

# **Labor market institutions and the distribution of wages in Latin America. The role of Minimum Wage**

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## **Abstract**

During the 2000s the purchasing power of the minimum wage (MW) increased in developing countries, a process that helped strengthen the role of this labor institution as a wage policy instrument (ILO, 2009). In Latin America, this positive trend was observed in several countries representing a considerable improvement on the situation in the 1990s. At the same time, many Latin American countries (LACs) experienced a decline in wage inequality. The aims of this document is to analyze the evolution of the MW in this region during the 2000s and to assess whether -and to what extent- it has contributed to the reduction in wage dispersion, in particular, in Argentina, Brazil, Chile and Uruguay.

### ***1. The role of Minimum Wage: theoretical arguments***

One of the most controversial aspects of the MW concerns the effect it can have on employment demand. According to the standard model of competitive labor market, fixing the MW above the equilibrium wage will result in reduced employment, adversely affecting those workers to whom the minimum wage applies. The extent of the reduction in employment will depend positively on the price elasticity of demand.

However, alternative conceptual frameworks exist, such as monopsonistic market models or the efficiency wage theory, which present the relationship between labor institutions and their effects on the labor market in a different way. Specifically, under the monopsonistic market model, wages determined from the equilibrium between employment supply and demand are lower than the marginal labor productivity; an increase in the value of the minimum wage does not, therefore, necessarily lead to reduced employment: the effect can be neutral, or even positive. Dickens, Machin and Manning (1999) and Manning (2003) argue that it is not difficult to construct reasonable theoretical models of the labor market where employers have some monopsony power in both the short and the long run. The authors claim that the source of the monopsony power of employers, in turn, comes from the important frictions in the labor market (associated with mobility costs and asymmetric information). In this context employers have a market power over their employees and then exercise this power setting a wage below the competitive equilibrium wage.

Under the efficiency wage theory, in turn, a growth in the minimum wage could increase labor productivity and thereby also employment. According to Eyraud and Saget (2008) various factors could reduce any potential negative effects of the minimum wage on employment or even reverse them: “On the supply side, the possibility that most employers have to compensate for higher labor costs by slight changes in work organization leading to productivity gains is crucial. On the demand side, raising the income of those workers with a low propensity to save has a positive effect on

consumption levels” (Eyraud and Saget, 2008, p. 116). Therefore, the impact of this labor market institution on labor demand is an empirical matter.

Regarding the distribution effects of the minimum wage, it will depend, among other things, on whether the minimum wage affects only the lower tail of the distribution or the entire distribution, whether it covers only formal workers or also informal workers, and whether negative effects on employment are observed or not.

The basic idea is that those workers initially earning less than the minimum wage will, if the minimum wage is binding, see their wages raised to exactly the level of this institution, thereby resulting in wage compression (“censoring” effect hypothesis). However, this effect on wage inequality could be weaker if the MW acts as a *numeraire*, i.e. if wages are determined as multiples of the minimum wage, which would mean that increases in the minimum wage would have proportional effects throughout the entire wage distribution. However, as long as these “spillover” effects gradually diminish, the positive effects could get stronger.

If the minimum wage has potentially negative effects on employment, those salaried workers earning less than the minimum wage may be less likely to remain employed when the minimum wage increases. The loss of low paying jobs would also make the distribution more equal (“truncation” effect hypothesis), although this is not what one usually means by positively influencing the wage distribution.

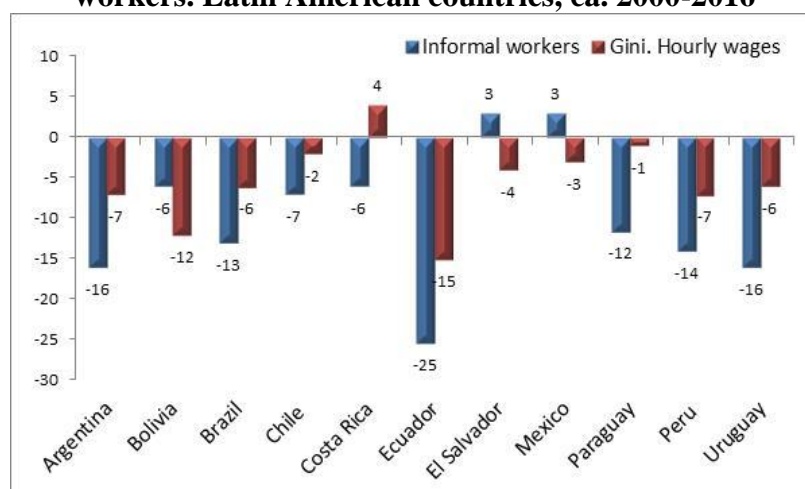
Finally, in a labor market composed of formal and informal workers and where the minimum wage affects only formal workers, the increase in its value would lead to wage compression for this group but at the same time it could widen the wage gap between formal and informal workers with *-a priori-* ambiguous net results. However, if the effects of this institution extend to the informal workers, as shown for several LACs (Neri, Gonzaga and Camargo, 2000; Fajnzylber, 2001; Lemos, 2009), the results could have a more equalizing effect, since these workers are generally located in the bottom tail of the wage distribution.

## ***2. Evolution of wage inequality and minimum wage in Latin America in the new millennium***

Although a high level of inequality still characterizes Latin America, during the 2000s several countries in the region showed positive trends in wage distribution, that sharply contrast with those observed in the 1990s and also with those currently seen in other regions of the world (Amarante et al. 2014; Beccaria, Maurizio and Vazquez, 2014; ECLAC, 2014; Cornia, 2014; Keifman and Maurizio, 2014; Lopez Calva and Lustig, 2010).

As it can be seen in Graph 1, the Gini coefficient of hourly wages fell in all LACs with the only exception of Costa Rica. Argentina, Bolivia, Brazil, Ecuador, Peru and Uruguay stand out regarding these positive dynamics.

**Graph 1**  
**Change in the Gini coefficient of hourly wage and the percentage of informal workers. Latin American countries, ca. 2000-2016**



Source: Own elaboration based on Household Surveys

In all the cases, labor market incomes have been a major contributor to the important fall in family income inequality in the region. Table 1 presents the results of the decomposition of the variation of the Gini index of per capita family by different income sources, making a distinction between labor market incomes, pensions, government transfers (where cash transfers to households with children are the most important in this group) and other sources of monetary income. Furthermore, given the importance of the occupational category (namely, formal and informal wage earners and nonwage earners) for the structure of employment and labor incomes in the region, the labor source was subdivided accordingly.

Changes in labor income are in all cases the single most important factor, explaining from 56% of the fall in inequality in Brazil and up to 73% in Peru. On the other hand, government transfers (mainly conditional cash transfers) explain between 20-30% of the changes in Mexico and Chile. In turn, pensions have significant explanatory power (about 20%) in Argentina, Brazil and Uruguay. This is related to the extension of pension coverage to the elderly carried out through contributive and non-contributive pillars in these countries.

**Table 1**  
**Decompositions of the variations in Gini index by sources of income**  
**Latin American countries**

	ARGENTINA 2003-2015	BRAZIL 2001-2014	CHILE 2000-2009	ECUADOR 2005-2015	MEXICO 2000-2008	PARAGUAY 2002-2014	PERU 2004-2015	URUGUAY 2006-2015
<b>Income sources</b>								
<b>Labour income</b>	<b>60%</b>	<b>56%</b>	<b>68%</b>	<b>64%</b>	<b>60%</b>	<b>91%</b>	<b>73%</b>	<b>68%</b>
Registered wage earning jobs	38%	37%	50%	23%	18%	16%	38%	39%
Non- registered wage earning jobs	2%	1%	-5%	11%	71%	32%	25%	-10%
Non-wage earning jobs	20%	18%	24%	30%	-29%	42%	10%	38%
<b>Pensions</b>	<b>21%</b>	<b>21%</b>	<b>8%</b>	<b>10%</b>	<b>1%</b>	<b>4%</b>	<b>10%</b>	<b>23%</b>
Public cash transfers	9%	10%	23%	6%	26%	7%	1%	1%
Other non-labour incomes	11%	14%	23%	25%	13%	-2%	16%	8%
<b>Variation in Gini Index (in pp)</b>	<b>-10.6</b>	<b>-7.7</b>	<b>-3.8</b>	<b>-8.0</b>	<b>-1.9</b>	<b>-13.6</b>	<b>-9.8</b>	<b>-5.7</b>

Source: Own elaboration based on Household Surveys

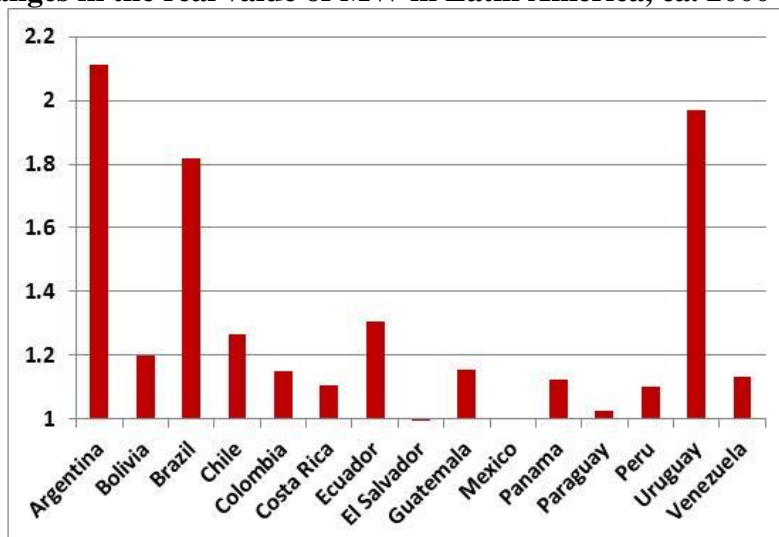
At the same time, the contribution of wages from a formal job to reducing inequality in countries such as Argentina, Brazil, Chile Peru and Uruguay has been very important. This is associated with the formalization process verified in these countries during the 2000s, as shown in Graph 1 (Amarante and Arim, 2015; Bertranou et al. 2013; Maurizio,

2015). In contrast, incomes from informal occupations explain most of what happened to labor incomes in México, a fact related to the continued growth of informality.

These results are consistent with studies carried out by ECLAC (2010a, 2010b) which associate the improvements in income distribution during the last fifteen years mostly with the positive dynamics of the labor market and to a lesser extent to the cash transfers received by households and to demographic changes such as reduced dependency ratio. Also, the relative importance of the labor market in reducing inequality and poverty is explained, although with different intensity depending on the country, both by increases in labor income and growth in employment levels.

Regarding labor market, the decline in wage inequality was accompanied, in turn, by the rise in the real value of the minimum wage in a large number of countries in the region, albeit with varying degrees of intensity (Graph 2). The rise was especially strong in Argentina, Brazil and Uruguay and, to a lesser extent, in Chile. That is why these countries are analyzed in more detail in Section 4.

**Graph 2**  
**Changes in the real value of MW in Latin America, ca. 2000-2016**



Source: Own elaboration based on Household Surveys

Nowadays, minimum wage is a labor institution present in all LACs although with diversity of goals, wage setting mechanisms and interactions with collective bargaining (ILO, 2008; Keifman and Maurizio, 2014; Marinakis and Velasco, 2006).

### ***3. The distribution impacts of minimum wage. A review of the empirical literature for Latin American countries***

There are few studies on the distribution impacts of the recent evolution of MW in LA countries. Empirical results for developed countries may not fully useful for developing countries due to the presence of high level of informality, the low compliance with labor institutions and low enforcement capacity, the lighthouse and spill-over effects and the use of MW as a reference for social benefits.

In the following box there is a review of the empirical literature for Latin American countries. The evidence suggests that MW has a more positive effect on wages of

workers at the bottom than the top tail of the wage distribution, implying an equality-enhancing role. However, it also has impacts beyond those usually observed in the advanced countries: some lighthouse and spill-over effects appear.

### Empirical results on the distributive effects of MW in LACs

COUNTRY	STUDY	RESULTS
<i>Brazil</i>	Lemos (2009)	MW causes a strong wage compression for both the formal and informal sectors.
	Neri et al. (2000)	Two “informal effects” of the MW: 1. High % of informal workers receiving one MW. 2. The use of the MW as a numeraire, especially in the formal sector.
	Fajnzylber (2001)	Spill-over effects
<i>Argentina and Brazil</i>	Keifman and Maurizio (2012)	Equalizing effects in Argentina and Brazil.
<i>Argentina, Brazil, Chile and Uruguay</i>	Maurizio and Vázquez (2016)	Equalizing effects in Argentina, Brazil and Uruguay.
<i>Mexico</i>	Bosch and Manacorda (2010)	The fall of the MW between 1989-2001 was the main cause of the increase in inequality at the bottom end of the distribution.
<i>Costa Rica</i>	Gindling and Terrell (2004)	No “lighthouse” effect. The increase in MW only increases the wages in the urban formal sector but do not have an impact on wages in the uncovered sector.
	Gindling et al. (2013)	In 2010 the government implemented a program to increase compliance with MW. It generated increases in wages of women, young and less skilled workers.
<i>Uruguay</i>	Amarante et al. (2009)	Equalizing effects of the increase of MW between 2004 and 2006.
<i>Nicaragua</i>	Alaniz et al. (2011)	Neither spill-over nor “lighthouse” effects. Increases in MW only lead to significant increases in the wages of private covered sector workers who have wages within 20% of the MW before the change. Increases in MW increase the probability that a poor worker’s family will move out of poverty.
<i>Developing countries including Brazil and Mexico</i>	Rani and Ranjbar (2015)	Stronger effect in the informal than formal sector. Positive effects but at a declining rate throughout the wage distribution.
<i>Latin American countries</i>	Maloney and Nunez (2003)	Numeraire effects in the formal sector and lighthouse effects in the informal sector.
<i>19 Latin American and Caribbean countries</i>	Kristensen and Cunningham (2007)	Equalizing impacts of minimum wages on formal and informal wage distribution in several countries. MW has impacts throughout the wage distribution.

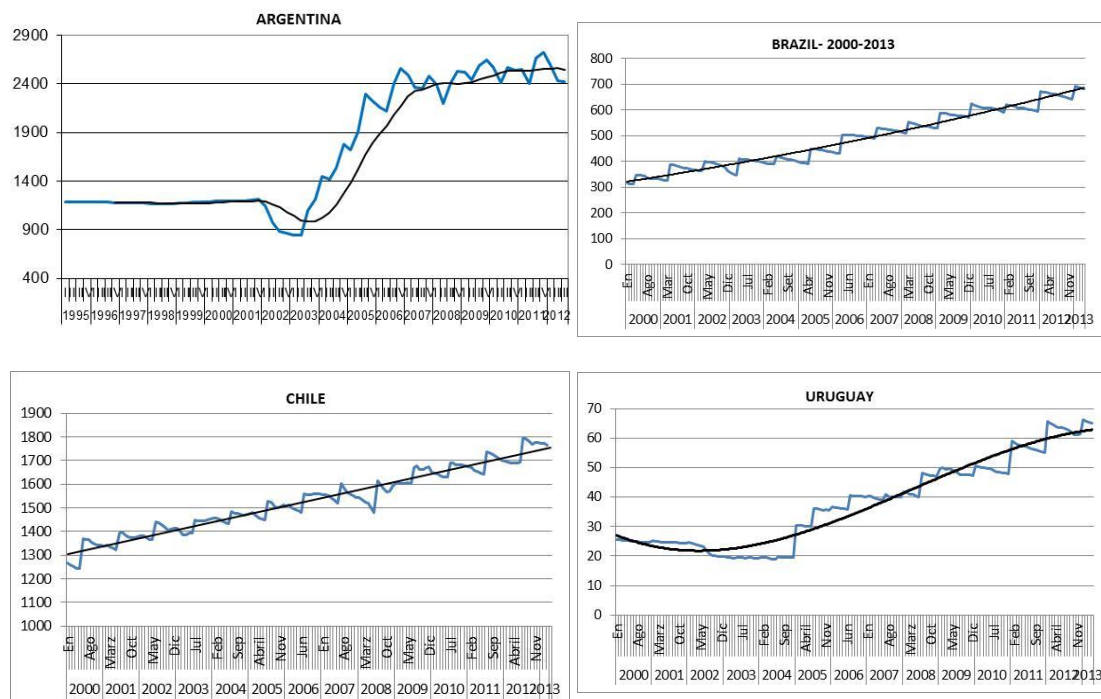
## 4. The cases of Argentina, Brazil, Chile and Uruguay

### 4.1 Evolution of the real value of minimum wage

The evolution of the minimum wage in these four countries during the 2000s is presented in Graph 3. In Argentina, the minimum wage remained at a low nominal and real value from 1993 (200 Argentine pesos, equivalent to US\$200). However, from 2003 onwards intense policies were implemented to adjust the nominal value of the minimum wage, resulting in a 200% increase in its real value by 2012. However, this positive trend began to tail off from 2007, when rising inflation reduced the purchasing power of the minimum wage.

In the case of Brazil, the rise in the value of the minimum wage began earlier than in Argentina, in the mid-1990s. However, in the 2000s this process intensified, with the value of the minimum wage doubling in real terms.

**Graph 3**  
**Evolution of real MW in Argentina, Brazil, Chile and Uruguay**



Source: Own elaboration based on Household Surveys

After the decline in purchasing power of the minimum wage in Chile over much of the 1980s, this then grew steadily in the late 1980s and early 1990s, albeit with less intensity than in Argentina and Brazil. In the 2000s there was an increase of about 40% in real terms.

Finally, Uruguay was the last country to start the process of strengthening the minimum wage. The minimum wage experienced considerable loss in purchasing power over a long period: in 2004 the minimum wage stood at only 25% of its 1969 value, i.e. when it was launched. In 2005 this trend started to reverse, allowing the minimum wage to increase its purchasing power by about 200%, between 2005 and 2015.

#### 4.2 Relationship between the minimum wage and the wage distribution

Different measures of distribution indicators can be used to have a preliminary idea of the possible distribution effects of the MW. Table 2 shows the minimum wage/average wage ratio, the minimum wage/median wage ratio (or Kaitz index), and the ratio of the minimum wage to the tenth wage distribution percentile.

**Table 2**  
**Relationship between minimum wage and wage distribution**

		MW/MEAN	MW/MEDIAN	MW/P10
<b>ARGENTINA</b>	2003	0.33	0.40	0.80
	2015	0.48	0.52	1.14
<b>BRAZIL</b>	2003	0.38	0.59	1.00
	2015	0.44	0.60	1.00
<b>CHILE</b>	2000	0.35	0.49	0.93
	2015	0.38	0.55	0.82
<b>URUGUAY</b>	2004	0.15	0.22	0.54
	2015	0.33	0.43	0.77

Source: Own elaboration based on Household Surveys

In all cases, the ratios expressed by these indicators increased over the period in question. In Argentina, the Kaitz index was 0.4 in 2003, rising to 0.52 in 2015, while the minimum wage/average wage ratio increased by 15 percentage points (p.p), from 33% to 48%. These significant increases are explained, at least in part, by the very low value of the minimum wage at the beginning of the period considered. In Brazil, the minimum wage/average wage ratio increased by 6 p.p while the minimum wage/median wage ratio remained nearly constant. In 2014 these ratios were 0.44 and 0.6, respectively.

In Chile, the minimum wage/average wage ratio and the minimum wage/median wage ratio increased by 3 and 6 p.p, respectively. However, when compared to the tenth wage distribution percentile, the picture changes since it decreased from 93 to 82%. In Uruguay, owing partly to the very low initial value of the minimum wage, between 2004 and 2015 the minimum wage/average wage ratio increased by 18 p.p while the minimum wage/median wage ratio increased by 11 p.p ( from 22% to 43%). Even more significant was the increase in the value of the minimum wage in relation to the lowest wage distribution percentile: the minimum wage/tenth percentile ratio increased by 23 p.p.

Finally, in the four countries the minimum wage/median wage ratio is similar to that recorded in developed countries, where the Kaitz index is between 40 and 60 per cent (ILO, 2013). Furthermore, the growth trend of the minimum wage during the 2000s has made it potentially more “effective” in all countries. However, for the minimum wage to fulfil its role in practice, actual compliance also needs to be ensured. Accordingly, minimum wage compliance is analyzed for the four countries studied.

#### 4.3 Compliance with the minimum wage

Table 3 shows the distribution of full-time wage employment in the 2000s, by wage level compared to the minimum wage, differentiating between formal and informal employees. While there are fluctuations in all four countries, there was an increase in the percentage of employees directly benefiting from the minimum wage, i.e. whose pay is equal to the minimum wage. This greater level of compliance with the minimum wage, together with its growth in real terms, reinforces the effects of this mechanism on the labor market.

Some 6% of employees in Argentina earned less than the legal minimum wage in 2012 and around 7% earned the minimum wage. This means that the remaining 87% earned more than the minimum wage. As expected, the situation varied according to whether employees had social security registration or not. For registered (i.e. formal) employees, 1.4% of them earned less than the minimum wage; for non-registered (i.e. informal) employees, this figure was 19%. The percentage of formal employees earning around the minimum wage was very low (3%) while this was the case for 20% of informal employees. This means that in 2012, 96% of formal employees earned more than the legal minimum wage. This figure had been almost 100% in 2003 owing to the very low value of the minimum wage, meaning that it was not “effective” in the sense defined earlier.

In Brazil, compliance with minimum wage laws appears to be higher than in the other three countries; in 2011 only 1.8% of wage employees earned less than the minimum wage, while 9.6% earned the minimum wage and approximately 89% earned more than the minimum wage. While, as is expected, compliance is universal among formal employees, the percentage of informal employees earning less than the minimum wage is also very small, only 10%. As in Argentina, the proportion of workers earning the minimum wage is higher among informal employees (18%) than formal employees (8%). This “lighthouse effect” was already been identified by Neri, Gonzaga and Camargo (2000) and Lemos (2009), among others.

In Chile, close to 4% of employees in 2011 earned less than the statutory minimum, while a similar percentage earned the minimum wage. Along with Brazil, Chile recorded the lowest percentage of informal employees earning less than the minimum wage. However, in Chile, unlike in Brazil, the percentage of informal employees earning the minimum wage is very low (about 8%).

Lastly, of the four countries, Uruguay has, in 2012, the highest percentage of employees earning more than the minimum wage (95%), while only 3% earn less than the minimum wage. This reflects the fact that nearly all formal employees earn more than the minimum wage. However, when it comes to informal employees, 20% earn less than the minimum wage, similar to the proportion in Argentina, but double that of Brazil. Therefore, differences between the four countries regarding the distribution of full-time employees, in terms of their wages in relation to the minimum wage, is largely explained by the situation of informal employees, as the share of formal employees earning no more than the minimum wage is similar in all four cases.



**Table 3**  
**Compliance with the minimum wage**

Year	Total wage employees			Formal wage employees			Informal wage employees		
	Below the minimum wage	Equal to the minimum wage	Above the minimum wage	Below the minimum wage	Equal to the minimum wage	Above the minimum wage	Below the minimum wage	Equal to the minimum wage	Above the minimum wage
<b>Argentina</b>									
2003	5.5	2.5	92.1	0.5	0.8	98.7	16.3	6.1	77.6
2004	12.0	9.0	79.0	1.8	5.3	92.9	32.8	16.5	50.7
2005	14.6	7.4	78.0	3.8	4.6	91.6	39.0	13.6	47.4
2006	13.5	11.1	75.4	3.2	7.1	89.7	36.5	19.8	43.7
2007	15.7	7.5	76.8	4.5	5.1	90.5	42.7	13.2	44.1
2008	15.1	7.8	77.1	5.0	5.8	89.2	41.6	13.2	45.2
2009	12.9	8.0	79.1	3.5	5.4	91.1	40.0	15.7	44.3
2010	11.5	8.3	80.2	3.3	5.0	91.7	34.1	17.4	48.5
2011	12.1	10.2	77.7	3.4	6.3	90.3	37.1	21.2	41.7
2012	6.1	7.4	86.5	1.4	2.7	95.9	19.2	20.4	60.4
<b>Brazil</b>									
2003	2.1	10.1	87.8	0.2	6.3	93.5	7.6	21.2	71.1
2004	3.5	9.7	86.9	0.3	6.6	93.1	12.4	18.4	69.2
2005	2.8	12.8	84.4	0.3	8.2	91.6	10.6	26.5	63.0
2006	2.9	12.0	85.2	0.2	8.3	91.5	11.5	23.7	64.8
2007	3.1	9.7	87.2	0.2	7.5	92.4	13.7	17.6	68.7
2008	2.3	11.5	86.2	0.1	8.8	91.1	10.9	22.3	66.8
2009	2.3	11.8	85.9	0.1	9.4	90.5	11.0	21.5	67.4
2010	2.3	11.7	86.0	0.1	9.7	90.2	12.2	20.9	66.9
2011	1.8	9.6	88.6	0.1	7.9	91.9	10.4	18.0	71.7
<b>Chile</b>									
2000	4.4	7.0	88.7	2.6	5.7	91.7	15.5	15.2	69.3
2003	6.2	6.2	87.7	3.1	5.2	91.7	25.0	11.7	63.3
2006	4.7	9.6	85.7	3.2	8.4	88.4	16.0	18.3	65.7
2009	3.5	3.4	93.1	2.1	3.0	95.0	11.4	5.9	82.8
2011	3.6	4.1	92.3	2.2	3.6	94.2	15.1	8.2	76.6
<b>Uruguay</b>									
2004	0.3	0.3	99.4	0.0	0.0	100.0	3.5	3.1	93.4
2005	2.5	2.4	95.1	1.1	1.5	97.5	11.4	7.9	80.7
2006	5.3	3.9	90.8	2.3	2.7	95.0	21.3	10.2	68.5
2007	3.0	2.0	95.0	1.7	1.3	97.0	13.6	8.1	78.3
2008	4.2	2.9	92.9	2.5	2.5	95.0	21.3	6.3	72.4
2009	2.5	2.5	95.0	1.5	1.8	96.7	16.3	11.4	72.3
2010	2.4	1.9	95.8	1.5	1.4	97.1	15.4	9.0	75.7
2011	2.4	1.9	95.8	1.6	1.6	96.8	16.6	7.4	76.0
2012	2.9	2.0	95.1	1.8	1.5	96.7	19.9	9.9	70.3

Source: Authors' calculations, based on data from household surveys.

Source: Own elaboration based on Household Surveys

#### 4.4 Econometric results

To analyze the distribution effects of changes in the minimum wage, the semiparametric estimation method proposed by DiNardo, Fortin and Lemieux (1996) was used. We estimate counterfactual density functions to assess how the wage distribution would have been at the initial point in time (date  $t = 0$ ) if, keeping individual attributes constant, the real minimum wage had been that of the final point in time (date  $t = 1$ ). On the basis of this new counterfactual wage distribution, different measures of distribution – or inequality indicators – are estimated, such as the Gini index, the Theil index and the relationship between percentiles. In this way, since we evaluate only changes in the minimum wage – holding constant other potential causes of change in wage distribution – it is possible to identify the distribution effects of the minimum wage by comparing the inequality indicators prevailing at the initial point in time with those resulting from the counterfactual distribution.

Results are presented in Table 4. The first column shows the wage distribution indicators used to evaluate the effect of the minimum wage, including the Gini index, the Theil index, and the P90/P10, P50/P10 and P90/P50 percentile ratios. In the second column, the actual values of these indicators are shown, for the initial year ( $t = 0$ ). The third column shows the counterfactual values arising from stimulating the changes in the minimum wage, using the methodology described earlier. The next column shows the actual values at the final point in time ( $t = 1$ ). The fifth column shows the absolute differences between the counterfactual and the initial values, and the statistical significance of the effect of the minimum wage on inequality. The sixth column shows the relative difference, expressed as a percentage, while the last column shows the percentage of the total change for each of these inequality indicators that is explained by the increase in the minimum wage.

**Table 4**  
**Distribution effects of the minimum wage**

**Argentina**

Statistics	Initial year	Counterfactual	Final year	Absolute variations	Relative variations	Percentage of total change explained by MW
Mean	749.317	782.446	1030.508	33.129 ***	4%	12%
	15.635	16.226	12.321	4.165		
90-10	5.000	4.097	3.750	-0.903 *	-18%	72%
	0.317	0.226	0.143	0.348		
50-10	2.143	1.756	2.000	-0.387 ***	-18%	271%
	0.118	0.081	0.000	0.141		
90-50	2.333	2.333	1.875	0.000	0%	0%
	0.078	0.075	0.071	0.059		
Gini	0.373	0.347	0.293	-0.026 ***	-7%	32%
	0.010	0.011	0.005	0.004		
Theil	0.269	0.241	0.149	-0.028 ***	-10%	23%
	0.034	0.033	0.007	0.004		
Observations	5393	3933	7244			

**Brazil**

Statistics	Initial year	Counterfactual	Final year	Absolute variations	Relative variations	Percentage of total change explained by MW
Mean	839.919	860.665	1057.641	20.745 ***	2%	10%
	5.489	5.510	6.209	0.519		
90-10	6.667	4.468	5.505	-2.198 ***	-33%	189%
	0.144	0.127	0.000	0.104		
50-10	2.083	1.396	1.835	-0.687 ***	-33%	276%
	0.000	0.000	0.000	0.000		
90-50	3.200	3.200	3.000	0.000	0%	0%
	0.069	0.091	0.000	0.064		
Gini	0.477	0.453	0.449	-0.024 ***	-5%	84%
	0.003	0.003	0.002	0.000		
Theil	0.468	0.437	0.422	-0.030 ***	-6%	66%
	0.007	0.007	0.007	0.001		
Observations	68717	56392	82877			

**Chile**

Statistics	Initial year	Counterfactual	Final year	Absolute variations	Relative variations	Percentage of total change explained by
Mean	249761.552	255025.033	276914.898	5263.481 ***	2%	19%
	4578.293	5987.450	4032.986	3574.259		
90-10	6.250	5.970	4.551	-0.280 *	-4%	16%
	0.143	0.179	0.165	0.209		
50-10	2.000	1.910	1.497	-0.090	-4%	18%
	0.046	0.058	0.030	0.072		
90-50	3.125	3.125	3.040	0.000	0%	0%
	0.065	0.080	0.099	0.089		
Gini	0.451	0.450	0.429	-0.001	0%	6%
	0.008	0.009	0.006	0.003		
Theil	0.421	0.418	0.395	-0.003	-1%	13%
	0.023	0.023	0.019	0.004		
Observations	26005	19769	30051			

**Uruguay**

Statistics	Initial year	Counterfactual	Final year	Absolute variations	Relative variations	Percentage of total change explained by
Mean	8012.358	8059.694	11094.225	47.336 ***	1%	2%
	81.766	86.556	57.820	30.573		
90-10	6.000	5.420	4.795	-0.580	-10%	48%
	0.055	0.210	0.089	0.207		
50-10	2.320	2.115	2.055	-0.205 ***	-9%	77%
	0.031	0.083	0.036	0.083		
90-50	2.586	2.562	2.333	-0.023	-1%	9%
	0.036	0.042	0.014	0.024		
Gini	0.422	0.417	0.355	-0.005 ***	-1%	7%
	0.004	0.004	0.002	0.002		
Theil	0.340	0.335	0.218	-0.006 ***	-2%	5%
	0.011	0.011	0.003	0.004		
Observations	11072	9937	22833			

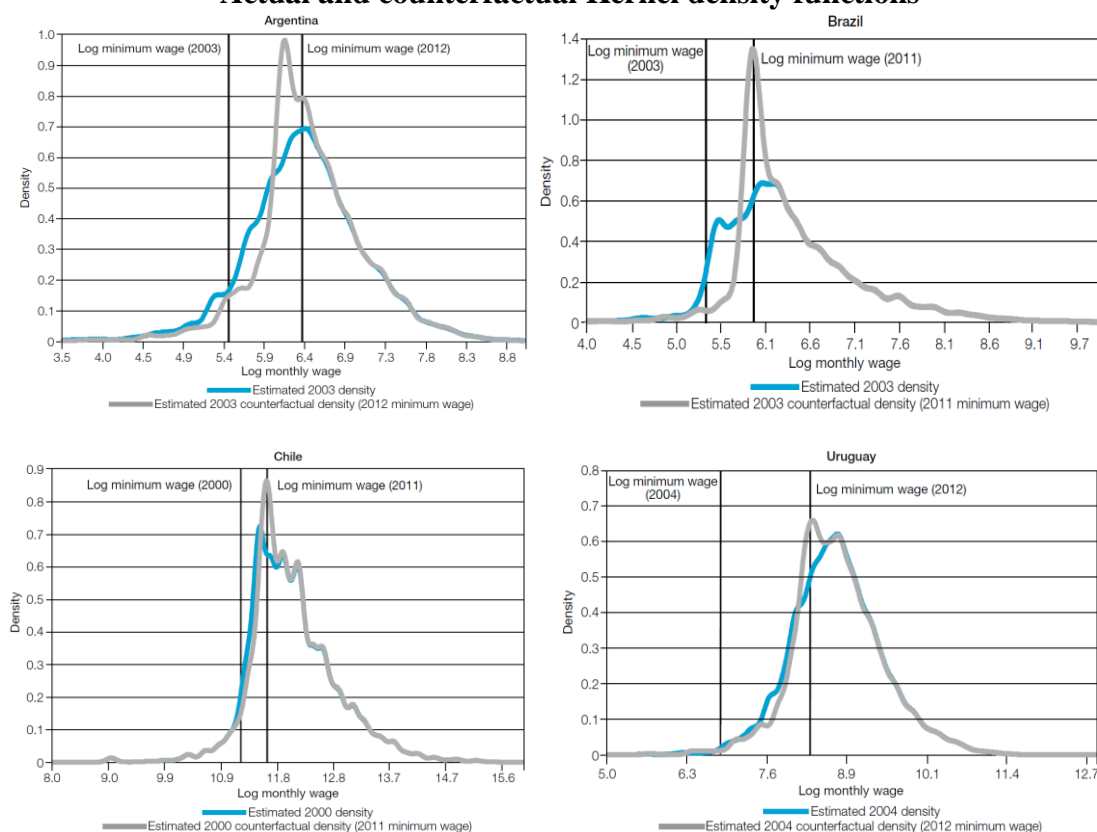
Source: Own elaboration based on Household Surveys

In all cases except Chile, the results suggest that the minimum wage had an equalizing effect, although the intensity of the effect varies between countries. In Argentina, Brazil and Uruguay, the decline in wage inequality is explained by compression at the lower tail of the wage distribution. The assumption that the minimum wage affects only those individuals earning less than or equal to the minimum wage may determine, at least in part, this latter result.

In Argentina the minimum wage increase is associated with a fall of 2.6 p.p in the Gini index; the minimum wage accounts for about a third of the decrease in this index. A similar situation is observed with the Theil index, which contracted by 2.8 p.p (representing a decline of 10%). Meanwhile, the P50/P10 ratio also declined significantly, from 2.14 to 1.76. In this part of the distribution, the rise in the minimum wage accounts for 271 per cent of the decrease in the gap between the two percentiles.

The rise in the value of the minimum wage in Brazil also had important equalizing effects. The Gini index decreased by 2.4 p.p, i.e. a 5% drop from its initial value (Table 4). Importantly, the increase in the minimum wage accounts for 80% of the decrease in this indicator between 2003 and 2011, which is very high indeed. As in Argentina, the equalizing effect is seen exclusively in the lower tail of the distribution: the P50/P10 ratio fell by 33%. This contraction is sufficiently intense to also reduce the gap between extreme percentiles – i.e. the ninetieth and tenth percentiles – by about a third. As in Argentina, the results suggest that if the effect of the minimum wage alone had been considered, the P50/P10 ratio of the final year would have been even lower than actually observed. The importance of this factor in reducing wage inequality is associated, at least in part, with the fact that this decrease was essentially the result of greater wage compression at the lower tail of the distribution, i.e. where the effects of the minimum wage operate.

**Graph 4**  
**Actual and counterfactual Kernel density functions**



Source: Own elaboration based on Household Surveys

In Uruguay, the equalizing effects appear to be smaller than in Argentina and Brazil. The minimum wage accounted for about 7% of the decrease in the Gini index between 2004 and 2012 (Table 4). Again, the reduction in the gap between the ninetieth and

tenth distribution percentiles reflects exclusively what happened in the lower tail of the distribution, where the minimum wage accounted for 80% of the decrease. In the case of Chile, the very slight effects that changes in the value of the minimum wage had on the inequality indicators were not statistically significant. It will be remembered that the increase in real terms in the minimum wage in this country was lower than in the other countries studied (about 40%, while in the other countries the increases were between 100% and 200%). Also, the minimum wage appears to become less “effective” in the second half of the period considered. These are some of the reasons why the increase in the minimum wage was not enough to bring about a significant change in the inequality indicators, which decreased less sharply than in the other three countries.

Finally, Graph 4 provides a graphical representation of these changes, showing the initial wage density and the counterfactual density obtained by simulating the effect of raising the minimum wage. The initial and final real values of the minimum wage are also shown. There is clearly a strong shift that occurs from the lower to the central part of the distribution as a result of the increase in the minimum wage, thereby illustrating the improvements in wage distribution, except in Chile.

### ***5. Final remarks***

The aim of this article was to discuss the role of the minimum wage in Latin America and, in particular, to estimate its distribution effects in Argentina, Brazil, Chile and Uruguay during the 2000s. The results obtained confirm that strengthening this labor institution was one of the factors associated with improvements in the wage distribution in these countries, with the exception of Chile where, although there was a decline in wage inequality associated with the minimum wage, the effects were not strong enough to be statistically significant.

These findings contribute to the debate about the causes of the decline in wage inequality in Latin America in the new millennium. Most of the literature has focused on the effects of diminishing returns to education based on the analysis of supply and demand for different qualifications. This document suggests the importance of extending the analysis to consider also the role of labor institutions in the improved distribution seen in the region. In fact, the diminishing returns to education could also be a result of an increase in the minimum wage and the strengthening of other institutions, such as collective bargaining.

It is important to note that the increase in the minimum wage in Latin America took place in a period of employment growth and – particularly in Argentina, Brazil and Uruguay – strong employment formalization. The combination of these two trends therefore casts doubt on the arguments calling for more flexible labor markets in the region as a way to encourage job creation, especially formal employment.

Finally, while Latin America has shown highly positive labor market trends, the region continues to show high levels of employment precariousness and informality, low average wages and marked wage inequality. For this reason, policies to strengthen labor institutions should be accompanied by policies to promote employment formalization, production policies aimed at reducing the structural heterogeneity and systemic inefficiency that characterize the region, and more universal social policies. The aim

should be to build a coherent system to ensure that economic growth is translated in practice into improved living conditions for the region's population.

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