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## Trading inequality? Insights from the two globalizations in Latin America

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Research Paper No. 2009/44

## **Trading Inequality? Insights from the Two Globalizations in Latin America**

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### **Abstract**

Trade flows among countries have increased dramatically during the last globalization episode creating new winners and losers between and within countries. This paper revisits the contested topic of the impact of globalization on within-country inequality in Latin America from a historical perspective. By comparing the two globalization waves (1870–1914, 1970–present) we look at the link between globalization and inequality. Many Latin American countries are still dependent on exporting raw materials, lack an efficient manufacturing sector, and exhibit the highest inequality rates in the world. One hundred years ago, several decades after independence, the region was also highly unequal, specialized in a handful of commodity exports, and had not made the transition to industrialization. The results indicate that the effect of globalization on inequality operates mainly inducing changes in factor endowments while the adoption of labor-saving technologies appears influential in both periods.

**Keywords:** income inequality, economic history, globalisation, terms of trade, Latin America

**JEL classification:** D3, F1, N36, N7, O0

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# 1 Introduction

Today, one of the most visible signs of globalization we encounter in everyday life is international trade. International mobility and division of labor have shaped the world bringing about important consequences in domestic economies. Latin America, after decades of inward-looking policies, has augmented its participation in the global economy. It was not a seamless transition; trade and financial liberalization went through a series of stop-and-go cycles that culminated in a quite drastic dismantlement of a sophisticated protectionist architecture.

The transition from an inward to an outward-looking strategy gives rise to redistributive flows that can affect inequality. Even though this globalization phenomenon seems unique, history reminds us that the world experienced a globalization wave more than a hundred years ago. Moreover, for some Latin American economies, the degree and extent of integration to world markets was much more apparent. It is interesting and pertinent to look at the link between inequality and globalization in the region.

This paper evaluates the relationship between globalization and inequality in selected countries in Latin America (Argentina, Chile, Mexico, and Uruguay) during the two globalization waves. In particular this paper asks whether integration to world markets implies higher inequality and identifies the channels through which integration affects inequality. The results suggest that the impact of globalization is more manifest in the changes in the supply and returns of factor endowments in each country. In addition, the adoption of labor-

saving technologies financed by foreign capital emerges as a crucial driver of inequality in both globalization waves.

Scholars, politicians, and policy-makers have accused globalization of many sins and maladies. Increased fragility of financial systems, loss of jobs in developed countries, and flooding of immigrants are just a few examples of the symptoms and consequences of these global times. Globalization critiques abound; however, the question of inequality resounds loudly on these debates. Indeed, it has been argued that globalization is responsible for a rise in inequality.

The debate on globalization has revealed rifts among politicians, economists, and scholars. Detractors have blamed this phenomenon for the rising inequality in developing countries. Dissonant voices express their opinions loud and clear. For example, the Cuban government has claimed that “the neoliberal globalization we are witnessing brings with it an enormous concentration of property which, by its very nature, impedes equitable access to the benefits of economic growth” (Rodríguez García, 2003, 2). The International Forum on Globalization asserts that today “[s]uch is the degree of wealth concentration that the world’s 587 billionaires are now worth more than the combined income of the bottom half of humanity” (Cavanagh and Mander, 2004, 48).

Not surprisingly, more than a century ago, dissent was present as illustrated by a headline that read “Free trade lowers workingmen’s earnings” (San Francisco Call, 1896). There are—and were—avid advocates of international integration as well. During the first globalization wave, some equated free trade with democracy as tariffs allegedly depleted American savings and violated their rights (New York Tribune, 1888). Nowadays, some think-tanks emphat-



ically predicate of the benefits of free trade based on the fact that protectionist countries grow less than those open to trade (Froning, 2000; Tupy, 2006).

On a more academic level, there is no consensus on the effects of globalization on inequality. In historical perspective, O'Rourke et al. (1996), Williamson (1997), O'Rourke and Williamson (2002), Lindert and Williamson (2001), and Bertola et al. (2006) explore this link. O'Rourke et al. find a causal link between trade and inequality while pointing out that other factors such as migration were at play. Lindert and Williamson (2001) claim that the effect of globalization on inequality within nations has no clear direction stressing that a single simple theory is not enough to explain the relationship. Bertola et al. (2006) argue that the correlation between globalization forces and rise in inequality in Latin America is probably causal. The consensus from the literature of historical inequality is the existence of strong connections between global integration and inequality in the region.

Contemporary studies on globalization are ubiquitous. These studies are diverse not only in the methodologies, the geographical, and the temporal scope but in the results as well. For example Morley (2001), Lundberg and Squire (2003), and Goldberg and Pavnick (2007) find a positive relationship between trade and inequality. Others introduce some caveats to this positive link (Spilimbergo et al., 1999; Ravallion, 2001). Li et al. (1998) and Dollar (2004) discover a non-significant trend of inequality since the 1980s while Chakrabarti (2000) and Calderon and Chong (2001) observe a decrease of inequality when trade grows. Also Milanovic (2005) claims that the relation is positive for low and middle income countries while negative in rich countries.

There is a rich array of theory and empirical evidence about firms (re)location, evolving from the standard theory (i.e., Heckscher-Ohlin model), suggesting that trade in tasks affects global income inequality, particularly in developing countries, due to skill differentials and relative return to skills. In this case, the literature shows that offshoring tasks might have the same effect as factor-augmenting technological progress, thus challenging the popular view that (re)location might have a negative impact on welfare (Santos-Paulino et al., 2008). In this literature, rising inequality of skilled/unskilled wages, relative skill abundance, and the persistence of international differences in factor prices, result from the acceleration of globalization. That is, services traded internationally at arms length generate gains from trade, and their effects on production, national income, and economic welfare (i.e., employment and wages) are not qualitatively different from those of the conventional exchange in goods (Feenstra, 1998).

The rest of the paper is organized as follows, the next section briefly discusses the main characteristics of the two globalizations in Latin America. Section 3 estimates the relationship between inequality and globalization while the following section offers some insights on the mechanisms. Finally, Section 5 extends some concluding remarks.

## **2 Globalization Now and Then**

The two globalization waves were fueled by improvements in transportation and communications technology. In the case of the first globalization (1870–1913), the steamships, the railroads, and the telegraph were the centerpieces of this phenomenon. Increased mobility of goods and labor ensued. Capital also flowed copiously across borders eased by the

widespread adoption of the gold standard. Newly independent Latin America soon joined the globalizing wave. It benefited from the abundant capital flows from Europe and the sustained demand of raw materials. For some countries, this phenomenon intensified the colonial export structure, for others it created a dynamic export sector. In any case, Latin America integrated into the world economy as a supplier of commodities.

Following decades of protectionism, the world witnessed a series of changes that culminated in the current wave of globalization (1970–present). In particular, the introduction of containers and satellite communication further reduced the costs of transportation. World trade soared while the international financial system became increasingly more intertwined. Unlike the previous globalization era, Latin America started timidly integrating to the world economy. Import-substitution industrialization, the strategy chosen to reduce the international economic dependency, proved insufficient to launch the region to sustainable growth. It was not after the debt crisis that the region opted for trade and financial liberalization.

At the heart of the globalization debates lies whether developing countries can actually reap the benefits of integration to world markets. To address this issue we can look at inequality between and within countries. The question is who the winners and losers are in international and domestic perspective. This issue is broken down as establishing links between trade, growth, and inequality. The relation between growth and trade has been revised extensively in the last decades. A wave of scholars have found a favorable impact of trade openness on growth (Dollar, 1992; Sachs and Warner, 1995; Edwards, 1998; Frankel and Romer, 1999). The prevailing arguments of trade promoting economic growth stem from the increase in the overall efficiency of the economy and the expansion of the market. Rodriguez

and Rodrik (2001) challenge these findings claiming that there is no clear relationship to be discovered. The connection between within-country inequality and trade; however, is rather more complicated. Trade can affect the income distribution through prices, changes in factor endowments, reallocation of resources across sectors, and technological advance.<sup>1</sup>

Looking at Latin America during the two globalization eras illustrates the diversity of the degree of integration to world markets and of economic growth. In terms of convergence, there are some common features in the Latin American experience over time. In general terms, the region was more dynamic during the first globalization (1870–1913).<sup>2</sup> The gap between Latin American countries and selected European and Western offshoots was markedly larger in the second globalization wave. Figure 1 shows this point by plotting GDP per capita relative to the United States and Spain at the two globalization waves. The pattern that arises is the stagnation of the Latin American economies in the current period. Argentina led the way increasing the gap with the US by at least 50%. On the less disappointing side of the spectrum lies Venezuela that maintained its gap in these two periods. Using a different benchmark, such as Spain, reveals another side of this dismal picture. The Southern cone enjoyed a higher income per capita than Italy and Spain in the 19th century sinking to a fraction a hundred years later. For Mexico and Venezuela, the gap width doubled.<sup>3</sup>

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<sup>1</sup>For a discussion of the different mechanisms see Evans (2006). Arroyo Abad (2008) looks at the impact of factor endowments and trade on inequality in 19th century Latin America.

<sup>2</sup>Bértola and Williamson (2006) look at the degree of convergence and inequality in Latin America before 1940.

<sup>3</sup>Prados de la Escosura (2007) noted that the use of the United States as a benchmark of economic performance for Latin America was unsatisfactory.

Table 1 offers some comparative statistics for Latin America during the two globalization episodes underlining its relative performance to the world. The region has increased its worldwide importance measured in terms of total population and total GDP relative to the world economy. However, the economic importance of the region, measured by the share of the world GDP, was on both periods lower than the overall population participation. The export sector is more dynamic in the current globalization wave, almost doubling the previous annualized growth rate. It was not until the end of the 20th century that the region achieved a comparable participation in total world exports as achieved at the end of the first globalization. A very marked difference between these two periods is the type of involvement in capital markets. The Latin American economies managed to attract almost 20% of the total foreign direct investment (FDI) flows in the first wave and only 6.3% in the current wave. Volatility of financial flows, although present in both periods, is more evident in the current wave. Aside from the numerous international crises experienced in the last decades, the perceived riskiness of the region has risen dramatically as the country premium indicator portrays.

Looking at the selected countries in our sample interesting patterns emerge. Starting with the first globalization era, the degree of openness - defined as exports and imports as percentage of the GDP - started at around 30% followed by a slight decline for the rest of the period with the exception of Chile whose trajectory was markedly positive. During the second globalization, the trend is positive for these four countries with particular high ratios -over 60%- for Chile and post-NAFTA Mexico. Although accelerating in the last couple of years, Uruguay maintained a ratio of 40% during most of the 1990s. The openness of

its River Plate neighbor climbed steadily; however, it has not reached the levels observed a hundred years ago.

Latin America has traditionally integrated in the world markets as a supplier of raw materials. The reliance of this type of exports is not a new phenomenon. Following the independence, political leadership struggles abounded; however, there was a consensus on economic policy. The export-led growth strategy was adopted which translated into the promotion of the export sector, expansion of public infrastructure, and protection of foreign investment. Export of commodities was on the rise given the increased demand generated by the spread of the Industrial Revolution. The salient characteristic was the dominance of a handful of products in the total exports (see Figure 2). Even though a few were a legacy from colonial times, new products were introduced. The result was not diversification as often the newcomers replaced other commodities that were on the wane.

Following decades of import-substitution industrialization Latin America geared its efforts toward export promotion one more time over half a century after the first globalization wave. The fruits of the famous industrial policies did not materialize for all the countries. The region once again faced a strategy dilemma while suffering from the consequences of macroeconomic mismanagement and a different international environment. One by one, the countries adopted trade liberalization policies that prompted an increase in exports and imports throughout the region.

The new orthodoxy was solidified in the 1990s with the seal of approval from multilateral organizations. The impact of these policies varied considerably by country but in all cases there was an acceleration in export growth from the 1990s onwards (see Table 2). Curri-

ously, a few of the economies managed to break the commodity export curse. Mexico is the frontrunner of this trend with 60% of merchandise exports in machinery and transportation. Argentina continues to rely mainly on agricultural-based exports led by grains and oilseeds. A similar story applies to Uruguay, except that beef still dominates the exports. Finally, the Chilean performance in principle has not changed significantly since the 19th century. Even though copper and nitrates represent the core of the exports, the efforts to diversify the export basket translated into the surge of a fresh fruit exporting sector.

Looking at the countries in our sample reveals distinct stories. During the first globalization, Argentina was one of the richest economies in the world: it was the poster child of successful export-led growth. Capital and immigrants flowed to the Argentine shores only briefly interrupted in 1890 during the Barings crisis. The availability of arable land and the adaptation of the producers favorably contributed to the expansion of the export sector. During the first era of globalization Argentina managed to adapt and respond to the international conditions by switching the mix of exports. Until the early 1870s, the economy specialized in livestock by-products; however, later in the century, wheat and corn dominated the exports. By the end of this period, the country exported half of the wheat and 65% of the corn produced. The expansion of the railroad system that expedited the proliferation of fencing coupled with investment in improved crops and livestock were the backbone of the Argentine economic success.

Argentina set off for the second globalization wave rather late compared to the main Latin American economies. After futile tests with a wide range of heterodox economic policies leading to two hyperinflation episodes, the country embraced neoliberalism. The

disarticulation of the protectionist structure included the elimination of import licenses and sector subsidies, and a major slash of the average export tariffs from 42% to 15%. The transition was short and widespread: most of the liberalization reforms were carried out in 1991. The export profile endured deep transformation increasing the participation of agricultural products displacing high-value-added manufactures. The integration to MERCOSUR also had tangible effects on the export trend and composition. One-third of all exports are destined to Brazil concentrated on food, textiles, and electric products. Argentina then exports higher value-added goods to Brazil while, in a virtual continuation with the past, keeps on supplying agricultural products to the rest of the world.

At the onset of the first globalization, Chile was facing a deep economic crisis. Copper and wheat prices declined by over 30% with severe effects on the fiscal accounts. The deterioration of terms of trade paired with illiquid international capital markets as the result of the 1873 crisis painted an alarming situation. Moreover, the Peruvian nationalization of the nitrate deposits in mid-1875 harmed Chilean and British interests leading to the War of the Pacific. By 1879, the conflict ended with the Chilean possession of the nitrate-rich provinces of Tarapacá and Antofagasta launching Chile as an important supplier of nitrates worldwide. For the remaining of this globalization period, the export sector was tied to the performance of two commodities. In effect copper and nitrates represented over 80% of total exports from 1880s onwards reaching over 93% in selected years.

Chile was the first Latin American country to pave the road to global integration in the 20th century. The trade liberalization reforms were kick-started by the mid-1970s and by 1980 the economy enjoyed a 10% uniform tariff. Pre-reform tariffs were on average 94% and



as high as 750%; in addition multiple non-tariffs barriers prevailed. The consequences of the liberalization phase were dire for the industrial sector with a partial recovery after the moderate policies were established. This hard stance on free trade was revised in the early 1980s when the economy was shaken by the post-Debt crisis credit crunch and a drop in copper prices. A second generation of reforms were introduced granting the government a more active role. Openness soared from 23% to 72% in the mid-2000s; however, the Chilean export performance remained tied to copper. Since then, a non-traditional export sector has blossomed allowing some, but limited, diversification of the export basket.

By the late 19th century, the Mexican economy had broken free of the immediate post-colonial stagnation. The export sector regained dynamism even outperforming the growth of the overall economy. It achieved some degree of export diversification: the share of metals diminished and agricultural products increased their participation (coffee, cotton, and hemp). During this period the US became the main destination of Mexican exports thanks to the advances of domestic transportation. Railroad construction sped up during this period from virtually non-existence to over 20,000 kilometers by 1913. These improvements contributed to the expansion of the textile industry battered during the decades after the independence. The growth of this sector was such that the domestic textile producers managed to recoup the market share lost in the preceding decades and virtually displace the imported cotton cloth by 1910 (Gómez Galvarriato and Williamson, 2008).<sup>4</sup>

Before 1985, Mexico had a sophisticated system to protect the domestic economy consisting of tariffs of upto 100% and licenses applicable to over 90% of all imports. The industrial

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<sup>4</sup>For a discussion on the Mexican industrialization process in the late 19th and early 20th centuries see Haber (1989) and Dobado et al. (2008).

promotion programs initiated during the import-substitution industrialization phase proved effective to make some sectors competitive internationally. The promotion together with the dismantlement of the protectionism measures meant that Mexico decoupled exports from metals and oil. Starting at less than 30% of total exports in the early 1980s, manufactures climbed to over 80% in less than two decades. Moreover, the Mexican exports became even more linked to its northern neighbor. The effect of NAFTA on export growth continued to be prominent especially taking into consideration the importance of the *maquiladoras*. The share of exports from this zone reached nearly 50% by 2000.

Driven by pastoral exports, Uruguay integrated to world trade during the first globalization wave. After a sluggish recovery from the 1870s crisis, the economy benefited from the consequences of national modernization. The pillars were the respect and protection of private property and the expansion of the state as supplier of public goods such as transportation and infrastructure. During the boom years in the 1880s, the export expansion exceeded 20% of the GDP, a ratio that was only achieved a century later. Wool bolstered its predominant position in total exports reaching over 40% by the end of the period. Beef accounted for a quarter of the exports; however, the beef jerky main importers reduced the demand by the end of the 19th century. Trade with Cuba was interrupted due to the Spanish-American war. The other important market, Brazil, was leading towards domestic fresh meat supplied by its own ranchers in Rio Grande. Exports of frozen beef and mutton gained territory and filled the void from 1905 with the arrival of foreign-owned meat packing factories.

Starting in the 1970s but deepened in the 1990s, Uruguay also underwent liberalization reforms. In the first phase, the policies aimed at promoting non-traditional exports after decades of sluggish or negative growth. The traditional exporting sector was still subject to export taxes while imports were freed from quantitative restrictions. The second generation reforms accelerated the demolition of the protectionist framework by slashing tariffs and eliminating non-tariff barriers. An increased participation in trade ensued although the pattern continues to be based on agricultural products. By joining MERCOSUR, Uruguay reoriented the trade flows mainly to Brazil reaching over 25% by the mid-1990s.

### **3 Explaining Inequality in Latin America: A Quantitative Approach**

Latin American integration to world markets had particular features in both globalization waves. For instance, international migration dramatically changed the configuration of the labor markets in the Southern Cone during the first globalization. However, this type of labor flows are not observed in this current globalization period. In contrast, liberalization appears to play a crucial role at least in the onset of the contemporary integration to world markets. Taken these elements into account we explore the links between globalization and inequality. We are interested in identifying the channels through which integration affects inequality. We investigate how the three manifestations of globalization: trade flows and the movements of capital and people affect income distribution in Argentina, Chile, Mexico, and Uruguay using a comprehensive dataset for the two great globalization eras.

Disentangling the effects of globalization on inequality is a complex venture. More so given that there is no unified theory of income distribution to date (Atkinson and Bourguignon, 2000). Here we summarize the relevant theoretical channels through which openness affects the distribution of income.

It is well established that trade creates winners and losers; however, the impact on these groups depend on the time and theoretical frames under consideration. While there is value in the analysis of the short term, the most interesting and transformative actions occur in the medium and long run. It is then when the full adjustment of factor and commodity markets can be observed.

As a starting point we take a competitive equilibrium setting that allows the identification of the shares of the factors of production. The distribution of income is influenced by the supply and demand of these factors and their corresponding rewards. Yet, other crucial elements come into play such as the ownership structure of those assets and the prevailing institutional framework.<sup>5</sup>

In a dynamic setting, all these factors can potentially adjust to changing market and institutional conditions. In other words, inequality centrally depends on asset accumulation, in the way economic agents modify their assets holdings that generate their income. For example, an exogenous increase in terms of trade shifts resources towards the export sector expanding the demand of factors of production specific to the sector. The type and extent of trade specialization has well-known distributional consequences. Moreover, technology choice and diffusion are deeply intertwined with the production structure changes set in motion by trade.

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<sup>5</sup>The scope of this paper precludes us from a thorough discussion on the plentiful theoretical trade models.

Globalization is famous for affecting inequality by increasing the skill premium born from the shift towards skill-intensive technology, the premiums associated with industry affiliation, and the expansion in the informal sector. The inflows of migrants (mostly low-skilled) increase the relative abundance of unskilled labor and hence raise inequality (Hatton and Williamson, 1998; Arroyo Abad, 2008). These mechanisms are also verified by the empirical evidence (see, for example, Spilimbergo et al. (1999); Barro (2000), Ravallion (2001), and Lundberg and Squire (2003)).

The impact of capital inflows on inequality is complex to unravel (Obstfeld and Taylor, 2005). It depends on who the capitalists are and on the complementarity between labor and capital (Fischer, 2001). Feenstra and Hanson (1997), Aitken and Harrison (1999), and Choi (2006) discover significant evidence of FDI's positive impact on inequality, mostly through increases in the wages of skilled workers. However, Bloningen and Slaughter (2001) find that multinationals operations do not correspond with skill upgrade in the US. Basu and Guariglia (2007) unveil a positive relation between inequality (of human capital) and FDI. Feenstra and Hanson (2001) show that foreign outsourcing is associated with increases in skill premium in the US, Mexico, and other countries.

Taking into consideration the theoretical and empirical mechanisms linking inequality and globalization, in this section we test the empirical evidence by formulating a simple econometric model to account for a country's income inequality, as a function of factor endowments in an open economy framework. Overall, income inequality is intrinsically determined by an array of country-specific factors, notably endowments and institutional frameworks. The endowments are, in turn, affected by the production structures and hence

by the specific skills and returns. The empirical exercises comprise a set of correlates to explain income inequality. The dependent variable is the standard gini coefficient. The analysis considers indicators of skills, technology, and migration. Globalization is represented by trade and foreign capital flows. Given our data constraints, we estimate alternative country specific models by ordinary least squares (OLS) and instrumental variables (IV) for the first and second globalizations by country. The estimating equation is:

$$gini = \varphi(openness, skills, labor, capital^*, technology, institutions) \quad (1)$$

where *openness* is represented by variables such as the ratio of exports and imports to GDP, an estimated openness index, liberalization dummies, and primary export commodities concentration. Literacy and secondary education embody the *skills*, *labor* is measured by share of foreign population and net migration, country risk and net capital flows stand for *capital\**, capital imports is used as a proxy for *technology*, and finally polity serves as a measure of *institutions*.<sup>6</sup>

The countries in our sample are representative of post-colonial economic dynamics in Latin America, particularly through their engagement in international trade activities as net suppliers of primary commodities and resource-based manufactures. More recently these economies fully integrated, at various stages, in the international markets via trade, capital flows, and global production sharing. At the onset of the first globalization era the countries under study were already free from colonial rules and were engaged actively engaged in international trade activities with an increasingly wider range of trade partners; therefore

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<sup>6</sup>For robustness checks, alternative specifications were estimated, including FDI and interest rates as measures of capital, but there results did not improve significantly.

they could be regarded as open. In the second globalization wave, the specific dates of significant trade policy reforms and liberalization are gauged by a dummy variable defined as 0 before liberalization and 1 afterwards (see Table 2 for the liberalization dating).<sup>7</sup>

The use of trade intensity ratios as an indicator of openness and liberalization has been contended, but this is to some extent specific to the openness– growth causality. Although valid, the academic criticisms on the trade to GDP ratios (and other indicators widely used), do not affect the use of openness as a variable to explain inequality, as in our case. This paper’s concern is not about trade policies per se, but how a given level of openness (or globalization in a broader sense) affects the distribution of income (see Winters et al. (2004) and Milanovic (2005), for further discussions on the matter). However, to address this issue, we constructed an index of trade openness, following Spilimbergo et al. (1999), which controls for factor endowments, geography, and other resources. That is, this index is the residual of the gravity equation detailed below:<sup>8</sup>

$$\frac{X + M}{Y} = \phi(y, A, L, T, r, d, t) \tag{2}$$

where  $(X + M)/Y$  is the ratio of exports and imports to total GDP,  $y$  is GDP per capita,  $A$  is total land area,  $L$  is workforce,  $T$  is total arable land,  $r$  is interest rate,  $d$  is distance to main trade partners, and  $t$  is a time trend. The intuition is that if the impact of factor endowments is isolated from trade openness (i.e. factor endowments adjust endogenously), then the residuals are a reflection of the trade policies adopted in a country.

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<sup>7</sup>Detailed data definitions and sources are provided in the appendix A.

<sup>8</sup>See Table B.2 for the regression results of the modified gravity model.

In further assessing the impact of globalization and factor movements, the paper employs several indicators of financial integration and openness to foreign capital. Due to data limitations in the first globalization, the degree of capital markets openness is approached by a country risk indicator measured as the differential between the yields of Latin American governments and the UK, with government bond rates expressed in percentage. For the most recent period, the exercises consider net capital flows relative to GDP. The study also controls for various indicators of politics. Finally, given the significance of primary commodities for Latin American economies, we instrument the role of the relative prices of the country's exports to imports (the terms of trade), and the unit prices of exports.

Tables 3 and 4 report summary statistics for the data used in the empirical modeling for the first and second globalizations, respectively. The summary statistics indicate the high historical levels of inequality during the first globalization era, particularly in Argentina and Chile, and the subsequent increase in inequality during the second globalization in all four countries, especially in Mexico. The statistics also confirm the observed patterns of Latin American integration discussed in the previous section. Finally, it is clear that there is substantial variation in the data across time and across countries. However, the dynamic properties of the data cannot be inferred solely from the descriptive statistics. Therefore, we proceed by assessing the outlined relationships by formal econometric modeling.

Given the nature of the econometric technique chosen, some considerations are in order. A battery of diagnostics tests were performed, including the Dickey Fuller and Augmented Dickey-Fuller (ADF) tests (Dickey and Fuller, 1979), which support the model specifications, and the use of the variables in their levels. Table B.1 reports the value of the ADF tests



with the lowest lag of significance when applicable.<sup>9</sup> The series of diagnostics statistics also included the test to detect the presence of autocorrelation (AR 1-2), and the tests for the overall fit of the regressions. In addition to that, the reported standard errors are heteroscedasticity and autocorrelation consistent (HACSE). In the regression tables we also report a normality test ( $X^2$ ) that checks whether the skewness and kurtosis of the residuals correspond to those of a normal distribution (Doornik and Hendry, 1992; Doornik and Hansen, 1994). The results indicate that the variables are normally distributed. The diagnostics statistics confirm the empirical specifications paucity. While we will present the main significant econometric results in the next pages, the mechanisms are discussed at length in Section 4.

Table 5 summarizes the primary estimates of the relationship between inequality and globalization for the 1870–1913 period. We find that during this era, globalization affects inequality in particular ways in each country. In line with the mechanisms described before, the only factor that consistently affects inequality across the board is technology. In every country, with the exception of Chile, the proxy used for technology, capital imports, which gauges the impact of technology transfers and technological progress, increased inequality, especially in Uruguay and marginally in Argentina and Mexico. Trade per se, measured using two indicators, namely the standard trade intensity ratio and the openness index, does not appear to affect inequality. However, export specialization appears to reduce inequality in Chile. The impact of capital flows, captured by the country risk variable, is only relevant for the case of Mexico.

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<sup>9</sup>The only relevant case where we find the presence of non-stationary is for the case of the variable gini in Uruguay during the first globalization period. We further perform the ADF test using the first difference; however, non-stationary prevailed. When this type of situations arise, the power of the ADF test is limited.

In terms of factor endowments, the impact of literacy is ambiguous. Significant for the case of Mexico only, in most countries the extension of literacy has egalitarian consequences. Foreign population, representing immigration during the globalization wave, on average led to a rise in inequality in all the countries but in Argentina. The inflow of low-skilled migrants makes unskilled labor relatively abundant and hence increases inequality.<sup>10</sup>

Table 6 presents the results of the estimated link between inequality and different measures of globalization controlling for endowments, institutions for the current globalization wave. Unlike the previous case, there is a more unifying experience in these Latin American countries. Across the board, we observe that both skills and technology are contributing factors to increasing inequality in the region. These results are in line with the ample recent evidence and literature that points to the adoption of technology as the cause of a bias in favor of skilled labor or in skilled-labor-intensive sectors. Another interesting fact in this period is that at least one of the measures of trade is significant for each of the countries in the sample. Although these results are not robust and consistent, their timid appearance suggests an increased role of trade policy in the current period.

Following the OLS estimation, we present IV estimations aimed at addressing endogeneity and omitted variable bias concerns. Terms of trade and export prices are used as instruments for trade openness. IV is a useful tool to control for potential endogeneity, which might arise between inequality and some of the control variables, and hence assesses the empirical validity of our empirical setting. The IV relies on two-stage least squares combining the information in different regressors and instruments to produce and estimate with possibly

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<sup>10</sup>The fact that immigration is not significant for Argentina is contrary to the established literature. We believe that it is rooted in a case of an omitted variable in this specification.

less sampling variability. For instance, potential endogeneity could exist between factor endowments and income distribution, and at the same time, income distribution can affect factor accumulation. However, the endogeneity problem would be determined by other theoretical channels, and by the specification of the variables. Spilimbergo et al. (1999) provide a detailed discussion of such mechanisms and Limao and Panagariya (2006) highlight the potentially important endogeneity that emerges from estimating the effect of trade policy reforms on inequality.

The instruments of choice are terms of trade and export prices. They are plausible instruments, since they are correlated with the endogenous regressors, particularly the globalization indicators, trade intensity, and specialization, and through the demand-supply mechanisms affecting trade. Some studies have explained the relationship between terms of trade and the role of trade policy. Under uncertainty and incomplete insurance markets, commercial policy can be used as protection against unfavorable outcomes of the terms of trade (Eaton and Grossman, 1985). Trade policy could fashion an anti-trade bias as the ex-ante optimal strategy implies the levy of tariffs.

The IV estimates are presented in Tables 7 and 8 for the first and second globalizations respectively. The use of this estimation technique does not profoundly alter the primary findings previously outlined. Trade, when instrumented by terms of trade or by export prices, does not gain relative significance in the first globalization wave. Moreover, while the marginally significant correlates lose importance, both the stronger and weaker factors coefficients do not differ much compared to the OLS estimates. In the case of the current globalization wave, the most relevant novelty is the rise of skills as a determinant of inequality

in the case of Argentina.<sup>11</sup> For the remaining of the factors, part of the weight and significance persists.

The empirical estimates discussed herein show that the impact of globalization on inequality, both in terms of capital and trade flows, varies appreciably across the sample, suggesting that the countries studied embodied significant differences in their economic dynamics. Importantly, globalization has produced distributional changes, both in post colonial and contemporary Latin America. This econometric exercise offers some insights on the connections between inequality and globalization. In the following pages, we will extend this analysis to take into account the theoretical mechanisms enumerated earlier and the relevant economic context of the individual countries and the region.

## 4 Globalization Tales

The comparison of the two globalizations in these four countries illustrates the richness of the Latin American economic experience. While the region shares common characteristics with deep historical roots, a closer look offers interesting variation in the last two centuries. The quantitative exploration carried out in this paper allows us to better understand the channels through which globalization affects inequality. Armed with these results we set out below the insights suggested.

Being the epitome of success and growth during the first globalization wave, its effects on inequality in Argentina gushed through many channels, as the findings discussed earlier suggested. Once political stability was achieved and property rights guaranteed, economic

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<sup>11</sup>It is worth noting that the coefficient in this case converges to the one associated with the variable openness index in Table 6, column (1c).

prosperity became associated with the expansion of economic activities related to the use of land. As such, this unprecedented growth was not equitably distributed throughout the population. The elite–educated–landowning class secured the lion’s share of the benefits of the favorable export prices. The modernization of the Argentine economy was met by copious inflow of foreign capital. It was manifest in the breadth and depth of the railroad system. The expansion of the this means of transport yielded sizable efficiency gains to the agricultural producers in a number of ways: the reduction of shipping costs was only a direct benefit. Economical transportation enabled the adoption of labor-saving technologies such as fencing. “Fence, don’t be barbarian”, the Argentine President Sarmiento proclaimed decades before the *Estancia* Fencing Act was passed and viable. At the beginning of the period virtually no property was fenced, the railroad allowed the imported wire to be shipped deeper and deeper into the countryside resulting into an increase in the cattle yield and further consolidation of land. Even though economic growth and success were the hallmarks of this period, the slow progress towards more inclusive democratic institutions did not realize egalitarian outcomes.

Nitrates exports were the flagship of the Chilean economy during this period. It comes as no surprise that specialization had a weighty effect on inequality. Yet, the high concentration of exports had overall beneficial effects on inequality. The backward and forward linkages, even though not plentiful, expanded at an increasing rate with tangible spillover effects over selected sectors. For example, in the nitrate region, there was a surge of demand of agricultural goods to feed the swelling labor force engaged in mining. Perhaps more crucial were the investment and fiscal contributions of this sector. The expansion of the railroad system initially created to serve the mining sector was later enlarged to include the coal-

rich southern regions. Unlike its neighbor Argentina, Chile did not attract a large tide of immigrants to its land. However, the presence of foreigners was a crucial force in the Chilean nitrate-fueled economy. Even more remarkable is the overall importance of the export sector on the fiscal accounts. At the start of the period export taxes only contributed 25% of the total government revenue. What followed was a dramatic acceleration to reach 80% in 1895 and later stabilized at 75% at the turn of the 20th century. The fiscal vaults, flooded with fresh funds from the booming nitrates sector, devoted a large share of the outlays to physical capital and education (Palma, 2003).

The advent of a more globalized world shaped Mexican inequality across several channels. One of the main obstacles to Mexican growth, the lack of an efficient transportation system was lifted with the aid of capital from abroad. The extension of the railroad network had decisive repercussions on inequality. The investment on this technology disproportionately benefitted exporters. By 1870s less than 50% of exports through main ports were linked by railroads; three decades later the share increased by more than 30 percentage points. Another premise to the country's lag was the widespread financial underdevelopment throughout the 19th century. The development of a network of national banks expedited and enabled the integration to world markets. The foreign presence in the economy was particularly powerful and visible in this sector. The Mexican government greatly contributed to the modernization of the financial sector by introducing an improved institutional framework. The deepening and extension of financial integration translated into a cut in interest rates during this period. Together with more pacific domestic conditions, these forces contributed to offsetting the

upward pressure of technological change and foreign investment on inequality (Cárdenas, 1997; Marichal, 1997).

The Uruguayan integration to the world economy followed a similar path to its neighbor, Argentina, albeit with less dramatic growth spurs. The links to inequality manifested more forcefully in terms of movement of people and technological diffusion. The migration massive tides landed at these shores providing the much needed labor in these underpopulated lands. Even though the flow was not steady throughout this period, by the turn of the 20th century, 25% of the Uruguayan population was foreign born. Together with immigrants, the steamboats toed inputs and parts for the developing railroad network and wire fencing. Similar to Argentina, the advance of the railways made fencing possible. Investment in improved cattle and sheep breeds ensued further expanding the Uruguayan exports in volume and value. The modernization of the countryside and immigration placed rising pressure on inequality in this economy as labor became relatively more abundant as the result of the steady arrival of more workers and adoption labor-saving technologies (Bértola, ed, 2000; Finch, 2005).

During the second globalization wave, the findings suggest that factor endowments, trade and financial openness, and import of technology were the main contributing factors that worsened the within-country income inequality in the four countries studied. Nonetheless, in all cases, trade policy reforms were applied simultaneously with other policy changes and domestic deregulation, so it is necessary to unravel the impact of globalization-led effects on inequality from other policy areas. The evidence on the impact of trade openness and liber-

alization is mixed, and depends on country-specific endowments and institutional settings. But, similar patterns and responses to the first globalization wave emerge.

In Argentina, Chile, and Mexico, the initial adoption of the reform packages coincided with a one-time upward shift in inequality. In Argentina, and Chile the most significant one-off rise in inequality took place during a severe change in institutional arrangements in the labor markets under the military regimes in the 1970s (Morley, 2001). However, the economic reforms and restructuring programs which have been pursued since the early 1990s, have helped Argentina to improve economic performance and efficiency. Trade liberalization, deregulation, privatization, and several regional integration initiatives also have increased market access opportunities for Argentina's trading partners. Chile, an early liberalizer, has continued to reform its trade and investment regimes, both unilaterally and reciprocally, accompanied by sound macroeconomic policies; yet liberalization has adversely affected within income distribution. In Mexico, trade liberalization has also translated in solid economic performance, but improving income distribution remains a challenge. Uruguay, also a successful liberalizer, evidenced negative distribution effects associated with trade openness.

The reduction of barriers to capital mobility attracted a great deal of foreign capital to Latin America. In theory, the impact on the income distribution should be progressive as capital inflows cut profit rates pushing the demand for labor. The empirical evidence does not corroborate this trend. The Tequila crisis, initiated in 1994, marked by the sudden interruption of foreign capital inflows, and the subsequent recession had traceable negative impact on income distribution. This crisis, alongside other financial meltdowns in other



emerging and transition economies, was no alien to the rest of Latin America, which also suffered wealth losses and negative egalitarian effects.

Overall, the trade and financial reforms were regressive, but a noteworthy outcome was their effect on distribution of factor endowments –notably skills– and hence on distribution. Latin America portrays a highly unequal distribution of education and skill differentials relative to the rest of the world. The significant skilled-unskilled wage gap in Latin America, originated mostly in the 1980s, and the disparity is associated with the liberalization of financial sectors and capital account opening and not trade liberalization per se (Behrman et al., 2001). That is, income distribution was affected by the liberalization–wage channel, where export oriented FDI, and technological change increased the demand for high-skilled labor.

Even skill premium was behind the rising inequality in Latin America in the second globalization wave, particular supply and demand factors played a role in each country. In Argentina, wage inequality could be attributed to changes in the educational composition of the workforce together with significant structural changes in the composition of the economic production after the reforms. In the case of Chile, inequality increased as the drop in the relative price of labor-intensive goods exceeded the relative increase of the supply of skilled workers (Beyer et al., 1999; Gindling and Robbins, 2001). The same trend is observed in Mexico, albeit accelerated after the trade liberalization reforms in the mid-1980s with the introduction of NAFTA in 1994. Some studies argue that skill-biased technical change was the policy result of reducing the relative cost of imported physical capital and protecting low-skill labor (Hanson and Harrison, 1999a,b; Legovini et al., 2000). Uruguay's income

distribution remained the most egalitarian in Latin America, but this pattern has been partially offset by education and technology imports.

Agriculture and primary commodities have remained a pillar of the four economies. Argentina's mining and energy sectors have experienced a rapid, reform-led expansion, thus transforming this country into an oil and gas exporter. This could explain the egalitarian effects brought about by the concentration in commodity exports despite the barriers faced by Argentine agricultural exports in certain markets. Mexico has reformed the agriculture sector, albeit its intrinsic limitations such as low productivity and inadequate rural incomes, to improve its market orientation. This contributed to, *inter alia*, lowering within income inequality. Agriculture generated nearly two thirds of Uruguay's of export revenues, and contributed to reducing within-income inequality. Uruguay has striven to enhance the productivity, diversification, and the quality of its agriculture, which has created new niches and access to new markets.

The changes in political regimes produced ambiguous effects on the distribution of income, in countries like Mexico. But in Uruguay and Argentina, the return to democracy produced robust egalitarian effects. For instance, the distribution of income in Uruguay is closely related to political and economic transformation, particularly in the social protection system, resulting from the economic reforms and liberalization (Gradín and Rossi, 2001).

## **5 Concluding Remarks**

The world has experienced two waves of globalization that left deep imprints in the structure, growth, and dynamics of the participating economies. Latin America was and is an active

member of the global economy and in many cases the degree and type of integration shared features in these two periods. This study examined the connection between globalization and inequality in selected Latin American countries. By taking a historical perspective, we have analyzed this relationship by looking at the separate impacts of trade openness, primary commodities export shares, and capital flows during the first great globalization and the current liberalization wave. We also investigated the relative impact of endowments and institutions in otherwise similar Latin American economies.

Looking at the two globalization waves in Latin America sheds some light on the inequality debates. From this study, we have learned that globalization manifested through different channels by country and by period. Notwithstanding the diversity in the results, there are some common characteristics worth noting. In the first period under consideration, the globalization forces shaped inequality mainly by inducing changes in factor endowments through the adoption of new technologies and the inflow of foreign capital. For example, in underpopulated countries, such as Argentina and Uruguay, the rise of inequality is jointly explained by the expansion of labor-saving production techniques and the movement towards relative abundance of labor. Both, the new technologies and the expansion of the labor force, are manifestations of globalization as technology was imported and financed from abroad and the workers were flowing in from overseas.

In the second globalization period, the impact of the liberalization of trade and the movements of capital and technology on inequality, also operated mainly through endowment effects, and technology transfer. The liberalization reforms gave rise to a profound transformation in these economies. The modernization of the productive structure entailed

the incorporation of new technologies, producing further shifts in the demand of factors of production. In effect, in this period, skills played a crucial role in all countries. The distinguishing feature in Latin American inequality is the high disparity in human capital acquisition within countries. The participation in the global community has only exacerbated the gap in the returns to skills.

Over a century has passed and the region is still highly unequal, and the historical high specialization of production and trade in few of commodities persist. This high concentration makes progress on improving income distribution more difficult. Overall, the results suggest that the effect of globalization on inequality is most noticeable in the relative composition of each country's factor endowments. From this comparative historical study the diversification of trade emerges as a key element in the discussions and study of the globalization and inequality link. Moreover, more relevant for the current inequality debates, the question of incentives for human capital accumulation should be a chief topic.

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**Table 1: Latin America's Performance in the Globalization Waves**

	First	Second
Population <sup>a</sup> <i>share world total population</i>	4.5%	8.6%
Total gross domestic product <sup>a</sup> <i>share world total GDP</i>	3.6%	7.3%
Exports <sup>b</sup> <i>share world total exports</i>	3.0%	3.0%
FDI <sup>c</sup> <i>share world total FDI</i>	19.6%	6.2%
Country risk <sup>d</sup> <i>basis points</i>	582	1,541

Sources:

(\*) Latin America: Argentina, Brazil, Chile, Colombia, Mexico, Peru, and Venezuela.

(a) I (1913) and II (2000): Maddison (2002).

(b) I (1913) & II (1998): Maddison (2002).

(c) I (1914): Fishlow (1985); II (2000): UNCTAD (2004).

(d) I (average 1870-1913); II (average 1996-2000): Global Financial Database.

**Table 2: Latin America Exports in the Second Globalization**

	Liberalization date	Export volume index 2000=100		Annual growth rate	Main export products
		1980	1990		
Argentina	1988	26.4	47.1	6.5%	Wheat, oilseeds, oil
Chile	1976	24.9	28.8	6.8%	Copper, nitrates, fresh fruits
Mexico	1986	11.5	27.9	10.8%	Machinery, transportation, oil
Uruguay	1985	40.6	58.2	7.1%	Beef, grains, leather manufactures

Sources:

Liberalization dates: Santos-Paulino and Thirlwall (2004)

Export volumes and main exports: based on CEPAL (2006)

Table 3: Summary Statistics First Globalization (1870-1913)

Variable	Argentina		Chile		Mexico		Uruguay	
	Mean	Std. Dev.	Mean	Std. Dev.	Mean	Std. Dev.	Mean	Std. Dev.
<b>Gini</b>	48.36	5.99	62.32	2.61	23.63	2.39	36.04	3.56
<b>Openness</b>	30.35	4.89	32.97	11.81	18.4	3.36	28.5	28.5
<b>Literacy</b>	39.72	11.69	33.21	6.57	21.68	2.54	54.89	6.93
<b>Foreign population</b>	22.37	7.02	3.69	0.74	0.49	0.08	2.24	2.24
<b>Country risk</b>	1.55	1.45	2.26	0.71	3.07	1.39	8.05	6.25
<b>Terms of Trade</b>	99.24	13.83	61.74	20.9	100.01	6.87	94.84	14.48
<b>Primary exports</b>	81.54	10.57	84.22	7.32	55.34	6.49	87.57	3.78

Sources: see appendix A.

Table 4: Summary Statistics Second Globalization (1970–present)

Variable	Argentina		Chile		Mexico		Uruguay	
	Mean	Std. Dev.	Mean	Std. Dev.	Mean	Std. Dev.	Mean	Std. Dev.
<b>Gini</b>	45.01	5.42	53.18	3.21	52.47	1.71	43.06	1.87
<b>Openness</b>	13.68	6.22	52.31	12.69	36.9	17.17	39.76	8.22
<b>Literacy</b>	95.29	1.3	92.88	2.67	84.81	5.86	95.96	1.45
<b>Net migration</b>	1.38	4.43	-1.9	4.81	-18.5	7.09	-17.84	11.82
<b>Net capital flows</b>	0.75	3.69	3.67	3.89	2.73	2.83	2.51	3.4
<b>Polity</b>	3.03	7.32	1.86	7.34	0.30	5.14	3.65	8.12
<b>Terms of Trade</b>	98.46	11.46	117.76	35.25	127.88	33.86	126.76	38.13
<b>Primary exports</b>	73.21	5.80	88.73	3.96	49.04	26.23	65.41	8.02

Sources: see appendix A.

Table 5: OLS Estimates - First Globalization

Variables	Argentina			Chile			Mexico			Uruguay		
	(1a)	(1b)	(1c)	(1a)	(1b)	(1c)	(1a)	(1b)	(1c)	(1a)	(1b)	(1c)
<b>Constant</b>	39.25 (3.45)***	32.15 (6.16)***	37.45 (1.46)	22.53 (10.20)***	11.20 (11.40)***	0.35 (9.39)***	72.62 (11.00)***	74.35 (13.40)***	52.52 (2.32)**	35.09 (2.97)**	35.46 (4.93)***	21.63 (1.08)
<b>Literacy</b>	0.28 (1.09)	0.39 (2.05)**	0.33 (1.01)	-0.03 (0.11)	-0.20 (1.53)	-0.05 (0.34)	-2.64 (8.25)***	-2.64 (8.96)***	-2.22 (4.45)***	-0.19 (0.79)	-0.20 (0.99)	-0.15 (0.76)
<b>Foreign population</b>	-0.02 (0.05)	-0.09 (0.30)	-0.04 (0.12)	0.46 (0.88)	0.33 (0.56)	1.82 (3.86)***	48.56 (6.16)***	48.39 (6.26)***	47.24 (6.68)	0.21 (2.73)***	0.21 (2.96)**	0.22 (3.65)***
<b>Polity</b>	-1.25 (2.86)***	-1.34 (2.80)***	-1.37 (2.76)**	0.13 (0.27)	0.10 (0.08)	1.04 (1.45)	2.14 (4.81)***	2.11 (5.29)***	2.05 (5.65)***	2.53 (4.36)***	2.52 (4.38)***	2.56 (4.57)***
<b>Country risk</b>	-0.28 (0.40)	-0.11 (0.16)	-0.14 (0.20)	-0.65 (0.74)	-0.37 (0.36)	-0.72 (0.84)	0.21 (3.00)***	0.19 (3.09)***	0.18 (2.66)**	0.50 (1.57)	0.48 (1.57)	0.61 (1.69)
<b>Capital imports</b>	0.02 (1.90)*	0.02 (1.86)*	0.02 (2.03)**	0.00 (0.15)	0.01 (0.14)	0.01 (0.71)	0.02 (1.77)*	0.02 (1.51)	0.02 (1.94)*	0.05 (2.41)**	0.05 (2.45)**	0.05 (2.45)**
<b>Openness</b>	-0.12 (0.77)			-0.12 (1.06)			0.08 (0.38)			0.00 (0.00)		
<b>Open index</b>		-0.06 (0.35)			0.04 (0.29)			0.21 (0.08)			-0.01 (0.15)	
<b>Primary exports</b>			-0.05 (0.24)						0.22 (1.03)			0.09 (0.81)

<b>N</b>	44	44	44	44	39	39	39	39	39	39	39	39
$\bar{R}^2$	0.77	0.76	0.76	0.66	0.68	0.67	0.89	0.89	0.89	0.86	0.86	0.86
$\bar{X}^2$	3.82	2.85	3.67	2.58	15.45	11.10	11.48	12.36	10.25	5.54	5.49	6.00
	0.003	0.014	0.003	0.031	0.000	0.021	0.003	0.002	0.006	0.008	0.009	0.006

Notes: Heteroscedasticity and autocorrelation consistent standard errors (HACSE) are used in calculating the reported the t-ratios. Absolute t-values in parentheses (.), \*\*\*, \*\*, and \* denote significant at the 1, 5 and 10 percent level.

$X^2$  is the normality test to determine whether the data is well-modeled by a normal distribution, with the corresponding probability value given below.

Table 6: OLS Estimates - Second Globalization

Dependent variable: Gini coefficient (levels)								
Variables	Argentina				Chile			
	(1a)	(1b)	(1c)	(1d)	(1a)	(1b)	(1c)	(1d)
Constant	15.38 (5.04) ***	14.88 (3.25) ***	10.10 (2.80) ***	39.63 *** (5.41)	40.63 (6.33) ***	39.25 (7.33) ***	37.48 (6.83) ***	61.23 (2.99)
Secondary education	0.34 (4.82)	0.41 (5.44) ***	0.49 (8.26) ***	0.36 (5.64) ***	0.19 (2.22) **	0.23 (2.99) **	0.25 (3.44) ***	0.25 (2.81)
Net migration	-0.12 (1.55)	-0.18 (1.64)	-0.09 (0.94)	-0.28 *** (2.96)	0.24 (1.02)	0.27 (1.38)	0.1 (0.51)	0.09 (0.38)
Polity	-0.11 * (1.71)	-0.14 (1.64)	-0.17 ** (2.06)	-0.1 (1.58)	-0.09 (0.71)	0.01 (0.13)	-0.16 (1.35)	-0.17 (0.87)
Capital imports	-0.03 (1.24)	1.62 (1.06)	0.64 (2.25) **	-0.27 (4.74) ***	-0.03 (1.36)	-0.05 (1.99) **	-0.02 (0.91)	-0.03 (1.29)
Net capital flows	0.01 (0.05)	-0.1 (0.83)	-0.09 (0.68)	-0.09 (0.93)	0.19 (0.89)	0.45 (2.48) **	0.13 (0.08)	0.11 (0.64)
Openness	0.47 (2.09) **				0.02 (0.22)			
Liberalization		0.01 (0.68)				7.65 (3.00) ***		
Openness index			0.01 (0.93)				0.14 (1.36)	
Primary exports				0.01 (0.43)				-0.25 (0.99)
N	34	34	34	36	36	32	32	37
R <sup>2</sup>	0.93	0.92	0.93	0.94	0.52	0.62	0.59	0.59
X <sup>2</sup>	7.61 0.012	3.05 0.066	3.94 0.052	2.93 0.061	4.31 0.026	7.23 0.003	3.48 0.021	16.73 0.000

Dependent variable: Gini coefficient (levels)								
Variables	Mexico				Uruguay			
	(1a)	(1b)	(1c)	(1d)	(1a)	(1b)	(1c)	(1d)
Constant	51.52 (22.50) ***	52.91 (52.90) ***	55.55 (34.30) ***	54.79 (8.40) ***	31.42 (27.90) ***	31.24 (27.50) ***	31.44 (25.10) ***	35.06 (22.90) ***
Secondary education	-0.07 (1.85) *	-0.02 (0.91)	-0.05 (1.39)	0.05 (2.00) **	0.12 (6.50) ***	0.13 (7.51) ***	0.13 (5.70) ***	0.12 (7.43) ***
Net migration	-0.05 (1.03)	0.04 (1.17)	-0.01 (0.38)	0.03 (0.80)	0.01 (0.73)	0.01 (0.81)	0.01 (0.65)	-0.003 (0.21)
Polity	0.28 (1.34)	0.25 (2.03) **	0.68 (4.77) ***	0.15 (1.76) *	-0.11 (1.80) *	-0.11 (2.03) **	-0.11 (1.71) *	-0.09 (1.81) *
Capital imports	-0.03 (4.40) ***	-0.02 (2.35) **	-0.04 (4.33) ***	-0.06 (5.67) ***	0.01 (3.07) ***	0.01 (2.47) **	0.01 (2.12) **	0.01 (2.28) **
Net capital flows	0.19 (1.69)	0.11 (1.49)	0.13 (1.15)	0.12 (3.09) ***	0.004 (0.12)	0.01 (0.35)	0.01 (0.44)	0.02 (1.13)
Openness	0.11 (2.26) **				0.02 (1.15)			
Liberalization		2.77 (3.05) ***				-0.27 (0.48)		
Openness index			-0.04 0.58				0.02 (0.61)	
Primary exports				-0.07 (7.14) ***				-0.04 (4.46) ***
N	37	37	37	37	37	37	37	37
R <sup>2</sup>	0.72	0.79	0.62	0.83	0.89	0.89	0.89	0.91
X <sup>2</sup>	12.87 0.011	4.52 0.004	4.99 0.012	11.03 0.005	5.43 0.058	5.51 0.010	4.88 0.027	3.87 0.030

Notes: Heteroscedasticity and autocorrelation consistent standard errors (HACSE) are used in calculating the reported the t-ratios. Absolute t-values in parentheses (.). \*\*\*, \*\*, and \* denote significant at the 1, 5 and 10 percent level. X<sup>2</sup> is the normality test to determine whether the data is well-modeled by a normal distribution, with the corresponding probability value given below.

Table 7: IV Estimates - First Globalization

Dependent variable: Gini coefficient (levels)										
Variable	Argentina		Chile		Mexico		Uruguay			
	(1a)	(1b)	(1a)	(1b)	(1a)	(1b)	(1a)	(1b)		
Literacy	-0.69 (0.12)	0.07 (0.07)	-1.88 (1.01)	-0.02 (0.22)	-2.49 (5.20) ***	-8.53 (9.19) ***	-1.24 (1.29)	1.78 (0.29)		
Foreign population	0.5 (0.17)	0.12 (0.18)	-0.46 (0.27)	2.00 (1.94) *	46.55 (3.65) ***	69.94 (40.92) ***	-0.09 (0.13)	4.36 (0.36)		
Polity	-0.28 (0.05)	-1.38 (2.75) **	-0.60 (0.28)	1.16 (1.19)	2.48 (4.65) ***	2.63 (1.05)	0.96 (0.55)	6.27 (0.51)		
Country risk	-1.93 (0.20)	-0.19 (0.33)	1.35 (0.49)	-0.75 (1.01)	0.27 (2.13) **	0.41 (0.38)	0.00 (0.01)	0.77 (0.43)		
Capital imports	0.03 (0.46)	0.01 (1.26)	-0.001 (0.05)	0.01 (1.13)	0.03 (1.59)	-0.01 (0.06)	0.09 (1.81) *	-0.01 (0.06)		
Openness	-1.44 (0.85)		1.10 (0.90)		0.68 (0.94)		-0.87 (1.14)			
Primary exports		-0.26 (0.33)		-0.32 (1.89) *		-2.94 (4.58) ***		3.24 (0.32)		
<b>N</b>	44	44	39	39	39	39	39	39	39	
$X^2$	57.63	111.71	2.33	12.21	238.36	66.09	23.87	7.81		

Notes: absolute t-values in parentheses (.). \*\*\*, \*\*, and \* denote significant at the 1, 5 and 10 percent level, respectively. Instruments are (a) Terms of Trade and (b) Export Prices.

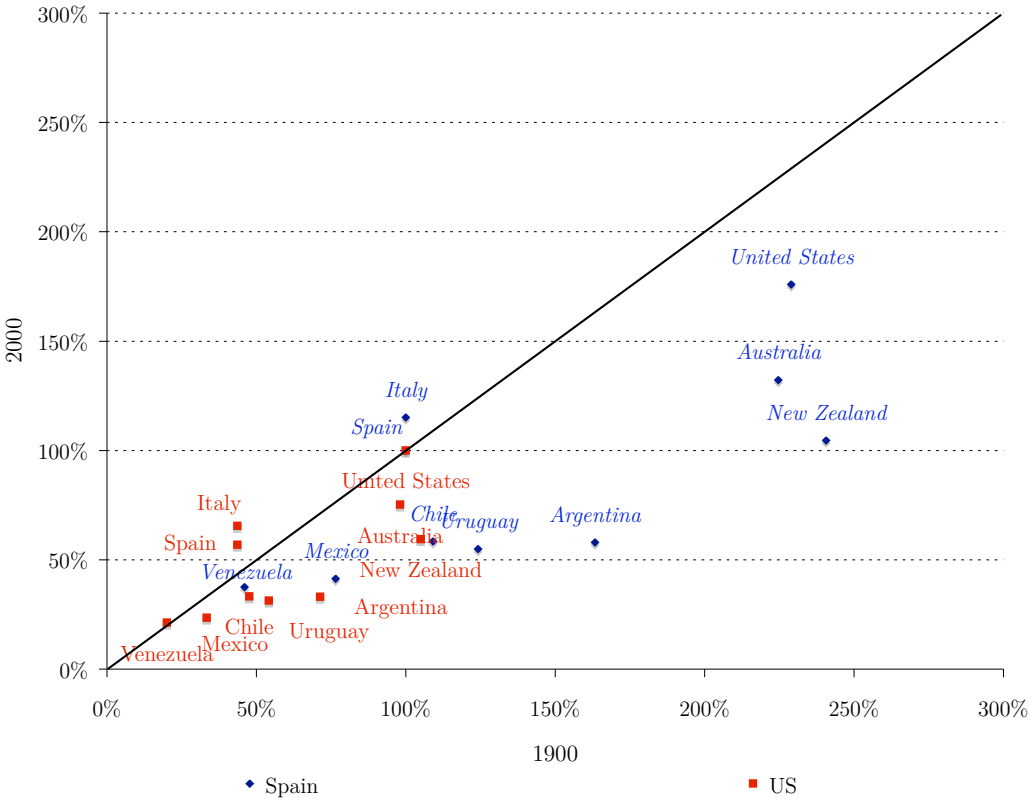
Table 8: IV Estimates - Second Globalization

Dependent variable: Gini coefficient (levels)										
Variables	Argentina		Chile		Mexico		Uruguay			
	(1a)	(1b)	(2a)	(2b)	(3a)	(3b)	(4a)	(4b)		
Secondary education	0.51 (3.75) ***	0.34 (3.80) ***	-0.84 (1.00)	0.29 (3.27) ***	-0.11 (1.67)	0.02 (0.55)	0.11 (5.82) ***	0.12 (8.72) ***		
Net migration	-0.14 (1.15)	-0.31 (2.49) **	2.57 (1.29)	0.26 (1.01)	-0.11 (1.43)	0.01 (0.39)	0.02 (1.31)	-0.002 (0.17)		
Polity	-0.18 (1.73) *	-0.09 (1.18)	-1.06 (1.18)	-0.34 (1.35)	-0.72 (1.23)	0.31 (1.94) *	-0.12 (3.12) ***	-0.09 (2.52) **		
Net capital flows	-0.18 (0.98)	-0.02 (0.18)	0.54 (1.10)	0.1 (0.59)	0.25 (2.28) **	0.14 (2.79) **	-0.02 (0.28)	0.03 (0.63)		
Capital imports	0.04 (0.83)	-0.01 (0.52)	-0.09 (1.18)	-0.10 (2.08) **	-0.02 (0.69)	-0.06 (5.40) ***	0.01 (2.92) **	0.01 (2.27) **		
Openness	-0.14 (0.37)		1.63 (1.28)		0.39 (2.61) **		0.05 (1.80) *			
Primary Exports		-0.32 (2.31) **		-0.93 (1.55)		-0.05 (3.26) ***		-0.04 (1.45)		
N	34	34	36	32	37	37	37	37		
X <sup>2</sup>	277.38	49.90	4.52	16.48	27.45	108.86	234.89	308.52		

Notes: absolute t-values in parentheses (.). \*\*\*, \*\*, and \* denote significant at the 1, 5 and 10 percent level, respectively. Instruments are (a) Terms of Trade and (b) Export Prices.



**Figure 1: Latin American Relative Performance - GDP per capita relative to the United States and Spain in the Two Globalization Waves -**

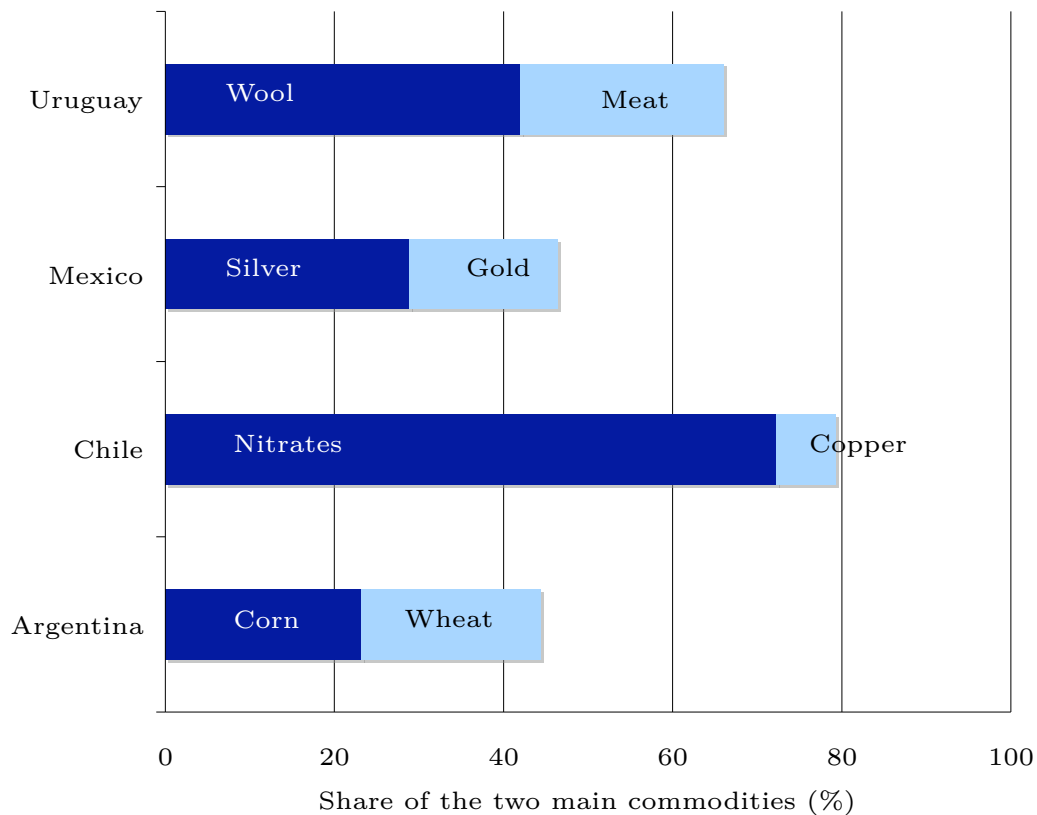


Sources:

1900: based on Maddison (2002).

2000: based on Heston et al. (2006).

Figure 2: Latin American Export Concentration ca. 1913



Sources:

Argentina: based on Vázquez-Presedo (1971).

Chile: based on Diaz et al. (1998).

Mexico: based on Dirección General de Estadística (1960).

Uruguay: based on Finch (2005).

## Appendix A Data definitions and sources

### A.1 First globalization (1870-1913)

**Capital imports:** Calculated as constant price index, 1900=100. Argentina: includes agricultural, industrial, railroads, and other public services as presented by Vázquez-Prasedo (1971).

Chile: from Braun et al. (2000).

Mexico: from Dirección General de Estadística (1960) under category “Imports, production, durable, and investment goods” consisting of items such as wire, livestock, rails, steels among others.

Uruguay: from Finch (2005) and Consejo Nacional de Administración Uruguay (1925) listed under “capital goods” including agricultural, industrial, and transportation items.

**Country risk:** Calculated as the yield differential between the country’s bond and the United Kingdom’s 2.5% consol, based on Global Financial Database.

**Gini coefficient:** For Argentina, Mexico, and Uruguay, Prados de la Escosura (2008) series were used. For the missing observations, the same methodology was applied. For Chile, see Rodríguez Weber (2007).

**Literacy:** The data come from censuses with interpolation between years.

Argentina: literate population over age 14. Various censuses.

Chile: total literate population Various censuses.

Mexico: literate population over age 10 Dirección General de Estadística (1956).

Uruguay: literate population over age 15 Finch (2005).

**Openness:** measured as exports and imports as a share of GDP.

Argentina: based on Ferreres (2005).

Chile: based on Braun et al. (2000).

Mexico: based on Dirección General de Estadística (1960).

Uruguay: based on Acevedo (1903), Finch (2005), and Bértola, ed (2000).

**Polity:** the scale assigns +10 to strongly democratic regimes and -10 to strongly autocratic ones. Data from *Polity IV Project: Political Regime Characteristics and Transitions, 1800-2007*.

**Prices of exports and Terms of trade:** estimated as the ratio of the price to exports to imports with base 1900=100.

Argentina, Mexico, and Uruguay: see Arroyo Abad (2008).

Chile: Braun et al. (2000).

**Railroads:** Measured as kilometers of railroads scaled by total population.

Argentina: based on Scalabrini Ortiz (1995) and Ferreres (2005).

Chile: based on Braun et al. (2000).

Mexico: based on Dirección General de Estadística (1960) and INEGI (1999).

Uruguay: based on Finch (2005).

**Share of Foreign population:** defined as foreign population as percentage of total population.

Argentina and Uruguay: see Arroyo Abad (2008).

Chile: based on Braun et al. (2000).

Mexico: Dirección General de Estadística (1901), Dirección General de Estadística (1956), and INEGI (1999).

## A.2 Second globalization (1970–present)

**Capital imports:** from CEPAL (2008).

**FDI:** as percentage of GDP, from World Bank (2008).

**Gini coefficient:** Data from World Bank (2008), SEDLAC (2009), CEPAL (1987a), CEPAL (1987b), CEPAL (1988), CEPAL (1993a), CEPAL (1993b), and CEPAL (1993c).

**Liberalization:** from Santos-Paulino and Thirlwall (2004).

**Literacy:** UNESCO (2008).

**Net capital flows:** calculated as capital flows as percentage of GDP, from National Central Banks and the International Monetary Fund.

**Openness:** defined as exports and imports as a percentage of GDP, from World Bank (2008).

**Polity:** same as for the first globalization.

**Prices of exports and Terms of trade:** base year 2000=100

Argentina: Ministry of Economy and CEPAL (2008).

Chile: Braun et al. (2000) and CEPAL (2008).

Mexico: Central Bank and CEPAL (2008).

Uruguay: Bértola and Williamson (2006) and CEPAL (2008).

**Secondary education enrollment:** total enrollment, regardless of age, to the population of the age group that officially corresponds to the level of secondary education, from World Bank (2008).

**Share of Foreign population:** defined as foreign population as percentage of total population, from World Bank (2008).

## Appendix B

**Table B.1: Augmented Dickey-Fuller (ADF) Tests**

	Argentina	Lag	Chile	Lag	Mexico	Lag	Uruguay	Lag				
First Globalization												
Gini	-3.114	*	0	-6.384	**	0	-8.099	**	0	-2.546	**	0
Openness	-7.060	**	0	-5.525	**	0	-7.340	**	0	-6.279	**	0
Open index	-4.208	**	0	-3.156	*	0	-3.742	**	0	-3.227	*	0
Primary exports	-1.211		0	-3.359	*	0	-0.816		0	-7.482	**	0
Terms of trade	-2.548		0	-4.448	**	0	-1.899		0	-3.931	**	0
Literacy	-4.735	**	0	-4.467	*	0	-4.589	**	0	-2.980	*	0
Foreign population	-3.880	**	0	-2.956	*	2	-3.334	*	0	3.132	*	0
Country risk	-5.895	**	0	-3.329	*	0	-3.870	**	0	-5.514	**	0
Capital imports	-5.748	**	0	-5.525	**	0	-6.545	**	0	-7.817	**	0
Second Globalization												
Gini	-4.775	*	0	-5.355	**	0	-3.280	*	0	-4.592	**	0
Openness	-3.987	**	0	-6.755	**	0	-4.873	**	0	-6.995	**	0
Open index	-4.661	**	0	-4.130	**	0	-4.381	**	0	-3.306	*	0
Primary exports	-6.360	**	0	-6.326	**	0	-4.235	**	0	-3.207	*	0
Terms of trade	-4.165	**	0	-5.354	**	0	-4.705	**	1	-7.839	**	0
Secondary education	-2.987	*	1	-0.698		0	-2.950	*	0	-2.960	*	0
Net migration	-3.635	*	1	-1.014		0	0.588		0	-0.666		0
Net capital flows	-3.095	*	1	-6.019	**	0	-3.304	*	1	-3.095	*	0
Capital imports	-4.522	**	0	-6.517	**	0	-5.472	**	0	-4.344	**	0

Notes: The ADF test is based on a regression of the form:  $\Delta y_t = \alpha + \phi y_{t-1} + \sum_{i=1}^T \Theta \Delta y_{t-i} + \delta t + \epsilon_t$ , where  $\epsilon_t$  is a random error term, and  $\alpha$  and  $t$  are a constant and time trend, respectively. The ADF test corresponds to the value of the t-ratio of the coefficient  $\phi$ . The null hypothesis of the ADF test is that  $y_t$  is a non-stationary series, which is rejected when  $\phi$  is significantly negative. Two lags and a constant were included in the ADF regressions of the levels of the variables.

\*\* and \* denote significance of the test (i.e. rejection of non-stationarity) at the 1% and 5% level respectively.

**Table B.2: Open Index Residuals Estimation**

	Argentina		Chile		Mexico		Uruguay
<hr/> First Globalization <hr/>							
t	-0.43		0.62		0.18		-0.28
Ln(y)	15.57	**	11.40		18.15		-4.53
L(L)	1.74		18.95		-54.49	**	-6.32
L(T)	-29.92	**	-26.64		18.49	***	7.91
L(d)	15.76		20.45		-5.19	***	5.69
L(A)	17.60		-21.42	**	29.37		-2.46
<hr/> Second Globalization <hr/>							
t	-1.31	***	2.88	***	0.38		2.11
Ln(y)	17.14	***	-6.56		-30.83		-5.70
L(L)	49.94	***	-13.87		-56.10		4.72
L(T)	33.84	***	47.83		-58.60	***	46.87
L(d)	-4.18		63.04		106.54		11.49
L(A)	-83.39	***	-51.70		2.45		-40.49

Notes: t-HACSE (heteroscedasticity and autocorrelation consistent standard errors) in parenthesis (.). Absolute t-values in parentheses (.). \*\*\*, \*\*, and \* denote significant at the 1, 5 and 10 percent level.