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Income Distribution in Latin America. The Evolution in the Last 20 Years: A Global Approach

Leopoldo TORNAROLLI*

Matías CIASCHI†

Luciana GALEANO‡

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Contact at AFD: Anda DAVID (davida@afd.fr)

* Centro de Estudios Distributivos, Laborales y Sociales, Universidad Nacional de La Plata, Argentina

† Researcher in the Southern Africa Labour and Development Research Unit

‡ Project Leader for the South Africa Reconciliation Barometer at the Institute for Justice and Reconciliation

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AFD, 5 rue Roland Barthes

75598 Paris Cedex 12, France

✉ ResearchPapers@afd.fr

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Income Distribution in Latin America. The Evolution in the Last 20 Years: A Global Approach

Leopoldo Tornarolli, Centro de Estudios Distributivos, Laborales y Sociales, Universidad Nacional de La Plata, Argentina

Matías Ciaschi, Centro de Estudios Distributivos, Laborales y Sociales, Universidad Nacional de La Plata, Argentina

Luciana Galeano, Centro de Estudios Distributivos, Laborales y Sociales, Universidad Nacional de La Plata, Argentina

Abstract

While Latin America has historically been considered a region of very high inequality, the performance of most Latin American countries in terms of reduction of income inequality has been remarkable good in the first decade of this century. Given that those improvements took place in a context of rising inequality in most of the world, the evolution of income inequality in the region has caught the attention of researchers and policy makers around the world.

Taking advantage of a large database of comparable microdata from household surveys, this article updates the evidence on the trends of income inequality in all Latin American countries for the period 1992-2015. It also provides an analysis of how the distinctive evolution of income inequality in this century in Latin America has changed the position of the different countries of the region in both, the global distribution of income in the world and the global distribution of income in Latin America. Finally, the paper decomposes the evolution of income inequality in several countries of the region, discussing the role played by several factors on that evolution.

Keywords: inequality, income, distribution, Latin America

JEL Codes: D63, I31, J11, J21, J31, J82, N36.

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Introduction

In the last few years, inequality has occupied a prominent place in public policy discussions. This renewed interest in inequality is mainly explained by the availability of new evidence showing that inequality in the distribution of income has been rising in most developed country in the last 30/40 years. Thomas Piketty's book, "*Capital in the Twenty-First Century*" (2014), triggered a worldwide debate on the evolution of inequality at national level in the most developed economies. While Piketty´s work attracted a lot of attention (and controversy), in 2015 there were two other excellent books analyzing rising inequality: Tony Atkinson's "*Inequality: What Can Be Done*" and François Bourguignon's "*The Globalization of Inequality*".

While the works mentioned in the previous paragraph are focused on the evolution of income inequality at national level in a few (developed) countries, two of the most interesting and discussed works on income inequality in 2016 study not only the evolution of income inequality at national level but also the evolution of global/world income inequality[1]. These two works are Branko Milanovic´s "*Global Inequality: A New Approach for the Age of Globalization*" (2016) and "*Global Income Distribution: From the Fall of Berlin Wall to the Great Recession*" (2013), by Christoph Lakner and Branko Milanovic. These authors provide evidence on the evolution of global income inequality over the period 1988-2008, and their results offer a more optimistic point of view than the one arising from the results of the aforementioned studies. According to the authors, global income inequality has slightly decreased in the last decades: the "world" Gini index declined from 72.2 in 1998 to 70.5 in 2008, with most of the decline (82%) taking place after 2003.

However, Lakner and Milanovic (hereinafter L&M) are very cautious about interpreting this evidence as a definitive sign of improvement in the level of global income inequality. More specifically, the authors consider that given the data constraints they "…*would suggest a conservative approach and conclude that the changes we observe over time are not statistically significant*". This conclusion does not imply that the distribution of income in the world has remained stable along the period 1988-2008, a situation that would be very unlikely considering that several developing countries joined the global economy during those years. On the contrary, L&M found that behind a seemingly stable global income distribution there were "*substantial re-ranking of country-deciles and changes in the regional composition of different parts of the global distribution*".

Although they do not explore in detail the evolution of income inequality at regional level, L&M also present very interesting evidence on the level and the evolution of global income inequality in Latin America. Regarding the level of global income inequality in Latin America, they found that the Gini index estimated across all individuals living in a certain region of the world is highest in Latin America and Sub-Saharan Africa. This finding is not a surprise, there were several well-known previous studies (e.g. Morley (2001), Lopez and Perry (2008), UNDP (2010),

[1] Global income inequality measures the distribution of incomes among all individuals in the world irrespective of their country of residence.

Alvaredo and Gasparini (2015) and ECLAC and OXFAM (2016)) establishing that Latin America is one of the most unequal regions around the world.[2]

With respect to the evolution of global income inequality within Latin America, L&M report that it has *"…remained virtually unchanged with some ups and downs in the intervening period*". This can be seen as an unanticipated result: there is a growing literature showing that almost all Latin American countries have enjoyed a strong process of reduction in income inequality since the beginning of this century (e.g. López Calva and Lustig (2010), Gasparini et al. (2011), Gasparini and Lustig (2011), Azevedo et al. (2013), Cord et al. (2014), ECLAC (2014), Székely and Mendoza (2015), Gasparini et al. (2016), Székely and Mendoza (2016)).

For example, Gasparini, Cruces and Tornarolli (2016) found that the (unweighted) average Gini index for Latin American countries increased almost every year between 1992 and 2002 (from 50.8 to 54.0). After that year, the value of that Gini index has steadily decreased, reaching a minimum of 47.5 by 2014. The results showing a strong decrease in income inequality inside most Latin American countries are not necessarily contradictory with the one in L&M: if there was a significant increase in income inequality "between" countries over the same period, then decreasing inequality "within" countries can be perfectly compatible with increasing global inequality in the region. However, this particular case seems to be very unlikely.

This paper tries to be a useful addition to the literature on income inequality in Latin America, analyzing both income inequality at national level as well as global income inequality at regional level. More specifically, it tries to understand if and why global income inequality in the region has evolved following a different pattern than the one showed by income inequality at national level. In doing that, this work will contribute to the discussion on income inequality in Latin America in three aspects. First, it updates the evidence on the trends of within- country income inequality in all Latin American countries for the period 1992-2015. Second, it provides a detailed analysis of the evolution of global income inequality in the region over the same period, explaining why the findings of L&M differs from previous results in the literature on income inequality in Latin America. Finally, it presents a decomposition (by income sources) of the evolution of income inequality in several countries of the region. Following the results of the decomposition, the role played by several factors on the evolution of income inequality is carefully discussed.

The remainder of this paper is structured as follows. In Section 2 the databases and the methodology employed on the estimations are presented. Section 3 is devoted to analyze both, the evolution of the average level of income inequality in the region and the evolution of income inequality at national level. Section 4 deals with global income inequality using two different approaches. In Section 5 the results of the decomposition by income sources of the evolution of income inequality are presented and discussed. Finally, Section 6 closes with a summary of the results and a brief discussion of next steps.

[2] However, none of those works is focused on measuring global income inequality at regional level.

I. Data and Methodology

The measurement of global/regional inequality is conceptually similar to the measurement of inequality at national level: it involves the comparison of a welfare measure among individuals. However, the measurement of global inequality is much more complicated from an empirical point of view. The main difficulty associated with this exercise is the lack of a global/regional household survey that collects statistically representative information for the whole world (or at least for different world regions). The only possible way to overcome this absence of a global/regional household survey is to combine the information of national household surveys. The subsection describes the characteristics of the two databases used in the estimations of global and regional income inequality.

1.1. The data

SEDLAC databases

Part of the statistics presented in this paper were obtained by processing microdata from household surveys of Latin American countries. These micro-databases are part of the Socioeconomic Database for Latin America and the Caribbean (SEDLAC), a project jointly developed by the Centro de Estudios Distributivos, Laborales y Sociales (CEDLAS) at the Universidad Nacional de La Plata in Argentina and the World Bank's LAC poverty group (LCSPP). Currently, SEDLAC contains information on more than 400 household surveys in all Latin American countries. Most household surveys included in SEDLAC project are nationally representative; the exceptions are Uruguay before 2006 and Argentina, where surveys cover only urban population which nonetheless represents more than 85% of the total population of those countries.

Household surveys are not uniform across Latin American countries and in several cases not even within a country over time. SEDLAC team has made all possible efforts to make statistics comparable across countries and over time by using similar definitions of variables in each combination country/year, and by applying consistent methods of processing the data (see SEDLAC (2014) for details on the process followed to harmonize the databases). However, it is not possible to overcome all differences in geographical coverage and in the questionnaires of household surveys. In that sense, perfect comparability among country/years is not fully assured.

To analyze the level and the evolution of global income inequality in the region, six Latin America micro-databases (one for each of the following years: 1993, 1998, 2002, 2008, 2011 and 2014) were constructed by merging the microdata of the harmonized household surveys of each Latin American country. In the case that a household survey for a given country is not available for some year/s, the nearest household survey of that country was used with one adjustment: incomes of all individuals were increased/decreased by a common factor reflecting the evolution of per capita GDP between the benchmark year and the year of the household survey. In the final Latin America micro-databases, each individual is represented by his/her household per

capita income expressed in US dollars at 2005 Purchasing Power Parity and by his/her original weighting factor in the national survey.

L&M Database

In addition to SEDLAC databases, the World Panel Income Distribution (LM-WPID) database is also used to produce the statistics reported on this paper. The LM-WPID was assembled by Lakner and Milanovic for their paper "Global Income Distribution: From the Fall of the Berlin Wall to the Great Recession", and contains both a balanced and an unbalanced panel of country/deciles for the period 1988-2008. By expressing the average income of each country/decile in common currency and prices (US dollars at 2005 Purchasing Power Parity), the LM-WPID allows users to compare average income by decile both across countries and across time. Using this database, it is possible to derive global and regional income distributions for five years, at regular five-year intervals (1988, 1993, 1998, 2003 and 2008). Overall, the LM-WPID database includes 565 country/year observations, and each of them is represented by the average per capita income (in US dollars at 2005 PPP) of ten income decile groups. Given that the decile is weighted by its population, interpersonal global income inequality is measured assigning to each individual the average income of his/her national income decile.

It is worth mentioning some important "rules" followed by L&M in the construction of their database: 1) in the case that a household survey for a certain country is not available for some year, L&M used household surveys carried out from two years before to two years after the precise benchmark year; 2) for a given country, they do not use surveys too close (less than 3 years) or too far (more than 7 years) from each other in time (for example, if a survey from 1995 is used for benchmark year 1993, then surveys from 1996 and 1997 cannot be used for benchmark year 1998); and 3) they use income and consumption surveys interchangeably among countries, but they always use either income or consumption surveys for all years of a given country.

1.2. The Methodology

In this paper, the evolution of income inequality in Latin America is evaluated following three different but complementary approaches:

1) **Country-by-country:** this is the most traditional approach used to study the level and the evolution of income inequality. While some general results can be found on the analysis of the evolution of income inequality in Latin America (inequality first increased in a majority of countries during the 1990s, and then decreased in almost all countries after 2002), patterns and trends are not completely homogeneous across nations. In that sense, delving into the country experiences always unveils some interesting stories.

2) **Average Latin America:** analyzing average statistics for Latin America is a possible way to summarize an enormous bulk of information. The first part of Section 3 presents Gini indexes

estimates as the *unweighted* average[3] of national Gini indexes, a practice commonly used for cross-country evaluations in the economics literature. This information allows to draw first conclusions regarding the level and evolution of income inequality in the region.

3) **Global Latin America:** looking at the region as if it were a big country is another interesting way of summarize an abundant amount of information. In this kind of analysis, each World/Latin American inhabitant has the same weight in the estimations, irrespective of his/her country of residence.

II. The Evolution of Income Inequality in Latin America

Long before growing economic inequality became a major concern worldwide, the study of the evolution of income inequality and the analysis of its determinants were very important topics in social and economic discussions in Latin America. This is hardly surprising considering that the level of income inequality in most of the countries of the region has historically been very high and that there was a clear trend of increasing inequality in the region in the last three decades of the past century: during the 1970s there were some countries (Colombia, Mexico, Panama, Peru and Venezuela) where inequality went down, while other countries (Argentina, Chile, Uruguay) experienced an increase in inequality. The 1980s (a decade of weak macroeconomic performance in the region) and the 1990s (a period of deep reforms, with mixed macroeconomic results) were decades of frustrating performances in terms of inequality and most countries in the region suffered large increases in income inequality.

However, the most remarkable period for Latin America in terms of the evolution of inequality was the first decade of this century: almost all countries in the region were able to reduce significantly their levels of income inequality. This situation caught the attention of researchers all around the world, not only because it meant a turning point in the evolution of income inequality in the region, but also because those improvements took place in a context of growing income inequality in most of the world.

As a result, there is a vast literature analyzing the evolution and the determinants of income inequality in Latin American countries. Most of that literature focuses in individual countries, while a few papers take a more regional perspective and analyzes jointly the evolution and the determinants of inequality for all countries in the region. By presenting estimates of the level of income inequality for 2015 for all countries in the region, the next two subsections will update the evidence on the evolution of income inequality in Latin America countries.

[3] Weighting by population would imply that highly populated countries, such as Brazil and Mexico in Latin America, would account for most of the observed regional evolution.

2.1. Average Income Inequality in Latin America

Figure 1 depicts the evolution of the Gini index[4] for the distribution of household per capita income across 15 Latin American during the period 1992-2015.[5] The estimates indicate that the level of income inequality skyrocketed (from 50.8 to 54.0) between 1992 and 2002, and strongly fell from that year on, reaching a minimum (46.4) in 2015.

The sharp contrast between the evolution of income inequality during the 1990s and during the 2000s is documented and discussed in several studies (e.g. López Calva and Lustig (2010), Gasparini et al. (2011), Gasparini and Lustig (2011), Azevedo et al. (2013), Cord et al. (2014), ECLAC (2014)). According to Figure 1, the average Gini index increased 0.32 points a year between 1992 and 2002, and decreased 0.68 points a year in the period 2002-2010. The fall in inequality decelerated during the first few years of the 2010s: the average Gini index declined by 0.33 points a year between 2010 and 2014, less than half the speed in the previous period. **The main finding in Figure 1 is the one showing that the decrease in income inequality seems to have quickened again between 2014 and 2015: the average Gini index dropped by 0.73 points between those two years.**[6]

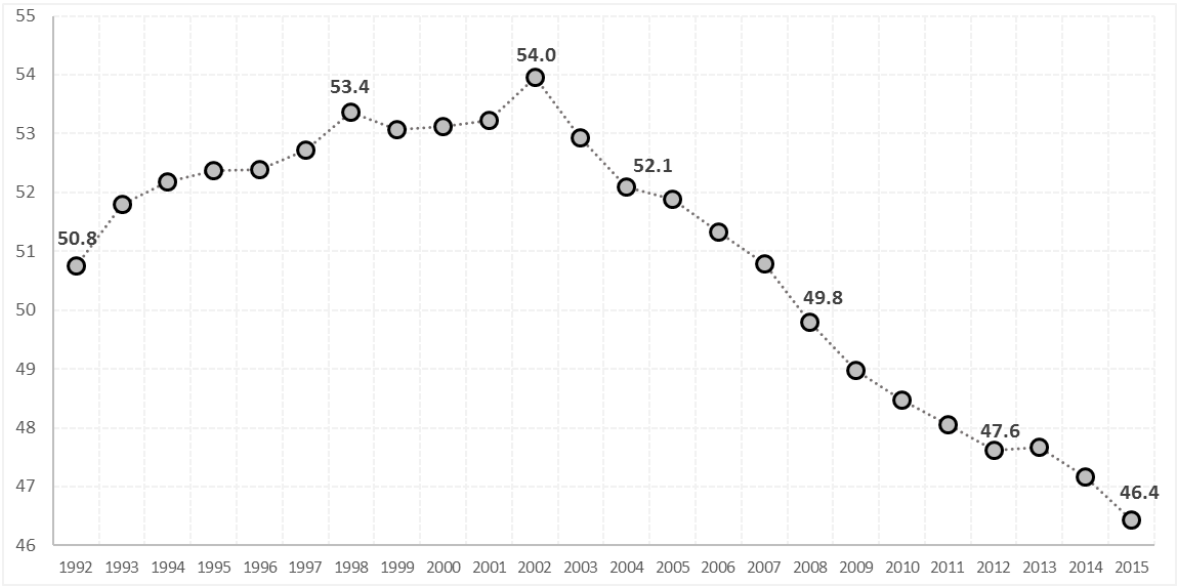
The latter result seems to support a more optimistic view on the evolution of inequality in Latin America in the near future than other recent studies (e.g. Székely and Mendoza (2015), Gasparini et al. (2016), Székely and Mendoza (2016)), but it must be interpreted with caution: at the same time that the average Gini index for the region went down 0.73 points, there were several countries (Argentina, Brazil, Chile, Ecuador, Ecuador, Peru, Venezuela) in which income inequality remained stagnant or even slightly increased between 2014 and 2015.

[4] Reporting simple averages for each year requires having a balanced panel, but several countries in the region do not have (or release) household surveys each year. A balanced panel was constructed by filling the gaps where surveys were missing. In doing that, interpolation of information from adjacent surveys and reports from national statistical offices were used.

[5] Guatemala, Nicaragua and Dominican Republic are not included in the analysis due to lack of data for several years in the period under analysis.

[6] The estimation for 2015 is still preliminary. The acceleration in the decrease of the average Gini index for Latin America between 2014 and 2015 is mainly explained by the strong decline in income inequality experienced by Bolivia, Colombia, Panamá and Paraguay.

Figure 1: Gini Index – Latin America 1992/2015



Source: own elaboration with data of SEDLAC (CEDLAS and The World Bank).
Note: The Gini Index for Latin America is the simple average of the Gini Indexes of the 15 countries.

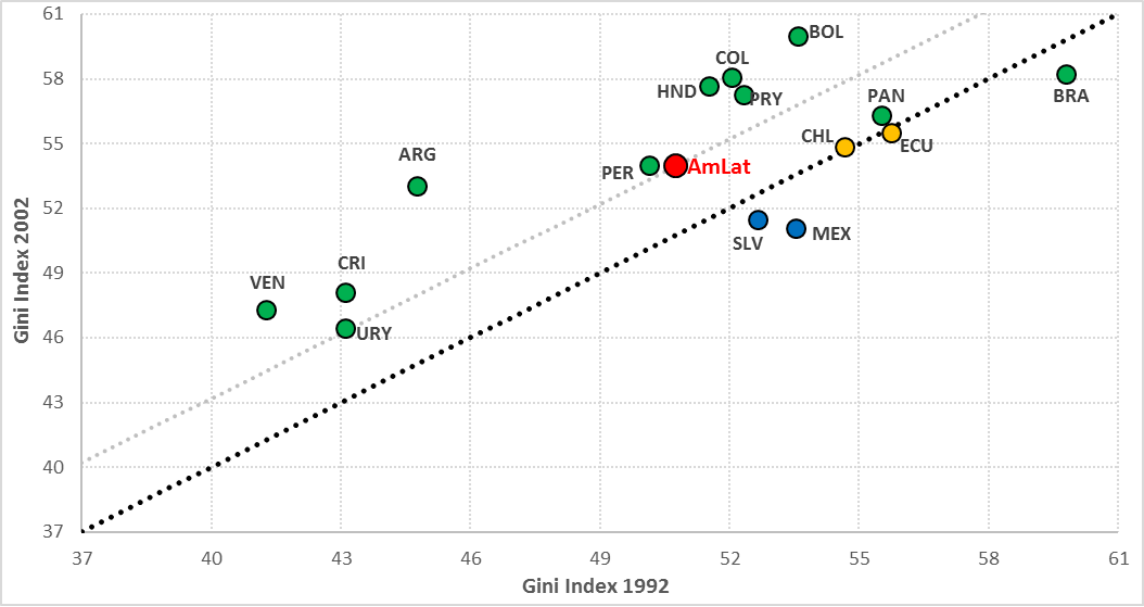
While the estimates in the previous figure confirm that, on average, the evolution of income inequality in the region followed very different patterns before and after 2002, they do not imply that the evolution of income inequality along the period has been the same in every country in the region. The next subsection provides detailed information to assess the evolution of income inequality in every country in the region in the period under analysis.

2.1. A Country-by-Country Analysis

The country-by-country evolution of income inequality in the period 1992-2002 is presented in Figure 2. The location of the red circle over the 45-degree line implies that the average Gini index for Latin America increased over the period (from 50.8 to 54.0). As expected, income inequality also increased in a majority of countries (Argentina, Bolivia, Colombia, Costa Rica, Honduras, Panamá, Paraguay, Peru, Uruguay and Venezuela), although the magnitude of the change was not the same in all of them: while the increment was very small in Panama and it was similar to the average of Latin America in Uruguay, the remaining countries (Argentina, Bolivia, Colombia, Costa Rica, Honduras, Paraguay, Peru and Venezuela) suffered a noticeable increase in income inequality.

Figure 2 also shows that Brazil, El Salvador and Mexico, along with Chile and Ecuador, are those countries in which income inequality didn't grow between 1992 and 2002: the first three countries enjoyed a reduction on inequality, while in the other two countries income inequality remained virtually unchanged.

Figure 2: Evolution of Income Inequality – Latin American countries 1992/2002

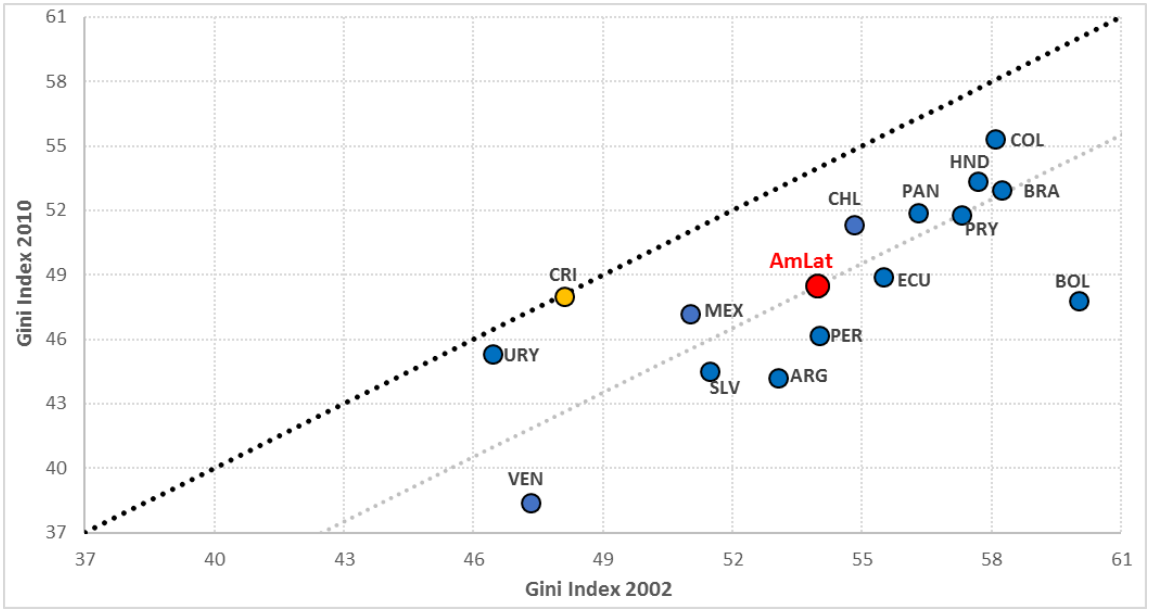


Source: own elaboration with data of SEDLAC (CEDLAS and The World Bank).

The evolution of income inequality over the period 2002-2010 is portrayed in Figure 3. As it was already mentioned, this was an exceptional period for Latin America: income inequality fell in all countries of the regions but Costa Rica, where income inequality remained at the same level between the beginning and at the end of the period.

Argentina, Bolivia, Ecuador, El Salvador, Peru and Venezuela were the countries with the biggest reductions on income inequality in those 8 years, while in Brazil and Paraguay the decline was very similar to the one observed for the average of Latin America. Chile, Colombia, Honduras, Mexico, Panama and Paraguay were also able to reduce their levels of income inequality, although the speed of improvement was slower than in the countries mentioned in the previous sentence.

Figure 3: Evolution of Income Inequality – Latin American countries 2002/2010

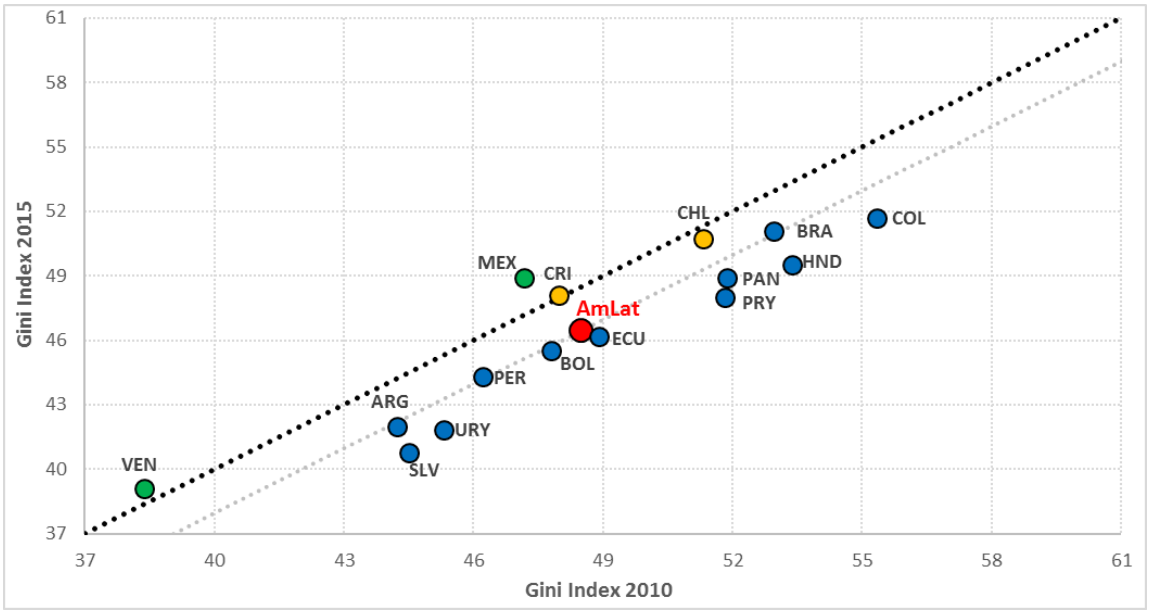


Source: own elaboration with data of SEDLAC (CEDLAS and The World Bank).

The evolution of income inequality over the period 2010-2015 is depicted in Figure 4. As previously stated, the period starting in 2010 is characterized by a deceleration in the rate of decrease of income inequality in Latin America. There were even some countries (Mexico and Venezuela) in which there was a reversion in the tendency towards a lower level of inequality, and other countries (Chile and Costa Rica) in which income inequality appears remained stagnant.

The figure also shows that, among those countries that managed to reduce income inequality (Argentina, Bolivia, Brazil, Colombia, Ecuador, El Salvador, Honduras, Panama, Paraguay, Peru and Uruguay), the rate of improvement was clearly lower than in the period 2002-2010. In fact, while over the latter period there were six countries (Argentina, Bolivia, Ecuador, El Salvador, Peru and Venezuela) in which the Gini index fell, on average, by more than 0.8 points a year, no country was able to reduce income inequality at a similar rate during the period 2010-2015.

Figure 4: Evolution of Income Inequality – Latin American countries 2010/2015



Source: own elaboration with data of SEDLAC (CEDLAS and The World Bank).

Finally, Figure 5 contains a summary of the country-by-country evolution of income inequality over the whole period 1992-2015. Several interesting conclusions can be drawn from that figure:

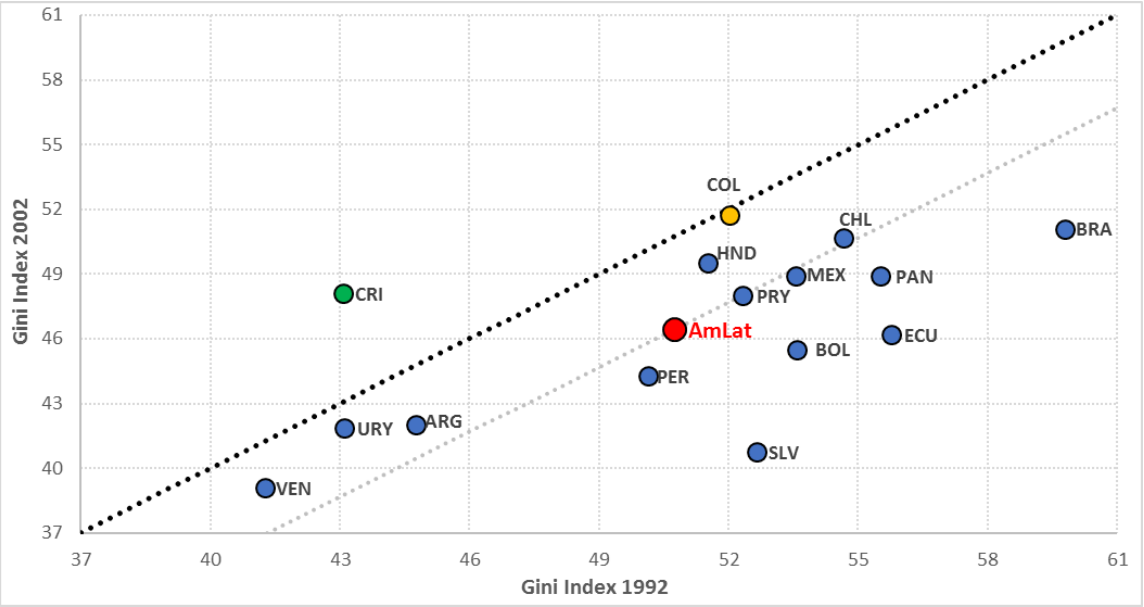
1) **Income inequality has clearly decreased after 1992 in almost all Latin American countries.** The only exceptions in our sample are Colombia and Costa Rica. In Colombia, the level of inequality in 2015 was slightly lower than in 1992, but at least the country has experienced an important decline in income inequality during the last five years. The case of Costa Rica is more worrisome: income inequality has remained stagnant or has increased in all the subperiods considered in this analysis.

2) **There was some kind of "convergence" in inequality levels between countries**: the four countries with the lowest levels of income inequality in 1992 (Venezuela, Uruguay, Costa Rica

and Argentina) are among the six countries with lowest levels of inequality reduction over the period 1992-2015. On the contrary, five out the seven countries with the highest levels of income inequality in 1992 (Brazil, Ecuador, Panama, Bolivia and El Salvador) are the five best performers on inequality reduction from 1992 to 2015.

3) **Brazil, the country in this sample with the highest level of inequality in 1992, is one the countries with a more constant performance:** after 1993, income inequality has decreased almost every single year and the country has not witnessed any single episode in which inequality rose by more than 0.1 points a year. As the country is currently going through its deepest recession in the last three decades, it is very likely that this positive streak has already come to an end.

Figure 5: Evolution of Income Inequality – Latin American countries 1992/2015



Source: own elaboration with data of SEDLAC (CEDLAS and The World Bank).

In summary, this section provided updated empirical evidence that confirms previous findings, as well as contributes to the discussions on the future evolution of income inequality in Latin America by adding a new result. The estimates show that, on average, income inequality sharply increased in Latin America over the period 1992-2002 and, after reaching a peak on 2002, it decreased significantly during this century, particularly over the period 2002-2010. There was a clear deceleration in the rate of decrease of income inequality after 2010, but the new results presented in this work indicate that the rate of decline of income inequality between 2014 and 2015 was similar to the rate observed between 2002 and 2010.

While the findings on the previous paragraph refer to the evolution on income inequality for the average of Latin America, the evidence presented above also confirms that almost all individual countries were able to reduce income inequality in the period 1992-2015.

III. Global Income Inequality in Latin America

The literature on global/regional inequality in Latin America is still scarce. In addition to the work of L&M, there is another contribution by Amarante, Galvan and Mancero (2016). These authors study how global income inequality in Latin America evolved between 2002 and 2012.[7] Their results indicate that there was a significant decrease in the global Gini index for the region over the period, from 58.7 to 53.9.

This section of the paper is devoted to analyze the evolution of global income inequality in Latin America, following two different approaches to estimate global inequality. In the first one, the main objective is to understand a "surprising" result reported by L&M: global income inequality in Latin America did not change much between 1988 and 2008. The estimates are obtained using the same database (LM-WPID) used by those authors, but unlike their work, the analysis will pay special attention the results for Latin America.

The second approach takes advantage of SEDLAC Project, which provides more detailed and more up-to-date information for Latin American countries. In this case, the main objectives are to confirm or to reject the findings of L&M findings for Latin America, and to updated the estimates of global income inequality for the region.

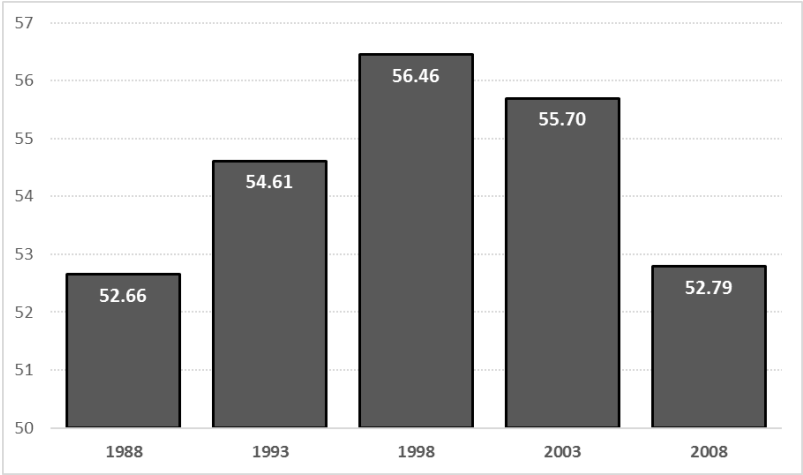
3.1. Lakner-Milanovic Methodology: Latin America in a World Context

In their paper on global income inequality, L&M present some results on the evolution of global income inequality in Latin America. As previously mentioned, their main conclusion about the situation of Latin America is that *"Inequalities within Latin America…have remained virtually unchanged with some ups and downs in the intervening period (1988-2008)*". These conclusions is based on both, their estimation of the global Gini index for Latin America region as well as their estimation of the global growth incidence curve for Latin America 1988-2008.

Figure 6 summarizes the estimations of L&M of the Global Gini index for Latin American countries. As it can be observed, these authors found that Latin America experienced a sharp increase in global income inequality between 1988 and 1998. There was a significant decrease on global income inequality after 1998, by 2008 the level of the Global Gini index for the region was almost the same than in 1988.

[7] Their analysis is restricted to those two years, they do not track the evolution of global inequality along the period.

Figure 6: Global Gini Index for Latin America – Lakner & Milanovic

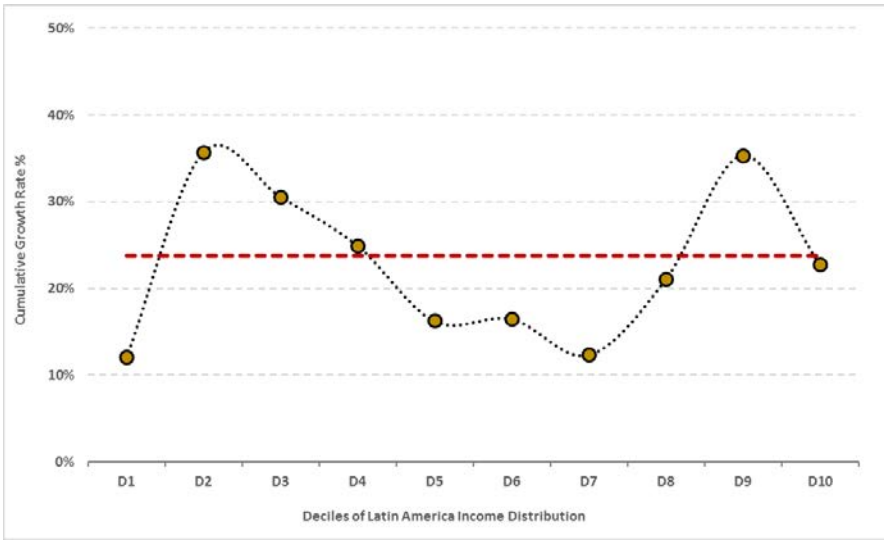


Source: own elaboration with data of LM-WPID.

Figure 7 displays the Growth Incidence Curve (GIC) for Latin America in the period 1988-2008. This is a "anonymous" GIC: it compares the average income of individuals in a given decile in 1988 with the average income of (other) individuals in the same decile in 2008. If the GIC has a downward (upward) slope, this implies that the growth process reduced (increased) the level of inequality along the period.

The GIC in Figure 7 shows that every decile had higher average income in 2008 than in 1988, which means that there is first-order stochastic dominance of the Latin American global distribution of 2008 over the one of 1988. However, the GIC does not have a clear downward or upward slope: the growth rate was highest for deciles 2, 3, 4 and 9, while the deciles with the lowest growth rates were 1, 5, 6 and 7. As a result, the process of growth between 1988 and 2008 did not affect much the level of global income inequality in the region, and the information on Figure 7 is consistent with the results of the global Gini indexes presented in Figure 6 above.

Figure 7: Growth-Incidence Curve Latin America 1988/2008 – Lakner & Milanovic



Source: own elaboration with data of LM-WPID.

The evidence discussed in the previous paragraphs is somewhat surprising because most works on income inequality in Latin America arrive to the same result: income inequality decreased in almost every country in the region over the period under analysis. Given that income inequality within countries declined, income inequality between Latin American countries should have significantly increased at the same time to keep global income inequality unchanged in the region. However, it does not seem to be the case: there was not such a divergence of incomes among Latin American countries over the period.

The potential inconsistency between the results in the literature and the results in L&M can be explained by a simple fact: the reduction on income inequality within Latin American countries is not fully reflected in the information included in the database used by those authors: according to the information on the LM-WPID database, income inequality increased in 10 (Argentina, Bolivia, Colombia, Costa Rica, Dominican Republic, Ecuador, Honduras, Mexico, Paraguay and Uruguay) out of the 15 countries of Latin America with information for 1988 and 2008.

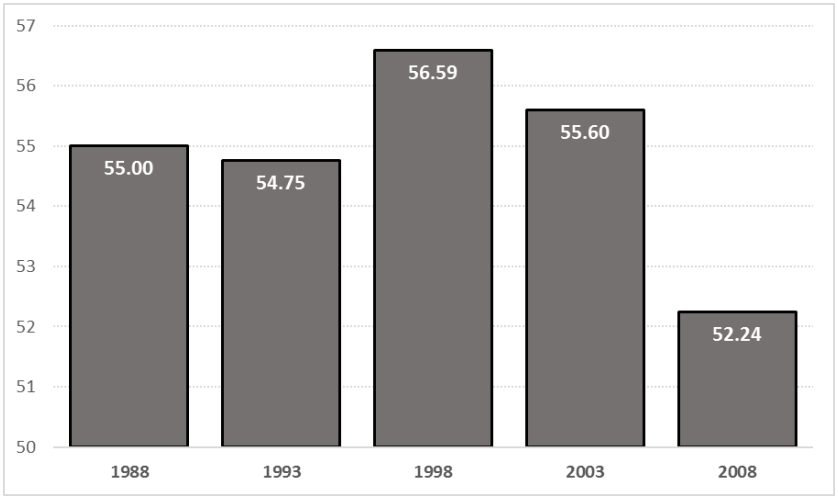
While it is possible that income inequality increased between 1988 and 2008 in some of those countries, there are some "problematic" cases in the L&M-WPID database:

1) **Mexico 1989:** the Gini index is extremely low (26.0). This seems to be a mistake.
2) **Bolivia 1990:** the Gini index is very low (41.1). A probable explanation is that the estimates for that year were obtained with a survey covering only metropolitan or urban areas.
3) **Paraguay 1990:** the Gini index is very low (39.8). Same explanation than in the case of Bolivia 1990, the household survey only covered metropolitan area of Asuncion.
4) **Colombia 1988 – Colombia 1992:** the Gini indexes for both years (51.4 and 49.9) are much lower than the Gini indexes for the remaining years. This is probably explained by the urban coverage of the survey in the first two years.
5) **Bolivia 1993**: the mean income of decile 3 is higher than the mean income of decile 4. This is for sure a typo/mistake.

Among those problems, the most problematic one is the extremely low Gini index for Mexico 1989. Given that Mexico is the second most populated country in the region, the distribution of income in Mexico significantly affects global income inequality in Latin America. To solve this problem, the income values for Mexico 1989, Bolivia 1990 and 1993, Paraguay 1990 and Colombia 1988 and 1992 in the L&M-WPID database were "corrected" using information from SEDLAC. After this correction, Figure 6 and Figure 7 were estimated again.

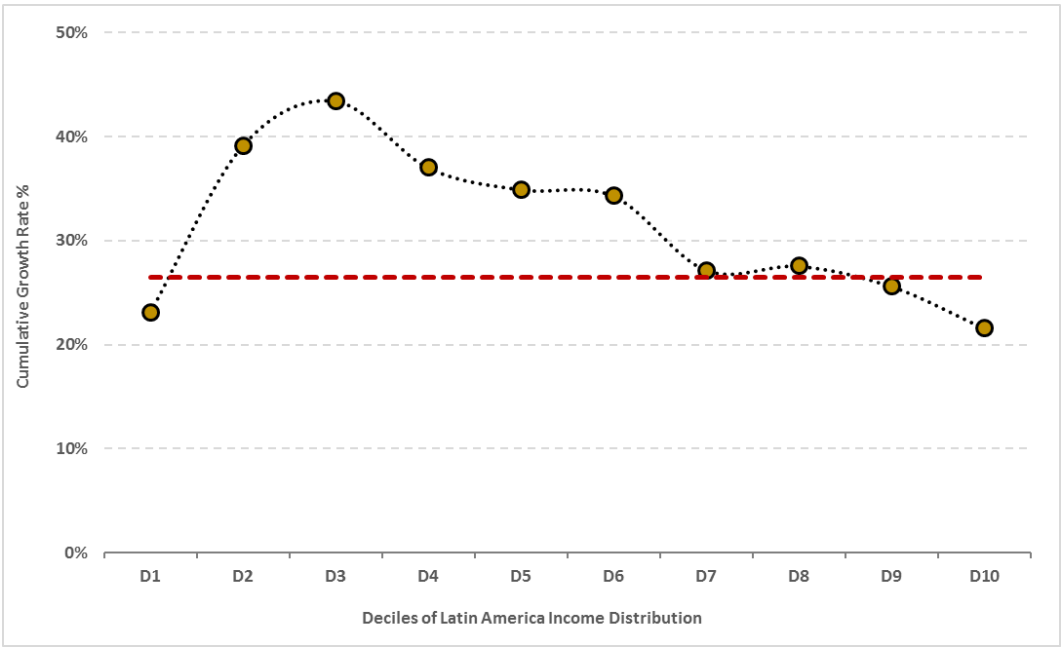
The new results suggest a story more in line with previous findings: at the same that that income inequality was decreasing in almost every country in the region, between 1988 and 2008 there was a significant reduction on global income inequality in Latin America. Figure 6_new indicates that the Global Gini index decreased over the period (from 55.0 in 1988 to 52.2 in 2008), while the GIC depicted in Figure_7 new reveals that during the period 1988-2008 the cumulative growth rate for the richest decile was lower than the rate for any other decile, and the cumulative growth rate for any of the 4 richest deciles was lower than the rate for any of the deciles 2 to 5.

Figure 6_new: Global Gini Index for Latin America



Source: own elaboration with data of LM-WPID and SEDLAC.

Figure 7_new: Growth-Incidence Curve Latin America 1988/2008



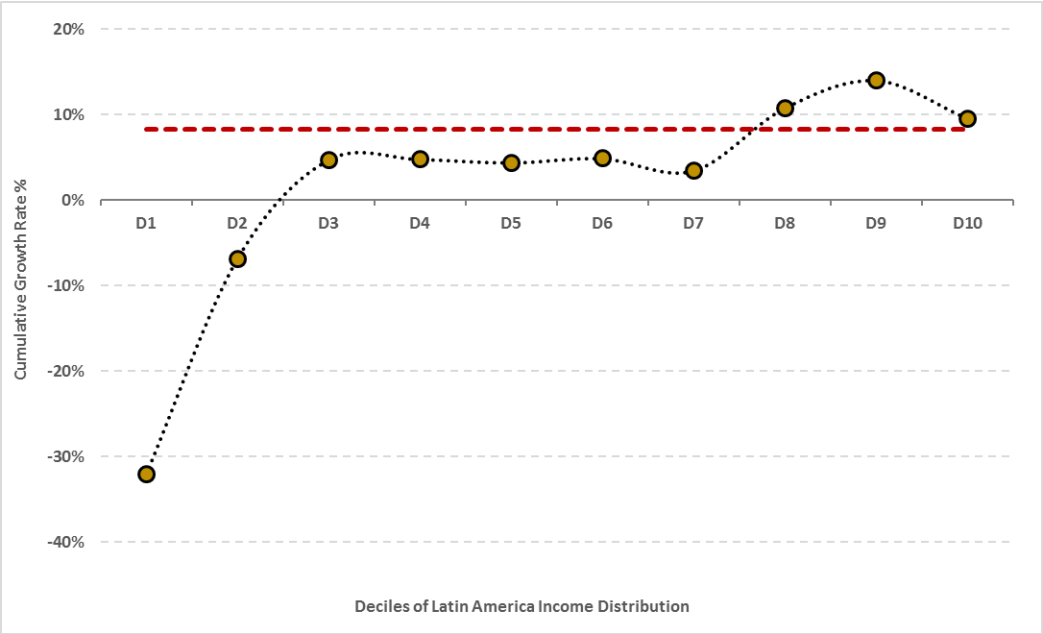
Source: own elaboration with data of LM-WPID and SEDLAC.

Summarizing, once the data for Mexico, Bolivia, Colombia and Paraguay is corrected in the LM-WPID database, the results on global income inequality for Latin America over the period 1988-2008 show the same decreasing trend than average income inequality in Latin America and inequality within the countries of the region.

Moreover, the new results also show another similarity with the evolution of average income inequality in Latin America: global income inequality evolved following very different patterns in the last decade of the past century and in the first decade of this one. The GIC in Figure 8 informs that the (very weak) growth process verified between 1988 and 1998 increased income inequality: the three richest deciles were the only ones enjoying growth rates higher than 5% over

that period, while the growth rates for the two poorest deciles were clearly negatives (approximately -32% and -7%, respectively).

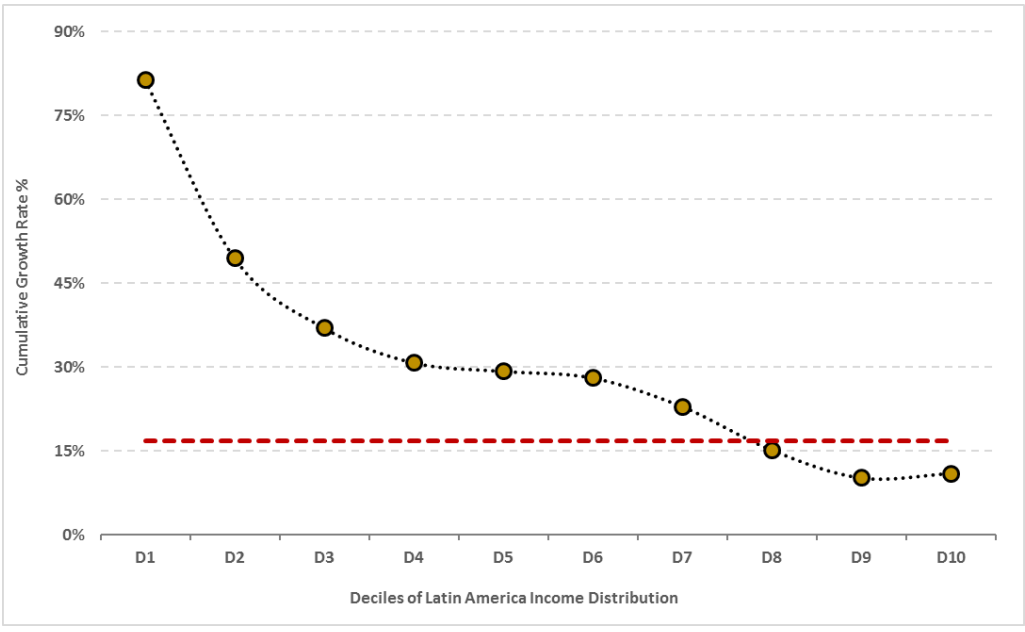
Figure 8: Growth-Incidence Curve Latin America 1988/1998



Source: own elaboration with data of LM-WPID and SEDLAC.

On the other hand, the downward-sloped GIC in Figure 9 demonstrates that between 1998 and 2008 there was a strongly equalizing growth process in Latin America: while all deciles enjoyed positive growth rates over that period, the size of the growth rate was significantly higher for the three poorest deciles.

Figure 9: Growth-Incidence Curve Latin America 1998/2008



Source: own elaboration with data of LM-WPID and SEDLAC.

In the second most populated country in the region, the distribution of income in Mexico significantly affects global income inequality in Latin America. To solve this problem, the income values for Mexico 1989, Bolivia 1990 and 1993, Paraguay 1990 and Colombia 1988 and 1992 in the L&M-WPID database were "corrected" using information from SEDLAC. After this correction

Finally, Figure 10 displays the so-called "elephant graph", probably the main results in the work of Lakner and Milanovic. The graph depicts the GIC for the world in the period 1988-2008, and shows how much each percentile of the global income distribution has grown over that period.

In Figure 10 was also included the cumulative growth rate for each decile of the income distribution in Latin America. Each Latin American decile is located over the global income distribution according to the position occupied by that decile in the global income distribution of 1988. For example, the poorest (richest) decile of the Latin America income distribution in 1988 belonged to the fifth (nineteenth) ventile of the global income distribution in 1988

There are several results in Figure 10 that are worth mentioning:

- By 1988, the average individual belonging to the poorest 10% of Latin America population was richer than a quarter of the world population.

- Over the period 1988-2008 the cumulative growth rates for the deciles belonging to the poorest 60% of the population in Latin America were similar or higher than average cumulative growth rate for the world population.

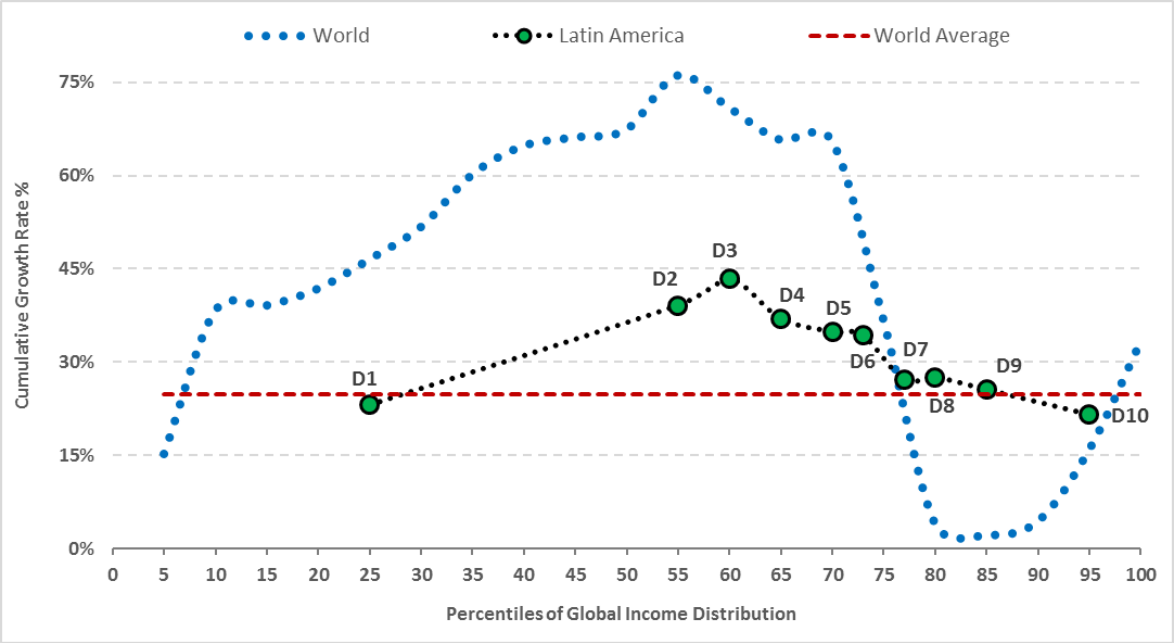
- However, the cumulative growth rates for those deciles were lower than the cumulative growth rates enjoyed for the average non-Latin American individual with similar income at the beginning of the period.

- The situation of the deciles belonging to the richest 40% of the population of Latin America was significantly different to the one of their poorest counterpart: their cumulative growth rates were similar or lower than the average cumulative growth rate for the world population.

- However, the four richest Latin American deciles enjoyed similar or higher cumulative growth rates than the average non-Latin American individual with similar income at the beginning of the period under analysis.

- Deciles 7, 8 and 9 of Latin America in 1988 belonged to the "disadvantaged" global percentiles in the "elephant chart", the ones with the lowest cumulative growth rates over the period. However, their cumulative growth rates were markedly higher than for the average non-Latin American individual with similar income in 1988.

Figure 10: Global Growth-Incidence Curves 1988/2008



Source: own elaboration with data of LM-WPID and SEDLAC.

Figures A.1 to A.4 in the Annex depict the GIC for the world and the GIC for Latin America over different subperiods: 1988-1998, 1998-2008, 1993-2008 and 2003-2008. While the global GICs show a similar pattern ("the elephant") in every period, each Latin America´s GIC has a distinctive shape: the one for 1988-1998 reflects a process of increasing inequality, the one for 1998-2008 indicates that income inequality decreased in the region over that subperiod, the one for 1993-2008 is the more similar to the global GIC ("the elephant") and the one for 2003-2008 reveals that most of the decrease in income inequality in the region was experienced over that subperiod.

Figures A.5 to A.9 in the Annex present the GIC for the world for the period 1988-2008, and the GIC for some Latin American countries: Argentina, Brazil, Colombia, Mexico and Peru (in the last country both, the world GIC and the country GIC are for the period 1993-2008 because there is not available information for Peru 1988). The most interesting result if the one for Brazil: the cumulative growth rate enjoyed for each Brazilian decile was higher than the cumulative growth rate enjoyed in the same period for non-Brazilian individuals who had the same level of income that the Brazilians in 1988. As it is obvious, that implies that Brazilian improved their position in the global income distribution over the period.

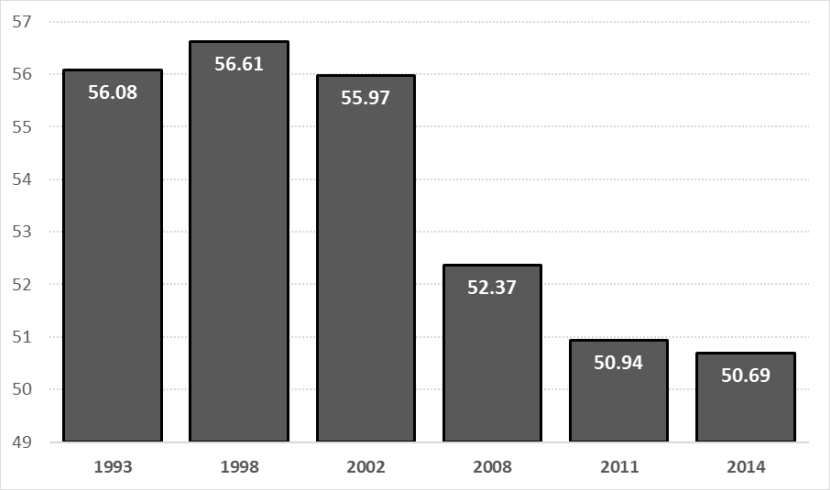
3.2. Global Income Inequality: a more Detailed Approach for LAC

This subsection takes advantage of the harmonized microdata from SEDLAC Project to update the estimates on global income inequality for Latin America as well as to confirm or reject the results in L&M.

Figure 12 exhibits the estimates of the global Gini index for Latin America using data from SEDLAC. The results indicate that after a period of 9 years without significant variations (there was a small increase between 1993 and 1998, followed by a small decrease between 1998 and 2002), the level of global income inequality in the region experienced a clear decrease between 2002 and 2008. In the following years, it showed an additional decrease until 2011, and then remained almost constant between 2011 and 2014.

These estimates confirm and reinforce the result presented in Figure 6 after "correcting" the data of LM-WPID: the level of global income inequality in Latin America in 2008 was significantly lower than it was in the last decade of the past century. In other words, at the same time that most Latin American countries were able to reduce the level of income inequality within their frontiers, the region as a whole experienced a reduction in the level of global income inequality.

Figure 12: Global Gini Index for Latin America



Source: own elaboration with data of SEDLAC.

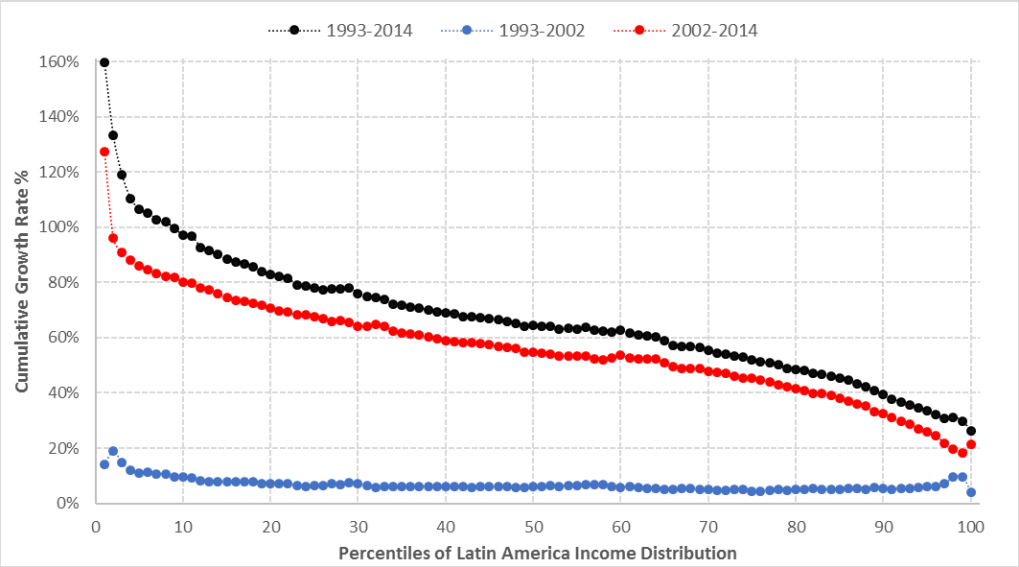
The GICs depicted in Figure 13 illustrate how income evolved for different percentiles of the distribution of income in Latin America. The small (almost zero) decrease in global income inequality between 1993 and 2002 is represented by the blue GIC: it shows that the cumulative growth rate for the poorest 20% of the population (depending on the percentile, it was between 8-19%) was just slightly higher than the mostly flat growth rate (around 5-7%) enjoyed by most of the percentiles of the remaining 80%. As a result, in this period global income inequality went down in Latin America, but the magnitude of the improvement was very small.

As it was already mentioned, most of the decrease in the level of global income inequality in the region was experienced after 2002. The GIC for the period 2002-2014 is represented by the red GIC in Figure 13. As expected, this GIC has a sharp downward slope, which reflect the strong equalizing effect of the growth process over that period. In terms of the Global Gini Index, this process implied a reduction of 5.3 points (from 56.0 in 2002 to 50.7 in 2014).

Finally, the black GIC displays the cumulative growth rates for the different percentiles over the whole period 1993-2014. In this case, the slope of the curve is quite similar to the slope of the

curve for 2002-2014. This is not a surprise: most of the "*movements*" in the distribution of income in Latin America took place during that period. In particular, the monotonically decreasing black GIC has a very sharp downward slope for the poorest 10% of the population, showing that the cumulative growth rate for this group of the population was markedly higher than for any other income group. The distinctive decreasing shape of the curve reflects a reduction in the global Gini index from 56.1 in 1993 to 50.7 in 2014.

Figure 13: Growth Incidence Curve for Latin America: 1993-2002-2014



Source: own elaboration with data of SEDLAC.

As it was already established in Section 3.2, income inequality increased in a majority of Latin American countries during the last years of the past century and the first years of this one, while the opposite is true for the period running from 2002 to 2014. However, there were very different cases in both periods, as well as in the whole period 1993-2014.

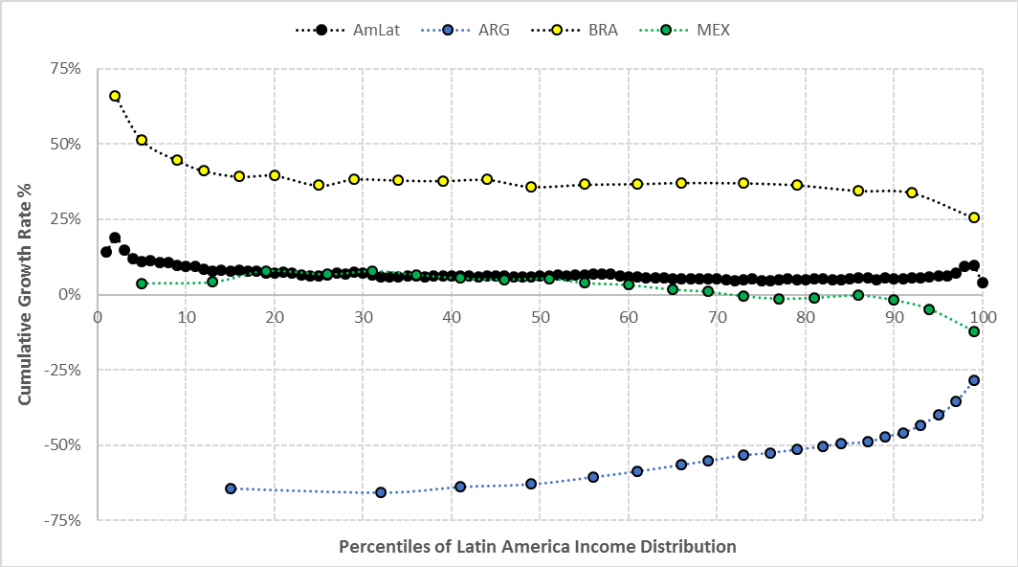
Figure 14 presents three different experiences, Argentina, Brazil and Mexico. In Brazil, most of the percentiles enjoyed significant growth rates, but the cumulative growth rates were higher (lower) for the poorest (richest) than for any other percentile of the distribution. This situation resulted in the decrease of income inequality (and poverty).

Mexico also experienced a decreased in income inequality over the same period, but the circumstances were very different than the Brazilian ones: the poorest 70% of the population was the only socioeconomic group that enjoyed a (very low) positive growth rate, while the growth rate for the richest 10% was negative. This situation provoked a reduction on income inequality, even when the real income of the poor did not increase much and poverty remained almost at the same level.

Argentina showed the worst situation in the region over the period 1993-2002. As a consequence of the macroeconomic crisis of 2001-2002, all socioeconomic groups in Argentina suffered a

strong decrease in their real incomes. However, the ones who suffered more were those belonging to the poorest 50% of the population. This situation was reflected in a significant increase in the level of income inequality (and poverty).

Figure 14: Growth Incidence Curve for Latin America: 1993-2002



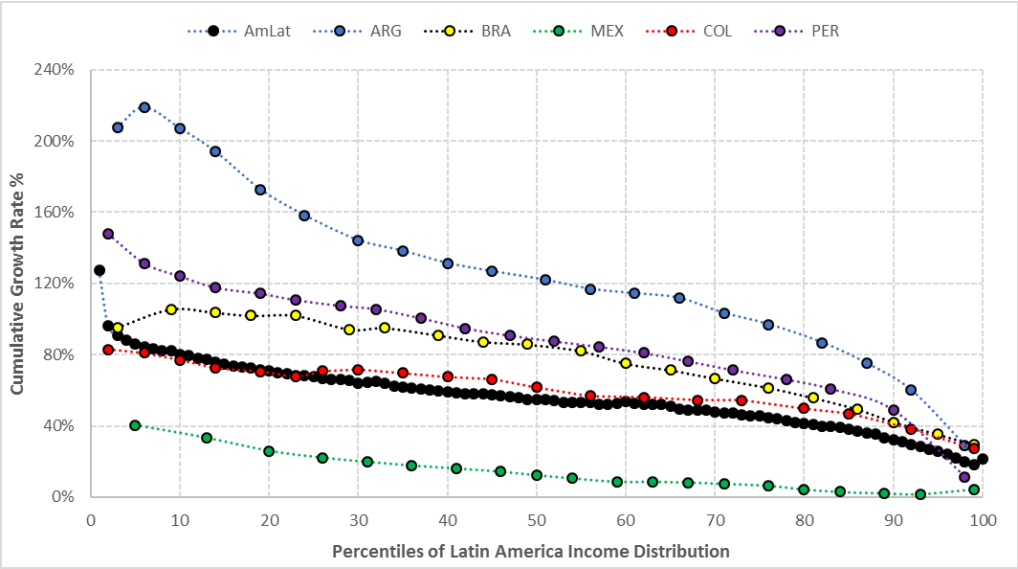
Source: own elaboration with data of SEDLAC.

Figure 15 exhibits the GICs for 2002-2014 five countries: Argentina, Brazil, Mexico, Colombia and Peru. Given that during this period income inequality decreased in almost every single Latin American country, all the GICs in the figure show a clear downward slope. However, there important differences in both, the level of increase of incomes and the slope of the curves. Argentina was the country with the best performance over this period: starting from a relatively low level of income and very high level of inequality, the country was able to quickly recover their previous levels of income and inequality with a strong and equalizing process of growth, especially in the 5/6 years following the macroeconomic crisis.

Brazil and Peru also achieved better results than the average of Latin America in both, income growth rate and income inequality reduction. This result is remarkable for the case of Brazil: as it was mentioned before, Brazil was the country with the highest level of income inequality in Latin America at the beginning of the 1990s, but since that moment the country was able to reduce income inequality at the same time that average income increased. Peru also showed significant growth rates for all percentiles, particularly for those belonging to the poorest groups of the population.

The case of Colombia over the period 2002-2014 was very similar to the aggregate of Latin America, with significantly positive growth rates for all percentiles and a GIC with a clear downward slope. Finally, Mexico enjoyed an improvement in both, average income and income inequality over the period. However, the magnitude of that improvement was lower that the magnitude in which other countries were able to improve their situations. In that sense, the achievements of Mexico were somehow disappointing when compared with other countries of the region.

Figure 15: Growth Incidence Curve for Latin America: 2002-2014

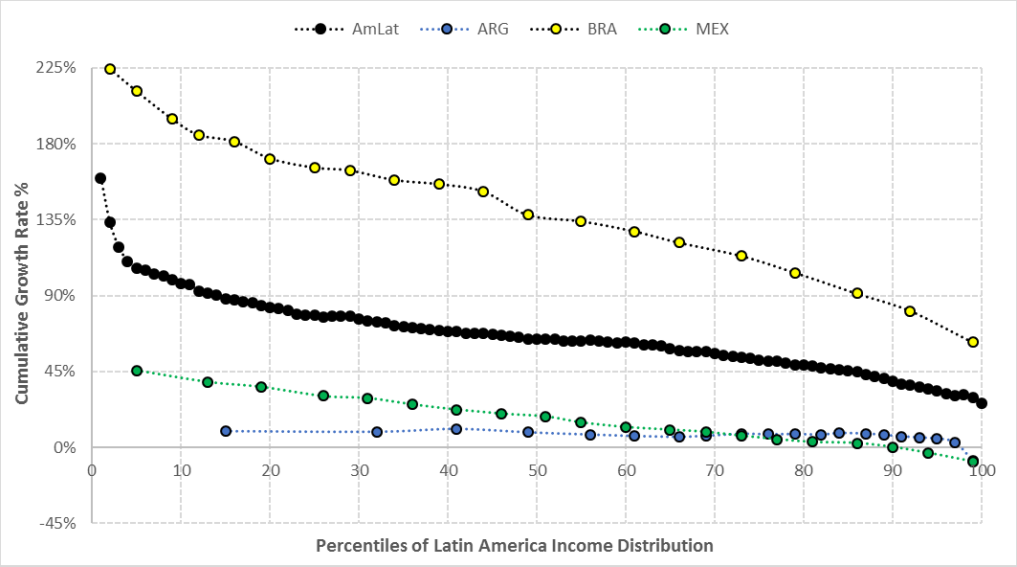


Source: own elaboration with data of SEDLAC.

Figure 16 indicates that, as expected, that Brazilians enjoyed significantly higher income growth rates in the period 1993-2014 than the growth rates enjoyed by comparable individuals on the distribution of income of Latin America. As a consequence of this, Brazilians improved their position on the distribution of income in Latin America.

On the contrary, during the same period Argentina and Mexico had a worse performance than the average of Latin America. In the case of the South American country, this result is explained by the aggregation of two subperiods with very different performances: 1993-2002 when incomes decreased for all groups and income inequality skyrocketed, and 2002-2014 when incomes increased for all the population and income inequality declined. In the case of Mexico, the shape of the GIC in Figure 16 is similar to the shape of the GICs in Figures 14 y 15: the curve has a slightly downward slope, with positive (but low) income growth rates for the poorest groups of the population and close to zero (or even negative) growth rates for the richest socioeconomics groups.

Figure 16: Growth Incidence Curve for Latin America: 1993-2014



Source: own elaboration with data of SEDLAC.

IV. The Evolution of Icome Inequality: a Decomposition Approach

Income inequality is still a pervasive characteristic in Latin America. However, the results in the previous sections indicate that almost all countries in the region were successful in reducing income inequality in the last 10/12 years. Given that this result was achieved during a period in which income inequality has increased in most countries of the world, it attracted the attention of numerous researchers and policy makers.

While the declined in income inequality in the region was a generalized trend, there was substantial heterogeneity between countries, as it was shown in Figure 14, Figure 15 and Figure 16. In any case, those results highlight that the reduction in income inequality across the region is explained by an evident fact: the poorest sectors of the population witnessed an unprecedented growth in their real incomes, and that increase was higher than the one enjoyed by other socioeconomic groups.

Different studies (for example, Ferreira, Leite and Litchfield (2008), Jaramillo and Saavedra (2011), Lopez-Calva and Lustig (2011), Gasparini and Lustig (2011) and Gasparini, Cruces and Tornarolli (2016) tried to identify the drivers of that decline on income inequality. The main explanations suggested in those studies are the following:

1) the wage gap between high and low-skilled workers shrank with the expansion of education and with the reduction in the pace of technological change;

2) the conditional cash transfer programs that were implemented across the region reached a higher population coverage and a better targeting performance than previous social assistance programs;

3) since the beginning of the new century, the evolution of commodity prices in international markets favored Latin American countries, particularly to their population residing in rural areas (which tend to be poorer than the rest of the population);

4) labor markets were very dynamic over the period, unemployment rate decreased in all countries and some of them were able to reduce the incidence of labor informality; and

5) most Latin American governments implemented more active labor policies (for example, minimum wages increased in all countries).

The remaining of this section will present an exercise that tries to quantify the relative contribution to the decline in income inequality in certain countries of some of the drivers mentioned in the previous paragraphs. In doing that, the approach proposed by Azevedo, Inchauste and Sanfelice (2013) will be used. These authors propose a decomposition of the change in income inequality and poverty based on the Shapley-Shorrocks decomposition. This methodology is similar to the one applied by Barros, Carvalho, Franco and Mendonça (2006), with the difference that Shapley-Shorrocks corrects the problem of path dependence.

The exercise can be explained as follows: 1) household per capita income is decomposed in its (exhaustive) components (for example: household labor income per capita + household non-labor income per capita); 2) two years are chosen to compare the evolution of a selected indicator (in this case the Gini Index); 3) the selected indicator is estimated for both years; 4) the distribution of household per capita income in the second year is altered by sequentially replacing every income component by the data from the same component in the first year in any possible order (because the order in which the cumulative effects are calculated matters); 5) after each alteration, a new counterfactual inequality or poverty indicator is estimated with the altered distribution of income; and 6) the average contribution (over every possible path) of each income component represents its contribution to the change in the inequality or poverty indicator.

The results of the exercise are presented and analyzed in the next few paragraphs.

4.1. Results

The results of the analysis for Argentina, Brazil, Colombia, Mexico and Peru are presented in Table 1. In this exercise, household per capita income was decomposed in seven components: income earned working as an employee, income earned working as a self-employed, income earned working as an employer, income received from pensions, income received by virtue of owning property, income received from private transfers (including remittances) and income received from public transfers (including conditional cash transfer programs).

The estimates in Table 1 indicate that there are two results shared by all countries in the sample: 1) the main driver of the decrease in income inequality between 2002 and 2014 was the evolution of labor income; and 2) public transfers programs helped to reduce income inequality along the period under analysis.

Given that labor income represents the main income source for most families in the region (approximately 70/75% of total household income is earned in the labor market), the first result cannot be considered a surprise. Moreover, a process of reduction in the level of income inequality, as the one experienced by Latin American countries, would have been almost impossible without the contribution of the labor market. It should be noted that there are several channels through which the labor market can help to reduce income inequality: it could be through a reduction in the wage gap between different types of workers (skilled/unskilled, men/women, formal/informal, urban/rural), or through an increase in the employment rate of a particular population group (youth and/or women), or due to the implementation of a particular economic policy (for example, an increase in the minimum wage), etc. In the next paragraphs will be evaluated a particular aspect of the labor market results: the relative contribution to the decrease in income inequality of labor income earned by employees, self-employees and employers.

The equalizing effect of public transfers programs in the 2000s is another well-established result in the literature on income inequality and poverty in Latin America. Even though the reduction of income inequality was not an explicit goal of conditional cash transfers programs, the increase in their population coverage combined with their outstanding targeting performance helped to improve the equalizing effect of public spending. This implied a major improvement in a region that has been traditionally characterized by the lack of institutional and administrative capacities to deliver benefits to the most disadvantaged groups of the population in an efficient way.

Table 1: Decomposition of the change in Income Inequality

	Gini Index		Percentual contribution to the change in Inequality						
			Income earned as…						
	2002	2014	Employee	Self Employed	Employer	Pensions	Property Income	Private Transfers	Public Transfers
Argentina	**53.0**	**42.3**	58.2%	6.7%	5.3%	14.2%	0.2%	0.1%	15.2%
Brazil	**58.2**	**51.2**	61.7%	3.2%	-8.7%	18.4%	1.7%	-0.3%	23.9%
Colombia	**58.1**	**53.3**	-3.7%	64.0%	11.9%	-11.2%	-4.1%	43.1%	
Mexico	**51.0**	**48.9**	134.9%	-56.6%		-50.1%	-4.1%	-20.5%	96.5%
Peru	**54.0**	**44.1**	41.5%	29.9%	-11.7%	8.1%	-0.8%	18.2%	14.8%

Source: own elaboration with data of SEDLAC.

The contribution of the other income components (pensions, property income and private transfers) to the reduction of income inequality varies. The rest of this section discusses the specific situation in each of the five countries included in the analysis. In doing that, two additional pieces of information will be presented: Table 2 contains information on the concentration indexes for the distribution of the different income components and Table 3 presents the share of the different income components in total household income.

The concentration indexes can be thought as "quasi-Gini" coefficient, given that they are obtained from concentration curves that are "quasi-Lorenz" curves. These curves plot the cumulative share of the different income components on the y-axis against the cumulative share of the population, ranked by household per capita income, on the x-axis. When the cumulative share of household per capita income is used for the vertical axis, the concentration curve is the Lorenz curve and the Concentration Index is the Gini Coefficient. When a particular income component is mapped in the y-axis, the concentration curve indicates the cumulative percentage of that income component accruing to poorest w% of the population. The concentration index obtained from that curve informs whether or not that income component is distributed more equally than household per capita income.

Combining the information on the evolution between 2002 and 2014 of the concentration indexes of the different income components with the information on the evolution of the share of the different income components in total household income over the same period allows to better understand the results in Table 1. That analysis is performed country-by-country in the next paragraphs.

Table 2: Concentration Indexes for the different Household Income Components

	Argentina		Brazil		Colombia		Mexico		Peru	
	2002	2014	2002	2014	2002	2014	2002	2014	2002	2014
Household per capita Income	**0.530**	**0.423**	**0.582**	**0.512**	**0.581**	**0.533**	**0.510**	**0.489**	**0.540**	**0.441**
Employee	0.512	0.438	0.537	0.484	0.580	0.569	0.494	0.497	0.600	0.465
Self-Employed	0.491	0.360	0.500	0.492	0.396	0.353			0.362	0.270
Employer	0.834	0.660	0.855	0.846	0.825	0.727	0.541	0.460	0.688	0.709
Pensions	0.530	0.429	0.589	0.510	0.741	0.718	0.628	0.667	0.707	0.587
Property Income	0.704	0.729	0.810	0.729	0.730	0.750	0.819	0.748	0.715	0.773
Private Transfers	0.367	0.272	0.421	0.256	0.501	0.198	0.380	0.395	0.449	0.422
Public Transfers	0.213	-0.365	-0.128	-0.300			0.178	-0.131	0.395	0.181

Source: own elaboration with data of SEDLAC.

Table 3: Share of the different Income Components in Household Income

	Argentina		Brazil		Colombia		Mexico		Peru	
	2002	2014	2002	2014	2002	2014	2002	2014	2002	2014
Employee	57.5%	63.7%	49.6%	52.3%	49.8%	50.7%	65.1%	73.2%	45.4%	43.3%
Self-Employed	14.7%	11.6%	16.2%	15.5%	22.5%	23.8%	24.3%	13.4%	22.8%	21.0%
Employer	7.4%	4.1%	11.9%	9.3%	10.3%	6.9%			7.7%	7.8%
Pensions	14.2%	16.1%	18.3%	19.0%	8.6%	8.8%	4.6%	7.6%	6.6%	4.5%
Property Income	1.3%	0.9%	2.8%	1.6%	4.4%	5.1%	2.0%	1.6%	3.2%	2.9%
Private Transfers	4.4%	2.1%	0.8%	0.4%	4.3%	4.8%	2.3%	1.3%	11.1%	17.4%
Public Transfers	0.5%	1.6%	0.4%	1.9%			1.7%	3.0%	3.2%	3.1%

Source: own elaboration with data of SEDLAC.

1.1.1. Argentina

As it is shown in Table 1, Argentina enjoyed a strong decrease on income inequality between 2002 and 2014: the Gini coefficient decreased from 0.530 to 0.423 over that period. The main driver of the reduction in the level of income inequality was labor income: according to the results in Table 1, it explains 70.2% of the reduction on the Gini coefficient. Among the sources of labor income, the most important contribution came from salaried income (or income earned as an employee), which contributed with 58.2% of the reduction. Income earned as a self-employee (6.7%) and income earned as an employer (5.3%) played also played a positive role in the reduction of inequality.

Table 2 and Table 3 help to understand the results in the previous paragraphs: Table 3 indicates that income earned as an employee is the main source of income for the average household in Argentina, and its share in household income increased from 57.5% in 2002 to 63.7% in 2014. At the same time, Table 2 shows that the distribution of this income component is similar to the distribution of total household income (0.512 vs. 0.530 in 2002 and 0.438 and 0.423 in 2014), and that distribution improved over the period: the concentration index decreased from 0.512 in 2002 to 0.438 in 2014. In this way, the increasing share together with the decreasing concentration index explains the important role played by this income component in the reduction of income inequality.

In the cases of the other two labor income sources (self-employee and employer), there was a reduction in their shares over the period (from 14.7% to 11.6%, and from 7.4% to 4.1%, respectively), together with an improvement in their distribution (the concentration indexes fell from 0.491 to 0.360, and from 0.834 to 0.660, respectively). In the case of income as self-employee, which has a more equal distribution than total household income, the reduction in the share partially offset the positive effect in income inequality of the clear decrease in the concentration index. In the case of income as employer, the two effects seem to help in the reduction of income inequality: the decrease in the share had a positive effect because is a component with a markedly unequal distribution, and the decrease in the concentration index had a positive effect by reducing that unequal distribution.

Table 1 also informs that income received from pensions (14.2%) and income obtained from public transfers programs (15.2%) are the most important contributors to the reduction of income inequality in Argentina after labor income.

Regarding income from pensions, after 2005 Argentina implemented different programs to increase the coverage of (basic) pensions among elderly individuals without access to Social Protection. As a result, elderly people from all segments of the distribution of household income have access to a basic pension. Additionally, the growth in the real value of the basic pension was consistently higher than the growth of the value of the average pension over the period. Due to these two facts, the distribution of pensions closely follows the distribution of income. In fact, Table 2 shows that the concentration indexes for income from pensions are very similar in both, level and evolution, to the Gini coefficients for the distribution of household income (0.530 vs.

0.530 in 2002, and 0.429 vs. 0.423 in 2014). Table 3 shows the share of income from pensions rose from 14.2% in 2002 to 16.1% in 2014. In other words, the distribution of income from pensions became more equal and the share of income from pensions grew, and both factors explain the positive contribution of pensions to the reduction of income inequality.

Regarding public transfers, at the end of 2009 the government implemented an ambitious cash transfer program ("*Asignación Universal por Hijo*") in terms of both, coverage and amount of the transfer. This implied that the share of public transfers in total household income grew from 0.5% in 2002 to 1.6% in 2014 (Table 3). At the same time, the very good targeting performance of the program helped to improve the delivery of public transfers to the most disadvantaged population groups: Table 2 shows that the concentration index of public transfers improved from 0.213 in 2002 to -0.365 in 2014 (a negative value implies a progressive distribution: the poorest obtain a percentage of that income that is not only higher than its share in total income but it is also higher than its share in total population). The combination of a higher share of public transfers in total household income and a more equal distribution of public transfers explains the positive effect of public transfers in the reduction of income inequality.

1.1.2. Brazil

Traditionally a country with very high levels of income inequality, Brazil experienced a significant decrease in income inequality during this century: the Gini coefficient fell from 0.582 in 2002 to 0.512 in 2014. As it happened in the remaining countries, labor income was the most important factor behind the improvement: Table 1 shows that it explains 56.2% of the decrease in the Gini coefficient. As in the case of Argentine, income earned as an employee is the main contribution to the reduction of inequality (61.7%). In the case of Brazil, the contribution of income earned as a self-employee (3.2%) was very small, and the contribution of income earned as an employer was negative (-8.7%).

Salaried income, the main source of income for Brazilian households, increased its share in total household income from 49.6% to 52.3% (Table 3), and simultaneously the distribution of this income component showed an improvement: the concentration index decreased from 0.537 in 2002 to 0.484 in 2014 (Table 2). Taking into account that this income component has a more equal distribution than total household income, it is easy to understand how both factors (increase in the share and decrease in the concentration index) helped to reduce the level of income inequality. The concentration indexes for the other two labor income sources (self-employee and employer) remained almost at the same level in 2002 and 2014 (Table 2), and the share in total household income of both components decreased a little (Table 3). In a context were the distribution of most income components improved, the lack of improvement in the distribution of income earned as employer, which has a very strong unequal distribution, implied that this factor had a negative contribution to the reduction of inequality.

Regarding other income components, the case of Brazil is very similar to the case of Argentina: the main contributors to the reduction of income inequality was labor income, followed by public transfers (23.9%) and pensions (18.4%). Results in Table 2 and Table 3 also show a very similar

case to the one of Argentina for income from pensions: the concentration indexes for the distribution of income from pensions are very similar in both, level and trend, to the Gini coefficients for the distribution of household income (0.589 vs. 0.582 in 2002, and 0.510 vs. 0.512 in 2014). Similarly, the coverage of pensions in Brazil is relatively high, implying that the share of income from pensions in total household income is significant: it was 18.3% in 2002 and 19.0% in 2014. In this sense, improvements in the coverage of pensions together with a more equal distribution of pensions resulted in a lower level of income inequality.

The contribution of income from public transfers to the reduction of income inequality in Brazil is closely linked to the operation of the conditional cash transfers program ("*Bolsa Familia*") and its different components. While this program was already operating at the beginning of the century, the results in Table 2 and Table 3 indicate that since then it has increased its share in total household income (from 0.4% in 2002 to 1.9% in 2014) and it has improved its already very progressive distribution of benefits (the concentration index was -0.128 in 2002 and -0.300 in 2014).

1.1.3. Colombia

Labor income was also the main driver of the reduction of inequality enjoyed by Colombia in the period 2002-2014: it explains 72.2% of the reduction in the Gini coefficient from 58.1 to 53.3 (Table 1). However, the case of Colombia differs from the cases of Argentina and Brazil: the main contribution to the reduction of income inequality came from income earned as self-employee (64.0%) and income earned as employer (11.9%), while the contribution of income earned as employee was small and negative (-3.7%).

The important contribution of income earned as self-employee is explained by the combination of the improvement in the distribution of this relatively equally-distributed income component (Table 2 shows that its concentration index was 0.396 in 2002 and 0.353 in 2014) with the increase in the share of this component in total household income (Table 3 indicates that it grew from 22.5% to 23.8% over the period). The positive contribution of income earned as employer came from a reduction in its share (from 10.3% to 6.9%) and an improvement in its significantly unequal distribution (its concentration index fell from 0.825 to 0.727). The share of salaried income in total household income experienced a small increase (49.8% to 50.7%), but the distribution of this income component improved less than the average (the concentration index was 0.580 in 2002 and 0.569 in 2014). This implied that the contribution of this source to income inequality was small and negative.

In Colombia, it is not possible to separate the contribution of private and public transfers (the survey doesn't allow to disaggregate public and private transfers), it is possible to estimate the overall contribution of transfers to the reduction of income inequality: it was 43.1%. This result includes the effects of different government programs, like the conditional cash transfers program ("*Familias en Acción*"), as well as private transfers like remittances. In terms of the results in Table 2 and Table 3, the contribution of transfers to the reduction of income inequality is mainly explained by an improvement in the distribution of transfers: the concentration index

experienced a strong decrease from 0.501 in 2002 to 0.198 in 2014. It is very likely that most of this improvement happened after the implementation of the conditional cash transfers program.

In the case of Colombia, the contribution of pensions to the reduction of inequality was negative (Table 1: -11.2%). Unlike Argentina and Brazil, the population coverage of pensions in Colombia is low, and its expansion tends to benefit mostly to individuals belonging to the top deciles of the distribution of income. According to Table 2 and Table 3, the concentration index of the distribution of income from pensions is more unequal than the Gini coefficient of the distribution of household income (0.741 vs. 0.581 in 2002, and 0.718 vs. 0.533 in 2014), and the share of income from pensions in total household income slightly rose from 8.6% in 2002 to 8.8% in 2014.

1.1.4. Mexico

Although Mexico also experienced a decrease in income inequality between 2002 and 2014, its performance was less impressive than the one of the remaining countries under analysis: the reduction in the Gini coefficient was relatively weak, going from 0.510 in 2002 to 0.489 in 2014 (Table 1). Given that small change, the contributions to it of the different income components take very high values and analyzing those values could be misleading. For that reason, it only will be discussed the positive or negative contribution of each of them.

The contribution to the reduction of income inequality of salaried income, which is the most important source of income of Mexican households, has been positive. In 2002 this income component had a more equal distribution than total household income, and between 2002 and 2014 its share in total household income grew from 65.1% to 73.2%. This seems to be the reason explaining the positive effect.

The contribution of income earned as self-employee and income earned as employer cannot be separated in the case of Mexico (there are important changes in the way in which the ENIGH identifies those labor relationships in 2002 and 2014). According to Table 1, the combination of these two income components has a negative effect in income inequality. The information in Table 2 and Table 3 help to understand that result: while the distribution of these income components showed an important improvement between 2002 and 2014 (the concentration index decreased from 0.541 to 0.460), the share of these two income components in total household income fell from 24.3% in 2002 to 13.4% in 2014.

In the case of Mexico, public transfers had a positive effect in the reduction of income inequality. This is an expected result, considering the good targeting performance reached by the conditional cash transfers program ("*Progresa*"/ "*Oportunidades*"/ "*Prospera*"), but it also includes other programs like food stamps and transfers/non-contributive pensions for elderly people. Over the period 2002-2014, public transfers increased its share in total household income from 1.7% to 3.0% (Table 3), and its distribution became more equalizing: the concentration index that was 0.178 in

2002 fell to -0.131 by 2014. Both factors explain the positive contribution of public transfers to the reduction of inequality.

According to Table 1, income from pensions and income from private transfers had a negative contribution to the reduction of income inequality in the period. In the case of pensions, the explanation is similar to the one given for Colombia: there was an increase in the coverage of pensions (captured in Table 3 as an increase in the share of income from pensions in total household income from 4.6% in 2002 to 7.6% in 2014), but that expansion of the coverage went mainly to individuals belonging to the richest deciles (captured in Table 3 as a high and increasing, from 0.628 to 0.667, concentration index for income from pensions).

The negative contribution of private transfers is probably explained by a reduction in the frequency and amount of the remittances received from the USA after the financial crisis of 2008/2009. Table 3 indicates that the share of this kind of transfers in total household income decreased from 2.3% in 2002 to 1.3% in 2014. Given that it is a relatively well-distributed source of income (Table 2 indicates that the concentration index for this income component was 0.380 in 2002 and 0.395 in 2014), the reduction in the share implies a negative contribution to the reduction of income inequality.

1.1.5. Peru

The distribution of household income significantly improved in Peru between 2002 and 2014. As it is informed in Table 1, the Gini coefficient experienced a decrease from 0.540 to 0.441 over that period. As it happened in the countries analyzed in the previous paragraphs, the most important driver of the decrease income inequality was labor income, which explains 59.7% of that decrease. The main contribution among the sources of labor income is salaried income (41.5%), followed by income earned as self-employee (29.9%). The contribution of income earned as employer was negative (-11.7%).

The results in Table 2 and Table 3 indicates that the contribution of salaried income can be explained by an important improvement in the distribution of this source of labor income (the concentration index fell from 0.600 in 2002 to 0.465 in 2014) and by a small reduction in the share of this relatively unequally-distributed income component in total household income (from 45.4% to 43.3%). The share of income earned as self-employed also experienced a small decrease (from 22.8% to 21.0%), but it simultaneously showed an improvement in its distribution (the concentration index fell from 0.362 to 0.270). The negative contribution of income earned as employer is explained by a constant share and a deterioration in the distribution of an already unequally-distributed income component (the concentration index grew from 0.688 in 2002 to 0.709 in 2014).

In the case of Peru, income from pensions (8.1%), public transfers (14.8%) and private transfers (18.2%) are the main contributors to the reduction of income inequality, besides labor income (Table 1). In the case of pensions, the positive contribution is explained by a reduction in the

share of pensions in total income (from 6.6% in 2002 to 4.5% in 2014), given that pensions are distributed very unequally (the low coverage of pensions implies that the concentration index was 0.707 in 2002 and 0.587 in 2014).

The contribution of public transfers to the reduction of inequality is fully explained by an improvement in the distribution of that transfers: the concentration index for public transfers fell from 0.395 in 2002 to 0.181 in 2014. The conditional cash transfers program ("*Juntos*"), that was implemented during that period, was focused on rural households, which represent a very high proportion of poor households in the country. Finally, the contribution of private transfers came from both, an increase in the share of this component in total household income (from 11.1% in 2002 to 17.4% in 2014) and an improvement in its distribution (the concentration index decreased from 0.449 in 2002 to 0.422 in 2014).

It is worth mentioning that while the results in the previous tables are very useful to empirically identify the relative contribution of different factors in different countries, it is not possible to identify causal effects using these decompositions. In other words, the previous decompositions are an important tool to guide further in-depth research efforts on the determinants of distributional changes.

V. Summary and Conclusions

While there is a wide literature on the evolution of income inequality at national level for Latin American countries, relatively less is known about the evolution of global inequality in the region. Lakner and Milanovic (2013), in a by now very well-known paper, presented the first piece of evidence on this topic: they report that even when a clear decreasing pattern can be observed after 2003, the level of global income inequality in the region remained "*virtually unchanged*" between 1988 and 2008. Amarante, Galván y Mancero (2016)[8] confirmed the existence of a reduction on the level of global income inequality in Latin America during the first decade of this century, but they don't study how global income inequality evolved during the 1990s.

This paper contributed to the stream of empirical literature on income inequality in Latin America in the following ways:

1. It updated the evidence on the evolution of income inequality at national level in Latin America countries to 2015 using information from SEDLAC Project.

2. It provided new evidence on the evolution of global income inequality in the region, using two different databases: a) LM-WPID database was used to scrutinize the findings of Lakner and Milanovic for the region; and b) SEDLAC databases were employed to update the evidence on global income inequality in Latin America to 2014.

[8] This is the first paper focused on global income inequality in Latin America that uses microdata from household surveys in their estimations.

3. It presented a decomposition by income sources of the evolution of global income inequality in Latin America. Although the exercise was not designed to identify causal relationships, it is still useful as a first approximation to the determinants of the evolution of global income inequality in the region.

The most significant results in this work can be summarized as follows:

- After some years in which the rate of inequality reduction seemed to be losing momentum, the average reduction on the Gini index for Latin American in 2015 was the highest since 2009. However, this result should be taken with caution: the increase in the average rate of inequality reduction in 2015 was mostly driven up by a few countries (Bolivia, Colombia, Panama and Paraguay), while in several countries income inequality remained stagnant or even increased in the last few years (Argentina, Brazil, Chile, Costa Rica, Ecuador, Mexico, Peru, Uruguay and Venezuela).

- Simultaneously with the decrease on income inequality that almost all Latin American countries has enjoyed, global income inequality in Latin America has also been declining steadily since the beginning of this century. By 2014 the level of global income inequality in the region was significantly lower than it was a quarter-century ago. As it was shown in Section 4, the inconsistency between this result and that of Lakner and Milanovic is mostly explained by Mexico 1989: according to the LM-WPID database the Gini index for Mexico in 1989 was around 26.0, a figure that seems to be too low to be right.

- Most of the reduction on income inequality in the region is explained by labor incomes. However, other factors like pensions and conditional cash transfers programs also played an important role in the observed distributional changes in the region. A more complete multi-country analysis in the spirit of Ferreira, Firpo and Messina (2017) would be very useful to identify with more accuracy the contributions of different income drivers across the region.

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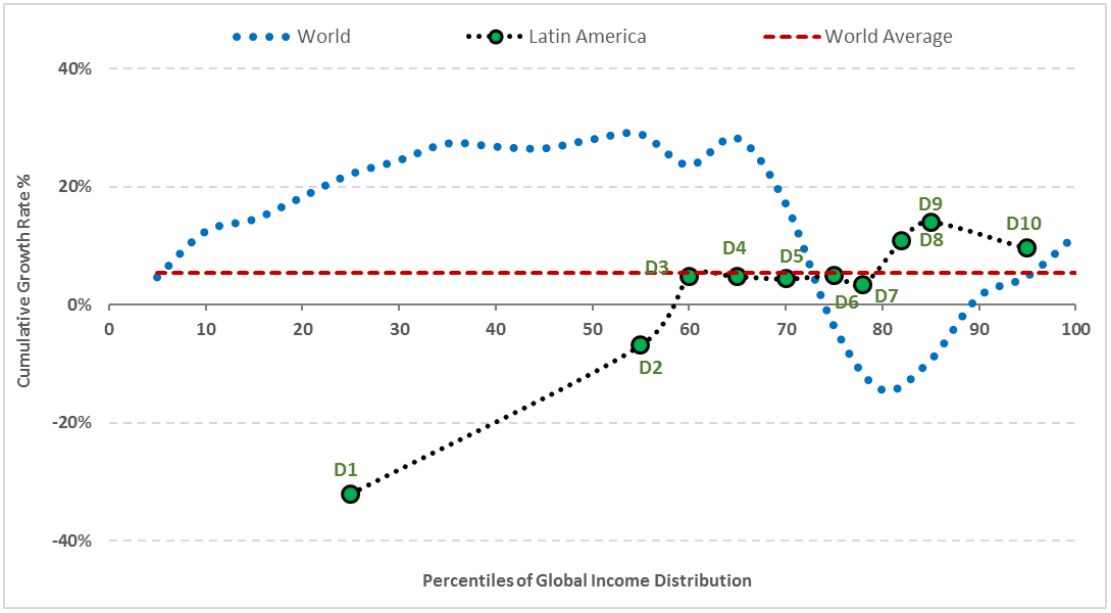
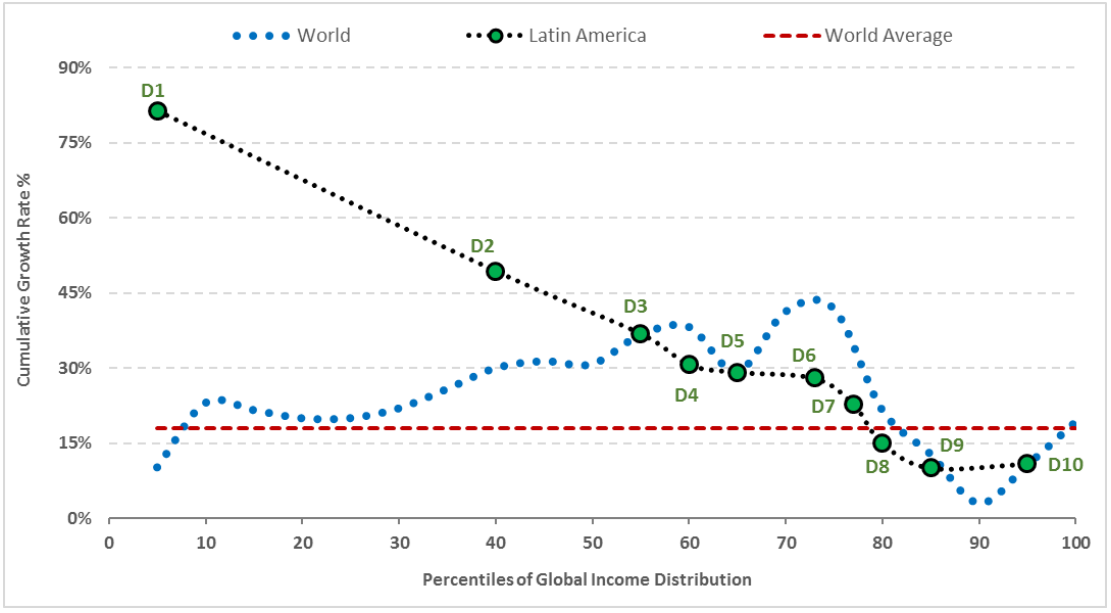
Annex

Figure A.1: Global Growth-Incidence Curves 1988/1998



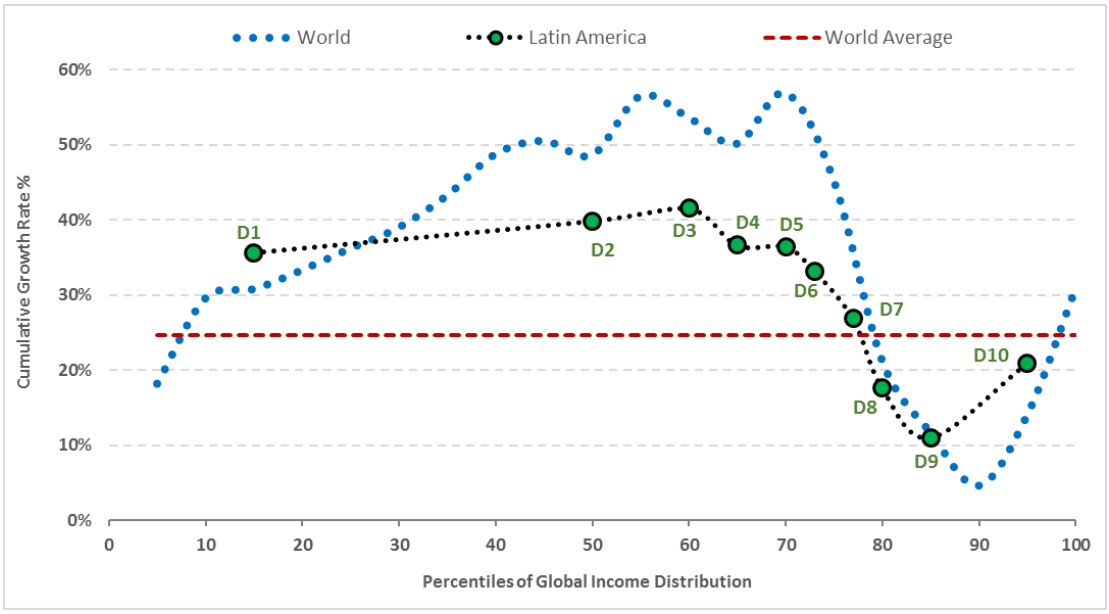
Source: own elaboration with data of LM-WPID and SEDLAC.

Figure A.2: Global Growth-Incidence Curves 1998/2008



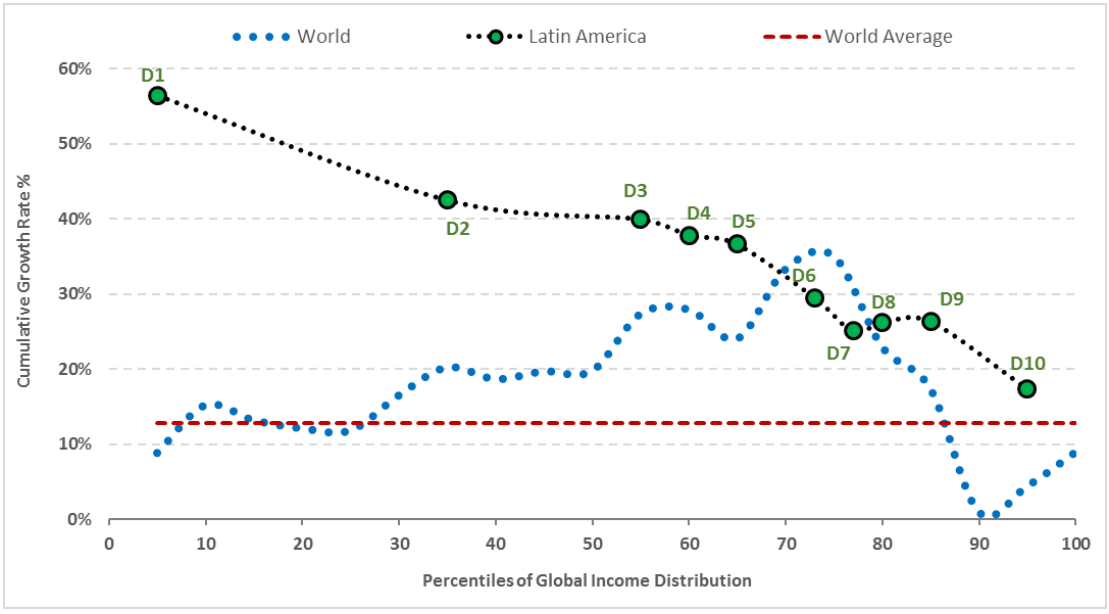
Source: own elaboration with data of LM-WPID and SEDLAC.

Figure A.3: Global Growth-Incidence Curves 1993/2008



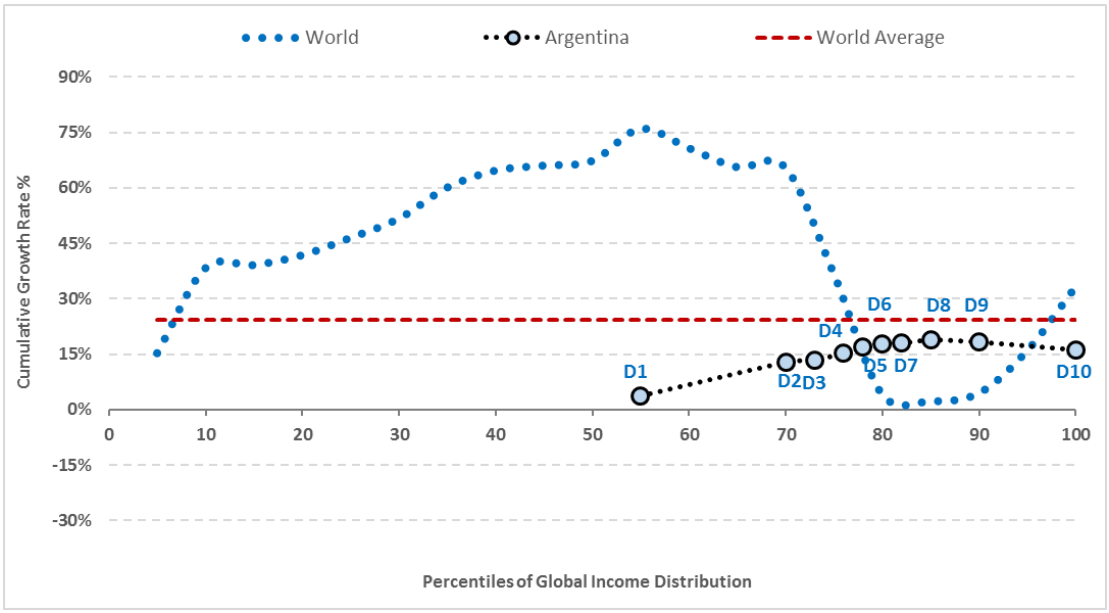
Source: own elaboration with data of LM-WPID and SEDLAC.

Figure A.4: Global Growth-Incidence Curves 2003/2008



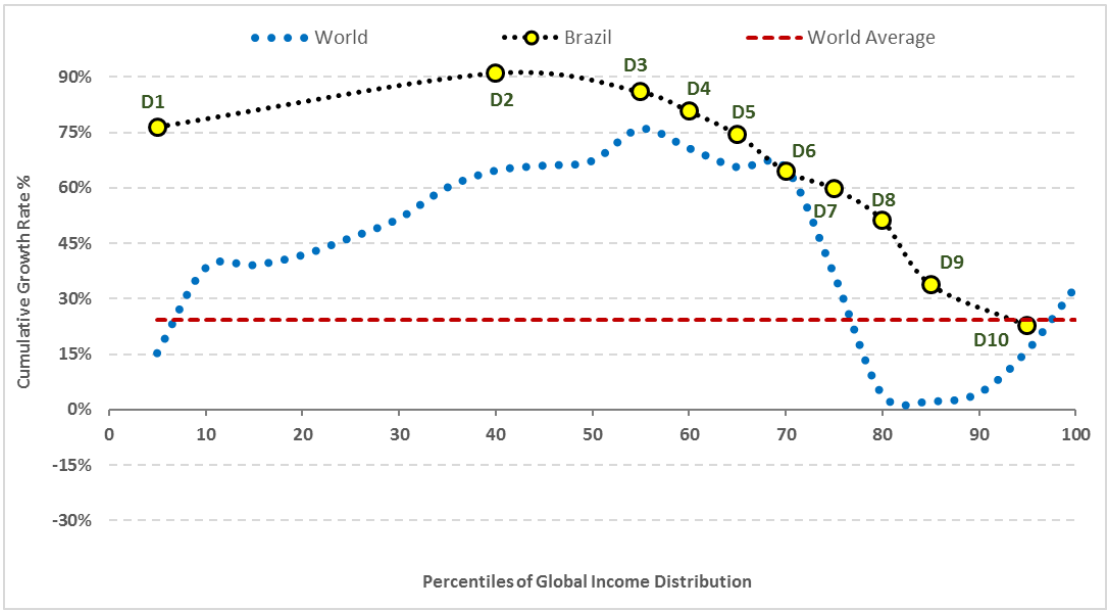
Source: own elaboration with data of LM-WPID and SEDLAC.

Figure A.5: Global Growth-Incidence Curves 1988/2008 - Argentina



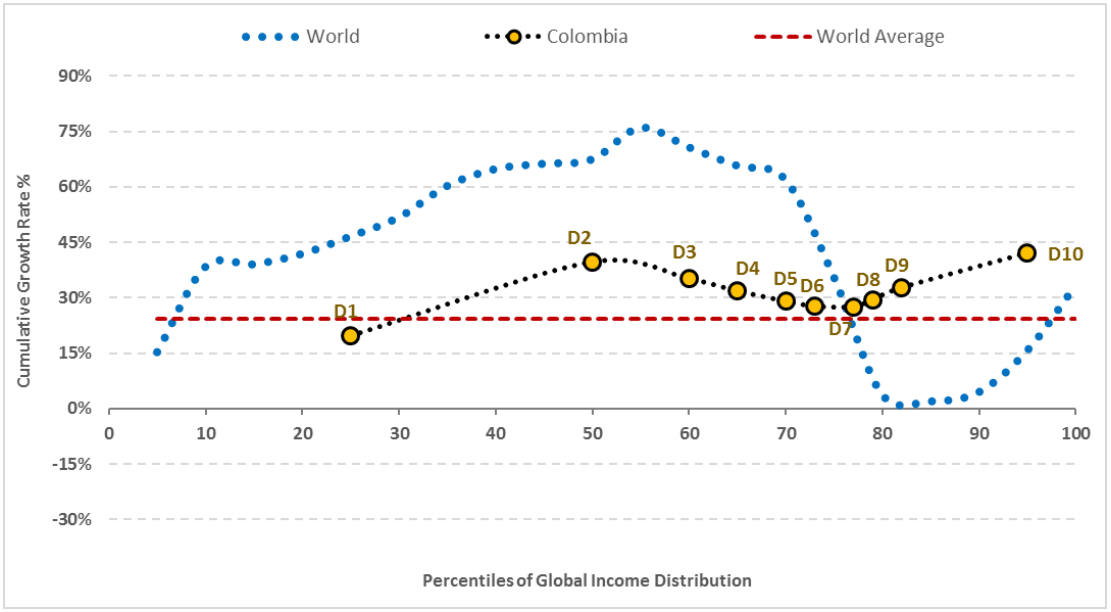
Source: own elaboration with data of LM-WPID and SEDLAC.

Figure A.6: Global Growth-Incidence Curves 1988/2008 - Brazil



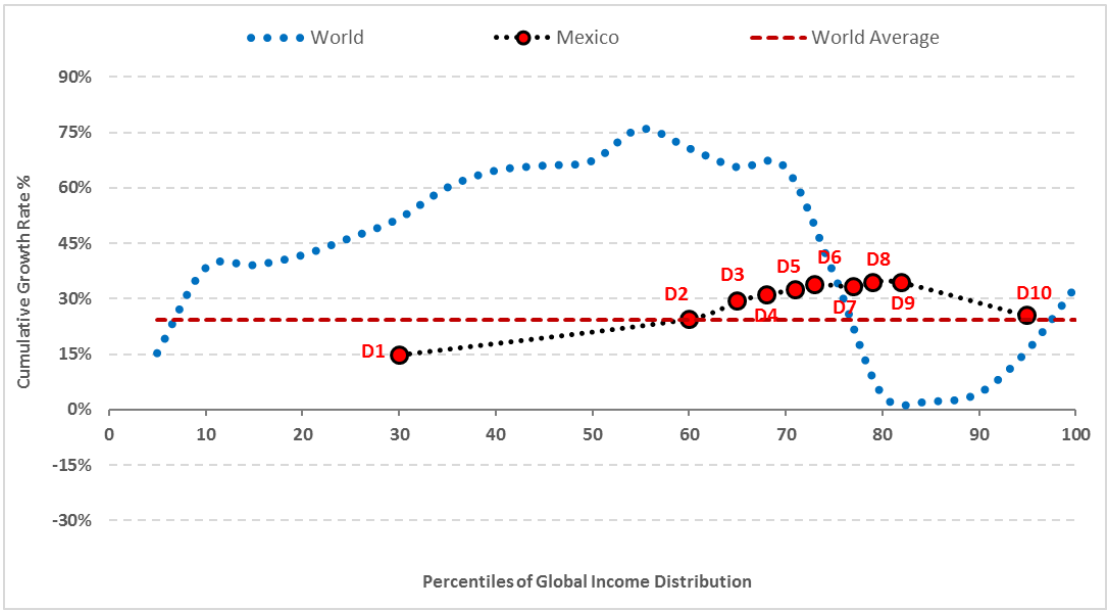
Source: own elaboration with data of LM-WPID and SEDLAC.

Figure A.7: Global Growth-Incidence Curves 1988/2008 - Colombia



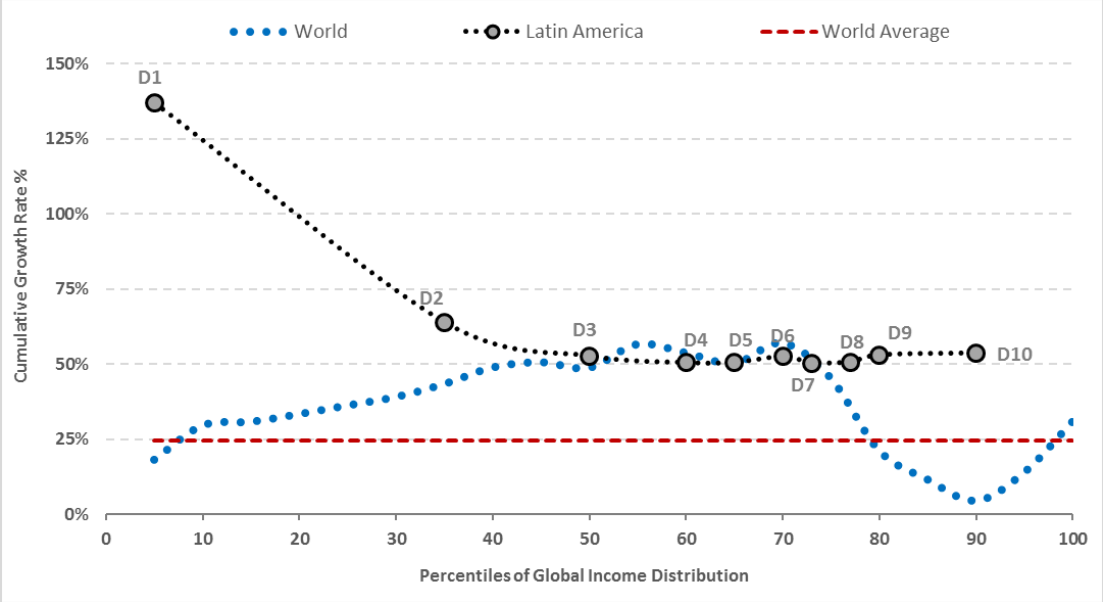
Source: own elaboration with data of LM-WPID and SEDLAC.

Figure A.8: Global Growth-Incidence Curves 1988/2008



Source: own elaboration with data of LM-WPID and SEDLAC.

Figure A.9: Global Growth-Incidence Curves 1993/2008



Source: own elaboration with data of LM-WPID and SEDLAC.

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