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Structural Change and Income Inequality: evidence from Latin America's Sectoral Composition (1950 – 2012)

by

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Abstract:

Latin America is and has been one of the most unequal regions in the World. Since the end of the Second World War, income inequality has been influenced by the high dependency on exports of agricultural products and raw materials, an early deindustrialization and the rise of low productivity service sectors. In this regard, this study aims to understand the impact of this structural change on income inequality and what were the determinants of the activity of those sectors, with a focus on political economic decisions. This has been done for nine Latin American countries, from the year 1950 until 2012. Firstly, regarding the impact of sectoral composition on income inequality, it was found that expansions of construction, manufacturing and mining where associated with lower concentration. On the other hand, the impact of service sectors was mixed. The second part found that the manufacturing sector was negatively affected by trade liberalization and FDI, while service sectors increased with the second. Mining and Construction could develop under political and macroeconomic volatile periods. Finally, one can claim that Government Services could have risen as a way of protecting internal markets from the effects of higher openness to international markets and its shocks.

Keywords: Structural Change, Income Inequality, Employment, Sectors, Latin America

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1. Introduction

Income inequality has been an intrinsic characteristic of the Latin American economies during the whole 20th Century and the years of the 21st Century. Of the more than 30 countries of the Latin American and Caribbean region none of them scores less than a GINI coefficient of 40 points, and just 5 of these countries were below 45 points in the year 2015 (World Development Indicators). Considering that most of the European countries score from 30 to 35, and even most of the countries from developing regions like East or South Asia are well below those values, one can state that Latin America is one of the most unequal regions in the world. This is not a minor issue as high inequality levels usually hinder the possibilities of emerging regions to economically develop and converge (Easterly, 2005).

Despite the fact that after the year 2003 and well until the middle of the 2010's decade the region managed -to some extent- to reduce its income concentration in a moment when the rest of the World increased it (Bertola and Williamson, 2017), concerns regarding the sustainability of this improvement arrived to the economic agenda on how to keep fostering the redistribution (Cornia, 2014). The deterioration of the international favorable conditions -that reduced income concentration in the region- and the persistent movement towards low productivity informal service sectors turn to be worrying sings for its continuity. In particular, the situation turned tougher due to the fact that since the 1980's structural change started a deindustrialization of the economies towards a re-primarization and to low productivity informal service sectors, which are sectors usually characterized by low capacities to foster high rates of economic growth in the long term (McMillan and Rodrik, 2011).

Region's over-reliance on agricultural production and low levels of diversification of the productive sectors were recurrent issues in the decisions of policy makers since the middle of the 20th Century up to the end of the 1970's. Governments tried to overcome this with industrial policies and protection of the local rising manufacturing sectors. However, this feature could not be deeply reverted. In addition, the shift of political economic decisions that took place at the end of the 1970's may have reinforced the incidence of this characteristic. The radical abandonment of any kind of industrial policy and the indiscriminate opening of the economy to international markets may

have produced an increasing effect on income concentration, which would have been reinforced by the rise of informal service sectors.

Then, it can be seen that the region experienced a transformation in its structural change process, with an early deindustrialization, a re-primarization and the growth of informal services. During this period, this may have impacted the way that income was distributed, increasing its concentration on top shares. In addition, the radical shift in political economic decisions after the end of the 1970's may have altered the structural change process and –consequently- the composition of the productive structure. This way, the objective of this article is to understand how the process of structural change in Latin America during the last 60 years has shaped the path of income inequality. Thereby, this study wants conciliate the economic literature that analyzes the impact of structural change on income inequality (Kuznets, 1957; Lewis, 1954), with the one that aims to understand how sectoral composition was affected by economic policy decisions (Katz, 2017), with a focus on manufacturing and service sectors (Palma, 2014).

Hereof, two tasks will be performed to deeply understand the impact of structural change on income inequality and how this was influenced by economic policy choices. First, I will try to identify what sectors were -between the years 1950 and 2012- more able to redistribute income. This will be done by looking to the relative performance of 9 particular sectors (4 industrial sectors and 5 services) in terms of employment and value added. In particular, I attempt to assess how the shares of every sector impacted income distribution in 9 Latin American countries. The measures of income inequality that I use in this article are the GINI coefficient and –complementary- the “Skill Premium”. The second part of the article will try to estimate the proximate determinants of the activity of these sectors in order to learn under which circumstances the more income-distributive sectors could expand. For this, special attention is given to those variables related to economic policy (i.e., trade liberalization, macroeconomic and political stability). All in all, this empirical exercise will look at the development process not as a static phenomenon, but as a dynamic one in which the structural change plays an important role.

Regarding the impact of sectoral composition on inequality, the study found out that industrial sectors are usually associated with lower income inequality, in particular the

construction and manufacturing sectors. On the other hand, low productivity services (wholesale and retail trade, restaurants and hotels) and government services are related with higher income inequality, while community, social and personal services helped to redistribute income. There were several differences between the impact made on the GINI and the Skill Premium, regarding which part of the income distribution was affected by sectoral composition, whether they affected the bottom and top of the distribution or the middle shares (this will be later explained in detail). The analysis of the determinants of sectoral activity shows that trade liberalization and the arrival of FDI negatively affected the manufacturing sector, while this last variable affected positively the services sectors. Additionally, the resilience towards macroeconomic and political stability shows the tendency of the region of moving to less economic complex sectors.

To better understand the need of analyzing the path of inequality in Latin America, the next section will look at its roots, what makes it different and the trends that it experienced since the 1950's decade. Besides, the diversity of development strategies will be examined. Section 3 will compile a literature review regarding the impact of structural change and sectoral composition on inequality, as well as the literature review on the determinants of the activity of the sectors, in order to set up the theoretical framework under which this article will operate. After that, section 4 explains the data and methodology used in each of the parts of the study. Section 5 interprets and discusses the results from this exercise. Finally, section 6 will conclude with the main findings of this research. This way, this article aims at enriching the existing literature on the determinants of income inequality in Latin America, with a focus on the dynamics of the structural change process and its causes.

2. Historical background

In this part of the article I will explain the historical background of this case study, to better understand its implications. In the first part of the historical background I will look to income inequality in Latin America: its deep historical origins and causes, its evolution and the recent trends. In the second part, I will show the development strategies carried through in the region during the period of analysis, their evolution and how they may have affected the process of structural change.

2.1. Inequality in Latin America

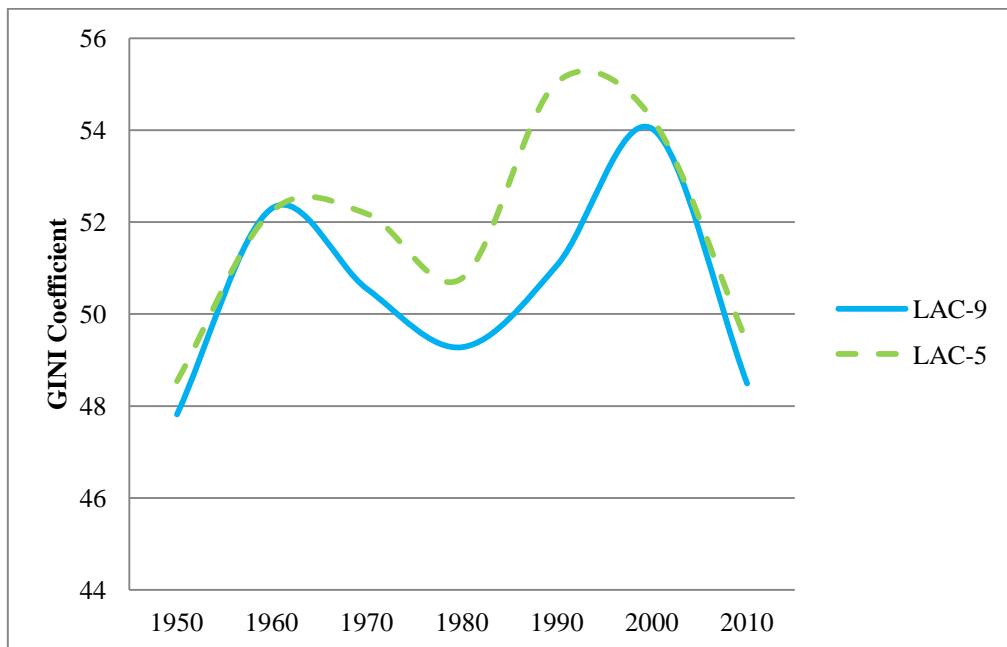
Despite some regional variation, inequality levels in Latin America have been comparatively high at least since the end of the 19th Century. While levels have been permanently high, they have varied over the last 60 years, more or less depending on the country. Between the 1950's decade and the end of the 1970's a small reduction happened. Meanwhile, a sharp increase of income inequality took place in the region since the middle half of the 1990's until the early 2000's decade. During the last decade, a first severe reversion took place in Latin American countries. Regardless this recent decline of income inequality, Latin America is still being one of the most unequal regions in the World. Then, understanding its historical origins as well as the determinants of these latest trends may help us to understand the influence that structural change may have produced in this high concentration.

The historical highly enduring inequality levels of the region are usually located at the roots of its economic backwardness and the lack of convergence to the industrialized core. The origins of these remarkable levels have been attributed to the institutional legacy from colonial times and to its factor endowments. New Institutional economics have focused and widened the understandings on this topic since the end of the 20th Century. Factor endowment of places where Europeans settled in America determined its initial inequality levels which, through human capital and political power distribution, would have persisted across time influencing the subsequent divergence between North America and the rest of the Continent (Engerman and Sokoloff, 2000). The role of the adaptation of Iberian Institutions and the weaknesses of local elites has been also regarded as a handicap for the region's development (Coatsworth, 2008).

Inequality became more tangible and severe after the Colonial period. This particularly happened during the globalization period from 1870 to 1914, the so called *belle époque*. This would have been caused due to the improvements of its terms of trade which benefited big landowners through increased returns to land and a decrease of the ratio between land returns and labor wages (Prados de la Escosura, 2007). The effects of globalization would have been intensified by the high levels of land concentration, which was in hands of a small elite, and mass migration to the region (to Brazil and the Southern Cone particularly). This pattern of higher inequality in moments of higher economic globalization would be a recurrent pattern in the region during the 20th

Century (Bértola and Williamson, 2003). Then, inequality persisted, particularly affected by the low emergence of institutions that promoted the expansion of human capital among the majority of the population, which hindered the possibilities of the region to make a strong transition from the agricultural sector to the industrial production (Galor et al 2009).

Figure 1. Evolution of the GINI coefficient



Source: GINI coefficients data from Prados de la Escosura (2007) between 1950 until 1980, and from the SEDLAC database from 1980 until the year 2012. LAC-9 represents the simple average of all the countries: Argentina, Bolivia, Brazil, Chile, Colombia, Costa Rica, Mexico, Peru and Venezuela. LAC-5 is the simple average of Argentina, Brazil, Chile, Colombia and Mexico¹.

This study focuses in the income inequality path since the end of WWII until today. During this period some small reversion of inequality levels could be experienced between the 1950's and 1970's in the region, but the most remarkable one took place during the first decade of the 21st Century (Figure 1)². After decades of strong industrial policy, in which import-substitution was the prevalent development strategy, at the end of the 1970's reforms based on the ideas coming from the Washington Consensus could not reverse the increasing concentration of income. Inequality kept rising during the 1980's and 1990's decades, and then it peaked in the firsts years of the 21st Century. After that, a period of sustained redistributive economic growth took place for a decade. In aggregate terms this was the first moment since the end of WWII when most

¹ The different trends between groups may show that LAC-5 countries were affected more deeply by the implementation of the different development strategies and their effects.

² See figure 5 in the appendix for the figure with the evolution of the GINI's for the 9 countries.

countries of the region were able to achieve fast growth and a decrease of inequality (Bertola and Williamson, 2017). This recent fall of income concentration was rooted at the combination of a drop in the skill-premium and more progressive government transfers (Lustig et al., 2012). The decline of skill-premium was fostered by supply-side factors (improvements in the distribution of basic education coverage) and demand-side factors (caused by positive terms of trade). Such combination of policy measures, stable macroeconomic policies, good cyclical factors and favorable external conditions would have been the cause of the decline of inequality during that decade (Cornia, 2010).

While it is clear that the region has been able to reduce inequality in a period in which the rest of the World kept increasing it, optimism should be cautious as its long term sustainability remains unclear. This is the case as the contraction was based on the realignments after the late 1990's and early 2000's shocks, and highly dependent on the international favorable conditions (Gasparini et al., 2009). In particular, the reduction may not be able to continue its path without deeper changes of the economic fundamentals of the region (Cornia, 2014). Given these concerns about redistribution of income and wealth sustainability in the upcoming years, more profound structural reforms may be required. In addition, the high reliance on agricultural production and the recent rise of informal service sectors -which are sectors that usually tend to income concentration-, turns redistribution even more difficult. It is possible that the shift of the economic structural composition have been altering the path of income inequality (Kuznets, 1957). Then, understanding how structural transformation was influenced by the attempts of local rulers to diversify their productive sectors, develop and achieve sustained economic growth is relevant for this case study. Particularly, the variety of development strategies that were carried through in Latin America since the 1950's decade may have impacted income inequality through its effects on the structural change process.

2.2. Development strategies and structural change

As a reaction to the economic problems generated by the financial crisis of the year 1929, the region increased the protection of its production and internal markets in order to avoid the negative consequences of the high volatility of international markets. After World War II this position was reinforced with most of Latin American countries actively involving in industrial policies, aimed at pursuing a proactive expansion of the

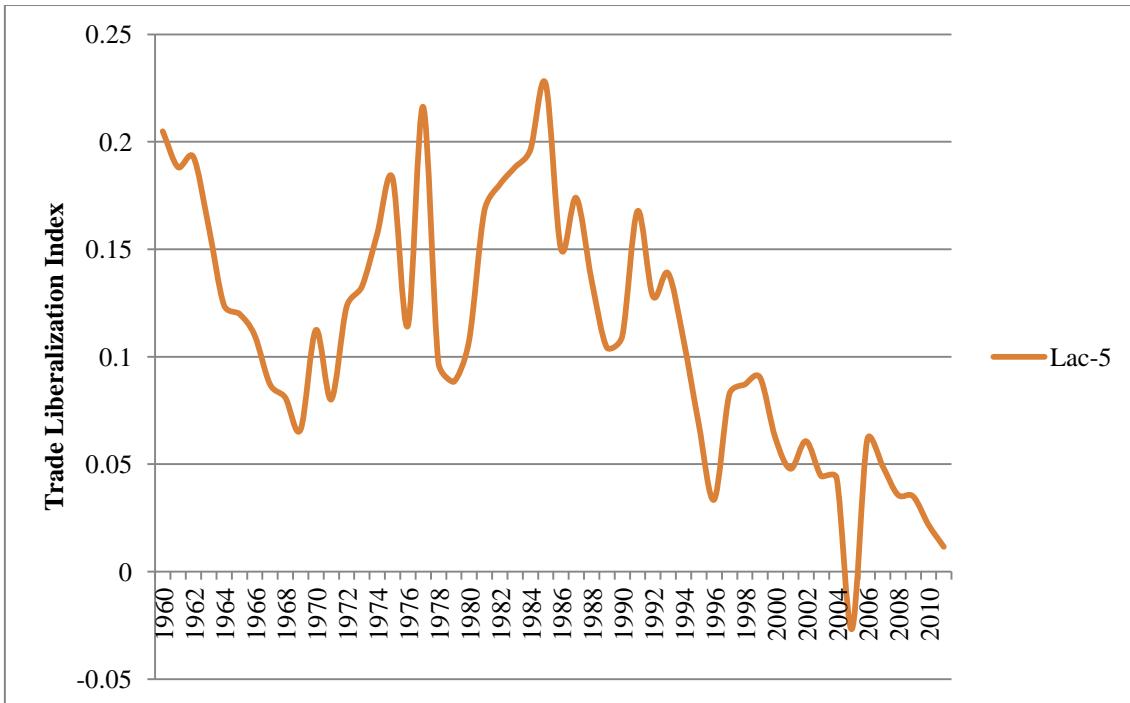
manufacturing sector, by the state as a developer of structural change. This was intended to diversify their production, moving from being just net exporters of agricultural non-processed products and raw materials to higher value added tradable manufactured goods. During this period, the so called “state-led industrialization” was aimed, also identified as the “Import Substitution Industrialization” (ISI). The public sector actively participated in the manufacturing activity. Relative advances in the sector took place, as well as a modernization of the institutional framework. Additionally, economic growth was achieved, however it was volatile and the region had to face several crises (Ocampo, 2006). Political instability turned high after the 1970’s decade and accumulation of foreign debt started to be a problem. This was more visible with the spread of the international financial crisis of 1982, which led to a major debt crisis. All these economic problems in addition with the high direct costs of the development of the manufacturing sector ended up with this development strategy by the beginning of the 1980’s decade.

Despite the fact that this strategy pursued the structural diversification of the economy, contrary to what it has been thought, it was implemented to address the problem of high trade balance deficits that started to hit the region after the end of WWII (Prebisch, 1986). This way, the imposition of tariffs to import products produced unintended positive effects on manufacturing and a bias against the agricultural sector. However, these industrial policy measures would have been less important for its development, and the declining land-labor ratio would be at the root of the relative agricultural decline (Debowicz and Segal, 2013). During this period extraction of rents from agriculture was pursued as their efficiency losses were thought to have a marginal impact on their productivity, with a decrease of land rents and land values as the objectives.

Between the 1960’s until the 1980’s decade intervention became more important with direct positive interventions on importables (manufacturing goods) and negative ones on exportables (such as agricultural products). Direct taxes on exportables were more dominant than the protection given to importables. Also, indirect taxation to agriculture was high through an overvaluation of the currencies and policies that aimed price stabilization (Anderson and Valdés, 2007). This lower reliance on international markets can be seen when looking at the Trade Liberalization Index (Figure 2)³.

³ See Figure 3 in the appendix for the evolution of the Index individually for every country.

Figure 2. Evolution of the Trade Liberalization Index



Source: Trade reduction index from Anderson (2009). This is the simple average of LAC-5 countries (Argentina, Brazil, Chile, Colombia and Mexico).

Promoted by the main international economic institutions (IMF, World Bank or the US Department of the Treasury) a radical shift of the development strategies of the region took place since the middle of the 1970's and the beginning of the 1980's decade. The objective was the stabilization of the macroeconomic environment, liberalization towards international trade and a drastic reduction of public intervention in the economy, in order to achieve sustained economic growth. Consequently, any kind of industrial policy was abandoned. This policy agenda was given the name of "Washington Consensus" and consisted on reforms from fiscal policy discipline and trade liberalization to the security of property rights (Williamson, 1990)⁴. Despite the strict implementation of these prescriptions, sustained economic growth could not be generally achieved (Table 1), and it was lower than in the previous development period of IS. In the first half of the 1990's decade economic growth was achieved, however during the second half of that decade and the first years of the 21st Century the region

⁴ John Williamson (1990) summarized the specific set of policy recommendations that characterized "Consensus" which were ten: fiscal policy discipline; redirection of public spending; tax reform towards more moderate tax rates; interest rates determined by the market; competitive exchange rates; suppression of tariffs and trade liberalization; openness toward FDI; privatization of public companies; deregulation of financial markets; and the security of property rights.

experienced severe economic crises in which poverty and inequality increased until its maximum levels for the period of analysis (Rodrik, 2006).

Table 1. GDP per capita growth

	Argentina	Bolivia	Brazil	Chile	Colombia	Costa Rica	Mexico	Peru	Venezuela
1950-1959	0.63%	-1.77%	3.54%	1.30%	0.74%	4.16%	2.60%	1.64%	3.64%
1960-1969	2.92%	2.12%	3.22%	4.08%	2.00%	2.07%	3.35%	3.76%	0.01%
1970-1979	1.08%	2.44%	5.91%	-0.16%	5.30%	3.64%	3.79%	1.46%	2.37%
1980-1989	2.59%	0.08%	1.22%	1.32%	-0.13%	-0.54%	-0.93%	-1.03%	-2.07%
1990-1999	10.41%	3.97%	3.75%	3.72%	0.25%	3.35%	1.42%	3.68%	-2.15%
2000-2009	1.78%	4.17%	3.23%	4.54%	3.64%	1.71%	2.01%	5.93%	8.05%
2010-2012	6.19%	8.17%	8.04%	8.19%	6.84%	3.63%	4.23%	7.60%	10.12%

Source: estimation from Penn World Tables GDP per capita. The "ISI period" (1950 - 1979) scored a mean yearly growth of 2.4%, while the following period (1980 - 1999) scored a 1.6%.

The Washington Consensus period sought the generation of increases in productivity and private investment which could help the countries to further compete in the international markets. This way, it was expected that trade liberalization and the reduction of fiscal deficits would have generated a depreciation of real exchange rates which, through an increased international demand of Latin American products, would lead to higher economic growth (Krueger, Schiff and Valdés, 1988). Despite the opening up of the region and trade liberalization, the reforms were followed by an appreciation of the currency, rooted at the opening towards foreign direct investment, the opening of capital accounts and higher domestic real interest rates (Anderson and Valdés, 2007).

After the economic crises of the beginning of the 21st Century, from the year 2003 a new shift in the economic policies took place in the region. During this first decade higher economic growth rates than the previous two could be achieved, but the 1970's growth rates could not be surpassed (ECLAC, 2012). The general stability of the macroeconomic framework and the high growth rates were good news for the region, which was more intensive in the South American countries. During this period, public participation in the manufacturing experienced a small renaissance to relatively improve its dynamism with some measures of industrial policy (Devlin and Moguillansky, 2013). Despite this shift, little gains were achieved on the field, and exports intensive in agricultural goods kept increasing their importance. This way, the tradable industrial sector was left to a marginal role while commodities, non-tradable industries and

services (banking, construction, telecommunication and transport systems) became dominant (Katz, 2017).

It can be seen that, since the middle of the 20th Century, Latin American countries carried out a wide range of strategies in order to foster economic development. While the ISI era (1950-1980) could not fully complete its objectives, economic growth was persistent and some structural transformation took place. However, the political and macroeconomic instability of its last years ended up with it. The solutions proposed by the Washington Consensus resulted into even lower economic growth and higher inequality levels during the 1980's and 1990's. The political shift of the 2000's deviated from the past two decades. High rates of economic growth were achieved and inequality decreased; however, this could not manage to generate strong enough forces to converge and its redistributive sustainability seems to be limited.

Frequently, economists that positioned as pro-neoliberal reformists argued that any state that induced industrial policy would harm its economic growth and that these kinds of actions should be avoided (Becker, 1985)⁵. Nevertheless, neglecting the fact that strong industrial policies and a deviation from the canonical classical-free trade strategies (“Washington Consensus style”) may be detrimental for today’s developing regions abilities to progress and reduce their high levels of income inequality. This is the case of most of the countries that represent today’s core of economic progress, which are at the technological frontier and which did not lack strong industrial policies and protection for their rising productive sectors before they opened up to international trade (Amsden, 1992; Chang, 2002). The relative failure of this strategy during the “ISI era” in Latin America was attributed to a combination of the lack of capabilities and endowments to carry it through and to the fact that it may have been captured by particular interests (Baer, 1972). Also, looking to East Asian industrialization process, both macroeconomic and industrial policies moved together with the common objectives of promoting growth and stability in the long run. This coordination could have not been present in Latin America, as the region was subject to cyclical debt crises, fiscal adjustments and severe financial crises (ECLAC, 2012).

⁵ Gary Becker (1985): “*The best industrial policy is none at all*”.

3. Theoretical framework: structural change and income inequality

The relationship between structural change and inequality has been widely documented in economics. Starting with Kuznets (1957), he attributed the rise of concentration to the differences of incomes between agricultural and non-agricultural population. In this movement, the ability of the manufacturing sector to absorb the inflow of rural population is essential to understand the path of inequality in the region. Then, Lewis (1954) claimed that demographic dynamics (unlimited supplies of unskilled labor) were determinant in the distribution of income associated to the change process. This last point may have been outstandingly relevant for the region, due to the scarce capital and the possible effect of migration arrival, during the early 20th Century, which would have kept the high levels of inequality. This way, understanding the structural change process of countries, and the particular characteristics and forces that shaped it, turns essential to comprehend the evolution of income inequality in Latin America.

Despite the fact that it looks like development strategies in Latin America could only affect income inequality downwards during a short period of time and it moved upwards independently during the rest of it, this would be a stylized fact which needs further understandings. It is of particular interest for this study the analysis of income inequality in the region since the 1950's, but looking at the disaggregated impact by sectors of structural change, as aggregated figures lacking the concept of structure may not allow us to distinguish some underlying trends (Katz, 2015).

Then, how to foster structural change is highly important in a context in which growing just from exporting agricultural goods and raw materials looks like has run out of steam to promote convergence towards developed nations. Especially this is the case for Latin America and Sub-Saharan Africa whom employment has been moving toward low productivity informal services instead of doing so towards the industrial sector (McMillan and Rodrik, 2011). In addition, recent structural change has started to reduce growth, contrary to the structural change that happened between 1950 and 1975 which pushed up economic growth (de Vries et al 2013; McMillan et al 2014). Meanwhile East Asian economies are moving to convergence, Latin America is being left behind (Kay, 2002). Then, it turns necessary to talk about ways to promote a shift to achieve high sustained rates of economic growth while altering the foundations of the economic systems of the region. Like Structuralists did at the middle of the 20th Century

(Prebisch, 1981), it is relevant to look at the process of structural change to understand how inequality can be changed through specific Latin American prescriptions.

While the role of agriculture in the process of structural change and its recent impact on inequality has been central (Andersson and Palacio, 2017), this study will put emphasis on manufacturing and services sectors as the players in this process. This is motivated by the previously mentioned process of premature deindustrialization and rise of informal services sector in the region. Then, in the following sections I will set up the theoretical framework under which this study will work. Section 3.1 shows how the literature has treated the role of sectoral composition on income inequality. Lastly, section 3.2 establishes the framework for the second part of the study regarding the determinants of sectoral composition.

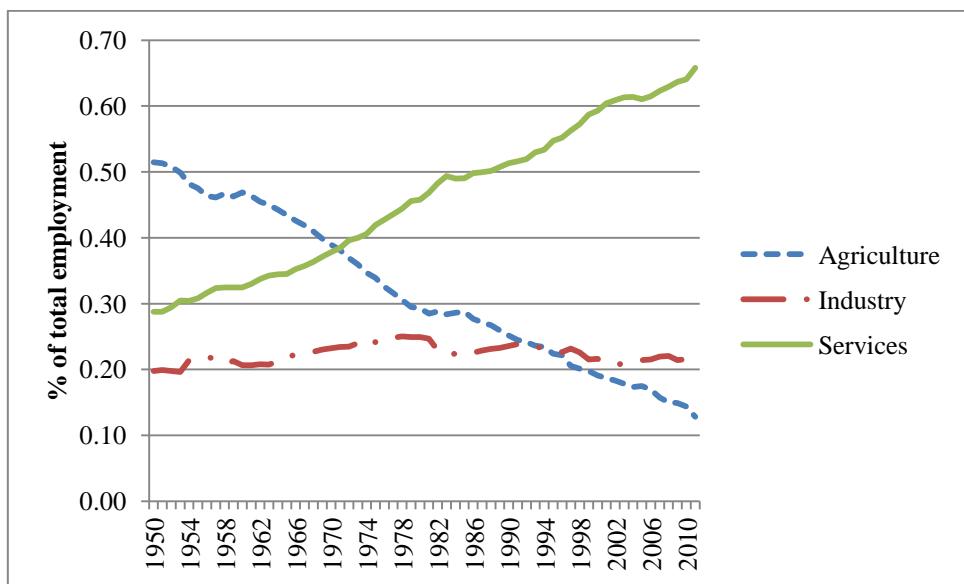
3.1. Impact of Sectoral Composition on Inequality

The importance of firms and labour markets in the distribution of income is outstandingly high in developing countries, where the consolidation of the middle class is an issue as they are mostly dependent on their wages. The recent reduction of the manufacturing size (in terms of value added and employment), not only in developing but in advanced ones, produced an increasing impact on income inequality. In particular, for the US it appears that the de-industrialization has led a negative impact on income redistribution, and that some manufacturing sectors differed in the effects of the contribution to this impact (Moore, 2009). This is the reason why one should look at the factors that affect countries' abilities to experience structural change towards manufacturing sectors, with higher power to distribute income across the most vulnerable.

The industrial sector is important in the attempts to overcome regional inequality and consolidation of the economic relevance of the middle classes. Then, the recent de-industrialization and sector bias towards primary exporting activities in the region of Latin America could be a handicap for redistribution (ECLAC, 2012). Concerns on this were strong during recent years as it looks that markets by themselves could not lead to a desirable more equalitarian distribution of incomes, and the use of industrial policy may be a valuable instrument to foster more redistributive manufacturing sectors (Stiglitz, 2015). The relationship of manufacturing employment and national income (in terms of GDP per capita) is expected to follow an inverted-U shape, and the decline of

its turning point from \$21,000 in the year 1980 to \$10,000 in the year 1990 has threatened the possibilities of expansion of this sector (Palma, 2014). Looking to the data on the sector distribution of employment, it is easy to see that since the end of the 1970's the service sector has been capturing all the employment from agriculture and from the relative de-industrialization process (Figure 3)⁶.

Figure 3. Sectoral composition, by employment



Source: 10-Sector Database. Sectoral shares of employment rates aggregated by sector.

3.2. Determinants of Sectoral Composition

This study aims to understand the determinants of structural change that directed production and employment towards those industrial and service sectors that are more redistributive, in order to identify in which periods and under which circumstances this process lead to a more equalitarian distribution of national incomes. This article will not look at the usual aggregated three main sectors (agriculture, industry and services), but to the disaggregation of these into 9 sub-sectors (this will be explained later on).

The analysis of the forces that impacted the manufacturing sectors of developing regions has been documented by the economic literature. As mentioned above, in an inverse-U relationship income per capita acts as a determinant of sectors' activity. In a first moment as income increases population starts to consume manufacturing durable goods, but after the moment that they have satisfied those initial needs, demand for those goods begins to fall. However, this process tends to differ between countries as

⁶ See Figure 7 in the appendix for the sectoral composition of value added.

some, despite the increase of per capita income, are able to generate a trade surplus in manufactures and maintain employment in the sector, while other cannot generate that surplus and the sector inevitably falls (Palma, 2014). The pattern of deindustrialization would be more severe in countries that have a comparative advantage on commodities and services exports. This would be the case as the arrival of foreign currencies due to the trade of primary products and services would impact exchange rates of these developing economies. Then, an induced overvaluation of exchange rates would negatively hit growth possibilities of tradable manufacturing sectors (Rajan and Subramanian, 2011). This is what would have happened after the 1980's in some Latin American countries with the abandonment of the ISI strategy and the radical shift towards trade and financial liberalization, being this especially exaggerated in Brazil and the Southern Cone countries.

Then, when analyzing the process of structural change it is important to understand that this may be deeply affected by external factors, not only by the internal evolution of income and sector productivity, and models that treat countries as they were under autarky are not very useful. This is relevant for today's globalized World in which local manufactures compete with other countries production. This is why to comprehend the cross-country variations about the evolution of manufacturing sectors a global perspective should be adopted, to consider the impact of both local forces (productivity gains and employment) and external ones (trade and international shocks) (Matsuyama, 2009). Consequently, for analyzing structural change a broad vision should be taken to understand the complexity of the process and its impact on income inequality.

This study will be focused particularly on the impact of structural change, and more specifically on sectoral composition in terms of employment and value added (manufacturing and services disaggregated), on income inequality in Latin America. Then, after having stressed which sectors are more income distributive, the second stage is to focus on the determinants of their activity. These determinant factors should be analyzed from a wide perspective, understanding that industrial policy measured are those that affect sectoral composition (Stiglitz, 2015), and that the role of international and exogenous factors is decisive.

About the determinants of the sectoral composition, from the previous structural change literature it can be inferred that economic growth and income may help the whole

economy but there may be some sectors that are more able than others to capture the effects from the movement to certain GDP per capita levels as the demand for some products may decline (Palma, 2014). The arrival of foreign currencies, it could be in terms of Foreign Direct investment, can determine the composition through exchange rate appreciation (Rajan and Subramanian, 2011). This way, different exchange rate regimes can help those sectors that are likely to loose from this phenomenon.

In particular, the deindustrialization process of Latin America has been affected by many internal factors, but external ones such as trade and international shocks were very important for its evolution. This way, the exposure to international competition turns key in for the expansion of the industrial sector (Matsuyama, 2009). On the other hand, for the case of the US, the process of deindustrialization was strongly affected by the moment of the business cycle in which the country was and by economic growth (Lawrence and Edwards, 2013).

In addition, the determinants of sectoral activity have been analyzed for some developing regions, with similar results. Political stability was an important factor underlying the development of some manufacturing in the African region (Anaman and Amponsah, 2009). In those rising regions the early manufacturing decline has been associated to the weakening shocks caused by macroeconomic instability, and previous moments of economic stability helped for its expansion (Stiglitz, 2015).

Going back to Latin America, factor endowments (population and the closing of the land frontier) were of high importance in the bias away from agriculture (towards manufacturing and services) between 1935 and 1960 in Argentina (Debowicz and Segal, 2014). Despite the usual assumption that trade policies, tariffs and domestic prices are more important for the expansion of manufacturing, the disposable labor and land would have been more determinant. Additionally, a study made for Argentina, Brazil and Chile, since the shift towards the primary sector when the ISI was abandoned during the 1970's until the end of the 2000's decade, has analyzed the determinants of sectoral resilience. While Brazil and Chile's manufacturing sectors were hardly hit by the Dutch disease caused by their primary sectors, Argentina could expand its industries between 2002 and 2008 due to the devaluation of the currency with stable and competitive exchange rates (SCRER) (Katz, 2015).

4. Data & Methodology

The objective of this article is twofold. As it was explained in the previous theoretical framework section, the first part of the empirical analysis will try to estimate to which sectors value added and employment shifted towards and how that shift affected inequality trends, as a result of the process of structural change. This will be done for 9 Latin American countries (Argentina, Bolivia, Brazil, Chile, Colombia, Costar Rica, Mexico, Peru and Venezuela) since the year 1950 until 2012. In order to fully understand the dimensions of sectoral composition, I will look at it in terms of employment and value added, distinguishing their differences. Also, to complement the comprehension of income inequality I will use two measures: the GINI coefficient (which shows the overall income distribution) and the Skill Premium (which reflects the part of income concerning wages). Its methodology will be later explained in detail. On the other hand, the second part of the article will try to assess the proximate economic determinants of these sectors activity, in order to identify the circumstances under which they have been able to develop. Then, this section continues as follows: first the complete data used for both parts of the article will be explained; second, the method used for the analysis of the impact of structural change on income inequality will be disclosed, based on the previous analysis of the literature; finally, the method and the model employed in order to understand the determinants of the sectoral activity is being showed, also based on its pertinent theoretical framework.

4.1. Data

The main database I am using for the sectoral shares of this article comes from the 10-Sector Database (Timmer, de Vries & de Vries, 2015) provided by the Groningen Growth and Development Centre. This database contains long-term information regarding sectoral development in terms of value-added and employment, for more than 40 countries (most of them developing countries from Africa, Asia and Latin America) since the year 1950. The information is constructed from the study of the available statistical sources of each country. Here we took the sectoral shares for both employment and value added for the 9 Latin American countries available (See Table 8 and Table 9 in the appendix for the shares of these variables). The sectors are the following:

- Agriculture, hunting, forestry and fishing
- Mining and quarrying
- Manufacturing
- Electricity, gas and water supply
- Construction
- Wholesale and retail trade, hotels and restaurants
- Transport, storage, and communication
- Finance, insurance, real estate and business services
- Government services
- Community, social and personal services

In order to avoid perfect collinearity problems in the model I decided not to include the agricultural sector in the analysis. This comes also motivated by the fact that I want to focus on those sectors that belong to industry and services, as the deindustrialization process is a challenging phenomenon for today's developing countries. Additionally, the fact that the agriculture sector has gone constantly downwards in most of the countries, and that the recent re-primarization has been relatively small in terms of employment and value added, makes this choice easier. This sectoral data will be used for both parts of the analysis: the first one on the impact of the sectors on inequality, and the second one on the economic determinants of those sectors activity.

In order to check that the results hold, I will take the shares of employment first as a measure of the sectoral composition, and secondly I will take the value added shares to confirm the robustness of the results of both parts of the analysis. In the following subsections I will explain the data and methodology applied for each one of those parts.

4.2. Impact of sectoral composition on income inequality

In the first part of the analysis, the income inequality data comes from the GINI index compiled from the article of Prados de la Escosura (2007) for the period between 1950 until 1980-1990, and from the ECLAC – SEDLAC database from 1980 – 1990s decade until the year 2012. Then, in this part I will try to estimate the impact of the sectoral composition on income inequality, in terms of the GINI index. When looking to the sectoral composition I will look at the share of value added and employment of each sector. Contrary to the general explanation that understands the structural change process by looking to the three major sectors (Kuznets, 1957), I decided to take the 9

sectors as the explanatory variables. Then, the specifications of both shares will look as the following:

$$\text{GINI}_{it} = \beta_0 + \beta_1 \text{Miningshare}_{it} + \beta_2 \text{Manufacturing}_{it} + \dots + \beta_k \text{SectorShare}_{it} + \alpha_i + u_{it} \quad (1)$$

Where the subindex “i” stands for the country and the subindex “t” stands for the year. Also, the term α_i represents individual countries fixed effects, to control for the possible unobserved heterogeneity constant across time and countries. Additionally, u_{it} represents the error term and β_0 the constant.

However, it can be the case that the expansion of these sectors may be correlated with the expansion of the GDP per capita (Palma, 2014) of the economies and as a result the impact of the sectors may be associated to decreases of inequality. This way, it could be possible that the development of these sectors is reducing inequality through increases or decreases of the GDP per capita, as growth in some periods may be more likely to expand some sectors and leave others out of these gains (Kuznets, 1957). Then, in the second and more complete specification of my model I decided to include the variable GDP per capita, to isolate its possible effects through the sectors.

$$\text{GINI}_{it} = \beta_0 + \rho_i \text{GDPperCapita}_{it} + \beta_1 \text{Miningshare}_{it} + \beta_2 \text{Manufacturing}_{it} + \dots + \beta_k \text{SectorShare}_{it} + \alpha_i + u_{it} \quad (2)$$

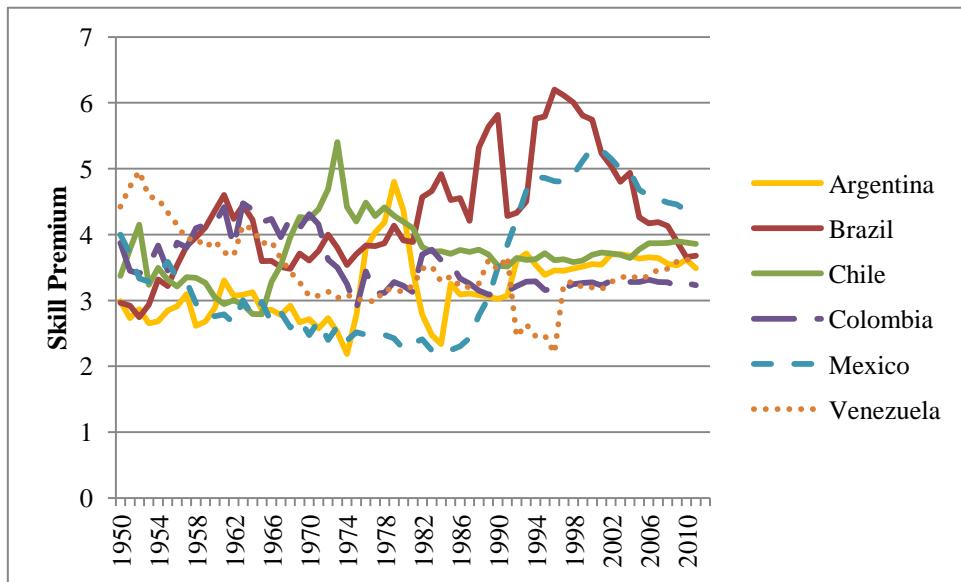
Then, specification number (2) will be the one in which I will base the analysis of this first part of the article. This one will be used to estimate the impact of sectoral composition. Also, this will be the basis for the following robustness check for the validity of the GINI as an instrument of income inequality.

It could be the case that the GINI coefficient shows misleading pictures of the reality of income inequality in the region. This can happen as this index tends to be oversensitive to what happens in the middle of the distribution, while reducing the importance of changes in the bottom and top of the distribution. Then, this should be considered when analyzing its results, and should be emphasized that it can help us to see consolidations towards the middle of the distribution.

Then, in order to better understand the evolution of income inequality in the region and have a broader picture, I decided to include in my analysis an alternative measure of

inequality as the dependent variable of my model, this is the skill premium. This measure is defined as the ratio of the wages of highly skilled workers to lower or unskilled worker wages. This way, the skill premium could show how earnings are concentrated among the population. The skill premium helps us to identify the evolution of wage differentials over time with a long term perspective. Also, in the second part of our analysis it allows the exploration of the impact of transformations of the economy on inequality, transformations such as the relationship of the country with the international markets, structural change, the demographic transition or urbanization. We took the data on Skill Premiums from Astorga's (2017) article, in which he provided the series of this ratio, as well as the information on wages for unskilled, semi-skilled and high-skilled workers, yearly since 1900 until 2011. This evidence was presented for six Latin American countries (Argentina, Brazil, Chile, Colombia, Mexico and Venezuela). Although this sample reduce the original number of countries that I had, it stills being large and representative of what happened in the region as these six countries represent around the 85% of the GDP of the region and a 75% of the total population. The fact that this data is completely provided for all years results of high utility for this analysis. The trends are shown in Figure 4 for the 6 countries and the average of all of them.

Figure 4. Evolution of the Skill Premium



Source: Skill Premium, ratio of the wages of highly skilled workers relative to the wages of unskilled workers. Data from Astorga (2017).

Similarly as the exercise we did for the GINI, in this case I am analyzing the impact of sectoral composition on Skill premium, as a measure of income inequality. However,

before moving beyond this point it has to be said that the Skill Premium represents the part of income inequality that comes from wages while the GINI represents the full income distribution. This way, the Skill Premium is a lower bound of the income inequality, while the GINI contains more sources of income inequality than just wages. This point will be very important when interpreting the results of the impact of sectoral composition in section 5.

Then, the specification for the Skill Premium would be the following:

$$\text{Skill Premium}_{it} = \beta_0 + \beta_1 \text{GDPperCapita}_{it} + \beta_2 \text{Miningshare}_{it} + \beta_3 \text{Manufacturing}_{it} + \dots + \beta_k \text{SectorShare}_{it} + \alpha_i + u_{it} \quad (3)$$

When $\text{Skill Premium}_{it}$ represents the ratio of wages of highly-skilled individuals relative to unskilled individuals, for country “i” in year “t”. The independent variables are the shares of employment and value added of the sectors as well as GDP per capita levels of each country across “t”. It also contains a fixed effect “ α_i ”.

4.3. Determinants of sectoral activity

Secondly, this part of the article will try to understand what were the proximate determinants of the contraction or expansion of the sectors that in the previous section were found to produce an impact on income inequality. Again, I will do so by looking both at the share of employment and value added, in order to have a more complete picture. Here, I am including as determinants of the sectoral composition those variables that were considered by the literature as important for the development for either the industrial or service sector, but in this case again we will look to 9 different sub-sectors.

Talking about the explanatory variables, most of the literature has considered the moment of the business cycle and the expansion of GDP as an important determinant for sectoral activity (Lawrence and Edwards, 2013). The arrival of FDI and the exchange rate regime impact on manufactures was important (Palma, 2014; Rajan and Subramanian, 2011). Also, linked to the previous factors, the exposure to international shocks and trade competition was also a likely determinant of sectors activity (Matsuyama, 2009; Katz, 2015). The role of political and macroeconomic instability in developing economies manufacturing sectors has been of apparently importance (Stiglitz, 2015; Anaman and Ampsonah, 2009). Finally, it was argued that factor endowments such as population, land and urban population determined the prevalence

of an agenda toward some sectors (Debowicz and Segal, 2014). More precisely, the inclusion of demographic dynamics would be a way of incorporating the previously explained Kuznets-Lewis hypotheses into the empirical study, and their possible role in the expansion of manufacturing sectors (Kuznets, 1957; Lewis 1954).

At this point, to understand which were the factors that determined the sectoral composition of the economy towards those sectors that were relevant for the evolution of income inequality in the region I will regress the share of those sectors (employment and value added), on the previous variables as explanatory ones. I am doing so with the objective of understanding under which conditions could these sectors develop. Consequently, by doing these I want to be able to prescribe more specific policy recommendations to the economic authorities of those countries so inequality can be alleviated. Then the specification for this part of the analysis will look as following:

$$\text{Sector Share}_{it} = \beta_0 + \beta_1 \text{GDPgrowth}_{it} + \beta_2 \text{Population}_{it} + \beta_3 \text{InflationSD}_{it} + \beta_4 \text{PoliticalStability}_{it} + \beta_5 \text{Urbanisationratio}_{it} + \beta_6 \text{FDI}_{it} + \beta_7 \text{TradeLiberalization}_{it} + \alpha_i + u_{it} \quad (4)$$

In this case the dependent variable will be the sector shares of employment and value added, for country “i” and year “t”. The first explanatory variable “GDPgrowth” stands for the GDP per Capita growth, from the Penn World Tables. The second variable is the population of every country across time. Thirdly, “InflationSD” is the variable that I have created as a measure of macroeconomic instability, which is the standard deviation of the change of the Consumer Price Indexes. The fourth variable “Political Stability” is the measure of political stability, which I have taken the PolityIV index of “Autocracy-Democracy”, which ranges from -10 (total autocracy) to 10 (full democracy). “UrbanisationRatio” is the percentage of the total population living in urban areas. “FDI” is the percentage of Foreign Direct Investment of the total GDP. Finally, the last independent variable “TradeLiberalization” is the Trade Reduction Index from Anderson (2009) “Distortions to agricultural incentives”. This is a database that measures the bias by which agricultural prices are raised by the distortions imposed by governments that created a gap between domestic prices and what they would be under free trade. This way for this study I decided to use the Trade Reduction Index, for all tradable goods, which above (below) zero means that there was a reduction (increase) of the trade of this kind of goods by government action, which in our sample ranges from

0.44 (the maximum level of trade reduction) until -0.24 (the minimum, in which trade is highly liberalized). Therefore, I use it as a proxy of trade liberalization.

5. Results & Interpretation

Given the methodology and the data that will be used for this article showed in the previous section, at this point I will show the results from the empirical research of each one of the parts of this analysis.

5.1. Impact of sectoral composition on income inequality

In this part of the model I regressed the GINI coefficients on the share of employment of the 9 sectors of interest for the study. In this first specification (Table 2, column 1) the results show that expansions of mining, construction and community services are statistically significant and associated with a decrease of income inequality. On the other hand, expansions of trade and government services increase income concentration.

The coefficients would be interpreted as following: an expansion of the construction sector of 1% of total employment (ie, moving from 10% to 11%) would reduce the GINI coefficient by 0.72 points ($-0.72 = -72.07 * 0.01$), keeping everything else constant. Given the fact that this share has been moving in the region between 1.79% of total employment (its minimum value) until 12.7% (the maximum during the period of analysis), it could be said that this sector can make a difference towards the fall of income inequality.

Table 2. Impact of sectoral composition of Employment on GINI coefficient

VARIABLES	(1) Gini	(2) Gini
Log GDP per capita	- (-)	-2.298 (1.642)
Mining Emp.	-147.7** (68.42)	-46.73 (72.04)
Manuf. Emp.	-23.76 (15.24)	-21.23 (14.97)
Utilities Emp.	133.8 (144.9)	175.0 (141.0)
Construction Emp.	-72.07*** (25.89)	-69.32*** (26.32)
Trade Emp.	30.18*** (10.01)	35.94*** (9.944)
Transp. Emp.	-51.61 (35.19)	-44.09 (34.82)
Finance Emp.	-3.052 (22.07)	7.260 (22.86)
Governm. Emp.	53.90*** (19.92)	77.14*** (23.46)
Community Em.	-66.40*** (20.77)	-64.70*** (20.26)
Constant	62.81*** (3.573)	77.07*** (12.06)
Observations	190	189
R-squared	0.193	0.213
Number of countries	9	9

Standard errors in parentheses *** p<0.01, ** p<0.05, * p<0.1. Estimated with fixed effects, within groups estimators.

However, it can be the case that the expansion of some of these sectors found significant may be correlated with the expansion of GDP per capita, and because of that they are associated to decreases of inequality. This is why in the second specification of my model I decided to include the variable “Log GDP per capita” (which is the natural logarithm of countries GDP per capita), to isolate its possible effects through the sectors.

The results from this second specification (Table 2, column 2) show that now the relevance of the mining sector has disappeared. Meanwhile, construction and community services keep associated with lower inequality, and trade and government services maintain their positive impact on the GINI.

In order to check that the results from the impact of sectoral composition of employment on inequality holds, I decided to do the same exercise with the share of the sectors as percentage of value added of the economies (Table 3). When doing so both manufacturing and construction are statistically significant and reducers of inequality, while the statistical significance of the previous significant sectors disappears. However, the mining sector now appears to significantly reduce inequality. Also, utilities (Electricity, gas and water supply sectors) turn significant, producing an increasing effect on inequality. However, although the coefficient of this sector is the biggest, we should not forget the fact that the maximum share that the sector reached during this period was 4.9% of total value added, indicating that its increasing power would be limited. For example, the interpretation of the coefficient of manufacturing (-48.23) would be as following: and expansion of 1% of this sector of the total value added of the economy would reduce the GINI coefficient by 0.4823 points, keeping everything else constant.

The results from this first part of the empirical section of the article done with the GINI coefficient as a measure of income inequality can be interpreted in the following way. The role of construction employment appears to be consistent and statistically significant. On the other hand when employment moved to service sectors the evidence is mixed. Government and trade sectors (wholesale and retail trade, hotels and restaurants) employment increased inequality and community services appear to be correlated with reductions of income concentration. A plausible explanation could be that the government employment expansion has been directed to just some privileged individuals of Latin American countries. Usually, the expansion of trade sector is associated to moments in which the opening up of the economy has been done towards low productivity services, with an increase of low quality jobs. On the other hand, the expansion of community, social and personal services looks like has reduced inequality as it could have lead to an expansion of well-being of the majority of the population.

Table 3. Impact of sectoral composition of Value Added on GINI coefficient

VARIABLES	(1) Gini	(2) Gini
Log GDP per capita	-	1.301 (1.419)
Mining V.A.	-27.20** (10.49)	-33.87*** (11.79)
Manuf. V.A.	-39.39*** (13.41)	-48.23*** (13.02)
Utilities V.A.	148.6*** (40.87)	106.3** (41.71)
Constr. V.A.	-67.91*** (19.6)	-75.58*** (19.31)
Trade V.A.	-1.711 (14.91)	-0.585 (15.04)
Transp. V.A.	-12.57 (29.19)	-10.51 (27.94)
Financ. V.A.	16.97 (13.81)	11.90 (13.74)
Governm. V.A.	4.526 (18.21)	-11.20 (20.48)
Comm. V.A.	-1.416 (16.82)	8.764 (16.35)
Constant	60.93*** (7.139)	53.55*** (12.75)
Observations	157	156
R-squared	0.249	0.280
Number of countries	8	8

Standard errors in parentheses *** p<0.01, ** p<0.05, * p<0.1. Estimated with fixed effects, within groups estimators.

When checking the validity of the results by looking at the value added shares, the importance of the service sector disappears. Then, industrial value added appears to be a more important determinant of income inequality. In this case, 3 out of the 4 industrial sectors expansions of value added can lead to higher redistribution of incomes. To the construction sector we have to add the importance of mining and manufacturing sectors which are strong and significant. Utility sectors became significant as well, with a positive coefficient, showing that it can increase income inequality. This may be happening as the expansion of the sector may be generating rents that could be concentrating in few shares of the societies of these countries.

All in all, the evidence from the employment sectoral composition is mixed, however it appears that industrial sectors have reduced inequality more strongly than services

sectors, of which only community services helped to spread income. This is reinforced by the analysis of the evolution of the shares of value added, which show that mining, manufacturing and construction are more likely to move income to the middle of the distribution, while utilities expansion tend to concentrate it.

5.1.1. Analysis of the Impact of the Sectoral Composition on the Skill Premium

In this part of the study I decided to replicate what I did for the GINI but using the Skill Premium to check if the results hold. This way, when first looking at the impact of sectoral employment (Table 4, column 1) it can be seen that the expansion of mining and utilities decreased the skill premium while the expansion of construction, government services and finances (this last one, just when controlling for GDP per capita levels and just with a 5% level of significance) is associated to higher relative wage concentration in the more skilled workers.

Table 4. Impact of sectoral composition of Employment on Skill Premium

VARIABLES	(1) Skill Premium	(2) Skill Premium
Log GDP per capita	- (-)	-0.384** (0.189)
Mining Emp.	-13.16* (7.413)	-11.78 (7.551)
Manuf. Emp.	3.825*** (1.450)	3.750*** (1.447)
Utilities Emp.	-90.90*** (19.18)	-87.37*** (19.29)
Construction Emp.	7.162** (2.930)	7.511** (2.927)
Trade Emp.	-1.715 (1.147)	-0.990 (1.198)
Transp. Emp.	-3.737 (3.977)	-2.976 (3.989)
Finance Emp.	3.274 (2.622)	6.014** (2.950)
Governm. Emp.	9.246*** (2.248)	12.58*** (2.778)
Community Em.	-2.935 (2.190)	-3.010 (2.183)
Constant	3.541*** (.391)	6.358*** (1.441)
Observations	371	370
R-squared	0.228	0.236
Number of countries	6	6

Standard errors in parentheses *** p<0.01, ** p<0.05, * p<0.1. Estimated with fixed effects, within groups estimators.

Again, when I shift from employment shares to value added shares (Table 5), the significance of mining, manufacturing and financial sectors disappears, utilities reduce the magnitude of its coefficient and government services remain similar. Additionally, trade turns significant and has a negative impact on the skill premium, while transports value added expansion leads to an increase of this ratio.

Table 5. Impact of sectoral composition of Value Added on Skill Premium

VARIABLES	(3) Skill Premium	(4) Skill Premium
Log GDP per capita	- (-)	-0.378*** (0.137)
Mining V.A.	-2.351** (1.119)	-1.151 (1.193)
Manuf. V.A.	1.861 (1.294)	1.312 (1.296)
Utilities V.A.	-9.387** (3.825)	-6.384 (3.995)
Constr. V.A.	-2.054 (1.622)	-0.753 (1.673)
Trade V.A.	-7.016*** (1.354)	-7.592*** (1.355)
Transp. V.A.	8.453*** (2.696)	7.880*** (2.677)
Financ. V.A.	-0.00928 (1.582)	1.296 (1.629)
Governm. V.A.	8.762*** (2.156)	12.18*** (2.507)
Comm. V.A.	0.962 (1.724)	0.546 (1.716)
Constant	3.686*** (0.749)	6.795*** (1.335)
Observations	322	321
R-squared	0.292	0.310
Number of countries	6	6

Standard errors in parentheses *** p<0.01, ** p<0.05, * p<0.1. Estimated with fixed effects, within groups estimators.

The results from this part can be interpreted in the following way. On the one hand, when looking at the distribution of the employment sectoral shares, the mining sector and utilities reduced the wage gap between highly skilled and low skilled workers. On the other hand, expansions of manufacturing and government services employment shares, tended to increase the premium. However, the significance of manufacturing disappears when looking at the value added shares of sectoral composition. This shows

that the expansion of Utilities and Wholesale and retail trade, hotels and restaurants has been linked to a decrease of the skill premium; this can be the case as these sectors may have demanded more unskilled workers, making them relatively scarce in comparison with skilled ones. Otherwise, the expansion of Transport and Communication sector and Government Services might have demanded more highly skilled workers, increasing their wages, and consequently the relative differences of wages between both groups. Despite these results appear robust and statistically significant, they should be carefully interpreted as the skill premium is highly affected by other factors like the technological development process or the trends on international trade (Astorga, 2017), which have not been included in this article. Also, it has to be remarked that the skill premium just accounts for the part of income related to wages; leaving an important part of the income outside of the equation (this is why this complements the GINI analysis).

5.1.2. Interpretation

From the previous analysis of the GINI and the Skill Premium, it could be distinguished that some sectors increased or decreased both of the income concentration indicators. For example, it was the case of government sector, which share of employment increase led to a higher GINI coefficient and higher concentration of wages in terms of the skill premium, which would have been caused by the access of this kind of position by just some privileged groups. On the other hand, it looks that an expansion of the mining activity has decreased both measures.

But then, a relevant question comes when analyzing the results: “How can we conciliate the fact that the results from the two different measures are apparently of contradictory sign?”. Before answering to this question it is important to remark that the results from the GINI exercise reflect how the distribution of income changed –especially in the middle shares of it- while the Skill Premium shows which sectors demanded more or less workers from the top and bottom of the educational distribution. This way the GINI shows changes in the whole distribution of income (labor wages and rents) with an emphasis on what happens in the middle, while the skill premium shows changes in wages (of unskilled and highly skilled individuals).

Then, there are some sectors that decreased the GINI coefficient while increasing the Skill Premium, and there are some other sectors that increased the GINI while decreasing the Skill Premium. In the first group (associated with lower GINI and higher

skill premium) would be the manufacturing and construction sectors. This lower income inequality in terms of the GINI and higher Skill Premium could be caused by the fact that, while these sectors demand highly educated individuals, concentrating direct wages on them, the spillovers of the sector (ie. the rents generated) are captured by most of the society. This way, these sectors (manufacturing and construction) would be more useful to foster a distribution towards the middle classes.

On the other hand, sectors that decrease the skill premium but increase the GINI (like Utilities and Wholesale and retail trade services) would increase the demand of unskilled workers, increasing their relative wages, while the rents generated would concentrate at the top of the income distribution. Then, these sectors would help poorer classes of the region, but would have less redistributive power. Utilities (electricity, gas and water supply) is a sector whose expansion could be linked to improvements of living standards of most vulnerable parts of the society, but whose rents are gained by just a few. Similarly “Wholesale and retail trade, hotels and restaurant” are low productivity services sectors that could rise the demand of low skilled workers, but not able to widespread income. However, further investigation of this issue could be really useful.

5.2. Determinants of Sectoral Composition

In this part of the article I will try to estimate what were the proximate causes of the activity of the sectors previously regarded as relevant (in terms of employment and value added) for the evolution of income inequality in the region, in order to be able to fully understand under which circumstance these sectors could develop. Additionally, this would be useful to be able to prescribe more specific policy recommendations to the economic authorities of those countries that want to tackle income inequality. Then, it could be seen that both four sectors of the industrial share of the economy were relevant (mining, manufacturing, utilities and construction) and three of the services sector (trade, restaurants and hotels; governmental services and transport and communication services). At this point I will explain sector by sector the results from Tables 6 and 7, to understand the determinants of sectoral composition.

Table 6. Determinants of sectoral composition, Value Added

VARIABLES	(1) Mining V.A.	(2) Manufacturing V.A.	(3) Construction V.A.	(4) Utilities V.A.	(5) Trade V.A.	(6) Transport V.A.	(7) Government V.A.
GDP growth	0.0242 (0.0404)	0.00836 (0.0330)	0.0102 (0.0148)	-0.00601 (0.00887)	0.0307 (0.0199)	-0.0125 (0.0126)	0.00939 (0.0221)
Log Population	0.0785*** (0.0259)	-0.106*** (0.0212)	0.0406*** (0.00947)	0.0366*** (0.00569)	-0.0136 (0.0128)	0.0355*** (0.00809)	0.0254* (0.0142)
Log Inflation (SD)	-0.00176 (0.00172)	-0.00134 (0.00140)	0.00234*** (0.000627)	0.000702* (0.000377)	0.00398*** (0.000847)	-0.00166*** (0.000536)	-0.000295 (0.000938)
Political stability	-0.00189*** (0.000606)	0.000839* (0.000496)	-0.000699*** (0.000221)	-0.000568*** (0.000133)	-0.00131*** (0.000299)	-0.000435** (0.000189)	0.00140*** (0.000331)
Urban Population	-0.00117*** (0.000362)	-0.000105 (0.000296)	0.000136 (0.000132)	8.06e-05 (7.94e-05)	0.000402** (0.000179)	0.000183 (0.000113)	0.000178 (0.000198)
FDI	0.00107 (0.00178)	6.35e-05 (0.00145)	0.00122* (0.000648)	0.000520 (0.000390)	-0.00138 (0.000876)	0.000240 (0.000554)	-0.00110 (0.000969)
Trade liberalization Index	-0.0326 (0.0226)	0.0556*** (0.0184)	0.00391 (0.00823)	-0.00357 (0.00495)	-0.00194 (0.0111)	-0.0104 (0.00703)	-0.0288** (0.0123)
Constant	-0.665** (0.265)	1.338*** (0.216)	-0.383*** (0.0966)	-0.370*** (0.0581)	0.287** (0.130)	-0.303*** (0.0825)	-0.206 (0.144)
Observations	173	173	173	173	173	173	173
R-squared	0.177	0.366	0.246	0.418	0.453	0.438	0.327
Number of countries	5	5	5	5	5	5	5

Standard errors in parentheses *** p<0.01, ** p<0.05, * p<0.1

Table 7. Determinants of sectoral composition, Employment

VARIABLES	(1) Mining Emp.	(2) Manufacturing Emp.	(3) Construction Emp.	(4) Utilities Emp.	(5) Trade Emp.	(6) Transport Emp.	(7) Government Emp.
GDP Growth	0.00626 (0.00410)	0.0250 (0.0224)	0.00652 (0.0137)	-0.000815 (0.00142)	0.0160 (0.0183)	-0.00567 (0.00636)	-0.0236 (0.0195)
Log Population	0.0108*** (0.00258)	-0.0418*** (0.0140)	0.0286*** (0.00859)	-0.00581*** (0.000890)	0.193*** (0.0115)	0.00379 (0.00400)	0.0383*** (0.0122)
Log Inflation (SD)	0.000333** (0.000164)	0.00369*** (0.000894)	0.000120 (0.000547)	8.40e-08 (5.66e-05)	0.000984 (0.000730)	-0.000519** (0.000255)	-0.00112 (0.000780)
Political stability	-0.000410*** (5.92e-05)	-0.00115*** (0.000323)	-0.000654*** (0.000197)	-6.46e-05*** (2.05e-05)	-0.000546** (0.000264)	8.04e-05 (9.19e-05)	0.000958*** (0.000282)
Urban Population	6.58e-05* (3.65e-05)	0.000302 (0.000199)	-0.000205* (0.000122)	-1.86e-05 (1.26e-05)	2.14e-05 (0.000163)	5.61e-05 (5.67e-05)	0.000132 (0.000174)
FDI	-0.000188 (0.000178)	-0.00232** (0.000971)	0.000831 (0.000593)	0.000251*** (6.15e-05)	0.00239*** (0.000792)	0.000844*** (0.000276)	-0.00208** (0.000846)
Trade liberalization Index	0.00214 (0.00223)	-0.00246 (0.0121)	0.00349 (0.00742)	-6.85e-05 (0.000769)	-0.00795 (0.00991)	-0.0144*** (0.00346)	0.000307 (0.0106)
Constant	-0.110*** (0.0263)	0.573*** (0.144)	-0.220** (0.0878)	0.0698*** (0.00910)	-1.877*** (0.117)	0.00832 (0.0409)	-0.324** (0.125)
Observations	188	188	188	188	188	188	188
R-squared	0.267	0.532	0.129	0.534	0.868	0.399	0.323
Number of countries	5	5	5	5	5	5	5

Standard errors in parentheses *** p<0.01, ** p<0.05, * p<0.1

A. Mining:

Firstly, I am looking at the determinants of the development of mining activity. The more relevant variables for the mining sector value added (Table 4, column 1) were population, political stability and urban population. The first one has a positive coefficient (0.0785) and indicates that a one percent change of the population is associated with $0.0785 \times \ln(1.01) = 0.00078$ change, which is equivalent to a 0.078% change of the sectoral share of total value added. On the other hand, both political stability (-0.00189) and urban population (-0.00117) reduce the activity of the sector. The coefficient of Political Stability would be showing that the mining sector with improvements in the democratic systems (from the value 0 up to 10) would reduce its activity, while with more autocratic governments (from 0 to -10) would increase its share.

When looking at its determinants in terms of employment (Table 5, column 1), population, political stability and urban population still looking relevant. However, it can be seen that the coefficient of urban population changed to be negative. Nevertheless, it should be noted that this variable is statistically significant just at a 10%. The fact that the sector is negatively influenced by political stability could be showing that, as more autocratic and political unstable regimes tend to rely on this sector as their capabilities to develop more economic complex sectors are limited. Also, it is a sector that produces rents that can be easily captured by the ruling elite. The inflation indicator of macroeconomic stability shows significance as well, which means that higher instability fostered this sector. This may be caused similarly as the role of political stability, in moments when macroeconomic volatility is higher, economic authorities may be more willing to rely on this sector. Its coefficient (0.0003) shows that an increase of 1% of the standard deviation of inflation will lead to a 0.00029% ($0.0003 \times \ln(1.01) = 0.0000029$) the share of the mining sector of total employment.

B. Manufacturing:

In this case population expansion might have produced a negative impact on the share of the manufacturing sector in terms of total value added. But the higher coefficient affecting this sector is trade liberalization, which is positive (0.0556) and of high statistical significance. As explained in the section data, it is important to understand that the Liberalization Index ranges from 0.44 (lowest liberalization) to -0.24

(maximum liberalization). Then, as the coefficient is 0.0556, this could be showing that in moments of lower trade liberalization (or higher protection) of the economy, the manufacturing sector increased its activity in the region. Political stability may have affected positively the rise of this sector, although its statistical significance is low, and strong conclusions cannot be derived.

When looking to the determinants of the sector share in terms of employment, the standard deviation of inflation has a positive impact on it. This may be showing the facts that periods in which manufacturing activity was developing (especially those of the ISI era) were macroeconomic unstable. Then, from this last fact we can conclude that the manufacturing sector in the region could have developed despite this instability, and this may not be a strict necessary condition for its development. Similar conclusion can be derived by looking at the impact of political stability, for the employment shares, which shows that the sector could develop during political unstable and more autocratic periods. This could be linked to the fact that high expansions of manufacturing employment took place during the ISI period, which was more political unstable. Despite what it could be thought, the manufacturing development in Latin America shows that this sector in terms of employment could be resilient to macroeconomic and political shocks. Population increases are also correlated with lower expansion of the manufacturing employment.

Finally, FDI shows a negative coefficient. This coefficient could be a confirmation of the “Dutch Disease” hypothesis (Palma, 2014). This hypothesis argued that when higher amounts of foreign currencies were getting into the country, an appreciation of local currencies takes place, lowering down the international competitiveness of manufactured tradable goods. In this case, this would be reflected by a lower creation of jobs in the sector.

C. Construction:

Construction value added share expanded during periods in which population increased. Higher standard deviation of the inflation rate also increased this share. This could have been related to the fact that during times when inflationary volatility was high individuals perceived real estate investment as a more secure decision than saving or investing in the financial markets. Higher political stability was associated with a lower value added share of this sector, as I previously said for mining; it could be the case that

economies facing more difficulties (either political or macroeconomic) moved more easily to these kind of industrial sectors. FDI is also a significant (and positive) determinant of its value added share. Both, political stability (lower stability) and population (higher population) lead to an expansion of its employment share. Urban population could have produced a negative impact on its employment share, but this is only significant at a 10%.

D. Electricity, gas and water supply (facilities):

The share of total value added corresponding to utilities is positively correlated with population, which shows that demographic dynamics could increase the demand for this sector. Additionally, the sector increases its share when there is higher macroeconomic instability (show by the positive coefficient of inflation). This shows that the sector development would have been independent from high macroeconomic fluctuations. A similar conclusion can be derived from the coefficient of political stability, which shows that higher stability would be correlated with lower development. This way the sector could have increased its value added share independently from political struggle.

Contrary, its development in terms of employment would have been negatively associated with higher population. The role of political stability in this case is similar as the one for its value added shares. Finally, higher FDI would encourage the number of jobs created by this sector. This would not be strange as this sector usually attracts the attention of developmental aid and investment.

E. Wholesale and retail trade, hotels and restaurants:

This sector is the first one that belongs to the share of services in this analysis. Trade, hotels and restaurants is a sector that has been associated with low productivity and quality of employment. The results from table 4 (column 5) shows that macroeconomic instability and higher FDI are associated with higher value added share of this sector, while political stability reduced its share. On the other hand, its employment strongly increased in periods of population expansions (associated with higher consumption), and FDI. This sector is also negatively correlated to higher political stability. The fact that political stability is negatively correlated to this sector could be showing that more stable countries have the capacities to move away from low productivity services and developed more complex sectors.

F. Transport, storage, and communication:

For this sector, again expansions of total population were associated to higher share of the value added of this sector. On the other hand, the sector was negatively affected by political stability and by macroeconomic instability. This last variable maintained its effect for the share of employment of this service sector. Finally, higher arrival of FDI and higher liberalization (the coefficient of the trade liberalization index is negative) fostered its employment share development.

G. Government services:

The last of the sectors of analysis is the government services. This sector was positively but slightly affected by higher population growth and more strongly by political stability. Also, its share of the value added is positively affected by trade liberalization (again, negative coefficient in this case means that more protectionism is negative for the sector development), which could be showing an attempt of governments to isolate the economies from international trade exposure, by expanding the provision of public goods. Its share of employment was positively affected by urban population (which could be a response to satisfy the needs of bigger cities, ie. health, education, social assistance...) and political stability. Finally, it was negatively affected by the arrival of FDI.

6. Conclusion

Latin America is one of the regions with the highest levels of income concentration in the world. Since the beginning of the 20th Century, this has been a constant characteristic of the countries of the region. Since the 1950's, just until the 1970's little distribution could take place, with an outstanding increase of concentration during the 1980's and 1990's. After the early 2000's economic crises, the political shift and the favorable international conditions helped to redistribute incomes until the middle of the following decade. However, the recent deterioration of international markets, the internal higher dependence on primary sectors, the early deindustrialization of the region and the rise of low productivity informal service sectors, threatens the continuity of this process of income redistribution.

In this regard, this paper had the objective of understanding how the process of structural change has shaped the path of income inequality in 9 Latin American

countries between the year 1950 and 2012. By doing so, this study wanted to conciliate the economic literature that analyzes the impact of structural change on inequality (Kuznets, 1957; Lewis, 1954), with the one that evaluates the determinants of manufacturing and service activities (Palma, 2014).

To achieve this goal, two different empirical tasks were performed. The first one, tried to identify which of the 9 sectors (4 that belong to the industrial share and 5 service sectors) were the ones associated with higher changes on income inequality, measured as the GINI coefficient, and in terms of the Skill Premium -as a way of robustness check. The measures of activity of the sectors were their employment share of total employment and their share of total value added. To complement this first part, the second one tried to estimate the proximate determinants of the activity of these sectors (again, in terms of employment and value added). Finally, this article aimed to enrich the existing literature on the determinants of income inequality in Latin America with a focus on the structural change process. In this way, it was important to understand the economic development process as a dynamic phenomenon in which the economic structure and its change played a central role.

The findings obtained in the first part, which studied the impact of sectoral composition on inequality, were multiple. From the study of the impact on the GINI coefficient, it can be concluded that the construction and the manufacturing sector fostered the distribution of income. Then, expansions of the majority of the sectors that belong to the industrial share of the economy helped to reduce income inequality. On the other hand, the evidence from the service sectors was mixed. While government services and wholesale and retail trade, hotel and restaurants expansions lead to higher concentration; when community, social and personal services increased its activity, income was redistributed. It can be seen that when low productivity services (ie, retail, restaurants and hotels) expanded, the GINI increased, while service sectors related to improvements of well-being (community, social and personal services) generated the opposite effect. When looking to the Skill Premium (which is the part of income inequality regarding wages concentration), most of these low productivity sectors helped to reduce the premium (by an increase of unskilled workers), and some of the industrial sectors increased it (by higher demand of more skilled workers). This phenomenon may be related to the fact of which part of the income distribution is favored. It looks that the construction and manufacturing sectors relatively helped the middle classes (through

improvements of the GINI), while utilities and trade services⁷ helped poorer shares of the society (through improvements of the Skill Premium). However, further investigation of this phenomenon would be needed.

The second part, which focuses on analyzing the determinants of sectoral activity, clarifies that the development of the manufacturing sector was opposite to trade liberalization (which may confirm that during these periods industrial policy of any kind was strongly abandoned) and to the arrival of FDI (which could be attributed to the “Dutch Disease hypothesis”, affecting the international competitiveness of Latin American tradable industrial goods). Also, the findings regarding the manufacturing sector show that its employment would have been able to develop under macroeconomic and political instability. Similarly, the high resilience of the mining and construction sectors would be showing that these two could be alternative assets during unstable periods in which economic capabilities of policy makers cannot generate the movement to higher complexity sectors. Service sectors did also increase during periods of instability, and their employment was highly fostered by arrivals of FDI. This fact confirms that FDI produces an opposite effect on service sectors than the one produced on manufactures. Finally, the role of the government could have been that of isolating the effects of higher openness to international markets and its possible shocks.

This study has been a careful exercise to try to understand the impact of structural change on inequality and the determinants of sectoral activity. Nevertheless, this paper has some limitations, which could be improved in the future: it does not consider the role of internal productivity and the comparison with other international competitors; neither intervention at the micro level. Despite this fact, it could be of valuable help to drive policy implication. For example, the fact that government services expansion tended to concentrate income, could encourage a shift in the way in which this sector resources has been allocated, in order to generate spillovers that can help to consolidate an upcoming distribution. Additionally, in this article I preliminary addressed which parts of the income distribution were more or less affected by particular sectors. These findings could be reinforced by looking to the effect of sectoral composition not only on income inequality, but on other wellbeing measures such as poverty, or the effect of the income received by different quintiles of deciles of the society. This last proposed

⁷ Wholesale and retail trade, restaurants and hotels.

extension could be of high utility and relevance for a deeper understanding of the impact of structural change not only on income inequality but on the whole development process.

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Appendix:

Table 8. Sectoral employment shares

	Argentina			Bolivia			Brazil		
	1950	1975	2011	1950	1975	2010	1950	1975	2011
Agriculture Industry	27.50%	16.17%	6.48%	72.56%	52.52%	18.17%	64.36%	41.79%	16.04%
	30.40%	31.21%	21.52%	13.17%	19.21%	24.07%	16.47%	21.46%	20.18%
	Mining	0.50%	0.52%	0.71%	3.19%	4.07%	0.84%	0.49%	0.34%
	Manufacturing	24.50%	21.59%	12.07%	8.08%	10.58%	13.40%	11.48%	13.27%
	Utilities	0.60%	1.18%	0.85%	0.10%	0.17%	0.24%	0.89%	1.00%
Services	Construction	4.80%	7.93%	7.89%	1.80%	4.39%	9.60%	3.61%	6.85%
	42.10%	52.62%	72.00%	14.27%	28.27%	57.76%	19.17%	36.75%	63.78%
	Market Services	23.21%	28.24%	36.67%	6.09%	11.12%	34.32%	12.12%	21.68%
	Trade and Others	13.60%	17.40%	21.01%	4.19%	6.60%	19.82%	6.78%	11.38%
	Transport	6.50%	6.11%	5.91%	1.60%	3.86%	7.39%	2.99%	3.05%
Non-Market services	Financial Services	3.11%	4.73%	9.75%	0.30%	0.67%	7.11%	2.35%	7.25%
	Government serv	18.89%	24.38%	35.33%	8.18%	17.15%	23.44%	7.05%	15.07%
	Community serv.	12.61%	16.28%	24.18%	0.00%	0.00%	0.00%	3.51%	7.51%
		6.28%	8.11%	11.15%	8.18%	17.15%	23.44%	3.53%	7.56%
									13.88%

Source: sectoral shares of employment from 10-Sector Database. The full name of the sectors are the following: agriculture, hunting, forestry and fishing; mining and quarrying; utilities = Electricity, gas and water supply; Trade and Others = Wholesale and retail trade, hotels and restaurants; Transport = Transport, storage, and communication.

	Chile			Colombia			Costa Rica		
	1950	1975	2012	1950	1975	2010	1950	1975	2011
Agriculture Industry	31.26%	24.52%	8.34%	56.44%	39.88%	18.62%	56.79%	34.54%	13.74%
	29.69%	31.72%	22.79%	16.40%	15.69%	20.65%	15.95%	24.79%	20.15%
	Mining	4.98%	2.32%	3.30%	1.53%	0.73%	2.43%	0.30%	0.29%
	Manufacturing	19.24%	20.71%	9.82%	11.34%	10.54%	11.25%	10.83%	15.47%
	Utilities	0.98%	0.78%	0.80%	0.29%	0.53%	0.28%	0.59%	1.07%
Services	Construction	4.49%	7.91%	8.87%	3.24%	3.88%	6.70%	4.23%	7.95%
	39.05%	43.76%	68.87%	27.16%	44.43%	60.72%	27.26%	40.67%	66.12%
	Market Services	16.98%	20.49%	43.96%	12.58%	26.96%	43.82%	12.79%	17.31%
	Trade and Others	10.35%	11.08%	26.30%	4.86%	14.10%	28.74%	7.78%	10.65%
	Transport	4.30%	7.04%	6.36%	3.15%	4.87%	6.46%	3.44%	4.09%
Non-Market services	Financial Services	2.32%	2.38%	11.29%	4.57%	7.98%	8.62%	1.57%	2.58%
	Government serv	22.07%	23.27%	24.91%	14.59%	17.48%	16.90%	14.47%	23.36%
	Community serv.	0.00%	0.00%	0.00%	0.00%	0.00%	9.60%	15.63%	15.93%
		22.07%	23.27%	24.91%	14.59%	17.48%	16.90%	4.87%	7.73%
									8.51%

Source: sectoral shares of employment from 10-Sector Database. The full name of the sectors are the following: agriculture, hunting, forestry and fishing; mining and quarrying; utilities = Electricity, gas and water supply; Trade and Others = Wholesale and retail trade, hotels and restaurants; Transport = Transport, storage, and communication.

	Mexico			Peru			Venezuela		
	1950	1975	2012	1960	1975	2011	1950	1975	2011
Agriculture Industry	58.57%	35.27%	14.13%	54.47%	43.42%	22.59%	44.32%	16.97%	8.34%
	16.02%	25.92%	25.76%	17.41%	21.11%	17.46%	20.03%	26.20%	21.78%
	Mining	1.18%	1.05%	0.42%	2.03%	1.79%	1.20%	3.00%	1.10%
	Manufacturing	11.81%	18.81%	15.60%	12.09%	13.48%	8.51%	10.45%	14.68%
	Utilities	0.30%	0.49%	0.35%	0.29%	0.28%	0.41%	0.39%	1.27%
Services	Construction	2.73%	5.57%	9.39%	3.00%	5.56%	7.34%	6.19%	9.14%
	25.42%	38.81%	60.11%	28.12%	35.47%	59.95%	35.65%	56.84%	69.87%
	Market Services	11.91%	18.16%	35.10%	14.28%	18.40%	41.44%	15.90%	28.19%
	Trade and Others	8.31%	12.78%	22.33%	8.32%	11.20%	24.72%	9.19%	17.94%
	Transport	2.56%	3.70%	4.61%	2.71%	4.31%	9.51%	3.48%	5.38%
Non-Market services	Financial Services	1.05%	1.68%	8.16%	3.25%	2.89%	7.21%	3.23%	4.87%
	Government serv	13.51%	20.65%	25.02%	13.83%	17.07%	18.51%	19.74%	28.65%
	Community serv.	5.13%	7.84%	9.87%	13.83%	17.07%	18.51%	19.74%	28.65%
									27.72%

Source: sectoral shares of employment from 10-Sector Database. The full name of the sectors are the following: agriculture, hunting, forestry and fishing; mining and quarrying; utilities = Electricity, gas and water supply; Trade and Others = Wholesale and retail trade, hotels and restaurants; Transport = Transport, storage, and communication.

Table 9. Sectoral value added shares

	Argentina			Bolivia			Brazil		
	1950	1975	2011	1950	1975	2011	1950	1975	2011
Agriculture Industry	5.71%	6.53%	11.79%	47.01%	33.76%	12.39%	13.28%	5.33%	6.28%
	39.72%	48.92%	34.26%	19.07%	24.77%	38.51%	28.72%	33.10%	30.50%
	Mining	0.00%	1.88%	3.80%	6.18%	9.12%	19.65%	0.77%	1.44%
	Manufacturing	34.30%	36.49%	22.90%	9.29%	10.86%	13.11%	18.37%	22.25%
	Utilities	0.00%	3.19%	1.18%	0.82%	1.17%	2.52%	3.76%	2.43%
Services	Construction	5.43%	7.36%	6.38%	2.77%	3.62%	3.24%	5.82%	6.98%
		54.56%	44.55%	53.96%	33.93%	41.47%	49.10%	58.00%	61.57%
	Market Services	39.97%	29.80%	31.87%	22.87%	27.65%	29.66%	37.84%	39.64%
	Trade and Others	28.99%	18.79%	16.72%	8.02%	10.94%	11.92%	21.05%	16.63%
	Transport	8.55%	9.12%	8.85%	10.52%	10.14%	10.65%	4.24%	5.55%
Non-Market services	Financial Services	2.43%	1.89%	6.30%	4.33%	6.57%	7.10%	12.56%	17.46%
	Government serv	14.59%	14.75%	22.08%	11.06%	13.82%	19.44%	20.16%	21.93%
	Community serv.	11.76%	10.60%	17.81%	0.00%	0.00%	0.00%	16.73%	18.20%
		2.83%	4.15%	4.27%	11.06%	13.82%	19.44%	3.43%	3.73%
								4.45%	

Source: sectoral shares of value added from 10-Sector Database. The full name of the sectors are the following: agriculture, hunting, forestry and fishing; mining and quarrying; utilities = Electricity, gas and water supply; Trade and Others = Wholesale and retail trade, hotels and restaurants; Transport = Transport, storage, and communication. For the case of Brazil, value added at constant prices of 2005 were used.

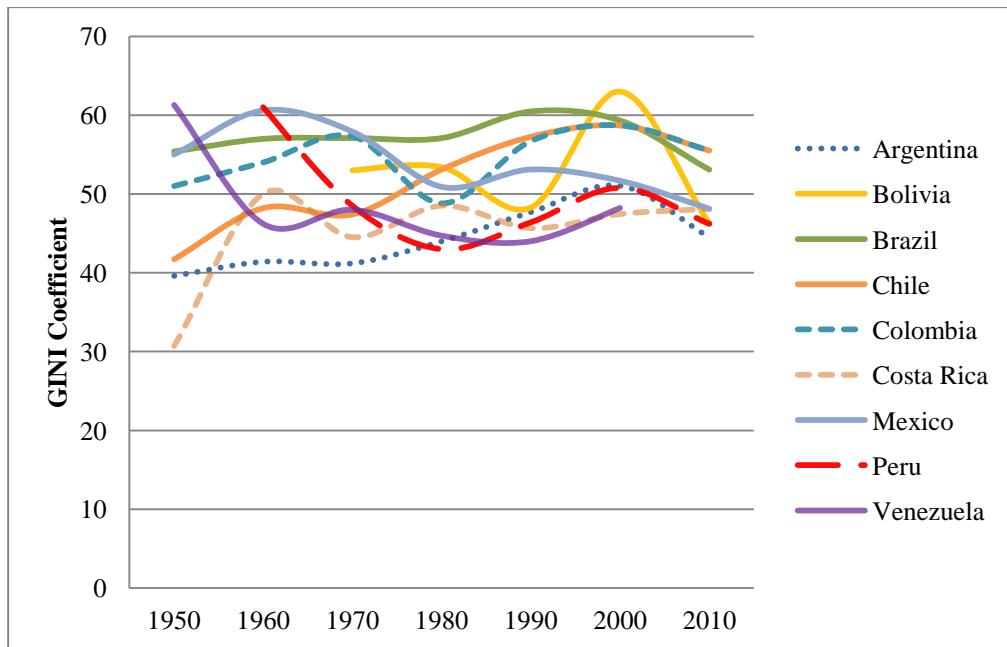
	Chile			Colombia			Costa Rica		
	1950	1975	2011	1950	1975	2011	1950	1975	2011
Agriculture Industry	9.72%	5.14%	3.60%	32.86%	22.49%	7.65%	24.40%	16.47%	6.41%
	29.09%	31.13%	41.40%	24.32%	29.57%	41.23%	29.08%	34.00%	24.91%
	Mining	12.37%	10.66%	17.53%	2.22%	1.26%	13.60%	0.11%	0.14%
	Manufacturing	8.41%	11.74%	12.60%	18.07%	23.71%	15.26%	20.15%	24.42%
	Utilities	0.85%	1.34%	2.72%	0.50%	1.00%	4.04%	1.14%	1.63%
Services	Construction	7.47%	7.39%	8.56%	3.53%	3.59%	8.34%	7.68%	5.37%
		61.19%	63.73%	55.00%	42.82%	47.94%	51.11%	46.52%	49.53%
	Market Services	40.15%	41.82%	37.73%	29.26%	34.29%	33.08%	36.27%	34.18%
	Trade and Others	12.96%	17.18%	10.93%	15.91%	15.31%	13.51%	21.08%	19.19%
	Transport	8.97%	7.73%	6.93%	5.86%	5.07%	7.47%	7.10%	7.65%
Non-Market services	Financial Services	18.22%	16.91%	19.87%	7.49%	13.92%	12.10%	8.08%	7.34%
	Government serv	21.04%	21.91%	17.27%	13.57%	13.65%	18.03%	10.25%	15.34%
	Community serv.	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%	6.96%	12.00%
		21.04%	21.91%	17.27%	13.57%	13.65%	18.03%	3.29%	3.34%
								8.20%	

Source: sectoral shares of value added from 10-Sector Database. The full name of the sectors are the following: agriculture, hunting, forestry and fishing; mining and quarrying; utilities = Electricity, gas and water supply; Trade and Others = Wholesale and retail trade, hotels and restaurants; Transport = Transport, storage, and communication.

	Mexico			Peru			Venezuela		
	1950	1975	2012	1950	1975	2011	1960	1975	2012
Agriculture Industry	22.57%	11.97%	3.74%	12.36%	5.90%	6.45%	5.11%	4.24%	5.89%
	29.12%	35.49%	38.90%	30.23%	33.13%	33.93%	56.42%	62.11%	53.07%
	Mining	6.64%	5.88%	11.06%	8.77%	6.64%	7.40%	15.64%	18.68%
	Manufacturing	19.13%	21.10%	19.25%	15.00%	19.95%	16.15%	20.63%	24.46%
	Utilities	0.58%	0.99%	1.34%	0.75%	1.06%	2.24%	2.00%	1.57%
Services	Construction	2.77%	7.52%	7.25%	5.71%	5.49%	8.14%	18.15%	17.41%
		48.31%	52.55%	57.36%	57.41%	60.97%	59.62%	38.47%	33.65%
	Market Services	42.18%	41.41%	42.31%	33.67%	38.68%	42.47%	18.39%	15.08%
	Trade and Others	27.04%	27.66%	21.04%	21.11%	22.68%	19.60%	10.30%	8.08%
	Transport	8.79%	6.49%	10.07%	6.34%	7.04%	9.72%	4.10%	3.33%
Non-Market services	Financial Services	6.35%	7.26%	11.21%	6.22%	8.96%	13.16%	3.99%	3.67%
	Government serv	6.13%	11.14%	15.05%	23.74%	22.29%	17.15%	20.08%	18.56%
	Community serv.	4.78%	9.14%	12.87%	0.00%	0.00%	0.00%	0.00%	0.00%
		1.35%	2.00%	2.18%	23.74%	22.29%	17.15%	20.08%	18.56%
								14.96%	

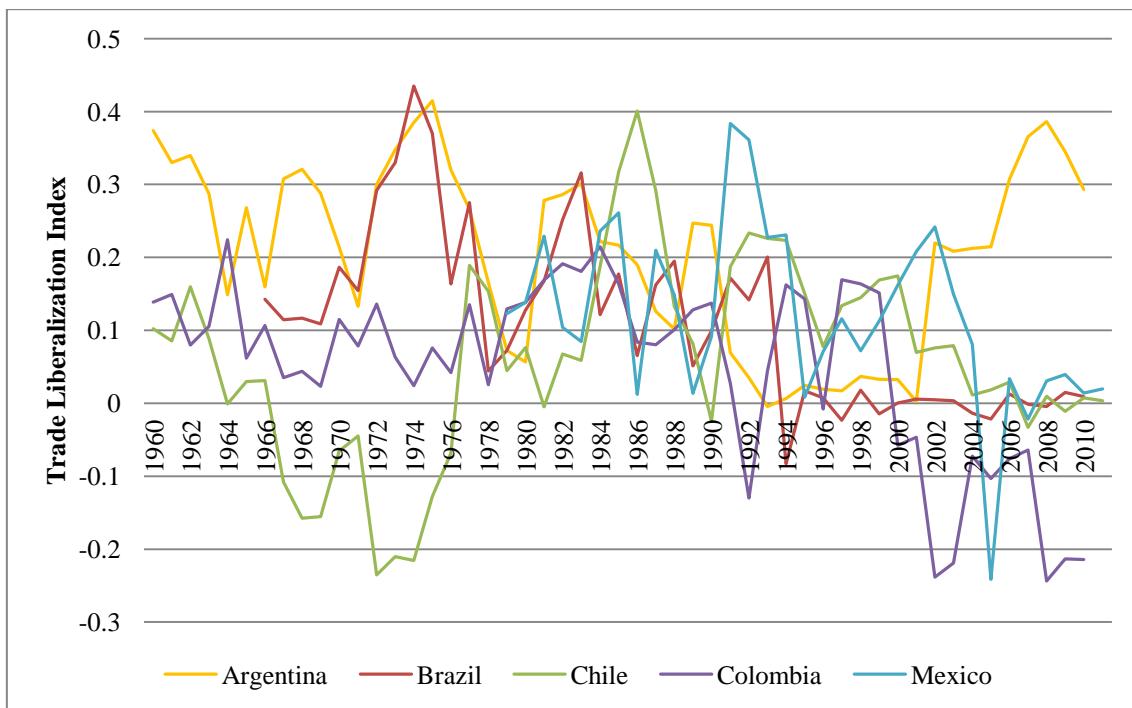
Source: sectoral shares of value added from 10-Sector Database. The full name of the sectors are the following: agriculture, hunting, forestry and fishing; mining and quarrying; utilities = Electricity, gas and water supply; Trade and Others = Wholesale and retail trade, hotels and restaurants; Transport = Transport, storage, and communication.

Figure 5. Evolution of the GINI coefficient



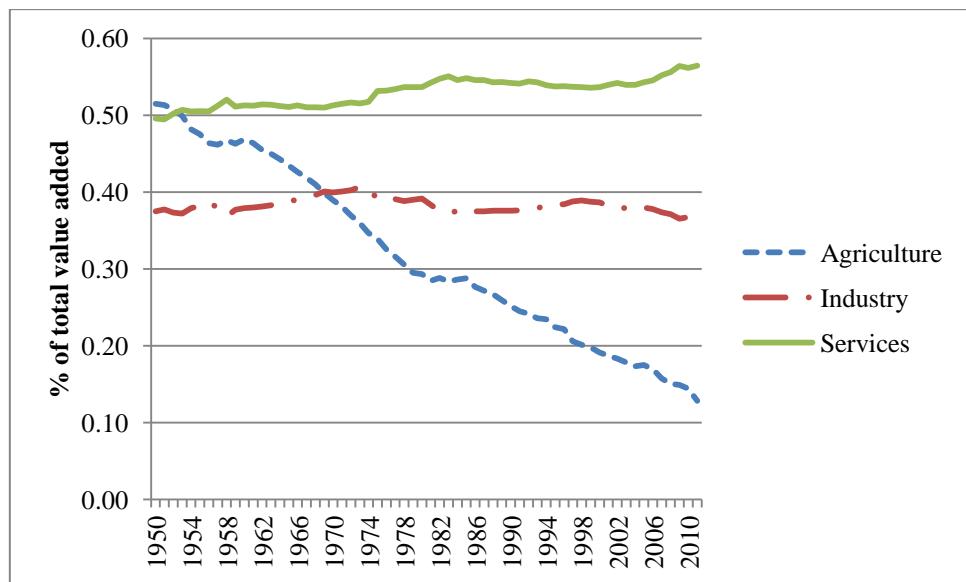
Source: GINI coefficients data from Prados (2007) between 1950 until 1980, and from the SEDLAC database from 1980 until the year 2012.

Figure 6. Evolution of the Trade Liberalization Index



Source: Trade reduction index from Anderson (2009).

Figure 7. Sectoral composition, by value added



Source: 10-Sector Database. Sectoral shares of employment rates aggregated by sector.