OVERVIEW

WAGE INEQUALITY IN LATIN AMERICA
UNDERSTANDING THE PAST TO PREPARE FOR THE FUTURE

Julián Messina and Joana Silva
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Overview Contents

Acknowledgments v
About the Authors vii
Abbreviations ix

Overview 1
Introduction 1
Review of the Trends 2
Causes of the Declines in Wage Inequality 4
Shifting Wage Inequality Trends: The Remaining Challenges 17
Looking to the Future: How Will the Wage Inequality Drivers Evolve? 18
Conclusions: How to Row against the Tide? 19
Notes 19
References 21

Box
O.1 Estimating the Role of Firm Heterogeneity 11

Figures
O.1 Wage Inequality across Regions Relative to 2002, Latin American and the Caribbean Countries, Compared with Countries Outside the Region, 1993–2013 2
O.2 Wage and Income Inequality Dynamics, South America vs. Central America and Mexico, 1990–2013 3
O.3 Trends in Relative Supply of Skilled to Unskilled Labor and Returns to Education in Latin America and the Caribbean 5
O.4 Wage and Employment Share Changes, by Skill Percentile, in Brazil and Peru 6
O.5 Employment and Skill Use Growth, by Sector Type, in South America, 1994–2013 8
O.6  Decomposition of Changes in Wage Inequality into Within- and Between-Group Components, Latin America and the Caribbean, 1997–2001 vs. 2001–13 10

O.7  Decomposition of Wage Variance among Workers across Firms in Costa Rica and Brazil 13

O.8  Decomposition of Factors Contributing to Wage Inequality Changes in Brazil, 1995–2003 vs. 2003–12 15

O.9  Changes in Formal Employment, by Wage Percentile, in Selected Latin American Countries 16
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### Abbreviations

<table>
<thead>
<tr>
<th>Abbreviation</th>
<th>Description</th>
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<tbody>
<tr>
<td>CAM</td>
<td>Central America and Mexico</td>
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<tr>
<td>GATT</td>
<td>General Agreement on Tariffs and Trade</td>
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<tr>
<td>NAFTA</td>
<td>North American Free Trade Agreement</td>
</tr>
<tr>
<td>OLS</td>
<td>ordinary least squares</td>
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<tr>
<td>PPP</td>
<td>purchasing power parity</td>
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<tr>
<td>SA</td>
<td>South America</td>
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Overview

Introduction

The Latin American region achieved something truly remarkable during the first decade of the 21st century: it sustained vigorous economic growth with declining inequality. Other regions in the world grew strongly during this period, but this growth was not shared equitably. On the contrary, inequality increased in most countries outside Latin America and the Caribbean (Milanovic 2016). In a period characterized by rising global inequality, the Latin American region demonstrated that an inclusive growth path is possible. This was an encouraging development for Latin America, but perhaps also for the rest of the world.

Lower commodity prices and slower growth in China, however, have reduced Latin America’s growth prospects. Since the beginning of the slowdown in 2011, inequality reduction has stalled in many countries (Cord et al. 2014; Rodríguez-Castelán et al. 2016). Thus, several countries in the region faced a difficult and protracted transition to a new equilibrium, a “new normal.” Unlike the systemic crises of the 1980s and 1990s, the economic pain of the second decade of the 21st century is not driven by a sudden stop in capital inflows, a banking system failure, or a sovereign debt crisis. The slowdown arrived at the end of a growth episode driven by growth of domestic demand beyond that of output.

In this low-growth scenario, it is important to ask whether the social gains of the 2000s can be sustained. Will lower wage growth occur across all segments of the wage distribution in Latin America, or will the slowdown disproportionately hurt those who have less? In other words, will the economic slowdown put the brakes on the reduction of wage inequality in Latin America?1

To answer these forward-looking questions—to know what to expect—it is essential to understand the causes of the observed changes in wage inequality in the past decades. The downward trend in wage inequality in Latin America in the 2000s was nothing short of a historic breakthrough for a region that, ever since the 19th-century writings of explorer Alexander von Humboldt, has been seen as the “land of inequalities”
Wage Inequality in Latin America (Engerman and Sokoloff 1997; Williamson 2015). What was different about the 2000s relative to previous decades, and what might change in the decades to come?

**Review of the Trends**

The reduction of wage inequality in Latin America and the Caribbean in the 2000s was a regionwide phenomenon (in 16 out of the 17 countries studied) that occurred after a decade of either stagnation or moderate increase (figure O.1).² This reduction was the main driver of the decline in household income inequality—even more important than the emergence of conditional cash transfer programs, the expansion of pension coverage, and changes in household demographics.³ Behind this reduction in wage inequality was faster wage growth for workers in the bottom of the wage distribution. Such commonalities are surprising given the differences across countries in employment and production structure, terms of trade, institutions, and regulations.

While overall wage inequality trends were common across countries, the magnitude of the reduction and the year in which it started varied. Overall, although wage

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**FIGURE O.1: Wage Inequality across Regions Relative to 2002, Latin American and the Caribbean Countries, Compared with Countries Outside the Region, 1993–2013**

<table>
<thead>
<tr>
<th>Year</th>
<th>Difference relative to 2002 labor earnings Gini</th>
<th>Confidence interval 95%</th>
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Note: The underlying data represent the hourly wage Gini among paid workers aged 15–64 years for each country and year, multiplied by 100. The Gini coefficient measures the equality of income distribution, ranging from zero (perfect equality) to 100 (maximal inequality). The values of the 1st and 100th percentiles of the earnings distribution were excluded by each gender education cell. The figures use only the information (noninterpolated) available for each country. They show the average difference between the labor income Gini in any year with respect to the value in 2002. Each average value and its standard errors are estimated as part of a simple panel data specification with country fixed effects. The Global Wage Report data are not strictly comparable with SEDLAC data. In some countries, different types of surveys were used, and the sample and trimming criteria are different.
inequality in some countries started to fall slowly in the mid-to-late 1990s, 2003 was the year when this fall became sharp. The biggest difference across countries was the magnitude of the reduction in the 2000s across subgroups of countries in different geographical areas of the region. Specifically, wage inequality fell more in countries in South America (SA) relative to Central America and Mexico (CAM) (figure O.2, panel a). In both groups of countries, the wages of low-earning workers grew. Although wages for the top 10 percent also rose in SA (albeit less than for the bottom 10 percent), they fell in CAM (figure O.2, panel b).^4

**FIGURE O.2: Wage and Income Inequality Dynamics, South America vs. Central America and Mexico, 1990–2013**

**a. Wage and total income inequality^a**

**b. Evolution of real hourly wage index, selected percentiles^b**


Note: Wages are deflated using national deflators. If no country data were available for a year in the middle of two points in the series, the missing figure was estimated using a simple linear interpolation.

a. The Gini index measures the equality of income distribution, ranging from zero (perfect equality) to 100 (maximal inequality). The regional aggregate for South America is the average of Argentina, Bolivia, Brazil, Chile, Colombia, Ecuador, Paraguay, Peru, and Uruguay. The regional aggregate for Central America and Mexico is the average for Guatemala, Honduras, Mexico, Nicaragua, and Panama.

b. p = wage percentile. “South America” includes Argentina, Brazil, Chile, Ecuador, and Uruguay. “Central America and Mexico” includes Costa Rica, Honduras, Mexico, and Panama.
Causes of the Declines in Wage Inequality

The research commissioned by the World Bank for *Wage Inequality in Latin America: Understanding the Past to Prepare for the Future* organizes the possible causes for the declines in wage inequality around three types of explanations:

- **Labor supply factors**, such as education expansion and its effect on falling returns to skill
- **Labor demand conditions**, including (a) technical change and globalization, (b) shifts in domestic demand, and (c) falling interfirm wage differences driven by exchange rate appreciation from the commodity boom and the associated shift in demand to the nontradable sector
- **Institutional factors** such as minimum-wage policies and a rapid trend toward formalization of employment.

The following sections review the evidence on each of these factors.

**Labor Supply Factors: Education Expansion and Falling Returns to Skill**

The relative supply of skills (as proxied by educational attainment) expanded steadily across Latin American and Caribbean countries since the 1980s (figure O.3, panel a). This expansion contributed to the decline of wage inequality by reducing the education premium (Card and Lemieux 2001; Katz and Murphy 1992). Moreover, in the 2000s, there was a combination of sharply rising unskilled wages with falling employment in unskilled occupations, as shown in the cases of Brazil and Peru (figure O.4). Without labor supply changes (in terms of both quantity and quality), these patterns at the bottom of the wage distribution are hard to reconcile; that is, these patterns are inconsistent with solely an outward demand shift for unskilled workers.

But the evolution of the relative supply of skilled workers alone would not suffice to explain the observed trends in wage inequality. First, it cannot explain the downward change in the trajectory of the education premium in the early 2000s. That is, the wage premium for college-educated workers versus workers with primary education or less fell in the 2000s but not during the 1990s (figure O.3, panel b). The education expansion started earlier (in the 1980s), and since then the relative supply of skills followed a steady upward trend without any notable acceleration in the 2000s. If supply-side trends were the sole driver of wage inequality, we would have seen a fall in returns to skills and a decline in inequality in the 1990s, but that did not occur. Second, relative labor supply trends in SA are not much different from those in CAM. Hence, they cannot
**FIGURE O.3: Trends in Relative Supply of Skilled to Unskilled Labor and Returns to Education in Latin America and the Caribbean**

a. Skilled to unskilled labor supply, 1980–2010

b. Wage premiums for education, 1993–2013

Source: Adapted from Rodríguez-Castelán et al. 2016 using the Socio-Economic Database for Latin America and the Caribbean (SEDLAC), Universidad Nacional de la Plata (CEDLAS) and World Bank, http://sedlac.econo.unlp.edu.ar/eng/.

a. The graph plots the simple average across countries of the ratio between the numbers of “skilled” workers (those who have at least completed high school) and “unskilled” workers (those with primary education or less). Countries included are Argentina, Brazil, Chile, Colombia, Ecuador, Mexico, Peru, and Uruguay.

b. The graph depicts wage ratios between workers with different levels of education. Calculations use only full-time workers and exclude outliers (percentile 1 and percentile 99 values) of the wage distribution. The sample is restricted to the working-age population (aged 15–64 years). The graph reports ordinary least squares (OLS) estimates of the education premium including dummies for four key observable characteristics that are part of a traditional Mincer equation: education, labor market experience, gender, and urban/rural dummy. The Mincer ratios of college to primary education, and of high school to primary education, were computed using an exponential function of the coefficients. Coefficients are the average difference between the premium for a specific category (such as college-educated workers) and the base category (workers with primary education or less) of each characteristic (in this case, education), controlling for the rest of the observable characteristics. For example, the wage ratio of college to high school is the ratio of the exponential of the coefficient of college and the exponential of the coefficient of high school. The average wage returns in each specific category are the ratios of the hourly wages (2005 purchasing power parity [PPP]) in the top education category divided by the average hourly wage (2005 PPP) of the bottom education category.

explain the much stronger reduction of inequality in SA. Third, the education premium fell during the 2000s for both old and young workers. If old and young workers are imperfect substitutes, the education premium should have fallen more for young workers, whose relative supply of skills changes more rapidly. This was not observed in the data.
FIGURE O.4: Wage and Employment Share Changes, by Skill Percentile, in Brazil and Peru

Source: Messina, Pica, and Oviedo 2016.

Note: These figures organize occupations by skill percentile, ranked by the mean years of education (red lines) and mean hourly wage (blue lines) of workers in that occupation in 2002 (base year). They show the smoothed changes in employment across finely defined occupational categories. Occupations are ordered according to their average wages (or education level) in the baseline year.
**Labor Demand Conditions**

Since the 1990s, the region had many important changes in labor demand conditions. These changes—and how they translate into demand for different types of labor—reduced wage inequality, as discussed below.

**Technical Change and Globalization**

The literature usually focuses on two forces that can raise the relative demand for skilled labor: skill-biased technical change and trade liberalization. In countries such as the United States, research and opinion surveys suggest that these forces—particularly technical change—are the primary drivers of changes in wage inequality (Autor, Katz, and Krueger 1998; Berman, Bound, and Griliches 1994; Feenstra and Hanson 1999; Goldin and Katz 2007; Krueger 2012). Polarization of occupations in the labor market—a more recent version of the technical change hypothesis—had an important impact on the compensation of U.S. workers and, through this channel, on wage inequality (Autor et al. 2014; Autor and Dorn 2013). This phenomenon consisted of an expansion in the demand for skilled and unskilled occupations to the detriment of middle-skilled jobs, which tend to entail tasks that are easily codifiable and, hence, can be performed by machines (Autor et al. 2014; Autor and Dorn 2013).

The evidence for Latin America, however, suggests that technical change was not the main driver of inequality in the region. Wages expanded rapidly in low-paying occupations relative to high-paying occupations (figure O.4, panel a). Skill-biased technical change would have caused the opposite effect. Also, there is little evidence of labor market polarization, as shown in the cases of Brazil and Peru (figure O.4, panels a and b). In fact, the evidence of occupation polarization is weak for most countries of the region and for other developing countries (Maloney and Molina 2016; Messina, Pica, and Oviedo 2016).

Regarding the traditional role of trade, the Stolper-Samuelson theorem suggests that trade liberalization in countries where unskilled labor is relatively abundant will lead to an increase in both the relative price of unskilled-labor-intensive sectors and the relative return to unskilled labor, and therefore to a reduction in wage inequality. Although most trade liberalization occurred in the 1990s, wage inequality was stagnant or rising in Latin America and the Caribbean during that period (Goldberg and Pavcnik 2007) while inequality fell only in the 2000s (Halliday, Lederman, and Robertson 2016). Hence, Stolper-Samuelson trade effects cannot explain the timing of the downward trend in wage inequality.

Other trade shocks could have been at play, such as the commodity boom triggered by the emergence of China as a major consumer of commodities. Recent studies indicate that the direct effects of the commodity boom on wage inequality in the region can account for only a small share of the fall in wage inequality in the 2000s (Adão 2015). However, the commodity boom also had indirect (spending) effects, discussed below.
Shifts in Domestic Demand and Rising Wages for Unskilled Workers

This book emphasizes the role of the tightness or softness of market conditions on wage inequality in the region. In the 2000s, aggregate domestic demand trends were radically different in SA than in CAM. In SA, the period was marked by a strong increase in domestic demand that reflected the spending effect of positive terms-of-trade improvements, which responded to the commodity-price boom but also to large capital flows to the region. In turn, SA witnessed the region’s largest fall in returns to skill and thus the largest fall in wage inequality. The observed surge in demand was associated with a larger employment expansion in the nontradable sector than in the tradable sector (figure O.5, panel a). This could have reduced the skill premium for two distinct reasons: differential skill intensities between sectors, or differences in the supply elasticities of skilled versus unskilled workers.

Differences in skill intensities across sectors. The conventional wisdom, particularly in SA, posits that the demand expansion brought by real exchange rate appreciation in the 2000s led to a larger expansion in labor demand in the nontradable sector than in the tradable sector, favoring the relatively less-skill-intensive sectors. The underlying assumption was that the nontradable sector in Latin America is more...
intensive in unskilled labor than the tradable sector. Hence, increases in the demand for nontradable goods and services would benefit less-educated workers the most. This could be the case, for example, if growth in nontradables is accounted for by the growth in the construction sector, which is less skill-intensive than most sectors.

Evidence for the region, however, contradicts this assumption. In SA, on average, the nontradable sector is more skill-intensive than the tradable sector (figure O.5, panel b). Some relatively less-skill-intensive nontradable sectors expanded considerably—particularly construction, whose workers’ level of education is below average. Yet, the construction industry has a relatively small employment share (around 7 percent in most countries), and other nontradable sectors that are high-skill-intensive expanded as well—business services, for example. Moreover, the extent of sectoral reallocation to nontradable sectors was relatively small (De la Torre et al. 2015).

**Differential supply elasticities between skilled and unskilled workers.** De la Torre and Ize (2016) (formalized in De la Torre et al. 2015) develop a different explanation about the impact of domestic aggregate demand on the tradable versus nontradable sector. If the unskilled labor supply is less responsive than the skilled labor supply to increases in demand, the surge in domestic aggregate demand, even if symmetric in skill intensity, could have reduced the skill premium (given that skilled labor supply rose). This asymmetry in supply elasticities across skilled and unskilled workers is plausible in a context of rapidly growing aggregate labor demand and employment and a falling relative supply of unskilled workers. When aggregate demand increases, the diminishing reservoir of unskilled workers results in a less-elastic supply of workers and, hence, in higher wage increases. The observed wage and employment changes by skill level in SA are consistent with this hypothesis. In fact, estimates of supply elasticities show small differences across worker groups but are in line with lower supply elasticity for unskilled labor (Bargain and Silva 2017).

In sum, the combination of falling supply of unskilled workers and changes in demand resulted in a notable reduction of the skill premium that contributed to the decline of inequality in the region. The importance of the demand channel, and the mechanism through which it operated, differed across countries. In CAM the terms-of-trade shock was not there, and the mild reduction of inequality is more likely to have been supply driven. In SA, the sharp rise of terms of trade raised domestic demand and the demand for nontradables. In some SA countries, this triggered the demand for certain services that are unskilled-labor-intensive. In others, it created unskilled-labor shortages, which may have resulted in rapidly rising wages if the unskilled labor supply was relatively inelastic. The book claims that all three ingredients—rising terms of trade, increased demand for nontradables, and shortages of unskilled labor—were present in most cases. More in-depth country studies will be needed to quantify the importance of each channel in each particular context.10
Falling Interfirm Wage Differences among Similar Workers

Importantly, the causes of falling wage inequality in the 2000s highlighted so far cannot explain falling wage differentials among workers with similar education, labor market experience, and occupation, which accounts for more than half of the decrease in earnings inequality. During 2001–13, the changes in pay differences between skill groups contributed 48 percent of the total change in wage variance (figure O.6). The remaining 52 percent was associated with changes in pay differences within groups. Over 1997–2001, the change in the “between” variance had accounted for 34 percent of the change in overall variance of wages, and the rest was explained by differences within skill groups.

Hence, this book explores factors that could explain wage differences among observationally similar workers. These might include differences in skills across workers that are not observable in employment surveys—for example, in cognitive abilities

![Figure O.6: Decomposition of Changes in Wage Inequality into Within- and Between-Group Components, Latin America and the Caribbean, 1997–2001 vs. 2001–13](image)

Source: Calculations based on data from the Socio-Economic Database for Latin America and the Caribbean (SEDLAC), Universidad Nacional de la Plata (CEDIAS) and World Bank, http://sedlac.econo.unlp.edu.ar/eng/.

Note: Sample of full-time male workers (salaried, self-employed, employers) from the household surveys in each country. Log labor income in main occupation regressed on dummies for country (13 countries), years of experience (0–39), years of education (0–16), sector of employment (17 sectors), and region (urban dummy). Countries are Argentina, Bolivia, Brazil, Costa Rica, the Dominican Republic, Ecuador, El Salvador, Honduras, Mexico, Panama, Paraguay, Peru, and Uruguay. This decomposition and the calculations follow Lemieux (2006). The method allows for comparison of the variance component changes over time, assuming that the distribution of a set of observable characteristics did not change. Estimates were done by selecting a base year (1997) and finding counterfactual weights for all the years to be compared against the base year by estimating a logit model of the probability of being in a given year based on observables. Estimations of the decomposition variances and covariances are done using the new weights.
such as reading and math as well as socioemotional skills. A complementary explanation is the importance of differences in wages paid across sectors or even across firms (for workers in the same sector and with the same occupation or skill level) and changes in those differences.

Research for this book finds that most of the initial wage inequality and its subsequent decline took place within sector-occupations. Naturally, pay differentials for workers who are employed in the same sector and occupation could occur because of differences in pay either between firms (with more-productive firms presumably paying more to attract and retain better workers) or within firms (with firms having pay policies allowing for large pay gaps for workers with the same skills employed in the same occupation but in different departments or areas). Our results show that most of the initial wage inequality within sector-occupations, as well as its subsequent decline, occurred between firms (as opposed to within firms).

Changes in wage inequality resulting from changes in interfirm pay differentials for observationally similar workers can arise from three sources: changes in pay heterogeneity across firms, changes in heterogeneity among workers, or changes in the degree to which the most desirable workers and the most productive firms find each other (Card, Heining, and Kline 2013), as further discussed in box O.1.

Separating these three sources of variation requires data whereby workers and firms can be identified and followed over time. This analysis was possible only for Brazil and Costa Rica, and more research is needed to understand whether the

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**BOX O.1: Estimating the Role of Firm Heterogeneity**

This book follows Card, Heining, and Kline (2013) and estimates a model with additive fixed effects for workers and firms. This model disentangles the contribution to interfirm pay differentials of three factors:

- Dispersion in quality across employers (firm fixed effects)
- Dispersion in ability across workers (worker fixed effects)
- Degree to which the most desirable workers are paired with the most productive firms (covariance of worker and firm effects).

Results for Costa Rica and Brazil are presented in figure O.7. In Costa Rica, dispersion in firm effects accounts for 33 percent of the total increase in wage inequality, and dispersion in worker effects accounts for 21 percent, with a rise in their covariance and the residual explaining the remainder (figure O.7, panel a). In Brazil, compression in firm effects accounts for 41 percent of the total decline in wage inequality, and compression in worker effects accounts for 20 percent, with a fall in their covariance and the residual explaining the remainder (figure O.7, panel b).
conclusions for these two countries can be generalized. But the findings are interesting: In Costa Rica, the only country in our sample where wage inequality increased, the main component behind this trend was increasing heterogeneity in pay across firms (see yellow portion of the bars in figure O.7, panel a). In Brazil, where wage inequality decreased significantly in the 2000s, the heterogeneity in pay across firms declined the most (see yellow portion of the bars in figure O.7, panel b).

What could explain the observed changes in interfirm wage dispersion and the change in overall wage inequality that occurs through this channel? Firm heterogeneity provides another lens through which demand forces may affect wage inequality. The reported contributions of increased international trade, the commodity boom, and the emergence of China as a major consumer of commodities discussed so far did not account for the role of heterogeneity across firms. To the extent that these global forces affect interfirm wage differentials, their overall effects on wage inequality may be different.

In this more complex setting, we argue below that the fall in interfirm wage dispersion in SA could be the result of exchange rate appreciation from the commodity boom and the associated rise in the employment share of the nontradable sector. It is important to note that, in this context, their combined effect on wage inequality operates through their effect on interfirm wage dispersion rather than through their effect on the skill premium. The book argues that the interplay of exchange rate appreciations and firm heterogeneity was important to understand the evolution of wage inequality.

**Exchange rate appreciation.** The observed exchange rate appreciation in SA relative to several important export destinations negatively affected firms’ export participation. This, in turn, decreased wages among the more-productive exporting firms relative to the less-productive firms in the same industry. Because more-productive firms also tend to pay higher wages, this process decreases within-sector wage inequality. The converse is true for countries where the exchange rate has depreciated or where trade costs fell. Moreover, in commodity-boom countries that witnessed a significant exchange rate appreciation, the observed “Dutch disease” effects were associated with a shift to the nontradable sector (from the tradable sector). Because interfirm wage differentials are lower in the nontradable sector, this process may have reduced interfirm wage dispersion and therefore overall wage inequality.

Although the role of exchange rate appreciation seems more prominent, there are at least two other factors that could have played a role in the fall in interfirm wage dispersion in some countries: (a) narrowing dispersion in firm productivity (or, alternatively, the value added per worker becoming increasingly delinked from worker pay); and (b) changes in minimum-wage policies.

**Narrowing dispersion in firm productivity.** Many developed countries have experienced widening dispersion in labor productivity, leading to an increase in earnings inequality. The available data from Costa Rica do not allow for an analysis of
Sources: Costa Rican Department of Social Security (CCSS); Brazil Annual Social Information Report (RAIS).

a. Estimations are based on male full-time workers in Costa Rica at the individual-firm level. The log wage from every individual-firm observation is regressed by a set of firm and individual fixed effects in the following sets of years: 2006–07, 2008–09, and 2010–11.

b. The sample uses male full-time workers (at least 35 hours per week), aged 20–60 years. We select the highest wage earned of a person in a firm every year. The log wage from every individual-firm observation is regressed by a set of firm and individual fixed effects in the following sets of years: 2003–06, 2006–09, and 2009–12.
this indicator, but if the global trend has also been observed there, it could have been a source of the country’s rising wage inequality. The sources of this widening dispersion could include transitory shocks or a more volatile environment for firms, greater sorting, or entry-exit dynamics.

Preliminary evidence for Brazil does not suggest that firms’ labor productivity distribution became less disperse (Alvarez et al., forthcoming). Instead, value added per worker appears to have become increasingly delinked from worker pay during this period (Alvarez et al., forthcoming; Silva, Almeida, and Strokova 2015). This process could result in lower wage inequality even if workers and firms’ fundamentals are not altered. Hence, more research is needed, but the available evidence does not confirm that the fall in inequality resulted from narrowing dispersion in firm productivity.

Changes in minimum-wage policies. Latin American countries differed markedly in their institutional wage policies such as the minimum wage. How economic rents are split between capital and labor can be affected by the dynamics of the minimum wage. More specifically, a larger share of a firm’s profits is likely to fall into workers’ hands when the minimum wage becomes more binding. If remuneration policies across firms becomes less heterogeneous—because, for example, a higher but more similar share of the benefits from the employment relationship is distributed to workers—wage inequality falls.

This channel is a plausible cause of falling interfirm wage dispersion and may have operated to varying degrees across countries. However, its importance depends on how high the minimum wage is and by how much it increased. The country-specific role that changes in minimum-wage policies played in the observed changes in interfirm wage differentials and their impact on overall wage inequality is an important topic for further research. Note that the minimum-wage policies are expected to have a broader effect on wage inequality beyond the specific effect on interfirm wage dispersion, as discussed in the next section.

Institutional Factors: Minimum-Wage Policy and Employment Formalization

Country-specific factors such as minimum-wage policy played a more prominent role in some countries than in others. With few exceptions (Bolivia, Colombia, Paraguay, and Peru), the real minimum wage rose during the 2000s. In Brazil, particularly, increases in the minimum wage significantly helped to reduce inequality during the boom years. However, the Brazilian case also shows that although a rising minimum wage decreased inequality during the boom, it had also increased inequality during the slow growth of the 1990s as noncompliance increased (Ferreira, Firpo, and Messina 2017), as shown in figure O.8. In fact, noncompliance with the minimum wage is high in most countries of the region, limiting its potential role to compress the distribution of wages.
Reduced informality of employment is another factor that helped reduce inequality in some countries. With some exceptions, the growth and policy changes of the 2000s translated into a sizable reduction of informal employment. Results also indicate that, in the 1990s, only high-wage workers exited from informality, while in the 2000s most of those who became formal were low-wage workers. Figure O.9 shows the changes in formalization by percentile in Argentina, Brazil, and Bolivia (high-, medium-to-high-, and low-formality countries, respectively). In all three countries, the changes from the mid-1990s to the early 2000s coincided with increased inequality, with workers below the median wage becoming more informal and workers above the median wage increasing their formalization. In contrast, from 2002 onward, the formalization process appeared to be strongly equalizing in all three countries, particularly in Brazil.

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reduce between-group inequality, because the wage penalty of being informal is not evenly distributed across skill groups and is concentrated among unskilled workers. The decompositions in the book suggest that declining informality played an important role in inequality reductions during the 2000s in Argentina, Brazil, Mexico, and Peru. In Bolivia, Chile, and Uruguay, the impact was smaller.
Shifting Wage Inequality Trends: The Remaining Challenges

What have we learned? First, the expansion of education became the great equalizer, but it is not sufficient explanation for the observed trends since the 1990s. Second, the tightness of market conditions in SA led to falling wage inequality when combined with increasing skill supply.

Still, none of these explanations sheds light on important wage differentials across workers with similar skills, education, and occupation. Hence, a third factor emerges as a key demand-side factor: the exchange rate appreciation from the commodity boom and the associated shift in demand to the nontradable sector, which narrowed interfirm wage differences.

Finally, other forces played a non-negligible but secondary role in some countries, although they were not present in others. These include the rapid increase of the minimum wage and a rapid trend toward formalization of employment, which played a supporting role but only during the boom.

The increase in access to education in the region (including higher education, where enrollment doubled in the past decade) was accompanied by an increase in equality of opportunities (Ferreyra et al. 2017). This was an important positive development. However, for the trend to be sustainable, the quality of education also needs to improve. The evidence on “garage universities” suggests that new programs did accept students of lower socioeconomic backgrounds without lowering standards, suggesting an efficient expansion of the higher education system (Camacho, Messina, and Uribe 2016; Ferreyra et al. 2017). However, governments need to remain alert to the pressures that increasing demand for education may impose on the system, because that demand will likely continue to increase.

Growth was a fundamental driver of improvements in labor market outcomes (Araujo et al. 2016), which in turn were the main drivers of reductions in inequality in the 2000s. These improvements were particularly pro-poor. As noted before, the reduction in wage inequality was fundamentally driven by strong wage increases at the bottom of the distribution, with important effects on poverty. Labor earnings at the top of the wage distribution also increased (except in Mexico) but at much lower rates than at the bottom. Over the same period, the relative supply of skilled labor increased among young workers of all socioeconomic backgrounds, but the rise was much more pronounced among the poor than among the nonpoor, contributing to their increase in average earnings.

Minimum-wage changes played a supporting role in the region’s wage inequality reduction during the 2000s, with limited displacement effects. Likewise, the fast economic growth in SA supported reductions of informality in most countries of the area. During the period, formal labor market insertion increased more among low-wage workers than among high-wage workers, which thus became an additional factor in the decline of wage inequality.
Despite these positive developments, important challenges remain. The region remains highly unequal. The average years of education in the working-age population increased significantly, but the current level remains below that of comparable countries, which leaves room for further improvement. The poor lag behind the nonpoor in many aspects, including educational endowments. These educational disadvantages take a long time to reverse and make poor workers’ job mobility—as well as their access to and retention of high-productivity jobs—harder, particularly when labor demand is weak and there is slack in the labor market.

**Looking to the Future: How Will the Wage Inequality Drivers Evolve?**

One important conclusion of this book is that the increase in domestic demand (hence the economic cycle) driven by the rising terms of trade in SA mattered for wage inequality. These trends are not permanent. The slowdown has already slowed or halted the reduction of wage inequality in the region. Countries such as Brazil, where the slowdown has been pronounced, are diverging from the rest of SA (Calvo-González et al. 2017). Between 2011 and 2013, the region’s Gini coefficient fell from 50.5 to 50.4 points, a much smaller annual reduction than the decrease from 54.7 to 50.5 points observed between 2002 and 2011. Similarly, the labor Gini coefficient stagnated at around 43 between 2011 and 2013 (Rodríguez-Castelán et al. 2016).

Will the slowdown completely reverse the gains? On the one hand, the skilled labor supply is likely to continue to rise, thus pushing down wage inequality. On the other hand, growth in aggregate domestic demand has slowed, and spending booms of similar magnitude and origin are unlikely to continue. The extent of interfirm wage differences is likely to remain large and provide an important channel through which demand forces affect wage inequality, but perhaps moving now in the opposite direction (toward greater wage dispersion among similar workers) as real exchange rates of SA economies and elsewhere have depreciated. This will be the case if production shifts from nontradable to tradable sectors. Finally, this slower expansion of domestic demand is also likely to crowd out space for the minimum wage to rise without significant adjustments in employment. To sum up, lower growth could continue to slow the reduction of wage inequality and increase household income inequality if unemployment effects are large.

However, the effects of the slowdown do not necessarily have to be symmetrical to the effects of the boom years—that is, wages of unskilled workers that rose significantly do not necessarily have to fall in the same proportion. This is the case for at least two reasons: First, the region is unlikely to enter a contraction of similar and opposite magnitude to that of the boom; rather, it is entering an era of slow growth. Second, to the extent that labor markets remain relatively tight, the wages of unskilled workers are to some extent protected by the existing minimum-wage policy and downward wage rigidities.
Conclusions: How to Row against the Tide?

Given the current levels of education in Latin America and the Caribbean, there is still scope for reducing wage inequality through investment in early learning, schooling and college education, and apprenticeships. Enhancing educational quality is essential for building skills that translate into higher wages and sustainable livelihoods.

A note of caution should be placed on minimum-wage policies, however. Despite pressures to keep raising the minimum wage, this policy should be looked at in light of the economic cycle. Lower domestic demand crowds out space for the minimum wage to rise with limited employment adjustments. Regulatory approaches such as minimum wages, which reflect society’s search for fairness, may be effective in raising the welfare of unskilled, low-income workers during upturns. However, if not accompanied by rising labor productivity, they can also unduly undermine unskilled-job generation and formalization during downturns, with negative effects on inequality.

Latin America and the Caribbean has historically been a region vulnerable to external shocks, whether caused by changes in world demand, international interest rates, or terms of trade. The importance of commodities in its trade makes the SA region particularly sensitive to fluctuations in commodity prices. The Latin American and Caribbean region as a whole seeks to expand the importance of less vulnerable sources of economic growth that rely on increasing productivity through technology and trade, not just through increases in aggregate domestic demand. In this new setting, having durable social gains from lower wage inequality—protected in both the short run and long run—is key.

In times of slower growth and more-stable terms of trade, firms need to find new ways of being competitive. Market reforms to promote competition and increase international economic integration may enable global forces such as technology and trade to emerge as even more important sources of productivity growth. Because the size of the tradable sector is likely to expand, however, greater firm heterogeneity in that sector could potentially spur further inequality. If coupled with more-progressive tax systems, the positive effects of trade and technical change on overall employment and growth could open space for further investment in human capital and redistribution, ultimately contributing to both sustained vigorous economic growth and further decreases in inequality in Latin America and the Caribbean.

Notes

1. The terms “labor earnings inequality” and “wage inequality” entail different concepts. This book focuses on labor earnings inequality, which includes inequality in earnings from work of wage employees and self-employed full-time workers. We use the term “wage inequality” because this may be a more familiar concept, although our results always refer to labor earnings inequality.
2. Wage inequality declined vigorously in Latin America in the 2000s, by about 6 Gini points between 2002 and 2013. In contrast, wage inequality increased by an average of about 1.3 Gini points in countries outside Latin America and the Caribbean during this same period.

3. Factors that led to changes in household demographics included increasing female labor force participation and declining fertility rates.

4. For a detailed analysis of declining wages for skilled workers in Mexico and the drivers of this decline, see Campos-Vázquez, López-Calva, and Lustig (2015).

5. This point is shown formally by Fernández and Messina (2017). The paper shows the evolution of the skill premium in Argentina and Chile using two different models. The first model builds a counterfactual evolution of the skill premium as predicted by changes in relative supply of skilled and unskilled workers. The second shows the model’s predictions once changes in labor demand are allowed for. The model that limits the variation of the skill premium to changes in labor supply overpredicts the reduction of the skill premium, missing fundamental dynamics because it fails to predict the increase in the wage premium during the first half of the period (approximately up to 2002). It then subsequently underestimates the decline in the skill premium in the two countries after 2002. By contrast, the model in which demand changes are introduced produces a much better fit of the data.

6. Since the emergence of China, trade has received renewed attention as a driver of wage inequality (Autor, Dorn, and Hanson 2013).

7. Note, however, that Stolper-Samuelson trade effects might occur with a lag if labor markets adjust slowly. Moreover, they depend on the relative skill-intensity of the liberalized sectors. Evidence on relative goods prices for Mexico indicates that when the country joined the General Agreement on Tariffs and Trade (GATT), it protected less-skill-intensive industries. When Mexico joined the North American Free Trade Agreement (NAFTA), however, the relative price of skill-intensive goods reversed its rise (Robertson 2004).

8. Direct effects result from the sectoral responses of employment and wages to observable sector-level demand shifters, while indirect effects result from spending effects of positive terms-of-trade improvements.

9. This would happen because demand for tradables can be satisfied via imports, while demand for nontradables cannot. As the nominal exchange rate appreciates, the domestic price of tradable goods falls.

10. Although estimating the relative importance of labor supply trends (education expansion) versus labor demand trends is complex, available estimates in Fernández and Messina (2017) and Gasparini et al. (2011) suggest that these forces played complementary roles.

11. “Dutch disease” (a term coined by The Economist in the 1970s) refers to a paradoxical situation whereby seemingly good news, such as the commodity boom in Latin America, can have negative impacts on a country’s broader economy arising from large appreciations in the country’s currency associated with large influxes of foreign currency. Such effects can include decreased price competitiveness for exports and increases in imports, potentially increasing unemployment in certain industries in the long run.

12. Note that more research is needed to draw definitive conclusions, because this analysis uses data covering formal employment only.

13. The minimum-wage policy does not have the same effects on wages in all Latin American and Caribbean countries. To some extent, this is so because their structure varies by country. For example, the minimum wage in some countries such as Mexico and Uruguay is very low, affecting
a small number of workers. Minimum wages in this context are unlikely to have large effects on inequality. In contrast, the Brazilian minimum wage increased rapidly during the 2000s, and by 2014 it was getting closer to the median wage. Colombia and Peru are close followers.

14. Interestingly, Ferreira, Firpo, and Messina (2017) find that, throughout the 1995–2012 period, the contribution of the minimum wage in Brazil was mildly regressive: the minimum-wage increase was associated with a small increase in inequality of 1.2 Gini points for the period as a whole. This effect was driven primarily by noncompliance (the endowment effect). However, this overall impact hides a very different behavior across subperiods. Low earnings growth during 1995–2003 implied that increases in the minimum wage were strongly associated with rising noncompliance. This endowment effect outweighed the positive impact on earnings for those workers earning the minimum. As a result, inequality increased. On the other hand, the rapid increase of the minimum wage after 2003 was associated with a reduction in inequality. This was driven by two effects rowing in the same direction: noncompliance declined (endowment effect), and those workers at the minimum (an increasing share) saw their earnings grow faster than average earnings. Overall, Ferreira, Firpo, and Messina (2017) find that the contribution of the minimum wage to the reduction of inequality during the boom years was some 20 percent.

15. The Gini coefficient measures the equality of income distribution, ranging from zero (perfect equality) to 100 points (maximal inequality).

References


Wage Inequality in Latin America: Understanding the Past to Prepare for the Future.


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What caused the decline in wage inequality of the 2000s in Latin America? Looking to the future, will the current economic slowdown be regressive? *Wage Inequality in Latin America: Understanding the Past to Prepare for the Future* addresses these two questions by reviewing relevant literature and providing new evidence on what we know from the conceptual, empirical, and policy perspectives.

The answer to the first question can be broken down into several parts, although the bottom line is that the changes in wage inequality resulted from a combination of three forces: (a) education expansion and its effect on falling returns to skill (the supply-side story); (b) shifts in aggregate domestic demand; and (c) exchange rate appreciation from the commodity boom and the associated shift to the nontradable sector that changed interfirm wage differences. Other forces had a non-negligible but secondary role in some countries, while they were not present in others. These include the rapid increase of the minimum wage and a rapid trend toward formalization of employment, which played a supporting role but only during the boom.

Understanding the forces behind recent trends also helps to shed light on the second question. The analysis in this volume suggests that the economic slowdown is putting the brakes on the reduction of inequality in Latin America and will likely continue to do so—but it might not actually reverse the region’s movement toward less wage inequality.