Declining Inequality in Latin America in the 2000s: The Cases of Argentina, Brazil, and Mexico

Nora Lustig, Luis F. Lopez-Calva, and Eduardo Ortiz-Juarez

Abstract

Between 2000 and 2010, the Gini coefficient declined in 13 of 17 Latin American countries. The decline was statistically significant and robust to changes in the time interval, inequality measures, and data sources. In-depth country studies for Argentina, Brazil, and Mexico suggest two main phenomena underlie this trend: a fall in the premium to skilled labor and more progressive government transfers. The fall in the premium to skills resulted from a combination of supply, demand, and institutional factors. Their relative importance depends on the country.

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Introduction

Inequality is a distinctive feature of Latin America due to its high level and persistence.[1] After rising in the 1990s, however, income inequality in the 2000s unambiguously declined in the majority of countries. From an (unweighted) average of 0.530 in the late 1990s, the Gini coefficient for household per capita income[2] fell to 0.497 in 2010.[3] Of the 17 countries for which there is (reasonably) comparable data, 13 experienced a decline (while the Gini increased in other parts of the world) (Figure 1).[4] Existing analysis suggests that the decline in inequality is robust to the selection of the time interval, income variable, inequality measure and data source.[5]

The order of magnitude of the decline is non-trivial and in all but one case statistically significant.[6] As shown in Figure 2, in the eleven countries for which the comparison is possible, the decline in the 2000s was higher than the increase in inequality in the 1990s (in the cases where there was such an increase). Furthermore, a Datt-Ravallion decomposition of the changes in poverty during the 2000s reveals that the reduction in inequality —on average—accounted for fifty percent of the observed decline in poverty; the lowest contribution was found in Peru (10.8 percent) and the highest in Paraguay (89.9 percent).[7] (Figure 3) Inequality in Latin America is linked to state-capture on the part of predatory elites, capital market imperfections, inequality of opportunities (in particular, in terms of access to high-quality education), labor market segmentation, and discrimination against women and non-whites.[8] Hence, the observed fall in inequality is good news both in terms of fairness and efficiency.

What factors are behind the decline in inequality in Latin America in the 2000s? Here we examine the role played by demand and supply of labor by skill, institutional factors such as minimum wages and unionization rates, and government transfers in accounting for changes in inequality in the three largest (measured by GDP) countries in Latin America: Argentina (urban)[9], Brazil and Mexico. The three countries analyzed in this paper can be considered a representative sample (not in the statistical sense, but in terms of their characteristics) of middle-income countries in Latin America. It includes a country that experienced relatively high growth rates (Argentina) and two countries where growth was modest (Brazil and Mexico) during the period of analysis; one of the most unequal countries in Latin America (Brazil); a traditionally low-inequality country, which witnessed the largest increase in inequality in the region over the past three decades (Argentina); and, finally, two countries governed by leftist regimes (Argentina and Brazil) and one country governed by a non-leftist regime (Mexico). It should also be noted that Mexico and Brazil are the countries in which the inequality decline started the earliest (1996 and 1998, respectively).

This paper uses evidence from our own research as well as that of others. In particular, we draw on results from the research project "Markets, the State and the Dynamics of Inequality in Latin America" coordinated by Luis F. Lopez-Calva and Nora Lustig, and sponsored by the United Nations Development Program (UNDP).[10] More specifically, we draw on the studies for Argentina by Gasparini and Cruces (2010), Brazil by Barros et al. (2010) and Mexico by Esquivel et al. (2010) (all three published in Lopez-Calva and Lustig (2010)). We also draw on results from Azevedo et al. (2011), Battiston et al. (2011), Bergolo et al. (2011), Cruces et al. (2011) and Gasparini et al. (2011) for Latin America as well as Campos et al. (2012) for Mexico.[11] Our analysis is thus based on work that combines qualitative (country case studies) and quantitative (parametric and non-parametric decompositions of changes in inequality and regression analysis) methods.

The results show that both labor and nonlabor income inequality declined and suggests that there are two underlying phenomena in the three countries: (i) a fall in the premium to skilled labor and (ii) higher and more progressive government transfers. The fall in the skill premium, in turn, can be attributed to changes in the composition of demand and supply of labor by skill (markets) and institutional factors such as rising minimum wages and unionization (state action). The relative strength of these factors varies substantially by country. In addition, our analysis identifies questions that remain unanswered and results that are not robust: i.e., different studies show different —even opposite— results. The latter should serve as guide for future research.

The paper is organized as follows. Section 1 includes detailed country narratives that delve into the determinants of inequality changes. A synthesis of the main findings is presented in Section 2. Section 3 concludes.

1. The Determinants of the Decline in Inequality: Argentina, Brazil and Mexico

The evolution of the Gini in the three countries can be seen in Figure 4. Comparing the two endpoints of the analyzed period, the decline in inequality was substantial, statistically significant, there was Lorenz dominance and results were robust with respect to the choice of income variable (monetary or total income; before or after net transfers) and inequality measure (Gini and entropy measures). In the three countries the income rose, on average, for all deciles, with the incomes of the poorest deciles rising faster as evidenced by the Growth Incidence Curves shown in Figure 5. The three countries experienced a rise in average years of schooling and the expansion was particularly remarkable in Brazil and Mexico (Cruces et al., 2011, Table 2). In terms of growth, the picture is mixed. The decline in inequality in Argentina coincided with unusual per capita GDP growth, while in Brazil and Mexico growth was modest.[12]

In all three countries, both labor and non-labor income inequality declined. Here we analyze the proximate factors underlying the decline in labor income and non-labor income inequality in Argentina, Brazil and Mexico. In particular, we focus on the role played by the

skill premium (measured here by the relative returns to workers with tertiary education vs. workers with primary education) and government cash transfers. In turn, we provide possible explanations for the observed decline in the skill premium.

a. Argentina (urban)

Gasparini and Cruces (2010) show that Argentina experienced a sharp increase in inequality from 1990 until the beginning of 2000, and a decline in inequality in the aftermath of the 2001/02 macroeconomic crisis (Figure 4). This period covers two very different economic policy regimes. In the 1990s, Argentina went through far reaching market-oriented reforms in a context of weak labor market institutions and limited social protection. In the 2000s, state intervention in the economy became more pervasive, labor market institutions were stronger and social protection schemes redistributed income to unskilled and semi-skilled workers. The 2000s were also characterized by high GDP and employment growth while in the 1990s growth of GDP was modest and unemployment high.

Data from SEDLAC show that between 1992 and 2002 (the highest point for a comparable data spell) the Gini coefficient for the distribution of household per capita income increased from 0.450 to 0.533.[13] Gasparini and Cruces suggest that during this period the increase in inequality was due the increase in the skills premium: put simply, the wage gap between skilled and low-skilled workers rose. The increase in the skill premium was associated with the modernization of production and organizational structures. This skill-biased technical change, in turn, was associated—to a certain extent—with Argentina's trade and investment liberalization.

Another factor behind the rise in earnings inequality was the weakening of labor unions. There is evidence that labor union membership and activity diminished significantly from 1991 to 2001. The decline in union activity coincided with reforms such as the privatizations, trade liberalization and price stabilization of the 1990s, which reduced the power of unions through the dissipation of rents from state-owned enterprises, protective tariffs and inflation-induced rents. The decline in union activity during the 1990s, unsurprisingly, coincided with a period of rising wage inequality.

After the 2002 crisis, the Gini coefficient fell from 0.533 in 2002 to 0.442 in 2010.[14] The reduction in inequality accounted for 40 and 50 percent of the decline in extreme and moderate poverty, respectively (Figure 3). During this period, both labor income and non-labor income inequality declined. Gasparini and Cruces argue that the fall in labor income inequality can be accounted for by the expansion of employment generated by the fast economic recovery, the shift in favor of more low-skilled labor-intensive sectors as a result of the devaluation of the Argentine peso, the fading out of the effect of skill-biased technical change in the 1990s, and the rise in the influence of labor unions. All these factors caused the skills premium (measured here by the relative returns to tertiary education) to fall (Figure 6).

This period was characterized by unprecedentedly high per capita GDP growth (of 8 percent per year since 2003 except for the global crisis year of 2009) and a sharp fall in the unemployment rate: from over 20 percent to 8 percent.[15] Although the devaluation initially had a negative impact on real wages, this effect faded as a cheaper peso stimulated output in labor-intensive sectors. By the early 2000s, the large-scale technological upgrading was probably coming to an end. Hence, the upward pressure on wages for skilled labor—an unequalizing force—subsided and the skills premium declined. A pro-union and pro-workers government raised minimum wages, mandated lump-sum increases in wages in the private sector and promoted collective bargaining. The revival of union activism coincided with a period of falling wage inequality after 2002.[16]

On the other hand, Gasparini and Cruces link the decline in non-labor income inequality to a more progressive fiscal policy. The large devaluation of the peso in 2002 had an indirect equalizing impact in terms of post-fiscal income inequality. The devaluation initially had a negative impact on real wages and a positive effect on rents to land, which was compounded by the substantial improvement in terms of trade resulting from the global commodity boom. However, the initially negative (and unequalizing) effect on real wages was in part compensated by the expansion of progressive export taxes, which were used to finance large anti-poverty programs. Higher fiscal revenues were used to increase social spending. Social spending also became more progressive with the implementation of large cash transfer programs such as *Jefes y Jefas de Hogar Desocupados* (Unemployed Household Heads program) in 2002 (which reached two million households in 2003). The latter may be an important factor behind the equalizing contribution of the changes in the distribution of non-labor income. In addition, the excise taxes had an indirect redistributive impact because they kept domestic prices of traded goods below their international level; this was particularly important for food prices. Although the benefits of these policies leak to the non-poor and create inefficiencies, they are equalizing, at least in the short-term.

In sum, Gasparini and Cruces conclude that underlying the recent decline in inequality in Argentina are the petering out of the effect of technological upgrading coupled with strong, labor-intensive growth. Market forces have been complemented with state action. A pro-union and pro-disenfranchised government has been redistributing the windfall from very favorable terms of trade (associated with the global commodity boom) both through active labor market policies and cash transfers. The analysis presented by Gasparini and Cruces is qualitative: i.e., the order of magnitude of the contribution of changes in labor vs. non-labor income inequality is not known nor is the relative importance of demand and supply or institutional factors in explaining the decline in the skills premium. In what follows we complement their analysis with other studies that use quantitative methods to assess the relative importance of various contributing factors.

Using a non-parametric decomposition method, Bergolo et al. (2011) find that the change in the marginal distribution of labor income inequality accounted for around three-quarters of the decline in overall inequality, and the remaining 25 percent was accounted for the decline in non-labor income inequality.[17] Bergolo et al. (Table 6.13) show that within labor income,

the most important factor underlying the fall in labor income inequality is the decline in inequality among wage earners (employed and self-employed). Within non-labor income, the changes in the marginal distribution of government transfers accounted for the lion's share of the decline in the former, and the main contributing factor was the large expansion in coverage of government transfers (such as *Jefes y Jefas* as well as pensions to the elderly— particularly those that went to individuals who had previously not contributed to the social security system) (Bergolo et al., Table 6.13).

Given the overwhelming importance of labor income inequality in accounting for changes in overall income inequality, it is important to understand the determinants of the former. The analysis of proximate determinants of labor income inequality usually looks at the evolution of the distribution of workers' characteristics (in particular, education and experience)—or, quantity effects—and the evolution of the returns to those characteristics—or, price effects. To "unbundle" the quantity (changes in years of experience and education) and price (changes in returns to experience and education) effects on labor incomes, Azevedo et al. (2011) apply the well-known Juhn-Murphy-Pierce parametric decomposition method to 14 countries in Latin America. For Argentina, the authors find that during the 2000-2009 spell, the quantity, price and unobservables effects (for education and experience) were inequality-reducing (Azevedo et al., Tables 4-8). Battiston et al. (2011), however, find that the quantity effect (for the 2004-2009 spell) is equalizing only when levels of education are used but inequality-increasing when education is measured by years of schooling, as in Azevedo et al. (Battiston et al., Table 4.2).[18] The two groups of authors use slightly different time periods and methods. Further research is needed to establish the causes behind the difference in the results and whether an unambiguous conclusion can be inferred. A further "unbundling" of the price effect, suggests that changes in returns to education and experience were equalizing and that changes in returns to unobservables were slightly unequalizing (Azevedo et al., Table 9).

What lies behind the observed price effect (i.e., the decline in the skills premium)? Gasparini et al. (2011) apply the framework proposed by Katz and Murphy (1992) (and Bound and Johnson, 1992) to 16 countries in Latin America. For Argentina they find that during the 2000s, demand-cum-institutional factors are more important for the decline in skill premium than the increase in the relative supply of skilled workers (Gasparini et al., 2011, Table 3.1). The relative supply of skilled workers grew by half as much in the 2000s than in the 1990s, yet their relative wages declined in the 2000s while they increased in the 1990s. Gasparini et al. find that favorable terms of trade could be a leading factor in the observed decline in wage skills premium (Gasparini et al., 2011, Figure C6).

The quantitative analysis, thus, supports the qualitative analysis by Gasparini and Cruces. The decline in inequality in the 2000s is both a consequence of declining labor and non-labor income inequality, with the former being unambiguously predominant. The decline in non-labor income inequality is primarily linked to the expansion of the coverage of government transfers. The decline in labor income inequality is due to the equalizing changes in returns to skill; whether changes in educational structure were equalizing or not remains to be seen

as results are not consistent across authors. The decline in the skill premium appears to be driven by an increase in the relative demand for unskilled workers stemming from the high GDP and employment growth, and a shift to more unskilled-labor intensive production methods across the board; it may also be driven by institutional factors such as rising minimum wages and the power of labor unions. It is very difficult to disentangle the demand composition from the institutional factors effect.

b. Brazil

Brazil is known for having one of the highest inequality rates in the world. Barros et al. (2010) remind us that there have been years when Brazil's Gini coefficient was equal to 0.630, almost a historical and worldwide record. After rising in the 1970s and 1980s and a decade of almost no change in the 1990s, the Gini coefficient for the distribution of household per capita income declined steadily starting in 1998 and especially since 2002 (Figure 4). Between 1998 and 2009, Brazil's Gini coefficient declined 5.4 percentage points from 0.592 to 0.537.[19] During 2002-2009, the income of the bottom 10 percent grew at almost seven percent per year, nearly three times the national average (2.5 percent), while that of the richest 10 percent grew only at 1.1 percent a year. Depending on the poverty line, between 50 and 60 percent of the decline in extreme poverty can be attributed to the reduction in inequality. For the same reduction in extreme poverty, Brazil's overall per capita income would have needed to grow an extra four percentage points per year (Barros et al., 2010).

In the 2000s, labor and non-labor income inequality declined and wage differentials between workers of different skills, living in different locations, and working in different sectors (formal/informal; primary/secondary) narrowed. Also during this period, the real minimum wage increased and public transfers rose (both in terms of average benefits and coverage).[20] How important were these factors in explaining the decline in overall inequality?

Applying a non-parametric decomposition of the changes in the Gini coefficient in the 2000s, Barros et al. (2010) find that changes in the distribution of household labor income per adult accounted for 51 percent of the decline in inequality between 2001 and 2006, due to a significant growth in average labor income per working adult and to a moderate decline in its inequality.[21] In contrast to Argentina, the contribution of changes in employment was rather limited; workers from relatively poor households were not among those that benefited the most from job creation during this period.

The fall in inequality in the distribution of labor income per working adult is determined, among other things, by the quantity and the price effect of changes in the distribution of schooling. The 1990s and 2000s were marked by an accelerated expansion of basic education in Brazil (Cruces et al., 2011, Table 2). The Gini coefficient for education, measured in years of formal schooling, declined from 0.479 in 1990 to 0.349 in 2009 (Figure 7). This changed the composition of the labor force by educational level with low-skilled and unskilled

workers becoming relatively less abundant (Figure 6). Everything else equal, the latter should have pushed down earning differentials by education level (i.e., the skills premium); in fact, relative returns to education, particularly for secondary and higher education (vis-à-vis workers without schooling or incomplete primary) fell (Figure 6).[22]

Decomposition results by Barros et al. (2010) suggest that half of the decline in labor earnings inequality (and almost 30 percent of the decline in household per capita income inequality) was explained by the combined effect of a fall in the inequality of education and a fall in the steepness of returns to education. The latter—the price effect—was the predominant factor, accounting for 35 percent of the decline in labor earnings inequality (23 percent for household income) (Barros et al., 2010). Using the Juhn-Murphy-Pierce framework, Azevedo et al. also find that the quantity (education and experience), price and unobservable effects were inequality-reducing during the 2001-2009 period (Azevedo et al., Tables 4-8). Battiston et al., however, find that the quantity effect of education was inequality-increasing for the 2002-2009 spell (Battiston et al., Table 4.2). As with Argentina, more research is needed to establish the source of the discrepancy. Based on estimates by Gasparini et al. (2011), the decline in the skill premium—the price effect—was driven by an increase in relative supply of skilled workers and a combined effect of a decline in their relative demand, skilled-biased technical change and institutional factors (Gasparini et al., 2011, Table 3.1). Again, it is difficult to disentangle the institutional factors from the effect of a falling demand for skilled labor.

Barros et al. (2010) argue that the decline in labor earnings inequality is also accounted for by a reduction in spatial and sectoral labor market segmentation. Wage differentials between similar workers in metropolitan areas and those in medium-sized and small municipalities declined and so did wage differentials between urban and rural workers, and between primary and other sectors.[23] This process seems to indicate that there have been equalizing forces in the labor markets arising from the geographic and sectoral composition of labor demand. It is not yet clear which factors explain this trend. Perhaps there has been a relatively higher expansion of some productive sectors in the Brazilian agricultural 'hinterland' as opposed to the metropolitan/industrial areas thereby increasing the demand for labor and pushing up wages in the smaller and medium-sized municipalities compared to the past. Again, this is an area that requires further investigation.

The decomposition analysis by Barros et al. (2010) suggests that almost 50 percent of the decline in income inequality was due a more equal distribution of household non-labor income per adult. What are the determinants of the decline in non-labor income inequality? The contribution of changes in the distribution of income from assets (rents, interest and dividends) and private transfers was unequalizing but small. In contrast, the contribution of government transfers was equalizing and relatively large. Bergolo et al. (2011) estimate that by itself, the equalizing effect of government transfers in the period 2001-2008 was equal to more than two-thirds the equalizing contribution of labor income inequality changes, a rather significant magnitude. (Bergolo et al., 2011, Table 6.14). [24] Taken as a whole, government transfers equalizing effect stemmed primarily from the expansion in their

coverage (especially among the poor). When government transfers are disaggregated into social security programs and cash transfers, the picture differs between the two. Social security's equalizing contribution arose primarily from a decline in its inequality and much less from an expansion in coverage. In the cases of *Benefício de Prestação Continuada* (BPC, a transfer to the elderly and disabled) and the *Bolsa Família*[25], their equalizing contribution occurred because of an expansion in coverage and to a lesser extent due to an increase in the average size of the transfer.

Since 2001, the government has increased the average amount of all transfers and broadened the coverage of well-targeted programs such as Brazil's signature conditional cash transfer program *Bolsa Família* (literally, scholarship for the family). While contributory social security has the largest coverage – about 30 percent of the Brazilian population lives in households receiving contributory social security benefits – the largest expansion was in *Bolsa Família*, whose coverage increased by close to 10 percentage points between 2001 and 2007, reaching 17 percent of households.[26]According to the decomposition results presented by Barros et al. (2010), changes in coverage of BPC and *Bolsa Família* each explain about 10 percent of the decline in household income inequality.[27] In the case of social security transfers, the equalizing effect occurred primarily through an increase in the amount of the average benefit. In the case of *Bolsa Família*, the predominant factor was the increase in coverage and to a lesser extent the increase in the amount transferred.

In sum, the recent decline in inequality in Brazil in the 2000s is a consequence of both declining labor and non-labor income inequality, with both having approximately equal weight (at least up to 2006). Barros et al. (2010) find that the direct impact of demographic factors was not very significant. Changes in the dependency ratio, employment and unemployment among the poor were of relatively less importance.[28]

The decline in labor income inequality is the result of two main factors: (i) lower skill premium (by educational level); (ii) lower spatial (and sectoral) segmentation of labor markets, in particular among metropolitan and non-metropolitan areas. Whether changes in the distribution of education were equalizing or not, varies depending on the author so this is an area that requires further research. The fall in the skill premium seems to be caused by both changes in the composition of supply and demand as well as institutional factors such as rising minimum wages. The relative importance of each factor, however, remains to be established by future research. As with Argentina, the decline in non-labor income inequality is due primarily to the expansion in coverage of government cash transfers targeted to the poor and in the case of formal social security to an increase in the average transfer. Higher minimum wages were a factor because social security benefits are indexed to the minimum wage.

c. Mexico

Esquivel et al. (2010) show that after a period of rising inequality in the 1980s and first half of the 1990s, Mexico's income inequality has declined (Figure 4). Between 1996 (the peak year for inequality) and 2010, Mexico's Gini coefficient for the distribution of household per capita income fell from 0.547 to 0.475.[29] Nearly 60 percent of the decline in poverty can be attributed to the reduction in inequality (Figure 3). The income of the bottom 10 percent grew more than twice as fast as the income of the top 10 percent (Figure 5). Notably, the faster growth of incomes at the bottom of the distribution happened during a period of lackluster aggregate economic growth. After the 1995 peso crisis, when GDP contracted by around eight percent, the economy quickly recovered. Between 1996 and 2000 Mexico's per capita GDP grew at a rate of four percent per year. However, between 2000 and 2008, per capita GDP grew at around 1 percent per year. Mexico (like Brazil) experienced a period of slow and—somewhat paradoxically—pro-poor growth.

The decline in inequality coincided with the implementation of the North American Free Trade Agreement (NAFTA) in 1994. It also coincided with a shift in government spending patterns. Since the early 1990s, public spending on education, health and nutrition has become more progressive (Esquivel et al.). In 1997 the Mexican government launched the conditional cash transfer program *Progresa* (called *Oportunidades* since 2002), a large-scale anti-poverty program that currently covers 5.8 million poor households – around 19% of households in 2012.

Applying the Lerman-Yitzhaki (Lerman and Yitzhaki, 1985) decomposition method to the Gini coefficient in 1994, 2000, 2004, 2006 and 2010, Esquivel et al. and Campos et al. (2012) show that labor incomes were equalizing in 2000, 2004 and 2006, and unequalizing in 1994 and 2010 (Campos et al., Figure 2). Non-labor income[30] from capital (rents, profits, etc.) and pensions was unequalizing in all five years and particularly so in 2000, 2004 and 2006. Remittances were equalizing throughout with a more or less constant weight, smaller than labor income's and government transfers'. The contribution of government transfers is equalizing in all years and increases steadily; in 2010, government transfers' equalizing effect on overall inequality was so important that it offset the unequalizing impact of labor income and income from capital.

What caused the distribution of labor income per working adult to change from being an unequalizing factor in the early 1990s to an equalizing one thereafter (up to 2010 when it became unequalizing again)? Esquivel et al. argue that hours worked changed very little. In fact, they fell slightly for the bottom quintiles, an inequality-increasing change. It is the changes in the relative hourly wages what caused the switch. Starting in the mid-1990s, the skill premium --measured by the gap between the wages of workers with tertiary education (or secondary) and workers with no schooling or incomplete primary school – fell systematically (Figure 6). Changes in the returns to education accounted for a significant share of the rise in household per capita income inequality between 1984 and 1994.[31] The in-depth analysis for Mexico suggests that during the period of declining inequality (mid 1990s

to 2006) the opposite occurred: that is, returns to education—the price effect—became an equalizing factor (Esquivel et al.).

What about the quantity effect? The distribution of the stock of education (measured by the composition of the population by levels of schooling or the distribution of average years of schooling) in the labor force became more equal too (Figures 6 and 7). Campos et al. find that changes in the distribution of characteristics (which includes experience and schooling) were unequalizing during the 1994-2006 spell and neutral in the 2006-2010 spell (Campos et al., Figure 4). Azevedo et al. (2011), on the other hand, find that --while the price effect was equalizing during 2000-2009-- the quantity (and unobservables) effect was unequalizing (Azevedo et al., Tables 4 and 8). Both Campos et al. and Azevedo et al. show effects for experience and education combined. Battiston et al. looks at the effect of education by itself and find that the changes in the structure of education in the period were unequalizing. In the case of Mexico, all the studies find the same result: unequalizing quantity effects. Thus, Mexico was still experiencing the "paradox of progress:"[32] had relative returns (the skills premium) not changed, the more equal structure of education (however measured) would have increased labor income inequality. In the case of Mexico, then, all the equalization "work" was in the hands of changes in the skill premium (the price effect).

What factors are behind the decline in the skill premium? In Figure 6 we observe that the relative supply of skilled workers rose while the relative returns declined. This means that either supply outpaced demand, institutional factors moved in favor of the unskilled, or both. Campos et al. show that the real minimum wage and the unionization rate did not change after 1996 (Campos et al., Figure 6); in addition, the minimum wage is not binding (Campos et al., Figure 7). Hence, it is unlikely that changes in institutional factors affected the wage structure for the period after 1996. Thus, market forces—i.e., changes in the composition of demand and supply by skill-- should explain what happened to returns.

Applying the Bound and Johnson framework (Bound and Johnson, 1992), Campos et al. show that changes in the composition of supply appear to dominate; particularly, during the period of declining returns (1994-2006) (Campos et al., Table 1). However, the order of magnitude depends on the assumed elasticity of substitution between skilled and unskilled workers. Under some plausible assumptions, the reduction in skill premium can be attributed to both an increase in supply of and a fall in demand for skilled workers, but with the former effect being larger. Thus, Campos et al.'s analysis appears to give more weight to the impact of changes in the composition of supply of workers by skill than to changes in demand. Gasparini et al. (2011), however, find that in the case of Mexico, changes in the composition of demand dominate (Gasparini et al., 2011, Table 3.1). Both sets of authors use different definitions of skilled workers and skill premium, and slightly different time periods. It remains to be seen whether any or all of these factors explain the differences in their results. Another interesting question is raised by the switch of labor income to being an unequalizing factor in 2010; it remains unclear whether this switch was a result of the knock-on effects of the global Great Recession of 2007-2009 or a new trend. If the latter is true, the era of declining inequality in Mexico may have come to an end.

The rise in relative supply of skilled workers were probably due to changes in public spending on education in the 1990s, which expanded basic and middle education considerably. Esquivel et al. state that public spending on education in the 1970s and 1980s was heavily biased towards higher education and that this changed dramatically in the 1990s. The relative ratio of spending per student in tertiary versus primary education declined from a historical maximum of 12 in 1983–1988, to less than 6 in 1994–2000.[33] More resources on the supply-side and the implementation of demand-side subsidies for education through *Progresa/Oportunidades* changed the incidence of public spending on education from being slightly regressive in 1992 to being progressive in 2006. Hence, the fall in the premium to skills can be linked to both market factors, which affected the demand for labor by skill, and state action in education spending. In addition, due to the demographic transition, the cohorts entering primary school became smaller over time, liberating resources for secondary schooling.

Esquivel et al. show that the marginal increase of government transfers was equalizing throughout the period, increasing its (equalizing) marginal contribution over time. The equalizing contribution of government transfers rose over time because their share in total income rose and their own inequality and Gini correlation with total monetary income fell.[34] The share of transfers in total income rose because there was a significant expansion in coverage of cash transfer programs—in particular, through a cash transfer for agricultural producers *Procampo* and Mexico's signature conditional cash transfer program *Progresa/Oportunidades*. The lion's share of the expansion in households receiving non-labor income was due to implementation and subsequent expansion of the *Progresa/Oportunidades* conditional cash transfer program in 1997. In fact, *Progresa/Oportunidades* is an example of redistributive "efficiency:" with a budget size of as little as 0.36 percent of GDP, *Progresa/Oportunidades* accounts for 18 percent of the change in the pre/post-transfers difference in the Gini coefficient. Using standard incidence analysis, Lopez-Calva et al. (2012), show how cash transfers significantly increased their contribution to poverty and inequality reduction from the mid-1990s to 2010.

As with Argentina and Brazil, the decline in inequality in post-NAFTA Mexico can be explained by two main factors. First, it is explained by a fall in the premium to skills (with an education-based indicator of skills). Second, by the expansion of cash transfers programs targeted to the poor. The decline in the skills premium, in turn, is primarily due to the rise in supply of skilled workers. The increase in the relative supply of skilled workers is associated with the large effort made by the government to expand basic education.

2. Main Findings: Discussion

Based on results from non-parametric decomposition exercises, in Argentina, Brazil and Mexico, the decline in overall inequality can be attributed to a decline in both labor and non-labor income inequality. In the case of Argentina and Mexico, the decline in labor income inequality contributed with a larger share while in Brazil the contribution was approximately equal (until 2006) and then labor income's contribution started to dominate.

The decline in labor income inequality can occur because of an expansion of employment and/or hours worked (especially among the poor) and by changes in the distribution of hourly wages. The latter, in turn, can be driven by changes in the distribution of observable (and unobservable) characteristics, and changes in returns to those characteristics. The analysis for Argentina suggests that the expansion of employment (as a result of the economic recovery and commodity boom) was an important factor behind the decline in labor income inequality. In the cases of Brazil and Mexico, this was not the case. Whether the changes in the distribution of characteristics (the quantity effect), especially education, were equalizing or unequalizing could not be unambiguously established for Argentina and Brazil because different authors obtained opposite results. In the case of Mexico, all the authors found that the more equal distribution of education had an unequalizing effect on labor income. That is, Mexico is still experiencing what Bourguignon et al. (2005) called a "paradox of progress."

In the three countries the changes in returns to education and experience (the price effect) were equalizing. This is in stark contrast with trends in the 1990s when the skill premium rose across the board. The skill premium is affected by demand and supply of workers of different skills (education and experience) and by institutional factors such as the minimum wage and the influence of unions. Labor demand by skill, in turn, is primarily affected by the characteristics of technical change and international trade. The composition of labor supply is determined, to a large extent, by the characteristics of educational upgrading and demographic factors. Based on the results analyzed here, the fall in the skill premium in Argentina is explained by a decline in relative demand for skilled workers, and a rise in the minimum wage and the power of unions. In Brazil, supply-side factors—in addition to demand-side and institutional factors—played an important role. In Mexico, institutional factors were unimportant and demand for skilled labor may have even continued to rise; the fall in the skill premium, thus, was primarily driven by an expansion in supply of skilled workers.

In Brazil and Mexico, then, the decline in labor income inequality was linked to the fact that unskilled labor became (relatively) less abundant. The significant expansion of basic education that underlies the change in labor composition by skill in these two countries, in turn, seems to be associated with conscious government efforts including administrations from earlier periods. Higher spending per student in basic education and an effort to make education accessible in rural areas eased supply-side constraints (Santibanez, et al., 2005). In addition, the conditional cash transfer programs *Bolsa Família* (Brazil) and *Progresa/Oportunidades* (Mexico) reduced demand-side constraints by compensating poor households for schooling costs and the opportunity cost of children's labor.[35]

In the three countries analyzed here, the demand for skilled labor in the 2000s appears to either have declined (Argentina and Brazil) or grown at a slower pace (Mexico).[36] What explains this change of pace in the demand for skilled labor? No clear-cut answer exists as of yet. Candidates are changes in the composition of output and employment induced by policy changes (trade and industrial policy, for example) as well as exogenous changes in the

composition of global demand and terms of trade. Gasparini et al. (2011) find econometric evidence in support of the role of terms of trade for the 16 countries included in their regression analysis: that is, an improvement in the terms of trade results in a reduction in the skill premium. This result is statistically significant across many specifications (Gasparini et al., Table 4.1). When these authors try to link this result to changes in the skill composition of employment between and within sectors, however, no clear answer emerges. That is, as a general observation there is no evidence of a change in the structure of employment towards sectors using unskilled labor more intensively. Thus, so far, a more fundamental explanation of the weakening of the demand for skilled labor has eluded us.[37]

The reduction in inequality of non-labor income was the second major factor behind the decline in inequality. Non-labor income includes quite disparate income sources: returns to capital (interests, profits and rents), private transfers (for example, remittances) and public transfers. The contribution of changes in returns to capital in the three countries tended to be small and unequalizing. Mexico is the only country for which a separate analysis of private transfers (mainly remittances) is done; remittances proved to be equalizing and became even more so in the 2000s, because they closed the gap between rural and urban household per capita incomes, particularly in the case of Mexico.

The most important factor in accounting for the decline in non-labor income inequality was a significant rise in importance of the equalizing contribution of government transfers. The equalizing contribution of government transfers not only rose over time but was of such a significant magnitude that it offset the unequalizing effect of other sources of non-labor income. Schemes like *Benefício de Prestação Continuada* (Brazil), *Procampo* (Mexico), and large-scale conditional cash transfers programs (CCTs) such as *Jefes y Jefas* (Argentina), *Bolsa Família* (Brazil) and *Progresa/Oportunidades* (Mexico) had remarkable redistributive power. The CCTs are a small share of total government social spending but go a long way in terms of redistributing income to the bottom of the distribution.[38] The expansion of their coverage during the 2000s was, in particular, key to both inequality and poverty reduction. Overall, the important contribution of social policy to the reduction of inequality through the expansion of education and public transfers is evident.[39]

3. Concluding remarks

During the first decade of this century, income inequality in most countries in Latin America has declined. The decline has been non-trivial, statistically significant and robust to changes in the time interval, inequality measure, definition of income and data source.

The results of in-depth analyses for Argentina, Brazil and Mexico reveal two main underlying factors: a fall in the skill premium and more progressive government transfers. The fall in the skill premium seems to be associated with an increase in the relative supply and a decrease in the relative demand for skilled labor. In the case of Argentina, the demand-side of the story dominates while in Mexico, the supply-side one does; in Brazil, both appear to be equally important. In turn, the increase in the relative supply of skilled labor seems to be associated

with a push in the coverage of basic education, which made low-skilled labor relatively less abundant. The distribution of human capital became more equal and—everything else the same--the gap in returns to schooling by level narrowed. Changes in demand for labor by skill level also moved favorably towards the unskilled. There is some evidence that positive terms of trade had something to do with this change. The exact mechanism, however, remains to be identified.

The redistributive momentum may be hard to sustain, however. While educational attainment has become significantly more equal, the same cannot be said about the distribution of the quality of education. The experience of the United States should serve Latin America as a warning of what may be yet to come.[40] In the United States, earnings inequality rose significantly since the 1980s because the premium to skills increased. Returns to skills went up because there was a slow-down in the rate at which workers with post secondary education came into the labor market (and to a lesser extent because of skill-biased technical change). The low quality of education in preceding levels generated many high school graduates who were not "college ready" and, thus, educational upgrading stalled. In addition, favorable terms of trade cannot be taken as a given. Latin America has experienced recurrent ups and downs associated with terms of trade throughout its history. The decline in inequality cannot be taken for granted. It requires "hard work" both from policymakers and the polity.

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Figures

Figure 1 – Declining Inequality in Latin America by Country: 2000-2010 (annual % change in Gini)
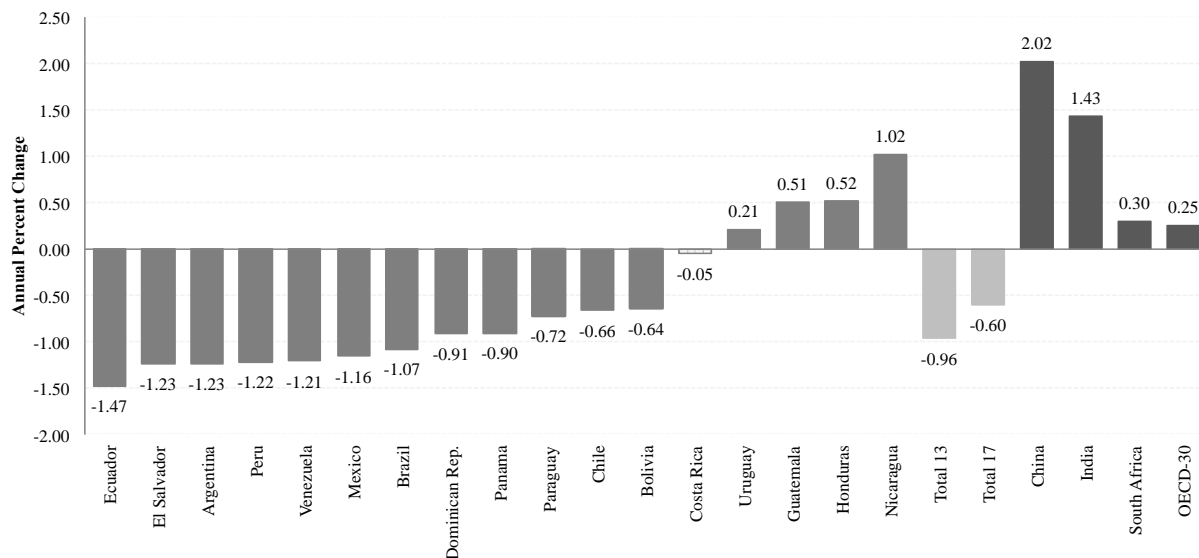
Source: Authors' calculations based on data from SEDLAC (CEDLAS and The World Bank), March 2012. (http://sedlac.econo.unlp.edu.ar/eng/) for Latin American countries; and OECD (2010) for China, India, South Africa and OECD-30.

Note: Solid bars represent cases where changes are statistically significant based on SEDLAC's estimates. Data for Argentina and Uruguay are for urban areas only. In Uruguay, urban areas covered by the survey represent 80 percent of the total population; in Argentina, they represent 66 percent. The average change in the Gini for each country is calculated as the percentage change between the end year and the initial year divided by the number of years; the average for the total is the simple average of the changes by country (thirteen countries in which inequality fell). The years used to estimate the percentage change are as follows: Argentina (2000-10), Bolivia (2001-08), Brazil (2001-09), Chile (2000-09), Costa Rica (2001-10), Dominican Republic (2000-10), Ecuador (2003-10), El Salvador (2000-10), Guatemala (2000-06), Honduras (2001-10), Mexico (2000-10), Nicaragua (2001-05), Panama (2000-10), Paraguay (2001-10), Peru (2001-10), Uruguay (2000-10), and Venezuela (2000-10). Using the bootstrap method, with a 95 percent significance level, the changes were not found to be statistically significant for Costa Rica (represented by grid bars in the figure). The years used in non-Latin American countries are as follows: China (1993-Mid 00s), India (1993-Mid 00s), South Africa (1993-08), and OECD-30 (Mid 80s-Mid 00s).

**Figure 2 – The Rise and Fall in Inequality**

(Changes in the Gini coefficients in percentage points)
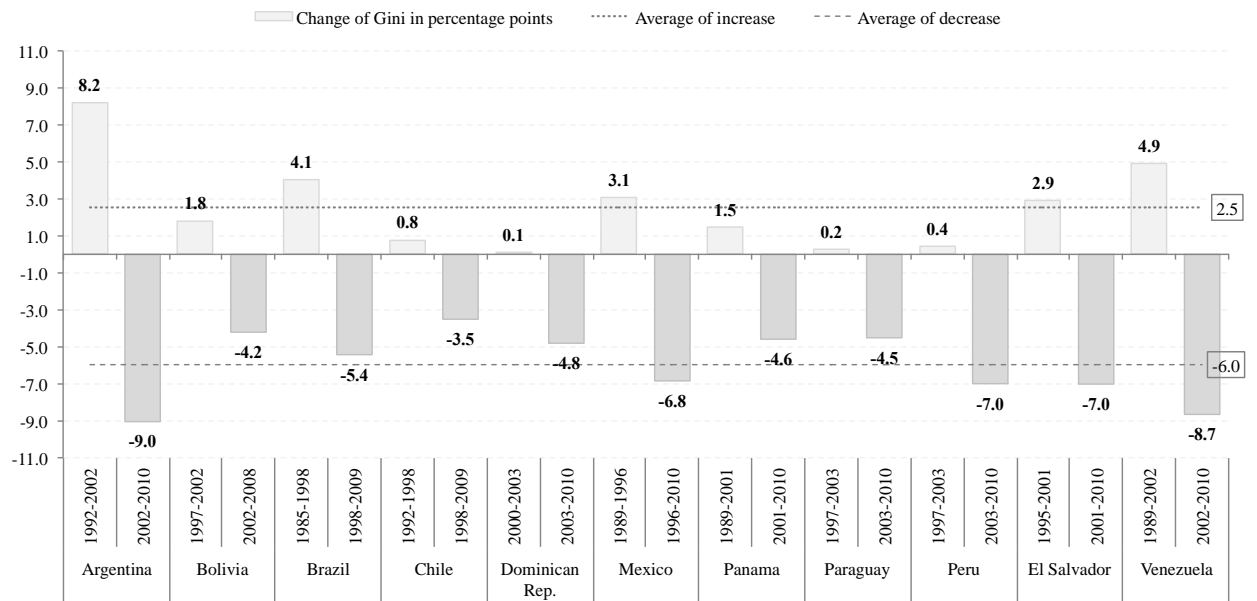
Source: Authors' calculations based on data from SEDLAC (CEDLAS and The World Bank), March 2012 (http://sedlac.econo.unlp.edu.ar/eng/)

Note: change in percentage points of the Gini coefficient before and after the inequality started to decline. Although inequality in Ecuador declined since 2003, there were no observations for earlier years.

**Figure 3 – Latin America: Decomposing the Changes in Poverty into Growth and Redistribution (2000s)**
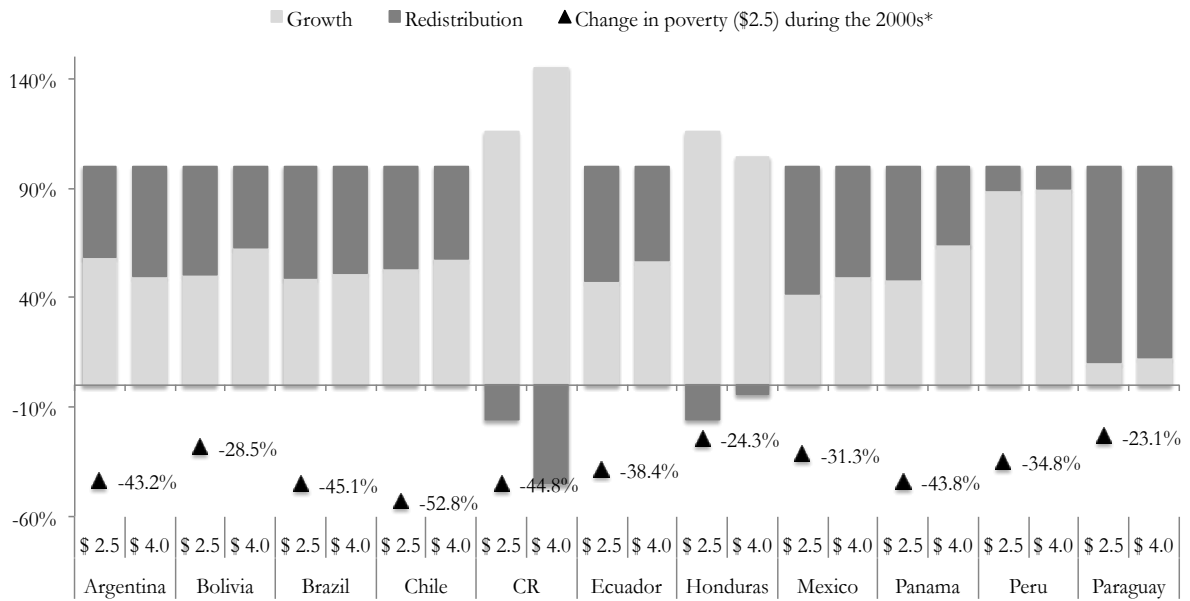
Source: Authors' calculations based on household surveys.

Note: The contribution of the decline in inequality was calculated using the standard Datt-Ravallion decomposition (Datt and Ravallion, 1992). The years used are as follows: Argentina (2000-2009), Bolivia (2000-2008), Brazil (2001-2009), Chile (2000-2009), Costa Rica (2000-2009), Ecuador (2003-2009), Honduras (1999-2009), Mexico (2000-2008), Panama (2001-2009), Peru (2000-2009), and Paraguay (1999-2009). Note that the Dominican Republic, El Salvador, and Uruguay were not included because the residuals were extremely high pointing towards the instability of the results. Including them would have caused a large upward 'bias' of the contribution from declining inequality.

* Percent change in the incidence of poverty as measured by the $2.5 international poverty line.

Figure 4 – Gini Coefficient in Argentina, Brazil and Mexico; c.1990-c.2010
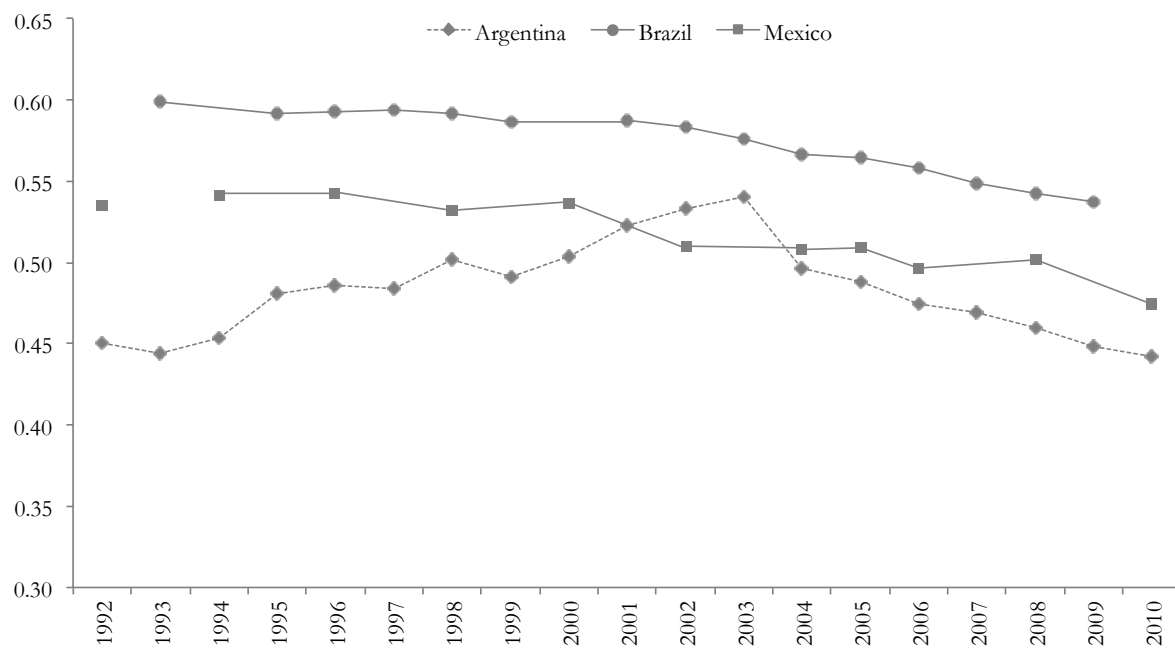
Source: Based on data from SEDLAC (CEDLAS and The World Bank), March 2012
(http://sedlac.econo.unlp.edu.ar/eng/)
Note: Data for Argentina is for urban areas only. They represent 66 percent of total population.

Figure 5 - Growth Incidence Curves of Household Per Capita Income for Argentina (urban), Brazil, and Mexico (Deciles)
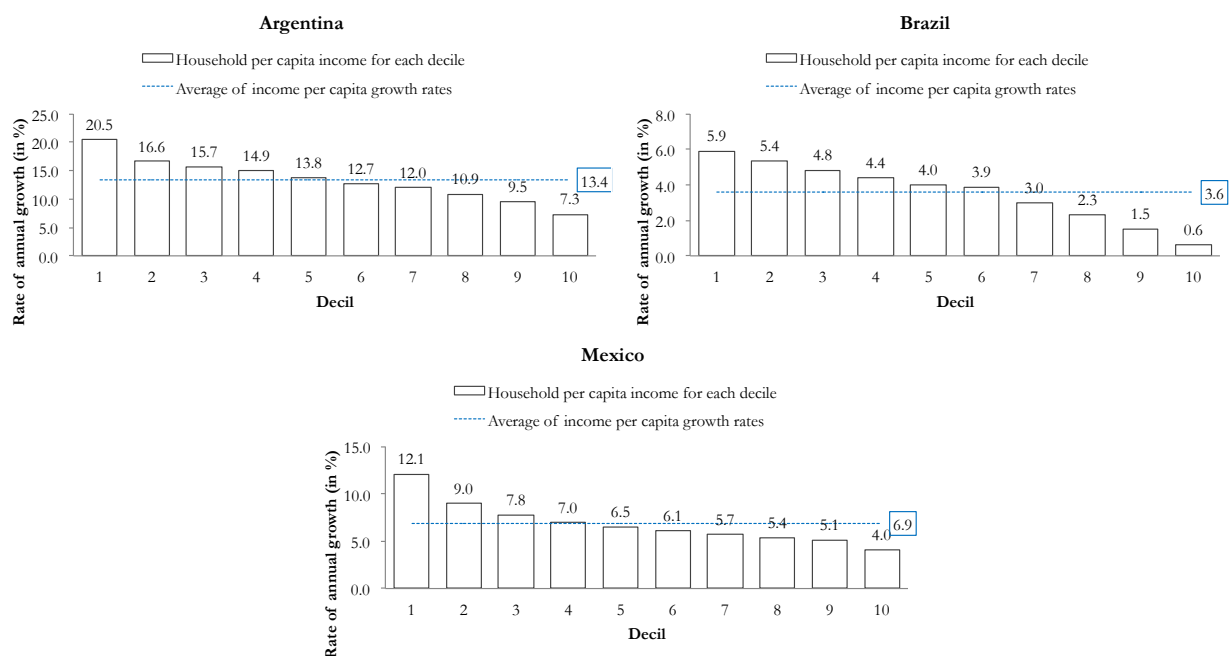
Source: Author's calculations based on data from SEDLAC (CEDLAS and The World Bank), March 2012 (http://sedlac.econo.unlp.edu.ar/eng/). The changes are for 2000-2010 in Argentina, 2001-2009 in Brazil, and 2000-2010 in Mexico.

Figure 6 - Returns to Education and Composition of Labor Force by Schooling Level: Argentina (urban), Brazil and Mexico /a

Returns to Education

Argentina 1992-2010

— Primary — Secondary ·········· Tertiary

Brazil 1990-2009

— Primary — Secondary ·········· Tertiary

Mexico 1992-2008

— Primary — Lower Sec — Upper Sec — Tertiary

Composition of Adult Population by Educational Level

Argentina 1992-2010

— Incomplete primary — Primary ······×······ Secondary — Tertiary

Brazil 1990-2009

— Incomplete primary — Primary — Secondary — Tertiary

Mexico 1992-2008

— Incomplete primary ······· Primary — Secondary — Tertiary

Source: Returns for Argentina and Brazil are from SEDLAC (CEDLAS and The World Bank) March 2012 (http://sedlac.econo.unlp.edu.ar/eng/), and calculated with respect to no schooling or incomplete primary school; returns for Mexico are from Campos-Vázquez (2010), calculated with respect to no schooling or incomplete primary school.

Note: Categories by skill are formed by level of formal education. Educational levels correspond to completed primary school, lower- and upper-secondary school, and tertiary education. Data for Argentina are for urban areas only. In Argentina, urban areas covered by the survey represent 66 percent of the total population. In Argentina, complete primary school is achieved at 7 years, complete secondary school at 12 years, and tertiary education at 16 or more years of formal education; incomplete primary includes 6 years or less of education and no education. In Brazil, complete primary is achieved at 4 years, complete secondary at 11 years, and tertiary at 15 or more years of formal education; incomplete primary includes 3 years or less of education and no education. In Mexico, complete primary is achieved at 6 years, complete lower secondary at 9 years, complete upper secondary at 12 years, and tertiary at 15 or more years of formal education; incomplete primary includes 5 years or less of education and no education..

/a With a 95 percent significance level:

(1) The differences in the returns trends were found to be statistically significant for the following countries, levels and years: Argentina (tertiary in 1992-1998 and 2001-2006); Brazil (primary in 1990-1998, 1998-2002 and 2002-2007; secondary in 2002-2007; and tertiary in 1990-1998, 1998-2002, 2002-2007, and 2007-2009); and Mexico (primary in 1996-2002; secondary in 1996-2002 and 2002-2006; and tertiary in 1992-1996 and 1996-2002).

(2) The differences between indicators were not found to be statistically significant for: Argentina (between secondary and tertiary in 1992); and Brazil (between primary and secondary in 1990, 1998 and 2009).

Figure 7 - Schooling Inequality: Argentina (urban), Brazil and Mexico

(Gini Coefficients)
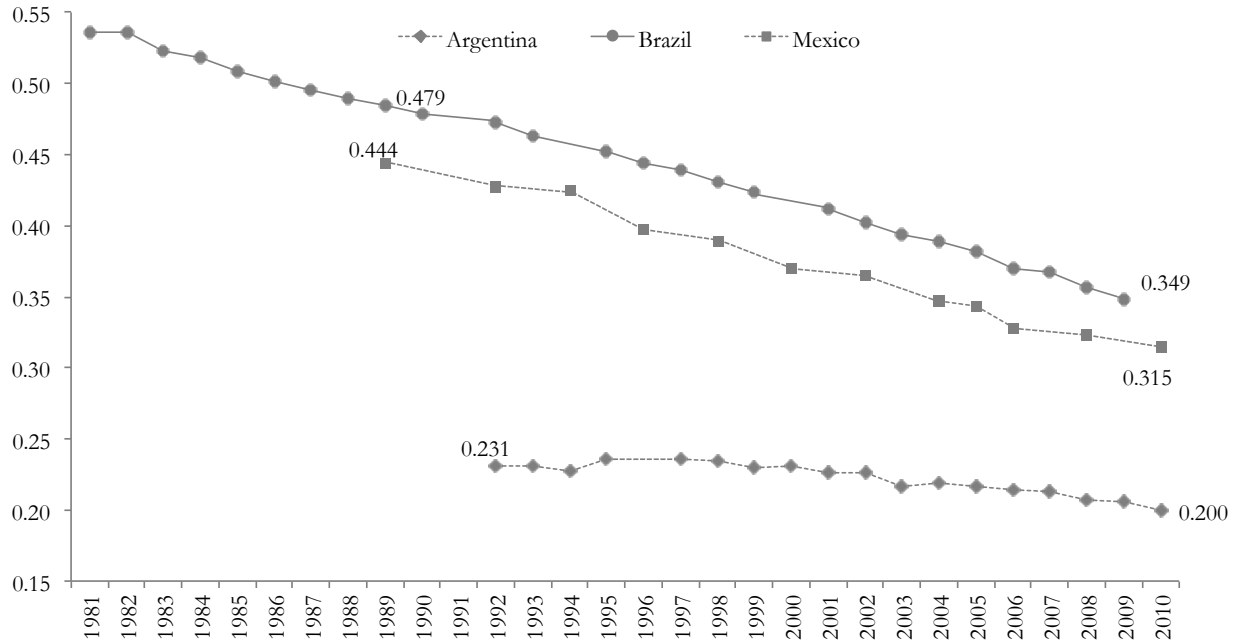
Note: Data are for the age group from 25 years to 65 years. Education is measured in years of formal schooling. Data for Argentina are for urban areas only. In Argentina, urban areas covered by the survey represent 66 percent of the total population.

Notes

[1] In the mid-2000s, with a Gini coefficient of 0.530, Latin America was 18 percent more unequal than Sub-Saharan Africa, 36 percent more unequal than East Asia and the Pacific and 65 percent more unequal than advanced countries. Ferreira and Ravallion (2008). Around 2010, the Gini coefficient for the distribution of household per capita income ranged from 0.387, 0.442 and 0.453 in Venezuela, Argentina (urban) and Uruguay, respectively, to 0.556 and 0.567 in Bolivia and Honduras, respectively.

[2] "Income" in these estimates is current (i.e., excludes capital gains/losses, gifts and inheritance) income. It includes wages, salaries, rents, and other incomes from capital as well as government cash transfers, remittances, and other private transfers. Income is presumed to be net of taxes for wage earners and before taxes for the self-employed.

[3] The data on inequality and poverty used here is the one published by SEDLAC. The Socio-economic Database for Latin America and the Caribbean or SEDLAC is a joint project of CEDLAS (at Universidad de La Plata, Argentina) and The World Bank. The version of SEDLAC used in this paper is March 2012 (http://sedlac.econo.unlp.edu.ar/eng/).

[4] Interestingly, the decline in inequality has been widespread. Inequality has fallen in high-inequality Brazil and low-inequality (by Latin American standards) Argentina, Uruguay and Venezuela; in countries with a large indigenous population (Ecuador and Peru) and countries with a small indigenous population (Argentina); countries governed by the left (Brazil and Chile) and countries governed by non-leftist regimes (Mexico and Peru); countries with a universalistic social policy (Argentina and Chile) and countries with a traditionally exclusionary state (El Salvador). Notably, inequality declined in fast-growing countries (Chile and Peru) and slow-growing ones (Brazil and Mexico). In fact, the longest periods for which the decline could be documented correspond to Brazil and Mexico, two countries whose GDP per capita growth rates were at or below 3 percent per year—comparatively rather slow. Even after the global recession in 2009, inequality continued on its downward trend.

[5] The results are robust to the selection of the time period (for example, change the end years by one year or use a three-year average for the end points), inequality measure (Gini, Theil and 90/10 ratio, for example) and data source (for example, if we use the data by the United Nations Economic Commission for Latin America and the Caribbean, UNECLAC, instead of SEDLAC). Changing the end years, using a different inequality measure, or UNECLAC as a source, changes the ranking of countries and the total number that experienced a decline may be 12 instead of 13. However, the main conclusion remains intact: the decline in inequality has been widespread and, in the vast majority of cases, non-trivial and statistically significant. All the robustness tests are available from the authors. See, also, ECLAC (2010); Cornia (2010); and Gasparini et al. (2008).

[6] Of the 13 countries in which inequality fell, the decline was statistically significant in twelve; in only Costa Rica the decline was not significant. The standard errors calculated by and reported in SEDLAC were estimated using the bootstrap method with 100 replications. The changes shown in Figure 1 were found to be significant at a 95 percent level except for the case indicated.

[7] Our results are broadly similar with those found in Azevedo et al. (2011).

[8] See, for example, Atal *et al.* (2009); Barros *et al.* (2009); Levy and Walton (2009); De Ferranti *et al.* (2004).

[9] Household surveys in Argentina cover urban areas only and represent about two thirds of the population. With the exception of the Argentina's Gini is for urban areas, all the figures on income inequality are comparable across time and countries.

[10] The project was launched in 2007 and finished in 2010.

[11] These studies are not part of the UNDP project.

[12] Brazil's per capita GDP growth for the period 1998-2009 was equal to 2.8 percent per year; Mexico's was 3 percent per year for the period 1996-2010, the last year for which data on inequality was available.

[13] Unless otherwise indicated, all the Gini coefficients are for the distribution of household per capita income and are based on data from SEDLAC, March 2012. The 95% confidence intervals for Argentina's Gini are 0.446-0.456 in 1992 and 0.523-0.539 in 2002.

[14] The 95% confidence interval for Gini in 2010 is 0.439-0.447.

[15] It should be noted that although inequality in 2004-2010 fell substantially in relation to the crisis levels, it was not significantly different from its mid/late-1990s levels despite the fact that per capita GDP and employment were higher, labor institutions were stronger, and a massive cash transfer program had been implemented.

[16] Gasparini et al. (2011) find that both relative demand and relative supply accounted approximately the same for the reduction in relative returns (see their table 3.1).

[17] Bergolo et al. (2011) analyze the main determinants affecting the levels of income inequality adapting a non-parametric estimation methodology developed by Barros et al. (2006, 2007). In essence, this method consists of decomposing the change in an inequality measure into the contributions from changes in the distribution of the proximate determinants, taken one at a time, plus the contributions from changes in the interaction (correlation) of proximate determinants with each other (so called shift-share methods). The contributions are estimated through a series of sequential counterfactual simulations that assume that the distribution of the proximate determinant of interest remains the same as in the base year.

[18] The result that a reduction in inequality of education (however measured) can lead to an increase in labor income inequality was "discovered" by Bourguignon et al. (2005); the latter call this phenomenon the "paradox of progress." The paradox is possible because of the presence of increasing returns to education. Under the presence of increasing returns it is quite possible that an expansion in years of education lead to an increase in labor income inequality: that is, if the only change would have been the change in the structure of education, labor income inequality would be higher.

[19] The decline in income inequality in Brazil fulfills the Lorenz dominance test and is statistically significant at 1 percent confidence level. During the period 2004–2007, however, the Lorenz curves cross so the fall in inequality is not unambiguous. The growth rate in income for the bottom 5 percent was below the overall average for all percentiles and less than half of the growth rate corresponding to the second quintile. (Barros et al., 2010). The 95% confidence intervals for Gini are 0.590-0.595 in 1998 and 0.535-0.540 in 2009.

[20] The minimum wage affects not only labor earnings but also unearned incomes of recipients of government transfers because some key benefits—for example, non-contributory pensions—are pegged to the minimum wage.

[21] It should be noted, however, that when the analysis is expanded to 2008, the contribution of non-labor income declines (Bergolo et al., 2011, table 6.14).

[22] Like in Argentina and Mexico, the premium to skills (in effect, the relative returns to tertiary education) rose in the 1990s. In contrast to Argentina and Mexico, however, trade liberalization in the 1990s had not been associated with this phenomenon. Ferreira et al. (2010) find that "Unlike in other Latin American countries, trade liberalization appears to have made a significant contribution towards a reduction in wage inequality. These effects have not occurred through changes in industry-specific (wage or skill) premia. Instead, they appear to have been channeled through substantial employment flows across sectors and formality categories." (Abstract)

[23] Care must be taken because there will be some double counting since education may increase inequality not just through the positive impact on productivity but also by channeling more educated workers to the better jobs in the formal sector of the economy.

[24] For details on the methodology, see Barros et al. (2006 and 2007).

[25] These two programs represent 1 percent of household income and 5 percent of the public transfers concept measured in the survey. *Bolsa Família*, on average, equals 5 percent of average social security benefits.

[26] The program distributes cash to poor families on condition that the children and adolescents must attend school and meet basic health care requirements. The program reaches 11 million households (more than 46 million people) and covers a large proportion of the country's 50 million individuals living in poverty. On average, the income of the beneficiaries is raised by around 12 percent. Fiszbein and Schady (2009).

[27] Note that this decomposition of inequality changes by income source is different from the prior decomposition by proximate factors so results cannot be combined.

[28] Demographics, however, can be an important indirect factor. The lower fertility rates of the past decade, for example, imply that the demand for primary education (or the costs of providing universal coverage of primary education to the whole population) are lower and decreasing, freeing fiscal resources for post-primary education and other areas of social spending. The rate at which the low-skilled labor supply grows is lower as well. For a discussion of these factors, see Ocampo and Vallejo (2012).

[29] This Gini coefficient was estimated using total household income per capita which includes monetary and non-monetary sources (such as the imputed value for owner-occupied housing rent) and capital gains. The 95% confidence intervals for Gini are 0.535-0.551 in 1996 and 0.470-0.479 in 2010.

[30] Non-labor income includes income from own businesses; income from assets (including capital gains), pensions (public and private), public transfers (Oportunidades and Procampo), and private transfers (remittances); and non-monetary income (imputed rent on owner-occupied housing and consumption of own production,).

[31] See Legovini et al. (2005). In addition to changes in the returns to education, Bosch and Manacorda (2010) found that the deterioration of the minimum wage in Mexico's urban areas is responsible for rise in inequality during the 1980s.

[32] For definition of the paradox of progress see above and also Bourguingon et al (2005).

[33] By comparison, the average ratio for high-income OECD countries is close to 2. It is worth mentioning that such a reduction in the ratio could be driven by a reduction in tertiary education spending, with no changes in primary or secondary education expenditures, as actually happened in certain cases during the crisis of the 80s in the region. In this case, however, even though there was a reduction in tertiary education expenditures in real terms, there was a significant increase in resources devoted to primary and secondary levels.

[34] For more details on the methodology and the results see Lerman and Yitzhaki (1985) and Campos et al. (2012), respectively.

[35] For more on Bolsa Familia and Oportunidades, see, for example Fiszbein and Schady (2009).

[36] We say it "appears" because strictly speaking (and, especially for Argentina and Brazil), the residual of the Bound and Johnson (1992) decomposition includes both shifts in demand, technical change and institutional factors, and there is no easy way to "unbundle" them.

[37] The reduction in the skill premium contrasts with what occurred in the previous decades. In the 1980s and, in particular, in the 1990s, returns to education rose. The evidence suggests that the opening up of the economies and the concomitant skilled-biased technical change caused the increase in the skill premium (Manacorda et al., 2010). As part of the structural adjustment programs in the 1980s and 1990s, the weakening of the influence of institutional factors in favor of the bottom of the wage distribution also played its part. The reduction of the returns to education in the 2000s suggests that the unequalizing impact of skilled-biased technical change may have petered out and/or has been offset by supply-side changes in skills composition. In countries governed by left or left-of-center regimes, such as Argentina and Brazil, institutional factors favored the unskilled.

[38] Beyond targeted transfers, government social spending became more progressive in the 2000s. Spending on health, education, nutrition and basic infrastructure (electricity and water and sanitation, for example) became more pro-poor. In spite of the observed progress, however, a large share of public spending is still neutral or regressive from the distributive point of view. In addition, taxes, in particular personal income taxes, are severely underutilized as an instrument of redistribution in a region characterized by having a substantial number of ultra-high net worth (i.e. super rich) individuals.

[39] On this, also see Cornia (2010).

[40] Goldin and Katz (2008).