great number and variety of public institutions. The most important type is that of autonomous decentralized entities (297), which are granted a substantial degree of independence by the political constitution and ordinary legislation. Although the executive has mechanisms for influencing their management, they are governed by a legal framework that ensures legal and functional autonomy from the branches of the State. They in turn may have devolved bodies attached to them, whose status is similar to comparable entities in the centralized sector, except that in this case they are attached to a decentralized entity. The decentralized sector also includes financial and non-financial state-run companies, used by the State to engage in the production of goods and services (70), and a hybrid type of entity, the semi-autonomous entities (59), which have certain self-governing powers but, at the same time, the executive has the authority to intervene in their management. Finally, there is a group of "non-State owned public" entities, which are granted the greatest autonomy possible under public law, either because in practice they are governed by private law or because the law defines them as non-State entities. In any case, they are institutions that should be analyzed on a case-by-case basis.

This institutional diversity in the region poses public administration challenges for senior officials. In principle, from the legal point of view, institutional complexity should

TABLE 4.8 Central America and Panama: Public Entities by Legal Status, 2013

Legal status	Centralized Public Sector	Decentralized Public Sector	Non-State Public Entities	Overall Total
Three branches of government	32			32
Government ministries	88			88
Devolved bodies of centralized entities	282			282
Autonomous decentralized entities		297		297
Devolved bodies of decentralized entities		24		24
Semi-autonomous decentralized entities		59		59
Independent entities	33	4		37
State-run financial companies		35		35
State-run non-financial companies		35		35
State-run corporations			44	44
Non-state public associations			35	35
Institutional programs	9			9
Mixed public/private companies			8	8
Other	24	1	4	29
Total[a/]	**468**	**455**	**91**	**1.014**

Centralized public sector: branches of the State, executive ministries and agencies attached to them.
Decentralized public sector: autonomous and semi-autonomous entities and agencies attached to them, as well as financial and non-financial state-run companies.
Non-State public entities: public corporations, institutional programs, mixed public/private companies and non-State public associations, which are given the highest level of functional independence and self-governance possible within the public sector.
[a/] No information is available on the legal status of 6 entities
Source: own research based on the 2014 database of Central America and Panama public entities. The data for Belize was taken from the 2011 database.

not pose major problems if the authorities have robust powers to direct their organization. However, if their powers are weak, institutional diversity will operate against senior

officials of the State that aim to control the institutional apparatus. So how should we conduct an empirical study of this key issue for public administration? In the absence of a metric to measure power and influence, it is useful to examine the areas of jurisdiction of the executive, the branch responsible for most of the resources used by the government to implement public policies.

In general terms, there are two resources that provide the material basis for controlling an institutional apparatus. The first is financing, or the "power of the treasury", while the second involves the executive's authority to appoint the senior officials of an institution, or what could be called "the power of appointment".

Firstly, the area that controls the resources that an institution needs to operate and achieve its objectives has ample powers to influence its management, as it can define budget priorities, threaten to withdraw resources in the event of resistance or grant new financing to accomplish certain goals. The executive's "power of the treasury" is very strong when most institutions depend on the central government's budget, which implies having public policy controlled directly by the president and his or her finance minister. On the other hand, this power is weaker when most institutions, or at least those with the biggest influence, have their own resources allocated by statute and do not depend on the central government's budget. In such cases, the executive has, in principle, less capacity to influence the institutional apparatus.

The second resource is the executive's power to appoint the senior officials of an institution without needing the approval of an external body. This could be called the "power of appointment", the president's capacity to appoint individuals he or she trusts to the different government positions. This greater or lesser power results from the combination of three different aspects: (a) whether the entity has a board of directors, or is directed by a single person chosen by the executive; (b) if there is a board of directors, whether its members are appointed by the executive (or with the participation of other powers or mechanisms of appointment); and (c) whether the political constitution or ordinary legislation requires that seats on the board of directors be reserved for specific workers' or union organizations, with a theoretically pre-assigned share of power in the management of the institution. This is what is known as "social corporatism" (Schmitter, 1974). The executive's "power of appointment" is large if very few entities have boards of directors or, when they do, if the executive is responsible for appointing board members, or if there is no or minimal social corporatism.

The implications of the interaction between institutional complexity, the "power of the treasury" and the "power of appointment" have not been studied systematically and there is no theory that addresses them. The assumption adopted in this chapter is that these three aspects and the interaction between them limit the capacity of

governments to make public policy and, in practice, to direct the state apparatus in accordance with their priorities, as will be discussed in the chapters that follow. They are institutional constraints on public administration as they determine the strength of the executive's formal power to implement public policy. In the absence of previous studies, one way of beginning to analyze this question is through the definition of extreme situations or "ideal types", which could make it easier to identify the consequences of the institutional constraints on public administration (see Table 4.9). Once these ideal types are identified, the next step is to examine the institutional apparatus of each country and to assess how easy it is for the government to implement its vision under this institutional framework.

TABLE 4.9 Ideal Types of Institutional Constraints on Public Administration

	Institutional Complexity	Power of the Treasury	Power of Appointment
High capacity to act, Low capacity to direct	High	Low	Low
Low capacity to act, High capacity to direct	Low	High	High

Source: own research.

The Power of the Treasury

There are some countries in Central America and Panama where the government's "power of the treasury" is strong. This is evident in Belize (parliamentary system), El Salvador, Honduras and Guatemala, as the funding for most public institutions (between two thirds and three quarters) comes from the central government's national budget (see Table 4.10), which is firmly controlled by the executive, meaning the president (prime minister in the case of Belize) and his/her finance ministers. In these States, very few institutions have their own revenues (none in the case of Honduras).

Conversely, Costa Rica is an example of an executive with little power of the treasury. Only one third of its public institutions depend entirely on the national budget (34%), while a larger number of entities are guaranteed their own independent sources of revenue (which constitute all of their ordinary regular income) by the political constitution or by statute. In this context, the executive faces significant barriers to using the national budget as a tool for exerting power and influence to ensure the achievement of its goals.

TABLE 4.10 Central America and Panama: Public Institutions by Source of Financing [a/]

	Covered By National Budget	Mixed	Own Revenues	Other	Total	% National Budget	% Own Revenues
Belize	59	26	13	4	102	58%	13%
Costa Rica	95	52	111	18	276	34%	40%
El Salvador	128	10	19	11	168	76%	11%
Guatemala	95	0	29	2	126	75%	23%
Honduras	63	29	0	0	92	68%	0%
Nicaragua	41	60	10	3	114	36%	9%
Panama	43	60	8	5	116	37%	7%
Total[b/]	**524**	**237**	**190**	**43**	**994**	**53%**	**19%**

[a/] The key is as follows: covered by national budget: the entity's resources come entirely from the central government's national budget. Mixed: the institution's resources come from the central government's national budget and from their own revenues as established by statute. Own resources: the institution's funding comes from various sources, such as funds created by statute, taxes, fines, monetary charges or processing fees, municipal revenues and payment for services provided or profits earned. Other: residual category including sources of financing not covered by the categories above, and loans, donations and public and private subsidies (occasional revenues).

[b/] 26 entities with no information.

Source: own research based on the 2014 database of public entities of Central America and Panama. The data for Belize was taken from the 2011 version of this database.

Nicaragua and Panama appear to fall in the middle of these two extremes. As with the Costa Rican case, only one third of their institutions depend entirely on the national budget for resources, but, as in the cases of Belize, El Salvador and Guatemala, only a very small proportion depend on their own revenues as their regular source of financing. This contradictory situation can be explained by the fact that most entities rely on mixed financing – partly derived from the national budget and partly derived from their own revenues. In practice, this continues to allow the executive significant power to influence the institutional apparatus, since most entities depend wholly or partly on the budget that it controls.

A detailed analysis of the Costa Rican and Honduran cases is highly illustrative. Diagram 4.1 shows the institutional network of the Costa Rican State and Diagram 4.2 shows the Honduran institutional network. In both cases, the entities were classified according to the three sectors indicated in Table 4.8 (centralized public sector, decentralized public sector and non-state public entities). Each sector is a principal node in the network, around which there are, in turn, primary nodes (circles) and secondary (diamonds) nodes.

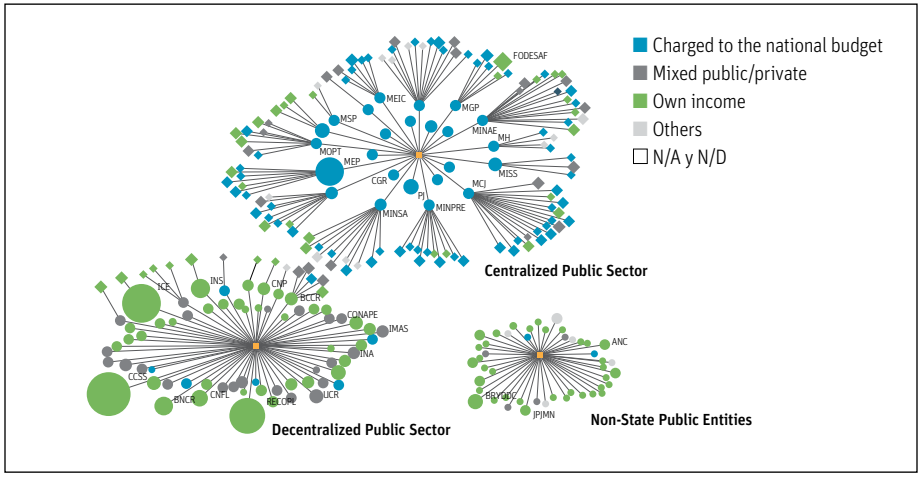
The circles indicate institutions that have their own senior officials (usually ministries and leaders of the branches of the State) and the secondary nodes are institutions attached by statute to another institution and which, despite having certain functional autonomy, report ultimately to a higher authority. The nodes are also coded using different sizes and colors. Their size indicates the amount of the approved budget for each entity, while the color reflects the source of financing that each institution depends on.

The institutional networks of the Costa Rican State are substantially more complex than the public sector of Honduras. Costa Rica has a notably higher number of institutions, and it is worth highlighting that some of them are extremely large. Both its central and decentralized sectors are characterized by a high number of attached agencies created to carry out specific functions. Honduras, on the other hand, has no network of non-state public entities (self-governing entities with the highest level of functional autonomy), and none of its institutions have the budget sizes of their Costa Rican counterparts.

The limited power of the treasury of the Costa Rican executive is evidenced in this analysis of institutional networks. It is noteworthy that most of the large institutions belong to the decentralized sector and have their own sources of financing. Almost the entire network of the country's non-state public entities is funded independently of the national budget and, most notably of all, a significant number of the agencies attached to the decentralized sector have their own funding sources, which could be indicative of a certain degree of functional autonomy and self-governance.[20] By contrast, in Honduras there is not one institution funded entirely by its own revenues, and most of them are fully financed by the national budget, including the decentralized institutions. From this perspective, the executive would be able to control the institutional apparatus without serious resistance. However, given the size of the budget, the Honduras network can be characterized as an institutional apparatus that is underdeveloped and with limited reach.

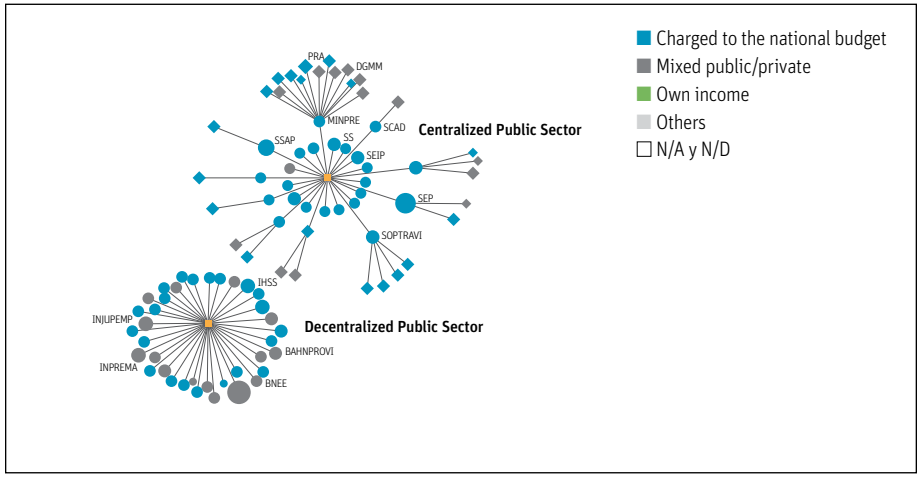
[20] This is the case in Costa Rica of the Dirección de Desarrollo Social y Asignaciones Familiares (Directorate of Social Development and Family Allowances), or DESAF for its Spanish acronym, a technical division of the Ministry of Labor and Social Security, and of the Sistema Nacional de Áreas de Conservación (National System of Conservation Areas), or SINAC, a division of the Ministry of the Environment and Energy.

DIAGRAM 4.1 Costa Rica: Public Institutions by Budget Size, Source of Financing and Legal Status



Centralized public sector: branches of the State and attached or ancillary agencies. Decentralized public sector: includes autonomous and semi-autonomous institutions and their attached agencies. Non-state public: corporations owned by the State, non-profit organizations owned by the State, union associations with public functions, entities defined as non-state public entities in their act of incorporation.
Source: own research based on the 2014 database of Central America and Panama public entities.

DIAGRAM 4.2 Honduras: Public Institutions by Budget Size, Source of Financing and Legal Status



Source: own research based on the 2014 database of public entities of Central America and Panama.

Power of appointment

The power of the executive to appoint the senior officials of an institution is a powerful mechanism to direct the institutional apparatus in line with the vision of the executive. The executive may use this capacity when it has the power to appoint an institution's senior officials or, for institutions led by a board of directors, when it has full freedom to appoint their members. By contrast, the government faces certain limitations – in principle, at least – when it is required by the Constitution or by ordinary legislation to share this power of appointment.

The power of appointment cuts across other organizational levels of the public sector. For instance, although it is outside the scope of this chapter, the power of appointment in the case of second-tier positions is an area worthy of study. In many cases, these form part of what in many countries are referred to as tenured positions, and therefore the executive has no access to such appointments. Another potential area for analysis could be the power of labor unions, as in some countries in the region they have enough influence to affect the decisions of appointment of the executive (particularly in areas such as education and health).

In Central America and Panama, the president of the republic does not have *carte blanche* to choose the senior officials of the country's institutions: only in Nicaragua does the president have the power to appoint most of them directly (52%). However, not only in this country but also in Guatemala, Honduras and Panama does the executive have a significant share of the power of appointment, holding that power over more than 40% of the institutions in each country. Others, however, have fewer opportunities: in Belize (prime minister), Costa Rica and El Salvador they have discretionary powers to appoint approximately one third or less of the total (see Table 4.11).

Government ministers have significant influence over the appointment of the senior officials of institutions, especially in Belize, El Salvador and, to a lesser extent, Costa Rica and Honduras. Overall, the executive appoints around two thirds or more of the senior officials in all of the countries, except for Costa Rica and Guatemala, where it holds the power of appointment over slightly more than half of the entities. In these last two countries, a significant proportion of entities have internal appointment mechanisms like those used, for example, in state-run universities.

TABLE 4.11 Method Used for Selecting Senior Officials of Institutions by Country, 2013 (%)

Method of selection	Belize	Costa Rica	El Salvador	Guatemala	Honduras	Nicaragua	Panama
Directly by president of republic or prime minister	26%	23%	32%	47%	40%	52%	43%
Directly by ministers	50%	30%	45%	9%	29%	19%	18%
Indirectly by executive	4%	0%	0%	2%	0%	0%	3%
Directly by legislature	1%	1%	4%	2%	7%	6%	7%
Directly by other public bodies	4%	19%	4%	7%	5%	8%	1%
Directly by private bodies	0%	0%	1%	2%	1%	0%	0%
Internal election	14%	27%	13%	29%	16%	15%	25%
Public election	0%	0%	1%	1%	1%	1%	1%
Other type of appointment	1%	0%	1%	1%	0%	0%	2%
Total	**100%**	**100%**	**100%**	**100%**	**100%**	**100%**	**100%**
Number of institutions	102	274	168	121	92	122	122

19 institutions with no information

Source: own research based on the 2014 database of public entities of Central America and Panama. The data for Belize was taken from the 2011 version of this database.

A second restriction on the capacity of the executive to exert direct influence over the direction of the public sector through its powers of appointment arises from corporatist arrangements on boards of directors, as corporatism guarantees a seat to worker organizations on the boards of the institutions. In some cases, the inclusion of workers organizations may give rise to conflicts of interest, for example, where the law grants regulated employees a seat on the board of directors of an institution with regulatory powers over a sector (as is the case of the Public Transportation Council in Costa Rica). In any case, the presence of stakeholders in the management of institutions calls, in principle, for negotiation processes with other actors.

Social corporatism is a widely used formula in Central America and Panama. Four out of ten institutions have boards of directors with corporatist arrangements of different kinds (see Table 4.12). Costa Rica stands out as the country that uses this formula the most (47%), while Belize and Nicaragua use it the least (34%). However, in the case of Nicaragua, the significant ties which the ruling party, Frente Sandinista de Liberación Nacional (FSLN), has with civil society should be taken into account, which means that the figure in this case needs to be put in context (PEN, 2011). Therefore, under such circumstances the presence of other worker organizations in the direction of public institutions would not necessarily place limitations on the executive.

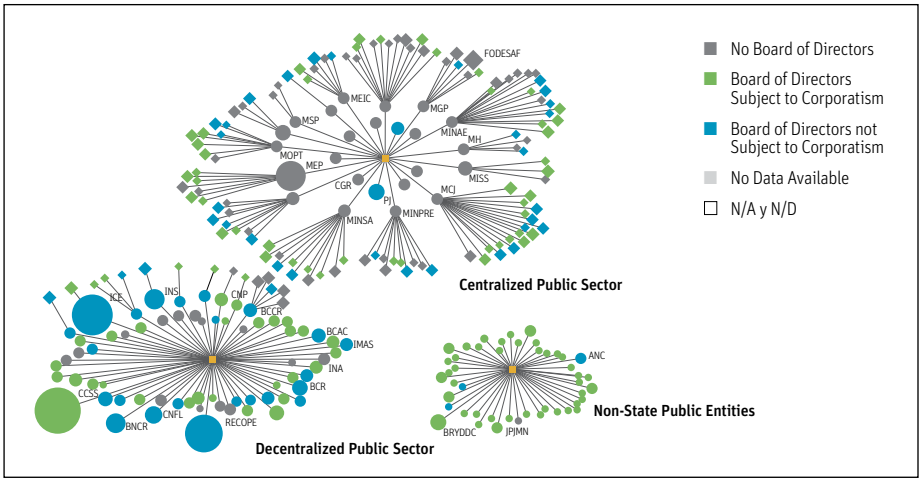
TABLE 4.12 Central America and Panama: Public Institutions with Boards of Directors Subject to Corporatist Arrangements, 2013

Country	Total	With Board*	% With Board	Corporatism	% Corporativismo
Belize	102	64	63%	35	34%
Costa Rica	276	193	70%	129	47%
El Salvador	167	85	51%	66	40%
Guatemala	127	75	59%	56	44%
Honduras	92	57	62%	37	40%
Nicaragua	125	77	62%	42	34%
Panama	128	94	73%	48	38%
Total **	**1.017**	**645**	**63%**	**413**	**41%**

* Information not available on board of directors: 9 entities.
** 3 entities (2 in Panama and 1 in El Salvador) with no data.
Corporatist arrangement: the law that creates the entity in question stipulates the presence of workers, union or corporate organizations on the management of the institution.
Source: own research based on the 2014 database of public entities of Central America and Panama. The data for Belize was taken from the 2011 version of this database.

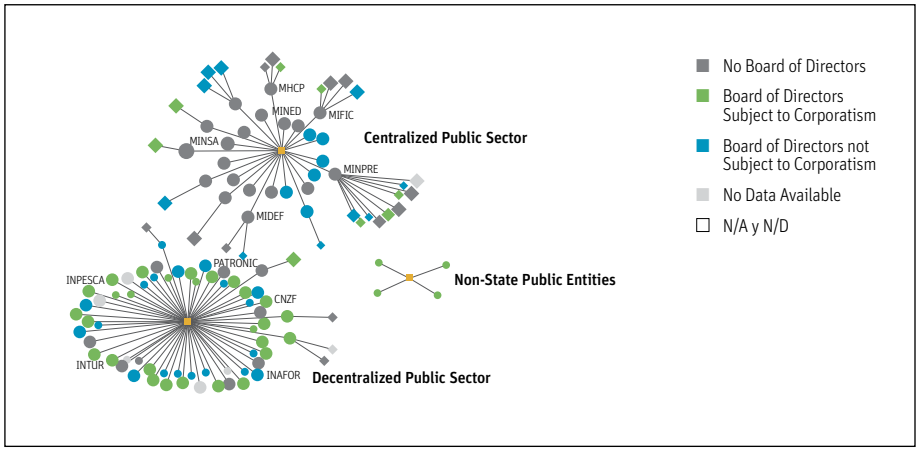
Diagrams 4.3 and 4.4 show the institutional networks of Costa Rica and Nicaragua, the countries of the region that are most notable for corporatism in public administration. The legend for these diagrams is the same as in Diagrams 4.1 and 4.2, except that in

DIAGRAM 4.3 Costa Rica: Public Institutions by Budget Size, Existence of a Board of Directors Subject to a Corporatist Arrangement



Source: own research based on the database of public entities of Central America and Panama in 2014

DIAGRAM 4.4 Nicaragua: Public Institutions by Budget Size, Existence of a Board of Directors Subject to a Corporatist Arrangement



Source: prepared by the authors based on the 2014 data base of public entities of Central America and Panama.

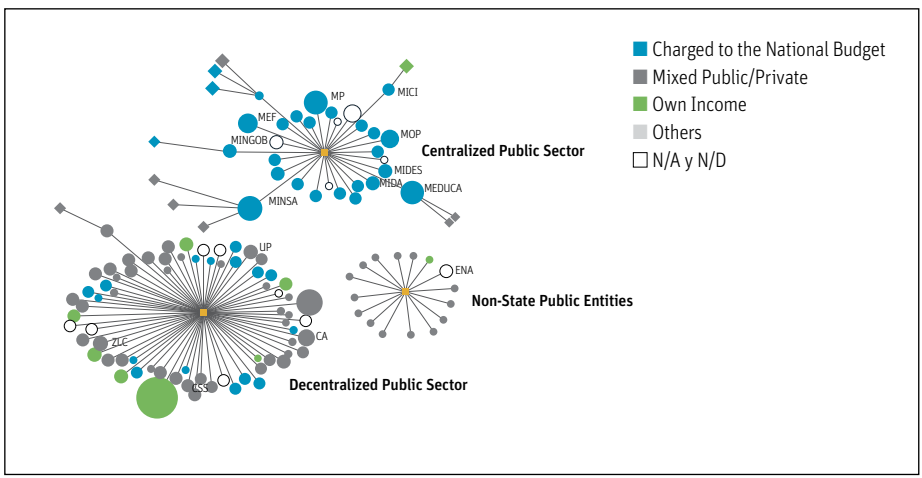
this case the color symbolizes a different variable: the existence or absence of a board of directors and, if there is one, whether it is subject to a corporatist arrangement (green).

Costa Rica has a high proportion of entities with boards of directors in all three segments of the public sector, including entities that form part of the executive branch, such as agencies attached to the government. Almost all non-state public entities and most in the decentralized sector are subject to corporatist arrangements for the senior positions of institutional management. Nicaragua, with much less developed institutional networks, is similar in this respect, as all non-state public entities and most institutions in the decentralized sector are subject to corporatist arrangements. However, it has one key difference: a very low presence of such arrangements within the centralized public sector.

Panama: a special case

Panama deserves a special note because its State has unique features when compared to the others. It is the country with the highest economic growth in the region (PEN, 2014), and it has a high level of human development (UNDP, 2014). In terms of these characteristics, as well as their population size and geographical location, Panama and Costa Rica share similar profiles. However, there are marked differences between their respective institutional apparatuses.

DIAGRAM 4.5 Panama: Public Institutions by Budget Size, Source of Financing and Legal Status



Source: own research based on the 2014 database of public entities of Central America and Panama.

In Panama, the institutional networks of the public sector are much simpler than in Costa Rica, and not very different from those of Guatemala, Honduras and Nicaragua, countries with less economic and social development. It also resembles this group of countries in two other respects: firstly, the considerable power of the treasury of its executive, as most of its public institutions depend entirely or partly on the central government's national budget for funding; and secondly, its moderate use of corporatism in the management of public entities. However, the Panamanian government is quite different from those of these other countries. Its budget is two to four times larger than the rest of the countries in the region, being second only to Costa Rica. At the same time, it has several of the largest public institutions in the region, such as the Caja de Seguro Social (Social Security Fund), or CSS.

In general terms, the State in Panama has simple institutional networks with little complexity, but its institutional apparatus is relatively large. Its executive has ample powers to control the whole public sector through the budget and a significant capacity to appoint senior institutional officials, and there is a moderate presence of corporatist arrangements on the boards of directors.

Preliminary debate

Based on our analysis of the institutional constraints on public administration by examining the configuration of the public sector in the countries of the region, we can propose an initial classification of the States of Central America and Panama. First of all, there is a clear difference between Costa Rica and most of the other countries. In Costa Rica, the State has complex institutional networks and the largest public apparatus in the region, as opposed to the simple and small networks that typify the States of the other nations. In principle, the high complexity of the network and the budgets it mobilizes allow the Costa Rican State to intervene significantly in the country's social and economic life, as its institutional apparatus controls a broad range of powers, functions and objectives. In other words, it has a robust platform, supported by significant resources for public administration. The situation is quite different for the CA-4 countries and Belize. As discussed in the preceding section, Panama falls somewhere in the middle (see Table 4.13).

An alternative analysis, however leads to a very different conclusion. Despite its robust institutional platform, the Costa Rican State faces the most significant constraints in terms of its capacity to direct its institutional apparatus, due to the fact that its executive has relatively limited budgetary and appointment powers, and also due to a more corporatist-intensive approach to the management of public entities. Under these circumstances, the executive has to negotiate public policy priorities constantly with other institutional actors with their own powers and autonomy, based on constitutional or statutory mandates.

TABLE 4.13 Ideal Types of Institutional Constraints on Public Administration

Institutional types	Interaction	Constraints	Most representative country
Complex network Large size	High CI * Low PB * Low PD	High capacity to act Low capacity to lead	Costa Rica
Simple network Small size	Low CI * High PB * High PD	Low capacity to act High capacity to lead	Honduras El Salvador Guatemala Nicaragua Belize
Simple network Large size	Low CI * High PB * High PD	Low capacity to act High capacity to lead	Panama

CI: Institutional complexity PB: Power of the treasury PD: Power of appointment
Source: own research.

Two predictable results of this constellation of factors are difficulties in making and implementing public policy decisions and difficulties in changing a course of action once it has been established due to the high risk involved. Hence, a State with these characteristics could be prone to inertia, due to the fact that any change it might seek to implement would require achieving a complex balance among multiple actors with veto powers.

Conversely, the CA-4 countries and Belize, which possess simple and small institutional networks, have highly dominant executives with more effective capacities to make their will prevail over the institutional apparatus as a whole, due to their broad powers over budgets and appointments, and to a relatively low presence of corporatist arrangements in the managing public institutions. In these countries, the executive is, by far, the most powerful institutional actor in the public apparatus, with broad powers to direct a State which, given its limited institutional development, is not capable of doing much. Therefore, in States with these characteristics the key to implementing any public policy is in the hands of the executive, which can make and implement a given decision or change a course of action at a relatively low cost.

There are two drawbacks associated with the scenario described above. On the one hand, the concentration of power in the executive introduces an element of unpredictability over time. The incumbent administration has considerable abilities to block, reverse or simply invent courses of action, making the formulation of long-term public policy extremely difficult. On the other hand, the weak institutional platform of these States means that any public decision has limited reach. The institutions simply lack the resources needed for implementing development policies with a significant impact on society as a whole.

To put it bluntly, while the Costa Rican state is obstructed by inertia and the difficulties in adapting to the changing conditions of its environment, most States of Central America and Panama suffer from a perverse combination of scarce resources and uncertainty. As mentioned above, Panama is a special case: its State has a significant budget, but its institutional bases, relatively fledgling and centralized in the executive, make it more unpredictable.

SECTOR OVERVIEWS

Chapters 2 and 3 of this publication dealt respectively with the social challenges faced by the countries of Central America and Panama, and the efficiency of public spending allocated to address them. In order to provide a more specific context to these issues, this section offers a brief description of the institutional design of two key social sectors – public health and education – for the purposes of drawing some preliminary conclusions about the institutional capacities of the States in these areas. It is not the intention here to offer an in-depth diagnosis of the institutionality of these sectors (which would be beyond the scope of this chapter), but to illustrate the general application of our analysis of the institutional configuration of these States to specific sectors as a useful complement to the other chapters of this book.

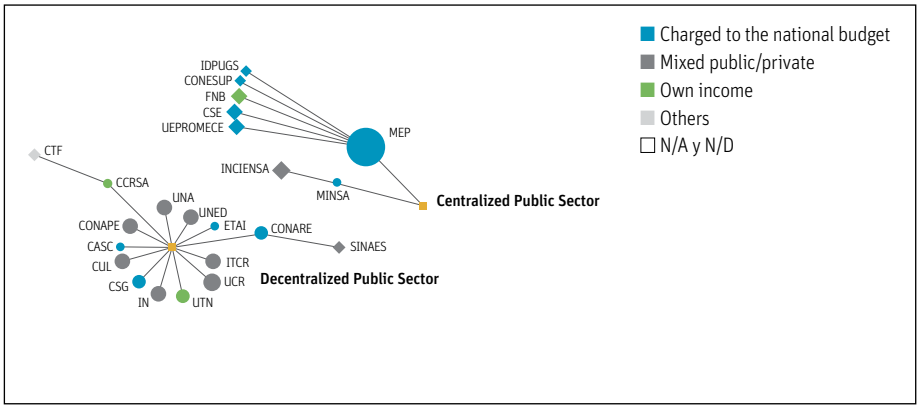
Certainly, public health and education do not cover the whole range of institutions responsible for public social expenditure. However, the entities working in these areas concentrate the largest proportion of the resources that States allocate to this kind of spending. In all the countries of the region, public health and education ministries and social security institutes are among the institutions with the largest budgets. Moreover, all of these States have signed international commitments, such as the United Nations Millennium Development Goals, which are heavily oriented toward social policy issues.

As might be expected from the discussion in the preceding sections, the main observation of this first sector overview is that the institutional capacities of the States of Central America and Panama in public health and education replicate the differences identified at the level of the public apparatus as a whole in terms of complexity, the power of the treasury and the power of appointment, notwithstanding the specifics of each case. If a State has a less complex design at the macro level, the institutional framework that addresses social needs is likely to have a less complex design as well. However, the analysis also reveals significant differences between countries.

Institutional design of the public education sector

Costa Rica has the most complex institutional design in the education sector (see Diagram 4.6) among the countries of Central America and Panama. The Ministry of Public Education (MEP, for its Spanish acronym) is the sector's governing authority and, in turn, the entity

DIAGRAM 4.6 Costa Rica: Institutional Network in the Public Education Sector by Budget Size, Legal Status and Source of Financing, 2013

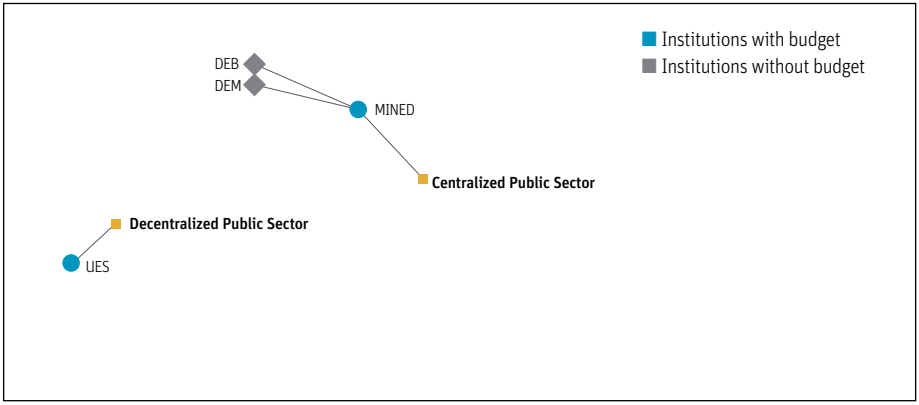


Source: own research based on the 2014 database of public entities of Central America and Panama.

with the largest budget (US$2,596.1 billion spent in 2013). However, its governing role is complicated by various institutional arrangements. On the one hand, the MEP has several attached agencies, some of which are functionally independent, such as the Consejo Nacional de la Educación Superior (National Board of Higher Education), or CONESUP for its Spanish acronym, which is in charge of regulating private higher education, the Fondo Nacional de Becas (National Scholarship Fund), or FONABE for its Spanish acronym, and the Consejo Superior de Educación (Higher Education Board), or CSE for its Spanish acronym, which also has responsibilities of governance over the sector. In addition, INCIENSA for its Spanish acronym, an institution attached to the Ministry of Public Health, engages in research and education activities which are not specifically subject to the MEP's governing authority. Finally, the decentralized public sector, which is made up of state-owned universities and their coordinating body (CONARE for its Spanish acronym), the Instituto Nacional de Aprendizaje (National Learning Institute or INA for its Spanish acronym) and other post-secondary institutes, is self-governing and, in certain cases, empowered with regulating educational services (e.g. the Sistema Nacional de Acreditación de la Educación Superior (National Higher Education Accreditation System), or SINAES for its Spanish acronym). Some of the agencies attached to the MEP and the entities of the decentralized sector also have their own boards of trustees.

Although the other countries have simpler and comparable institutional designs, El Salvador is a remarkable case in that its institutional configuration has undergone significant development over the past few decades. Diagram 4.7 shows the sectoral network existing in El Salvador in 1990, when the country was still immersed in a bloody civil war. As can be seen, this network was minimal: the Ministry of Public Education (MINED for its Spanish

DIAGRAM 4.7 El Salvador: Institutional Network in the Public Education Sector, 1990



Note: The diagram does not include the budget size due to the absence of information for that year; as a result the size of all nodes is the same.
Source: own research based on the database of public entities of Central America and Panama 2014

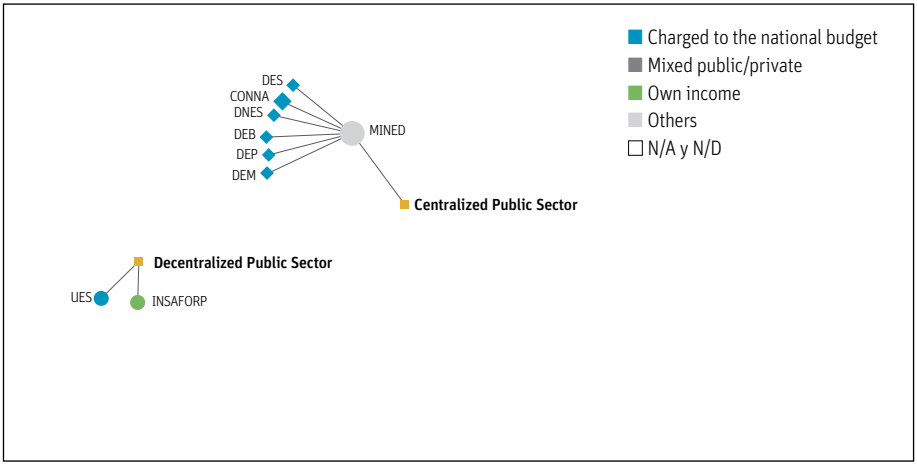
acronym), a few attached agencies and a single decentralized public entity, the University of El Salvador (UES), which at that time was badly beaten by the war.

A little over two decades later, the sector has undergone major restructuring. The MINED, which had a budget in 2012 of US$ 859.1 million, has a constellation of attached agencies responsible for different specific functions. The number of attached entities rose from two in 1990 to six in 2013, including the Dirección Nacional de Educación Superior (National Bureau of Higher Education), or DES, the Dirección Nacional de Educación Media (National Bureau of Secondary Education), or DEM, and the Consejo Nacional de la Niñez y de la Adolescencia (National Board of Childhood and Adolescence), or CONNA for its Spanish acronym. All these bodies, except for CONNA, operate without a board of directors and their senior officials are directly appointed by the minister of education. In the decentralized sector, in 1993 the Instituto Salvadoreño de Formación Profesional (Salvadoran Institute for Professional Development), or INSAFORP for its Spanish acronym, was established, with a governing body made up of private sector representatives.

With the exception of the UES, the INSAFORP and the CONNA, the Salvadoran minister has stronger powers of appointment and direction of the sector than his Costa Rican counterpart. It is thus interesting to note that although the minister has extensive control over the sector, when Congress creates functionally independent institutions it assigns the responsibility for directing them entirely to the social sectors. Unlike Costa Rica, where the minister is involved in the direction of various bodies with sectoral responsibilities, El Salvador does not deal with this obligation.

This analysis of the institutional restructuring of the education sector in El Salvador is important because if the examination were limited to the evolution of education spending in the 21st century, the conclusion reached could be erroneous: proportionally, the institutional reform has not entailed an increased level of spending as a percentage of GDP, with that level swinging from 2.7% (2000) to 3.7% (2009) to 3.0% of GDP (2012). The country seems to have committed to develop new institutional competencies and capacities to better leverage the existing resources, while maintaining a relatively similar spending level. Conversely, in Costa Rica education spending underwent a marked increase during this same period, rising from 4.7% of GDP in 2000 to 7.2% of GDP in 2012.

DIAGRAM 4.8 El Salvador: Institutional Network in the Education Sector by Budget Size, Legal Status and Source of Financing, 2013



Source: own research based on the 2014 database of public entities of Central America and Panama.

Other countries, such as Guatemala, Honduras and Nicaragua, have small and simple sectoral networks, which have not seen much development over the last two decades. Diagram 4.9 presents the situation in Guatemala in 2013, a network which has not undergone significant changes over time. In 2012, the Ministry of Education (MINEDUC), the governing body for education in this country of more than 14 million people, ran a budget of slightly less than US$1.3 billion, a little more than half the amount spent that same year by the MEP in Costa Rica, a country with a population of less than 5 million. Also of note is the fact that Guatemala's institutional network in the education sector is simpler than that of El Salvador.

In Guatemala, the existence of such a poorly developed institutional network also reflects the low level of spending on education. In 2012, education spending per capita[21] in Guatemala (stated in current US dollars) was US$99, the second lowest in the region after Nicaragua (US$64). Education spending per capita in El Salvador and Honduras was not much higher (US$116 and US$139, respectively), amounting to half the education spending in Panama (US$313 in 2011), while education spending in Costa Rica was between four and ten times higher (US$693 in 2012). Unlike Guatemala, Nicaragua and Honduras, in El Salvador the effort done to revamp its existing institutional network has not been enough, the country not only continued to spend little in education, but it has also failed to introduce significant changes to the design of the institutions responsible for implementing public policy in the sector.

The observations in the case of the countries with small and simple institutional networks relate not only to the effective priority that their governments give to public education but, in particular, to the policy objectives they actually pursue, beyond the international declarations and commitments. Without institutional reforms and changes in the levels of education spending, it seems unlikely that the sector's institutions will be able to achieve much more than basic literacy among the population. With low levels of education spending and such fledgling institutional networks, enhancing the quality of education or setting other more ambitious goals, such as universal secondary education, appear to be unattainable. In the recent standardized tests performed in the Third Regional Comparative and Explanatory Study (TERCE) by UNESCO in 2012 in fifteen countries in the Americas, the CA-4 countries and Panama were ranked in the last places in the hemisphere.[22]

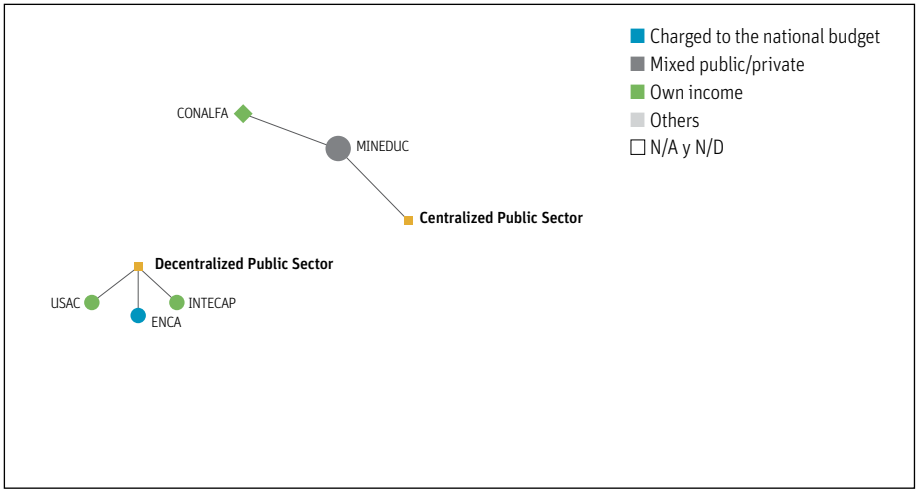
Institutional design of the public health and social security sector

The differences in terms of complexity and size in the institutional networks in the public health sector in the countries of the region compared to those in the education sector are significant. The differences in budget size between the public institutions of Costa Rica, Panama and the other Central American countries are bigger than those discussed for the education sector. When the per capita budgets of the social security institutions are compared, we find that the per capita spending of around US$1,000 in the two southern countries is from ten to thirty times higher than the per capita spending of the CA-4

[21] Calculated as expenditure per inhabitant, not per student.

[22] The TERCE tests assess the educational performance of elementary school students based on a set of standardized parameters. In reading comprehension for grade three and grade six students, all of countries (except for Costa Rica) obtained a score below the Latin American average, ranking at the bottom of the region. Similar results were obtained in math, suggesting that the low educational performance of students in the CA-4 countries was systematic, in spite of better scores compared to the tests conducted in the Second Regional Comparative and Explanatory Study (SERCE) a few years earlier (UNESCO, 2014).

DIAGRAM 4.9 Guatemala: Institutional Network in the Education Sector, 2013 by Budget Size and Management Subject to Corporatism



Source: own research based on the 2014 database of public entities of Central America and Panama.

countries (see Table 4.14). Of course, it cannot be directly concluded that these differences reflect equally wide gaps in the delivery of public health and social security services, since in this respect an extremely important factor comes into play: the institutional structure of the sector and the way in which the respective competencies are distributed among the entities that comprise it. Thus, in Panama, the Caja del Seguro Social (Social Security Fund) centralizes the direct provision of many of the aforementioned services, while in Honduras, the Instituto Hondureño de Seguridad Social (Honduran Social Security Institute) provides these services together with other entities, such as the Instituto de Previsión Militar (Military Social Security Institute). Nevertheless, the different budget sizes of the entities serve as a good starting point for the analysis of the institutionality of the sector because, in general terms, such differences do reflect the existence of institutional networks with clearly differentiated capacities and performances. In fact, the results achieved by Costa Rica and Panama in the main health and social security indicators that can be examined are considerably better than those of the other countries in the region.[23]

The differences in institutional design should therefore be analyzed carefully. In the case of Costa Rica, there is a clear separation between governance of the sector, which is managed by the Ministry of Health (MSP for its Spanish acronym), and the provision

[23] For a compilation of the most recent health indicators, based on the information furnished by national sources, see: "Centroamérica en cifras (2014)" published by the State of the Nation Program (PEN, 2014).

TABLE 4.14 Central America and Panama: Budget Allocated to the Social Security Institution (In Millions of Current US Dollars, 2013)

Country	Budge 2013 of social security institution	Budget per capita (USD)
Costa Rica (CCSS)	4,790.4	1,016
El Salvador (ISSS)	673.8	107
Guatemala (IGSS)	1,144.0	74
Honduras (IHSS)	310.4	36
Nicaragua 2/ (INSS)	339.3	55
Panama (CSS)	3,640.8	945

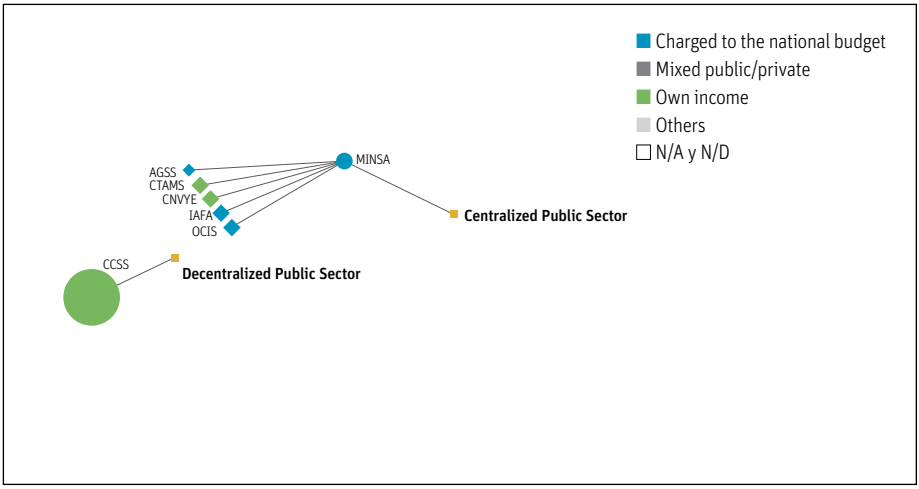
Notes: 1/ Approved budget
2/ The figure for Nicaragua pertains to the budget approved in 2010, the latest available information.
Source: own research based on the database of public entities of Central America and Panama 2014

of health services, which is the responsibility of the Costa Rican Social Security Fund (CCSS for its Spanish acronym). The CCSS also has a corporate governance body that is independent from the MSP, in which employers, unions and other workers organizations all participate. The sector's governing authority faces multiple practical challenges: the minister has limited power of appointment and limited power of the treasury. The CCSS has its own sources of revenue (such as employees' social security contributions) and the MSP has a budget of less than 10% of that of the CCSS. On the other hand, several agencies attached to the Ministry have their own sources of revenue and the appointment of their directors does not entirely depend on the minister. As a result, the sector's governing body has limited power to perform its duties (see Diagram 4.10).

The design of El Salvador's public health sector is quite different. Firstly, the budgets of the Ministry of Health (MSP) and the Salvadorean Social Security Institute (ISSS for its Spanish acronym) are relatively smaller than their Costa Rican counterparts, but very similar to each other: US$639 million for the ISSS and US$579 million for the MSP (2013). A more relevant aspect, however, is the fact that responsibility for the national network of hospitals is legally entrusted to the Ministry of Health: Santa Teresa National Hospital and Rosales National Hospital, for example, are both attached to the Ministry. Moreover, these hospitals do not have their own boards of directors, leaving the minister with considerable power to manage their affairs. Diagram 4.11 therefore depicts a complex network of entities surrounding the Ministry of Health. In short, the Salvadoran State has a much more limited institutional capacity to establish public health policy; however, in principle, the minister has more power to direct the institutions in order to implement the government's vision in this sector.

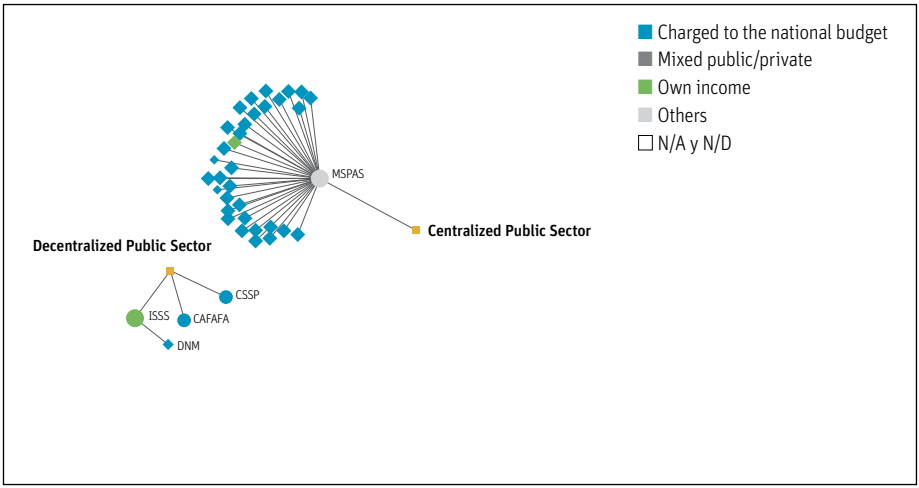
Finally, both Guatemala and Nicaragua have minimal institutional capacities (see Diagrams 4.12 and 4.13), in addition to small public health networks (even accounting for

DIAGRAM 4.10 Costa Rica: Institutional Network in the Health Sector by Budget Size, Source of Financing and Legal Status, 2013



Source: own research based on the 2014 database of public entities of Central America and Panama.

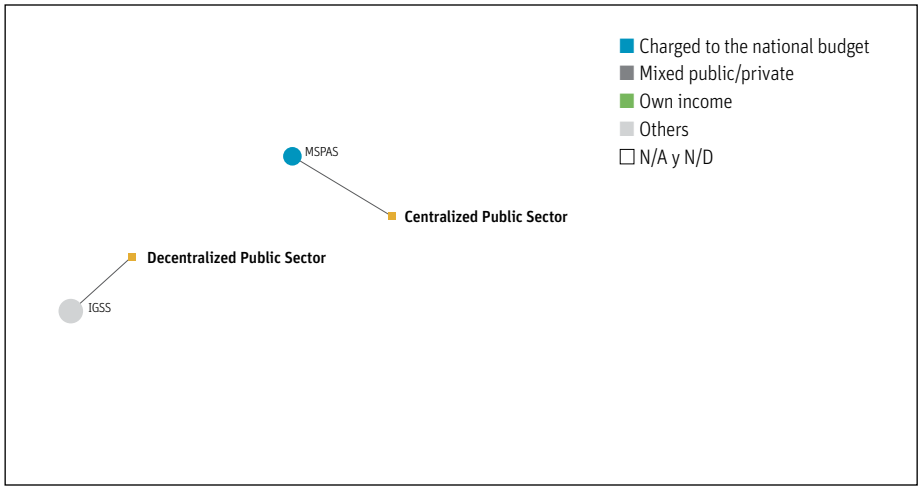
DIAGRAM 4.11 El Salvador: Institutional Network in the Health Sector by Budget Size, Source of Financing and Legal Status



Source: own research based on the 2014 database of public entities of Central America and Panama.

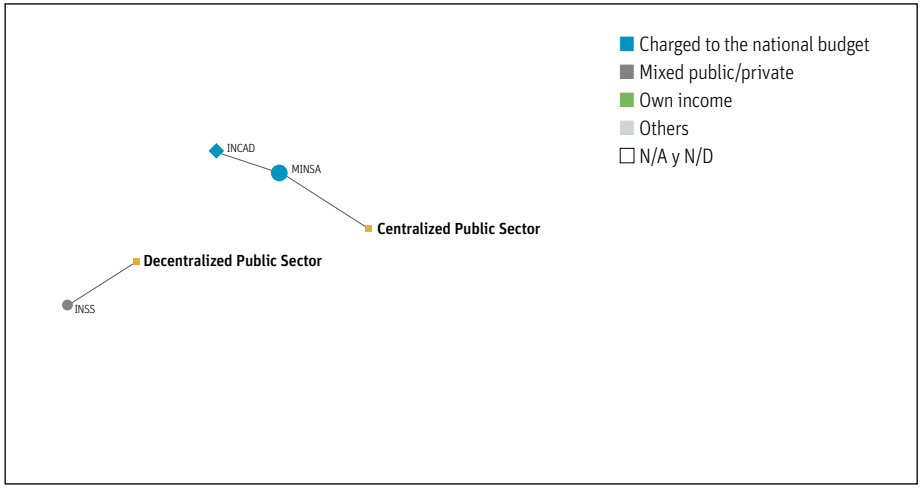
the fact that Diagram 4.13 presents an excessively minimalist picture due to the absence of updated information on Nicaragua's Social Security Institute). Under these circumstances, the type of institutional design, i.e. how responsibilities are distributed among the entities

DIAGRAM 4.12 Guatemala: Institutional Network in the Health Sector by Budget Size, Source of Financing and Legal Status



Source: own research based on the 2014 database of public entities of Central America and Panama.

DIAGRAM 4.13 Nicaragua: Institutional Network in the Health Sector by Budget Size, Source of Financing and Legal Status



Source: own research based on the 2014 database of public entities of Central America and Panama.

of the sector, is relegated to the background in order to tackle the challenge of creating an institutional network capable of developing any wide-ranging public policy.

The existence of such minimal institutional networks raises the question of the priority that these States are actually giving to the obligation of providing affordable

and quality health services to their people. Although these States have constitutional mandates to provide health services to their people and are signatories to international commitments to improve health indicators, the capacity of the existing institutions is too limited to be able to pursue new public policy goals. At most, they are able to continue doing "more of the same", which in practice means social exclusion or a lack of access to health, education and sanitation services for large segments of the population (Pérez-Sáinz, 2012).[24]

CONCLUSIONS

This chapter makes an initial approach to the empirical study of the institutional capacities of the States in the region (except for the Dominican Republic) through a comparative analysis of their institutional designs and their public budgets. The analysis of these institutional networks has also facilitated an examination of the size and complexity of the public apparatus in each of the countries of the region, two factors that seem to be closely linked in the cases studied. The purpose of this study was to identify structural constraints on public administration that may result from the manner in which the States legally organize their pools of competencies, financial resources and hierarchies.

Our main conclusion is that there effectively appears to be three types of institutional configurations in the States of Central America and Panama. Costa Rica belongs to the first type: a public apparatus with large and complex institutional networks and a weak executive with limited powers of the treasury and of appointment. Although Costa Rica has the broadest and most diverse pool of resources in the region (a factor that favors the implementation of wide-ranging public policies), its institutional design fosters inertia, a lack of adaptation to changing contextual conditions, and ongoing conflicts and negotiations between institutional actors. This conclusion is supported by an examination of the education and public health sectors.

The second type of institutional configuration is that of the CA-4 countries. Despite the differences between them, the public apparatus of each of these countries is characterized by small and simple institutional networks, but with strong executives holding broad powers of the treasury and of appointment. These are States with a limited capacity to manage public policy due to their limited pool of resources, but the hegemony of the executive simplifies the administration of the public apparatus. While in

[24] The book edited by Pérez-Sáinz offers a theoretical proposal and an empirical analysis on the problem of social exclusion, which is understood as a dual fracture: disempowerment in the labor market (due to precarious employment opportunities) and disempowerment in terms of social citizenship (due to a lack of access to basic public services, such as education, health and sanitation). According to studies based on household surveys, at least 3.3 million Central America and Panama households -17.2 million people (roughly 40% of Central America and Panama's population) - were experiencing this dual exclusion from labor markets and social citizenship, most of them concentrated in the CA-4 countries.

Costa Rica, the institutional design fosters the stability of long-term public policies, the institutional designs of the CA-4 countries facilitate sudden changes in policy direction due to the dominant role within the public apparatus of their executive branches, whose representatives change over the time as a result of electoral processes. In these institutional designs, entities have little protection against the influence of partisan and electoral factors, as they are at the mercy of the executive, an actor which by its nature is political and partisan. Finally, as shown above, Panama is a hybrid case because while the size of its State resembles that of Costa Rica, the simplicity of its institutional networks is comparable to that of the CA-4 countries. In principle, Panama is a country with the capacity to pursue public policies of a larger scale, without the complications affecting decision-making in Costa Rica.

The three types of institutional configurations pose specific challenges from the perspective of public policy implementation. In the case of Costa Rica, the critical issue is the political negotiation between actors with powers to veto or at least considerably delay any public action. Such negotiation would have the aim of opening up the space needed for institutional reforms, reallocating spending priorities or introducing new public policy tools. Without this prior negotiation, which could become particularly complex, governments will have few possibilities of implementing any changes, not due to a lack of an institutional framework with a reasonable capacity to implement them, but due to political resistance. If such negotiation is successful, the Costa Rican State has a pool of technical, bureaucratic and budgetary resources that can be mobilized to achieve the objectives agreed upon.

In the case of the configuration of the CA-4 countries, the main challenge is quite different: due to the weakness of their institutional networks, the design of any public policy or new tools to achieve development objectives needs to address, as a critical variable, the issue of building the necessary institutional framework to implement such initiatives. In other words, it is not enough merely to negotiate a new public policy "package" (a task that would be relatively easier in these countries than in Costa Rica), as this can be achieved with the support of the executive, the dominant actor in each State. It is imperative for these countries at the same time to implement programs to strengthen the permanent capacities of their institutions, based on an explicit and clear institutional design that reallocates legal powers among the different institutions or that assigns new powers to new entities. One aspect that needs to be addressed urgently is the financing of public institutions, as these States have entities with very small budgets, with limited capacity to support ambitious, large-scale public policy programs, whatever direction such programs may take. A critical aspect of this institutional design is the protection of entities from the interference of the executive, which under current circumstances has considerable power to coordinate public policy according to partisan political contingencies.

In the case of the institutional configuration of Panama, the issue of political negotiation is not as complex as it is in Costa Rica because, as discussed above, the former has a dominant executive branch. In contrast with the configuration of the CA-4 countries, financing is not a critical issue because the Panamanian State has a much stronger revenue base. The key issue in this case is the selective strengthening of the institutional capacities of its State specifically related to the implementation of the chosen public policy package. The institutional redesign process needed is probably not as broad and deep in Panama as it is in the CA-4 countries, and should be focused more on making organizational changes or ensuring the allocation of the financial and technical resources required to meet the stated goals.

Regardless of the institutional configuration, all States of Central America and Panama face two common challenges: transparency and accountability. Addressing the first aspect may be as simple as ensuring the publication of the budgets of public institutions, something which, as discussed in this chapter, does not occur in the case of a significant number of entities. The second aspect can only be briefly discussed here, as it was not analyzed in this chapter. However, to the extent that any public policy entails the mobilization of technical, financial and human resources, it is imperative that mechanisms be developed to ensure that citizens are promptly and fully informed of the outcomes of public policy.

The conclusions outlined here are preliminary in scope. Further research and theoretical reflection are needed to develop a theory that links institutional designs to styles of public administration. Despite these limitations, this chapter provides evidence of the importance of studying the institutional capacities of States as a structural context of relevance to public policy analysis.

ANNEX 4.1 Database of Public Entities of Central America and Panama

The database of public entities of Central America and Panama has been compiled by the State of the Nation Program (PEN) operated by Costa Rica's Consejo Nacional de Rectores (National Council of University Presidents), or CONARE, and the Defensoría de los Habitantes de la República (Costa Rican Ombudsman Office). By systematizing a set of variables, this database can be used to analyze the organization of institutions and its evolution. This work has been possible thanks to the inter-institutional collaboration of univerties of Central America and Panama and research centers, under the direction of the State of the Region research team, the initiative coordinate by the PEN.

The unit of analysis of the database is any entity with a legal personality of its own or any agency that forms part of the public administration of the States. The database contains the following information on each entity: the statute that created it, its legal status, governing board and statutory background, its functions, whether it is attached to another entity, the year and period in which it was established and, where available, its budget. In general terms, the database distinguishes entities by their purposes, functions and diverse levels of autonomy, identifying them as ministries, autonomous institutions, decentralized institutions, state-run companies, non-state public entities, attached agencies, funds and institutional programs.

The information contained in the database can be used to examine the region's institutional framework, while including specific features of each institution, such as its year of establishment, source of financing, the existence of a board of directors, the presence of corporatism, and the budget approved for the last few years. However, one of the key aspects of the data compiled lies in the possibility of identifying relationships between entities, based on their level of centralization or decentralization. The presence of these links makes it possible to analyze social networks and their viewing techniques, tools which allow a more in-depth study of the dynamics of the state apparatus as a whole and its connections.

The 2011 version of the database is currently available at www.estadonacion.or.cr. For the specific purposes of this chapter, we had access to the 2014 version, which will be made publicly available in the first quarter of 2016. The 2011 version includes the seven countries of the region (Belize, Costa Rica, El Salvador, Guatemala, Honduras, Nicaragua and Panama); the 2014 version does not include the year 2014, as it was not possible to update the information in time for its release.

ANNEX 4.2 Budgetary Data from the Database

In all countries, except for Belize, the budget used is the one approved in 2013 and is stated in thousands of US dollars. For the purposes of the analysis of social networks, some modifications were made to the database of public entities. These changes are detailed below:

Costa Rica

Due to the absence of updated information, for the Ministry of the Presidency the 2012 budget was used. In addition, the following institutions were excluded from the analysis due to their being attached to municipalities: Museo de Guanacaste (Guanacaste Museum), Ecomuseo de Las Minas de Abangares (Las Minas de Abangares Ecomuseum), Juntas Administrativas de Colegios (High School Boards), Juntas de Educación de Escuelas (Elementary School Boards), Comités Cantonales de Deportes (Sports Cantonal Committees), Comités Cantonales de La Persona Joven (Cantonal Committees for Youth) and Centro Cultural Herediano Omar Dengo (Herediano Omar Dengo Cultural Center).

El Salvador

The following institutions were excluded from the analysis due to their being agencies attached to an institution classified as attached to another node: Fondo de Saneamiento y Fortalecimiento Financiero (Financial Recovery and Strengthening Fund), Jardín Zoológico Nacional (National Zoo), Museo Nacional (National Museum), Radio Nacional de El Salvador (El Salvador National Radio) and Canal 10 Televisión Educativa y Cultural (Channel 10 Educational and Cultural Television).

Panama

The following three entities are excluded due to a lack of available information: Patronato de El Festival del Manito (El Manito Festival Foundation), Patronato de la Feria Internacional de las Flores y El Café de Boquete (International Flower and Café de Boquete Fair Foundation) and Patronato Panamá Viejo (Old Panama Foundation).

Honduras

The budget used for the Ministry of Government and Justice is for 2009.

Guatemala

The Consejo Nacional de Atención al Migrante (National Council of Immigrant Services) is excluded from the analysis due to a lack of available information.

Nicaragua

The School Boards and Municipal Education Boards are not included due to their being entities attached to municipalities. The Oficina Nacional de Acreditación (National Accreditation Office) was also excluded due to its being an entity attached to an institution already classified as attached to another node. Also, the Instituto Nacional de Información de Desarrollo (National Institute of Development Information) is classified as an agency attached to the executive. Finally, the 2012 budget was used for the following entities: Dirección de Defensa del Consumidor (Consumer Protection Office), Instituto de Desarrollo Rural (Institute of Rural Development), Instituto Nicaragüense de Apoyo a la Pequeña y Mediana Empresa (Nicaraguan Institute for the Development of SMEs), Instituto Nicaragüense de Fomento Cooperativo (Nicaraguan Institute of Cooperative Development), Instituto Nicaragüense de Seguros y Reaseguros (Nicaraguan Institute of Insurance and Reinsurance), Superintendencia de Bancos y Otras Instituciones Financieras (Superintendency of Banks and Other Financial Institutions) and Tribunal Tributario Administrativo (Administrative Tax Court).

Belize

The 2009 budget was used for all institutions due to the limited information available.

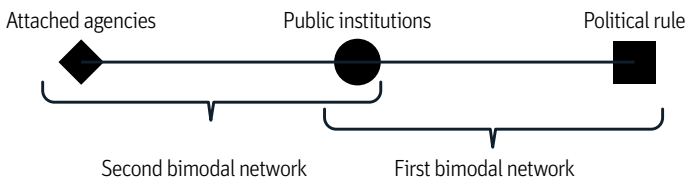
ANNEX 4.3 Methodology Applied to Analysis of Social Networks

To better understand the institutional configuration of the States of Central America and Panama, the social network analysis technique is used. According to this approach, the concept of social network refers to a finite set of actors and the relations that connect them (Aguirre, 2011). It is thus possible to use sociograms to represent the existing ties between the institutions of each country in Central America and Panama. The resulting charts make it possible to view the structure of the system of relations, find patterns, and analyze the properties of the institutional networks.

In this study, affiliate or bimodal networks are used to describe the links between two clusters of nodes at different levels of analysis (Hanneman and Riddle, 2005). In this particular case, mapped relationships represent links between actors (public institutions) and events (political rule). The political rule is based on a general classification related to the criteria of institutional centralization and decentralization. As a result, entities will be classified into three possible categories: centralized public sector, decentralized public sector or non-state public entities.

For a broader view, the networks described above are complemented with other affiliate networks that show the links between institutions and their attached agencies. However, for the purposes of visualization, both groups of networks are shown simultaneously and the node shape is used to distinguish one network from another. As a result, each chart depicts an initial network shaped by the political rule, which is represented by square nodes, and institutions, which are represented by circular nodes. After this, an additional network is observed, made up of the same institutions and their attached agencies, which are represented by diamonds (see Diagram A1).

DIAGRAM A1 Bimodal Networks



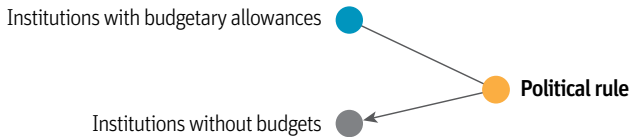
Source: own research.

Sociograms are also used to show the specific features of the public institutions and their attached agencies. This results in the construction of networks that vary according to the attributes chosen, so that for each country three variations are designed. In the different charts, the size of the nodes is determined by the size of the budget allocated for

the year analyzed. However, the size of the square nodes, which represent the classification of centralization, is allocated arbitrarily.

The initial version of the network uses colors to distinguish between institutions with budgetary allowances and institutions without budgets (see Diagram A2).

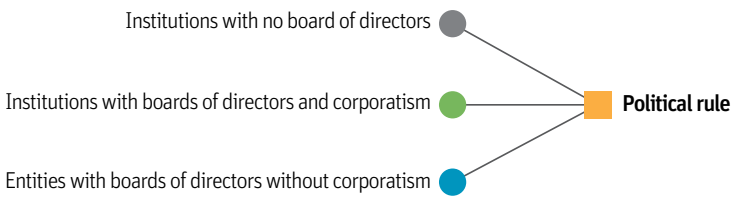
DIAGRAM A2 Network by Budgetary Allowance



Source: own research.

The first variation shows the previous network, but uses colors to indicate the existence of corporatism exists in the institutions. To this end, nodes are used to represent institutions with no board of directors, institutions with boards of directors and corporatism and, finally, entities with boards of directors without corporatism (see Diagram A3).

DIAGRAM A3 Network by Corporatism

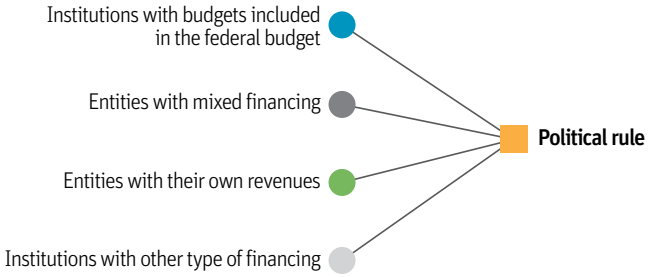


Source: own research.

Another version of the network analyzes the type of financing public entities receive, considering the following categories (see Diagram A4):

- Institutions with budgets included in the federal budget.
- Entities with their own revenues: includes funds created by statute, taxes, fines, monetary charges and processing fees, municipal revenues and revenues from services provided or profits earned.
- Entities with mixed financing: a portion is included in the federal budget and the other portion comes from the entity's own revenues.
- Other type of financing: includes other sources of financing, loans, and public and private donations and subsidies.

DIAGRAM A4 Network by Type of Financing



Source: own research.

Finally, a detailed analysis is conducted on institutions in two specific sectors: education and health. For both groups of networks, charts are designed to depict the variations mentioned above. The time factor is also included in the analysis, as networks are presented at two different points in time: 1990 and 2013.

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Social spending is a powerful tool to reduce poverty, achieve higher equality and better life conditions for the inhabitants of a country. In *"Social Expenditure in Central America, Panama and the Dominican Republic: 2007 - 2013"*, a characterization of the different variables that have taken social expenditure to its current position is performed. During the economic crisis period, many governments of the region confront this situation with an increase in social expenditures. However, part of the increase was centered on inflexible items, particularly wages, which facilitated the increase in fiscal deficits and, consequently, on public debt. Thus, after the financial crisis, the fiscal situation has reduced governments' buffers to respond to economic shocks, which imply that we need to examine the fiscal policy given its rigidity, the scarcity of public resources and the institutional contract. The study of wage bill increases provides more information related to the causes of this dynamic, and allow us to offer recommendations to improve spending management without threatening public finances. A better use of resources could contribute to define a more efficient and equitable agenda for the countries in the region. Finally, something that was not deeply explored, as of today, is the institutional complexity and how this could facilitate, or hinder, the government's ability to express its fiscal policy, including the effectiveness in the use of public resources.

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