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The Rise and Fall of Income Inequality in Mexico, 1989–2010

Raymundo Campos
Center for Economic Studies
El Colegio de Mexico
Mexico City, Mexico
rmcampos@colmex.mx

Gerado Esquivel
Center for Economic Studies
El Colegio de Mexico
Mexico City, Mexico
gesquive@colmex.mx

Nora Lustig
Department of Economics
Tulane University
New Orleans, LA
nlustig@tulane.edu

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Keywords: inequality, wages, disposable income, labour markets, Mexico
JEL: D31, J20, J31, O54

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Raymundo Campos, Gerardo Esquivel, and Nora Lustig[2]

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Inequality in Mexico rose between 1989 and 1994 and declined between 1994 and 2010. We examine the role of market forces (demand and supply of labour by skill), institutional factors (minimum wages and unionization rate), and public policy (cash transfers) in explaining changes in inequality. We apply the 're-centered influence function' method to decompose changes in hourly wages into characteristics and returns. The main driver is changes in returns. Returns rose (1989-1994) due to institutional factors and labour demand. Returns declined (1994-2006) due to changes in supply and --to a lesser extent--in demand; institutional factors were not relevant. Government transfers contributed to the decline in inequality, especially after 2000.

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2 Raymundo Campos and Gerardo Esquivel are professors at the Center for Economic Studies, El Colegio de Mexico; and, Nora Lustig is Samuel Z. Stone Professor of Latin American Economics, Tulane University and nonresident senior fellow at the Center for Global Development and Inter-American Dialogue. Emails: rmcampos@colmex.mx; gesquive@colmex.mx; nlustig@tulane.edu.

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Acronyms

ENIGH	*Encuesta Nacional de Ingresos y Gastos de los Hogares* (National Survey of Household Incomes and Expenditures)
ENOE	National Survey of Labour and Employment
GATT	General Agreement of Tariffs and Trade
NAFTA	North American Free Trade Agreement
OB	Oaxaca-Blinder type of decomposition
RIF	re-centred influence function
SEDLAC	Socioeconomic Database for Latin America and the Caribbean

1 Introduction

During the last twenty years, the evolution of inequality in Mexico followed two distinct patterns (Figure 1): it rose between 1989 and the mid-1990s and declined between the mid-1990s and 2010. All in all, the Gini coefficient for per capita (disposable monetary) income rose from 0.548 to 0.571 between 1989 and 1994, and declined to 0.510 in 2010.[3] The period of declining inequality can also be divided in two: 1994-2006, when inequality decidedly fell (Gini fell from 0.571 to 0.512); and, 2006-10, when the decline in inequality loses its steam.[4]

Esquivel, Lustig and Scott (2010) show that changes in labour income and non-labour income inequality were equalizing for the period 1996-2006 and that the decline in labour income inequality was by far the most important proximate determinant of the observed decline in overall inequality.[5] Given the importance of labour market inequality dynamics in explaining the trend in overall inequality, this paper concentrates on analysing the more 'fundamental' determinants of labour income inequality. In particular, it examines the role of market forces (relative demand and supply of labour by skill) and institutional factors (minimum wages and unionization rate) in explaining changes in the distribution of hourly wages. It also extends the analysis to 2010. By doing so, it examines the factors that may account for the pause (reversal?) in the decline in inequality momentum between 2006 and 2010.

More specifically, this paper applies the ('re-centred influence function' or RIF) method proposed by Firpo, Fortin and Lemieux (2009) to decompose changes in hourly wages into characteristics and returns effects.[6] Results reveal that the main driver behind the rise and decline in earnings inequality are changes in returns.[7] Given the prominence of

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3 As is the case with practically all inequality estimates based on household surveys, the Gini coefficients presented here are probably an underestimation of 'true' levels of inequality because of the significant under-reporting of incomes and consumption at the top of the distribution.

4 The years 1996 and 2008 are atypical because the country was experiencing a crisis. In this paper we do not attempt to explain which factors determine inequality dynamics when there was a crisis.

5 The reduction in labour income inequality (leaving out the interaction terms) accounted for 87.1 percent of the decline in inequality in 1996-2000 and for 65.5 percent of the decline in 2000-06.

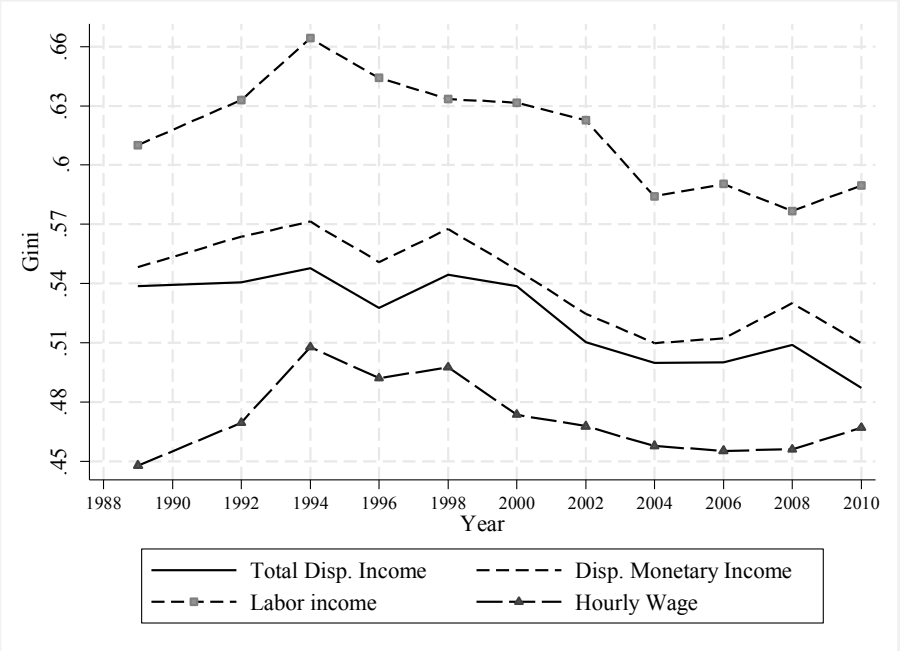
6 Although the RIF procedure was published in 2009, there have been several papers employing it. See Chi, Li and Yu (2011) for an application of wage inequality in China; Thu Le and Booth (2010) for a decomposition in Vietnam; and Holmes and Mayhew (2010) for a labour market analysis in the UK.

7 In fact, changes in characteristics were unequalizing during the period of declining inequality (1994-2006) in spite of the reduction in the Gini coefficient for education. This suggests a persistence of

the returns effect, the paper proceeds to analyse the determinants of the evolution of relative returns in turn.

Changes in returns can be due to changes in the relative demand and supply of workers of different characteristics (in particular, education used as a proxy for skill) and/or changes in institutional factors such as the minimum wage and the unionization rate. We apply the methodology proposed by Bound and Johnson (1992) to shed light on which factors were predominant. The results suggest that institutional factors and the increase in relative demand for skilled workers (workers with high school education and more) explained the increase in hourly wages (earnings) inequality between 1989 and 1994. This result is consistent with the findings of a large body of existing research (see, for example, Revenga 1997; Hanson and Harrison 1999; Bosch and Manacorda 2010). Institutional factors, however, did not account for the decline in wage inequality between 1994 and 2006. The evidence suggests that wage inequality fell because the supply of skilled workers outpaced demand. The slightly rising trend in wage inequality during 2006 and 2010 appears to be the consequence of a weakening in the relative demand of low-skilled workers (workers with secondary education or less).

Figure 1
Mexico: Evolution of the Gini Coefficient, 1989-2010



Notes:

a) Total disposable income includes labour and non-labour monetary income (net of direct taxes and contributions to social security), transfers (private and public), and non-monetary income (imputed rent for owner's occupied housing, gifts in kind and own-consumption).

b) Disposable monetary income excludes non-monetary income.

c) Hourly wage is equal to monthly labour income over weekly hours of work times 4.33. Hourly wage inequality is calculated for individuals 18-65 yrs old with positive income and it includes labour income from wages and self-employment.

d) Following standard practice, households whose head reported zero labor incomes are excluded.

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what Bourguignon, Ferreira and Lustig (2005) called the 'paradox of progress' which Legovini, Bouillon and Lustig (2005) found in Mexico for the period 1984-94.

Results, however, are similar if we include all households. The latter are shown in the Statistical Appendix.

e) Differences between Gini coefficients are statistically significant for the pairs: 1994-2006; 1994-2010; but not for 1989-1994 and 2006-2010.

f) There is Lorenz dominance between 1994-2006 and 1994-2010; and no Lorenz dominance between 1989-1994 and 2006-2010.

g) Results are similar if we use other inequality measures such as the Theil index. See Statistical Appendix.

Source: Authors' calculations based on ENIGH, several years.

As mentioned above, another factor behind the decline in overall inequality was the decline in non-labour income inequality (Esquivel, Lustig and Scott). Non-labour income is a very heterogeneous category. It includes all forms of income from capital (although grossly under-reported in household surveys), pensions from contributory systems, private transfers (remittances, in particular) and government transfers. An application of the Lerman and Yitzhaki (1985) decomposition to the Mexican data showed that income from capital is always unequalizing while incomes from remittances and government transfers are always equalizing. The importance of government transfers as an equalizing factor has risen considerable over time. The fiscal incidence analysis by López-Calva, Lustig and Scott (2012) also underscores the growing importance of government transfers to reduce inequality and poverty.

In this paper we use the Gini coefficient as our preferred measure of inequality.[8] This measure satisfies all the desirable properties of an inequality indicator,[9] and is decomposable by proximate determinants as well as income sources.[10] We use disposable monetary income per capita unless specified otherwise.[11] All of our estimates use information from the National Survey of Household Incomes and Expenditures (ENIGH, for its acronym in Spanish) for 1989, 1992, 1994, 1996, 2000, 2006, 2008 and 2010.[12] The surveys capture income net of taxes and contributions to social security and include government and private transfers (remittances).

2 Proximate determinants of overall inequality

8 Other measures of inequality such as the Theil index show similar trends as those described in the text. See the Statistical Appendix.

9 These principles are: (i) adherence to the Pigou-Dalton transfer principle, (ii) symmetry, (iii) independence of scale, (iv) homogeneity, and (v) decomposability.

10 Although it is not additively decomposable as the Theil index.

11 *Income* includes labour income and non-labour income. The former includes all the income that is reported as labour income in ENIGH, including labour income from the self-employed. Non-labour income includes incomes from own businesses, incomes from assets (including capital gains) pensions (public and private) and public transfers (*Oportunidades* and *Procampo*) and private transfers (e.g., remittances) as well as—when indicated—*Non-monetary income* (imputed rent on owner occupied housing and consumption of own production, common in poor rural areas). Official poverty measures in Mexico use net current income; that is, capital gains and gifts and in-kind transfers to other households are subtracted from current total income. Current monetary income, the concept used in the decomposition of inequality by source presented here, does not include non-monetary income and consumption of own production (common in poor rural areas) and excludes capital gains.

12 In Spanish, *Encuesta Nacional de Ingresos y Gastos de los Hogares (ENIGH)*. Although the 1989 survey is less comparable, we present results related to the factors behind the rise in inequality between 1989-94.

Figure 1 shows the evolution of income inequality for several income measures. Measures of inequality at the household level include total disposable income (labour and non-labour income, transfers both public and private, and non-monetary income like imputed rent and autoconsumption), monetary disposable income (total income minus non-monetary income), and labour income. The graph also includes hourly wage inequality at the individual level.[13] All measures show the same pattern: a rise in income inequality between 1989 and the mid-1990s and a decline in inequality between the mid-1990s and the mid-2000s. Between the mid-2000s and 2010, however, the pattern is less clear. For instance, overall (wage) inequality rose (fell) in 2008 and declined (rose) in 2010.

A useful starting point in the analysis of the determinants of inequality is to decompose the Gini coefficient into its main components and examine their contribution. Here we disaggregate total (monetary) income into labour income, income from capital[14] (profits, interests, rents, etc.), private transfers (primarily remittances) and government transfers. Using the Lerman and Yitzhaki (1985) method we can distinguish between the inequality increasing and inequality decreasing components.[15] The marginal contribution to total inequality of each component *k* is shown to depend on its own Gini coefficient (G_k), the size of its share in total income (S_k) and the correlation between the component and total income (R_k). Furthermore, one can show that the per cent change in inequality resulting from a marginal percentage change in income source *k* is equal to:[16]

$$\frac{\partial G}{\partial y_k} = \frac{S_k G_k R_k}{G} - S_k$$

Figure 2 shows the results of applying the decomposition to 1994, 2000, 2004, 2006 and 2010. The contribution of income from 'capital' (own business, income from property, financial income and contributory pensions), as expected, is always inequality increasing whereas remittances and government transfers are always inequality reducing. Contribution of government transfers is higher than that of remittances and it has grown significantly over time. Income from capital represents, roughly, 20 per cent of total income; income from remittances and government transfers, the remaining 20 per cent.

Labour income, which represents more than 60 per cent of total income, does not show a definite pattern. It was inequality increasing in 1994 and very much so in 2010 but it

13 Hourly wages include hourly earnings for salaried workers and the self-employed. All calculations use sampling weights in order to generalize the results to the full population. As commonly employed in the literature of labour economics (see, for example, Autor, Katz and Kearney 2008; Card and DiNardo 2002), calculations of hourly wage inequality employ as weight the product of the sampling weight times weekly hours of work.

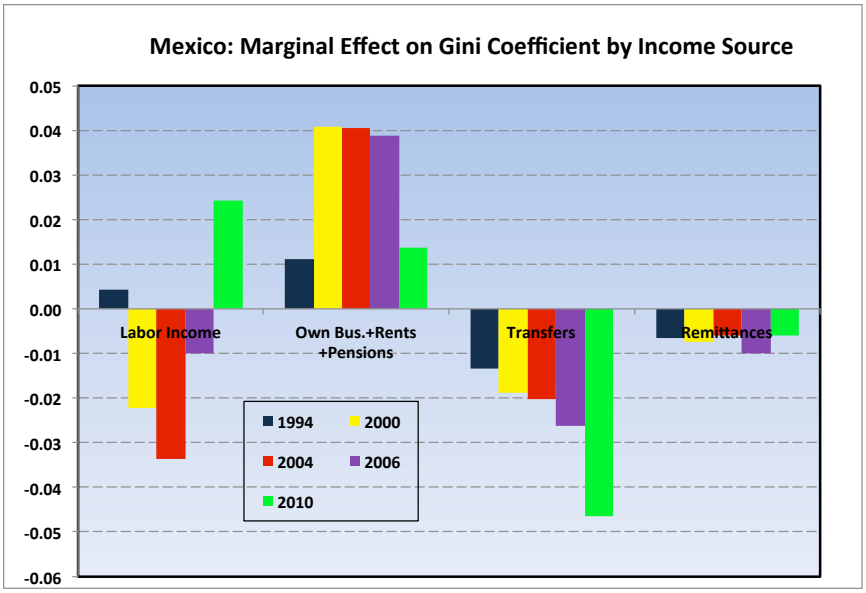
14 This source of income is subject to severe underreporting as incomes derived from capital at the top are not really captured in the household surveys (in Mexico and everywhere else). Here pensions from contributory systems are included under income derived from capital. Pensions are treated as income from savings, so to speak. There are a number of reasons for not including them in government transfers but this is not the place to discuss them. For more, see Lustig (2011a).

15 See also Stark, O., J. E. Taylor, and S. Yitzhaki (1986).

16 For more details see appendix.

was inequality reducing in 2000, 2006 and 2004.[17] Between 1994 and 2006, the Gini coefficient of labour income fell, while the two other components (the share of labour income in total income and the correlation of labour and total income) remained basically constant. Between 2006 and 2010 there is practically no change in the Gini but the other two components increased. The latter appears to account for the fact that labour income became unequalizing in 2010.

Figure 2
Mexico: Decomposition of overall inequality, 1994, 2000, 2004, 2006 and 2010



Note: Income is total current household monetary disposable (after direct taxes, contributions to social security and cash transfers) income in per capita terms.

Source: Authors' calculations based on ENIGH, several years.

Given the prominent role played by labour income inequality in accounting for the evolution of overall inequality, below we focus on analysing the determinants of earnings inequality. In particular, we analyse the determinants of inequality in hourly wages (where 'hourly wages' means the hourly remuneration of both employees and the self-employed) since labour income inequality also reflects decisions to participate in the labour market not examined here.

3 Determinants of earnings inequality: the contribution of characteristics and returns

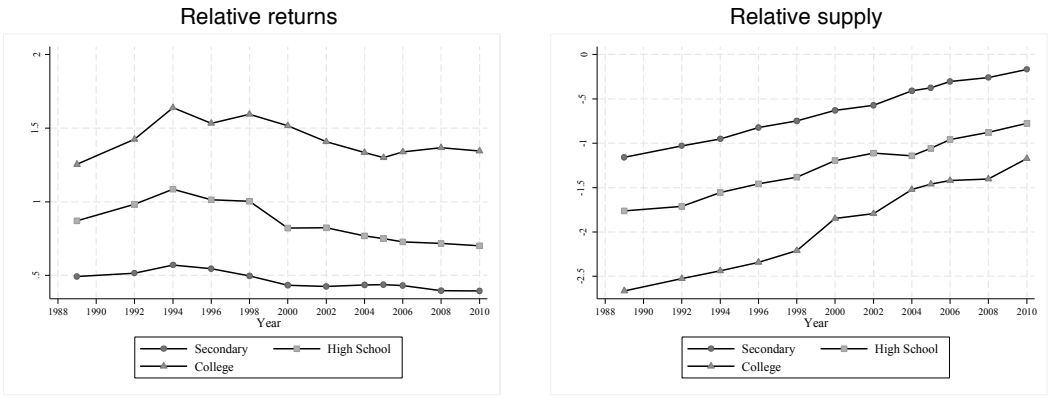
As observed in Figure 1, wage inequality (measured by the Gini for hourly wages) rose between 1989 and 1994. After 1994 there is a clear decline. This process stops in 2006:

17 These results are slightly different from those presented in Esquivel (2011) and Esquivel, Lustig and Scott (2010), due to revisions in the data and in the definitions of income.

since then, wage inequality has risen slightly in 2010.[18] In this section, we analyse the main determinants of the observed trends in wage inequality. We do this by applying the decomposition methodology proposed by Firpo, Fortin and Lemieux (2009).

Wage inequality is affected by two main factors: the distribution of (observable and unobservable) characteristics of workers (e.g., education, experience, gender, talent, etc.) and the returns to those characteristics. Workers' characteristics, in turn, are affected by 'fate' (e.g., gender, race, talent, and so on) households' decisions (e.g., to enrol in school) and policy (e.g., expanding access to education). Returns to households' characteristics depend on market forces (i.e., demand and supply of workers of different skills and experience) and institutional/policy factors (e.g., minimum wage policy and the unionization rate).

Figure 3
Mexico: Relative returns and relative supply, 1989-2010



Notes: Sample restricted to workers 18-65 years old. Panel A plots relative returns of education groups with respect to primary or less. Panel B plots relative supply (in logs) of education groups with respect to primary or less. Primary or less refers to individuals with less than secondary (9 years of schooling), secondary refers to individuals with equal to or more than 9 and less than 12 years of schooling, high school refers to individuals with equal to or more than 12 and less than 16 years of schooling, and college refers to individuals with at least 16 years of schooling. Relative returns are obtained from a regression of log hourly wages against dummies of education groups (excluding primary or less), and controlling for gender and rural dummies, age and age squared, and 5 geographic dummies (Mexico City, Guadalajara, Monterrey, border states, southern states: Chiapas, Oaxaca, Guerrero, Yucatán and Quintana Roo). Results are in the Statistical Appendix. Relative supply is equal to the log of the ratio of proportion of workers in a specific group over the proportion of workers with primary or less. Panel B includes the relative supply (in logs) of education groups with respect to primary or less. The figure shows that the relative supply of the three categories increased relative to unskilled workers with college-educated

18 It is important to corroborate the results for other inequality indexes. We calculated the results for the Gini index, Theil coefficient, Standard deviation of logs, and the difference in logs of the 90th percentile and 10th percentile. For the period 1989-94 there is an increase in inequality for all indexes and measures of income. There is a decline of inequality for all indexes for the period 1994-2006. For the period 2006-10 and monthly labour income, the Gini and the Theil coefficients show no change in inequality, and the standard deviation and the difference in percentile show a slight increase in inequality. In the case of hourly wage, there is a clear decline in inequality for the period 1994-2006 for all indexes and then a slight increase for the period 2006-10. In sum, these results point out a downward trend in labour income inequality, at least up to 2006. Since then, inequality has remained relatively stable with a small increase in inequality by 2010, depending how we measure inequality. We also did the calculations using the Labour Force Survey for the period 2005-10 (ENOE) and the results are robust across both surveys.

workers increasing the most, especially since 1998.

Source: Calculations by the authors using ENIGH.

As one can observe in Figure 3, both workers' returns and characteristics (i.e., education) changed during 1989 and 2010.[19] The evolution of returns (panel A) follows an inverted-U at least up until 2006. Since 2006, returns to college-educated workers begin to rise. Panel B shows that the proportion of workers with secondary, high school and college degrees (incomplete primary and no education) rose (declined) steadily and the relative supply of college graduates rose faster since 1998. Measured by the Gini, inequality in the distribution of years of schooling for Mexican workers (ages between 25 and 65) declined from 0.444 in 1989 to 0.324 in 2008.[20]

We now proceed to quantify the contribution of changes in characteristics and changes in returns to the observed changes in wage inequality. In particular, we decompose the change in log hourly wages into characteristics (also called quantity, composition or population) effects and returns (also called price) effects. Given the trends observed in Figure 3, we would expect for the contribution of returns to be unequalizing between 1989 and 1994 and equalizing between 1994 and 2006. In contrast, the effect of changes in the composition of characteristics cannot be inferred *ex ante*.

Although there was significant educational upgrading and the distribution of the stock of education became more equal over the entire period under study, whether this change was equalizing or unequalizing depends on the extent of convexity in the returns to education and at what point of the education equalization process the country found itself. Bourguignon, Ferreira and Lustig (2005) were among the first to notice that a reduction in the inequality of education—in the presence of increasing returns to education—could lead to a rise in earnings inequality. They call this result the 'paradox of progress' alluding to the fact that a more equal stock of education can be inequality-increasing (at least during part of the educational upgrading process) if the returns to education increase at an increasing rate with the level of attainment (convexity in the returns). As Gasparini et al. (2011), the 'paradox of progress' has been quite a pervasive phenomenon in Latin American labour markets in the last couple of decades.

3.1 Decomposing wage inequality into characteristics and returns effects: an application of the re-centred influence function (RIF) procedure (1989-2010)

There are many decomposition procedures that are employed in the literature (see the excellent review by Firpo, Fortin and Lemieux 2011). Most of them rely on a Oaxaca-Blinder (OB) type of decomposition.[21] In this paper, we employ the 're-centred

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19 Panel A presents the relative returns and Panel B the relative supply. Relative returns (with respect to primary or less) are obtained from a regression of log hourly wages against dummies of education groups (secondary, high school and college) and control variables such as age and geographic dummies. See Statistical Appendix.

20 See Socio-Economic Database for Latin America and the Caribbean (SEDLAC), available at: wwwsedlac.econo.unlp.edu.ar/eng/statistics-detalle.php?idE=37.

21 We can divide the decomposition into four groups: (i) Reweighting procedures (DiNardo, Fortin and Lemieux 1996), (ii) Residual-imputation procedures (Almeida dos Reis and Paes de Barros 1991;

influence function' (RIF) procedure proposed by Firpo, Fortin and Lemieux (2009) to decompose effects into characteristics or composition and returns effects.[22]

The RIF procedure is very similar to the typical OB decomposition.[23] The main difference is that the dependent variable, *Y*, is replaced by the 're-centred influence function' (RIF).[24] Firpo, Fortin and Lemieux (2009) demonstrate that the RIF procedure is equivalent to a simple unconditional quantile regression. They show that $E[RIF(v,y)|X] = X\beta^v$, where the coefficient β^v represents the marginal effect of *X* on the dependent variable statistic *v*.[25]

Once we estimate the parameter β^v for each year in our sample, we apply a Oaxaca-Blinder decomposition.[26] In other words, we estimate $\hat{v}(Y_t) - \hat{v}(Y_s) = \hat{\beta}_s^v(\bar{X}_t - \bar{X}_s) + \bar{X}_t(\hat{\beta}_t^v - \hat{\beta}_s^v)$ where *t* is the final year and *s* is the initial year. In our application, we set up the initial years as 1989, 1994, and 2006 and the final years as 1994, 2006 and 2010 respectively. As typical in a OB decomposition, the term $\hat{\beta}_s^v(\bar{X}_t - \bar{X}_s)$ refers to the characteristics effects and the term $\bar{X}_t(\hat{\beta}_t^v - \hat{\beta}_s^v)$ refers to the return or price effects to observable characteristics included in *X* and also, unobservable ones (which is why this term is often referred to as the 'unexplained component'). We use as reference the wage distribution in the initial year (for each decomposition).

Figure 4 shows the decomposition for quantiles 1, 2, …, 99. In other words, we estimate the RIF procedure in every quantile and obtain the difference in the average wage for each quantile and then the part attributed to characteristics and to returns. The figure includes three panels for different periods. Panel A 1989-94 shows that inequality increased during the period. In this period, observable characteristics explained little of the increase in inequality, given that the part explained by characteristics is a flat line.

Juhn, Murphy and Pierce 1993), (iii) Quantile decomposition procedures (Machado and Mata 2005), and (iv) Re-centred Influence Function (RIF) procedures (Firpo, Fortin and Lemieux 2009).

22 Although the RIF procedure was published in 2009, there have been several papers employing it. See Chi, Li and Yu (2011) for an application of wage inequality in China; Thu Le and Booth (2010) for a decomposition in Vietnam; and Holmes and Mayhew (2010) for a labour market analysis in the UK.

23 See the papers by Firpo, Fortin and Lemieux (2009, 2011) for more details of the RIF procedure.

24 Define *RIF(v,y)* as the re-centred influence function with distributional statistic of interest $v(F_y)$ and observed wage *y*. Then it can be shown that $RIF(v,y) = v(F_y) + IF(v,y)$, where *IF* denotes the influence function such that $\int RIF = v(F_y)$. For the case of quantiles, it can be shown that the influence function is equal to $(Q_\tau, Y) = \frac{\tau - 1\{Y \le Q_\tau\}}{f_Y(Q_\tau)}$. Each statistic $v(F_y)$ refers to a specific quantile in the distribution of *Y* or to the Gini coefficient or the variance.

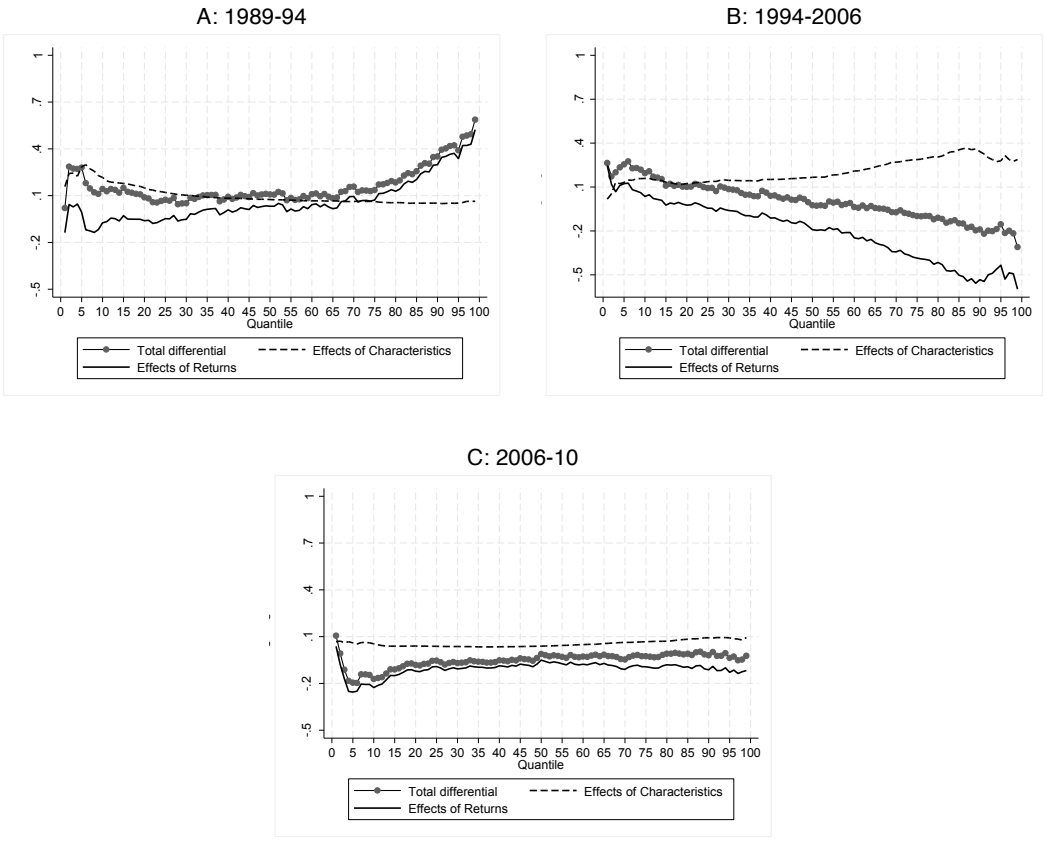
25 For example, if *v* represents quantile 0.50, then $\beta^{v=0.5}$ represents the effect of *X* on the wage quantile 0.50. It can also be applied to scalar indicators of inequality such as the Gini or the variance. In order to estimate the RIF regression, we first estimate the sample $\widehat{RIF}(v,y)$. In practice, we follow the ado file *rifreg* in Stata published by Firpo, Fortin and Lemieux (2011) provided by N. Fortin (www.faculty.arts.ubc.ca/nfortin/datahead.html). The *RIF* dependent variable is estimated using kernel methods. We use the following explanatory variables: dummy variables of female, urban, education categories and a cubic polynomial in age. We also estimated a more flexible model that included interactions among all variables, however the difference in explained and unexplained components was minimal.

26 We follow the ado file *oaxaca* in Stata implemented by Jann (2008).

The increase in inequality was mostly due to returns as shown by the upward sloping shape of the 'effects of returns' curve.

Panel B (1994-2006), on the other hand, shows that inequality decreased during the period. Wages for low-earning individuals rose while those for richer individuals declined. Interestingly, the effects of characteristics (education, experience, female and urban) were inequality increasing. In other words, if returns to characteristics had been equal to their 1994 level, the change in characteristics in the population (in spite of the equalization of education) would have increased inequality. This points to a persistence of the 'paradox of progress' found for Mexico (1984-94) by Legovini, Bouillon and Lustig (2005). Hence, the driving force behind the decline in wage inequality between 1994 and 2006 must have been the effects of returns. As shown in Panel B, the effects of returns contributed to equalize the earnings distribution by such an amount that they compensated the inequality-increasing effects associated with the changes in characteristics.[27] Although we do not disaggregate the returns into its various components, this result is consistent with the fall in the relative returns to education shown in Figure 3.

Figure 4
Mexico: Decomposition of differences in the distribution of earnings: 1989-2010



Notes: *Total differential* is the total change in hourly wages (in logs); *Effects of Characteristics* and *Effects of Returns* are the portions that one can ascribe to changes in characteristics (years of

27 We also calculated a similar graph using the decomposition procedure suggested by Chernozhukov, Fernandez-Val and Melly (2009). The results are almost identical.

schooling and experience) and returns (to those characteristics), respectively.

The reference distribution in each panel is the initial year. The results are obtained using the ado-file *rifreg* provided by N. Fortin (www.faculty.arts.ubc.ca/nfortin/datahead.html) for each quantile.

Source: Calculations by the authors using ENIGH.

Panel C (2006-10) shows that although changes in hourly wages were practically nil across most of the distribution, individuals at the bottom suffered declines in wages. Observable characteristics do not contribute to an explanation for the changes in inequality in this period. However, and in contrast with the 1994-2006 period, the decline in relative returns to low-wage workers accounted for their decline in relative wages.

In sum, these results suggest that the driving force behind the rise (1989-94), decline (1994-2006) and slight increase (2006-10) in wage inequality were the changes in relative returns. Our next task is to determine which factors explain the behaviour of relative returns. We shall concentrate on the relative returns to skill because they experienced prominent changes, as shown in Figure 3, Panel A.

4 Determinants of relative returns: the role of demand, supply and institutional factors

The wage structure (i.e., relative wages by skill, experience, etc.) is affected by demand and supply of workers of different skills (and experience) and by institutional factors such as the minimum wage and unions. Labour demand by skill, in turn, is primarily affected by the characteristics of technical change and international trade. The composition of labour supply is determined, to a large extent, by the characteristics of educational upgrading. Figure 5 plots the relative returns and relative supply of workers with high school education or more against workers with secondary or less. The left y-axis shows the relative returns and the right y-axis the relative supply in logs. The increase in relative supply is larger for the period 1996/98-2010 than for the period 1989-1996/98. The increase in relative supply for the period 1989-98 is approximately 20 per cent while for the period 1998-2010 it is approximately 54 per cent. Inequality measured as the relative returns for workers with at least high school education, on the other hand, increases for the period 1989-94 and it clearly declines for the period 1998-2010.

Following Bound and Johnson (1992), if increases in supply are larger than increases in demand—everything else equal—then we expect relative returns to fall. For the period 1989-94 we observe both an increase in relative supply and a rise in relative returns for workers with tertiary education. Hence, either demand outpaced supply for skilled labour, or institutional factors disfavoured the unskilled, or both. The rapid increase in wage inequality that occurred in Mexico between the mid-1980s and the mid-1990s has been the subject of a fairly large body of research.[28] The main conclusions are that

28 The following studies analyse the relevance of institutional factors: Bosch and Manacorda (2010), Fairris (2003) and Fairris, Popli and Zepeda (2008). The relevance of demand factors and skill biased technical change is studied by Airola and Juhn (2005), Bouillon, Legovini and Lustig (2003), Cragg and Epelbaum (1996), Esquivel and Rodríguez-López (2003), Feliciano (2001), Hanson (2003),

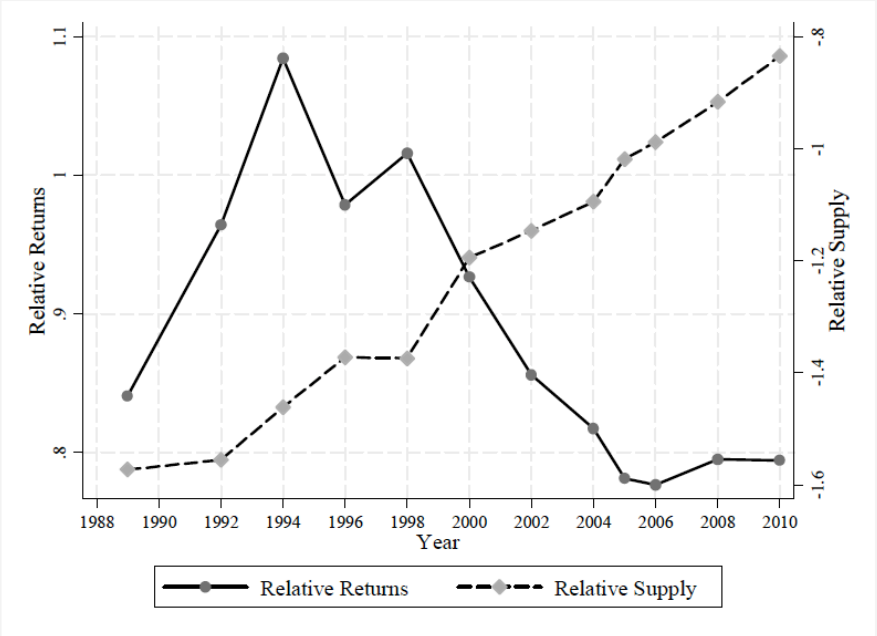
institutional factors as well as skill-biased demand explain the observed trend. Further details are discussed in the last section of the paper.

What about the period 1994-2006 when wage inequality declined? In Figure 5 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 favour of the unskilled, or both. Figure 6 shows the evolution of the real minimum wage and the unionization rate for the period 1988-2010. Panel A includes the monthly index of the real minimum wage using as base period December 2010. The real minimum wage fell by 50 per cent between 1988 and 1996. However, after 1996 the real minimum wage was fairly stable. Hence, it is unlikely that the minimum wage affected the wage structure for the period after 1994. While there is a marked decline in unionization between 1989 and 1996, there was no major change after 1996, although there appears to be a slight decline in unionization after 2005 (approximately 1 percentage point) in the unionization rate after 2005. The minimum wage may affect the distribution of wages if the minimum wage is binding because this could result in stable real wages at the bottom even if wages higher up in the distribution experience a decline. Existing evidence suggests that the minimum wage is currently not and has not been binding since the mid-1990s. Following Bosch and Manacorda (2010), Figure 7 shows the wage distributions in 1989 and 2010 for the urban sector once we subtract the median wage. [29] The vertical line is the value of the minimum wage minus the median wage. The figure shows that the minimum wage could have been (slightly) binding in 1989 but not in 2010.

Hanson and Harrison (1999), López-Acevedo (2006), Meza (2005), Revenga (1997), Robertson (2004, 2007) and Verhoogen (2008).

29 Bosch and Manacorda (2010) show that the minimum wage was more binding in 1989 than in current years (in their paper they have results until 2001). Only a small proportion of workers earn a wage close to the minimum wage. In results not shown, we calculate similar graphs to Bosch and Manacorda (2010) and confirm that the minimum wage is not binding anymore.

Figure 5
Mexico: Relative returns and relative supply, 1989-2010
(High school and more vs. secondary or less)

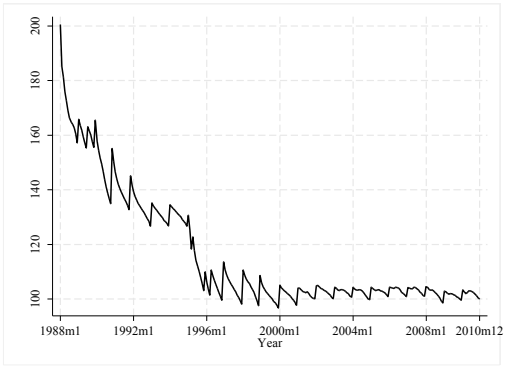


Notes: Sample restricted to workers 18-65 yrs old. Relative returns are obtained from a regression of log hourly wages against a dummy of high school or college education, and controlling for gender and rural dummies, age and age squared, and 5 geographic dummies (Mexico City, Guadalajara, Monterrey, border states, southern states: Chiapas, Oaxaca, Guerrero, Yucatán and Quintana Roo). Relative supply is equal to the log of the ratio of proportion of workers with high school or college over the proportion of workers with secondary or less.

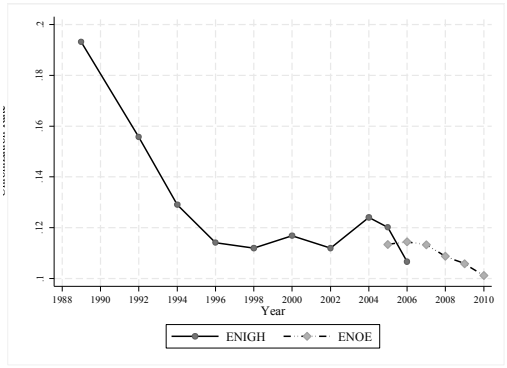
Source: Calculations by the authors using ENIGH.

Figure 6
Mexico: Real minimum wage and unionization, 1988-2010

A. Real minimum wage index (December 2010=100)

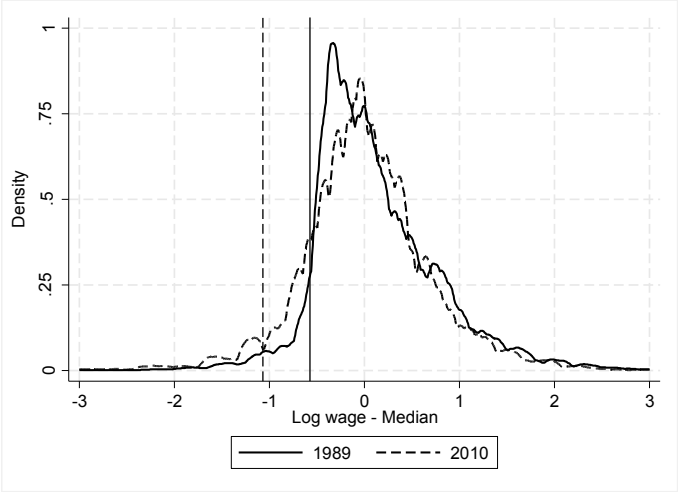


B. Unionization rate



Notes: Real minimum wage index is obtained from *Comisión Nacional de Salarios Mínimos* (www.conasami.gob.mx/) and the unionization rate is obtained from two different surveys. ENIGH provides union information up to 2006. ENOE (*Encuesta Nacional de Ocupación y Empleo*) provides union information for the period 2005-10.

Figure 7
Mexico: Wage distribution with respect to median wage, 1989 and 2010



Notes: Calculations by the authors using Labour Force surveys (ENEU and ENOE) for the urban sector and for full time workers (more than 25 hours per week). Wage distributions using monthly earnings. Vertical lines show the log of the minimum wage assuming full time work during the month minus the median monthly wage.

Source: Calculations by the authors using labour force surveys (ENEU and ENOE).

In sum, it appears that institutional factors such as the minimum wage and the unionization rate did not play a role in explaining the trends in relative wages/returns during 1996-2010. The evolution of relative wages/returns in this period seems to be associated with how demand and supply of labour of different skills changed over time. For the period 1994-2006, the fall in relative returns appears to have occurred because the supply of high skilled workers outpaced demand. Since supply of skilled workers continued to increase during 2006-10, the rise in relative returns suggests that either relative demand for skilled labour outpaced supply or, that the relative supply of

unskilled workers outpaced demand.[30] We now attempt a more rigorous estimation and account of demand and supply factors

4.1 The effect of demand and supply on relative wages: an application of the Bound and Johnson method (1989-2010)

In order to examine the effect of supply and demand on relative wages, we follow the Bound and Johnson (1992) method.[31] Based on the evidence presented in Figures 5 and 6, and as discussed above, we assume that non-competitive factors (i.e., minimum wages and unionization rate) are not important during the 1994-2010 period and ascribe the observed trends in relative wages by skill to demand and supply factors alone.

Assuming a simple CES (constant elasticity of substitution) production function with elasticity of substitution, σ, constant across skills, it is possible to determine the effect of supply and demand on relative wages.[32] In particular, it is possible to show that the relative wage of workers with at least high school degree (w^C) in terms of the wage of workers with at most secondary education (w^S) can be expressed in terms of its increase in demand and supply:

$$\Delta\%\left(\frac{\overline{w}^C}{\overline{w}^S}\right) = \frac{1}{\sigma}\Delta\%(Demand) - \frac{1}{\sigma}\Delta\%\left(Supply\right) + \xi$$

The residual term ξ contains the effect of skill-biased technical change and other non-competitive factors. As the unionization rate and the real minimum wage were fairly constant during 1994-2006, we assume non-competitive factors are negligible. In order to make the simulation simpler, we only simulate changes in supply and assign the full residual to demand and skill-biased technical change (which affects demand, of course). The supply component is equal to the relative increase of workers with at least high school education divided by workers with at most secondary education. Table 1 shows the results of the simulation assuming an elasticity of substitution of 1 and 2 which is the consensus in the literature (Bound and Johnson 1992; Katz and Autor 1999).

Consistent with previous research findings, Table 1 suggests that changes in relative supply had a small effect on relative wages in the period between 1989 and 1994. Most of the changes for that period, then, have to be explained by changes in demand and institutional factors, as discussed above. The relative contribution of market versus institutional factors, however, cannot be cleanly disentangled.

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30 Using ENOE for the period 2006-2010, we find that the relative returns of college educated workers against workers with primary or less declined 0.01 points. However the decline in returns was larger for high school educated workers and workers with secondary. Hence, the result of the slowdown in returns for college educated workers is robust to the selection of the microdata: ENIGH and ENOE.

31 We attempted to estimate a model similar to Bound and Johnson (1992) and Manacorda et.al. (2010). However, as pointed out by Manacorda et al. (2010), the relevant elasticities of substitution for the case of Mexico cannot be precisely estimated. In order to estimate the structural parameter σ, Manacorda et al. (2010) use a sample of workers from Argentina, Brazil, Chile, Colombia and Mexico; they mention that 'Mexico does not really contribute to the identification of the regression parameters' (footnote 1, page 314).

32 See formula (3) in page 377 and formula (A8) in page 390 of Bound and Johnson (1992).

Table 1
Mexico: Effects of supply on relative wage,1989-2010

	Change Returns -	Supply	= Rest
Panel A. σ=1			
1989-94	0.240	0.111	0.351
1994-2006	-0.310	0.474	0.164
2006-10	0.020	0.154	0.174
Panel B. σ=2			
1989-94	0.240	0.055	0.295
1994-2006	-0.310	0.237	-0.073
2006-10	0.020	0.077	0.097

Source: Authors' estimates based on ENIGH, several years.

For the period of declining relative wages (1994-2006), Table 1 shows that relative returns declined by 31 percent for the period 1994-2006, however had nothing changed in the same period but relative supply, then relative returns would have declined by as much as 47 percent. A key issue arises, however, depending on the value we assume for the elasticity of substitution. In Panel A ($\sigma = 1$), relative demand shows a steady growth for the period 1994-2010. In Panel B ($\sigma = 2$), relative demand declined for skilled workers (high school and college) during the period 1994-2006 and started to rise again for the period 2006-10. Taking the median value of the elasticity of substitution (not shown on Table 1), the patterns show a slowdown in demand for the period 1994-2006, and then a rise for the period 2006-2010. Hence, the rapid increase in relative supply was a key component in explaining the reduction in relative wages, but only up to 2006. In recent years, demand patterns appear once again to benefit the high skilled to a larger degree. Based on the analysis presented in Section 3 and Figure 4/Panel C, it would appear that during the 2008/09 recession and its aftermath, relative demand for low-wage/low-skilled workers declined the most. Employment surveys such as ENOE (National Survey of Labour and Employment) actually show that open unemployment increased the most for low-wage/low-skilled workers.

5 Cash transfers and inequality

Based on the decomposition presented in Section 2 (and Figure 2), another driving force behind the reduction of income inequality in Mexico were government transfers. In Table 2, one can observe the changes in total disposable income per capita[33] as a result of government transfers. The calculations presented in this table are the result of a standard incidence analysis of government transfers.[34] As one can see, the contribution

33 The differences between Gini's here and those presented in the first paragraphs of this paper are due to the fact that there we include information on monetary income only while here we use total income. Total income includes monetary income plus auto-consumption and imputed rent for owner's occupied housing.

34 For details, see Lustig et al. (2011a) and López-Calva, Lustig and Scott (2012). Unfortunately, due to limitations of the data, it was not feasible to carry this analysis for years prior to 1996. However, 1996

of government cash transfers to the reduction in inequality and poverty was almost nil in 1996, it rose in 2000, and it became more significant, especially for poverty reduction, in 2010. Most of this change is due to *Progresa*, the flagship conditional cash transfer programme launched in 1997 (which changed its name to *Oportunidades* in 2002).

Oportunidades is a conditional cash transfer (federal government) programme that targets rural and urban households in Mexico that fall within the extreme-poverty category.[35] It complements traditional supply-side spending on social services with demand-side subsidies. The programme has three components: education, nutrition, and health. The education component grants cash transfers based on school attendance, high school completion, and the need for school supplies. The nutrition and health components offer cash and in-kind transfers (nutritional supplements, vaccinations, preventative treatments, and so forth), based on regular visits to a health clinic. The average monthly transfer is about US$35 and estimated total transfers are equivalent to, on average, 25 per cent of eligible rural households' average monthly income. The programme's size is significant in terms of the number of beneficiaries yet inexpensive in terms of cost. By the end of 2010, *Progresa/Oportunidades* granted benefits to 5.8 million families (about 27 per cent of the Mexican population). Its budget in 2010 equalled 0.48 per cent of GPD (compared with 0.02 per cent in 1997), and it commanded close to 2.5 per cent of the programmable public expenditure budget. Impact evaluation studies have found that the programme had positive impacts on education and health.[36]

Table 2
Mexico: The impact of cash and transfers on inequality and poverty, 1996, 2000 and 2010

		Net market income	Disposable income
1996	Gini	0.522	0.520
	% change with respect to net market income	—	-0.4%
	Headcount index ($2.5 PPP)	30.2%	29.9%
	% change wrt net market income	—	-1.0%
2000	Gini	0.544	0.539
	% change wrt net market income	—	-0.9%
	Headcount index ($2.5 PPP)	22.1%	21.6%
	% change with respect to net market income	—	-2.3%
2010	Gini	0.503	0.495
	% change wrt net market income	—	-1.7%
	Headcount index ($2.5 PPP)	13.8%	11%
	% change with respect to net market income	—	-20.1%

Notes: Income variables here include monetary and non-monetary components which explains the bulk of the difference between the Gini coefficients reported here and on the first paragraph of the paper and the Statistical Appendix. The remaining differences are due to rounding errors.

Net Market Income is total market income minus direct taxes and contributions to social security.

Disposable income is net market income plus government transfers (private transfers and

is the year before the flagship Mexican cash transfer (*Progresa*, later called *Oportunidades*) was launched. Hence, the results for 1996 can be used as a baseline.

35 For a detailed analysis of *Programa de Educación*, *Salud*, and *Alimentación* (*Progresa*) see, for example, Levy (2006).

36 See, for example, Bautista et al. (2004), Parker (2005) and Schultz (2000). For more citations see Lustig (2011b).

contributory pensions are included in market income).

Source: López-Calva, Lustig and Scott (2012).

All in all, *Progresa/Oportunidades* transformed the broadly neutral distribution of government spending on food subsidies into a highly progressive one: the share benefiting the poorest decile increased from 8 to 33 per cent between 1994 and 2000.[37] Beyond its effects on education, health, and nutrition, Progresa/Oportunidades has had a positive impact on poor households' consumption, thereby helping to reduce poverty and inequality in Mexico. In 2004, poverty incidence among programme participants (the percentage of the population associated with the program that is below the poverty line) fell by 9.7 per cent in rural areas and by 2.6 per cent in urban areas.[38] In terms of its impact on the distribution of income, the direct effect of Progresa/Oportunidades transfers was equivalent to close to one-fifth of the decline in the Gini coefficient between 1996 and 2006.[39]

6 Concluding remarks: the rise and fall of income inequality and policy regimes

Previously we identified three episodes in inequality dynamics in Mexico: a period of rising inequality (1989-94); a period of declining inequality (1994-2006); and a period in which the decline in inequality lost its momentum (2006-10). These periods coincide with, roughly, two broad policy regimes. (Table 3) Between 1989 and 1994, the policy regime was characterized by intense and widespread market-oriented reforms (with trade liberalization and privatizations taking the lead), dismantling of price supports and generalized subsidies, and reductions in the minimum wages and unionization rates. After 1994, the policy regime was characterized by a paucity in structural reforms, strategic integration with the rest of the world (of which the salient example is the North American Free Trade Agreement or NAFTA), and the introduction of large-scale (in terms of beneficiaries) cash transfer programmes. Minimum wages became non-binding and the unionization rate remained low. What, if any, might be the connection between the policy regimes and inequality outcomes?

Our analysis indicates that the rise in overall inequality between 1989 and 1994 is accounted for, to a large extent, by the rise in labour income inequality. The rise in labour income inequality, in turn, is associated with the increase in relative returns for skilled workers (where skilled workers are those who hold a high school degree or more). The increase in the skilled-unskilled wage gap coincided with the unilateral trade liberalization that started in the mid-1980s (Table 3). In that sense, the evolution of Mexico's wage inequality was unexpected; Mexico had an abundance of relatively unskilled labour (at least from the perspective of its main trade partner, the United

37 See Scott (2009).

38 Cortés, Solís and Banegas (2006).

39 Scott (2009). The impact on the Gini coefficient takes account of only the direct effect. The effects on inequality of changes in behavior or of higher human capital among the poor are not contemplated in this calculation.

States), and standard theories of trade predicted exactly the opposite pattern (that is, a reduction in the skilled-unskilled wage ratio).[40]

Table 3
Mexico: Policy regimes, 1989-2010

	1989-94	1994-2010
Macro	– Aftermath of 1980s debt crisis – Contractionary fiscal and monetary policies; – Quasi-fixed exchange – Very low growth – Inflation under control starting in 1989	– 1995 peso crisis and recovery – Fiscal discipline (balanced budget law passed in 2006) – Inflation-targeting by central bank since 1999 – Flexible exchange rate regime – Low growth (GDP/capita growth of around 1% annually) with some inflation in the second half of 1990s; low inflation since around 2000 – Output contracted sharply in 2008/09 due to great recession in US
Labour	– Minimum wages and unionization rates declined markedly	– Minimum wages stable and not binding. Unionization rates stable with a slight decline since 2005
Openness	– Unilateral trade liberalization since 1985. Mexico joins GATT in 1986. – Foreign direct investment liberalized	– NAFTA comes into effect in 1994. Other free trade agreements
Other market-oriented reforms	– Large scale privatizations (banks and telecommunications) – Deregulation – Dismantling of price support (and other) schemes in agriculture and elimination of general production and consumption subsidies	– Social security reforms
Social Policy	– Very small scale targeted subsidies to *tortilla* – Flagship anti-poverty program *Programa Nacional de Solidaridad* focused on expanding rural infrastructures (no targeted cash transfer	– Targeted Cash Transfer Programs: *Procampo* in 1995 and Progresa in 1997.Progressa changes name to *Oportunidades* in 2002 and is expanded to urban areas and includes children in high school. – Noncontributory pensions in rural areas in 2007 *(Seventy or more*)
Inequality	Increased	– Declined especially between 1998 and 2004; between 2006 and 2010, decline loses momentum and wage inequality slightly rises

Notes: a) *Progresa/Oportunidades:* Launched in 1997. Provides direct monetary and in kind transfers conditional on school attendance and health visits. Targeted geographically and at the

40 For a discussion of trade liberalization and its implications see, for example, Lustig (1998).

household level through a proxy-means test calibrated to match the official poverty measure in Mexico. Scholarships cover the last three years of basic education and high school, with increasing values for higher levels, designed to approximate labour opportunity costs. Conditional on school inscription and attendance. Beneficiary households also receive a per household transfer conditional of attending health services, as well as nutritional supplements targeted at infants and pregnant women. By the end of 2010, *Progresa /Oportunidades* granted benefits to 5.8 million families (about 27 per cent of the Mexican population).

b) *Procampo:* Direct monetary transfer per hectare, originally set at close to US$100 per hectare to all beneficiaries identified in the original 1993 survey on the basis of cultivation of nine basic crops. Conditional on cultivation of the land, but after 1995 not conditional on particular crops. Administrative data: 2.39 million beneficiaries in 2008.

c) *Seventy or more:* Non-contributory pension. All the population of 70 years and older living in localities of 30,000 or less are eligible for this universal rural non-contributory basic pension of 500 pesos (US$37) per month. Administrative data: 1.031 million beneficiaries in 2008.

Source: Authors' compilation based on Lustig (2010).

Why did trends in relative wages during 1989 and 1994 contradict expectations (stemming from standard trade theory)? First, this period also coincided with labour market policies/institutional changes that disfavoured the low-skilled: a reduction in real minimum wages and in the unionization rate (Table 3 and Figure 6). Bosch and Manacorda (2010) find evidence that these institutional factors were quite decisive in causing wage inequality to rise. In addition, there is evidence that the direct and indirect impact of the opening up of the economy (trade liberalization and foreign direct investment liberalization) contributed to the rise in the wage gap by skill. The direct effect occurred because—contrary to expectations-- some labour-intensive sectors (such as textiles and garments) were relatively more protected under import-substitution industrialization and were hurt by trade liberalization.[41] The indirect effect manifested itself through skill-biased technical change (though, admittedly, it is hard to disentangle which part of the latter is induced by openness or occurs independently).

Is there a connection between the policies pursued after 1994 and the decline in overall inequality? Again, the results of the decomposition exercise presented in Section 2 and in Esquivel, Lustig and Scott suggest that one of the most important inequality-reducing forces between 1994 and 2006 has been the evolution of labour income inequality. Note that labour income is basically the result of multiplying hours worked by hourly wages (here defined as including remunerations to the self-employed). It turns out that hours worked did not change much from 1994 to 2006,[42] so the change in labour income inequality must have been caused by changes in hourly wage inequality. Some authors have linked the reduction in wage inequality to NAFTA. Robertson (2007), for example, suggests that Mexico's manufacturing workers are now complements, rather than substitutes, to US workers. He also posits that there has been an important expansion of assembly-line activities in Mexico *(maquiladoras),* which has increased

41 See, for example, Hanson and Harrison (1999) and Revenga (1997).

42 Actually, between 1994 and 2006, weekly hours in all jobs fell slightly and the decline was concentrated in low education (poorer) workers which would be an inequality-increasing change. This means that the inequality-reducing changes in the distribution of hourly earnings must have been large enough to compensate for the inequality-increasing effect of the changes in the distribution of hours worked. Data on weekly hours and hourly wages are available at: www.depeco.econo .unlp.edu.ar/sedlac/.

demand for less-skilled workers.[43] Campos (2008) emphasizes the supply-side explanations based on changes in the composition of the labour force.

Between 1989 and 1994, most of the changes in the wage distribution occurred in the upper tail of the distribution (workers with high wages and high levels of education and experience). As was seen in Figure 4, Panel A, the increase in wage inequality in those years was not caused by a (relative) decline in the wages of the low-skilled or low-experienced workers; rather it was the result of a higher rise in the wages of the high-skilled or high-experienced workers. In contrast, between 1994 and 2006 the reduction in wage inequality was caused by the changes in the lower tail of the income distribution. Average wages for workers with lower levels of education and/or fewer years of experience increased (Figure 4, Panel B), even though average real and legislated minimum wages were practically flat over this period (Figure 6). Average wages for higher-paid workers (high-skilled and/or high-experienced workers), in contrast, declined between 1994 and 2006 (Figure 4, Panel B).

For the post-NAFTA period (after 1994), then, there are at least two (not mutually exclusive) possible explanations: an increase in the relative supply of skilled workers and an increase in the demand for low-skilled labour resulting from an expansion in assembly-line activities (*maquiladoras*) in Mexico's manufacturing sector.[44] Based on our analysis presented in Section 4 (Table 1), the reduction in relative returns of the high-skilled workers seems to be driven, primarily, by the rise in their relative supply.

The increase in the relative supply of workers with high levels of skills reflects the significant educational upgrading of the labour force that occurred during this period. (Figure 5) Part of this upgrading should be the consequence of the expansionary policies in terms of access to education (see Esquivel, Lustig and Scott). However, part might also be a consequence of more individuals deciding to invest in a tertiary degree in response to the rising returns to skill experienced between 1989 and 1994 (and, actually since 1984). This would suggest that Mexico experienced a Tinbergean process in the sense that skill-biased demand (due to trade liberalization and technical change) contributed (along with institutional factors) to a significant increase in the skill premium. This, in turn, could have induced individuals to invest more in their own education (completing high school and tertiary degrees). The subsequent increase in the relative supply of more educated workers (high school and more) caused the skill premium (and wage inequality) to decline.

In sum, the results reveal the following. Relative supply only marginally affected the wage structure during the period 1989-94. Therefore, relative demand and institutional factors are responsible for the increase in inequality. On the other hand, after 1994

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43 Robertson (2007) notices that the pattern of wage inequality in Mexico is puzzling because no single theory could explain the evolution of wage inequality before and after NAFTA. There are, however, some tentative theoretical explanations for the pattern. For example, Atolia (2007) has suggested that, under certain circumstances, even if the standard prediction from a Hecksher-Ohlin-Samuelson model works as predicted in the long-run, there may be some short-run (or transitory) effects of trade liberalization that may lead to a different outcome from those of the long-run. The difference between short-run and long-run effects on inequality result from two factors: first, an asymmetry in the contraction and expansion of some sectors, and second, because of the capital-skill complementarity in production.

44 Campos (2008); Robertson (2007).

institutional factors have remained largely unchanged; in particular, the minimum wage became non-binding during the period. At the same time, relative supply of skilled labour (completed high school or more) increased by more than 50 per cent and relative demand slowed down which resulted in lower inequality. The period 2006-2010 has seen a small increase in inequality. This is mainly due to a decrease in wages at the bottom and not to an increase of wages at the top. Does this point to a reversal in the wage inequality dynamics in Mexico? At this point, it is too soon to be able to disentangle the permanent versus the temporal effects of the recent macroeconomic crisis caused by the Great Recession in the United States.

Finally, overall inequality has declined because non-labour income inequality declined too. Our analysis and that presented in Esquivel, Lustig and Scott suggest that a change in social policy from general subsidies to cash transfers targeted to the poor contributed to the decline in inequality especially since 2000, when the number of beneficiaries was increased.

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Methodological appendix

Static decomposition of the Gini coefficient: Lerman and Yitzhaki method

Lerman and Yitzhaki (1985) showed that the Gini coefficient for total income inequality (G) with K income sources can be expressed as

$$G = \sum_{k=1}^{K} S_k G_k R_k$$

where S_k is the share of source k in total income, G_k is the Gini coefficient of the income source k, and R_k is the Gini correlation between the income source k and total income.

This decomposition of the Gini coefficient has a neat and clear-cut interpretation since it shows that the contribution of income source k to inequality depends on the interaction of three elements: (i) how important the income source on total income is (S_k), b) how unequally distributed the income source is (G_k), and c) how correlated the income source and the distribution of total income are (R_k).

Therefore, an income source that represents a relatively large share of total income could have a large effect on inequality as long as it is unequally distributed (i.e. if it has a relatively high G_k). However, if G_k is low, this factor will dwarf the contribution of that income source. On the other hand, if an income source is very unequally distributed but it is not highly correlated with total income (as in the case of well-targeted anti-poverty transfer programmes), then the contribution of such source could in fact become negative.

Later on, Stark, Taylor and Yitzhaki (1986) showed that with this type of decomposition one could estimate the effect of a small percentage change (y_k) in a given income source on total inequality (holding all other income sources constant) through the following expression:

$$\frac{\partial G}{\partial y_k} = S_k(G_k R_k - G)$$

or, alternatively,

$$\frac{\partial G / \partial y_k}{G} = \frac{S_k G_k R_k}{G} - S_k$$

This expression means that the per cent change in inequality resulting from a marginal percentage change in income source k is equal to the initial share of income source k on total income inequality minus the initial share of the income source k.

The Rise and Fall of Inequality in Mexico: 1989-2010[1]

Raymundo Campos (Colegio de Mexico)
Gerardo Esquivel (Colegio de Mexico)
Nora Lustig (Tulane University)

25-Jan-12

STATISTICAL APPENDIX

This Appendix has two parts. Tables A1-A5 and Figure A1 are meant to provide additional information that was not included in the text. These are followed by sheets that contain the data used in Figures 1-6 in the text.

[1] Paper prepared for WIDER's project "The new policy model, inequality and poverty in Latin America: Evidence from the last decade and prospects for the future" coordinated by Giovanni Andrea Cornia. An earlier version of the paper was presented at the project's wrap-up conference in Buenos Aires, Argentina, September 1-3, 2011. The authors are grateful to Giovanni Andrea Cornia, Richard Freeman and Stefan Klasen as well as the rest of the conference's participants for their very useful comments. The authors also want to thank Alma S. Santillan, Maura Paulina Salazar and Emily Travis for their excellent research assistantship. All errors and omissions remain the authors' sole responsibility.

Table A.1: Mexico: Inequality Measures: 1989-2010 (households whose head has zero incomes excluded)

Year	Gini					Theil					Log standar deviation					Log P90-Log P10				
	Por household	Per Individual	Equivalized (OCDE "old" scale)	Equivalized (OCDE "new" scale)	Equivalized (CONEVAL scale)	Por household	Per Individual	Equivalized (OCDE "old" scale)	Equivalized (OCDE "new" scale)	Equivalized (CONEVAL scale)	Por household	Per Individual	Esc OCDE	Equivalized (OCDE "old" scale)	Equivalized (OCDE "new" scale)	Por household	Per Individual	Equivalized (OCDE "old" scale)	Equivalized (OCDE "new" scale)	Equivalized (CONEVAL scale)
Total Disposable Income																				
1989	0.475	0.539	0.490	0.495	0.510	0.492	0.657	0.518	0.548	0.568	0.838	0.934	0.864	0.859	0.896	2.025	2.301	2.127	2.090	2.220
1992	0.480	0.540	0.496	0.500	0.521	0.462	0.613	0.498	0.513	0.561	0.844	0.943	0.870	0.867	0.909	2.140	2.392	2.220	2.220	2.307
1994	0.482	0.548	0.502	0.505	0.522	0.455	0.621	0.504	0.514	0.543	0.846	0.954	0.875	0.873	0.914	2.109	2.385	2.201	2.176	2.292
1996	0.469	0.528	0.487	0.487	0.506	0.458	0.570	0.498	0.490	0.522	0.812	0.932	0.850	0.844	0.894	2.005	2.334	2.120	2.099	2.254
1998	0.484	0.544	0.495	0.502	0.515	0.463	0.662	0.483	0.522	0.531	0.869	0.973	0.893	0.895	0.935	2.168	2.494	2.284	2.256	2.407
2000	0.489	0.539	0.496	0.503	0.514	0.457	0.586	0.471	0.495	0.514	0.870	0.966	0.890	0.893	0.929	2.181	2.449	2.224	2.246	2.349
2002	0.456	0.510	0.467	0.472	0.489	0.389	0.510	0.413	0.426	0.458	0.820	0.902	0.828	0.834	0.868	2.057	2.278	2.081	2.092	2.186
2004	0.449	0.500	0.458	0.462	0.479	0.386	0.509	0.403	0.421	0.447	0.808	0.889	0.820	0.821	0.858	2.008	2.189	2.052	2.042	2.115
2006	0.445	0.500	0.455	0.458	0.479	0.384	0.515	0.409	0.419	0.460	0.790	0.871	0.799	0.800	0.838	1.943	2.147	1.968	1.950	2.079
2008	0.464	0.509	0.469	0.473	0.492	0.420	0.555	0.448	0.454	0.510	0.838	0.903	0.839	0.843	0.874	2.103	2.282	2.110	2.120	2.189
2010	0.441	0.487	0.447	0.450	0.469	0.365	0.471	0.381	0.389	0.430	0.802	0.874	0.807	0.809	0.843	2.020	2.168	1.999	2.018	2.099
Disposable Monetary Income																				
1989	0.492	0.548	0.504	0.510	0.523	0.536	0.686	0.562	0.587	0.613	0.922	1.002	0.940	0.937	0.968	2.174	2.463	2.288	2.267	2.397
1992	0.511	0.564	0.522	0.527	0.545	0.537	0.692	0.570	0.590	0.637	0.942	1.021	0.956	0.957	0.989	2.357	2.568	2.399	2.402	2.487
1994	0.512	0.571	0.528	0.532	0.546	0.525	0.695	0.576	0.587	0.612	0.944	1.029	0.960	0.962	0.992	2.327	2.572	2.403	2.402	2.481
1996	0.501	0.551	0.514	0.515	0.531	0.538	0.641	0.579	0.565	0.596	0.896	0.996	0.922	0.920	0.960	2.214	2.500	2.279	2.256	2.410
1998	0.508	0.568	0.520	0.527	0.538	0.511	0.739	0.542	0.582	0.592	0.963	1.052	0.980	0.983	1.016	2.365	2.615	2.432	2.431	2.531
2000	0.501	0.547	0.507	0.514	0.524	0.478	0.605	0.496	0.515	0.538	0.926	1.003	0.935	0.940	0.968	2.299	2.519	2.309	2.356	2.440
2002	0.475	0.525	0.484	0.489	0.505	0.418	0.538	0.442	0.454	0.487	0.885	0.950	0.883	0.892	0.917	2.240	2.389	2.220	2.246	2.318
2004	0.464	0.510	0.471	0.475	0.490	0.405	0.522	0.423	0.438	0.467	0.880	0.939	0.879	0.884	0.910	2.142	2.294	2.143	2.147	2.246
2006	0.464	0.512	0.471	0.475	0.492	0.411	0.533	0.432	0.442	0.480	0.861	0.918	0.856	0.860	0.888	2.075	2.247	2.074	2.078	2.176
2008	0.492	0.530	0.494	0.498	0.514	0.466	0.605	0.495	0.500	0.560	0.939	0.983	0.928	0.936	0.955	2.320	2.448	2.294	2.320	2.369
2010	0.471	0.510	0.474	0.477	0.493	0.417	0.520	0.431	0.440	0.479	0.912	0.960	0.904	0.910	0.932	2.228	2.337	2.187	2.216	2.262
Labor Income																				
1989	0.568	0.610	0.576	0.579	0.592	0.375	0.491	0.397	0.406	0.434	0.982	1.069	1.005	1.004	1.039	2.342	2.585	2.361	2.352	2.481
1992	0.589	0.633	0.601	0.602	0.620	0.421	0.554	0.456	0.461	0.514	1.030	1.132	1.063	1.060	1.105	2.485	2.803	2.601	2.587	2.733
1994	0.614	0.664	0.631	0.632	0.645	0.512	0.692	0.567	0.579	0.609	1.039	1.140	1.072	1.069	1.108	2.404	2.737	2.511	2.497	2.636
1996	0.597	0.644	0.610	0.612	0.629	0.451	0.597	0.486	0.497	0.542	1.052	1.163	1.090	1.086	1.133	2.514	2.782	2.587	2.580	2.718
1998	0.594	0.633	0.606	0.605	0.621	0.449	0.564	0.479	0.481	0.522	1.072	1.174	1.105	1.103	1.146	2.477	2.752	2.567	2.530	2.691
2000	0.594	0.632	0.603	0.604	0.615	0.452	0.583	0.485	0.492	0.525	1.035	1.126	1.057	1.060	1.096	2.393	2.672	2.456	2.410	2.595
2002	0.582	0.623	0.592	0.594	0.609	0.423	0.546	0.460	0.461	0.505	1.014	1.094	1.024	1.033	1.065	2.386	2.661	2.447	2.495	2.580
2004	0.543	0.584	0.553	0.554	0.570	0.398	0.516	0.424	0.432	0.471	0.992	1.066	1.006	1.008	1.041	2.303	2.477	2.316	2.355	2.407
2006	0.543	0.590	0.556	0.556	0.576	0.390	0.532	0.432	0.431	0.486	0.997	1.068	1.007	1.010	1.044	2.255	2.435	2.254	2.274	2.395
2008	0.544	0.577	0.547	0.549	0.565	0.395	0.490	0.410	0.413	0.458	1.063	1.113	1.059	1.067	1.090	2.453	2.616	2.445	2.472	2.543
2010	0.550	0.590	0.558	0.559	0.577	0.422	0.545	0.454	0.453	0.508	1.036	1.097	1.040	1.045	1.073	2.416	2.542	2.400	2.420	2.457

Source: Authors' calculations based on ENIGH several years (Encuesta Nacional de Ingreso Gasto de los Hogares/National Household Incomes and Expenditures Survey).

Notes:

a. Total disposable income includes labor and non-labor monetary income (net of direct taxes and contributions to social security), transfers (private and public), and non-monetary income (imputed rent for owner's occupied housing, gifts in kind and own-consumption).

b. Disposable monetary income excludes non-monetary income.

c. Labor income includes incomes from wages, salaries and self-employment.

d. CONEVAL stands for Consejo Nacional de Evaluacion (National Council of Evaluation)

Table A.2: Mexico: Inequality Measures: 1989-2010 (households whose head has zero incomes included)

Year	Gini					Theil					Log standar deviation					Log P90-Log P10				
	Por household	Per Individual	Equivalized (OCDE "old" scale)	Equivalized (OCDE "new" scale)	Equivalized (CONEVAL scale)	Por household	Per Individual	Equivalized (OCDE "old" scale)	Equivalized (OCDE "new" scale)	Equivalized (CONEVAL scale)	Por household	Per Individual	Esc OCDE	Equivalized (OCDE "old" scale)	Equivalized (OCDE "new" scale)	Por household	Per Individual	Equivalized (OCDE "old" scale)	Equivalized (OCDE "new" scale)	Equivalized (CONEVAL scale)
Total Disposable Income																				
1989	0.472	0.535	0.485	0.490	0.506	0.476	0.642	0.503	0.529	0.555	0.840	0.933	0.857	0.857	0.894	2.033	2.306	2.113	2.087	2.206
1992	0.472	0.530	0.487	0.489	0.511	0.441	0.580	0.476	0.485	0.534	0.838	0.933	0.859	0.856	0.899	2.108	2.369	2.181	2.173	2.274
1994	0.474	0.539	0.494	0.495	0.515	0.437	0.596	0.485	0.491	0.525	0.837	0.941	0.862	0.860	0.903	2.080	2.369	2.174	2.141	2.261
1996	0.465	0.525	0.482	0.482	0.503	0.442	0.566	0.486	0.477	0.517	0.811	0.931	0.846	0.841	0.892	2.002	2.329	2.104	2.085	2.251
1998	0.481	0.542	0.490	0.498	0.512	0.453	0.650	0.473	0.510	0.523	0.868	0.971	0.887	0.891	0.932	2.155	2.471	2.251	2.226	2.378
2000	0.484	0.536	0.493	0.498	0.512	0.446	0.580	0.466	0.484	0.512	0.867	0.961	0.883	0.886	0.924	2.189	2.422	2.205	2.219	2.338
2002	0.452	0.505	0.461	0.466	0.484	0.378	0.495	0.400	0.410	0.446	0.817	0.897	0.820	0.826	0.862	2.055	2.256	2.064	2.076	2.167
2004	0.454	0.511	0.461	0.468	0.484	0.407	0.598	0.428	0.464	0.482	0.819	0.893	0.820	0.825	0.860	2.042	2.191	2.041	2.046	2.115
2006	0.444	0.500	0.453	0.457	0.478	0.380	0.512	0.404	0.414	0.455	0.799	0.879	0.804	0.805	0.845	1.953	2.168	1.980	1.965	2.096
2008	0.467	0.511	0.471	0.474	0.493	0.421	0.549	0.445	0.451	0.504	0.857	0.920	0.851	0.857	0.888	2.156	2.309	2.125	2.151	2.226
2010	0.444	0.488	0.447	0.450	0.471	0.365	0.467	0.379	0.385	0.428	0.825	0.890	0.820	0.825	0.858	2.074	2.206	2.031	2.052	2.132
Disposable Monetary Income																				
1989	0.489	0.543	0.499	0.504	0.518	0.516	0.666	0.543	0.566	0.593	0.924	0.995	0.931	0.932	0.960	2.191	2.432	2.262	2.251	2.371
1992	0.504	0.551	0.513	0.517	0.534	0.516	0.653	0.545	0.560	0.605	0.943	1.008	0.947	0.948	0.978	2.336	2.532	2.363	2.370	2.446
1994	0.508	0.563	0.522	0.525	0.540	0.510	0.669	0.559	0.565	0.595	0.948	1.017	0.952	0.955	0.982	2.337	2.549	2.359	2.387	2.454
1996	0.497	0.546	0.509	0.511	0.526	0.521	0.628	0.562	0.548	0.582	0.903	0.992	0.920	0.919	0.957	2.215	2.465	2.263	2.239	2.378
1998	0.506	0.565	0.517	0.524	0.536	0.501	0.719	0.532	0.568	0.582	0.975	1.052	0.982	0.987	1.017	2.386	2.605	2.422	2.432	2.528
2000	0.499	0.545	0.505	0.511	0.523	0.472	0.604	0.495	0.509	0.540	0.932	0.997	0.932	0.937	0.964	2.314	2.491	2.304	2.316	2.421
2002	0.473	0.519	0.479	0.484	0.500	0.410	0.522	0.431	0.440	0.475	0.894	0.946	0.883	0.892	0.915	2.232	2.364	2.190	2.229	2.281
2004	0.472	0.522	0.477	0.483	0.497	0.433	0.628	0.454	0.490	0.508	0.909	0.949	0.892	0.900	0.920	2.193	2.280	2.139	2.143	2.244
2006	0.466	0.511	0.470	0.475	0.491	0.412	0.530	0.431	0.440	0.476	0.878	0.921	0.862	0.868	0.892	2.120	2.256	2.092	2.095	2.175
2008	0.498	0.533	0.498	0.502	0.517	0.471	0.599	0.495	0.500	0.555	1.009	1.036	0.984	0.995	1.009	2.427	2.501	2.357	2.380	2.419
2010	0.478	0.513	0.478	0.482	0.497	0.419	0.514	0.429	0.437	0.476	0.974	1.001	0.951	0.959	0.975	2.324	2.402	2.262	2.304	2.333
Labor Income																				
1989	0.578	0.618	0.585	0.587	0.601	0.370	0.483	0.393	0.398	0.430	0.990	1.072	1.008	1.008	1.043	2.359	2.570	2.353	2.347	2.481
1992	0.603	0.641	0.612	0.613	0.630	0.412	0.535	0.444	0.447	0.499	1.028	1.119	1.053	1.052	1.093	2.485	2.762	2.562	2.554	2.678
1994	0.625	0.672	0.641	0.642	0.655	0.497	0.671	0.552	0.560	0.594	1.030	1.123	1.056	1.055	1.092	2.385	2.688	2.476	2.471	2.595
1996	0.611	0.655	0.623	0.625	0.641	0.443	0.585	0.479	0.487	0.533	1.047	1.148	1.077	1.076	1.119	2.506	2.737	2.567	2.549	2.682
1998	0.612	0.650	0.624	0.623	0.639	0.443	0.558	0.476	0.475	0.520	1.071	1.169	1.101	1.099	1.143	2.457	2.751	2.541	2.526	2.671
2000	0.609	0.644	0.617	0.618	0.630	0.451	0.580	0.485	0.488	0.527	1.052	1.135	1.070	1.073	1.109	2.359	2.644	2.433	2.425	2.563
2002	0.595	0.633	0.605	0.605	0.621	0.417	0.536	0.454	0.452	0.498	1.020	1.095	1.030	1.037	1.070	2.395	2.639	2.445	2.446	2.542
2004	0.565	0.601	0.574	0.573	0.589	0.396	0.511	0.424	0.428	0.470	0.998	1.060	1.004	1.007	1.037	2.325	2.461	2.325	2.354	2.391
2006	0.561	0.606	0.574	0.573	0.593	0.386	0.525	0.430	0.426	0.482	1.002	1.069	1.009	1.013	1.045	2.238	2.437	2.270	2.280	2.379
2008	0.571	0.601	0.575	0.575	0.591	0.396	0.491	0.414	0.414	0.461	1.081	1.132	1.077	1.085	1.110	2.521	2.622	2.464	2.494	2.556
2010	0.580	0.615	0.587	0.587	0.604	0.416	0.534	0.449	0.445	0.501	1.049	1.105	1.050	1.056	1.083	2.419	2.525	2.412	2.425	2.494

Source: Authors' calculations based on ENIGH several years (Encuesta Nacional de Ingreso Gasto de los Hogares/National Household Incomes and Expenditures Survey).

Notes:

a. Total disposable income includes labor and non-labor monetary income (net of direct taxes and contributions to social security), transfers (private and public), and non-monetary income (imputed rent for owner's occupied housing, gifts in kind and own-consumption).

b. Disposable monetary income excludes non-monetary income.

c. Labor income includes incomes from wages, salaries and self-employment. Households whose head reported zero labor income were included.

d. CONEVAL stands for Consejo Nacional de Evaluacion (National Council of Evaluation

Table A.3: Mexico: Inequality Measures for Hourly Wages Based on ENIGH: 1989-2010 (households whose head has zero labor income excluded)

Age Group: 18-65

	Hourly Wages (Trimester)	
	With Trimming	
Year	Gini	Theil
1989	0.448	0.359
1992	0.470	0.400
1994	0.508	0.472
1996	0.492	0.439
1998	0.498	0.448
2000	0.474	0.410
2002	0.468	0.396
2004	0.458	0.384
2006	0.455	0.382
2008	0.456	0.378
2010	0.467	0.402
	Hourly Wages (Last month)	
	With Trimming	
Year	Gini	Theil
1989	0.438	0.346
1992	0.458	0.386
1994	0.495	0.450
1996	0.477	0.415
1998	0.478	0.418
2000	0.461	0.396
2002	0.457	0.380
2004	0.447	0.370
2006	0.442	0.363
2008	0.515	0.498
2010	0.524	0.522

Age Group: 26-65

	Hourly Wages (Trimester)	
	With Trimming	
Year	Gini	Theil
1989	0.458	0.375
1992	0.486	0.425
1994	0.522	0.491
1996	0.499	0.444
1998	0.503	0.452
2000	0.487	0.437
2002	0.479	0.409
2004	0.465	0.392
2006	0.463	0.390
2008	0.458	0.377
2010	0.468	0.401
	Hourly Wages (Last month)	
	With Trimming	
Year	Gini	Theil
1989	0.451	0.365
1992	0.481	0.421
1994	0.516	0.482
1996	0.489	0.431
1998	0.489	0.433
2000	0.477	0.423
2002	0.472	0.398
2004	0.456	0.378
2006	0.454	0.376
2008	0.524	0.507
2010	0.530	0.523

Source: Authors' calculations based on ENIGH several years (Encuesta Nacional de Ingreso Gasto de los Hogares/National Household Incomes and Expenditures Survey).

Note: Hourly wage is equal to monthly labor income over weekly hours of work times 4.33. Hourly wage inequality is calculated for individuals 18-65 years old with positive income and it includes labor income from wages and self-employment.

Table A.4: Mexico: Relative Returns Based on ENIGH: 1989-2010 (households whose head has zero labor income excluded)

Age Group: 18-65

	Relative Returns with respect to							
	Primary or less			Seconday		High School	Secondary or less	Primary or less
	Secondary	High School	College	High School	College	College	High School or more	High School or more
1989	0.492	0.871	1.254	0.380	0.762	0.383	0.841	1.010
1992	0.516	0.983	1.424	0.467	0.909	0.441	0.964	1.152
1994	0.571	1.084	1.639	0.514	1.069	0.555	1.085	1.300
1996	0.546	1.013	1.533	0.468	0.988	0.520	0.979	1.205
1998	0.496	1.003	1.594	0.507	1.098	0.591	1.016	1.228
2000	0.433	0.822	1.516	0.390	1.083	0.693	0.927	1.129
2002	0.425	0.823	1.408	0.398	0.983	0.585	0.856	1.059
2004	0.435	0.767	1.334	0.332	0.899	0.567	0.817	1.037
2005	0.438	0.749	1.300	0.312	0.862	0.550	0.781	1.006
2006	0.430	0.727	1.338	0.296	0.908	0.612	0.777	1.006
2008	0.395	0.717	1.367	0.321	0.971	0.650	0.795	1.012
2010	0.395	0.702	1.345	0.307	0.950	0.643	0.794	1.016

Age Group: 26-65

	Relative Returns with respect to							
	Primary or less			Seconday		High School	Secondary or less	Primary or less
	Secondary	High School	College	High School	College	College	High School or more	High School or more
1989	0.603	0.981	1.302	0.378	0.698	0.320	0.961	1.125
1992	0.632	1.130	1.498	0.499	0.866	0.367	1.120	1.301
1994	0.702	1.263	1.734	0.560	1.032	0.472	1.252	1.474
1996	0.648	1.152	1.625	0.505	0.977	0.472	1.125	1.360
1998	0.591	1.187	1.676	0.595	1.085	0.490	1.180	1.406
2000	0.518	0.935	1.598	0.417	1.079	0.663	1.060	1.277
2002	0.498	1.007	1.527	0.509	1.029	0.520	1.043	1.256
2004	0.504	0.919	1.432	0.415	0.928	0.513	0.965	1.200
2005	0.485	0.901	1.411	0.416	0.926	0.511	0.940	1.170
2006	0.476	0.873	1.430	0.397	0.954	0.557	0.936	1.169
2008	0.430	0.857	1.444	0.427	1.013	0.587	0.958	1.173
2010	0.431	0.837	1.437	0.405	1.006	0.601	0.951	1.172

ENOE

Age Group: 18-65

	Relative Returns with respect to							
	Primary or less			Seconday		High School	Secondary or less	Primary or less
	Secondary	High School	College	High School	College	College	High School or more	High School or more
1996	0.340	0.661	1.277	0.321	0.937	0.616	0.789	0.910
2000	0.326	0.639	1.312	0.313	0.986	0.673	0.784	0.912
2006	0.256	0.506	1.117	0.249	0.860	0.611	0.647	0.764
2008	0.227	0.465	1.084	0.239	0.858	0.619	0.618	0.728
2009	0.214	0.471	1.073	0.256	0.858	0.602	0.608	0.714
2010	0.204	0.422	1.057	0.218	0.852	0.635	0.577	0.683

Grupo de edad: 26 a 65 años

Age Group: 26-65

	Relative Returns with respect to							
	Primary or less			Seconday		High School	Secondary or less	Primary or less
	Secondary	High School	College	High School	College	College	High School or more	High School or more
1996	0.390	0.754	1.332	0.364	0.942	0.579	0.916	1.031
2000	0.375	0.711	1.362	0.336	0.986	0.650	0.888	1.014
2006	0.283	0.563	1.167	0.280	0.884	0.604	0.738	0.850
2008	0.245	0.513	1.136	0.268	0.891	0.623	0.705	0.809
2009	0.233	0.519	1.126	0.286	0.893	0.607	0.693	0.793
2010	0.215	0.467	1.106	0.252	0.891	0.638	0.665	0.762

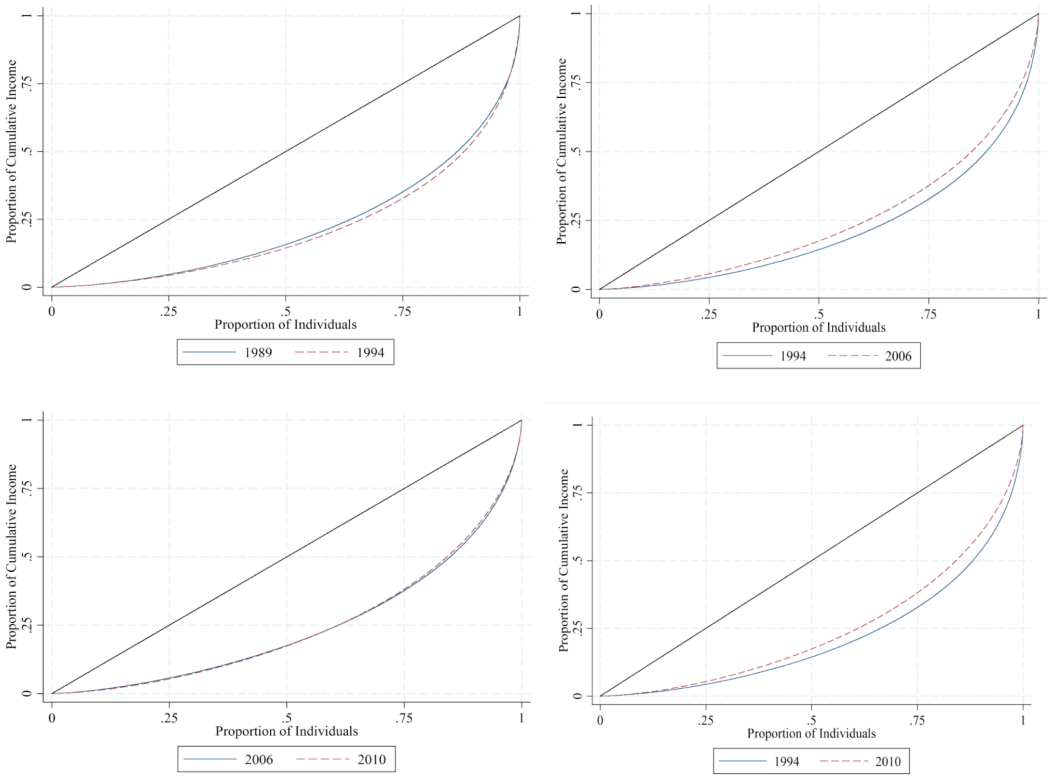
Note: Regression results are available upon request.

Table A5-Mexico: Labor Outcomes by Education Level: 1989-2010

	1989	1992	1994	1996	2000	2006	2008	2010
A. Proportion of Workers								
Number (Millions)	22.2	26.1	29.1	31	34.9	41.4	41.8	42.6
All	100	100	100	100	100	100	100	100
Less than Primary	36	32.7	31.8	28.8	23.6	17.9	16.9	15.1
Primary	26.8	26.7	26	25.3	24.6	21.6	20.8	19.9
Secondary	20.1	23.2	23.4	25.7	28.5	33.4	33.7	34.7
High School	10.9	10.6	11.7	12.8	13.6	14.8	15.9	16.3
College	6.3	6.8	7.2	7.4	9.6	12.4	12.6	14
B. Employment Rate								
All	56.2	57.9	60.8	62.4	64.5	68.5	66.1	64.7
Less than Primary	50.3	52	56.4	57.5	59.5	63.3	59.9	57.4
Primary	58	58.3	61.1	61.9	63.9	66.8	64.1	62.8
Secondary	57.3	60.8	61.7	63.6	66.6	70.9	67.7	67.1
High School	59.5	59	59.6	63.3	59.3	63.2	62.6	60.3
College	83	83.3	87.4	85.5	85.8	83.6	83.5	78.7
C. Informal Employment								
All	49.9	59	60.8	61.7	60.2	60.1	60.7	60.9
Less than Primary	64.5	81.3	83.5	85.4	85.4	86	85.8	87.7
Primary	51.7	62.2	67	68.3	68.1	72.1	74.2	75
Secondary	38.3	44.6	46.2	49.8	49.5	54.6	56.4	57.4
High School	31.2	32.7	35.1	39.8	45	45.5	47.2	49
College	27.6	29.5	26.5	26.5	31.2	34	33.6	34.5
D. Female Employment								
All	31.3	33.6	38.5	42.2	43.5	52.3	49.1	47.4
Less than Primary	22.8	27	33.3	37.6	36.6	45.4	39.9	36.1
Primary	31	28.8	33.8	37.6	39.1	46.7	43.9	41.7
Secondary	37.8	40	42.3	44	47.9	55.1	50.3	50.6
High School	45.1	43.5	45.3	49.7	43.6	51.6	50.6	46.9
College	68.1	70.5	75.1	74.8	73.4	75.8	75.5	69.8
E. Hourly Wage (MXP Pesos)								
All	16.8	18.9	21	13.4	17.9	20.2	22	20.4
Less than Primary	7.9	7.9	7.6	5	6.5	8.2	9.9	8.2
Primary	13.9	14	13.5	8.9	11.8	12.1	13.3	11.9
Secondary	19.2	20.7	20.6	13.4	16.6	17.6	19.1	16.7
High School	30.7	35.6	39.4	23.2	25.5	25.6	26.4	23.1
College	48	58.6	78.9	45.1	54.3	52.2	54.7	51.6
F. Unemployment Rate								
All				7.12	3.01	4.68	4.87	6.34

Notes: Calculations by the authors using ENIGH. Less than primary refers to individuals with less than 6 years of schooling, Primary refers to individuals with less than secondary (9 years of schooling) but with primary complete (6 years of schooling), secondary refers to individuals with equal to or more than 9 and less than 12 years of schooling, high school refers to individuals with equal to or more than 12 and less than 16 years of schooling, and college refers to individuals with at least 16 years of schooling. Employment rate is defined as those individuals with positive working hours over total population. Informal employment is defined as individuals without medical coverage in IMSS, ISSSTE, Army or Pemex (medical coverage funded by social security contributions). Hourly wage measure in constant pesos of 2011. Unemployment rate refers to all workers using data from INEGI. Unemployment rate is not available for the full country before 1995.

Figure A1 - Mexico: Lorenz Dominance: 1989/1994; 1994/2006; 2006/2010; 1994/2010



Source: Authors' estimates based on ENIGH, several years.

Note: The Lorenz Curves are based on per capita disposable monetary income. Households whose head repoted zero labor income were excluded.

Data for Figure 1

Figure 1: We exclude households in which the head of the household has zero labor income (wage income or business income)

Year	*Gini*			
Year	*Total Disposable Income*	*Disposable Monetary Income*	*Labor Income*	*Hourly wage*
1989	0.539	0.548	0.610	0.448
1992	0.540	0.564	0.633	0.470
1994	0.548	0.571	0.664	0.508
1996	0.528	0.551	0.644	0.492
1998	0.544	0.568	0.633	0.498
2000	0.539	0.547	0.632	0.474
2002	0.510	0.525	0.623	0.468
2004	0.500	0.510	0.584	0.458
2006	0.500	0.512	0.590	0.455
2008	0.509	0.530	0.577	0.456
2010	0.487	0.510	0.590	0.467

Source: Authors' calculations based on ENIGH several years (Encuesta Nacional de Ingreso Gasto de los Hogares/National Household Incomes and Expenditures Survey).

Notes:

a. Total disposable income includes labor and non-labor monetary income (net of direct taxes and contributions to social security), transfers (private and public), and non-monetary income (imputed rent for owner's occupied housing, gifts in kind and own-consumption).

b. Disposable monetary income excludes non-monetary income.

c. Labor income includes incomes from wages, salaries and self-employment. Excludes households whose head reported zero labor income.

Hourly wage refers to individuals 18-65 with valid income and valid hours of work

Data including all households, including zero income

Year	*Gini*			
Year	*Total Disposable Income*	*Disposable Monetary Income*	*Labor Income*	*Hourly wage*
1989	0.535	0.543	0.618	0.448
1992	0.530	0.551	0.641	0.470
1994	0.539	0.563	0.672	0.508
1996	0.525	0.546	0.655	0.492
1998	0.542	0.565	0.650	0.498
2000	0.536	0.545	0.644	0.474
2002	0.505	0.519	0.633	0.468
2004	0.511	0.522	0.601	0.458
2006	0.500	0.511	0.606	0.455
2008	0.511	0.533	0.601	0.456
2010	0.488	0.513	0.615	0.467

Source: Authors' calculations based on ENIGH several years (Encuesta Nacional de Ingreso Gasto de los Hogares/National Household Incomes and Expenditures Survey).

Notes:

a. Total disposable income includes labor and non-labor monetary income (net of direct taxes and contributions to social security), transfers (private and public), and non-monetary income (imputed rent for owner's occupied housing, gifts in kind and own-consumption).

b. Disposable monetary income excludes non-monetary income.

c. Labor income includes incomes from wages, salaries and self-employment.

Hourly wage refers to individuals 18-65 with valid income and valid hours of work

Data for Figure 2

	1994	2000	2004	2006	2010
Labor Income	0.020	-0.005	-0.007	0.004	0.044
Own Businesses	0.005	0.032	0.020	0.022	-0.011
Property Rents	0.006	0.005	0.014	0.008	0.007
Pensions	-0.007	-0.003	0.003	0.003	0.006
Transfers	-0.022	-0.026	-0.013	-0.016	-0.018
	0.00	-0.004	-0.017	-0.022	-0.038
Remittances	-0.008	-0.009	-0.004	-0.013	-0.011

NEW

Labor Income	0.00	-0.02	-0.03	-0.01	0.02
Own Bus.+Rents+Pensions	0.01	0.04	0.04	0.04	0.01
Transfers	-0.01	-0.02	-0.02	-0.03	-0.05
Remittances	-0.01	-0.01	-0.01	-0.01	-0.01

Source: Authors' calculations based on ENIGH, several years.

Note: Income is total current household monetary disposable (after direct taxes, contributions to social security and cash transfers) income in per capita terms. Excludes households whose head reported zero labor income.

Data for Figure 3

ENIGH

Age Group: 18-65

Year	Relative Returns with respect to			Relative Supply with respect to		
	Primary or less			Primary or less		
	Secondary	High School	College	Secondary	High School	College
1989	0.492	0.871	1.254	-1.158	-1.762	-2.663
1992	0.516	0.983	1.424	-1.030	-1.712	-2.525
1994	0.571	1.084	1.639	-0.953	-1.556	-2.439
1996	0.546	1.013	1.533	-0.823	-1.458	-2.341
1998	0.496	1.003	1.594	-0.748	-1.383	-2.211
2000	0.433	0.822	1.516	-0.630	-1.197	-1.849
2002	0.425	0.823	1.408	-0.570	-1.110	-1.793
2004	0.435	0.767	1.334	-0.409	-1.141	-1.523
2005	0.438	0.749	1.300	-0.374	-1.056	-1.460
2006	0.430	0.727	1.338	-0.303	-0.959	-1.420
2008	0.395	0.717	1.367	-0.262	-0.877	-1.403
2010	0.395	0.702	1.345	-0.167	-0.774	-1.173

Notes: Calculations by the authors using ENIGH. Sample restricted to workers 18-65 years old. Panel A plots relative returns of education groups with respect to primary or less. Panel B plots relative supply (in logs) of education groups with respect to primary or less. Primary or less refers to individuals with less than secondary (9 years of schooling), secondary refers to individuals with equal to or more than 9 and less than 12 years of schooling, high school refers to individuals with equal to or more than 12 and less than 16 years of schooling, and college refers to individuals with at least 16 years of schooling. Relative returns are obtained from a regression of log hourly wages against dummies of education groups (excluding primary or less), and controlling for gender and rural dummies, age and age squared, and 5 geographic dummies (Mexico City, Guadalajara, Monterrey, border states, southern states – Chiapas, Oaxaca, Guerrero, Yucatán and Quintana Roo). Relative supply is equal to the log of the ratio of proportion of workers in a specific group over the proportion of workers with primary or less. Panel B includes the relative supply (in logs) of education groups with respect to primary or less. The figure shows that the relative supply of the three categories increased relative to unskilled workers with college-educated workers increasing the most, especially since 1998.

Data for Figure 4

Period 1: 1989-1994
Period 2: 1994-2006
Period 3: 2006-2010

Difference: Difference in log hr wage in that quantile
Explained: Difference in Characteristics
Returns: Difference in returns

quantile	period	Difference	Explained	Returns
1	1	0.0207601	0.158081	-0.1373208
2	1	0.2856221	0.2420113	0.0436108
3	1	0.272858	0.2447061	0.0281518
4	1	0.2709028	0.22492	0.0459828
5	1	0.2796913	0.2856342	-0.0059429
6	1	0.1794332	0.2983315	-0.1188983
7	1	0.1459476	0.2718237	-0.1258761
8	1	0.1210455	0.2572106	-0.136165
9	1	0.1110456	0.2286757	-0.1176301
10	1	0.1424574	0.2165441	-0.0740867
11	1	0.1278761	0.1943402	-0.066464
12	1	0.1426026	0.1864162	-0.0438136
13	1	0.1367987	0.1845535	-0.0477548
14	1	0.1190192	0.1811292	-0.06211
15	1	0.1496434	0.1781494	-0.028506
16	1	0.1244844	0.1747645	-0.0502801
17	1	0.1181895	0.1688582	-0.0506687
18	1	0.1114195	0.1626404	-0.0512209
19	1	0.1077512	0.1591764	-0.0514252
20	1	0.0890481	0.1498661	-0.0608181
21	1	0.0814635	0.1396082	-0.0581447
22	1	0.0573829	0.1355938	-0.0782109
23	1	0.0552739	0.1284308	-0.0731568
24	1	0.0656383	0.1256003	-0.059962
25	1	0.0733021	0.1206414	-0.0473393
26	1	0.0668723	0.1157527	-0.0488804
27	1	0.0849592	0.1117566	-0.0267975
28	1	0.0445741	0.107123	-0.0625489
29	1	0.0500633	0.1046626	-0.0545994
30	1	0.0512266	0.1025581	-0.0513315
31	1	0.0859701	0.1019362	-0.0159661
32	1	0.0783877	0.0983641	-0.0199764
33	1	0.0911642	0.096352	-0.0051878
34	1	0.1010945	0.0944041	0.0066904
35	1	0.1034117	0.0906435	0.0127682
36	1	0.1038986	0.0881427	0.0157559
37	1	0.1049834	0.0875755	0.0174079
38	1	0.0635987	0.0865364	-0.0229377
39	1	0.0754002	0.0842353	-0.0088351
40	1	0.0923261	0.0832251	0.009101
41	1	0.0788517	0.0840397	-0.005188
42	1	0.0879233	0.0840397	0.0038836
43	1	0.1045294	0.0818758	0.0226536
44	1	0.0962388	0.0803432	0.0158956
45	1	0.0910176	0.0798554	0.0111623
46	1	0.1153578	0.0781527	0.0372052
47	1	0.1009276	0.0765842	0.0243434
48	1	0.1069143	0.0769443	0.0299699
49	1	0.111408	0.0767145	0.0346935
50	1	0.1074726	0.0751263	0.0323463
51	1	0.1062239	0.0740665	0.0321574
52	1	0.1237665	0.0734151	0.0503513
53	1	0.1140962	0.0734686	0.0406277
54	1	0.0700285	0.0727454	-0.0027169
55	1	0.0852098	0.0708181	0.0143917
56	1	0.0718837	0.0703656	0.0015182
57	1	0.0759585	0.0703656	0.0055929
58	1	0.0973376	0.0676829	0.0296548
59	1	0.0833967	0.0668709	0.0165258
60	1	0.1090808	0.0667088	0.042372
61	1	0.1138472	0.0665421	0.0473052
62	1	0.0959361	0.0674498	0.0284863
63	1	0.1103934	0.0659229	0.0444704
64	1	0.0928851	0.0654809	0.0274042
65	1	0.0828032	0.0662488	0.0165544
66	1	0.0878737	0.0662488	0.0216249
67	1	0.1241014	0.0626741	0.0614272
68	1	0.1287279	0.0626773	0.0660506
69	1	0.1552591	0.0619649	0.0932942
70	1	0.1578138	0.062772	0.0950418
71	1	0.1233625	0.0639612	0.0594013
72	1	0.1333092	0.0647334	0.0685758
73	1	0.1323684	0.0627455	0.0696229
74	1	0.1285453	0.0634997	0.0650455
75	1	0.1356278	0.0634997	0.072128
76	1	0.1711276	0.0579321	0.1131955

77	1	0.1724741	0.0571514	0.1153227
78	1	0.1807718	0.0557413	0.1250305
79	1	0.1930691	0.054703	0.1383661
80	1	0.1841237	0.0556809	0.1284428
81	1	0.1968545	0.0552239	0.1416306
82	1	0.2287259	0.0542223	0.1745035
83	1	0.2438598	0.0511058	0.192754
84	1	0.2371863	0.0516129	0.1855734
85	1	0.2562898	0.052831	0.2034588
86	1	0.2918756	0.0515816	0.2402941
87	1	0.3079405	0.052061	0.2558794
88	1	0.3044858	0.0521596	0.2523263
89	1	0.3472067	0.0517997	0.295407
90	1	0.3510091	0.052593	0.298416
91	1	0.3943124	0.0492314	0.345081
92	1	0.4025928	0.0503199	0.3522729
93	1	0.4176579	0.0524971	0.3651608
94	1	0.4224696	0.0509244	0.3715453
95	1	0.3904505	0.0529225	0.337528
96	1	0.4774562	0.055755	0.4217012
97	1	0.4854789	0.0633932	0.4220857
98	1	0.4935371	0.0638878	0.4296493
99	1	0.5869712	0.0637424	0.5232288
1	2	0.2640792	0.0171907	0.2468885
2	2	0.1716076	0.0529343	0.1186734
3	2	0.1999345	0.1316048	0.0683297
4	2	0.2338703	0.122936	0.1109343
5	2	0.2542469	0.1311128	0.123134
6	2	0.2749727	0.1481014	0.1268713
7	2	0.2275411	0.1456223	0.0819188
8	2	0.2294901	0.1573101	0.07218
9	2	0.2186141	0.1576906	0.0609236
10	2	0.1942136	0.1587268	0.0354868
11	2	0.2073586	0.1599236	0.0474351
12	2	0.1708757	0.1492191	0.0216565
13	2	0.1643048	0.1489865	0.0153183
14	2	0.154262	0.1449839	0.009278
15	2	0.1088277	0.1324319	-0.0236042
16	2	0.1217194	0.1312596	-0.0095403
17	2	0.1076092	0.1225897	-0.0149805
18	2	0.1142847	0.1197105	-0.0054258
19	2	0.1021255	0.1190693	-0.0169438
20	2	0.1004043	0.1240345	-0.0236302
21	2	0.1018613	0.1233297	-0.0214684
22	2	0.1212738	0.1290794	-0.0078056
23	2	0.1137562	0.1313545	-0.0175983
24	2	0.0992717	0.1320031	-0.0327313
25	2	0.0920256	0.1366982	-0.0446726
26	2	0.0944678	0.1397157	-0.0452478
27	2	0.0718327	0.1377907	-0.065958
28	2	0.1036503	0.1468387	-0.0431885
29	2	0.0955495	0.1490903	-0.0535408
30	2	0.0850333	0.1454636	-0.0604304
31	2	0.081878	0.1451066	-0.0632286
32	2	0.0776518	0.1444134	-0.0667616
33	2	0.0588727	0.1431376	-0.0842649
34	2	0.0470127	0.1428563	-0.0958436
35	2	0.0476884	0.1435878	-0.0958994
36	2	0.0369753	0.1416891	-0.1047138
37	2	0.0365835	0.1416891	-0.1051056
38	2	0.0738854	0.1511648	-0.0772795
39	2	0.0611536	0.1517542	-0.0906006
40	2	0.039122	0.1512799	-0.1121579
41	2	0.0424207	0.1528546	-0.1104339
42	2	0.0287543	0.152241	-0.1234867
43	2	0.0195309	0.1535516	-0.1340207
44	2	0.0288526	0.1553942	-0.1265416
45	2	0.013311	0.1575024	-0.1441914
46	2	0.0102244	0.1585078	-0.1482834
47	2	0.0267726	0.1611523	-0.1343798
48	2	0.0176756	0.1628129	-0.1451373
49	2	-0.0042763	0.163331	-0.1676073
50	2	-0.0246502	0.1662765	-0.1909267
51	2	-0.0278205	0.1677307	-0.1955512
52	2	-0.0250912	0.1677307	-0.192822
53	2	-0.0285634	0.1677307	-0.1962941
54	2	0.0009379	0.1776869	-0.176749
55	2	-0.0074092	0.1827862	-0.1901954
56	2	-0.0008421	0.1839001	-0.1847422
57	2	-0.0232912	0.1903344	-0.2136256
58	2	-0.0167882	0.1945414	-0.2113296

59	2	-0.009734	0.2010505	-0.2107845
60	2	-0.0372644	0.2096025	-0.2468669
61	2	-0.0420423	0.2107755	-0.2528178
62	2	-0.0268198	0.2166936	-0.2435134
63	2	-0.0443845	0.2233026	-0.2676871
64	2	-0.0305315	0.2272702	-0.2578017
65	2	-0.0437355	0.2369847	-0.2807201
66	2	-0.0472943	0.2446561	-0.2919504
67	2	-0.0482543	0.2498207	-0.298075
68	2	-0.0554416	0.2579276	-0.3133691
69	2	-0.0717233	0.2698692	-0.3415925
70	2	-0.0729437	0.2698692	-0.3428129
71	2	-0.0595689	0.2726994	-0.3322683
72	2	-0.0771593	0.2798114	-0.3569707
73	2	-0.0824553	0.2819592	-0.3644145
74	2	-0.0921352	0.2866752	-0.3788104
75	2	-0.0981927	0.2873458	-0.3855385
76	2	-0.1003075	0.2905411	-0.3908485
77	2	-0.0974743	0.2970381	-0.3945124
78	2	-0.0988882	0.301303	-0.4001912
79	2	-0.1207563	0.3068821	-0.4276385
80	2	-0.1099857	0.3053882	-0.4153739
81	2	-0.1184686	0.3119563	-0.4304249
82	2	-0.1440091	0.3269013	-0.4709104
83	2	-0.134555	0.3402402	-0.4747951
84	2	-0.1271635	0.3420957	-0.4692592
85	2	-0.1484017	0.3538793	-0.5022811
86	2	-0.1497151	0.3621623	-0.5118774
87	2	-0.17815	0.3645692	-0.5427191
88	2	-0.1715564	0.3550534	-0.5266098
89	2	-0.196762	0.3605794	-0.5573415
90	2	-0.1903259	0.34221	-0.5325359
91	2	-0.2194967	0.3259751	-0.5454718
92	2	-0.1983565	0.3005746	-0.4989311
93	2	-0.2018273	0.2874822	-0.4893095
94	2	-0.1874057	0.2731282	-0.4605339
95	2	-0.1548216	0.2792949	-0.4341165
96	2	-0.2139734	0.3153204	-0.5292939
97	2	-0.1988389	0.2869402	-0.4857791
98	2	-0.2171365	0.2757656	-0.4929021
99	2	-0.3104939	0.2877338	-0.5982278
1	3	0.1057116	0.0674893	0.0382222
2	3	-0.0088016	0.0714417	-0.0802433
3	3	-0.112125	0.0602449	-0.1723699
4	3	-0.1838924	0.0677055	-0.2515979
5	3	-0.1953192	0.0599869	-0.255306
6	3	-0.1974867	0.0522317	-0.2497184
7	3	-0.1421447	0.0620628	-0.2042075
8	3	-0.1427313	0.0635856	-0.2063169
9	3	-0.1459547	0.0602263	-0.206181
10	3	-0.1719683	0.0543705	-0.2263387
11	3	-0.1652198	0.0477822	-0.213002
12	3	-0.1604326	0.0426229	-0.2030556
13	3	-0.1367666	0.0396658	-0.1764324
14	3	-0.109979	0.0388216	-0.1488006
15	3	-0.111011	0.0390426	-0.1500536
16	3	-0.1036231	0.0385751	-0.1421982
17	3	-0.0903792	0.0392133	-0.1295925
18	3	-0.0742978	0.0393468	-0.1136446
19	3	-0.072406	0.03962	-0.1120261
20	3	-0.0815916	0.0397601	-0.1213517
21	3	-0.0856417	0.0386979	-0.1243396
22	3	-0.0752083	0.0396067	-0.114815
23	3	-0.0732036	0.0385075	-0.1117111
24	3	-0.0554749	0.0382885	-0.0937635
25	3	-0.0536974	0.038035	-0.0917324
26	3	-0.0640866	0.0372185	-0.1013051
27	3	-0.0797371	0.0369787	-0.1167157
28	3	-0.0694388	0.0368574	-0.1062962
29	3	-0.0631243	0.0366251	-0.0997495
30	3	-0.0697088	0.0368178	-0.1065265
31	3	-0.0673289	0.0364945	-0.1038234
32	3	-0.0644705	0.0359466	-0.1004171
33	3	-0.0523732	0.0359074	-0.0882806
34	3	-0.0584052	0.035017	-0.0934222
35	3	-0.0611906	0.034589	-0.0957797
36	3	-0.0622373	0.0343608	-0.0965981
37	3	-0.0670383	0.0341918	-0.1012301
38	3	-0.0667542	0.0343073	-0.1010615
39	3	-0.0635058	0.0343642	-0.09787
40	3	-0.0521627	0.0350065	-0.0871692

41	3	-0.0542966	0.035398	-0.0896947
42	3	-0.0584659	0.0356728	-0.0941387
43	3	-0.0486785	0.0357679	-0.0844465
44	3	-0.0530728	0.0358294	-0.0889022
45	3	-0.0396423	0.0364346	-0.0760769
46	3	-0.0440544	0.036757	-0.0808114
47	3	-0.0465325	0.0373658	-0.0838983
48	3	-0.0549577	0.0380147	-0.0929723
49	3	-0.0372262	0.0384966	-0.0757228
50	3	-0.0114294	0.0390742	-0.0505037
51	3	-0.0189929	0.0400564	-0.0590493
52	3	-0.0268518	0.0406796	-0.0675314
53	3	-0.0204197	0.0416058	-0.0620255
54	3	-0.0240875	0.0425188	-0.0666064
55	3	-0.0299827	0.0439081	-0.0738908
56	3	-0.0365729	0.0444042	-0.0809771
57	3	-0.0184781	0.045355	-0.0638331
58	3	-0.0298334	0.0469427	-0.0767761
59	3	-0.0326975	0.0480454	-0.0807429
60	3	-0.0280764	0.0487179	-0.0767943
61	3	-0.0301263	0.0504256	-0.0805518
62	3	-0.0218792	0.0509292	-0.0728084
63	3	-0.0160743	0.0508629	-0.0669372
64	3	-0.026079	0.0535025	-0.0795815
65	3	-0.0161305	0.0556031	-0.0717336
66	3	-0.0248259	0.0570636	-0.0818895
67	3	-0.0257058	0.0591982	-0.084904
68	3	-0.0309715	0.060848	-0.0918195
69	3	-0.0441003	0.0619624	-0.1060627
70	3	-0.0467898	0.0630348	-0.1098246
71	3	-0.0312766	0.0631206	-0.0943972
72	3	-0.0223138	0.0639333	-0.0862471
73	3	-0.0181146	0.0649651	-0.0830797
74	3	-0.0257461	0.0666002	-0.0923463
75	3	-0.0256813	0.0675891	-0.0932705
76	3	-0.0288345	0.0685186	-0.0973531
77	3	-0.032449	0.0695502	-0.1019991
78	3	-0.0311699	0.0700477	-0.1012176
79	3	-0.017557	0.0699004	-0.0874574
80	3	-0.0094931	0.0710154	-0.0805086
81	3	-0.0094786	0.0728603	-0.0823389
82	3	-0.0042167	0.0758944	-0.0801111
83	3	-0.0090145	0.078754	-0.0877685
84	3	-0.0142819	0.0817496	-0.0960315
85	3	-0.0099459	0.0831107	-0.0930566
86	3	-0.0177862	0.0863717	-0.1041579
87	3	-0.0010051	0.0858153	-0.0868204
88	3	0.0033047	0.0884804	-0.0851757
89	3	-0.0141603	0.0924215	-0.1065818
90	3	-0.0199372	0.0923342	-0.1122714
91	3	0.000876	0.0912133	-0.0903373
92	3	-0.0238185	0.0939056	-0.1177241
93	3	-0.0228495	0.0938865	-0.116736
94	3	-0.0059179	0.0939448	-0.0998626
95	3	-0.036988	0.0919631	-0.1289511
96	3	-0.0278306	0.0866401	-0.1144707
97	3	-0.0522679	0.0842135	-0.1364814
98	3	-0.0471608	0.0781244	-0.1252852
99	3	-0.0228356	0.094263	-0.1170986

Source: Calculations by the authors using ENIGH.

Notes: *Total differential* is the total change in hourly wages (in logs); *Effects of Characteristics* and *Effects of Returns* are the portions that one can ascribe to changes in characteristics (years of schooling and experience) and returns (to those characteristics), respectively.

The reference distribution in each panel is the initial year. The results are obtained using the ado-file rifreg provided by N. Fortin (http://faculty.arts.ubc.ca/nfortin/datahead.html) for each quantile.

Data for Figure 5

Age Group: 18-65

High School or more vs. Secondary or less

Year	Relative returns	Relative supply
1989	0.841	-1.573
1992	0.964	-1.556
1994	1.085	-1.462
1996	0.979	-1.372
1998	1.016	-1.374
2000	0.927	-1.195
2002	0.856	-1.146
2004	0.817	-1.094
2005	0.781	-1.019
2006	0.777	-0.988
2008	0.795	-0.917
2010	0.794	-0.835

Notes: Calculations by the authors using ENIGH. Sample restricted to workers 18-65 years old. Relative returns are obtained from a regression of log hourly wages against a dummy of high school or college education, and controlling for gender and rural dummies, age and age squared, and 5 geographic dummies (Mexico City, Guadalajara, Monterrey, border states, southern states –Chiapas, Oaxaca, Guerrero, Yucatán and Quintana Roo). Relative supply is equal to the log of the ratio of proportion of workers with high school or college over the proportion of workers with secondary or less.

Data for Figure 6.A

Real Minimum Wage Index, (December 2010=100)

Year	January	February	March	April	May	June	July	August	September	October	November	December
1988	200.492	185.055	181.340	175.930	172.588	169.143	166.361	164.844	163.911	162.677	160.526	157.238
1989	165.768	163.553	161.807	159.420	157.249	155.361	163.108	161.566	160.030	157.699	155.513	165.526
1990	157.906	154.408	151.729	149.462	146.896	143.733	141.157	138.793	136.838	134.898	155.106	150.362
1991	146.627	144.111	142.084	140.613	139.255	137.807	136.596	135.656	134.314	132.771	145.139	141.803
1992	139.269	137.636	136.254	135.050	134.166	133.264	132.425	131.619	130.485	129.552	128.484	126.677
1993	135.214	134.116	133.340	132.578	131.825	131.085	130.459	129.764	128.812	128.285	127.724	126.758
1994	134.548	133.857	133.173	132.525	131.888	131.229	130.652	130.042	129.125	128.452	127.768	126.660
1995	130.627	125.316	118.339	122.728	117.806	114.181	111.900	110.073	107.842	105.669	103.126	109.954
1996	106.140	103.719	101.484	110.619	108.638	106.898	105.401	104.018	102.380	101.118	99.609	113.524
1997	110.677	108.850	107.511	106.362	105.400	104.472	103.571	102.658	101.395	100.590	99.479	98.104
1998	110.594	108.692	107.434	106.438	105.596	104.363	103.366	102.382	100.748	99.325	97.596	108.614
1999	105.939	104.534	103.572	102.631	102.017	101.351	100.685	100.121	99.164	98.539	97.671	96.702
2000	105.020	104.097	103.523	102.937	102.553	101.949	101.554	100.998	100.266	99.581	98.736	97.679
2001	103.917	103.985	103.330	102.813	102.577	102.334	102.601	101.997	101.056	100.601	100.224	100.086
2002	104.898	104.965	104.431	103.864	103.654	103.151	102.856	102.466	101.853	101.406	100.593	100.157
2003	104.247	103.958	103.306	103.130	103.464	103.378	103.229	102.920	102.311	101.937	101.098	100.665
2004	104.300	103.680	103.330	103.174	103.433	103.268	102.998	102.366	101.527	100.828	99.975	99.769
2005	104.245	103.899	103.433	103.066	103.325	103.425	103.021	102.899	102.488	102.237	101.506	100.887
2006	104.310	104.151	104.021	103.868	104.333	104.243	103.958	103.430	102.396	101.950	101.418	100.835
2007	104.217	103.927	103.702	103.764	104.273	104.148	103.707	103.287	102.491	102.093	101.378	100.960
2008	104.524	104.214	103.465	103.230	103.341	102.915	102.345	101.757	101.069	100.385	99.256	98.574
2009	102.892	102.665	102.078	101.722	102.019	101.831	101.555	101.312	100.807	100.503	99.984	99.572
2010	103.279	102.685	101.961	102.287	102.936	102.968	102.745	102.460	101.926	101.301	100.495	100.000

Los datos fueron estimados utilizando información de la Comisión Nacional de los Salarios Mínimos

Notes: Real Minimum Wage Index is obtained from Comisión Nacional de Salarios Mínimos (http://www.conasami.gob.mx/)

Data for Figure 6.B

ENIGH
Age Group: 18-65

Year	Uniozation Rate
1989	0.193
1992	0.156
1994	0.129
1996	0.114
1998	0.112
2000	0.117
2002	0.112
2004	0.124
2005	0.120
2006	0.106

ENOE
Age Group: 18-65

Year	Uniozation Rate
2005	0.113
2006	0.114
2007	0.113
2008	0.109
2009	0.106
2010	0.101

Note: unionization rate is obtained from two different surveys. ENIGH provides union information up to 2006. ENOE (*Encuesta Nacional de Ocupación y Empleo*) provides union information for the period 2005-2010.