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Growth, poverty and the distribution of labor earnings in Brazil, Chile and Mexico

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CONTENTS

Abstract

Lack of employment and the deterioration of labor income are critical issues for the development of Latin American countries. Improvement in employment and labor conditions has been slow, even in the context of more stable and growing economies. The persistence of high incidence of poverty and inequality may be largely explained by the poor performance of labor markets. The motivation of this paper is the idea that poverty reduction is sustainable when labor markets provide expanding opportunities to the poor. In that sense, the links between economic growth, employment creation and the distribution of labor earnings are central to the discussion.

This paper presents an analysis of household survey data for Chile, Brazil and Mexico, from the early 1990s to the mid 2000s. It looks at changes in household income per capita and the way income changes affected the distribution of income. Through a simple decomposition of the sources of household income, it was possible to observe the pattern of change of household labor income and to check whether those changes were pro-poor[5].

Findings confirm the idea that the opportunities of the poor to gain access to good quality jobs need to be significantly improved. Changes in labor income in this paper were analyzed in eight time periods. Only in three of them did income changes favour the poor: Brazil 1996-2004, Mexico 1994-1996, and Mexico 2000-2004. But in two of them, pro-poor growth was associated with periods of economic contraction where the pro-poor characteristics of income changes merely reflected the survival strategies of poor households. In the other five cases, growth of labor income was associated with a non pro-poor distributional pattern.

Findings in this paper confirm that the poor are very responsive to economic fluctuations, showing large flexibility to participate in labor markets and compensate for loss of earnings at times of contraction. But at times of growth, they seem to face strong limitations to participate in more dynamic labor markets. Growth is good for the poor, in the sense that their income increases, but it is not as good as for the non-poor. The distributional pattern of periods of growth in labor income seems to be systematically working against further income gains for the poor.

[5]We define an income change as pro-poor when the change in the labor income of the 20 percent poorest households is greater than the average change of labor income for all households.

Introduction[6]

Lack of employment and the deterioration of labor income are systematically mentioned as the issues of greatest concern for citizens in Latin America.[7] The report on democracy prepared by United Nations Development Program in 2004 found great dissatisfaction among people in the region by the way public matters have been handled. The International Labour Office (2006a) has pointed to the link between the broad dissatisfaction of citizens and the performance of labor markets. At least part of the political changes taking place in the last few years could be related to the poor performance of labor markets. After a long period of recession and deterioration of living conditions in the 1980s, economic growth started to recover but conditions of labor improved at a slower pace. At the turn of the century, countries in the region continued to suffer from a high incidence of poverty and inequality. Such a disappointing performance raises a sizeable challenge to policy makers in the region and questions the effectiveness of early reforms to improve income and employment.[8]

Throughout this long period of reforms, most Latin American countries have not been able to recover past growth dynamics. In addition, the persistence of high poverty rates, inequality and lack of adequate jobs is constantly challenging governments' ability to formulate appropriate policies to improve the performance of labor markets, especially for the lowest segments of the population. The motivation behind this paper is the idea that poverty reduction would only be sustainable if it was based on a more dynamic performance of labor markets as a way of expanding opportunities to the poor. In that sense, the links between economic growth, employment creation and the distribution of labor earnings are central to the discussion.

We analyze household survey data from three countries in Latin America for the period that goes from the early 1990s to the most recent date for which we had access to information[9]. We look at changes in

[6] The authors thank the extensive comments received from an anonymous referee who contributed to improve the paper. The research assistance of Gabriela Montes de Oca is greatly appreciated. Arguments are the sole responsibility of the authors and do not reflect the official position of the institutions where they work.

[7] See IDB (2004)'s assessment of labor in Latin America.

[8] See, for example, Berry (2007); Galli (2004); Katz and Stumpo (2001); Rodríguez and Rodrik (1999); Weller, 2001.

[9] For Brazil we use the Pesquisa Nacional por Amostra de Domicílios (PNAD), 1992, 1996, 2004 (www.ibge.gov.br). The survey is conducted during September and the sample size varies from 317,315 to 399,354 individuals. For Chile we use the Encuesta de Caracterización Socioeconómica (CASEN), 1996, 2000 and 2003 (MIDEPLAN www.mideplan.cl/casen). The survey is conducted during November and sample size varies from 134,262 to 257,077 individuals. For Mexico we use the Encuesta Nacional de Ingreso y Gasto de los Hogares (ENIGH), 1992, 1994, 1996, 2000, and 2004 (INEGI www.inegi.gob.mx). The survey is conducted during August until November, except for 1994, when it was conducted during September until December; and sample size varies from 50,862 to 91,738 individuals. These data sets contain rich information on total income, labor income and other incomes. We kept the concepts of labor income and other income sources used in each survey, which are comparable throughout the years covered in this study. In all cases, we deflated current income by the official consumer price index of the month in which the survey was collected, using the date of the most recent survey as the base. Income data for Chile includes the imputed value of owners' occupied housing to the current income of households; we deliberately decided not to follow this procedure. In the case of **Brazil** we constructed variables using total labor income and total individual income in the micro data. IBGE does not correct income variables for non-response and under-declaration. We dealt with non-responses by excluding households where at least one member reported income, but the amount was unknown. Since the sample size for PNAD is large, this procedure does not affect the results obtained. The data base for **Chile** published by MIDEPLAN is already corrected for non-response and under-declaration with a methodology proposed by ECLAC. The micro data for **Mexico** provides fairly detailed reporting of household income. To maintain comparison with Brazil and Chile, we limited the analysis to monetary income. We calculated monthly income as the adjusted average of income earned in the six months prior to the interview, following the methodology used

household income per capita using a simple decomposition, and look at the way income changes affected the distribution of income. We have organized the analysis by relevant periods within each country in order to gain insights into the broad relationship between general economic conditions of countries and labor outcomes. During each country-period, we are able to look at the pattern of change of household labor income and to check whether or not these changes can be identified as pro-poor.

We take a further step in disaggregating changes in labor income by looking at changes in workers earnings versus variations in the quantity of employment. For each one of these factors, we can also observe the way labor outcomes benefit different income groups throughout the whole distribution of household income. Using this methodology we are able to tell: i) what is the origin of changes in household income; ii) whether or not income changes are pro-poor; iii) what are the factors that explain changes in labor income at the household level (prices versus quantity of employment); and iv) whether or not such changes in labor income benefit the poor (are pro-poor or not).

The remaining of the paper is organized as follows. First, we briefly review the Latin American record on growth, employment and poverty since the 1990s, and discuss the link between growth, employment and poverty. In the next section we analyze household income changes in Brazil, Chile, and Mexico, starting with a presentation of the methodology used. We then make an attempt to integrate the analysis performed by country into a cross-country comparative discussion, trying to highlight general findings on the links between growth, employment and poverty. In the last section, we summarize our main findings.

Poverty and employment in Latin America

The reduction of poverty and inequality in Latin America has been slow. Taking the poverty lines estimated by the World Bank, extreme poverty was 9.7 per cent in 1981 and 9.5 per cent in 2001; moderate poverty went from 26.9 to 24.5 per cent[10]. Poverty estimates from the Economic Commission for Latin America and the Caribbean—based on comparable national poverty lines—yield higher estimates, but trends are similar. In 2004 the incidence of poverty was 42 per cent; still above the 35 per cent incidence in 1980, but down from 48 per cent in 1990. Indigence increased from 19 per cent in the 1980s to 23 per cent in 1990 and then decreased to 17 per cent in 2004 (Berry, 2006 and ECLAC 2006). These two methodologies to estimate poverty consistently suggest that growth was barely trickling down to the lowest end of the distribution. It did help to recover some of the income losses for the second quintile of the population, but living conditions within the poorest households did not improve significantly.

A factor that may help explain such trends is the deterioration (or lack of improvement) in the conditions of employment. A number of studies have tried to establish the factors behind the region's slow growth of productive employment, which is the kind of employment that will generate a level of income enough to satisfy minimum living conditions for a family and contribute to reduce poverty. There is no doubt that slow economic growth restricts the possibility of simultaneously creating

by the Mexican government to make official estimates of poverty. There are no cases of no-response in the dataset and no correction for under-declaration.

[10] Extreme poverty (or indigence) is defined as the level of income that is necessary to purchase a consumption basket that would provide minimum nutrition to individuals. Moderate poverty includes the value of food and non-food essential consumption. The monetary value of the different poverty lines depends on the content of the consumption basket and the prices used for estimation. The World Bank makes international comparisons with a poverty line for extreme poverty equivalent to one dollar a day per person adjusted for the purchasing power of each country. Countries usually produce their own poverty estimates based on nationally defined consumption baskets.

employment and increasing productivity. Enough evidence also points towards the negative consequences that overvaluation in the exchange rate (a preferred instrument for price stabilisation in various countries of the region) has had on job creation. In addition, there are studies that suggest the presence of structural factors such as the increase in the capital intensity of production led by the introduction of labor-saving technology, especially within the exporting sectors.[11] Production for the domestic market has also been introducing labor-saving technology as a way to remain competitive vis-à-vis increasing imports. Mining and natural resources (sectors with high capital intensity) have gained participation in total production and exporting with a relatively smaller contribution to employment creation. The growing importance of capital intensive technology for exports seems to be a factor behind the low elasticity of employment to output growth.

Three issues summarize the poor performance of labor markets in Latin America. First, the persistence of high levels of unemployment in most countries. In 1990 the regional average was 7.1 per cent and 10.6 per cent in 2004 (ILO, 2006b). Second, the increase of unregulated jobs characterized by low productivity and low remunerations usually associated with under-employment and informality. Between 1990 and 2003 these types of activities increased their importance, as a share of non-agricultural activities, from 42.8 to 46.7 per cent. As many as 61 out of every 100 new jobs created in this period occurred in informal activities (Tokman, 2007). Third, the slow growth of wages and increasing wage inequality. The 2003 increase in average industrial wages of the 1990s was only sufficient to set its level slightly above that in 1990.[12] Moreover, average wage increase was associated with increasing inequality between skilled and unskilled workers.

Brazil, Chile and Mexico

Brazil, Chile and Mexico are three middle income countries with relatively stable, mature and diversified economies and with well established programs for poverty reduction. The analysis of these countries can provide useful illustrations of the potentialities of employment-based development, at the same time that it can shed light on the limitations that the region is facing to improve employment performance. Understanding the dynamics of labor markets may be useful to inform policies designed to improve employment opportunities for the poor.

Brazil is the largest country in Latin America, with a population of around 174 million people at the turn of the decade, and an income per capita of 7,301 US$ (PPP) in 2000. The average annual rate of change of GDP per capita between 1990 and 2005 was 1.2 per cent, when measured at PPP prices.[13] Brazil experienced high inflation in the early 1990s, but the introduction of the *Plan Real* in July 1994 helped to stabilize prices and macroeconomic policies, and succeeded in keeping inflation low thereafter. Inequality is high; our own estimates suggest that inequality increased between 1992 and 1996 and then decreased slightly between 1996 and 2004; although at the end of this twelve-year period, inequality was still slightly above that of mid-1990s. Using the Gini coefficient, inequality changed from 0.570 in 1992 to 0.601 in 1996 and 0.581 in 2004.[14] These changes in inequality are

[11] For example, Gutierrez (2004) used input-output tables to analyse factors that influenced the creation and destruction of jobs in Brazil, Chile and Colombia, and found that the factor with the greatest impact on employment contraction in the 1990s was technical and organizational transformation within companies.
[12] Data is from ILO www.ilo.org online database.
[13] GDP per capita growth estimates for Brazil, Chile and Mexico in this section are calculated GDP constant PPP US dollars based on World Bank's WDI online data.
[14] These estimates for Brazil are our own. All our estimates for this section of the paper are included in table S.1 in the Annex.

robust to most inequality indexes and are also consistent with findings of other studies.[15] The incidence of poverty in Brazil is also high. ECLAC's internationally comparable rates estimate the incidence of moderate and extreme poverty at 35.7 and 13.2 per cent in 2001. Our own estimates suggest that poverty decreased continuously in the period under consideration in this study. Using poverty lines of 130 reais (urban) and 65 reais (rural), at 2004 prices, the head-count ratio decreased, from 41 per cent in 1992 to 33 per cent in 1996 and 31 per cent by 2004. When using other poverty lines and alternative poverty indexes we obtain the same result; a continuous reduction in the incidence, depth and severity of poverty. Economic growth was probably behind poverty reduction but it was not very strong; decreasing inequality must have played an important role as well.

A few simple statistics provide a sense of the status of employment and its evolution since the 1990's. The rate of unemployment increased in this period and the size of the informal sector remained practically constant at around 50 per cent.[16] Employment in agriculture has been decreasing but most of the shift has gone to services with no net gain for manufacturing. Workers' labor earnings increased slowly at 1 per cent per year.

Chile is a relatively small country, with 15 million people and an income per capita of US$ (PPP) 9,121 in 2000. Chile has the strongest growth record in the region, with an annual growth rate averaging 4.5 per cent since 1990. At the beginning of the 1990s it was the country with the lowest GDP per capita (among the three considered in this study); by 2004 it was the country with the highest GDP per capita in Latin America. Income inequality is high.[17] From the mid 1990s to the mid 2000s, estimates from household surveys do not report large variations. The Gini coefficient took values of 0.563, 0.574, and 0.562 in 1996, 2000 and 2003 respectively. High and constant inequality together with rapid growth translated into slow poverty reduction. Our poverty estimates, using relatively high poverty lines of 43,712 pesos (urban) and 29,473 pesos (rural) at prices of 2003, suggest an increase in the incidence of poverty from 26 per cent in 1996 to 30 per cent in 2000, and then a reduction to 24 per cent in 2003. Lower poverty lines yield, of course, a lower incidence of poverty but similar trends. The incidence of what we might call extreme poverty was 8 per cent in 1996, 7 per cent in 2000 and 6 per cent in 2003.

Chile's rate of unemployment worsened during the second half of the 1990s and remained constant afterwards. The industry composition of employment, as in Brazil and Mexico, moved away from agriculture to cluster in services. Our estimates of informality in Chile give a stable figure of less than 40 per cent. Labor earnings for workers increased slowly, by less than 1 per cent a year.

In 2000, **Mexico** had a population of 98 million. Income per capita reached the high figure, for Latin American standards, of US$ 9,048 at PPP in that year. Its growth record, however, has not been impressive. The annual growth rate of GDP per capita recorded an average of 1.2 per cent between 1990 and 2005 with high instability, including a large contraction of GDP per capita growth in 1996 equal to -8 percent, and high growth of 5 per cent in 1998. Strict price stability and a small deficit in the budget of the central government have not been enough to generate greater and stable investment in the private sector, probably reflecting the lack of confidence of the private sector about the longer term stability of the country. Public investment has also been small (averaging 4 per cent a year in 1990-

[15] As reference, ECLAC (2005) estimates a Gini index of 0.639 in 2001 for Brazil. According to this estimate, Brazil had the highest inequality in the region. For a discussion of inequality in Brazil, see Soares (2006) and Paes de Barro (2007).
[16] Informality is defined as non-professional self-account, employees without registration, and domestic workers. See Annex.
[17] ECLAC (2005) estimates a Gini coefficient of 0.559 for 2000.

2004) and unstable since the 1990s. Similar to other Latin countries, inequality in Mexico has been relatively high. Our own calculations report Gini coefficients of 0.550 in 1992 and 0.511 in 2004, suggesting a slight decrease in inequality.[18] Similar to trends in economic growth, changes in inequality have also been erratic. It decreased substantially in 1996—a result of the economic crisis that started the previous year—it increased between 1996 and 2000, and decreased again by 2004. These changes are robust to various inequality measures. Measures of poverty using national poverty lines report high but declining poverty incidence;[19] it was 27 per cent in 1992 and went down to 16 per cent in 2004 (our own estimates using Mexico's official highest poverty line). Poverty reduction is robust to different poverty measures and various poverty lines. It is interesting to note that in the case of Mexico, poverty and inequality decreased in spite of slow economic growth. This result deserves further investigation. The introduction of large cash transfer programs by the Mexican government may have contributed to increase the income of the poor.

The rate of unemployment increased during the 1995 crisis but remained remarkably low in all other periods. The industry composition of employment, as in Brazil and Chile, moved away from agriculture to cluster in services. Employment in manufacturing and other industrial activities showed two distinctive trends. Employment decreased sharply between 1992 and 1994 and increased from 1994 to 2000. Our estimate of informality in Mexico placed it at around 50 percent, with an increasing trend over the 1990s. In 2004 close to 60 per cent of the labor force could be classified as working in some sort of informal activities. Mexican workers fared worse than those of Brazil and Chile; earnings per worker decreased at a rate of -0.5 per cent between 1992 and 2004.

On the whole, these three countries represent cases of middle income countries in Latin America with fairly consolidated economies, yet they faced diverse economic experiences during the 1990s and early 2000s. On macro-economic grounds, growth of GDP per capita in Chile was fast in the 1990s and moderate in Brazil and Mexico (graph 1). Growth in Mexico showed large fluctuations throughout. In Brazil growth was rapid between 1993 and 1997 and more unstable thereafter, with zero growth in 1998 and small rates of one per cent in 1999, 2001 and 2003. Chile had the most stable experience of GDP growth, with a decelerating trend up to 1999 and a rising trend afterwards.[20]

What was the impact of this macro-economic performance on the earnings of the poor? As presented above, inequality and poverty decreased in the three countries – not very impressively, but they moved in the right direction, suggesting a pro-poor distributional growth pattern. Furthermore, income changes in Brazil, Chile and Mexico also pass the more demanding criteria that define pro-poor growth as the change in the mean income of the poor that is larger than the change in the mean income of the non-poor. Indeed, using household surveys we found that the mean per capita income of the poorest 20% households increased faster than the income of the non-poor. This is true in the twelve-year period we observed for Brazil and Mexico, and the eight year-period for Chile. These findings leave us with the challenge of reconciling the pro-poor pattern of growth observed in these countries in a context of an ambivalent performance of labor markets, as suggested by the brief review of descriptive statistics presented above.

There may be several factors explaining the disconnect between the observation that economic growth recovered and was pro-poor, and the lack of progress in labor markets. Looking only at the bottom 20

[18] ECLAC (2005) estimates a Gini coefficient of 0.515 in 2002.
[19] ECLAC (2005)'s internationally comparable rates placed moderate poverty at 40 percent and extreme poverty at 13 percent in 2002.
[20] See graph 1 in the Annex II.

per cent of the population and plotting the change in household income per capita from all sources and from labor only, we can see that the rate of change of total income was generally higher than the change of labor income in Brazil, Chile and Mexico (Graph 2). That is, there were other income sources that helped to increase the poor' s income faster than the one of other income brackets and explained the overall pro-poor pattern of growth. Cash transfer programmes, sponsored by governments in all three countries, may be the source of the additional income captured by the poor.[21]

The link between poverty and employment

Several studies have documented the fundamental point that sustained poverty reduction can only be achieved by a process that creates productive employment.[22] Not all employment creation processes, however, lead to rapid and sustained poverty reduction. The very process of job creation and productivity enhancement needs to have a clear link to the poor. From Khan (2001) and Osmani (2003) we propose a five-step sequence of links. First, the economy needs to grow – Osmani calls this the growth factor. Second, growth needs to create jobs, i.e., the employment elasticity of growth needs to be adequately high; which means, in Khan's terms, not too low as to exacerbate the scarcity of job opportunities, nor too high as to jeopardize productivity. From the experience of Asian countries, Khan suggests an elasticity of around 0.7 as adequate. Third, while the quality of jobs created is important, the analysis cannot be centered on good-quality jobs, i.e. formal, full-time well-paid wage jobs while addressing poverty and employment. According to Khan, activities in the informal sector that create wage employment and increase opportunities for people to employ themselves should also be considered. Fourth, for growth to benefit the poor, wages of employees need to increase based on productivity enhancements, and the self-employed need to be able to bring home higher earnings as a result of their labor activities, both because they can deliver more efficiently and because the relative price of their products improves. Fifth, the poor need to be able to benefit from the creation of wage jobs and from the increase in wages, as well as from widening opportunities for more rewarding self-employment activities.

Keeping these linkages while analyzing income and employment in Brazil, Chile and Mexico may help to understand the factors that determined income changes at the household level and their distributional pattern. In the discussion of results, we place particular attention to the way overall income changes benefit the poor.

Decomposing changes in labor income

We adapt Glewee's (1986) decomposition of earnings per household member and extended it to look at the employment patterns of households. Instead of taking the variance to address inequality, we use the decomposition of earnings to look at mean changes for different segments of the income distribution. More specifically, we first decompose labor income per capita to express it as the product of labor income per worker times the ratio of the number of workers over the total population, as follows:

$$Y_i / N_i = (Y_i / L_i)*(L_i / N_i) \qquad (1)$$

[21] In the late 1990s and the first years of the new decade, Brazil, Chile and Mexico implemented poverty reduction strategies based on direct cash transfers to the poor to stimulate the demand for education and health. External evaluations of these programs have documented their success to reach poor households and their importance as a source of additional income to the poor. An interesting assessment of their impact is discussed by Coady, Grosh and Hodinott (2004).

[22] See, for example, Islam (2004).

where $L_i = \sum_{i=1}^{n} l_i$ is the sum of workers in a household or population group.

The change in labor income per capita from period 1 to period 2 can then be expressed as the change in labor earnings per worker (Y_i / L_i) in household *i* and the change in the employment to population rate (L_i / N_i) in the same household (a proxy for access to jobs). Taking logs on these changes:

$$? \log(Y_i / N_i) = ? \log (Y_i / L_i) + ? \log (L_i / N_i) \quad (2)$$

The change in labor earnings per worker and the employment to population rate, in turn, can be further decomposed to take into account changes in the number of hours worked and changes in the unemployment, participation and dependency rates. Although wages are hardly ever fixed in the hour unit of time in the countries under analysis, the number of hours worked does play an important role in determining workers' earnings. The number of hours worked is an indicator of work effort but also an indicator of access to work - in the case of wage employees because the payment for overtime may increase the total take-home wage or because working under part-time conditions may substantially decrease earnings. In the case of the self-employed, one might also expect that the amount of time devoted to work might influence the income flow, particularly when workers perform self-employment activities only during certain days a week or certain hours of the day.[23]

Similarly, changes in the employment to population rate can be further decomposed into changes in the employment rate (the number of workers over the total number of economically active household members), changes in the participation rate (the number of the economically active over the working-age household members), and changes in the dependency rate (the number of working-age over total household members). Each one of these terms is the expression of different social processes and individual decisions within the household. The employment rate provides information on the ability of those willing to work to actually find a paid job. The participation rate informs about households' decisions to actively engage in the labor market. Finally, the dependency rate provides information about changes in the demographic composition of households and the potential of households to support themselves given the number of dependents per working member.

The second term on the right-hand side of equation (2) can, accordingly, be decomposed into changes in the employment rate, the participation rate and the dependency rate, and taking logs we arrive at:

$$? \log (L_i / N_i) = ? \log (L_i / E_i) + ? \log (E_i / A_i) + ? \log (A_i / N_i) \quad (3)$$

where:

E_i is the economically active population, defined as those between 15 and 64 years that work or are openly unemployed; A_i is the working age population, defined as those between the ages of 15 and 64 years old; L_i / E_i is the employment rate; E_i / A_i the participation rate; and A_i / N_i the dependency rate.

[23] Based on a decomposition procedure along the lines of equation (2), the change in labor earnings per worker within a household may be expressed as the product of hourly earnings per household and the average number of hours worked per worker within the household: ? log (Yi / Li) = ? log (Yi / Hi) + ? log (Hi / Li), where $Hi = \sum_{i=1}^{n} h_i$ is the sum of hours, h, worked by workers in household i, per unit of time.

Earnings and employment

We use household surveys to capture total monetary income from labor. We add income from first and second jobs to estimate: i) household labor income per capita, ii) household labor income per worker, and iii) household labor income per hour. By dividing the total number of working household members over total number of household members we obtain the employment to population rate. When we divide over the economically active household members we obtain the employment rate. Furthermore, we divide the economically active household members over the total number of working-age household members (defined as 15 to 64 years) to obtain the participation rate. When we divide the work-age population over the total number of household members we derive the dependency rate.[24] We take logs of these variables and apply decompositions as defined in equations 1 to 4. Results for mean annualized changes are presented in table 1-3. Estimates by cumulative viciles are presented in graphs 3 and 16.[25]

Brazil

Between 1992 and 1996, labor income grew fast in Brazil at 6.9 per cent per year (Table 1).[26] The pattern of growth during these years, however, was not pro-poor (Graph 3). We will look at the composition of the mean income change and the factors that shaped this distributional pattern in an attempt to understand the reasons behind this strong not pro-poor result. We decompose the change in labor income received by households, in per capita terms, to see how much of it was explained by changes in the earnings that workers obtain in labor markets (labor income per worker) and how much was due to changes in the number of household members actually working: the employment to population rate (see equation 2 above).

Most of the increase in labor income per capita during this period came from earnings per worker, which grew by 7.3 per cent. The role of employment, on the contrary, actually put a downward pressure on household labor income, pushing income down by -0.4 per cent. The negative contribution of changes in employment during this period, using equation (3), originated in the combined action of an increase in unemployment rates and a decrease in participation rates.[27] During these years, only changes in the dependency rate, which follow the logic of demographic changes, contributed to increase households' income from labor sources.

The non pro-poor pattern of changes in labor income per capita of the period is explained by the combined effect of changes in earnings per worker and employment that did not favor the poor (Graphs 3 and 4). Earnings of the poor increased significantly, 5.8 per cent per year, but at a lower rate with respect to mean changes. Employment opportunities, however, did not favor the poor. Increasing unemployment registered in this period was particularly harsh among the poor, and participation rates among poor households decreased sharply. The non pro-poor pattern of labor income growth in this period originated in the inability of poor workers to benefit from increasing labor earnings at a time when labor earnings were growing for higher paid workers; but also from the failure of poor households to expand their access to jobs.

[24] See graphs in the Annex II.
[25] We include estimates of the mean change for the 20 percent bottom of the income distribution in tables in the Annex.
[26] To facilitate comparisons, all rates of change presented in the remaining of the paper are always annualized, even when it is not made explicit in the text.
[27] We use loosely here the term unemployment rate as the "reverse" of the change in employment to the economically active population rate. If this rate increases we "read" this result as a decrease in the unemployment rate and vice-versa.

In 1996-2004, per capita labor income decreased by -1.9 per cent. This time the pattern of change was pro-poor according to our definition. The reduction of labor income originated in a large percentage fall in labor earnings (-2.6 %); reduction that was only partially offset by a moderate increase in the employment to population rate (0.8 %). Thus, changes in labor income per worker and employment moved in opposite directions. How can one reconcile rising employment rates with an overall depressing economic situation? The decomposition of the employment to population rate shows increasing unemployment but rising participation rates, which together generated an increase in the employment to population rate.

How did the pro-poor pattern of growth in this period come about? This pattern fully originates in the fact that earnings per worker changed in a pro-poor way (Graphs 5 and 6). Workers in the 20 percent poorest households managed to gain a positive change in earnings, albeit a modest one (Table 1). Access to jobs, however, was not friendly to the poor. Not only did unemployment increase faster among the poor, but also participation rates of the poor actually decreased. So the pro-poor pattern of change in this period is due completely to the way earnings changed, suggesting poor households succeeded in preventing their incomes from falling because the types of activities and occupations that they held allowed them to enjoy a small increase in labor earnings; perhaps due to increasing productivity, better prices for their products, or a combination of both.[28]

Chile

We analyze changes in poverty and employment during the years from 1996 to 2003. In an attempt to capture the turnaround in the growth trend that is apparent in graph 1, we subdivide these years in two periods, the first from 1996 to 2000 and the second from 2000 to 2003. At first glance these two periods do not differ much. Not only was annual growth in household income per capita quite similar, 1.1 and 1.3 percent, but both periods were also not pro-poor. Apparent similarities, however, hide significant differences we explore below.

The increase in labor income per capita in 1996-2000 originated in a relatively strong increase in worker's earnings, which more than offset rising unemployment. Such a strong increase in earnings, however, did not benefit the poor more than proportionately and gave the period an overall distributional pattern that was not pro-poor (Graph 7). While mean earnings increased by 1.6 per cent, those of the poor only augmented by 0.3 per cent (Table 2). In addition, the increase in unemployment was particularly strong among the poor (Graph 8).

In the second period, there was a similar increase in income but it was the result of a different combination. Most of the gains in income originated in declining unemployment rates that, together with rising participation rates, added up to an increase in employment. The weak reduction in earnings of these years eroded labor income gains but did not reverse their rising trend. The story of how this period came about to be non pro-poor is also different. First, the reduction of earnings of the period was actually pro-poor (Graph 9). While mean earnings decreased yearly by 0.5 per cent, earnings of workers in poor households remained constant. However, changes in employment did not favour the poor at all, and their impact was such that they more than offset the pro-poor change in earnings (Graph 10).[29]

[28] A similar relation can be observed among changes in labor income per capita, hourly earnings and hours worked.
[29] As in the case of Brazil, changes in the dependency rate contributed positively in both periods.

Mexico

Given the high instability experienced by Mexico during the years we are covering, we break down the analysis in four periods. First, to isolate the impact of the 1995 crisis we divide the early 1990s in two periods: 1992 - 1994 and 1994 - 1996. Second, the year 2000 was the end of the fast economic recovery that took place after the 1995 crisis; so again, we divide the post-crisis period in two. We have thus two episodes of moderate growth of household income, between 1992 and 1994 and between 2000 and 2004, one of rapid growth (1996 and 2000); and the episode of sharp reduction in household income during the economic contraction of 1995. Such drastic contraction shows in our data as a fall in labor income of -15 per cent a year between 1994 and 1996. The pattern of change in household labor income alternates between pro and not pro-poor across periods. We will discuss each of these periods separately.

Between 1992 and 1994, mean household labor income grew by 2.8 per cent, but the per capita income of the poorest 20 per cent of the population decreased by -1.2 per cent (Table 3). The pattern of labor income changes was not pro-poor. Overall, this is a period of stagnant mean earnings and rising unemployment, which, as expected, households tried to compensate by increasing their participation in the labor force. These years were particularly difficult for poor households. Earnings of workers in poor households collapsed at an annual rate of 5.7 per cent and unemployment increased faster (Graphs 11 and 12). Poor households responded with a large increase in participation rates.

During the years of sharp economic contraction, 1994-1996, all income groups experienced reductions, but those of the poor were less drastic, e.g. income per capita of the bottom quintile had an annual contraction of -7.2 percent (Graph 13). The increase in unemployment was similar for all income groups (Graph 14). Expectedly, overall participation rates increased, as the population tried to make up for falling incomes, but such increase was higher among poor families. Thus, the pro-poor pattern of the period arises from two types of responses. First, earnings of the poor did not decrease as much; perhaps because they are already so low that earnings cannot go much further down, perhaps because some of their activities are somewhat independent of the main dynamic flow of the economy. Second, poor families exerted a more intense effort to sustain incomes by increasing participation in labor markets.

Mexico was widely praised for its quick and strong recovery from the 1995 crisis. Attesting to that, labor income per capita did grow at the fast rate of 6.1 per cent a year between 1996 and 2000; earnings per worker increased by 5.0 per cent a year; and employment rates increased as well. However, the pattern of change was not pro-poor (Graph 15). Several factors explain such result. First, earnings of workers from poor families increased less than those of the non-poor, suggesting that the poor were not able to access higher-earning jobs. Second, the poor did not participate in the recovery in employment. While the employment to population mean rate increased by 1.1 per cent, that of the poor fell by -0.5 per cent.

Breaking down the change in the employment rate allows further insights about the way poor households are interacting with labor markets. The reduction in the unemployment rate during the period was actually equally shared by the poor and the non-poor (Graph 16). What made the difference between poor and non-poor households was the sharp reduction in the participation rates of the poor. Survey data does not provide answers to such response, but further analysis of the reasons behind it would provide valuable information for the design of policies to stimulate greater labor force participation. One way to answer the question is to say that participation rates were simply returning to normal levels, in line with the economic rationality of a poor household. Once the emergency situation

of previous years is over, women return to household chores and children return to school full time. Since participation rates, in general, are clearly lower among poor households, it remains interesting to understand the reasons and the kind of policy measures that could eventually lead them to increase their participation in labor markets.

In the last period of 2000-2004, labor income per capita grew at a rate of 1.4 per cent a year and the pattern of change was pro-poor. Half of the increase of labor income per capita owes to earnings and half to rising employment rates explained by increasing participation because unemployment actually increased. The pro-poor pattern of labor income changes in this period owes exclusively to a fast increase of labor earnings of 5.5 percent because the increase in the employment to population rate for the bottom 20 per cent of the population lagged far behind the mean increase (Graphs 17 and 18).[30]

Brazil, Chile and Mexico: An Overview

Over the eight country/periods reviewed, labor income per capita fluctuated within a wide range, from -1.6 to 6.9 across, if the large contraction of -15.0 per cent experienced by Mexico in 1994-1996 is left out. Fluctuations in mean household labor income were often determined by the change in mean earnings, which in turn played an important role in shaping the pattern of change in labor income per capita. When analyzing income changes at the household level, we found a distributional pattern that alternates between periods of pro and not pro-poor growth with no clear trend to sustain major re-distribution over longer periods of time. This finding underscores the limitations of poor families to improve their position in labor markets, especially in period of rapid growth, as well as the need to develop appropriate interventions to significantly enhance the skills and productivity of poor workers.

Changes in employment, as measured by the employment to population rate, were positive more frequently than not. However, in most cases its contribution was of secondary order. An additional factor that should be mentioned in this regard is the contribution of favorable demographic trends. Changes in the age structure of the population resulted in decreasing dependency rates, which made a positive contribution to the employment to population rate. Other than demographics, the employment outlook of these years in the three countries was not that bright. Unemployment increased more frequently than not, so its overall contribution to households' labor income was negative. Compensating rising unemployment, participation rates increased, making a positive contribution to household income. But not all increases in participation rates were sustainable. Rising female participation rates reflect longer term trends; however, during the periods we analyzed here there were also significant hikes in participation rates that were probably part of the survival strategies of poor households to preserve minimum levels of income at times of sharp contractions. These changes are not sustainable, nor are they necessarily good economics, since the socio-economic construct of households may be seriously damaged. Periods of recovery were usually associated with declining participation rates, particularly among the poor, probably signaling a return to their 'normal' level.

A major additional problem with employment changes in the countries and periods covered in this paper is that the pattern of change was clearly dominated by non pro-poor events. The message is clear: the opportunities of the poor to gain access to good quality jobs need to be significantly improved.[31]

[30] We should take these results with caution due to the changes in the sample and methodology of the surveys that were introduced in 2002 and 2004. Reportedly such changes did not influence general estimates of poverty and other indicators, but could have affected more disaggregated estimates such as the one we are looking at.

[31] An extreme case of the interplay between these variables is Argentina's rapid increase in unemployment and poverty during the 1990's. However, Gasparini et al (2005) point out that the employment to population rate actually remained more or less constant, implying that the increase in unemployment was fuelled by increasing participation rates.

Of the eight periods considered, the pattern of change favored the poor in only three instances, Brazil 1996-2004, Mexico 1994-1996, and Mexico 2000-2004. In the other five cases, the pattern of change in labor income per capita was not pro-poor. But even the three pro-poor cases deserve further qualification. In our review we noticed that most cases of pro-poor growth were associated with periods of economic contraction, when the labor income of the poor is not falling as fast as mean income. The pro-poor characteristic of income changes in these cases merely reflects the survival strategies of poor households whose absolute level of income cannot go further down without compromising their basic consumption. It is always useful to look simultaneously at the rate of income changes and its distributional pattern across countries and periods. Classifying these eight events in a two-way table of growth/no growth vis-à-vis pro-poor/not pro-poor, Diagram 1.1, allows us to see that there are two cases in the cell *no growth & pro-poor* but five cases in the cell *growth & not pro-poor.* Whatever optimism one might have in the labor performance of these countries will certainly be diminished by observing there is only one case in the cell *growth & pro-poor*. Fortunately, the box *no-growth & not pro-poor* is empty.

Final Remarks

Employment is often considered to be one of the major problems faced by the Latin American region. Slow growth in the 1990s, capital intensive investments, rising unemployment and an inability to better the quality of employment did not contribute much to improve employment conditions after the sharp worsening of labor of the 1980s. The overall result was that poverty did not decrease much and inequality remained high in the region. Looking at three mature and relatively stable Latin American countries, Brazil, Chile and Mexico, that share a record of small reductions in inequality and significant gains in poverty, we aimed in this paper to take a closer look at the major components of household labor income and hourly earnings in labor markets in an attempt to shed light on the links between poverty, labor income and employment.

We used a methodology to identify, with some detail, the variables that are behind changes in household income in Brazil, Chile and Mexico since the early 1990s. With few simple rules, we proposed a way to qualify the distributional impact of income changes and the variables that explain the shape of the income distribution curve for households grouped in 20 divisions (viciles) ranked by income per capita. With this tool we were able to assess whether or not changes in household income were benefiting the poor and adopted a cumulative distribution curve to visualize distributional trends at a simple glance.

We decomposed the change in labor income per capita, (defined as the total labor income of households), into the change in labor income per worker and the change in the rate of employment to household members, the employment rate. Results from this decomposition confirm the importance of labor earnings as the single most important determinant of changes in household labor income. Changes in the employment rate do play a role in determining labor income, but the single most important contributor to household income, for all income groups, is earnings derived by workers in the labor market.

Further decomposition of the factors that explain changes in the employment rate helped us to find that in order to understand the link between employment and poverty, one needs to look at the way unemployment and participation rates are changing. Changes in participation rates are particularly important during periods of labor stress, when families attempt to increase the number of household members actually working as a way to compensate for lost income. The rate of unemployment was part

of the story, reflecting business fluctuations in all three countries. Our results also confirmed the contribution of the so-called demographic dividend to increase household labor income per capita by reducing the number of dependents within the household. Overall, the distributional impact of changes in the employment rate (explained by changes in the rates of unemployment, participation and dependency ratios) do not necessarily improve the earnings of the poor, at least not at the same pace as among the non-poor.

In relation to the distributional impact of income changes, we found that periods of growth in labor income are generally associated with a distributional pattern that is not pro-poor. This was the case of Brazil 1992-1996, Chile 1996-2000 and 2000-2003 and Mexico 1992-1994 and 1996-2000. In all of them, the increase of labor income for the bottom 20 per cent of households was below the population mean. Moreover, in three of them the change in labor income for the 20 per cent poorest households was actually negative. Our approach of looking at the entire distribution of income allowed us to see that, in some cases, the lower we go in the distribution (say at the 10%, 5% poorest households), the further behind they are in terms of labor income gains.

In two countries we found a pro-poor distributional pattern in the context of an overall contraction of labor income: Brazil 1996-2004 and Mexico 1994-1996. Income from labor for poor households did not decrease as much (in the case of Brazil labor income of the poorest 20 percent actually increased slightly). These cases suggest that during periods of crisis, poor households activate a variety of survival strategies to compensate for income losses (mainly increasing household participation and employment rates). It is interesting to note that there was no case of no-growth and no pro-poor. That is to say, households at an already low level of income cannot afford further drops; they find ways to compensate for the income loss.

Finally, there was only one authentic case of pro-poor growth: Mexico 2000-2004. Here growth was clearly pro-poor at the household level in a period of increasing labor earnings. Actual gains, however, were not large. Mean labor income was growing at a 1.4 per cent a year.

These findings have useful policy implications. Labor income is the single most important determinant of household income for all income groups. The poor are very responsive to economic fluctuations showing large flexibility to participate in labor markets and compensate for earning losses at times of contraction. However, they do not always succeed in their search for a job or their undertaking of a labor activity. The poorer they are, the lower their rate of success. At times of growth, they seem to face strong limitations to participate in more dynamic labor markets. Growth is good for the poor, in the sense that their income increases, but it is not as good as for the non-poor. The distributional pattern of periods of growth in labor income seems to be systematically working against further income gains for the poor.

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Annex I. Tables

Diagram 1. Changes in household labor income per capita and its pattern

	PRO	NO
Yes	mx 00-04: 1.4%	br 92-96: 6.9% ch 96-00: 1.1% ch 00-03: 1.3% mx 92-94: -2.8% mx 96-00: 6.1%
No	br 96-04: -1.6% mx 94-96: -15.0%	

Assembled based on tables 1 and A.1

Table 1. Decomposing household mean labor income per capita: Brazil (log differences expressed as annual percentages)

	population mean		mean 20 % poorest	
year	1992-1996	1996-2004	1992-1996	1996-2004
Household income per capita	7.0	-0.8	4.8	2.2
Hh labor income per capita	6.9	-1.6	3.7	0.9
Hh labor income per worker	7.3	-2.4	5.8	1.0
Employment to population rate	-0.4	0.7	-2.1	-0.1
Employment to active population rate	-0.1	-0.3	-0.5	-0.7
Participation rate	-1.0	0.3	-2.5	-0.2
Dependency rate	0.8	0.6	0.9	0.8

Own estimates based on household surveys.

Table 2. Decomposing household mean labor income per capita: Chile. (log differences expressed as annual percentages)

	population mean		mean 20 % poorest	
year	1996-2000	2000-2003	1996-2000	2000-2003
Household income per capita	1.7	1.2	0.7	3.6
Hh labor income per capita	1.1	1.3	-0.5	-0.5
Hh labor income per worker	1.6	-0.5	0.3	0.0
Employment to population rate	-0.5	1.8	-0.8	-0.5
Employment to active population rate	-1.2	0.2	-3.5	-0.1
Participation rate	0.5	0.8	1.6	-0.9
Dependency rate	0.2	0.8	1.1	0.5

Own estimates based on household surveys.

Table 3. Decomposing household mean labor income per capita: Mexico. (log differences expressed as annual percentages)

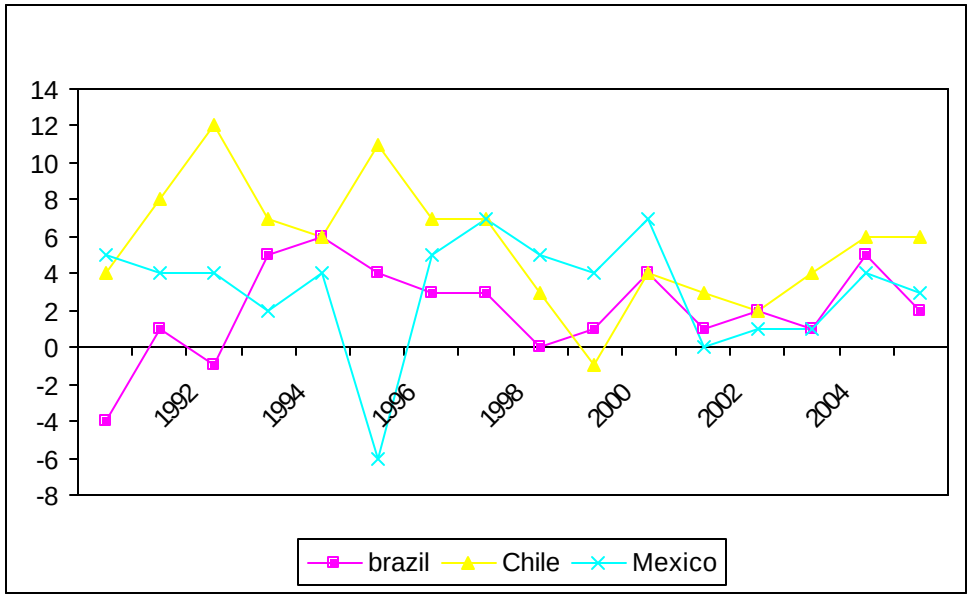
	population mean				mean 20 % poorest			
year	1992-1994	1994-1996	1996-2000	2000-2004	1992-1994	1994-1996	1996-2000	2000-2004
Household income per capita	2.3	-13.6	6.7	1.8	1.2	-7.2	3.0	8.7
Hh labor income per capita	2.8	-15.0	6.1	1.4	-1.2	-7.2	-0.7	10.4
Hh labor income per worker	-0.1	-16.9	5.0	0.7	-5.7	-11.0	-0.2	10.1
Employment to population rate	2.9	1.9	1.1	0.7	4.5	3.8	-0.5	0.3
Employment to active population rate	-0.1	-0.3	0.6	-0.4	-0.7	-0.3	0.6	-0.7
Participation rate	2.4	1.5	-0.2	0.6	3.3	5.0	-2.4	-0.5
Dependency rate	0.6	0.7	0.8	0.5	1.8	-0.9	1.2	1.5

Own estimates based on household surveys.

Annex II: Graphs

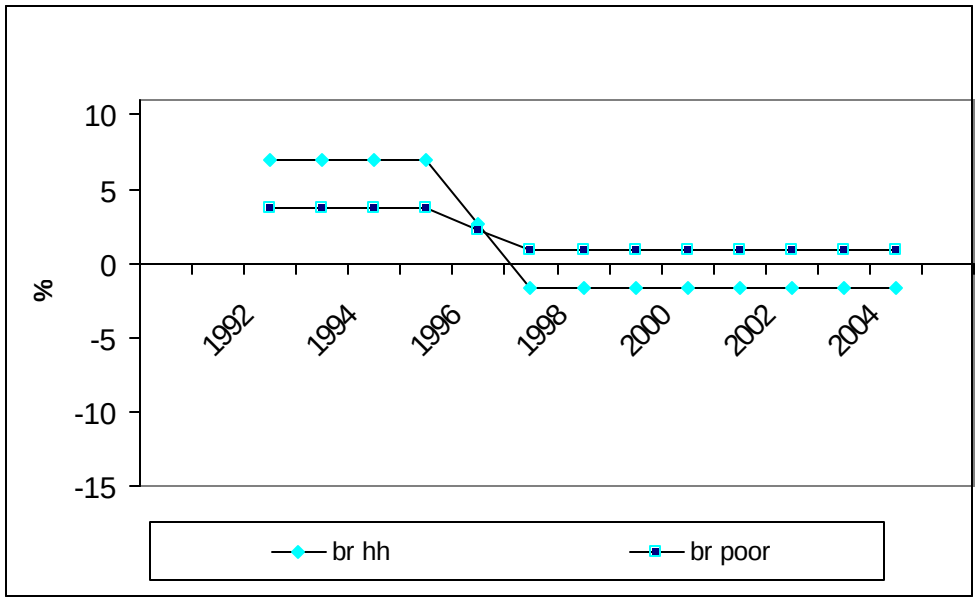
Graph 1. GDP growth and change in household income per capita: Brazil, Chile, Mexico

Graph 1a. Annual GDP Growth Rate %



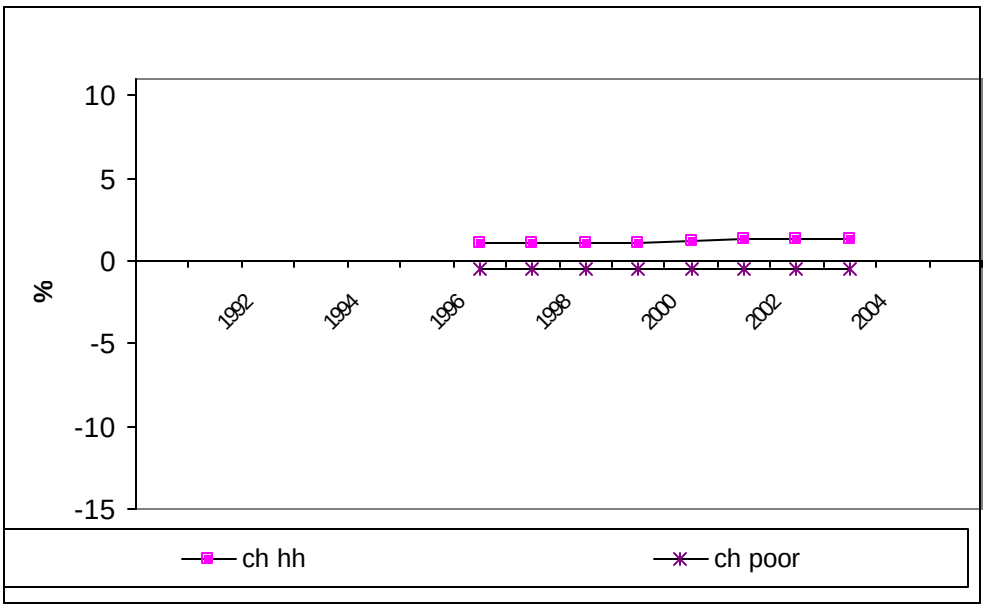
Own construction based on: a) World Bank's WDI online
Notes: a) Rates represent the change of GDP at constant PPP US dollars

Graph 1b. Annual Change in household income per capita – Brazil



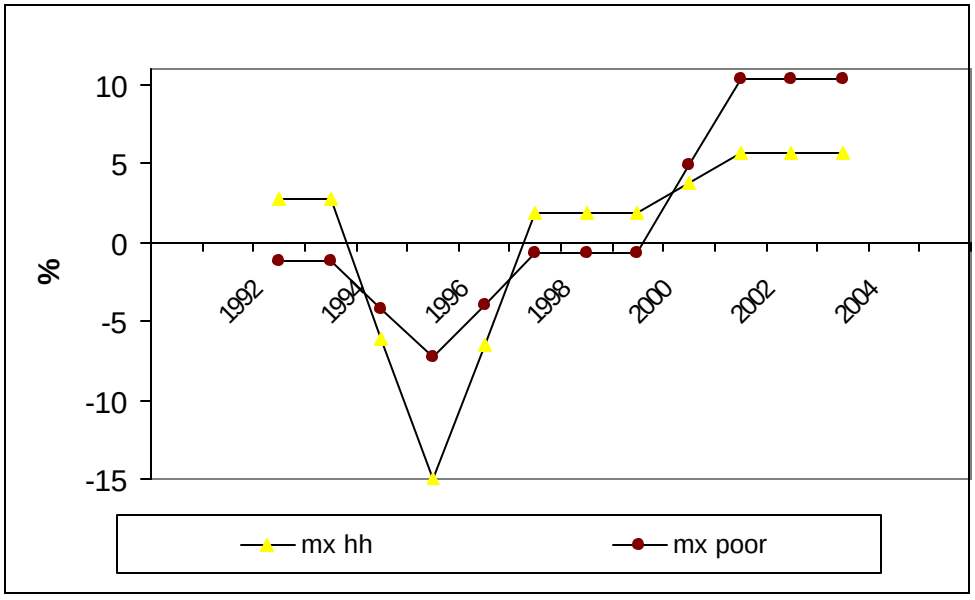
Based on own estimates from household surveys.
Note: poor are the 20 percent bottom of the income distribution.

Graph 1c. Annual change in household income per capita – Chile



Based on own estimates from household surveys.
Note: poor are the 20 per cent bottom of the income distribution.

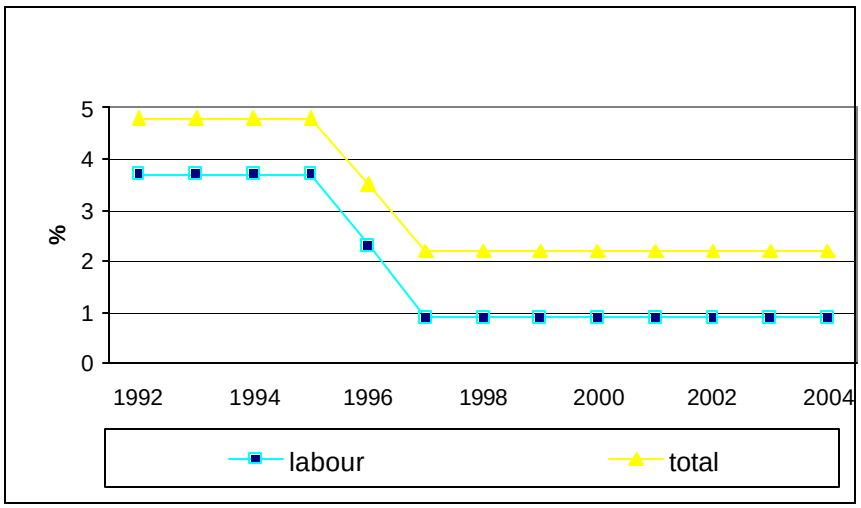
Graph 1d. Annual change in household income per capita – Mexico



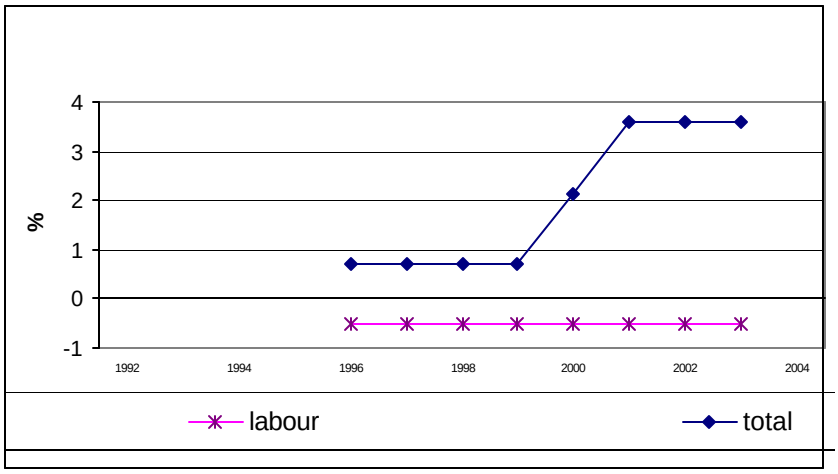
Based on own estimates from household surveys.
Note: poor are the 20 percent bottom of the income distribution.

Graph 2. Change in total and labor income per capita in poor households

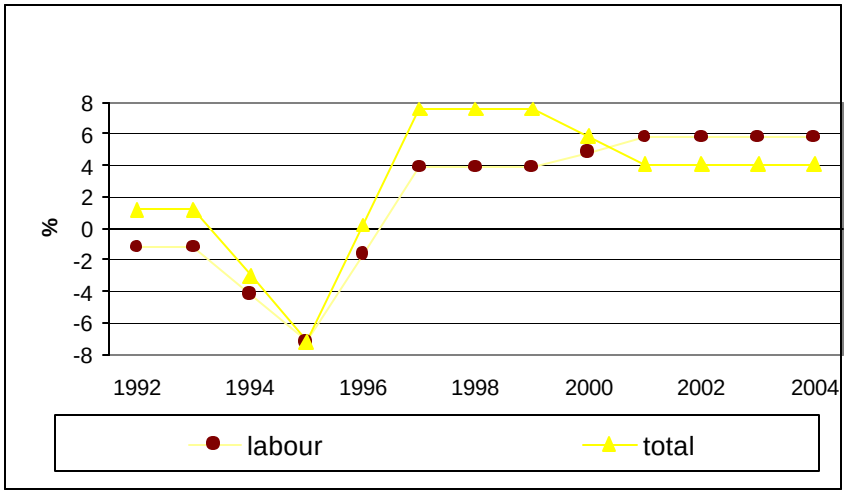
Graph 2a. Brazil 1992-2004



Graph 2b. Chile 1996-2003

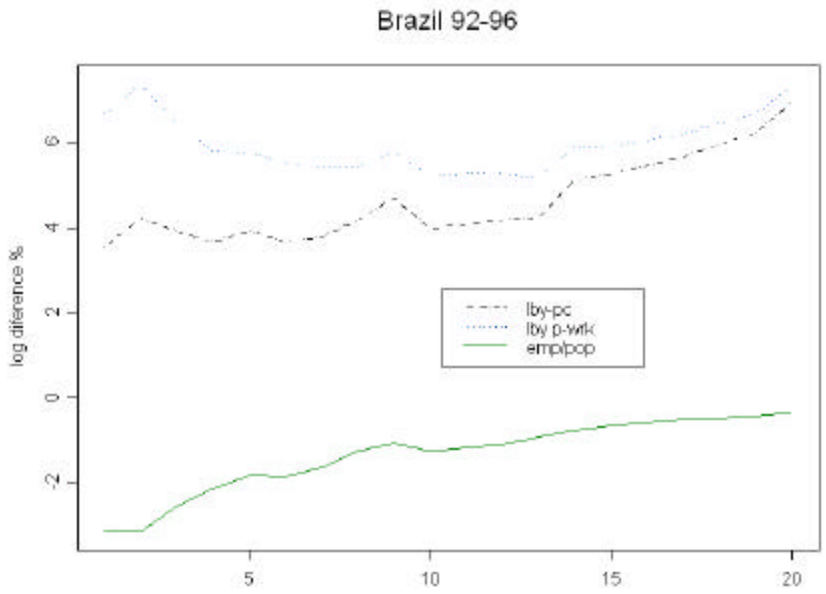


Graph 2c. Mexico 1992-2004



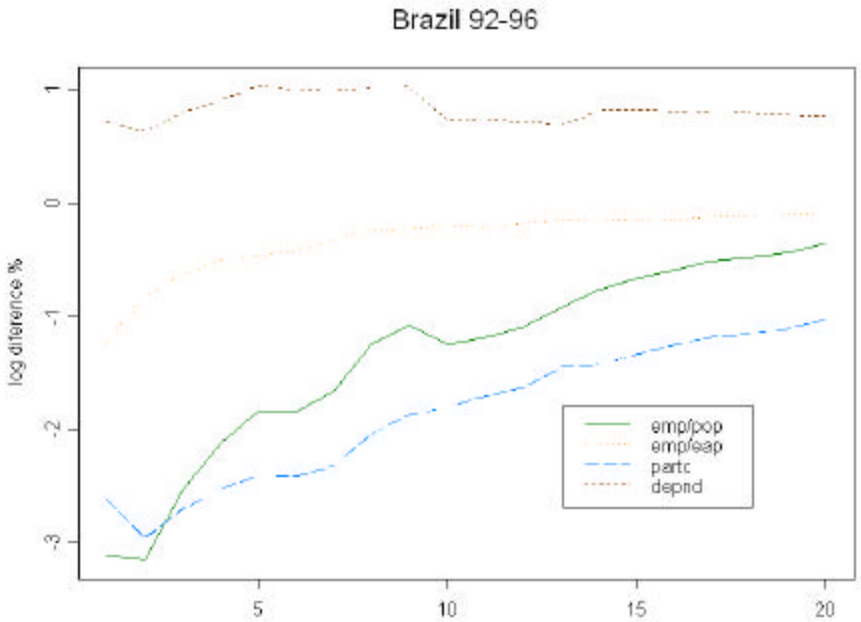
The three tables were own calculations based on data from table1.
Poor population refers to the bottom 20 percent individual income distribution in al cases.

Graph 3. Labor income per capita, earnings and employment: Brazil



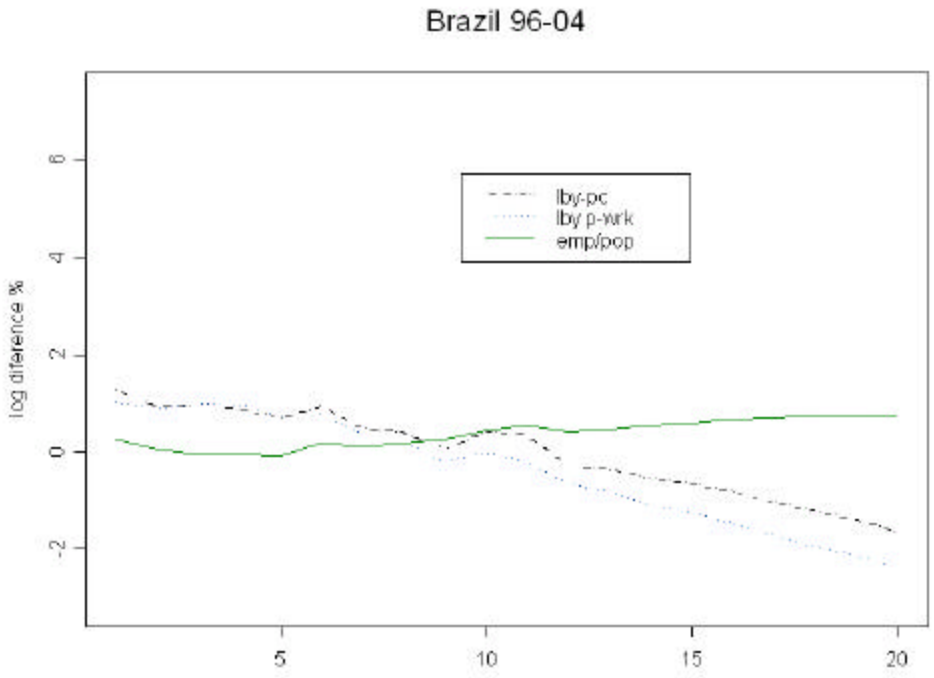
Note: The y-ax indicates the log change for, in the x-ax, the 5%, 10%, 15%.., 50%..., 95% and 100% of the population, ordered from left to right according to household income per capita. Thus, the extreme left of the plotted line represent the log change for the poorest 5% of the population, the point 10 represents the log change for the 50% of the low-income population, and the point at the extreme right of the line, indicated by 20, represents the log change for the entire population, or the mean change. The scale of the y-axes are country specific, and equal for all of its periods. Definitions: i) lby-pc: labor income per capita; ii) lby p-wrk: average labor income per worker; iii) emp/pop: number of workers over total household members.

Graph 4. Employment, participation and dependency rates: Brazil



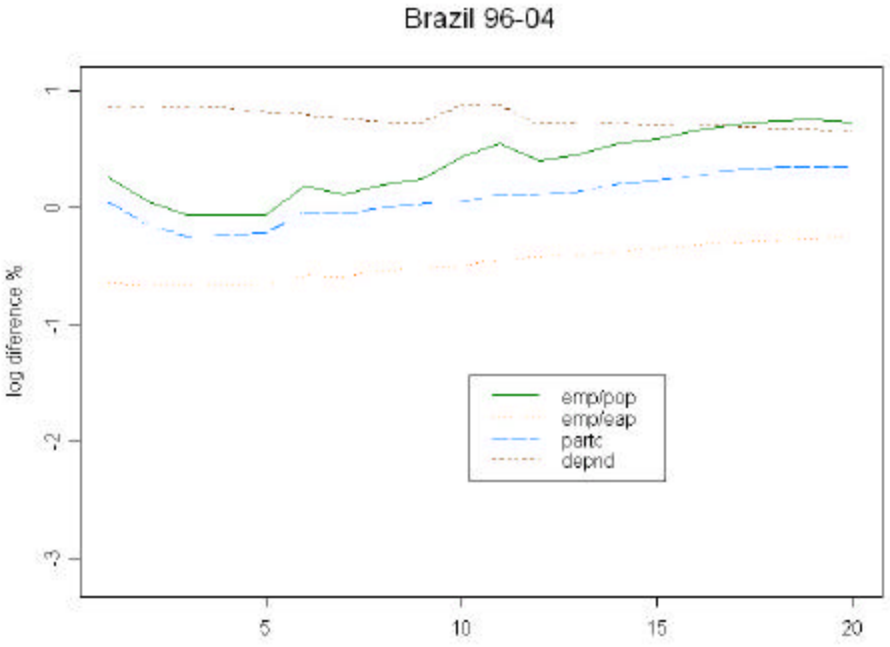
Definitions: i) emp/pop: number of workers over total household members; ii) emp/eap: number of workers over economically active household members; iii) partc: economically active people over household members in working age; iv) depnd: people in working age over total household members.

Graph 5. Labor income per capita, earnings and employment: Brazil



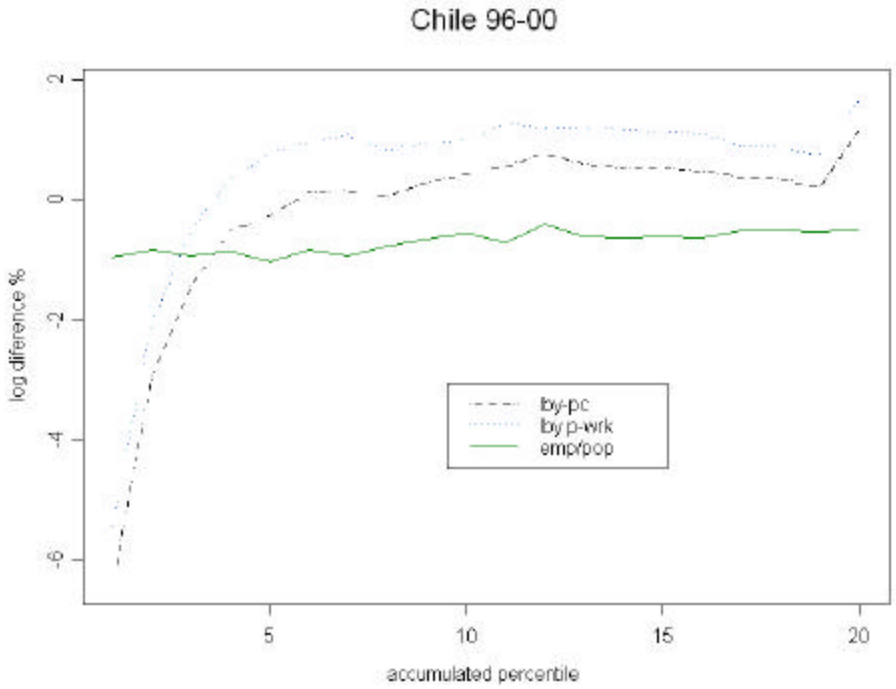
Definitions: i) lby-pc: labor income per capita; ii) lby p-wrk: average labor income per worker; iii) emp/pop: number of workers over total household members.

Graph 6. Employment, participation and dependency rates: Brazil



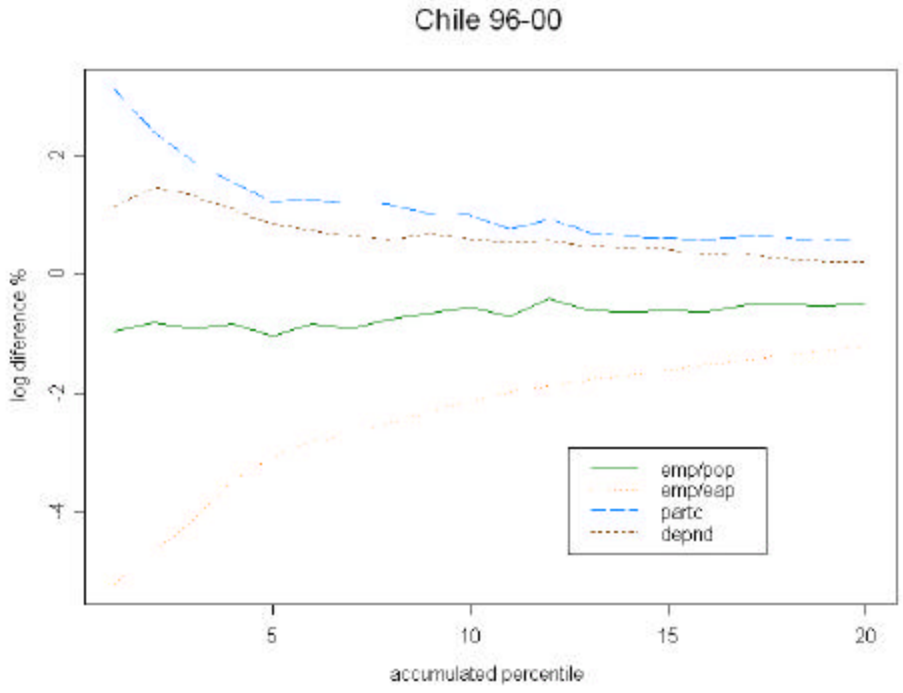
Definitions: i) emp/pop: number of workers over total household members; ii) emp/eap: number of workers over economically active household members; iii) partc: economically active people over household members in working age; iv) depnd: people in working age over total household members.

Graph 7. Labor income per capita, earnings and employment: Chile .



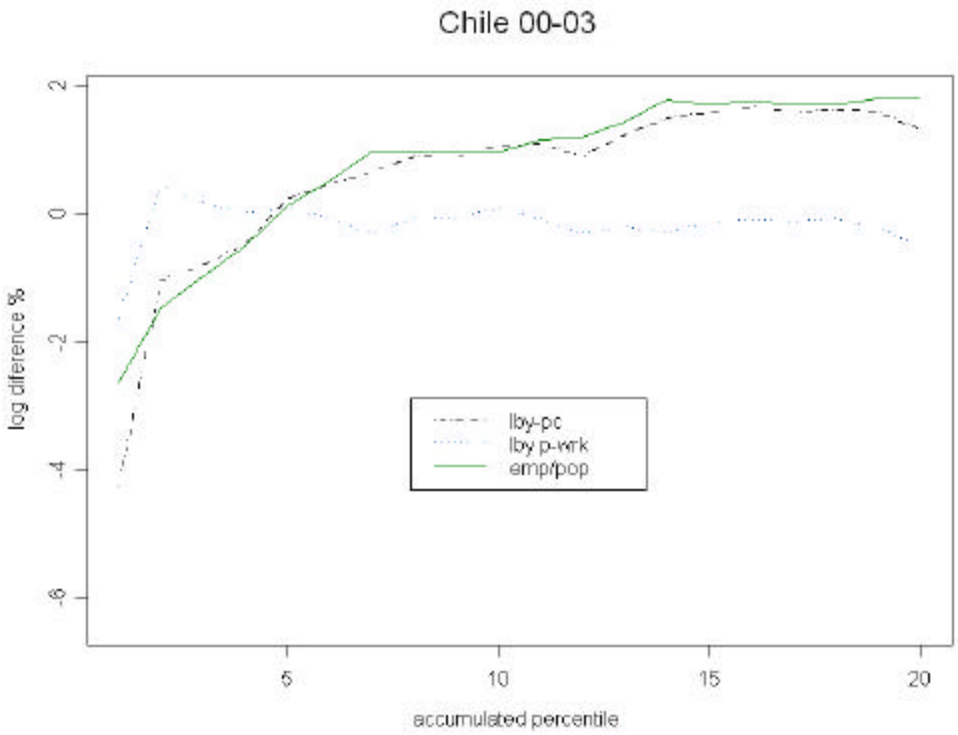
Definitions: i) lby-pc: labor income per capita; ii) lby p-wrk: average labor income per worker; iii) emp/pop: number of workers over total household members.

Graph 8. Employment, participation and dependency rates: Chile



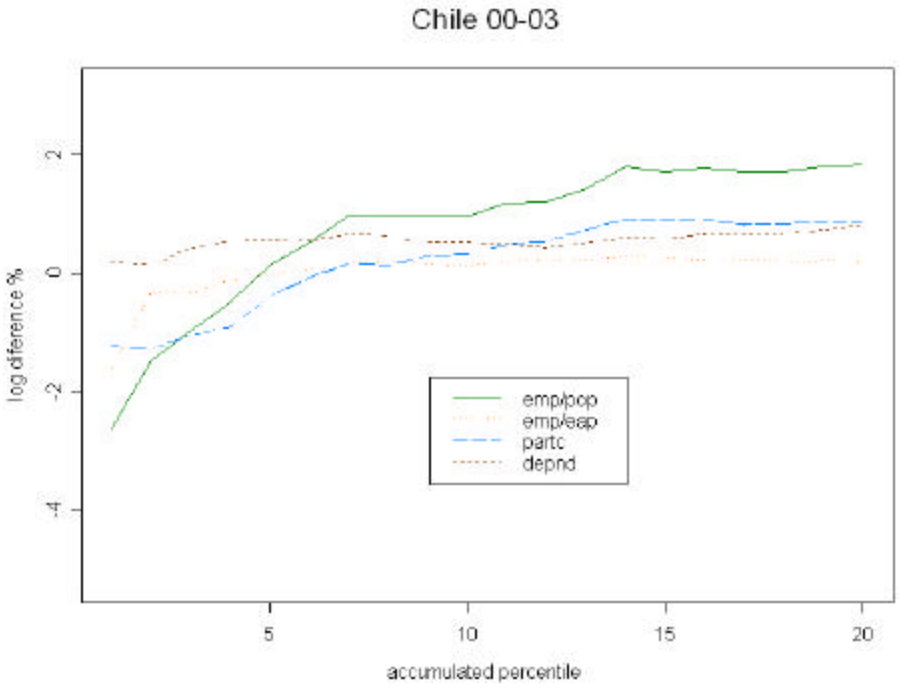
Definitions: i) emp/pop: number of workers over total household members; ii) emp/eap: number of workers over economically active household members; iii) partc: economically active people over household memb ers in working age; iv) depnd: people in working age over total household members.

Graph 9. Labor income per capita, earnings and employment: Chile



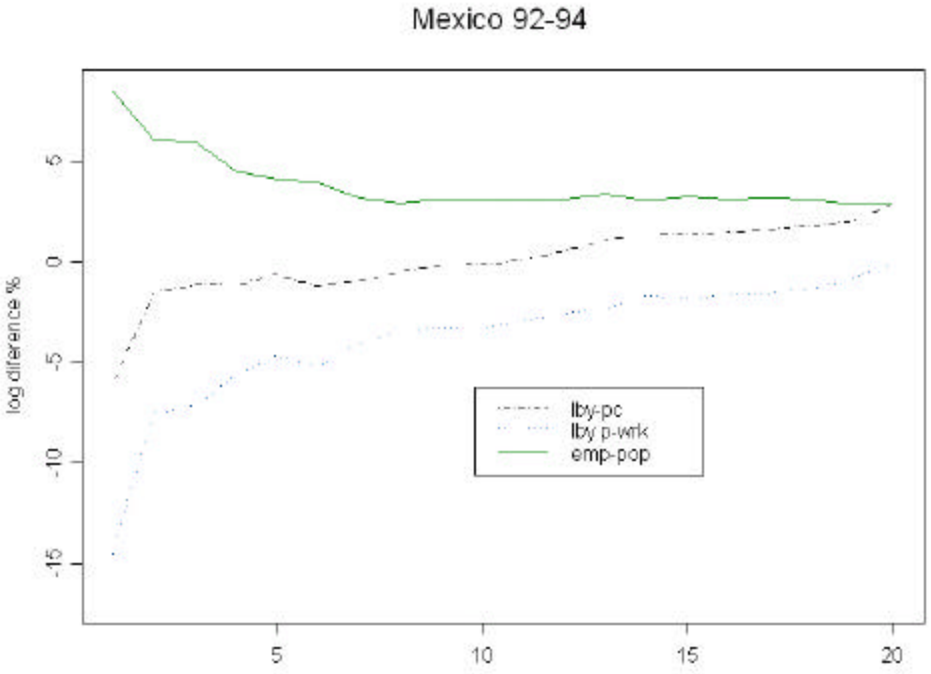
Definitions: i) lby-pc: labor income per capita; ii) lby p-wrk: average labor income per worker; iii) emp/pop: number of workers over total household members.

Graph 10. Employment, participation and dependency rates: Chile



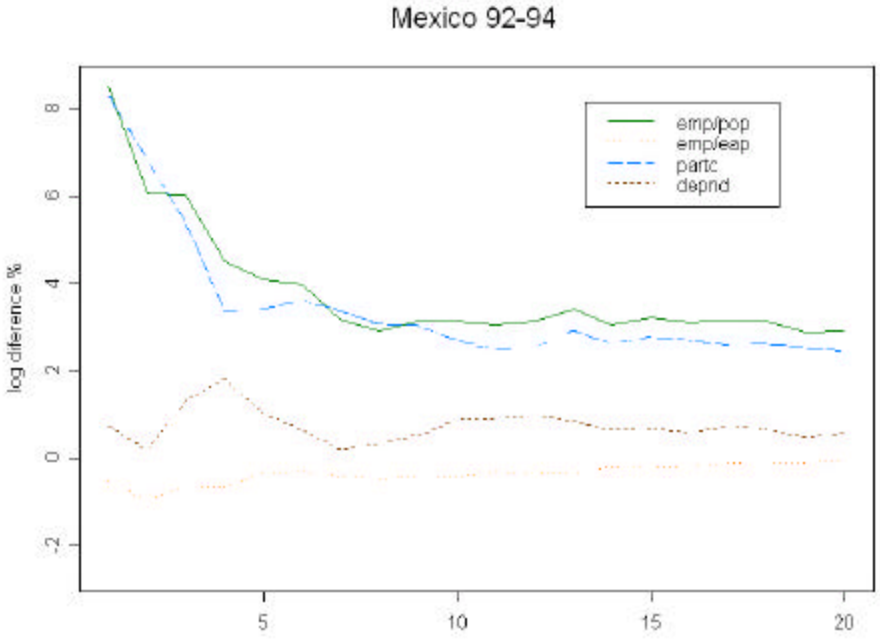
Definitions: i) emp/pop: number of workers over total household members; ii) emp/eap: number of workers over economically active household members; iii) partc: economically active people over household members in working age; iv) depnd: people in working age over total household members.

Graph 11. Labor income per capita, earnings and employment: Mexico



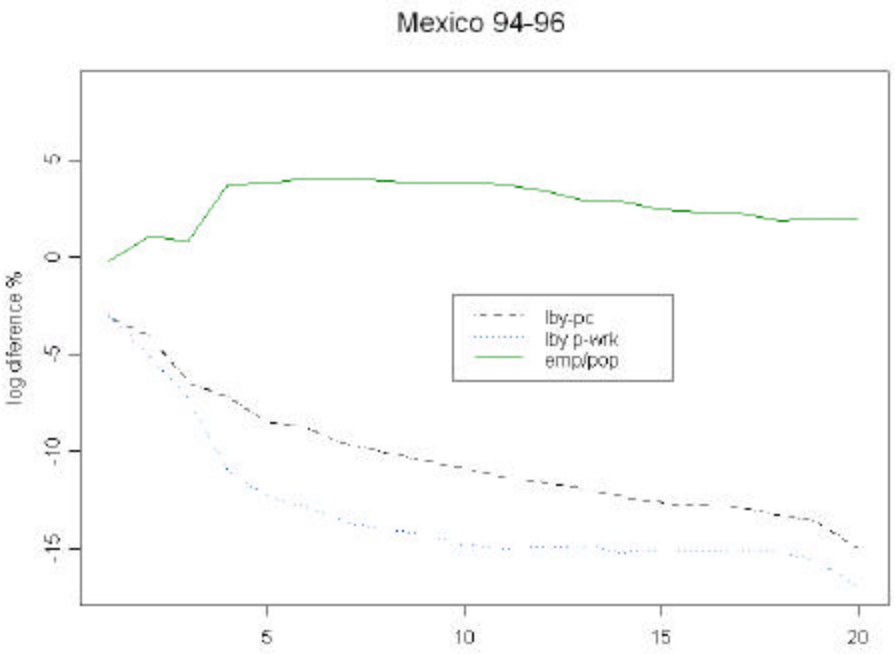
Definitions: i) lby-pc: labor income per capita; ii) lby p-wrk: average labor income per worker; iii) emp/pop: number of workers over total household members.

Graph 12. Employment, participation and dependency rates



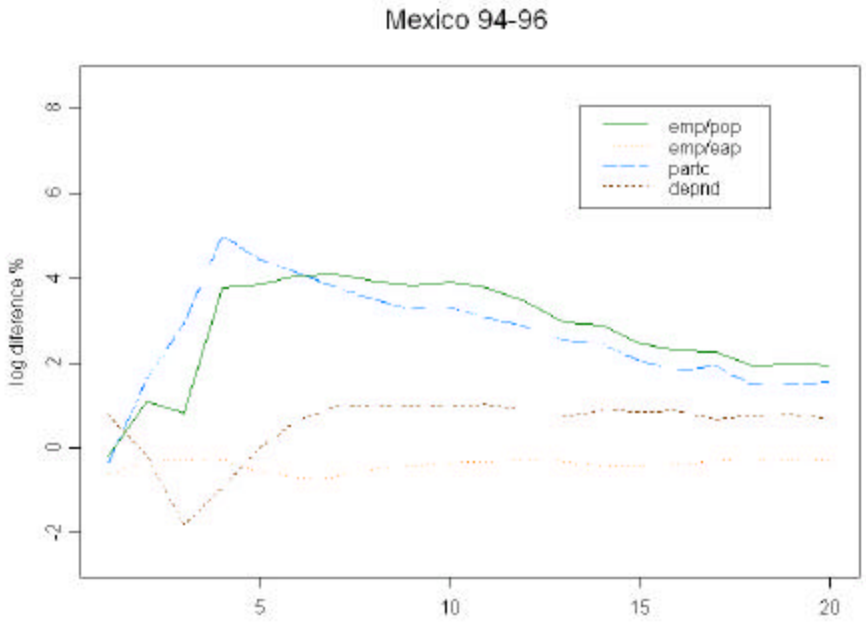
Definitions: i) emp/pop: number of workers over total household members; ii) emp/eap: number of workers over economically active household members; iii) partc: economically active people over household members in working age; iv) depnd: people in working age over total household members.

Graph 13. Labor income per capita, earnings and employment: Mexico



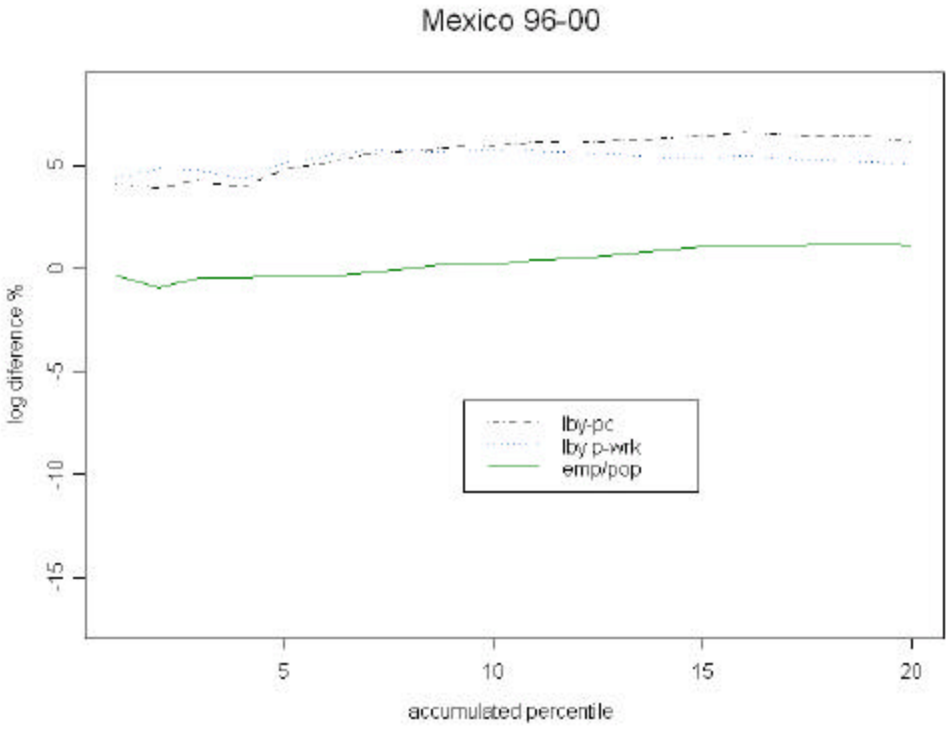
Definitions: i) lby-pc: labor income per capita; ii) lby p-wrk: average labor income per worker; iii) emp/pop: number of workers over total household members.

Graph 14. Employment, participation and dependency rates



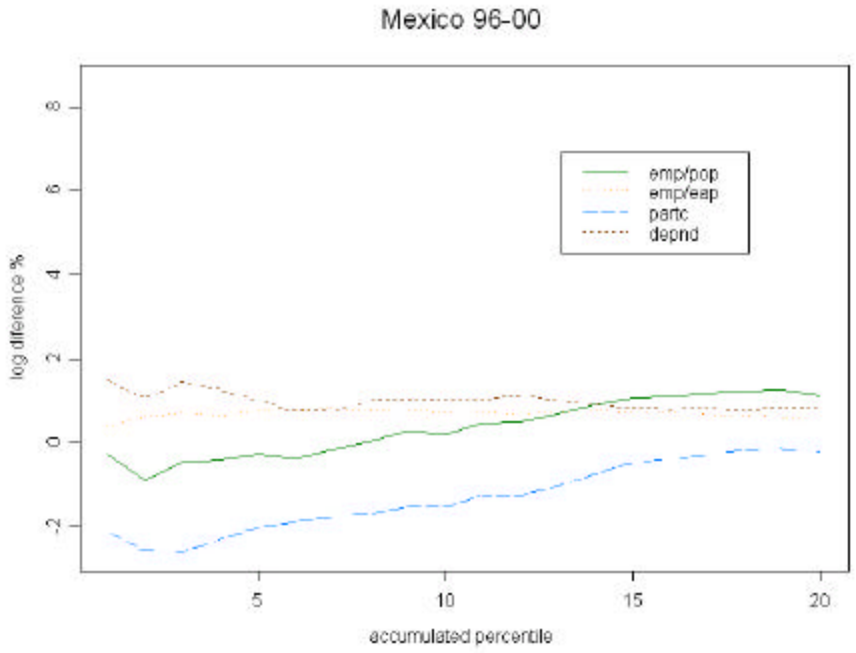
Definitions: i) emp/pop: number of workers over total household members; ii) emp/eap: number of workers over economically active household members; iii) partc: economically active people over household members in working age; iv) depnd: people in working age over total household members

Graph 15. Labor income per capita, earnings and employment: Mexico



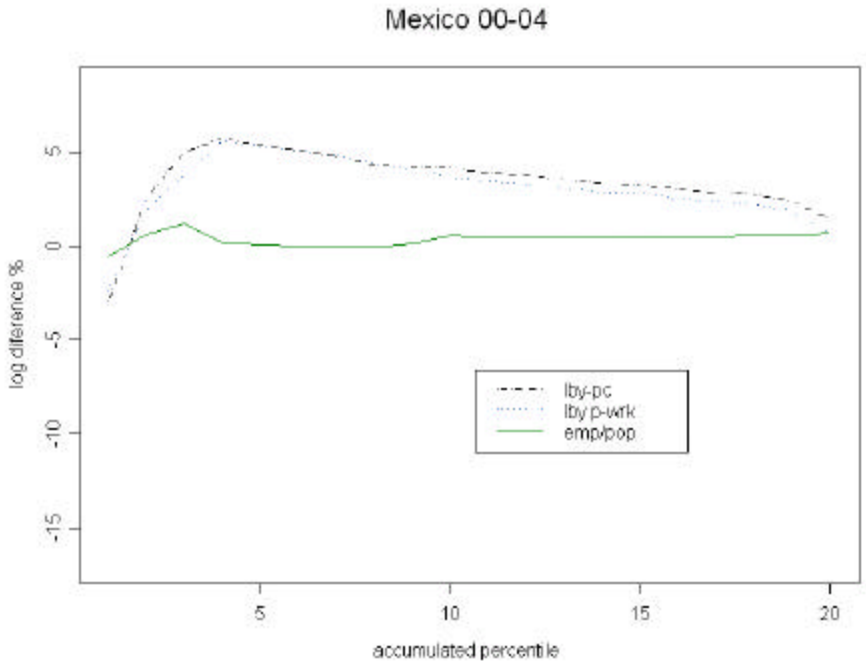
Definitions: i) lby-pc: labor income per capita; ii) lby p-wrk: average labor income per worker; iii) emp/pop: number of workers over total household members

Graph 16. Employment, participation and dependency rates



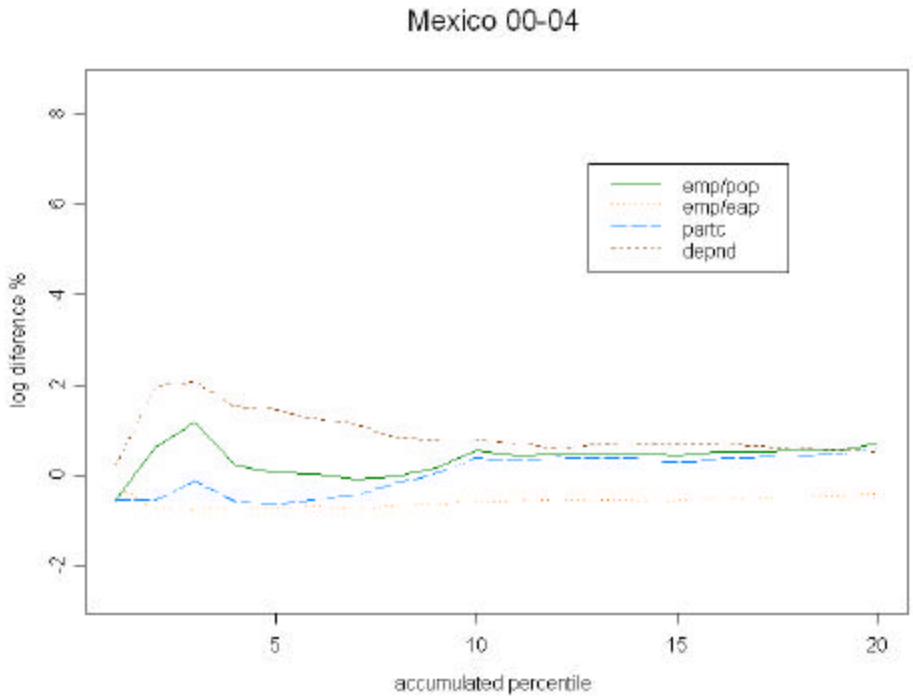
Definitions: i) emp/pop: number of workers over total household members; ii) emp/eap: number of workers over economically active household members; iii) partc: economically active people over household members in working age; iv) depnd: people in working age over total household members

Graph 17. Labor income per capita, earnings and employment: Mexico



Definitions: i) lby-pc: labor income per capita; ii) lby p-wrk: average labor income per worker; iii) emp/pop: number of workers over total household members

Graph 18. Employment, participation and dependency rates



Definitions: i) emp/pop: number of workers over total household members; ii) emp/eap: number of workers over economically active household members; iii) partc: economically active people over household members in working age; iv) depnd: people in working age over total household members