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## Inequality and Social Policy in Latin America

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### **Abstract**

This paper analyzes the evolution and determinants of inequality between 1990 and 2017 in Latin America. Throughout the period, inequality in the region has demonstrated three trends: it increased during the 1990s; decreased between 2002 and 2013; and, since 2014, it has remained constant or even increased depending on the country. The reduction of inequality in the second period corresponded to two main changes in social policy: (I) the expansion in access to education in the previous period, which led to a decrease in the salary gap; and (II) the expansion and progressivity of monetary transfers. However, despite improvements in income distribution, in recent years, there has been a wave of protests in various countries. This paper proposes possible explanations of this apparently paradoxical phenomenon. Finally, this paper analyzes the impact of fiscal policy on inequality and poverty using comparative data from fiscal incidence analysis. Although in all countries the combination of taxes, social spending, and consumption subsidies reduces inequality, it does not always reduce poverty.

Keywords: Fiscal incidence; Inequality; Poverty; Taxes; Social spending; Latin America.  
JEL codes: CI38; H22; D63; D31; 054; D74.

# Inequality and social policy in Latin America<sup>†</sup>

Nora Lustig\*

March 16, 2020

## Abstract

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## **1. Introduction**

In the last thirty years, income distribution in Latin America – the most unequal region in the world – has demonstrated three clear trends. During the 1990s and the early 2000s, income inequality increased in the majority of the countries for which reliable data is available. Between 2002 and 2013 (approximately), inequality declined in nearly every country. Since 2013, this trend has showed clear signs of exhaustion: in some countries, inequality began to increase, while, in others, the rate of inequality reduction fell. The first section of this chapter will analyze the evolution and determinants of inequality during this period, with an emphasis on the subperiod in which inequality was reduced. There are two elements of social policy which have contributed to this reduction: the expansion of access to education, especially for sectors in the lower part of the income distribution, and the expansion and progressivity of monetary transfers.

Despite the reduction in income inequality, various countries in the region have experienced waves of relatively intense protests that focus on rejecting inequality. Section 2 of this chapter explores some explanations of the factors that could be behind this apparent paradox. Three factors in particular will be considered: the reverse of the downward trend in inequality during the most recent period in various countries; the limitations of traditional inequality indicators (for example, the Gini index) in capturing the growing gaps in absolute income between rich and poor; and the biases that are potentially introduced when household surveys are used to measure inequality – biases which affect reporting both on trends and the level of inequality and are caused by surveys' unsatisfactory method of capturing data about capital income and the rich population.

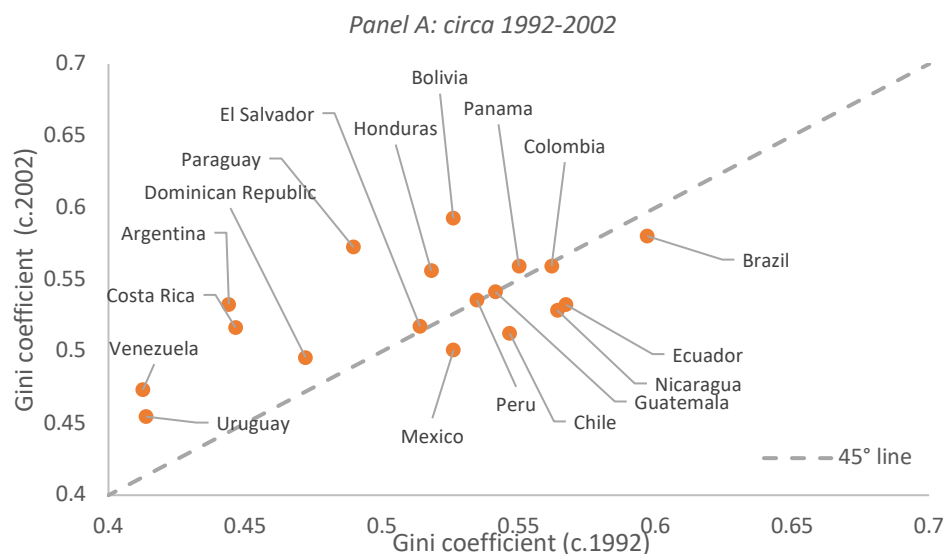
Finally, section 3 will analyze the prevalent model of fiscal redistribution in the 18 Latin American countries. One result to highlight is that fiscal policy is extremely heterogeneous. Taxation and social expenditure vary considerably, and therefore, so does the level to which the State can reduce the concentration of income using fiscal instruments. A second important result is that even though in all of Latin American countries, the combination of taxes, social expenditure, and consumption subsidies is progressive (meaning, it reduces inequality), poverty does not necessarily decrease. Due to the burden of indirect consumption taxes, in some countries, the tax system impoverishes the impoverished.

## **2. Inequality in Latin America: evolution and determinants**

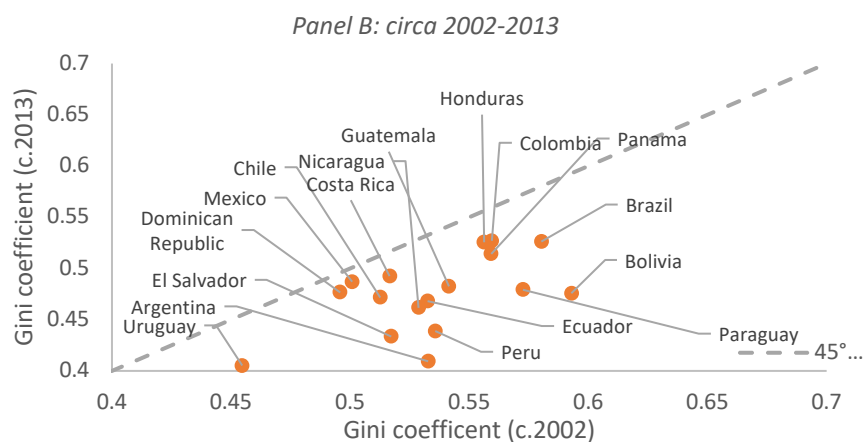
Between 1990 and 2017, inequality in Latin America declined. However, this trend was not uniform throughout the period. During the 1990s and the early 2000s, inequality increased in the majority of countries for which reliable data is available (graph 1, panel A). Between 2002 and 2013, approximately, inequality declined in all of the countries that are shown in panel B of graph 1. Since

2013, this trend has showed clear signs of exhaustion: in some countries, inequality has begun to increase, while, in others, the rate of inequality reduction fell (graph 1, panel C).<sup>1</sup>

Graph 1. Changes in inequality by country and by subperiod, circa 1990-2017 (Gini coefficient)



Note: The dotted line represents a 45-degree diagonal. The years used were: Argentina: 1992-2002 (urban population); Bolivia: 1997-2002; Brazil: 1993-2002; Chile: 1992-2003; Colombia: 2001-2002; Costa Rica: 1992-2002; Dominican Republic: 1996-2002; Ecuador: 1995-2003; El Salvador: 2000-2002; Guatemala: 2000-2000; Honduras: 1992-2002; Mexico: 1992-2002; Nicaragua: 1993-2001; Panama: 1995-2002; Paraguay: 1995-2002; Peru: 1997-2002; Uruguay: 1992-2002; Venezuela: 1992-2002.

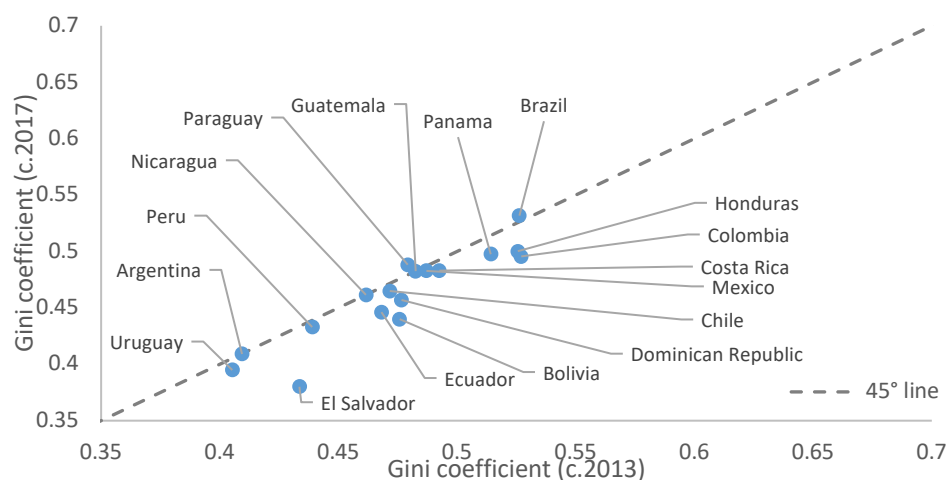


Note: The dotted line represents a 45-degree diagonal. The years used were: Argentina: 2002-2013 (urban population); Bolivia: 2002-2013; Brazil: 2002-2013; Chile: 2003-2013; Colombia: 2002-2013; Costa Rica: 2002-2013; Dominican Republic: 2002-2013; Ecuador: 2003-2013; El Salvador: 2002-2013;

<sup>1</sup> The income concept used is "disposable income." This concept includes the salary or income from one's principal occupation and the non-labor incomes that correspond to: pensions; capital income and profits; and transfers. The Socioeconomic Database for Latin America and the Caribbean (SEDLAC) compiles all of this data from household surveys conducted in each of the 24 countries in the region. For more information, visit: <http://www.cedlas.econo.unlp.edu.ar/wp/en/estadisticas/sedlac/metodologia-sedlac/#1496251194841-0db46f2f-cc48>

Guatemala: 2000-2014; Honduras: 2002-2013; Mexico: 2002-2014; Nicaragua: 2001-2014; Panama: 2002-2013; Paraguay: 2002-2013; Peru: 2002-2013; Uruguay: 2002-2013.

*Panel C: circa 2013-2017*

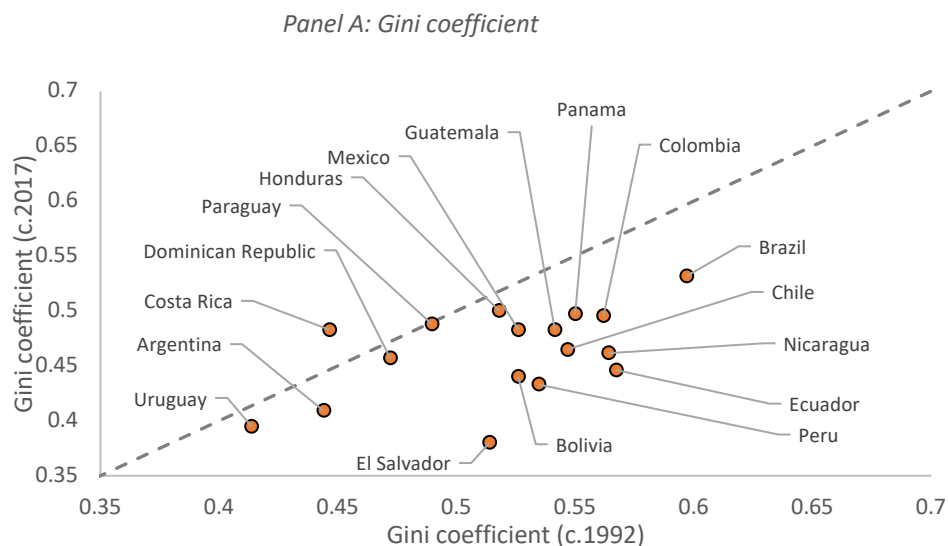


Note: The dotted line represents a 45-degree diagonal. The years used were: Argentina: 2013-2017 (urban population); Bolivia: 2013-2017; Brazil: 2013-2017; Chile: 2013-2017; Colombia: 2013-2017; Costa Rica: 2013-2017; Dominican Republic: 2013-2016; Ecuador: 2013-2017; El Salvador: 2013-2017; Guatemala: 2014-2014; Honduras: 2013-2016; Mexico: 2014-2016; Nicaragua: 2014-2014; Panama: 2013-2017; Paraguay: 2013-2017; Peru: 2013-2017; Uruguay: 2013-2017.

Source: SEDLAC (CEDLAS and The World Bank). Updated November 2019; consulted February 20, 2020.

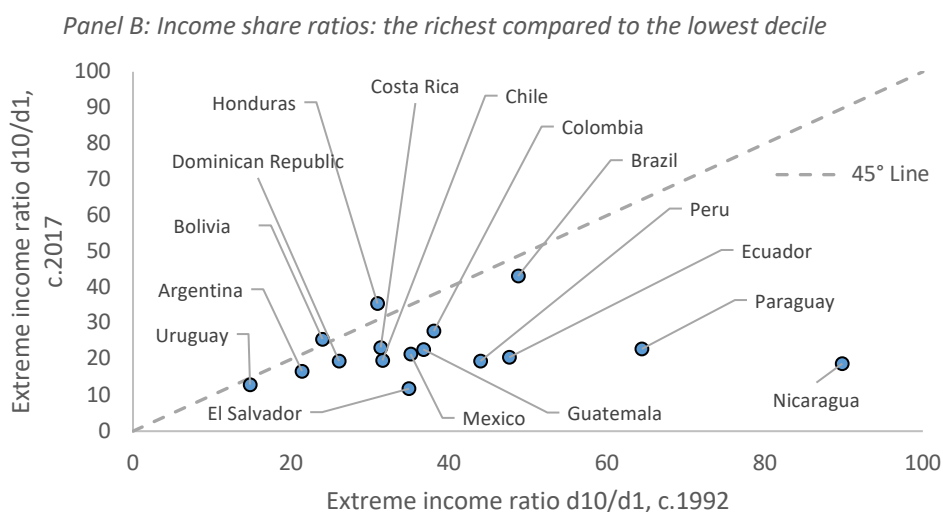
The net result of the period from 1990-2017 is a considerably less unequal Latin America (graph 2, panel A). These results are true regardless of the inequality indicator used. For example, the reduction observed using the Gini coefficient is also observed when using the quotient of the share of income held by the richest decile and the share held by the poorest decile (graph 2, panel B). However, despite the marked fall in inequality during the first decade of the century, Latin America continues to be the most unequal region (graph 3).

Graph 2: Changes in inequality, by country and for the entire period, circa 1990-2017 (various indicators)



Note: The dotted line represents a 45 degree diagonal. The years used were: Argentina: 1992-2017 (urban population); Bolivia: 1997-2017; Brazil: 1993-2017; Chile: 1992-2017; Colombia: 2001-2017; Costa Rica: 1992-2017; Dominican Republic: 1996-2016; Ecuador: 1995-2017; El Salvador: 2000-2017; Guatemala: 2000-2014; Honduras: 1992-2016; Mexico: 1992-2016; Nicaragua: 1993-2014; Panama: 1995-2017; Paraguay: 1995-2017; Peru: 1997-2017; Uruguay: 1992-2017.

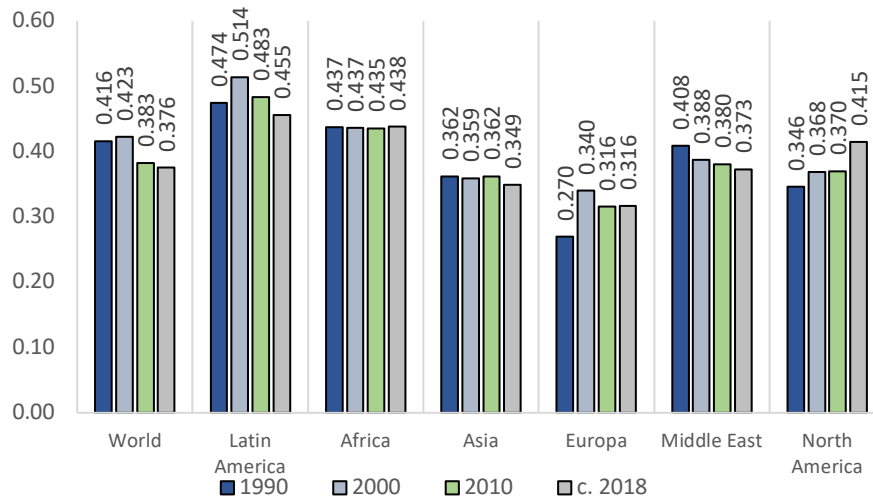
Source: SEDLAC (CEDLAS and The World Bank). Updated November 2019; consulted February 20, 2020.



Note: The dotted line represents a 45 degree diagonal. The incomes used to calculate the quotient of incomes between extreme deciles are calculated in 2011 PPP dollars. The years used were Argentina: 1992-2017 (urban population); Bolivia: 1992-2017; Brazil: 1992-2017; Chile: 1992-2017; Colombia: 1992-2017; Costa Rica: 1992-2017; Dominican Republic: 1992-2016; Ecuador: 1994-2017; El Salvador: 1995-2017; Guatemala: 2000-2014; Honduras: 1992-2017; Mexico: 1992-2016; Nicaragua: 1993-2014; Panama: 1995-2017; Paraguay: 1995-2017; Peru: 1997-2017; Uruguay: 1992-2017; Venezuela: 1992-1999.

Source: POVCAL, World Bank. Consulted January 7, 2020.

Graph 2. Inequality by region: Gini coefficient

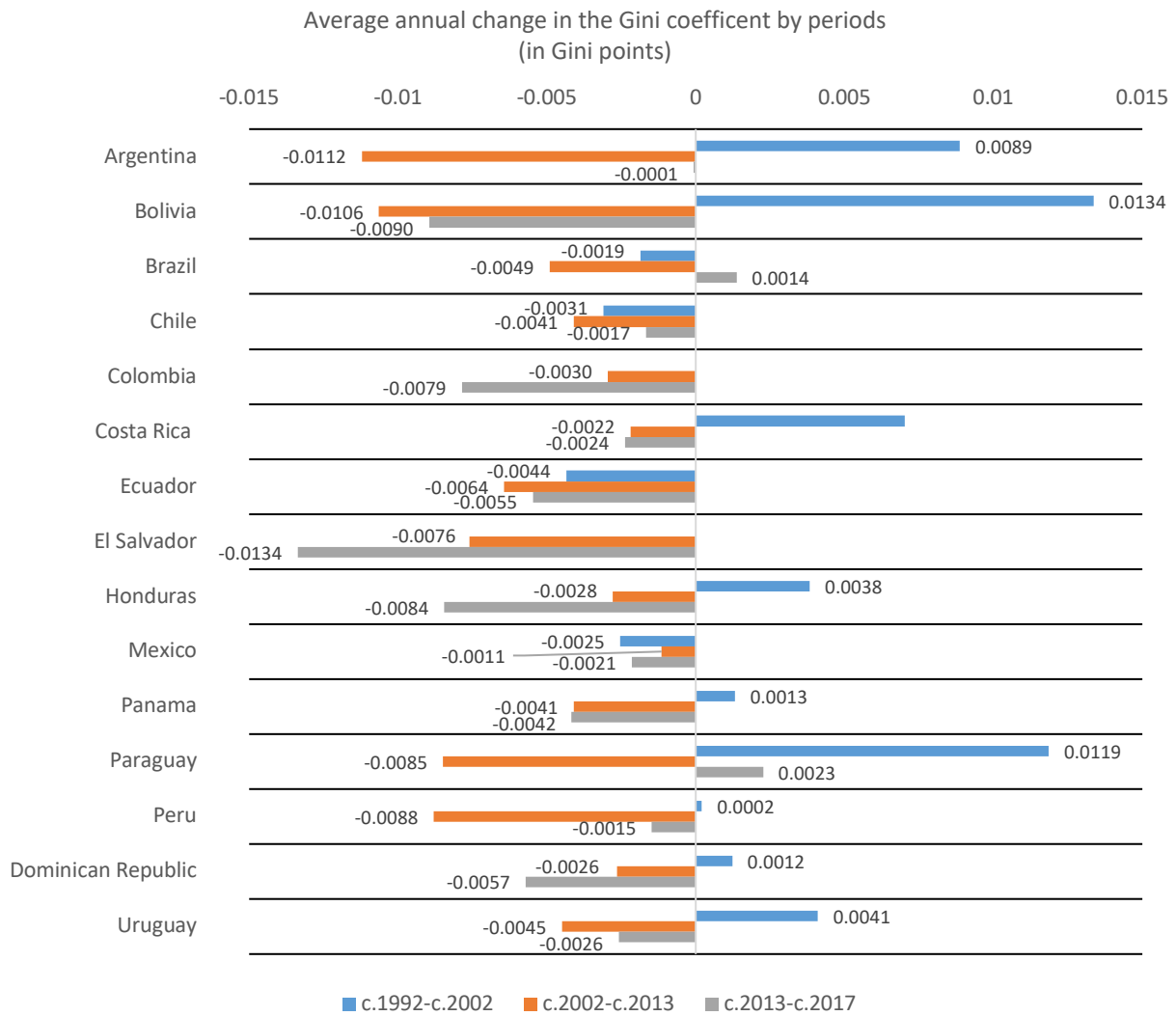


Note: Years used for Latin America and the Caribbean are: 1992, 2000, 2010 and 2017. The combination of countries assessed varied each year.

Source: World Bank. World Development Indicators and SEDLAC. Consulted January 7, 2020.

In graph 4, trends in inequality are presented by country for each of the three previously identified periods. The graph highlights the change in sign from decline to increase between the second and third periods in Brazil and Paraguay, and the unexplained reduction in inequality during the third period in El Salvador and Honduras.

Graph 4. Trends in inequality by country and subperiod



Note: The average change is calculated as the total change in the Gini coefficient between the years of each period, divided by the number of years in the period. The years used for each country are: Argentina: 1992-2002, 2002-2013, 2013-2017 (urban population); Bolivia: 1997-2002, 2002-2013, 2013-2017; Brazil: 1993-2002, 2002-2013, 2013-2017; Chile: 1992-2002, 2002-2013, 2013-2017; Colombia: 2002-2013, 2013-2017; Costa Rica: 2002-2013, 2013-2017; Dominican Republic: 1996-2007, 2007-2013, 2013-2016; Ecuador: 1995-2002, 2002-2013, 2013-2017; El Salvador: 2002-2013, 2013-2017; Honduras: 1992-2002, 2002-2013, 2013-2016; Mexico: 1992-2002, 2002-2014, 2014-2016; Panama: 1995-2002, 2002-2013, 2013-2017; Paraguay: 1995-2002, 2002-2013, 2013-2017; Perú: 1997-2002, 2002-2013, 2013-2017; Uruguay: 1992-2002, 2002-2013, 2013-2017. Guatemala, Nicaragua, and Venezuela were not included because these countries have limited years of data; in the case of Venezuela, there is only data up to 2006.

Source: Own production based on data from SEDLAC (CEDLAS and World Bank). Updated November 2019 consulted February 20, 2020.

It is important to note that the trends are based, as indicated previously, on information from household surveys, which suffer from a common problem: the underreporting of income from the

highest level of the distribution. Capital income, which represents a larger proportion of income for the richest part of the population, is especially understated. As demonstrated in the following section, the incorporation of information from administrative sources like tax declarations and national accounts results in higher levels of inequality, and changes in calculated trends. In particular, for the countries in which these corrections were made, the decline during the period 2002-2012 does not appear, or appears much less conspicuously. In conclusion, analysis based on data from household surveys does not thoroughly capture what happens with capital income.

Given the aforementioned limitations of the data, the analysis in this section refers primarily to the inequality of labor income and income from public transfers and private transfers (for example, remittances), but not to inequality of capital income. In particular, the section will analyze the role that returns to education and government transfers play in the inequality dynamic.

Which factors are behind the decline in inequality during the period from 2002-2012? The trends observed do not allow us to conclude that a relationship exists between economic growth and inequality, because inequality diminished in countries which experienced rapid economic growth – for example, Chile, Panama, and Peru – as well as in those with moderate performance, like Brazil, or even low growth, as in the case of Mexico. Inequality fell just as much in countries that export commodities (for example, Argentina, Bolivia, Brazil, and Chile) as it did in countries that import commodities (for example, El Salvador and Guatemala). Additionally, the Gini coefficient has been as low in countries governed by leftist regimes (for example, Argentina, Bolivia, Brazil, Chile, and Venezuela), as it has been in those governed by center or center-right parties (for example, Mexico and Peru).

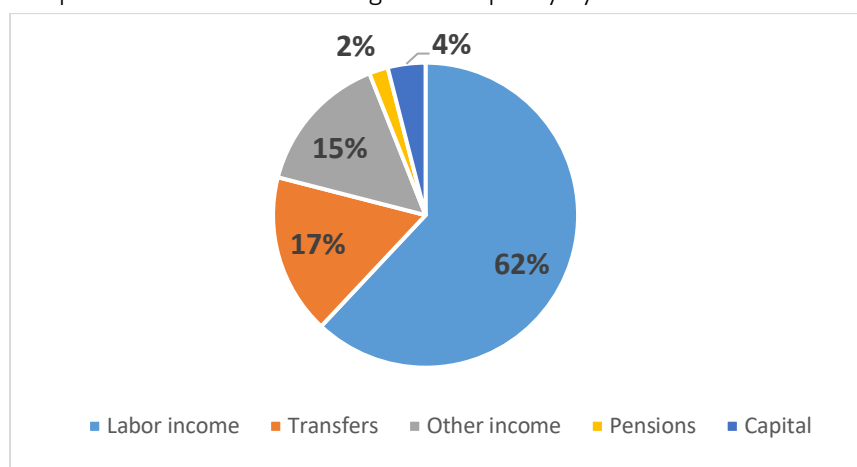
The available studies point to two potential factors that could be responsible for the decline in inequality: lower inequality in the hourly labor income and a larger volume of and progressivity in public transfers<sup>2</sup>. Based on a nonparametric decomposition, Azevedo *et al.* (2013) analyzed determinants in the fall of inequality in four countries in the region. On average, a little over than 60% of the reduction in the Gini coefficient can be attributed to a decline in inequality of hourly labor income, 17% corresponds to the equalizing impact of government transfers and 15% to the equalizing effect of other incomes – which include private transfers, and in particular, remittances<sup>3</sup> (graph 5).

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<sup>2</sup> Azevedo, Inchauste and Sanfelice (2013); Cornia (2013); De la Torre, Levy Yeyati and Pienknagura (2013); López-Calva, and Lustig (2010); Lustig, López Calva and Ortiz-Juárez (2013); Messina and Silva (2018).

<sup>3</sup> It is important to note, however, that Azevedo *et al.* (2013) show an important heterogeneity between countries (see graph 7).

Graph 5. Contribution to changes in inequality by each source of income



Note: The nonparametric decomposition from Azevedo *et al.* (2013) and the parametric results were provided by CEDLAS, based on available data from SEDLAS (CEDLAS and World Bank).

Source: Azevedo *et al.* (2013) and CEDLAS.

The analysis done by Cornia (2013) for Chile, Ecuador, El Salvador, Honduras, Mexico, and Uruguay confirmed a good part of the evidence shown. In particular, their results suggest that changes in the distribution of labor income explains an important part of the decline of inequality.

Rodríguez-Castelán, López-Calva, Lustig, and Valderrama (2016) found that the reduction in inequality from labor income occurred in the context of growing hourly labor income, with the most growth from the lower end of the distribution. Between 2002 and 2013, labor income from the poorest decile grew, on average, 50% in real terms, while the average increase was 15% for the richest decile (and 32% for incomes in the middle of the distribution). These findings conflict with what occurred during the period of increasing inequality in the nineties, when the poorest decile experienced a fall in their income, while the rest of the incomes stayed static or grew slightly.

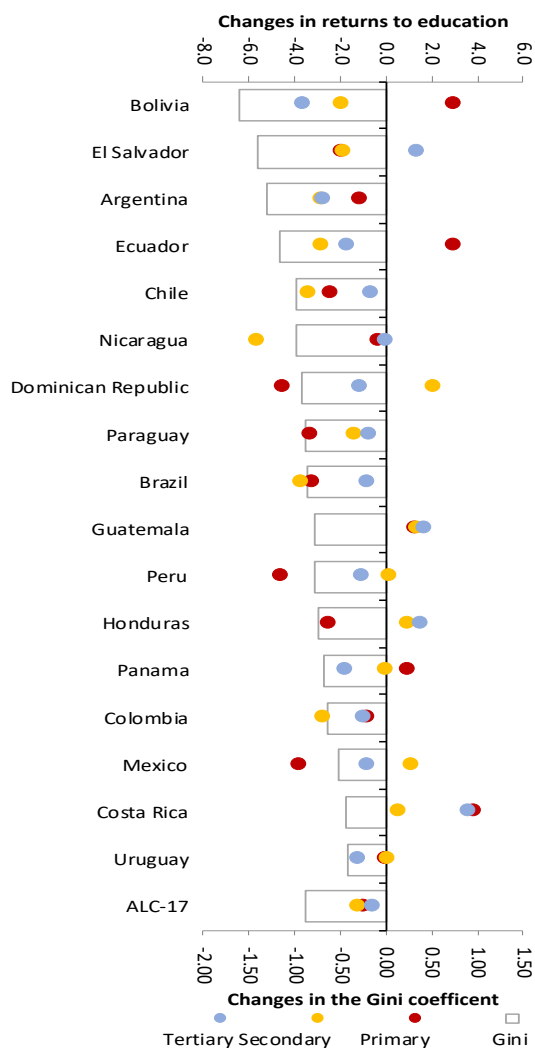
What caused the reduction in inequality in hourly labor income? According to explanations presented by López-Calva and Lustig (2010), Gasparini and Lustig (2011), Rodríguez-Castelán *et al.* (2016) and Messina and Silva (2018), the available evidence suggests that the increase and decrease of inequality of labor income is associated with the rise and fall, respectively, of hourly salary differentials due to education level; or, in other words, the increase and decrease of returns to education<sup>4</sup>. In particular, in the majority of countries where total inequality declined during the 2000s, the ratio of returns to primary, secondary, and tertiary education relative to no education or incomplete primary education also decreased<sup>5</sup>. Graph 6 shows that, in Brazil, Chile, Colombia, and

<sup>4</sup> See also Barros, De Carvalho, Franco and Mendonca (2010); Campos, Esquivel and Lustig (2012); De la Torre *et al.* (2013), and Gasparini and Cruces (2010).

<sup>5</sup> Messina and Silva (2018) also found that the education premium between workers with tertiary education and those with secondary decreased, but – as expected – to a lesser extent than when comparing the former with workers with a primary education or less.

Paraguay, the decrease occurred at all levels of educations, while results from the rest of the countries were more heterogenous.

Graph 6. Changes in the Gini coefficient and on educational returns, 2001-2015



Note: The average change in the Gini index for each country is calculated as the difference between the end-of-year Gini minus the initial, divided by the number of total years. Returns for different education levels are calculated with respect to no education and incomplete primary education. The degree of ranking is determined by the level of formal education. Education levels correspond to complete primary, secondary education, and tertiary. In the case of Argentina, only urban zones are covered.

Source: Own production based on data from SEDLAC (CEDLAS and World Bank).

During the period of decreasing inequality, the reduction of returns to education was associated in part with better access to education achieved in previous years, which in turn made workers with no education or incomplete primary scarce relative to educated workers (and for almost every country, workers with secondary education became scarce relative to workers with post-secondary education). According to Battiston, García-Doménch and Gasparini (2014), the number of years of

formal education attained by the labor force population increased, on average, by 1.5 years between 1990 and 2009 (the minimum increase was 0.7 years in Panama and the maximum was 2.9 in Brazil). As the authors indicate, however, there are two distinct subperiods. From 1992 to 2002, the gap in average years of education between the top and bottom quintile of the labor income distribution increased in the region. However, between 2002 and 2009, the gap decreased. Most likely, this differentiation between the periods was associated with changes in access to education for income categories in the previous decade. During the eighties' debt crisis, there was an educational expansion that was not favorable for the population in the lowest quintile, but the opposite occurred in the nineties, when the governments of the region made an effort to provide universal access to primary education.

It should be noted that, although the distribution of the average years of education became more egalitarian, there is evidence to suggest that this change had an un-equalizing effect (Campos *et al.*, 2012; Gasparini, Galiani, Cruces and Acosta, 2011). This means that because returns to education were unaltered during a specific period, the educational improvement was un-equalizing. This counterintuitive result has been denominated in the literature as the "progress paradox" and is a consequence of the convexity of returns. When educational returns are convex, there is an inverse relationship between educational inequality and income inequality; meaning that as educational inequality decreases, income inequality initially increases, and then begins to decrease (see Bourguignon, Ferreira, and Lustig (2005) for a formal explanation). With time, as the gap in years of education decreases, the "paradoxical" result will disappear. Moreover, as suggested by Battiston *et al.* (2014), the un-equalizing effect during the decade of the 2000s was already smaller than that of the 1990s, which seems to indicate that the disappearance of the effect of the progress paradox has already begun.

In addition to the reduction in the so-called education premium, Rodríguez-Castelán *et al.* (2016) found that another factor influences the fall in labor income inequality - the decrease in the so-called experience premium. The gap between workers with more work experience relative to those with less experience, when controlling for other observable factors, reduced, on average, 50%<sup>6</sup>. It is important to note, however, that those authors found that the reduction of salary gaps between workers with distinct levels of education and experience or between different geographical locations explains a relatively small part of the decline in labor income. About half of the decline was due to a reduction in variation in the salaries of workers who share similar observable characteristics (that is, residual inequality). This topic is worthy of deeper analysis to identify which other factors – like changes in the composition of employment – are behind this phenomenon.

Determinants of the decrease in non-labor income inequality include capital gains (interest, profits, and royalties), private transfers (for example, remittances) and public transfers (for example, conditional cash transfers and non-contributory pensions). As mentioned previously, household surveys reflect capital income poorly. With respect to private transfers, a study about Mexico

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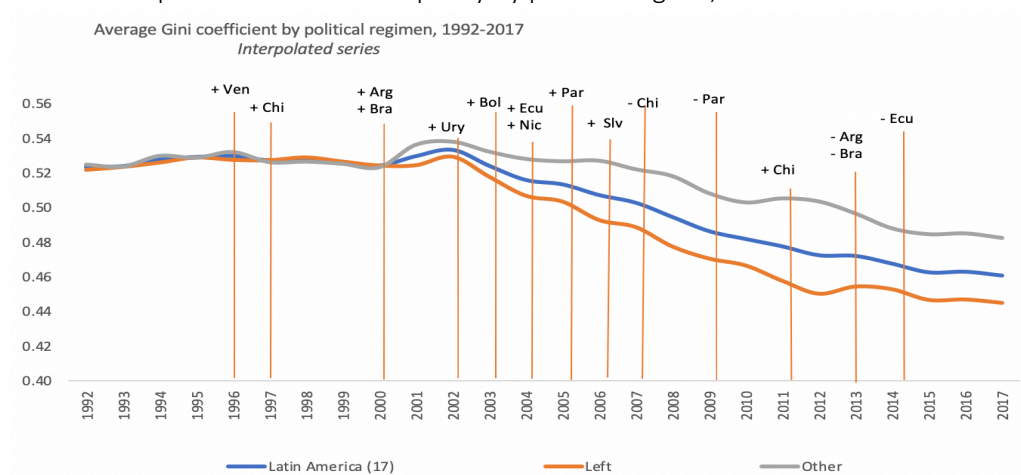
<sup>6</sup> The categories used for years worked are: 0 to 5, 6 to 10, 11 to 20, 21 to 30, and 31 and more; the category of reference is from 0 to 5 years. See also Messina and Silva (2019).

(Esquivel, Lustig and Scott, 2010), shows that remittances have an equalizing effect, which was especially noticeable in the last decade due to the decreasing gap in income per capita between rural and urban households. Cornia (2013) also shows that the increase in remittances as a share of total household income has had an equalizing effect in El Salvador and Mexico, but not in Honduras, where the effect was the opposite.

Azevedo *et al.* (2013) estimate that public transfers were responsible, on average, for around 17% of the decrease in regional inequality. The role of non-contributory pensions cannot be measured precisely because the authors also included contributory pensions from social security systems – but in total, pensions contributed 2% to the decrease in inequality. Given the profile of recipients of non-contributory pensions in Latin American countries, it is possible that the effect of this type of pension on reducing inequality is significantly higher than the combination of both types of pensions. For example, Lustig and Pessino (2013) show that the large expansion of non-contributory pensions in Argentina was fundamental in the reduction of inequality between 2006-2009. In Brazil, Barros *et al.* (2010) show that the changes in volume, coverage, and distribution of public transfers contributed 49% of the reduction in inequality between 2001-2007; and in Mexico, Esquivel *et al.* (2010) show that these same factors contributed around 18% to the decrease between 1996-2006.

While it is true that the fall in inequality occurred in countries with leftist and center-left regimes as well as in countries with different political regimes, it is worth questioning whether the former experienced a larger fall. As shown in graph 7, the answer appears to be affirmative. The difference in differences analysis by Long, Lustig and Quan (forthcoming) corroborates this result for a set of countries. What could have been the principal mechanism that influenced a more pronounced decrease in inequality in left-governed countries? On one hand, increases in education and health spending did not have an immediate effect. For another, the expansion of cash transfers occurred both in left-governed countries and in countries with different governmental politics. Nor does it seem that countries under leftist governments expanded public employment or introduced progressive tax reforms in a systematic way. Therefore, the only public policy variable that appears different in different types of regimes was the minimum wage, which, as can be observed in graph 8, increased more in countries governed by the left.

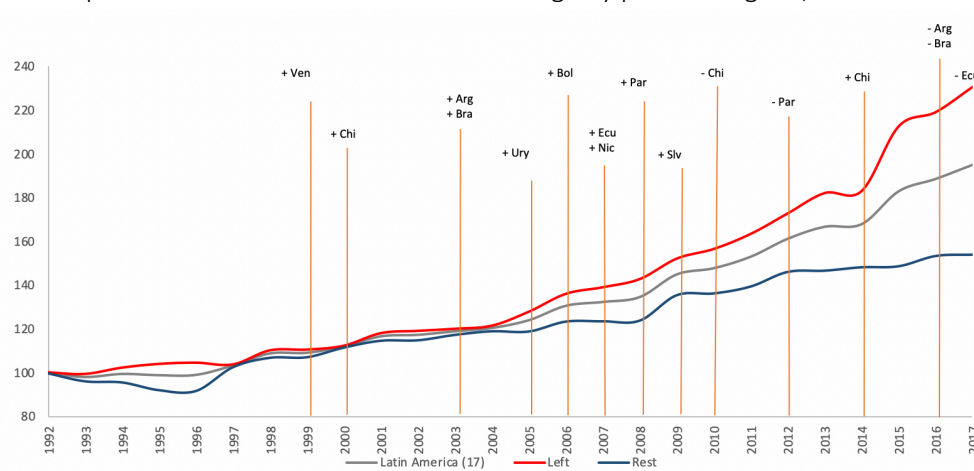
Graph 7. Evolution of inequality by political regime, 1992-2017



Note: Left includes Argentina, Bolivia, Brazil, Chile, Ecuador, El Salvador, Nicaragua, Paraguay, Uruguay, and Venezuela. (+) refers to the first year with the left. (-) refers to the first year without the left. Years without household surveys: : Bolivia 1992-1996, 1998, 2003-2004, 2010; Brazil 1992, 1994, 2000, 2010; Chile 1993, 1995, 1997, 1999, 2001-2002, 2004-2005, 2007-2008, 2010, 2012, 2014, 2016; Colombia 1992-2000, 2006-2007; Ecuador 1992-1994, 1996-1997, 2001-2002; El Salvador 1992-1999, 2003; Guatemala 1992-1999, 2001-2005, 2007-2010, 2012-2013, 2015-2017; Honduras 2000; Mexico 1993, 1995, 1997, 1999, 2001, 2003, 2007, 2009, 2013, 2015, 2017; Nicaragua 1992, 1994-1997, 1999-2000, 2002-2004, 2006-2008, 2010-2013, 2015-2017; Panama 1992-1994, 1996; Paraguay 1992-1994, 1996, 1998, 2000; Perú 1992-1996; Uruguay 1993-1994, 1999; Venezuela 1993-1994, 1996, 2007-2017; inclusive. For Argentina, the household survey only covers the urban population, in the rest of the cases, coverage is national.

Source: Own production based on interpolated series; Gini coefficients from SEDLAC (CEDLAS and the World Bank).

Graph 8. Evolution of the real minimum wage by political regime, 1992-2017



Note: Left includes Bolivia, Brazil, Chile, Ecuador, El Salvador, Paraguay, Uruguay and Venezuela; (+) refers to the first year with the left; (-) refers to first year without the left.

Source: Own production based on CEPALSTATS. Consulted December 20, 2019.

Overall, during the period from 2000-2012, actions of the State contributed to the decrease in inequality through three principal mechanisms. In the first place, explicit efforts by governments to guarantee universal coverage (starting in the previous decade) resulted in better access to basic education and higher levels of education. Governments made an effort to equalize opportunities with respect to access to basic education, and this effort manifested in a reduction in wage inequality in the previous period, in which there was a fall in returns to education provoked by the expansion in the supply of workers with a higher education level and by other influential demand-side factors<sup>7</sup>. In the second place, transfers (nets) from the government became more generous and progressive. Large scale conditional cash transfer programs, like *Bolsa Familia* (Brazil) and *Progres-Oportunidades-Prospera* (México), reduced inequality in household income per capita by between 10% and 20%. Finally, in countries governed by leftist regimes, State action has been evident in active labor market policy. For example, the increase in minimum wage flattened the salary distribution. State action was made possible in large part by the increase in fiscal income associated with the commodity boom.

The super-cycle of commodities ended around 2012 and since then there has been, in many countries, a reduction in the rate of decline of inequality (Chile, Peru and Uruguay), a pause in reduction (Argentina), and even a reversal of the previous trend (Brazil and Paraguay) (graph 4). In the South American countries, with the reduction of growth and the small fiscal margin, governments in the region could not continue increasing the minimum wage or transfers at the previous rate. However, an opposing phenomenon also presented itself: the fall of inequality in the recent period accelerated in El Salvador and Honduras. There are no available studies about the period, neither for the countries where decline stopped nor for those where decline was reversed, that could be used to determine which factors caused these results.

### 3. Falling inequality and rising protests?

Recent headlines about the waves of protests that have exploded in several Latin American countries during the final months of 2019— and especially the unrest in Chile, Colombia and Ecuador— have focused attention once again on the region’s high levels of income inequality. There appears to be an inconsistency between the recent waves of social unrest sweeping throughout the region and the decline in levels of inequality observed over the last thirty years. As seen in the previous section, inequality in Latin America has fallen to levels rarely seen before (since data have been available). Around the year 2000, the Gini coefficient for Latin America was calculated at 0.514, a level that is 12% higher than the most recent coefficient for the region, which was 0.455. A decline of this magnitude means, for example, that in Brazil — the most unequal country in Latin America — the income received by the top 10% of the population fell from being sixty times greater than the

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<sup>7</sup> Another factor which influenced in the same direction was that, in some countries, as a result of a commodities boom, there were changes in the composition of demand, and as a result, changes in the production structure which favored workers with lower rankings. In a subcategory of countries, the increase in real minimum wage also was a factor (see Messina and Silva, 2018).

income received by the bottom 10% to less than forty times greater. Inequality fell in every country of the region, including the three countries where mass protests have recently been particularly intense. Since the year 2000, Chile's Gini coefficient has fallen from 0.481 (2006) to 0.465 (2017); Colombia's coefficient fell from 0.562 (2001) to 0.496 (2017); and Ecuador's fell from 0.532 (2003) to 0.446 (2017).<sup>8</sup>

If in recent years inequality has declined to surprisingly low levels throughout the region, what can explain the recent eruptions of social unrest? And why have the protests been so violent? The following section will explore some possible explanations for this conundrum, focusing on three, in particular: the negative impact that the end of the boom in the commodities export market has had on living conditions throughout the region; the shortcomings of the indicators commonly used for measuring income inequality (for example, the Gini coefficient); and the limitations associated with the data used for calculating levels of inequality<sup>9</sup>.

In countries throughout South America, the end of the boom in the commodities export market triggered a drop in the growth rate of per capita income, triggering an outright recession in some countries. The expression of social unrest in the region has not been limited to street protests. The popular vote in recent presidential elections has tended to be against the parties in power, regardless of their ideological stance. In countries governed by left-wing politicians, opponents associated with parties leaning further right have been elected, and vice versa. These outcomes symbolize the public's protest against the loss of purchasing power, growing unemployment, and the erosion of government benefits. Additionally, in recent years, some countries have experienced a slowing down or even a reversal in the trend toward greater income equality that had been characteristic of the previous decade. Such has been the case in Brazil, and to a lesser extent, in Paraguay. Even though a comparison between current levels of inequality and those reported at the turn of the century shows an overall decline in inequality, in recent years several countries have experienced stagnation in the rate of decline or reversal of the trend, with inequality once again on the rise (graph 4).

The weakening economic situation, combined with an uptick in income inequality, have given rise to an increasing incidence of poverty, just when governments' capacity to implement compensatory fiscal policies has been diminished. Combinations of this type feed discontent because the population experiences intense frustration. The palpable progress that had been achieved during the first decade of the century has not been sustained. If the protests are happening because there has been a setback in social progress, is that reflected in surveys about perceptions? Panel A of graphic 9 shows that the proportion of individuals who perceived the distribution of income to be unjust or

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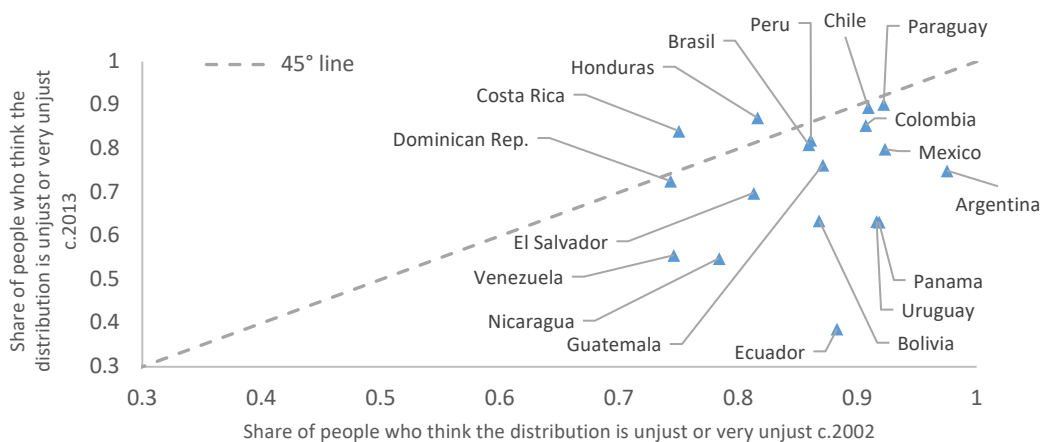
<sup>8</sup> Prior to 2006, the indicators for Chile were calculated based on an old methodology used by the Chilean government and can therefore not be used for comparisons.

<sup>9</sup> Since these are very recent phenomena, there is a gamut of additional hypotheses. For example, the biggest concerns for the new middle class include the satisfactory quality of affordably priced goods and services, the erosion of traditional parties and institutions, and the role of the media, especially social media. See, for example, the agenda included for the upcoming conference at the World Bank: <https://www.worldbank.org/en/events/2020/06/22/annual-bank-conference-on-development-economics-2020-global-unrest#2>). Also see this blog from Ferreira and Schoch (2020): <https://blogs.worldbank.org/developmenttalk/inequality-and-social-unrest-latin-america-tocqueville-paradox-revisited>.

very unjust during 2002 and 2013 reduced in practically every country in which inequality declined (using end-to-end data, inequality fell in every country shown)<sup>10</sup>. In recent years, however, there is an important number of countries where inequality decreased but the perception that the distribution is unjust or very unjust increased. This occurred in Argentina, Bolivia, Colombia, Guatemala, Ecuador, El Salvador, Panama and Uruguay (graph 9, panel B).

Graph 9. Perceptions of inequality

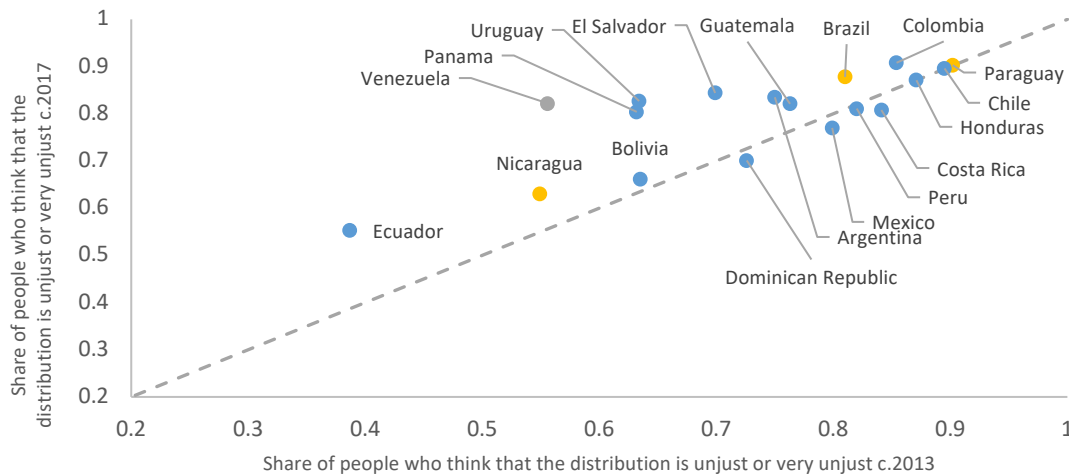
*Panel A: Perception during the period in which inequality decreased in almost every country*



Note: The question used is “How just do you think the income distribution is in (country)?” Also, in the calculation, the percentages don’t take into consideration the responses “Don’t know” or “No answer.” The years used for each country are: Argentina: 2002, 2013, 2017; Bolivia: 2002, 2013, 2017; Brazil: 2002, 2013, 2016; Chile: 2002, 2013, 2017; Colombia: 2002, 2013, 2017; Costa Rica: 2002, 2013, 2017; Dominican Republic: 2007, 2013, 2016; Ecuador: 2002, 2013, 2017; El Salvador: 2002, 2013, 2017; Guatemala: 2002, 2013, 2017; Honduras: 2002, 2013, 2013; Mexico: 2002, 2013, 2016; Nicaragua: 2001, 2013, 2016; Panama: 2002, 2013, 2016; Paraguay: 2002, 2013, 2017; Peru: 2002, 2013, 2016; Uruguay: 2002, 2013, 2017; Venezuela: 2002, 2013, 2017.

<sup>10</sup> Latinobarómetro 2002, 2013 and 2017.

Panel B: Perception during the period in which inequality decreased less, stopped decreasing, or began to increase in a good number of countries



Note: The points in yellow correspond with countries in which the Gini coefficient increased; the blue points are where the Gini maintained the same value or decreased; and the grey point from Venezuela indicates that there is no Gini data for this period. The question used is “How just do you think the income distribution is in (country)?” Also, in the calculation, the percentages don’t take into consideration the responses “Don’t know” or “No answer.” The years used for each country are: Argentina: 2002, 2013, 2017; Bolivia: 2002, 2013, 2017; Brazil: 2002, 2013, 2016; Chile: 2002, 2013, 2017; Colombia: 2002, 2013, 2017; Costa Rica: 2002, 2013, 2017; Dominican Republic: 2007, 2013, 2016; Ecuador: 2002, 2013, 2017; El Salvador: 2002, 2013, 2017; Guatemala: 2002, 2013, 2017; Honduras: 2002, 2013, 2013; Mexico: 2002, 2013, 2016; Nicaragua: 2001, 2013, 2016; Panama: 2002, 2013, 2016; Paraguay: 2002, 2013, 2017; Peru: 2002, 2013, 2016; Uruguay: 2002, 2013, 2017; Venezuela: 2002, 2013, 2017.

Source: Own production based on Latinobarómetro.

It is possible that the indicators used to measure inequality are inadequate for capturing the relationship between inequality and social unrest. The Gini coefficient and all of the other metrics currently used to analyze income distribution measure relative differences between income levels of individuals and households, while the factors that cause an intensification of social unrest may have more to do with the widening of income gaps in absolute terms. If the incomes of all of a country’s inhabitants were to rise by the same proportion, the Gini coefficient for that country would be the same before and after the change occurred. However, in terms of buying power, those at the higher end of the range of incomes would benefit more from a uniform increase in income than those at the lower end of the spectrum. What has happened to incomes as viewed in both relative and absolute terms? Let us take, for example, the case of Chile, the country which has been paid special attention as a result of protests there which began in October 2019 and their unexpected hostility<sup>11</sup>. If we use a relative lens, we see that, based on household surveys from Chile, between 2000 and 2017, the share of income received by the top 10% of the population dropped from being thirty-three times greater than that of the bottom 10%, to twenty times greater. In

<sup>11</sup> Numerous news sources have reported on these protests, See, for example, the following: [https://elpais.com/cultura/2019/11/21/actualidad/1574349151\\_671947.html](https://elpais.com/cultura/2019/11/21/actualidad/1574349151_671947.html)

contrast, if one compares absolute levels of income, the situation is significantly different. Over the same period, the difference between the absolute levels of income received by the wealthiest 10% of the population and the poorest 10% grew by a whopping 50% (and by 45% when comparing the top 10% with the average inhabitant)<sup>12</sup>

In other words, while, relatively speaking, the poorest sector of the population did experience an improvement in their situation, given the income disparities expressed in absolute terms, the wealthiest sector was able to continue to increase its levels of luxury consumption while the middle class and the poor continued to face very difficult circumstances, caused by a social contract that allows the state to skimp on social services and benefits, especially for the middle class and the poor. In an illuminating article about this topic, Uthoff (2018) has described how Chile's health and pension systems, established during the military dictatorship, have completely failed. The pension system has failed to provide insurance, a mechanism to smooth out consumption over an individual's lifetime, and a way to allow the elderly to avoid poverty at the end of their lives. And, according to Uthoff, Chile's health system has failed to provide insurance and prevent disease. Even after the reforms implemented in 2006 to remedy the above-mentioned problems in Chile's pension program, 70% of the population considered the benefits to be less than what is needed. More than 40% of beneficiaries receive incomes that are below the Chilean poverty line, and 79% receive incomes below the minimum wage. Income replacement rates are also insufficient, given that about 50% of beneficiaries receive pensions that are less than 38% of the average value of their salaries over the last ten years (women are even worse off since their pensions are equivalent to 24.5 % of their salaries).

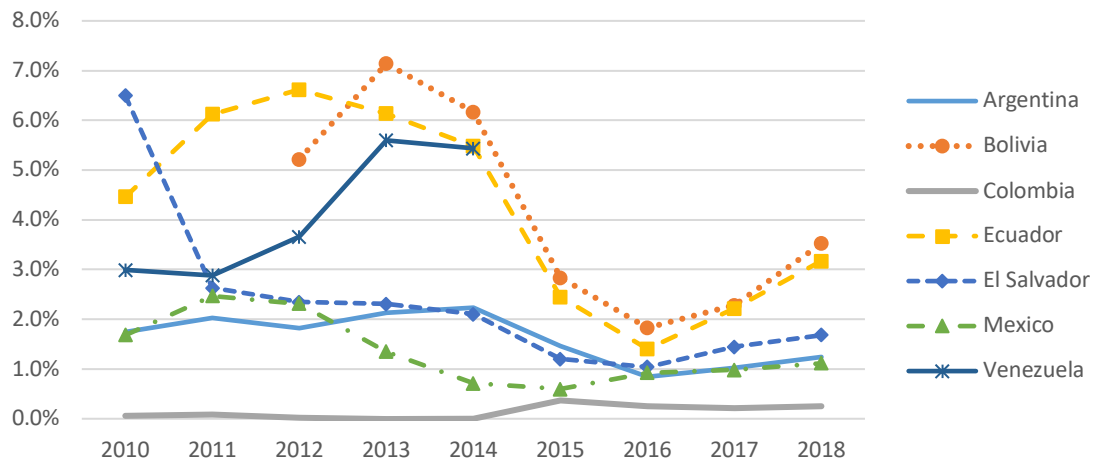
There are two variables that have a significant impact on individuals' purchasing power which are not included in conventional metrics for poverty and income inequality: indirect taxes (such as value added tax, excise duties, etc.), and consumption subsidies. The inequality and poverty indicators use disposable income (or the closest possible concept) to measure wellbeing. However, as seen in the following section, the indicators measure acquisitive power better than consumable income, which is equal to disposable income minus what households pay in consumption tax and adding what is received in the form of subsidies. There are no series of inequality or poverty indicators that measure the loss in real consumption that the population may have experienced during the period following the end to the commodities export boom, due to the reduction of certain subsidies (or to increases in indirect consumption taxes). However, as seen in panel B of graph 10, we do know that in El Salvador, Ecuador, Argentina, Bolivia, Venezuela, and to a lesser degree, in Mexico, there have been drastic cuts in the fiscal resources allocated to fossil fuel subsidies, which have resulted in increases in the prices that the population must pay for electricity, fuel and other energy-related products and services.

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<sup>12</sup> Measured in 2011 purchasing power parity dollars, the average income of the poorest and richest deciles in the year 2000 were USD 56 and USD 1.819, respectively. In 2017, these figures were USD 140 and USD 2.754, respectively (calculations by the author based on POVCAL from the World Bank)

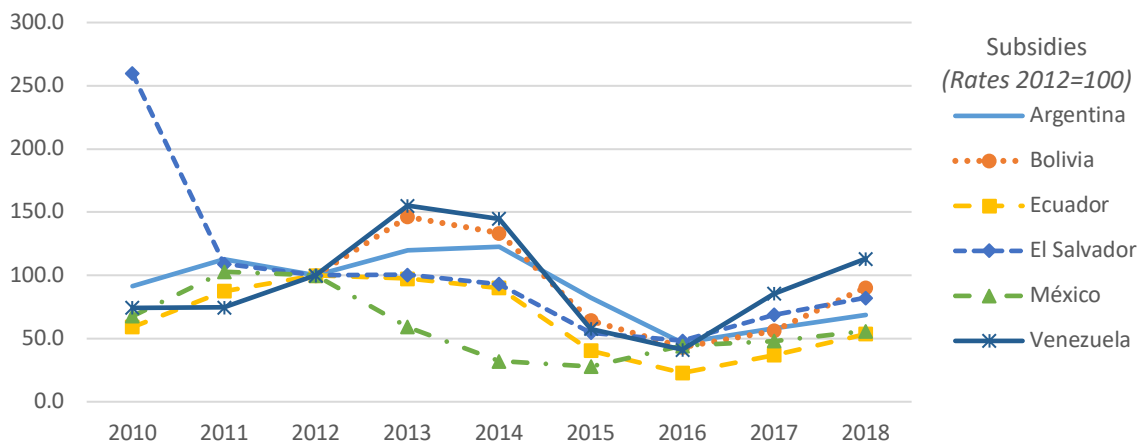
Graph 10: Evolution of subsidies

*Panel A: Total expenditure on fossil fuel subsidies as a percentage of GDP*



Note: The coefficients are calculated from constant 2018 dollars

*Panel B: Total expenditure on fossil fuel subsidies in real 2018 dollars*



Note: The rates are calculated from constant 2018 dollars. The year 2012 was chosen as a base year because all countries had available data.

Source: IEA (2018).

The fact that the subsidies have reduced in real terms and as a percentage of GDP does not necessarily mean that the consumer is having to pay more for electricity, gas, or fuel, because that depends on the behavior of the market price of those products (if the market price falls, a smaller subsidy is needed to maintain a constant subsidized price). The available data shows that the price of gas increased in El Salvador and the price of electricity increased in Argentina.

The third possible explanation of the intensity of the protests and the votes against the parties in power is that the data used for measuring inequality may be deficient in terms of calculating the levels of income concentration among the very rich, and also in terms of evaluating changes in the trends in the concentration.

Household surveys are commonly used as sources of data for calculating income inequality. One well-known limitation of those surveys is that they are not good, for a number of reasons, at capturing trends at the top of the income distribution, which is to say, the incomes of the wealthiest sectors of society. One reason for this is that households tend to declare less income than they actually receive, especially regarding income from capital gains. Thanks to these limitations, both the degree of inequality and the trends associated with it may be inaccurate. Once the surveys are corrected and the bias eliminated, very different results are often obtained. Three relatively recent studies about Brazil, Chile and Uruguay are good examples of this<sup>13</sup> (graphs 11, 12, and 13). In the case of Brazil, the Gini coefficient calculated based on the corrected survey data was not only significantly higher than the coefficient based on the uncorrected data, but the previously mentioned decline in inequality that was thought to have started in 2000 practically disappeared. Even more importantly, as seen in graph 12, the weight of redistribution towards the poorer sectors fell heavily on the eighth and ninth deciles, that is, on the middle classes, and especially on the upper middle class, while the wealthiest sector continued to experience an increase in income.

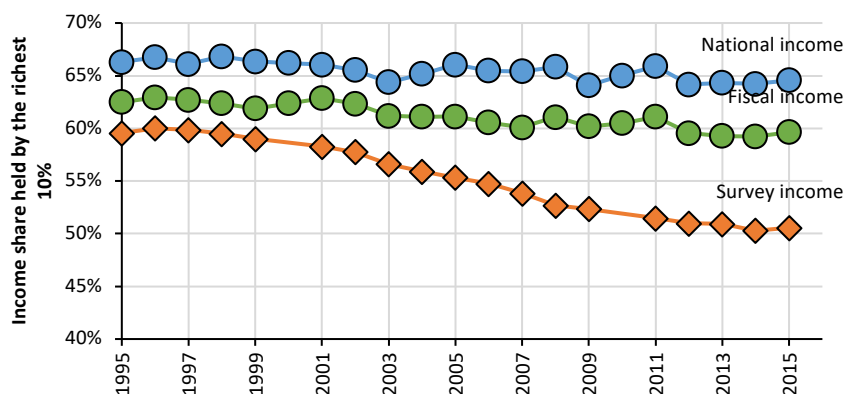
As for Chile, once the survey data had been corrected for the under-reporting of the income of the wealthiest sector, the income share of the top 1% of the population proved to be systematically higher when using the corrected data (to take into account the underreporting of income) and showed no sign of the decline observed in the indicators based on the household survey (Graph 13). The analysis of the corrected survey data for Uruguay showed similar results: The income ratio for the top 1% turned out to be greater than previously reported, and the trend for income inequality actually increased, rather than declined as it did in the survey data (Graph 15).

The above-mentioned exercises make it clear that, in order to obtain an unbiased measure of inequality, it is essential to have access to fiscal information (anonymized tax declarations, for example) and other administrative resources that make it possible to calculate income more accurately. This is especially true regarding the income of the wealthiest sectors. Otherwise, we shall continue to have a partial and biased view of the true degree and evolution of inequality. These flaws will continue, in turn, to lead to erroneous diagnoses of the causes and consequences of inequality and to the proposal of incomplete and unsound public policies.

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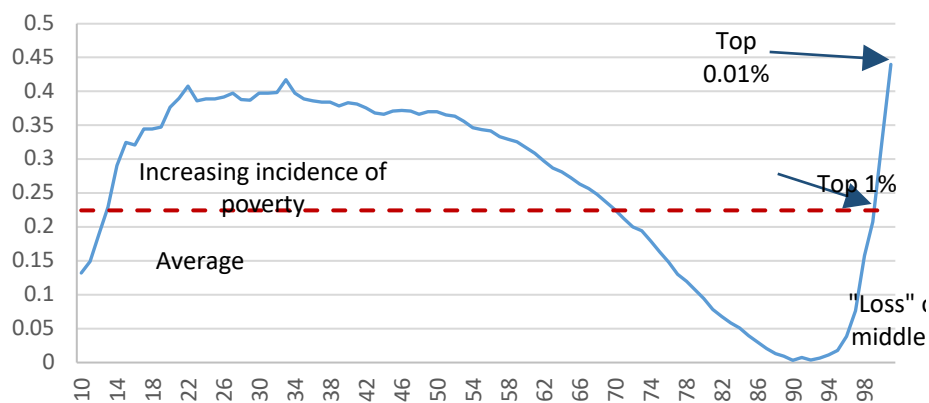
<sup>13</sup>Brasil: Morgan (2018); Chile: Flores, Sanhueza, Atria and Mayer (2019); Uruguay: Burdín, De Rosa and Vigorito (2019).

Graph 3. Evolution of Gini coefficient in Brazil with uncorrected survey and corrected data with administrative sources, 1995-2016



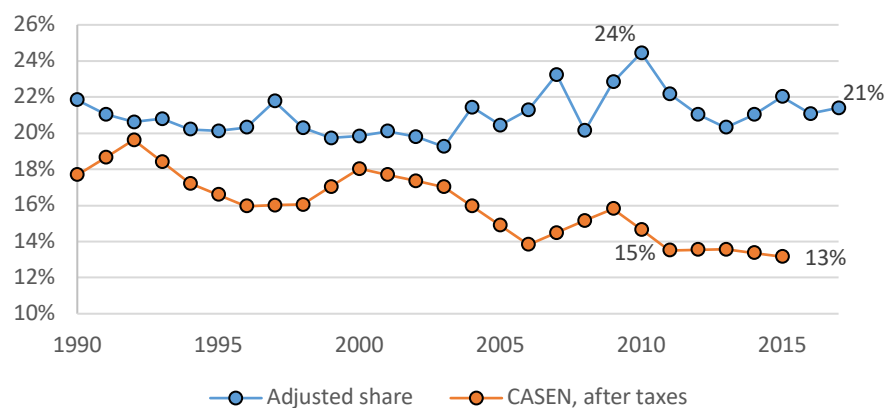
Source: Morgan (2018).

Graph 4. Growth incidence curves, per person and percentile, 2002-2013



Source: Morgan (2018).

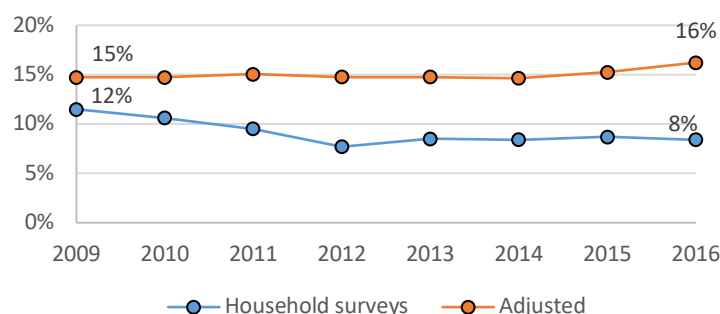
Graph 13: Evolution of the income share of the top 1% in Chile, 1990-2015



Note: CASEN, after taxes refers to the income share, after taxes, of the wealthiest 1%, based on data from the CASEN household surveys. Adjusted share refers to the income share of the top 1% based on fiscal information that has been corrected for under-reporting of income, and which also includes retained earnings.

Source: Flores et al. (2019).

Graph 5. Evolution of the income share of the top 1% in Uruguay, 2008-2016



Note: “Adjusted” refers to the calculation of income share, based on data from household surveys that has been adjusted with additional information from income tax declarations and other administrative resources.

Source: Burdín, G., De Rosa, M., Vigorito, A. & Vilá, J. (2019).

## 4. Redistributive effects of fiscal policy<sup>14</sup>

This section will analyze the combined effect of tax revenue and social spending on inequality and poverty in the 18 countries in Latin America. This data comes from 2009-2016, depending on the country, and for the purpose of this analysis it will be referred to as “data from the 2010s”. Although information is only available for only one point in time, this is possibly the first time that results were presented for the Latin American countries, and, additionally, they were generated with a common methodology for fiscal incidence calculations.<sup>15</sup>

The items considered within the categories of tax and public spending include the effects of taxes, indirect subsidies, and public spending on education and health, in addition to the direct taxes and cash transfers that were discussed in the previous section. As mentioned earlier, the analysis of the next determinants in the evolution of inequality use disposable income or similar income concept as the variable being explained. Disposable income is market income (labor income and non-labor

<sup>14</sup> This section is based on an update and adaptation by Lustig (2017).

<sup>15</sup> This common methodology is described in Lustig (2018). The analysis is based on the following fiscal incidence studies conducted by the Commitment to Equity institute at Tulane: Argentina (Rossignolo, 2018a); Bolivia (Paz Arauco, Gray Molina, Jiménez and Yáñez, 2014a); Brazil (Higgins and Pereira, 2014); Chile (Martínez-Aguilar *et al.*, 2018); Colombia (Meléndez and Martínez, 2019); Costa Rica (Sauma and Trejos, 2014a); Ecuador (Llerena Paul, Llerena Pinto, Saá Daza and Llerena Pinto, 2015); El Salvador (Beneke, Lustig and Oliva, 2018); Guatemala (Cabrera, Lustig and Morán, 2015); Honduras (ICEFI, 2017a); Mexico (Scott, Martínez-Aguilar, De la Rosa and Aranda, 2018); Nicaragua (ICEFI, 2017b); Panama (Martínez-Aguilar, 2018); Paraguay (Giménez *et al.*, 2017); Peru (Jaramillo, 2014); Dominican Republic (Aristy-Escuder, Cabrera, Moreno-Dodson and Sánchez-Martín, 2018); Uruguay (Bucheli, Lustig, Rossi and Amabile, 2014); and Venezuela (Molina, 2018).

income including private transfers) and the net of direct taxes, to which government transfers are added. However, what people consume with a given disposable income depends on indirect taxes and subsidies. In Latin America, indirect taxes are, in general, the principal source of tax revenue. As we will see in this section, in some countries, the capacity to consume for low-income people is lower after tax due to indirect taxes. On the other hand, the monetary value of in-kind transfers (measured at average cost to the government) that families receive for public services in education and health is very significant, especially to members of lower income levels.

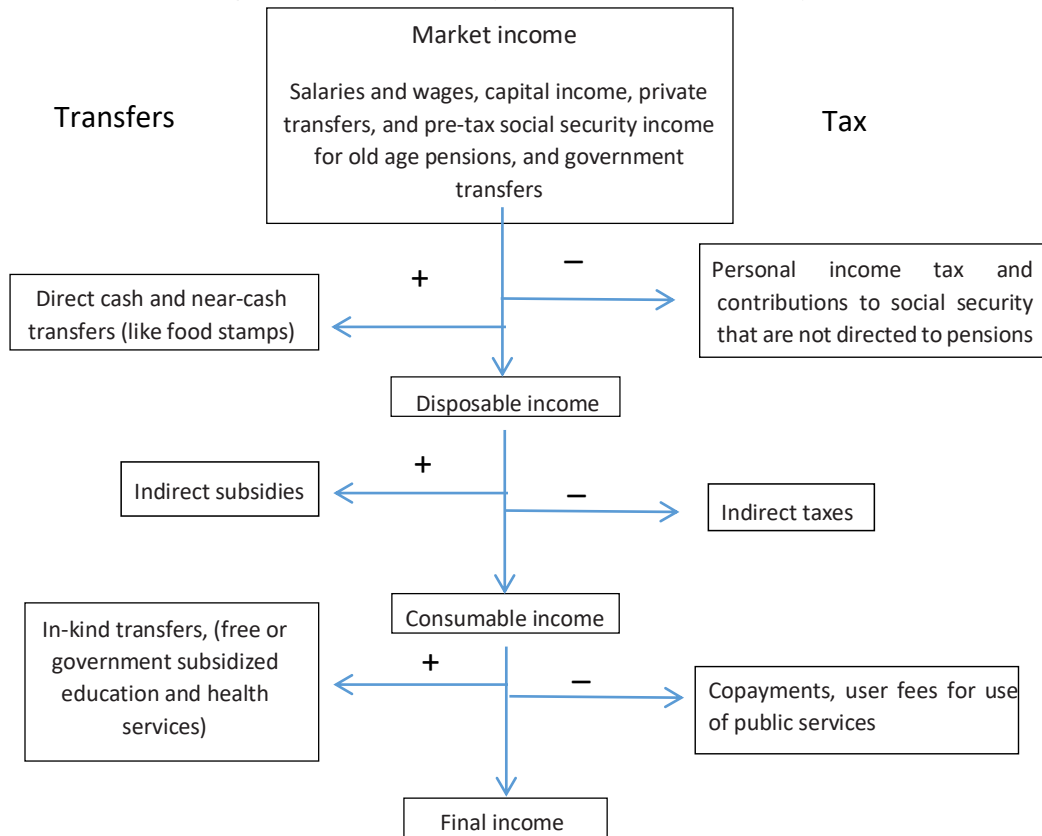
The method used most frequently to determine the distribution of tax burden and the benefits of spending within the population is fiscal incidence analysis. In essence, this method consists of assigning the portion of taxes (in particular, taxes to individuals, contributions to social security, and consumption taxes) and of social spending and consumption subsidies that correspond to each individual in order to compare income and its distribution before and after tax. This method of fiscal incidence analysis uses the “accounting approach” meaning it doesn’t take into account the responses of agents’ behavior, the incidence throughout life cycle, or effects of general equilibrium induced by the fiscal system. Despite these caveats, these 18 studies are among the most detailed, exhaustive, and comparable ones available for Latin America.<sup>16</sup>

The information that used in fiscal incidence analysis is a combination of the microdata from household surveys and administrative data about the rates and characteristics of the tax system, transfer programs, educational systems, social security, health insurance and consumption subsidy schemes. Incidence analysis usually begins by defining the income concepts that are used. Here, four income concepts are employed: market income, disposable income, consumable income, and final income, as described in diagram 1. The indicator of wellbeing is always income per person.

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<sup>16</sup> In contrast with existing publications, this incidence analysis keeps the use of secondary sources to a minimum. For example, Breceda, Rigolini, and Saavedra (2008) and especially Goñi, López, and Servén (2011), rely substantially on secondary sources in their incidence analysis.

Diagram 1. Income concepts in fiscal incidence analysis



Source: Lustig (2018).

In the fiscal incidence literature, some authors treat pensions from social security as a deferred income (Breceda, Rigolini and Saavedra, 2008; Immervoll, Kleven, Kreiner and Verdelin, 2009) while others consider them as if they were government transfers (Goñi, López and Servén, 2011; Immervoll *et al.*, 2009; Lindert, Skoufias and Shapiro, 2006; Silveira, Ferreira, Mostafa and Ribeiro, 2011). In the first case, the assumption is that contributory pensions are part of a social security system in which individuals receive the equivalent of their contributions plus returns on investment during their retirement. In the second, the assumption is that the pensions that people receive are not linked to their contributions (even when the system as a whole may or may not be in actuarial equilibrium).

Due to the difficulty of precisely separating the deferred income component from the transfer component of income in contributory public pension schemes, the results presented in this article are based on two extreme scenarios: either contributory pensions are treated as any other direct transfer, or market income is calculated as if it were any other prefiscal income. When pensions are considered government transfers, contributions to social security for pensions are subtracted from market income as if they were any other direct tax. However, when contributory pensions are considered to be deferred income, contributions to social security for old age pensions are

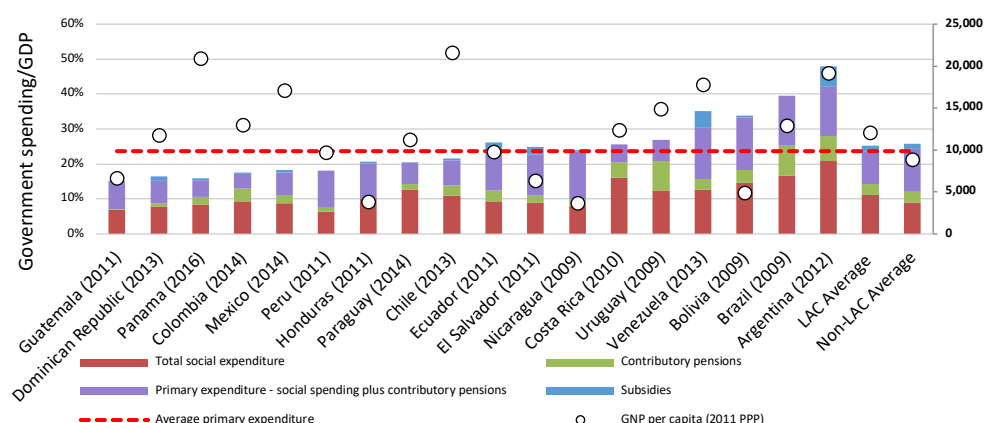
accounted for as forced savings and are subtracted to generate prefiscal income (they are kept totally out of calculations).

Finally, the incidence of public spending on education and health are calculated by assigning average public spending to users of those services. In the case of education, the analysis used public spending by education level. For health, depending on the available data, one can differentiate the value of different levels of care. This focus is equivalent to asking how much household income would increase if they had to pay for the total cost of a free public service. It is important to remember that the cost of the provision of a service can be different from the value that said service represents for those who consume it. Given that the monetization of the services based on average cost is controversial, the values of final income should be taken with caution.

#### **4.1. Size and composition of spending and government income**

Some of the principal determinants of the redistributive potential of a fiscal policy are the size and composition of spending, especially social spending, and by whom this spending is financed. The primary expenditure on average for the region, as a percentage of GDP, is equal to 23.7% (graph 15). Social spending as a percentage of GDP is, on average, equal to 14.4% including contributory pensions and 11.2% without them. As a point of comparison, social spending as a percentage of GDP for the advanced OECD member countries is 26.7% on average, or, almost double social spending in the Latin American countries. However, this same percentage for low or middle income countries outside of Latin America (for which information is available) is equal to 11.7%. The 18 countries have considerable differences between the size of the state and the composition of public spending. Primary expenditure as a proportion of GDP varies from 42.1% in Argentina (a level similar to the OECD average) to 14.8% in Guatemala. Social spending plus contributory pensions as a percentage of GDP is also heterogeneous and varies between 28% in Argentina (similar to the OECD average) and 7.2% in Guatemala. Countries which assign the largest percentage of their budget (primary expenditure) to social spending and contributory pensions include Colombia, Costa Rica, Paraguay and Uruguay (70%) and those that spend the least, proportionately, on the social sectors are Nicaragua and Peru (42). This information is presented in graph 16.

Graph 6. Primary and social expenditure as a percentage of GDP (2010s).

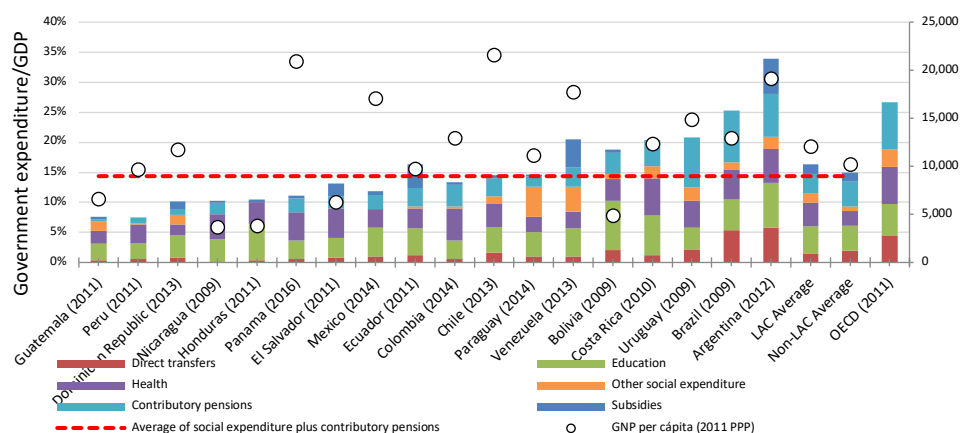


Note: The Non-LAC countries included are: Armenia (Younger, Osei-Assibey and Oppong, 2019); Ethiopia (Hill, Eyasu and Woldehanna, 2014); Georgia (Cancho and Bondarenko, 2015); Ghana (Younger *et al.*, 2018); Indonesia (Afkari, Jellema and Wai-Poi, 2015); Iran (Enami, Lustig and Aranda, 2017); Jordan (Abdel-Halim. Alam, Mansur and Serajuddin, 2016); Russia (Popova, 2019); Sri Lanka (Arunatilake, Gómez, Perera and Attygalle, 2019); South Africa (Inchauste *et al.*, 2016); Tanzania (Younger *et al.*, 2019); Tunisia (Jouini, Lustig, Moumami and Shimeles, 2015) and Uganda (Jellema, Haas, Lustig and Wolf, 2016).

Source: CEQ Institute Data Center based on the results of the following Master Workbooks: Argentina (Rossignolo, 2018b); Bolivia (Paz Arauco *et al.*, 2014b); Brasil (Higgins *et al.*, 2019); Chile (Martínez-Aguilar *et al.*, 2016); Colombia (Meléndez and Martínez, 2019); Costa Rica (Sauma and Trejos, 2014b); Ecuador (Llerena *et al.*, 2017); El Salvador (Beneke, Lustig and Oliva, 2019); Guatemala (Cabrera and Morán, 2015); Honduras (Castaneda and Espino, 2015); Mexico (Scott *et al.*, 2018); Nicaragua (Cabrera and Morán, 2015); Panama (Martínez-Aguilar, 2018); Paraguay (Giménez *et al.*, 2017); Peru (Jaramillo, 2019); Uruguay (Bucheli, 2019), and Venezuela (Molina, 2018).

In terms of composition of social spending, on average the 18 countries assign 1.5% of their GDP to direct transfers, such as conditional and unconditional cash transfers, income from employment programs, unemployment benefits, non-contributory pensions, food, breakfasts, and school uniforms (not included in contributory pensions). In contrast, the OECD average is 4.4%. Nicaragua spends the least: only 0.1% of their GDP on direct transfers. For contributory pensions, the average spending for the 18 countries is 3.2% of GDP, while the OECD average is 7.9% (although this number includes contributory and non-contributory pensions). The most notable difference is between Brazil (which spends 8.7% of its GDP) and Honduras (which only designates 0.1% of its GDP to contributory pensions). Education expenditure represents, on average, 4.5% of GDP, while the OECD average is equal to 5.3%, which is a considerably smaller differences than those in the previous sectors. The country that assigns the most resources to public education is Bolivia (8.3% of GDP) and the one that assigns the least is Peru (2.6% of GDP). For health expenditure, the average for the 18 countries is 3.9% of GDP and 6.2% for the OECD. Costa Rica assigns the most resources to health (6.2% of GDP) and the Dominican Republic assigns the least (1.8% of GDP). This information is presented in graph 16.

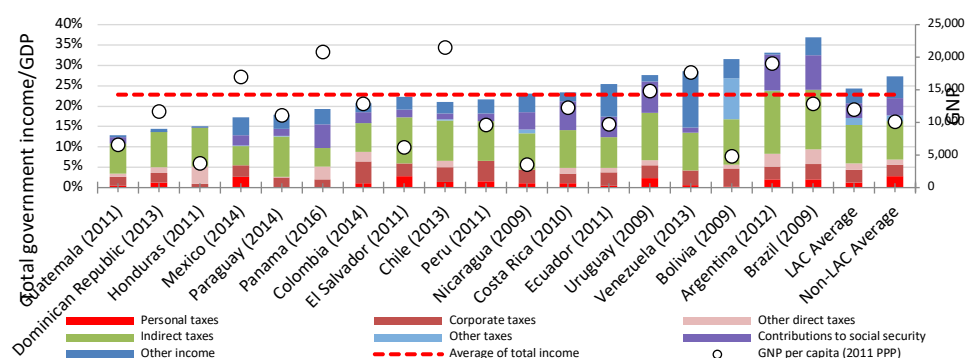
Graph 16. Composition of social expenditure as a percentage of GDP (2010s)



Source and note: See graph 15

In terms of how public expenditure is financed, on average, direct taxes, contributions to social security, indirect taxes, and non-tax income represent 22.8% of GDP. Total direct taxes compose 5.9% of GDP (of which 1.2% are taxes to individuals and the rest are taxes to corporate income, marriage, and other direct taxes) Indirect taxes represent 9.5% (of which 6.4% correspond to VAT and 1.3% to excise taxes). In the majority of the countries, direct taxes and contributions to social security represent between 30% and 59% of total income. With the exception of Ecuador, Mexico, and Venezuela, where non-tax income represents a considerable fraction of total income, indirect taxes are the largest source of income (around 40% or more of total income). This information is presented in graph 17.

Graph 7. Composition of government income as a percentage of GDP (2010s)



Source and note: see graph 15.

## 4.2. Effect of fiscal policy on inequality

The redistributive effect of *direct taxes (to people) and direct transfers* is calculated by comparing the Gini coefficient for disposable income with the Gini coefficient for market income (scenario in which contributory pensions are considered a transfer) or for market income plus pensions (scenario in which contributory pensions are considered a deferred income). The results for the scenario in which pensions are treated as a government transfer are reported below.

The average redistributive effect is equal to a decrease in the Gini coefficient of 2.8 percentage points. As observed in graph 18, when pensions are considered a transfer, the countries that show the biggest redistributive effect are Argentina, Uruguay, and Brazil<sup>17</sup>. Honduras, Peru, and Guatemala show the smallest redistributive effect. Although Brazil is among the countries that redistribute the most, it continues to show a high level of inequality, even after the equalizing effect of direct taxes and transfers. It is interesting to note that, even though Brazil, Colombia, and Honduras share similar levels of inequality, Brazil redistributes resources at a much higher rate than the other two countries. In the same way, Argentina, Bolivia, and Chile share similar levels of inequality, but taxes and direct transfers are much more redistributive in Argentina and Chile. How do the results change in a scenario in which contributory pensions are considered deferred income? The average redistributive effect is, as expected, a bit lower, 2.1 percentage points.

When the redistributive effect of the 18 Latin American countries is compared with those from the European Union and the United States, the following is observed (graph 18, panel A). The redistributive effect of direct taxes and transfers is considerably larger in European Union countries, and to a lesser extent, in the United States. In the countries in Latin America, the redistributive effect is 2.7 percentage points (simple average) when contributory pensions are considered transfers, and 2.1 percentage points when the pensions are considered deferred income. For the countries in the European Union, the difference between both scenarios is enormous: 19.1 and 7.7 percentage points, respectively. In the United States, the difference is less dramatic: 10.9 and 7 percentage points, respectively. These results highlight the importance of the assumption about treatment of contributory pensions when comparing the redistributive effect. If contributory pensions are considered deferred income, the redistributive effect is 5.7 percentage points greater in the European Union. However, the redistributive effect is 16.4 percentage points higher when contributory pensions are considered transfers<sup>18</sup>. Remember that the redistributive effect of contributory pensions as transfers in the European Union, especially, is exaggerated by the presence of many retired individuals or “false poor.” This group’s prefiscal income appears to be zero or close to zero; but this doesn’t really reflect their economic condition, since even in the absence of social security pensions, they have had a positive income (because they have continued in the labor market, used their savings, or received private transfers).

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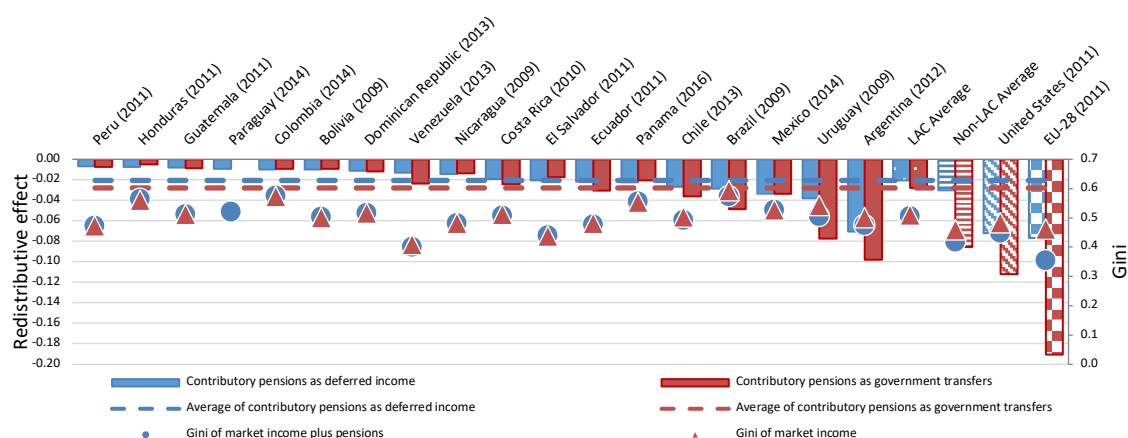
<sup>17</sup>The scenario with contributory pensions as transfers was not calculated for Paraguay.

<sup>18</sup> It is important to mention, however, that for some countries in the European Union, it is not easy to distinguish which portion of pension income comes from the contributory system and which portion comes from the social welfare system, and therefore the difference between both scenarios could be overestimated.

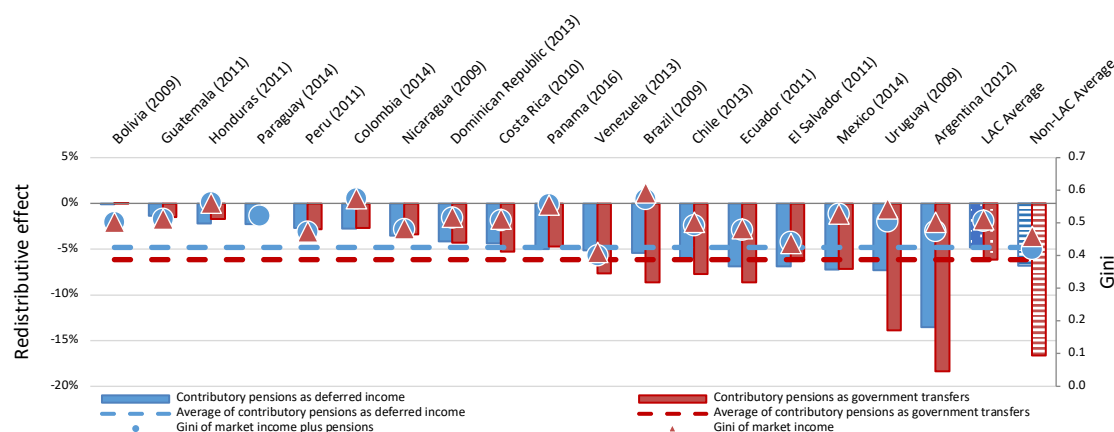
When the effects of taxes and indirect subsidies are also taken into account, the reduction in inequality is attenuated in Argentina, Bolivia, Guatemala, and Uruguay. In these four countries, the effect of these fiscal policy tools is un-equalizing. In the case of Bolivia, the effect of indirect taxes (net subsidies) practically “erased” the equalizing effect of direct taxes and transfers. The net effect of indirect taxes and transfers, however, is equalizing in the rest of the countries. Part of this effect, surprisingly, is due to a certain extent to the assumption included in several of the analyses that rural households and those who acquire goods and services in the informal sector (for example, markets on wheels, tianguis/open-air markets), etc.) practically never pay indirect taxes like the VAT.

Graph 8. Redistributive effect

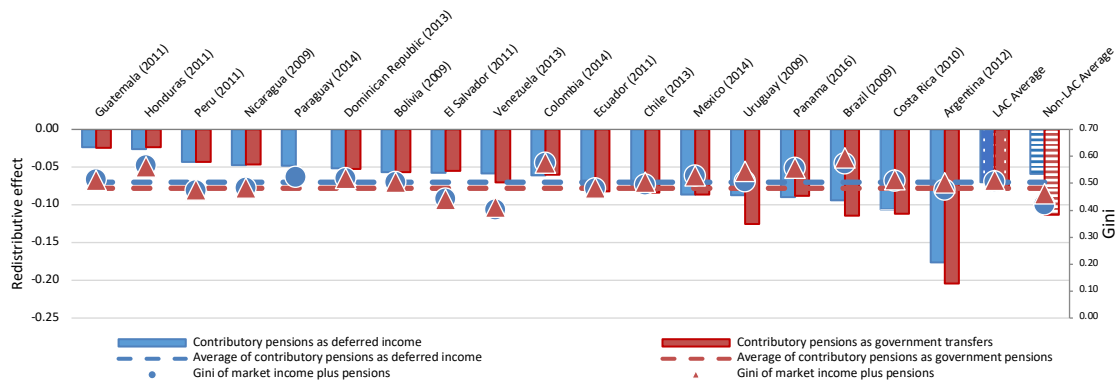
Panel A: Change in Gini: market income and market income plus pensions to disposable income (2010s)



Panel B: Change in Gini: market income and market income plus pensions to consumable income (2010s)



Panel C: Change in Gini: market income and market income plus pensions to final income (2010s)



Source and note: see graph 15

When the fiscal system is considered as a whole - including the effects of direct and indirect taxes, direct transfers, indirect subsidies, and the *monetized value of health and education expenditure* - the reduction of inequality is greater in magnitude, as expected. The information is presented in panel C of graph 4. For the scenario in which contributory pensions are treated as transfers, the simple average of the fall in the Gini coefficient from market income to final income is 7.8 percentage points. The countries that redistribute the most are Argentina, Costa Rica, and Brazil, and those that do so the least are Honduras, Guatemala and El Salvador. The marginal contribution of education and health spending to the total redistributive effect is, on average, 7.7 percentage points. When contributory pensions are considered deferred income, the simple average of the fall in the Gini is equal to 7 percentage points; meaning it is slightly smaller than the case in which pensions are treated as government transfers.

What is the effect of contributory pensions on their own? On average, the effect is equalizing. Contributory pensions have an equalizing effect of a significant magnitude in Uruguay, Argentina, and Brazil. In Bolivia, Colombia, El Salvador, Guatemala, Honduras, Mexico, and Panama, contributory pensions have an un-equalizing effect, which, however, is small on average. These results are important because they show that it cannot be proven generally that contributory pensions in Latin America are regressive and un-equalizing.

It is proposed in Lustig (2018) that determining whether the contribution of a fiscal policy component is equalizing, un-equalizing, or neutral relies on an analysis of their marginal contribution. The marginal contribution is defined as the difference between the Gini of the pre-tax income plus all of the fiscal system components except the one which we want to evaluate, and the Gini of the income which includes that latter variable. The marginal contribution of direct taxes and transfers is always equalizing (positive sign), except in Colombia, when direct taxes are almost neutral. In all countries, with the exception of Mexico and Peru, the marginal contribution of transfers is somewhat greater than the marginal contribution of direct taxes. Indirect subsidies and education and health spending are also always equalizing. The marginal contributions of education

and health greatly exceed the other components with a positive sign, except in Ecuador, where the marginal contribution of direct transfers is greater than the marginal contribution of health. On the contrary to what this seems to confirm, indirect taxes do not always increase inequality. The effect of these taxes is un-equalizing in Bolivia, Brazil, Colombia, El Salvador and Uruguay, but is equalizing in Chile, Costa Rica, Ecuador, Mexico and Peru. Also, when one incorporates the monetized value of education and health services to the income of individuals, indirect taxes reduce inequality in every case, except in Colombia.

### **4.3. Effect of fiscal policy on poverty**

It is important to recall that the impact of the fiscal system on inequality can have a different impact on poverty. In general, poverty (and inequality) indicators are calculated using disposable income as the wellbeing variable. However, this income concept does not capture the impact on purchasing power of taxes and indirect consumption subsidies. To capture this effect, it is necessary to measure poverty using the concept of consumable income. The importance of this can be seen with an example. Let us assume that a household's disposable income is identical in one country and another, but in the first country, food is taxed with a VAT of 10%, while in the other, food is exempt. Therefore, at the same income level, one can consume less food in the first case than in the second.

As Inchauste and Lustig (2017) and Lustig (2018) demonstrate, even if all the fiscal systems analyzed with the concept of consumable income are equalizing, in some countries, fiscal policy increases poverty. In other words, in terms of purchasing power, the system impoverishes the impoverished. This occurs primarily because of the effect of indirect consumption taxes which, even in the case in which they are progressive (meaning, the share of income that households designate to these taxes increase with income), the purchasing power of poor households is decreased. When this reduction exceeds the amount that the poor receive in direct transfers and indirect subsidies, the fiscal system impoverishes the impoverished.

As can be observed in panel A of graph 19 (contributory pensions as transfers), fiscal policy reduces extreme poverty (measured with consumable income and the poverty line of 2.5 2005 PPP dollars/day) in 12 of the 17 countries<sup>19</sup>: Argentina, Brazil, Chile, Colombia, Costa Rica, Ecuador, El Salvador, Mexico, Panama, Peru, Uruguay and Venezuela. However, a worrisome result is that the incidence of poverty for consumable income is greater than the incidence for market income in Bolivia, Guatemala and Nicaragua because in these countries, consumption taxes are larger than benefits from transfers and subsidies, which results in poor individuals being net payers of the tax system<sup>20</sup>. This holds true even when the combination of direct and indirect taxes, direct transfers, and indirect subsidies – as seen above – reduce inequality.

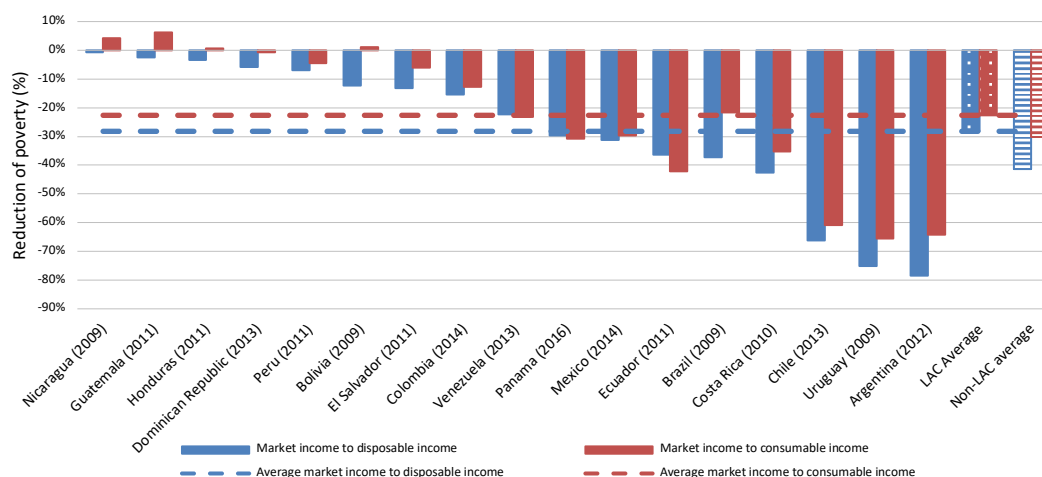
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<sup>19</sup>The pensions as transfers scenario is not available for Paraguay

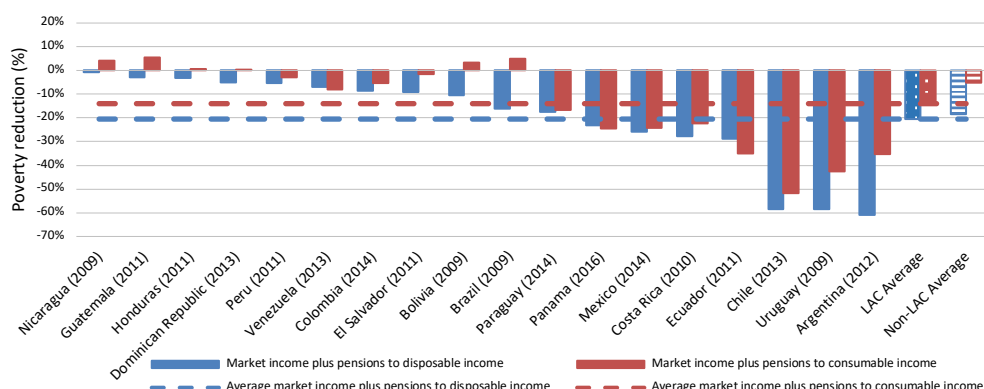
<sup>20</sup> In Honduras and the Dominican Republic, the difference is small enough to be considered an absence of change.

Graph 19: Fiscal policy and poverty reduction (2010s).

*Panel A: Contributory pensions as government transfers*



*Panel B: Contributory pensions as deferred income*

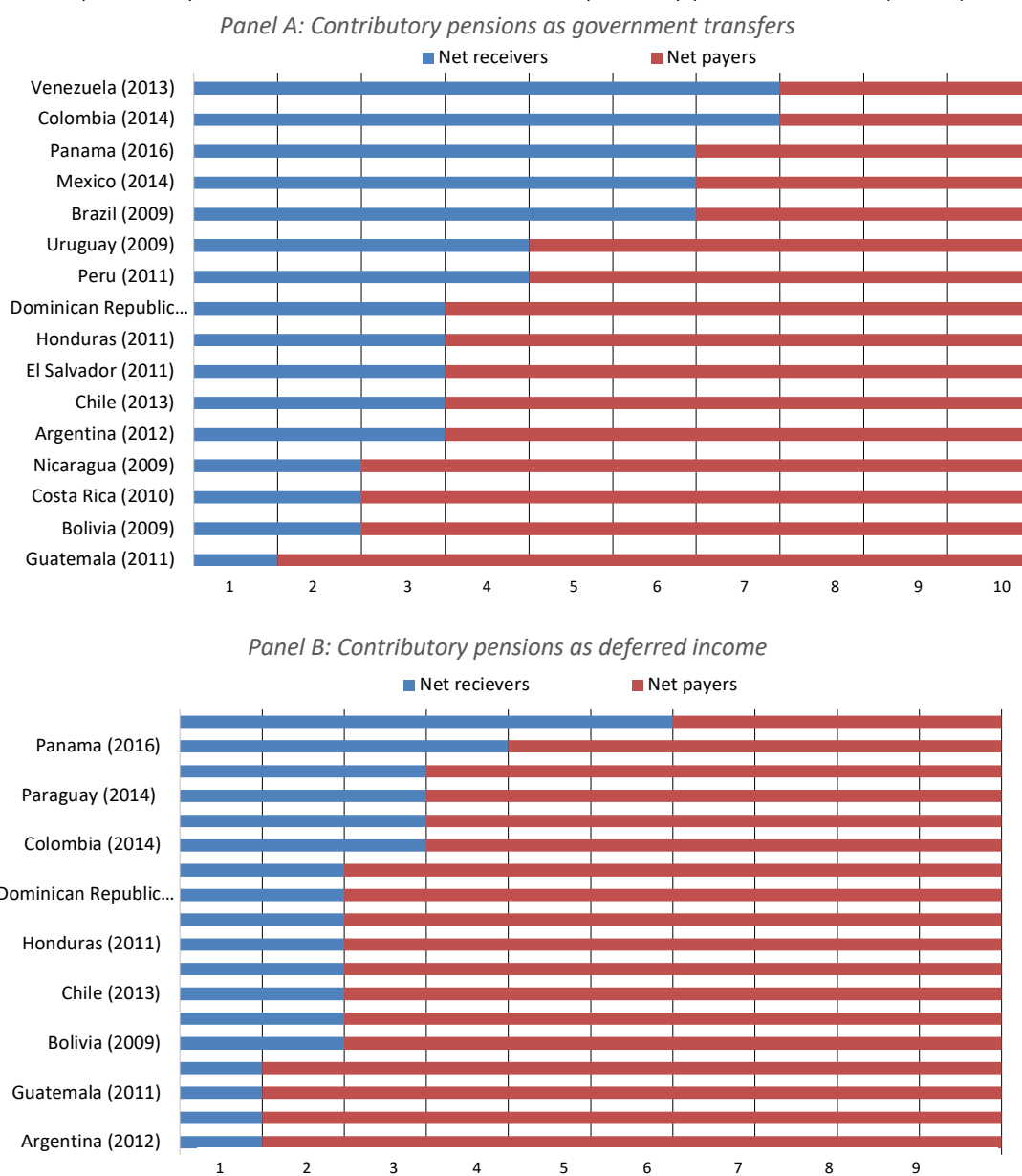


Note: The poverty line is 2.5 2005 PPP dollars/day; difference in incidence of poverty of market income and poverty of market income plus pensions to disposable income and consumable income (in %)

Source: See graph 15.

In addition to the impact on poverty indicators, it is valuable to know the decile of individuals who are net payers of the tax system. Net payers are defined as those individuals who pay more in direct and indirect taxes than they receive in direct transfers and indirect subsidies. This analysis does not consider the benefits of education and health expenditure because they are in-kind and are calculated at their average cost to the government. The results are shown in panels A and B of graph 20. In the case in which contributory pensions are treated as government transfers (panel A) net payers come from deciles ranging from the second decile in Guatemala to the eighth in Venezuela. In contrast, when we consider pensions as deferred income, the first net payer is below the median prefiscal income in every case except Ecuador (panel B).

Graph 20. Payers and beneficiaries of the fiscal system by prefiscal income (2010s).



Source: See graph 15

#### 4.4. Effect of the fiscal system on the distribution of the use of public services

Health and education expenditure are classified using the method proposed in Lustig (2018). If the expenditure per person falls with income, this expenditure is considered pro-poor. If the expenditure per person is the same for all, this expenditure is considered neutral in absolute terms. If the expenditure per person relative to prefiscal income falls with income, this expenditure is progressive. If, however, it increases with income, this expenditure is regressive. In the first three cases, the expenditure in question would be progressive – that is, it would have an equalizing effect – and in the latter, it would be regressive – that is, it would have an un-equalizing effect.

The results of the analyzed countries can be seen in table 1. Total education expenditure is pro-poor in every country, with the exceptions of Argentina, Bolivia, Guatemala, Honduras, and Nicaragua, in which expenditure per individual is practically the same for the entire population. Expenditure on preschool and primary education is pro-poor in every country for which information is available. Spending on secondary education is equalizing in every country, but is not always pro-poor. Expenditure on tertiary education, as expected, is never pro-poor, but the only case in which spending on tertiary education is regressive is in Guatemala. Health expenditure is equalizing in all countries and pro-poor in Argentina, Brazil, Chile, Ecuador, Panama, Dominican Republic, Uruguay and Venezuela. Health expenditure is never regressive.

Table 1. Progressivity of expenditure and pro-poor health and education expenditure.

*Panel A: Contributory pensions as government transfers*

	Total education	Pre-school	Primary	Secondary	Lower secondary	Upper secondary	Tertiary	Health
1 Argentina (2012)	B							A
2 Bolivia (2009)	B	A	A	A			C	B
3 Brazil (2009)	A	A	A	A			C	A
4 Chile (2013)	A	A	A	A			C	A
5 Colombia (2014)	A	A	A		A	A	C	C
6 Costa Rica (2010)		A	A	A			C	
7 Ecuador (2011)	A		A	A				A
8 El Salvador (2011)	A	A	A			B	C	C
9 Guatemala (2011)	B	A	A	B			D	C
10 Honduras (2011)	C	A	A	B			C	B
	A	A	A	A			C	C
12 Nicaragua (2009)	B	A	A	B			C	B
13 Panama (2016)	A	A	A	A			C	A
14 Peru (2011)	A	A	A	A			C	B
15 Dominican Republic (2013)	A	A	A		A	A	C	A
16 Uruguay (2009)	A	A	A		A	B	C	A
17 Venezuela (2013)	A	A	A	A			B	A

Panel B: Contributory pensions as deferred income

		Total education	Pre-school	Primary	Secondary	Lower secondary	Upper secondary	Tertiary	Health
1	Argentina (2012)	A						C	A
2	Bolivia (2009)	B	A	A	A			C	B
3	Brazil (2009)	A	A	A	A			C	A
4	Chile (2013)	A	A	A	A			C	A
5	Colombia (2014)	A	A	A		A	A	C	C
6	Costa Rica (2010)		A	A	A			C	
7	Ecuador (2011)	A		A	A				A
8	El Salvador (2011)	A	A	A			B	D	C
9	Guatemala (2011)	B	A	A	B			D	C
10	Honduras (2011)	B	A	A	B			C	B
11	Mexico (2014)	A	A	A	A			C	C
12	Nicaragua (2009)	B	A	A	B			C	B
13	Panama (2016)	A	A	A	A			C	A
14	Paraguay (2014)	A	A	A	A			C	A
15	Peru (2011)	A	A	A	A			C	C
16	Dominican Republic (2013)	A	A	A		A	A	C	A
17	Uruguay (2009)	A	A	A		A	B	C	A
18	Venezuela (2013)	A	A	A	A			B	A

A	Pro-poor, negative concentration coefficient
B	Same per capita for all, concentration coefficient equal to zero
C	Progressive, positive concentration coefficient, but lower than the Gini of prefiscal income
D	Regressive, positive concentration coefficient and greater than the Gini of prefiscal income

Source: See graph 15

## 5. Conclusions

The first conclusion of the analysis is good news. The recent history of inequality in Latin America indicates that public policy can change it. In particular, the reduction of observed inequality during the first decade of the century can be linked primarily to two components of social policy: education

expenditure, which results in an increase in schooling for poor sectors of the populations, and the expansion of monetary transfers focused on the poor population. The increase in years of schooling for the poor population is one of the factors that is behind the reduction in the education wage gap and, the latter, given the fall in relative returns to education (the so-called education premium) is, in turn, one of the factors behind the reduction in inequality of labor income.

The second conclusion, however, is not favorable. As the post-2012 analysis shows (the year which approximately marked the end of the commodity boom), the reduction in inequality has not been sustainable in some places. Faced with lower or even negative growth rates, labor market conditions turned against poor sectors at the same time as fiscal restrictions impeded the introduction of compensation mechanisms.

Furthermore, as observed in section 2, it is probable that the information necessary for an accurate diagnostic of the scope and evolution of inequality is not available. The fact that the source used to measure inequality – household surveys – doesn't capture the income of the rich puts us at a disadvantage both for understanding the dynamics of politics economy and determining how just or unjust the existing social contract is. In particular, without an accurate account of the income of the rich, we cannot know with certainty the share that the most affluent sector of the population pays in direct taxes, which is the most progressive way to finance social expenditure.

In the third place, the fiscal systems of Latin America include as many states that are ungenerous with redistribution (for example, Guatemala) as it does states where the amount of redistributive spending is (or was) unsustainable (as has been demonstrated, for example, in the cases of Argentina and Brazil). And, one of the most worrisome results of the analysis in section 3 is that, even when all fiscal systems reduce inequality, in some countries, the net effect of the tax system is increased poverty because (at least part of) the poor population pays more in indirect taxes than what they receive in transfers and subsidies.

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