

An alternative to the middle-income trap

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ABSTRACT

This paper offers an alternative explanation to the slow-down observed in the growth of developing countries. Instead of a middle-income trap what happened was a liberalization trap. Growth didn't happen because countries turned middle-income, but happened in a given period, around the 1980s, when these countries faced a serious foreign debt crisis and were constrained to open their economies. The studies on the middle-income trap have adopted a broad income interval and were unable to offer new historical facts that explained why these countries stop growing fast. Differently, this paper shows that the trade liberalization and the financial liberalization that started in the 1980s involved the dismantling of the mechanism that neutralized the Dutch disease and the change from low to high interest rates – both facts leading to a long-term or chronic overvaluation of the exchange rate that made the manufacturing industry non-competitive and caused deindustrialization and low growth.

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1. Introduction

A “middle-income trap” occurs when an economy grows quickly to reach the middle-income level and then becomes relatively stagnant, failing to catch up to high-income countries (Spence 2011; Felipe et al., 2012; Aiyar et al. 2013 and Eichengreen et al., 2013). The causes presented in this literature are generic, emphasizing the quality of the legal institutions of the country, demographic problems, the lack of social infrastructure, poor macroeconomic policies, and a lack of policies encouraging technological progress. These, however, are not actual causes; to count, they would need to be phenomena that are new when the country reaches the middle-income level. If the country had a satisfactory growth rate and then suddenly starts growing slowly, the explanation must be a new endogenous fact (for example, the country has become so industrialized that it's no longer in a position to increase productivity by transferring labor to the industry) or an exogenous one, as we shall argue is the case.

The question that this study proposes to answer is whether there was a new fact that causes the strong reduction in growth rates of these economies. The answer is an analysis of the economic

development process of a select group of countries in Latin America and Asia in the post-1990s. We start with the hypothesis that the liberalizing reforms, notably trade and financial liberalization, represented this new fact. Instead of promoting the growth of the region, these reforms, which had a stronger effect in Latin America than in Asia, explain the low economic growth observed in Latin America since the 1980s. This occurred essentially because these reforms caused an increase in the interest rate and an appreciation in the exchange rate that, since then, have constituted a great competitive disadvantage for the manufacturing industry of these countries with important ramifications for national production and foreign trade.

This article has five sections beyond the introduction. The first discusses the various studies that deal with the occurrence of the middle-income trap. The second section presents the new phenomena that explain the trap and characterizes it not as a middle-income but a liberalization trap. The third section deals with the problem of deindustrialization. In the fourth section we argue why liberalizing reforms have caused the liberalization trap. In the fifth section we estimate an econometrical model to investigate our main question and the final section concludes with a look at the research.

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2. Studies on the middle-income trap

Several studies have tried to empirically define the “middle-income trap” as an income interval at which economies tend to stagnate after having obtained impressive economic growth rates. One of the first works to investigate this question empirically was [Spence \(2011\)](#). The author does not use the term middle-income trap but highlights in his research the difficulty that economies have in making the transition from the middle-income level to higher income levels. In numerical terms, the author emphasizes the hurdles that economies face in exceeding the per capita income level of US\$10,000 and that a per capita income of a significant group of countries has remained stagnant at US\$5000 to US\$10,000. This difficulty, according to Spence, stems from the fact that the industries that initially boosted growth in these economies become globally uncompetitive due to the increase in wages. He does not explain, however, why wages would rise above productivity when the country reaches the middle-income stage. The author also suggests the existence of economic mechanisms related to governance, the existence of natural resources, and environmental problems that may or may not stimulate the transition from the middle-income level to higher levels of income.

[Eichengreen et al. \(2013\)](#), in an extension of the [Eichengreen et al. \(2012\)](#) analysis, investigate the incidence and correlations of the economic slowdown in middle-income countries that had experienced rapid economic growth. Regarding this incidence, using data from the *Penn World Table*, the 2012 article points out that the slowdown in growth occurred at income levels between US\$15,000 and US\$16,000 (in 2005 purchasing power parity (PPP) dollars). The 2013 article, however, suggests the existence of two growth inflection points: one between US\$10,000 and US\$11,000 and another at around US\$15,000 and US\$16,000. To identify the economic stagnation, the authors chose countries whose growth rate declined for seven consecutive years. Using these criteria, several countries were identified as being caught in a middle-income trap. As for correlations, the empirical analyses developed in the two papers indicated that growth slowdowns are more likely to happen in economies with: (1) high “dependency” rates, that is, when the ratio between the number of retirees (dependents) and the labor force is elevated; (2) with high investment rates, which can translate into low future returns on capital and (3) with undervalued real exchange rates which discourage the process of technological development. In addition, in their 2013 paper, the authors suggested that stagnation is less likely in countries with (1) high levels of secondary and upper education and (2) where high tech products account for a large share of exports. Other variables associated with slowing growth include changes in the governing regime, financial instability, trade liberalization, and terms-of-trade shocks. However, all these problems existed when the countries grew at high rates; they are not new facts, and therefore don't explain the change from growth to stagnation.

In addition, with the objective of presenting a definition of the middle-income trap, [Felipe et al. \(2012\)](#) define four income groups using PPP's GDP per capita in dollars for 1990: (i) low income (less than US\$2000); (ii) medium-low income (between US\$2000 and US\$7250); (iii) medium-high income (between US\$7250 and US\$11,750); and (iv) high income (above US\$11,750). From the 124 countries studied from 1950 to 2010, in the final year there were 40 low income countries, 38 middle-low income, 14 high-middle income and 32 high income countries. With this classification, the authors calculated that a country that becomes low-middle income (that is, reaching per capita income of US\$2000) requires an average growth rate of at least 4.7% annually in its per capita income to avoid falling into the low-middle income trap (in other words, reach US\$7250, the upper limit of the average income). A

country that reaches a high-middle income level (that is, US\$7250 per capita income) requires an average growth rate of at least 3.5% annually to avoid falling into the high-middle income trap (reaching US\$11,750, the high-income level limit). Therefore, for [Felipe et al. \(2012\)](#), avoiding the middle-income trap all comes down to the question of how to grow fast enough to exceed the low-middle income segment within the maximum period of 28 years and the high-middle income segment in the maximum period of 14 years. Finally, the authors analyze the reason why some countries get trapped in this middle-income trap, highlighting the changes in economic structure. That is, the causes are the shift from low- to high-productivity activities and the types of exported products (because not all products have the same consequences for growth and economic development), and the diversification of the economy as a whole. To better understand this issue, the authors compare the exports from the countries classified as struggling in the middle-income trap with the exports from countries that surpassed this income. The results generally indicated that countries that exceeded the middle-income level (and escaped the trap) had more diversified, sophisticated and non-standardized export baskets than did countries stuck in the middle-income trap.

[Aiyar et al. \(2013\)](#) adopt an alternative approach based on the Solow model. According to this model, with similar rates of savings, population growth, depreciation and technological change, poor countries will grow faster than rich countries. Thus, even considering country-specific factors, the economies furthest from the global technological frontier should grow faster than economies closer to it. It's this hypothesis that the authors test empirically to identify economic decelerations in terms of large deviations from the expected growth trajectory. To do so, they use annual per capita income data (in constant 2005 international dollars) to calculate a five-year panel of GDP per capita growth rates. The sample covers 138 countries from 1955–2009 divided into 11 periods. GDP growth per capita is regressed against the lagged income level and standard measures of physical and human capital. For any country at any given time, the estimated ratio generates an expected growth rate, conditioned to its income level and factor allocation. In this context, the average income trap is a special case of slowing growth; that is, when there are large and sudden deviations from the expected growth trajectory foreseen from this basic convergence structure. Then, [Aiyar et al. \(2013\)](#) examine the main determinants of the average-income trap using probit regressions, emphasizing the importance of variables such as institutions, demography, infrastructure, macroeconomic environment, production structure, and trade structure.

3. New facts to explain the middle-income trap

The middle-income trap is therefore the phenomenon by which economies become stagnant at given level of income. Yet, the income intervals used in the several studies to define what is a middle-income country were quite large. On the other hand, the causes presented in this literature emphasize long-standing problems associated with the relative backwardness of developing countries in general, like the quality of a country's legal institutions, etc. These are not the real causes of the so-called middle-income trap; causes should be *new phenomena* that only occur when the country reaches a certain level of its average per capita income. Instead, what the authors have identified are typical problems of developing countries that date back to the beginning of their economic development process and were occurring at a time when they had been catching up, as well as when they stalled.

But could there have been a new phenomenon that caused the sharp decline in growth rates of most middle-income countries? As we shall show, it was the adoption of liberalizing reforms beginning in the 1980s. This argument can be developed from an anal-

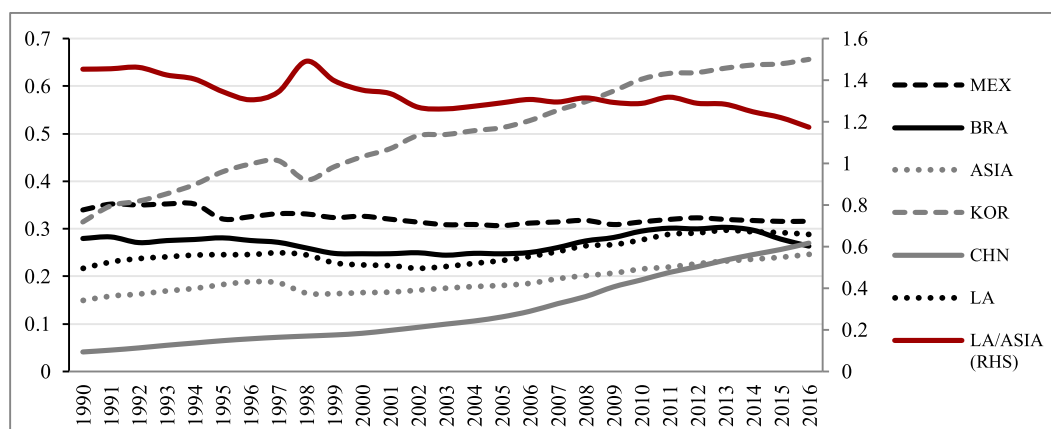


Fig. 1. Evolution of GDP per capita relative to U.S. (1990–2016).

Source: Source: Authors' elaboration based on World Development Indicators (2018). Data are in PPP, constant 2011 international dollars. Note: Latin America (LA): Argentina, Chile, Colombia, Ecuador and Peru. Asia: India, Indonesia, Malaysia, Thailand and the Philippines.

ysis of the strikingly different processes of economic development in Latin American and Asian countries.

The reforms of the 1989 Washington Consensus, to which the United States and the international agencies were pressing the Latin American countries to adopt since at least the 1985 Baker Plan dramatically changed the policy regime of developing countries, with the exception of some countries in Asia, especially those in East Asia, from a developmental to a liberal policy regime, focusing on reducing the size of the State and on trade and financial liberalization. The Latin American, which were in crisis since the rise of the interest rate in the United States in 1979 and the triggering of the 1980s' Foreign Debt Crisis, had turned vulnerable to this pressure and soon engaged in the necessary structural adjustment and in the not equally necessary reforms that were being required.¹

Considering selected groups of Latin American and Asian countries, we found that in the 1990s, the average annual growth in the first group was 3.1% against 6% in Asia. Fig. 1 illustrates the accelerated convergence of Asia's per capita GDP in relation to the United States since 1990 as well as the reduction in the average distance of the per capita income of Latin America. The impressive catching-up of South Korea and China in this period is noteworthy, although they are still far from the US's income level. At the same time, we can see stagnation in the convergence between Latin America and the per capita GDP of the United States, especially in the cases of Brazil and Mexico.

Fig. 1 illustrates the evolution of Latin America's (LA) GDP per capita, comprised of Argentina, Chile, Colombia, Ecuador and Peru; and Asia, with India, Indonesia, Malaysia, Thailand and the Philippines. In addition, it highlights the behavior of the major economies of each of the blocs, South Korea and China in Asia, and Brazil and Mexico in Latin America. The figure shows the growth trend of the GDP per capita of Asian economies and the stagnation of GDP per capita in Latin America, especially in Brazil and Mexico.

After a strong process of industrialization and high growth rates from 1950 to 1979 in the framework of a developmental policy regime, from the 1980s the Latin American countries enter a process of quasi-stagnation that was only suspended briefly in the 2000s due to a boom of commodities, while the East Asia countries continue to grow steadily. Fig. 1 shows this change clearly. The

1980s were a famous "lost decade", which is explained by 1980s' Foreign Debt Crisis, which, in countries as Brazil and Argentina, was coupled with high inflation. The explanation for the stagnation of the first decade or a little more than that is well known. Two new historical facts - the debt crisis and the rise of inflation stopped the Latin American economies. But, after these two problems were resolved, a quasi-stagnation continued to characterize Latin America. How can we explain that?

Would institutions do the job? The response that mainstream economics gives to this question is positive. Since the 1980s, new institutionalists as Douglas North, Daron Acemoglu and Robinson say backward countries don't develop because they lack the right institutions - more specifically because their institutions do not protect property rights and contracts, the two key institutions that make markets to perform their allocative or coordinative role. In fact, two institutions coordinate capitalist economies since the first countries (Britain, France and Belgium) realized their industrial revolution and turned rich - the modern state (the law system and the organization that guarantees it) and the market. Sociologist, for long, realized that the evolution of the economy and of the market and the state happened together. The guarantee of the rule of law, with which capitalism was born, included the guarantee of property rights and contract, advanced in these three countries in the eighteenth century while they were realizing their capitalist revolution. Thus, it makes no sense to assume that institutions are exogenous and explain economic backwardness and low growth with the lack of good institutions. But this was what the Washington Consensus' policy economists have been doing since the 1980s when they claim that the key for countries to grow again is to engage into neoliberal reforms, is to liberalize, deregulate and privatize.

There are three problems with this explanation. First, institutions are endogenous. Second, institutions today or since the 1990s are not worse than they were before. To explain a new condition - the quasi-stagnation of the Latin-American countries - we need new historical facts that the institutional explanation does not offer. Before the 1980s, these countries were growing fast with the same institutions that, suddenly, had turned "a required condition" for further growth. Third, as a country develops it must concomitantly reform and improve the two main institutions - the market and the state - but these reforms must make sense - what is not the case of most of the neoliberal reforms, as we will show in this paper.

What was the *new historical fact* that hit Latin American countries more strongly than those East Asian countries? Our argument

¹ The 1995 Baker Plan, thus denominated because the Secretary of the Treasury of the United States was Nicholas Brady, charged the IMF with conducting the macroeconomic "structural adjustments", while the World Bank became responsible for pressing the highly indebted countries to make the market-oriented reforms.

Table 1
Tariff protection in Latin America and Asia (1985–2016).

	Manufactured goods, applied, simple mean (%)							
	1987 ¹	1988–1989	1990–1994	1995–1999	2000–2004	2005–2009	2010–2014	2015–2016
Latin America	34.00	n.a.	12.48	12.85	11.30	8.52	6.96	7.57
Mexico	n.a.	n.a.	14.45	14.48	15.99	6.99	5.93	5.76
Brazil	n.a.	44.42	23.89	15.74	15.22	13.08	14.37	14.17
Asia	51.50	27.59	30.77	17.06	12.69	7.94	6.51	6.37
Korea	n.a.	16.95	11.90	8.15	7.77	7.13	6.43	4.98
China	n.a.	n.a.	37.72	17.93	12.83	8.79	8.00	7.84

Source:..

¹ World Bank (1991); From 1988 onwards, authors' elaboration based on World Development Indicators and World Integrated Trade Solution (2018). Note: Latin America: Argentina, Chile, Colombia, Ecuador and Peru. Asia: India, Indonesia, Malaysia, Thailand and the Philippines, except for 1987, where Asia comprises all the low-and middle-income economies of East, Southeast, South Asia and the Pacific; and Latin America comprises all American and Caribbean economies south of the United States.

is not that Latin American countries have stopped growing rapidly due to the traditional causes associated with the existence of a middle-income trap, but rather that the new liberal policy regime strongly recommended by the developed countries was more radically introduced and had a greater negative effect on those countries than on the Asian ones. Changing from a developmental to a liberal regime did not simply mean that the Latin American countries were become “more market-oriented”. We have a more specific critique. Practically all Latin American had the Dutch disease. By liberalizing they dismantled the *non-protectionist* mechanism that pragmatically (without conscience of the policymakers who justified the high tariffs with the infant industry argument) neutralized the Dutch disease. On the other hand, financial liberalizations opened room for an increase in the level of the interest rates around which the countries make their monetary policy. Now, a main new-developmental theoretical claim is that, besides fiscal irresponsibility, high interest rates and a non-neutralized Dutch disease are the main causes of a long-term overvalued exchange rate that stimulates consumption while discourages investment as it makes competent companies non-competitive.

In a 2016 paper, Doner and Schneider (2016) offer a different explanation for Latin America's quasi-stagnation. It is an institutional explanation, but not a new-institutionalist one. Nothing about property rights and contracts, but the claim that from the time developing countries achieved a certain level of economic development, some economic conditions that were favorable to growth as inequality, labor informality, low-skilled and low-paid worker changed into obstacles to the improvement of the policies and the institutions required to the continuation of the growth process, while, on the political side, the fragmentation of social groups, especially business and labor, had the same negative outcome. We don't believe that these new historical facts that the two distinguished political scientists have brought to the fore have had a comparable weight that had the liberalizing reforms in explaining the quasi-stagnation of Latin America from the 1990s, but they should be seen as complementary causes.²

Let us see more closely what happened with the import tariffs. Since they neutralize the Dutch disease as to the domestic market, they should be higher and have been kept higher in this region than in East Asia, but this is not what happened. Table 1 illustrates the evolution of import regulations of manufactured goods in these economies compared to the selected Asian economies. It should be noted that the year 1987, specifically, considers all developing economies in Asia and Latin America, according to a document from the World Bank (1991). The data on tariffs over manufactured goods shows the adoption of a significantly higher average tariff in Asia compared to Latin America in the initial years and

a convergence from the years 2000, with the exception of Brazil, which after the abrupt reduction in the early 1990s has maintained a stable tariff rate since 2000 of some 15%, higher than the other countries in Table 1.

Despite the higher tariff protection for the average Asian economies compared to Latin America, up until the beginning of the 2000s, we can see an accelerated increase in the opening coefficient *de facto* of Asian economies to international trade between 1985 and 1999, and relative closure as of 2005 (Graph 2.a), in addition to the strong export bias of the region throughout the period (Chart 2.b.), in Fig. 2. In Latin America, the opening index, always smaller than that of Asia, rose slowly up until 2007, retreating somewhat since that year. This slow increase in the opening ratio is surprising because around 1990 radical trade liberalization programs took place in practically all Latin American countries. At the same time, it should be noted that, on the one hand, the trade openness ratio of the Chinese economy and the share of exports in the domestic product did not differ significantly from the Latin American average. On the other hand, however, we see that after a sharp devaluation, import tariffs for manufactured goods remained relatively high in the Brazilian economy compare to Mexican tariffs.

Regarding financial liberalization, Fig. 3 presents the evolution of two traditional indicators of legal restrictions on the free movement of capital: the Chinn-Ito index (2006) and the index developed by Fernández et al. (2015). Both are based on the information contained in the IMF's *Annual Report on Exchange Arrangements and Exchange Restrictions* (AREAER) but differ in the categories and subcategories used in the composition of the indexes.³

From the Chinn-Ito index (Graph 3.a), it can be seen that Latin American economies reduced capital controls rapidly beginning in 1990, becoming, at the end of the decade, more financially open than the Asian average. Asian countries expanded capital controls after the Asian financial crisis of 1997, and even more so after the international financial crisis of 2007–2009. This movement is also

³ The AREAER provides information on various categories. Chinn-Ito (2006) combine four of these categories (exchange regime, export proceeds, current account and capital and financial account transactions) to calculate their openness index. In doing so, they capture more than the “strict” opening of the capital account. They justify this procedure by stating that it captures the intensity of capital controls (since capital controls can be implicitly imposed on other transactions, not just on the capital account). While the Chinn-Ito index has the broadest coverage (182 countries covering 1970–2016), it has no information on the predominance of controls over specific types of capital flows, nor does it provide information on controls on the direction of flows or based on the residency. The Fernández et al. (2015) index is more specific. The authors consider only the capital and financial accounts, but analyze ten of the twelve subcategories to calculate a composite openness index, thus having more granularities over the controls of various types of capital. However, the coverage is more limited (99 countries covering 1995–2015). For a detailed analysis of the various existing *de jure* indices, see, for example, Jahan and Wang (2016).

² We thank one of the referees for the suggestion that we included the paper by Doner and Schneider in our analysis.

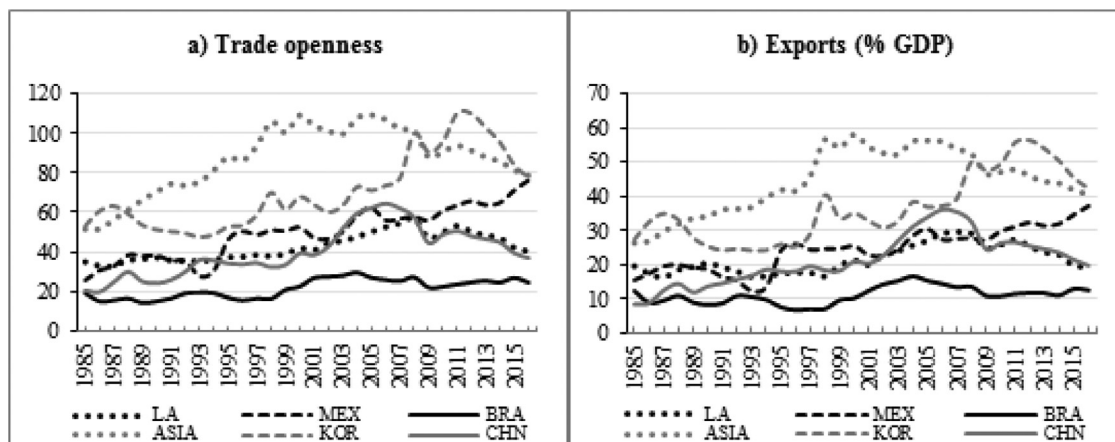


Fig. 2. Evolution of the trade openness ratio (de facto) and exports coefficient (1985–2016).

Source: Source: Authors' elaboration based on World Development Indicators (2018). Notes: Trade openness is the sum of exports and imports of goods and services as a percent of GDP. Latin America (LA): Argentina, Chile, Colombia, Ecuador and Peru. Asia: India, Indonesia, Malaysia, Thailand and the Philippines.

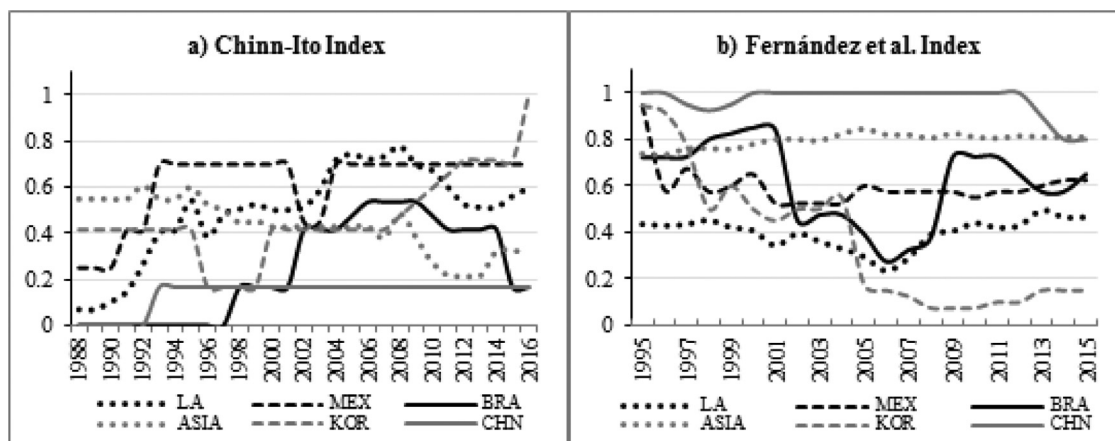


Fig. 3. Evolution of financial openness—de jure indicators (1988–2016).

Source: Source: Authors' elaboration based on Chinn and Ito (2006) and Fernández et al., (2015). Note: For the Chinn-Ito Index, higher values indicate weaker capital controls, and for the Fernández et al. Index, higher values indicate stronger capital controls. Latin America (LA): Argentina, Chile, Colombia, Ecuador and Peru. Asia: India, Indonesia, Malaysia, Thailand and the Philippines.

observed in the Latin American average, although their controls remain at levels lower than those used by the Asian average. The index of Fernández et al. (Graph 3.b), in which larger values mean greater capital control, presents very similar movements. In sum, both indicators point to the Chinese economy as having the most rigid control over the international movement of capital, as well as a greater regulation of Asian countries compared to Latin America as of the mid-1990s.

Fig. 4, on the other hand, presents the evolution of international financial integration or *de facto* financial openness by considering two indicators: the aggregate financial flows in terms of the trade flows (IFI-FT) and the aggregate financial stocks in proportion to GDP (IFI-SGDP).⁴ Mexico aside, as of the mid-1990s the IFI-FT indicator reveals a distancing from the averages of Latin America and Brazil, especially with respect to Asian countries, evidencing an in-

sertion in the global economy based mainly on financial openness, to the detriment of trade.

In the case of the IFI-SGDP there is no significant difference between the Asian and Latin American averages, which presented the highest levels of international financial integration over the period. There is also no significant difference between the individual representatives of the two regions (Brazil and Mexico, and China and Korea), with the exception of the financial integration jump of the Korean economy over the last decade. In any case, there is a growing trend in *de facto* financial opening for all the economies considered here, and in this sense the most interesting aspect regarding the external insertion of these regions may be in the difference observed by the IFI-FT indicator, i.e., in the greater integration of Latin America into the global economy, predominantly by the financial side, when compared to the insertion of Asia.

In short, in addition to revealing the different trajectories of per capita GDP growth between Latin America and Asia, this section reviews some similarities and differences in liberalization reforms pursued by these regions since the 1990s. Although we can observe a convergence of average tariffs on manufactured goods from both regions towards reducing protection by reducing tariffs, the early years of this process show more gradualism on the part of Asians, who even raised their rates during the late 1980s and early 1990s. On the other hand, the greater trade tariffs of the Asian re-

⁴ The IFI-SGDP is an indicator widely used in studies on international financial integration and economic growth. The IFI-FT indicator is based on the work of Lane and Milesi-Ferretti (2007), in which the authors use aggregate financial stocks in proportion to the trade flows as an indicator of financial integration that also reveals whether the predominant route of integration to the international markets is by the financial or trade side. However, we believe that a ratio of financial flows to trade flows would better reflect the changes in the preferential path of external insertion than the ratio of financial stocks to trade flows. For a review of *de facto* indicators, as well as the comparison with *de jure* indices, see, Kose et al. (2006).

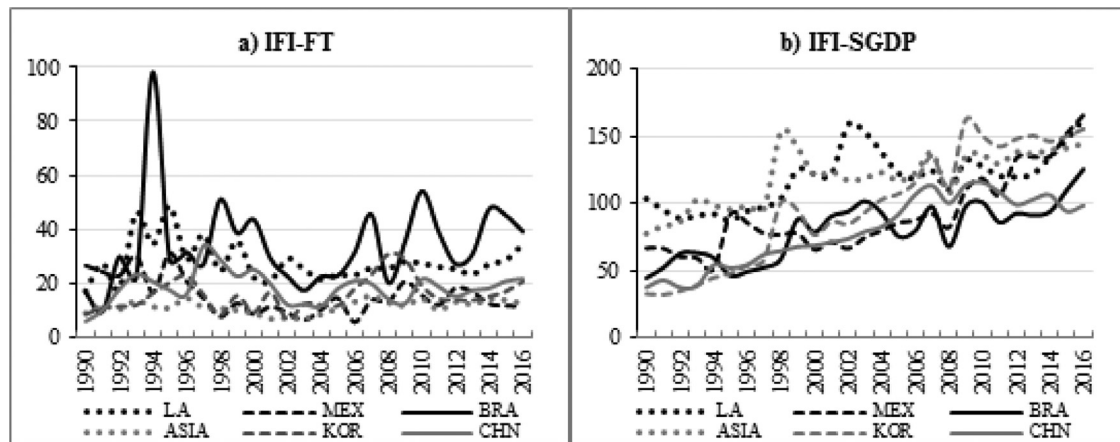


Fig. 4. Evolution of financial openness - de facto indicators (1990–2016).

Source: Source: Authors' elaboration based on Lane and Milesi-Ferretti (2011) and [International Financial Statistics \(2018\)](#). Note: IFI-FT is the sum of gross financial flows as a percent of trade flows (exports plus imports). IFI-SGDP is the sum of stocks of assets and liabilities as a percent of GDP. Latin America (LA): Argentina, Chile, Colombia, Ecuador and Peru. Asia: India, Indonesia, Malaysia, Thailand and the Philippines.

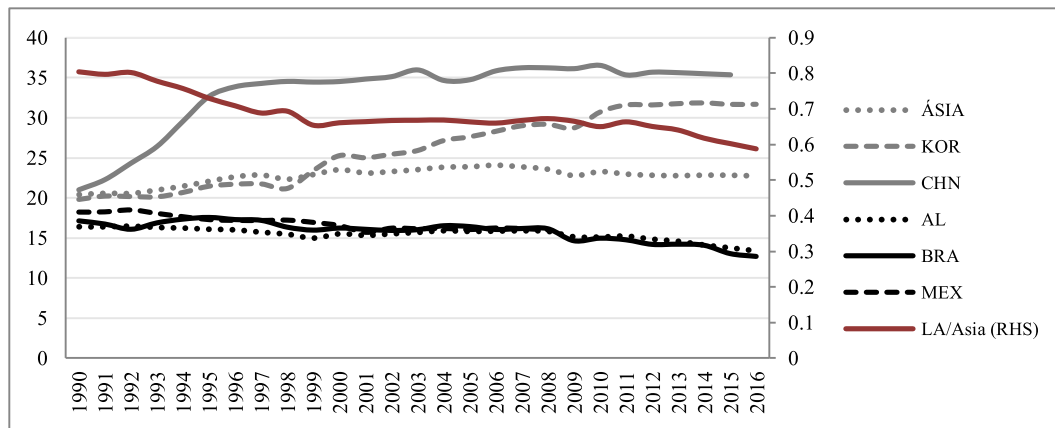


Fig. 5. Evolution of the manufacturing share in total value added (%).

Source: Source: Authors' elaboration based on [United Nations Statistics Division \(2018\)](#) and [Timmer et al., \(2015\)](#). Note: Latin America (LA) combines Argentina, Chile, Colombia, Ecuador and Peru. Asia: India, Indonesia, Malaysia, Thailand and the Philippines.

ative to Latin American countries did not restrain the former from significantly increasing the trade openness ratio during the period (measured by the total trade flows as percentage of GDP) due to the growth of exports.

On the financial side, the observation of the two *de jure* indicators considered here points to a more cautious financial integration strategy on the part of the Asian economies compared to those of Latin America, the latter of which started a rapid deregulation in the early 1990s, and are still, even today, more open to capital movements than the Asian countries are on average. In *de facto* terms, both regions have significantly increased their degree of financial integration, as reflected by the inventories of assets and liabilities in proportion to their domestic product, and there is no significant difference between the regions' average. From the point of view of financial flows, when weighted by trade flows, we can see in Latin America an integration with international markets with a predominance of finance over the real sector, compared to that observed in Asia. Given the high instability of the international financial system, this indicator points to an insertion that is potentially highly vulnerable to changes in the external environment.

4. Deindustrialization

One of the most striking aspects of this period we are analyzing is the downward trend in value added by the manufacturing in-

dustry in Latin America. As illustrated in [Fig. 5](#), in the early 1990s, in the more advanced economies of Latin America and in the East Asian countries, the share of the manufacturing industry was similar. Going forward, there was strong growth in the manufacturing industry of the Asian countries, followed by stabilization at levels much higher than those observed for the Latin American countries. The consequence was that Latin America's export basket moved toward unsophisticated goods with increased dependence on exports of primary commodities, Brazil being a striking example of this dynamic because, before the 1990 trade liberalization, it was the more industrialized country of the region ([Table 2](#)).

This re-elevation of Latin American exports to a primary status became pronounced in the mid-2000s. In the case of Brazil and Latin America as a whole, this deindustrialization process is very clear. The exception is Mexico, but it is a false exception. After the creation of the North American Free Trade Agreement (NAFTA), Mexico's production and export of manufactured goods increased greatly, and the share of the exports of manufactured goods increased substantially, but this did not involve the sophistication of the Mexican because the manufacturing industry was reduced to the status of "maquiladora", with low value added per capita, thus performing with manufactured goods the role that commodity production does in the other Latin American countries.

Deindustrialization and reprioritizing of commodities inverted the transfer of labor, now from high- to low-value-added indus-

Table 2
Dependence on exports of primary commodities (% of total exports).

	1990–94	1995–99	2000–04	2005–09	2010–14	2015–16
Latin America	83.93	79.37	77.71	79.84	83.24	83.12
Mexico	36.50	18.58	17.10	24.59	24.98	16.81
Brazil	43.97	45.57	44.95	51.73	63.83	61.61
Asia	39.04	29.37	27.29	33.64	38.80	33.38
Korea	7.24	11.42	9.10	11.13	13.88	10.35
China	19.35	14.24	10.29	7.18	6.29	5.99

Source: Authors' elaboration based on [United Nations Statistics Division \(2018\)](#). Notes: Primary commodities refer to codes 0, 1, 2, 3, 4, 68, 667, 971; SITC Rev. 3. Latin America: Argentina, Chile, Colombia, Ecuador and Peru. Asia: India, Indonesia, Malaysia, Thailand and the Philippines.

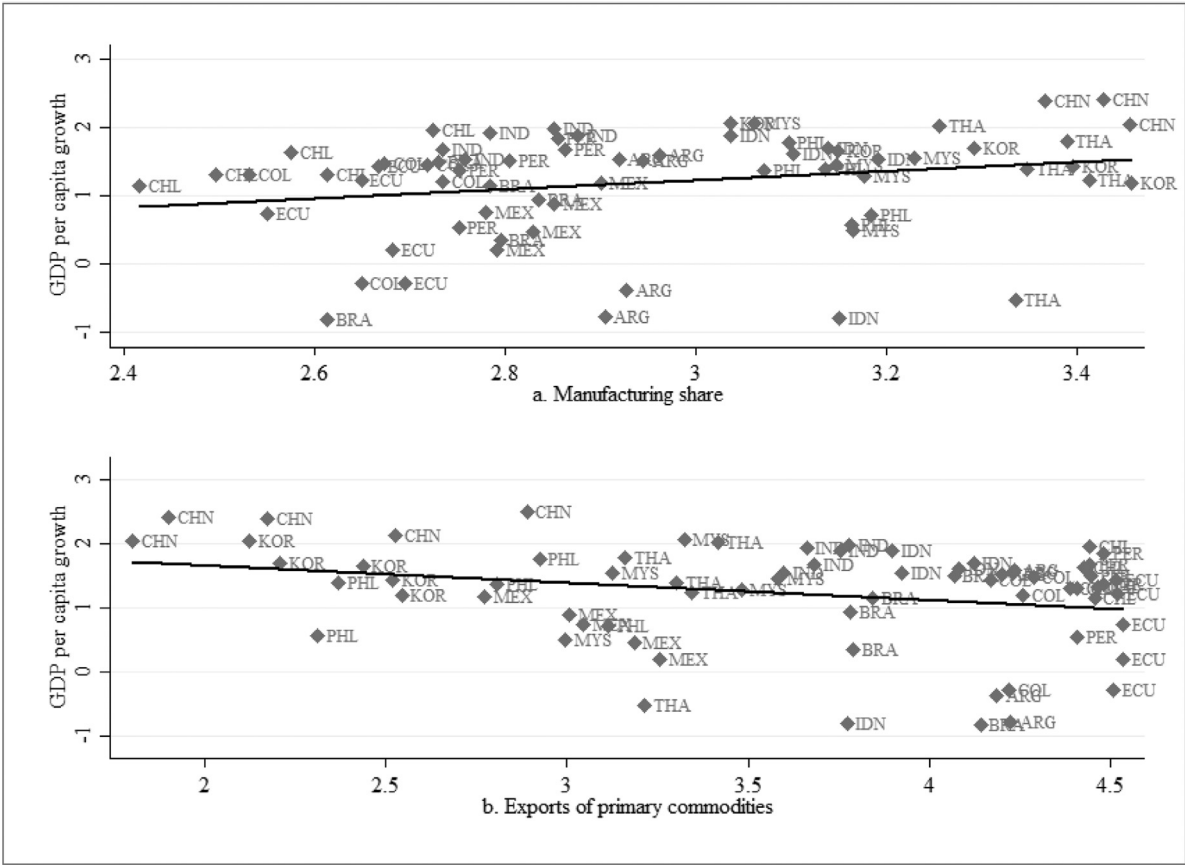


Fig. 6. Real GDP per capita growth: (A) manufacturing and (B) commodity exports (1992–2016, five-year average)³.
Source: Source: Authors' elaboration based on [United Nations Statistics Division \(2018\)](#) and World Development Indicators (2018). Notes: Logarithmic scale data. Countries: Argentina, Brazil, Chile, Colombia, Ecuador, Mexico, Peru, China, India, Indonesia, Korea, Malaysia, Thailand and the Philippines.

tries and is certainly associated with the low growth rates of Latin America. In the context of the market-oriented reforms, Latin America gave up the previously established development strategies of the manufacturing sector, which is a sector relevant to driving/sustaining growth for a number of reasons:

- (i) the ability to generate and propagate technological progress;
- (ii) the greatest potential for productivity growth relative to other sectors;
- (iii) the generation of positive externalities and synergies; and
- (iv) contribution to the sustainability of the balance of payments and trade gains.

Fig. 6 shows clear positive correlations between the manufacturing sector and real per capita GDP growth in the period 1992–2016, and a negative association with the growth in the exports of primary commodities. The coefficients and the level of significance of all estimated correlations are presented in [Table A1](#) in the

Appendix. Also, the Appendix, [Fig. A2](#) shows a positive relationship between the exports of more complex products and the economic growth, as well as between the size of the manufacturing sector and the complexity of exports. Thus, [Figs. 6](#) and [A2](#) point to the importance of the development of the manufacturing sector to support a faster pace of per capita GDP growth.

These data confirm our argument that the quasi-stagnation of Latin America since the 1980s happened essentially in the manufacturing industry, which saw its share of GDP fall and its productive sophistication also fall. Why did this happen? Essentially because the macroeconomic environment became unfavorable to investment and industrial development mostly due to the behavior of exchange rates and interest rates in those economies. As one of the authors of this paper have been arguing for long, these countries have fall in an interest rate-exchange rate trap.⁵ This behav-

⁵ Bresser-Pereira (2011).

ior seems to be largely associated with the process of international opening of these economies from the 1980s, as seen in Figs. 3 and 4. Financial liberalization in Latin America was more abrupt and profound than in Asia, and, as we will see in the next section, trade liberalization dismantled the mechanism that neutralized the Dutch disease.

5. Why have liberalizing reforms caused the middle-income trap?

So far, we have shown that explanations for the middle-income trap are insufficient because they work with a too large income interval and don't identify new changes that caused countries to fall into it. We have also shown the correlation between liberalization of markets (that results in a fall in manufacturing and a rise in commodity exports) and a fall in the yearly rate of growth of GDP per capita. Now we move on to the next question. Namely, why would liberalizing reforms cause countries to fall into the trap – a liberalization trap?

Trade and financial openings have occurred in Latin America since the 1980s and more intensely than in East Asia. But why would this new historical fact be a significant cause for the low growth observed in Latin America? The answer is, essentially, that these reforms have caused directly an increase in interest rates and the dismantling of the high import tariffs on manufactured goods that neutralized the Dutch disease – the two causes of a chronic appreciation of the exchange rate appreciation, which made the manufacturing industry in Latin America non-competitive.

In the economic literature, it is well established that the currencies of the economies specialized in commodities tend to be appreciated in the long run because they face the Dutch disease. On the other hand, central banks in the region tend to define a high interest rate around which they organize their monetary policy so as to attract foreign capital and “grow with external savings” – this representing a second major cause of overvaluation of the national currencies of Latin American countries. The exchange rate in these countries is not just volatile but tends to move cyclically from currency crisis to currency crisis, remaining overvalued for several years between the crises. This is a competitive disadvantage that discourages the companies – even the ones using the best technology available – to invest. They will make their investment calculations considering the overvalued currency and will not invest. This was what happened to the Latin American countries. They were subject to the trap of high interest rates and exchange rates that appreciated in the long-term that make even the best companies that produce tradable manufactured non-commodity goods non-competitive. This is the main reason why Latin American economies are lagging Asian economies, especially East Asian countries since the 1980s. While the East Asian countries do not have the Dutch disease problem, the Latin American countries suffer from it. Before trade liberalization and financial liberalization, they intuitively neutralized it: in relation to the domestic market they did it through high import tariffs; and in relation to the foreign market, it was done by subsidizing exports of manufactured goods. On the other hand, Latin American countries generally incur current-account deficits and say that their “strategy” is to grow with foreign indebtedness, while Asian countries have always been more conservative in this regard: they grow with domestic savings.

Thus, the main cause of the quasi-stagnation trap in Latin America are the neoliberal reforms adopted since 1980s – the trade reforms that dismantled the mechanism neutralizing the Dutch disease, and the financial reforms that facilitated the increase in the interest rate. According to the arguments of New-Developmentalist theory, especially those of Bresser-Pereira (2014, 2016) and Bresser-Pereira et al. (2016), the growth of developing

countries is severely hampered by the macroeconomic trap of high interest rates and overvalued exchange rates: they discourage investment and stimulate only consumption. We can summarize this dynamic in the following points:

- (1) In developing countries there is a tendency for cyclical and chronic (long-term) overvaluation of the exchange rate which appreciates it in the long run, only depreciating it in times of financial crisis;
- (2) A long-term appreciated exchange rate creates a strong competitive disadvantage because companies start to factor this rate into their investment calculations and decline to invest or invest as little as possible;
- (3) The main causes of this exchange rate appreciation are two common policies in developing countries – the policy of growth through “foreign savings” (in other words, the policy of attempting growth with current account deficits), and the policy of implementing an anchor exchange rate to control inflation, both implemented through a high interest rate;
- (4) Current account deficits, besides leading countries to a balance-of-payment crisis, are associated with a currency appreciation that, by making the companies that produce tradable non-commodity goods and services uncompetitive, using the best available technology, discourage investment and stimulate consumption; these deficits correspond to a long-term appreciated exchange rate because countries now require an *additional* foreign currency inflow to finance them, which increases their supply and appreciates the country's currency;
- (5) In commodity-exporting countries, such as Latin American countries, this appreciation is more serious because they face the problem of Dutch disease – a long-term exchange overvaluation in commodity-exporting countries that, thanks to the Ricardian rents or price booms, can be exported at a substantially more appreciated exchange rate than that of industrial equilibrium—an equilibrium that would otherwise make the industrial companies using cutting-edge technology more competitive.

Awareness of the Dutch disease is relatively recent in the economic literature,⁶ but this did not prevent *policymakers* in many countries, intuitively or pragmatically, from neutralizing it with regard to the domestic market. The instrument were high import tariffs on manufactured goods, which, to the extent that they were just neutralizing the Dutch disease, were not protectionist – they were just giving the local manufacturing industry equal conditions of competition with the companies of other countries.⁷ They increased the cost of importers' non-commodity goods, thus making those businesses in the country that produced tradable non-commodity goods competitive.⁸

Given these facts, it is clear why liberal reforms represent the major new fact that explains the middle-income trap in Latin American countries. Consider the two liberalizations. First, there is financial liberalization. Prior to the 1980s, interest rates were very low, and the financial system was centralized within the State. With financial liberalization, legitimized by Shaw (1973) and

⁶ The two basic models on the disease are Gabler and Neary (1981) and Bresser-Pereira (2008).

⁷ If the import tariffs on manufactured goods were very high, as was the case of many Latin American countries, if they were higher than what was required to neutralize the Dutch disease, they would be also protectionist.

⁸ Suppose that in a country the current equilibrium exchange rate is \$ 3.30 per dollar and the industrial equilibrium is \$ 4.00 per dollar. The Dutch disease will be \$ 0.70. An import duty corresponding to that amount will neutralize the Dutch disease for the purposes of the internal market. An export tax on commodities that give rise to the Dutch disease of \$ 0.70 per dollar will neutralize the Dutch disease both in relation to the domestic and foreign markets.

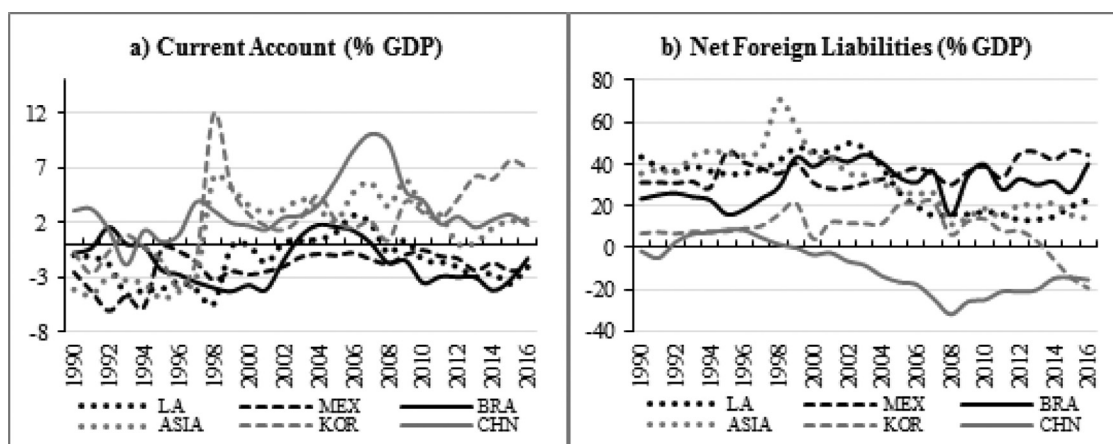


Fig. 7. External balance – Current account and net foreign liabilities (1990–2016).

Source: Source: Authors' elaboration based on Lane and Milesi-Ferretti (2011), *International Financial Statistics* and *World Economic Outlook* (2018). Note: Latin America (LA): Argentina, Chile, Colombia, Ecuador and Peru. Asia: India, Indonesia, Malaysia, Thailand and the Philippines.

McKinnon's (1973) thesis of "financial repression", interest rates could increase freely.

Second, we have trade liberalization. Although Dutch disease was not understood, it was, nevertheless, clear to *policymakers* that industrialization had to be the main goal. Import tariffs on manufactured goods neutralized the exchange rate overvaluation in an intuitive and pragmatic way. It was a partial neutralization, because it acted only on the domestic market. It should not have been derided as "protectionism" because it simply gave companies in the country equal conditions in competing with the companies from other countries.⁹ When countries opened their economies, this implied the dismantling of the mechanism that neutralized the Dutch disease, and represented a huge competitive disadvantage which was the main cause of the deindustrialization that followed. Within the industrialization policy that these countries had adopted, there was certainly an element of protectionism, but also an element of legitimately leveling the playing field of competitiveness.

The new-developmentalism theory predicts that when a country carries out financial liberalization and trade liberalization, five things happen:

- (1) Its interest rate increases;
- (2) Its system for neutralizing the Dutch disease (which was embedded in its trade system) is dismantled;
- (3) Which causes its current accounts deficit to increase;
- (4) And its exchange rate to appreciate in the long run;
- (5) And the country de-industrializes.

This is what happened. Although part of the overvaluation – the part caused by Dutch disease – is not clear in the statistics the numbers in Fig. 7 are very clear regarding the first point.¹⁰ We can observe the evolution of the current account balance and the net foreign liabilities (NFL) for Latin America and Asia between 1990 and 2016, both proportionate to GDP. Fig. 7 shows a clear deterioration in the current accounts for Latin America, especially for Brazil, from the beginning of the 1990s, which was tem-

porarily reversed during the commodity price boom from 2002 to 2008 but resumed the deficits expansion in the period of crisis and global recession that followed. In contrast, there is a strong growth in the current account balance proportionate to GDP in the East Asian economies in the late 1990s, and the maintenance of surplus balances over the ensuing period, including during the post-2008 global recession.

The changes in the International Investment Position of these economies reflected the changes in the current account and in the exchange rate just discussed, since this position basically reflects the net result of the current account plus the valuation/devaluation effects related to the exchange rate and the price of the assets. Thus, the Asian economies showed a significant reduction of their NFL from the 2000s, which even became negative in China and Korea. In the case of the Latin American average and its individual representatives, in addition to the larger NFL vis-à-vis Asia, the joint analysis of Figs. 7a and 7b points to a lower correlation between current account balances and the evolution of the NFL, indicating a greater relevance of the valuation/devaluation effects in its determination.

Given that the Latin American economies have, on average, a greater external imbalance in both flow and stocks, balance sheet adjustments tend to reflect the periodic need for recessive adjustments of domestic economic activity and changes in international creditor confidence, which are manifested, on the one hand, in higher interest rates (turned necessary to encourage the international financial inflows as well as to guarantee the permanence of these capitals) and, on the other hand, in periods of continuous exchange appreciation. The negative implications of periods of exchange rate appreciation include the overheating of the economy and the formation of bubbles in the credit and asset markets, large currency mismatches and maturities in the private sector balance sheets, allocative distortions between sectors and deterioration in the competitiveness of exports and the balance of current transactions, which are usually accompanied by an acceleration of GDP growth and then by a crisis, disruption of external financing, capital flight, and a deep depreciation of the currency and a significant fall in output.

The behavior of the exchange rate confirmed this prediction. Fig. 8 compares the behavior of exchange rates and interest rates between Latin America and Asia. As expected, there is a high real interest rate differential, and a more appreciated real exchange rate (right axis) in Latin America compared to Asia throughout the period. Thus, considering the level of these key prices for regional averages, the macroeconomic environment in the period 1990–2016

⁹ Between 1967 and 1990, Brazil added export subsidies for manufactured that neutralized the Dutch disease in relation to the foreign market. In 25 years, exports of manufactured goods in the country's total exports increased from 6 to 62%.

¹⁰ The part of the Dutch disease is not clear because the Dutch disease does not really appreciate the national currency. What it does is to distinguish the exchange rate that balances the current account and is satisfying for the exports of commodities ("the current equilibrium") from the "industrial equilibrium" – the exchange rate that companies producing manufactured goods that use the best technology in the world require to be competitive.

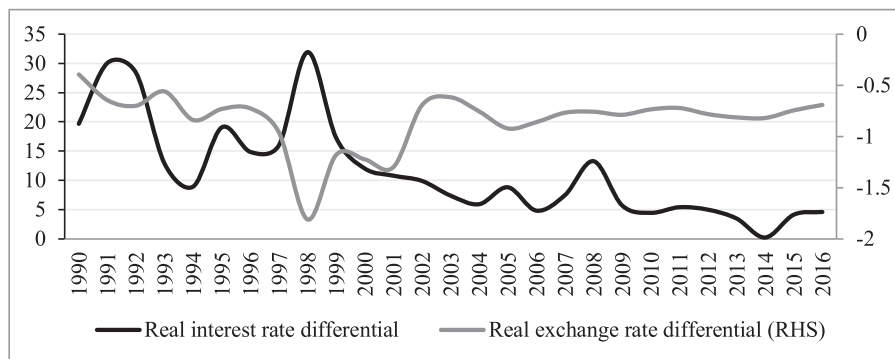


Fig. 8. Difference between the exchange and the interest rates in Latin America and Asia (1990–2016).

Source: Source: Author's elaboration based on [International Financial Statistics and World Development Indicators \(2018\)](#). Notes: The differentials are simply the subtraction of the rates in Latin America by the Asian rates. Latin America: Argentina, Brazil, Chile, Colombia, Ecuador, Mexico and Peru. Asia: China, India, Indonesia, Korea, Malaysia, Thailand and the Philippines.

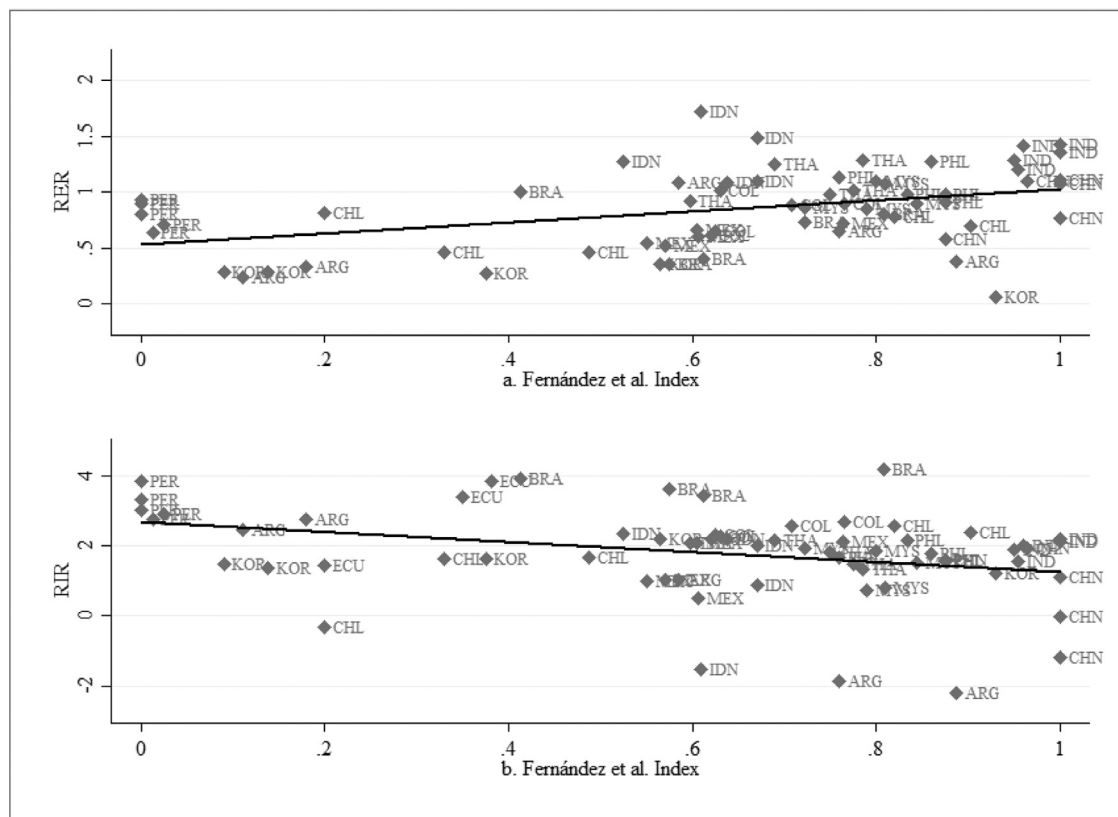


Fig. 9. Financial openness, (a) real exchange and (b) interest rates (1992–2016, five-year average).

Source: Source: Authors' elaboration based on [Fernández et al., \(2015\)](#), [International Financial Statistics and World Development Indicators \(2018\)](#). Notes: Logarithmic scale data. Countries: Argentina, Brazil, Chile, Colombia, Ecuador, Mexico, Peru, China, India, Indonesia, Korea, Malaysia, Thailand and the Philippines.

seemed to be more favorable towards gross physical capital formation and exports in Asia than in Latin America.

[Fig. 9](#) shows the correlation between the financial openness ratio and real exchange and interest rates for 1992–2016⁸.

Graph 9a points to a positive association between greater restrictions on free capital mobility and more depreciated exchange rates. In turn, chart *b* suggests that greater financial flows regulations are associated to lower real interest rates. In the Appendix, [Fig. A1](#), the same relationships are observed with respect to the *de facto* measure of financial integration (IFI-FT).

[Fig. 10](#) shows the relationship between real exchange rates and interest rates and the share of the manufacturing sector in the product, as well as real per capita GDP growth. The graphs demon-

strate associations in line with our general hypothesis. Graph *a* illustrates a positive relationship between the exchange rate and the share of the manufacturing sector in the product, while graph *b* shows a negative relationship between the share of the manufacturing sector and the real interest rate. Also, as expected, the graphs *c* and *d* suggest a non-linear U-shaped relationship between exchange rates, interest rates, and economic growth.

Returning to the issue of external imbalances and the financing of growth with external savings, as shown in Chart *a* of [Fig. 11](#), between the Asian and Latin American economies, those that are more financially open had a larger deficit in current transactions between 1992 and 2016, which were associated with more appreciated exchange rates and slower growth rates of real GDP per

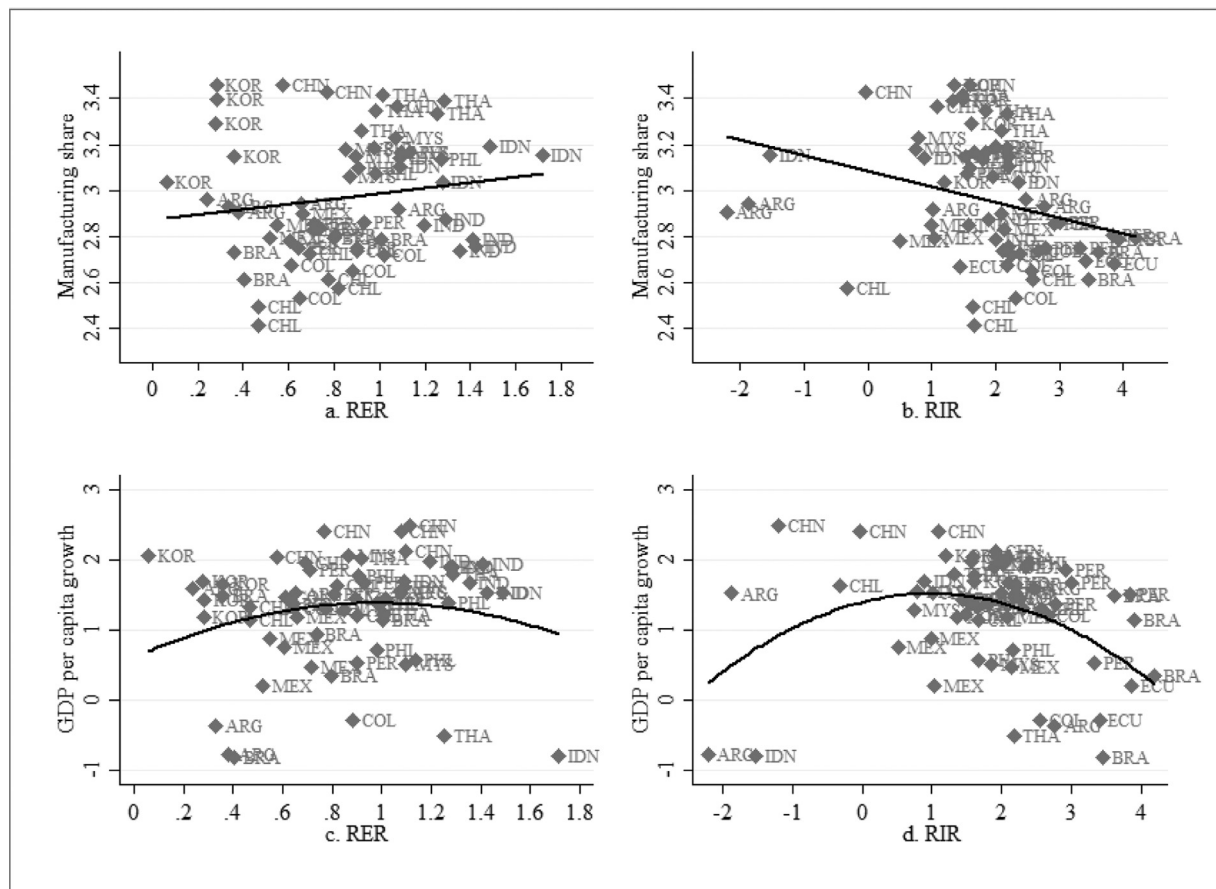


Fig. 10. Exchange and interest rates, real GDP per capita growth and manufacturing (1992–2016, five-year average).

Source: Source: Authors' elaboration based on United Nations Statistics Division, [International Financial Statistics](#) and [World Development Indicators](#) (2018). Notes: Logarithmic scale data. Countries: Argentina, Brazil, Chile, Colombia, Ecuador, Mexico, Peru, China, India, Indonesia, Korea, Malaysia, Thailand and the Philippines.

capita during the period (Chart b). This result can be interpreted as reflecting the greater dependence on financing that accompanies these imbalances and, therefore, greater vulnerability to external shocks from the international financial system. Fig. A1, in the Appendix, reinforces these arguments based on the association between *de facto* financial integration, economic growth, investment rate, and the current account. Fig. A2 also shows that higher net foreign liabilities are associated with lower per capita GDP growth rates in the long run.

Another fundamental element in this relationship is the vulnerability of trade revenues for those economies where exports are too concentrated in primary commodities and are natural-resource intensive, which suffer from lower income elasticity of demand and higher price volatility vis-à-vis more sophisticated manufacturing goods. As we have already seen in Fig. 6, export patterns concentrated in primary commodities are associated with lower GDP growth per capita in the long run. Taking this into account, from the relationship between external shocks and economic growth in Latin America and Asia between 1990 and 2016, Fig. 12 highlights the importance of the balance of the external account for the sustainability of growth. It is clear that the association between external shocks and reductions in per capita GDP growth is significantly higher in Latin America than in Asia, and that growth is more volatile in the former region than it is in the latter. This higher volatility can be worrisome. The correlation coefficients in Table A1 show that more volatile economies have diminished growth in the long run.

The recovery and improvement of a country's productive structure, which is essential to growth, depends on the process of overcoming external imbalances and the high instability that goes

along with it. This allows for a greater diversification of exports towards more sophisticated goods, with greater income elasticity demand and lower price volatility. Fig. A2 also shows robust negative associations between the share of the manufacturing sector and the complexity of exports with respect to the current account deficit and net foreign liabilities in the period 1992–2016.

Therefore, the evidence contained in this section can be summarized as follows. Over the period analyzed, in relation to Asian economies, Latin American countries presented, on average:

- (i) The most appreciated exchange rates and higher interest rates; thus,
- (ii) Greater imbalances in external accounts and greater vulnerability of economic growth to external shocks; and, so
- (iii) Unlike the Asian ones, a tendency to deindustrialize or to reduce the participation of the manufacturing sector in the total added value,
- (iv) In addition, the consolidation and even expansion of dependence on exports of primary commodities in Latin America.

The behavior of these variables shows a strong relationship to the indicators of commercial and financial liberalization, creating a feedback loop. That is, the greater financial openness seems to have engendered a framework in which capital movements act on the behavior of interest and exchange rates in ways that reinforce the difficulties that were already present historically in the Latin American economies regarding the balance of external accounts and the high dependence of economic growth on international liquidity cycles and commodity prices. This dependency is manifested in the maintenance of high interest rates and long cycles of exchange appreciation and abrupt depreciations that are incompati-

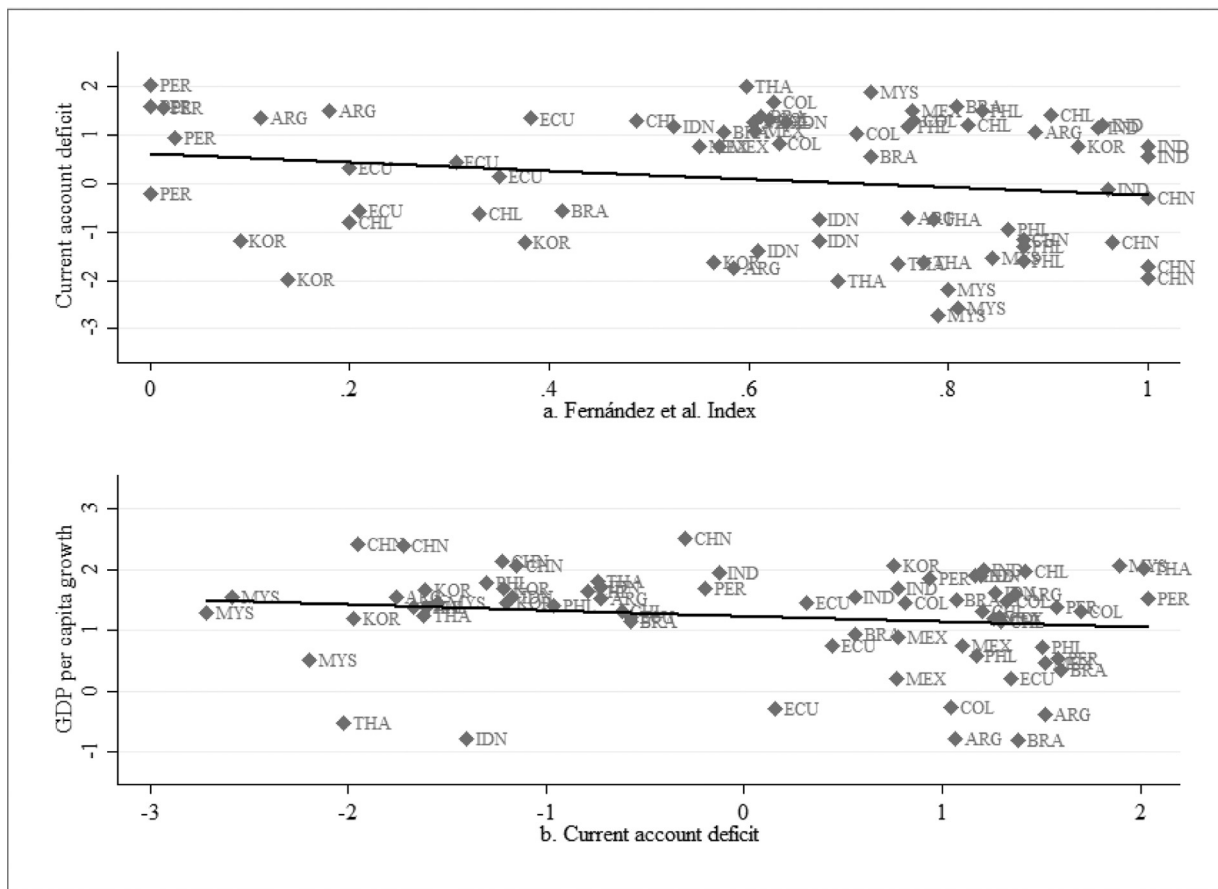


Fig. 11. Financial openness, current account deficit and real GDP per capita growth (1992–2016, five-year average).

Source: Source: Authors' elaboration based on Fernández et al., (2015) and World Development Indicators (2018). Notes: Logarithmic scale data. Countries: Argentina, Brazil, Chile, Colombia, Ecuador, Mexico, Peru, China, India, Indonesia, Korea, Malaysia, Thailand and the Philippines.

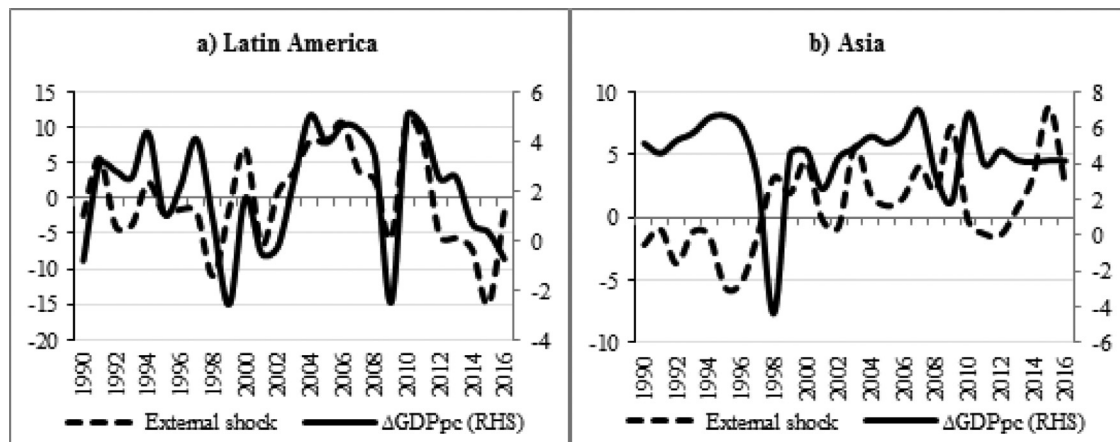


Fig. 12. External shocks and growth of real GDP per capita (1990–2016).

Source: Source: Authors' elaboration based on International Financial Statistics, World Development Indicators and UNCTADstat (2018). Notes: External shock is the sum of the percentage change in the terms of trade and net financial flows (in proportion to GDP). Latin America: Argentina, Brazil, Chile, Colombia, Ecuador, Mexico and Peru. Asia: China, India, Indonesia, Korea, Malaysia, Thailand and the Philippines.

ble with the adoption of investments in the productive sector, particularly complex tradable goods. This, in turn, reinforces the external constraints on the long-term growth of these economies.

6. An empirical study on the determinants of economic growth and deindustrialization

The data analyzed thus far already contribute to at least partial acceptance of this study's central hypothesis that the low growth of Latin America observed in recent decades is especially

attributable to the liberalizing reforms of the late 1980s and early 1990s, the implementation of which produced great competitive disadvantages for the manufacturing industries of these countries, with important ramifications for domestic production and foreign trade. However, due to the limitations of this type of analysis, a more formal test is needed that identifies causal effects rather than merely correlations between the examined variables, considering all correlations and cross-effects and controlling for other potentially relevant factors.

With this objective, a dynamic panel data model was considered using the generalized method of moments (GMM) proposed by Arellano and Bond (1991), which is appropriate in cases involving a) a linear functional relationship; b) a lagged dependent variable, which means a dependent variable influenced by prior values; c) potentially endogenous explanatory variables; d) individual fixed effects; e) heteroscedasticity and autocorrelation within groups of individuals; and f) the possibility of "internal" instruments based on their own lagged variables.

The choice of the right-hand side variables in the basic model of the manufacturing sector and the growth equation is based on both the argument developed throughout this paper as the theoretical and empirical literature on the topics. From the perspective of the manufacturing sector, it could be highlighted elements as the natural process of economic growth and development (Rowthorn and Ramaswamy, 1999; Rodrik, 2016), as well as the behavior of variables linked to policies and macroeconomic stability, such as interest rates and exchange rates, which may contribute to the performance of the manufacturing sector, especially in developing countries, being their effects exacerbated by the degree of financial and trade openness of the economies (Palma, 2005, 2008, 2010; UNCTAD, 2016).

Likewise, the basic empirical growth model combines a set of variables identified in the literature as robust determinants of economic growth, such as human capital and inflation in the neoclassical approach (Barro, 1998; Barro and Sala-i-Martin, 2004), and other determinants more aligned to our arguments, as the size of the manufacturing sector (Szirmai, 2012; Szirmai and Verspagen, 2015; Rodrik, 2009), and the interest rate and real exchange rate behavior (Easterly, 2001; Razmi et al., 2012; Rodrik, 2008).¹¹

That said, the relationship between liberalizing reforms and the performance of the manufacturing sector and GDP per capita is analyzed using the following regression models:

$$vaman_{i,t} = vaman_{i,t-1} + gdppc_{i,t} + infla_{i,t} + hc_{i,t} + rer_{i,t} + rir_{i,t} + z_{i,t} + \mu_{i,t} \quad (1)$$

$$gdppc_{i,t} = gdppc_{i,t-1} + vaman_{i,t} + infla_{i,t} + hc_{i,t} + rer_{i,t} + rir_{i,t} + z_{i,t} + \mu_{i,t} \quad (2)$$

where *vaman* is value added of the manufacturing sector in proportion to total value added, *gdppc* is GDP growth per capita, *infla* is the inflation rate, *hc* is an index of human capital, *rer* is the real exchange rate, *rir* is the real interest rate and *z* represents a set of indicators to assess the impacts of deregulatory reforms, which are added one by one to the basic regression equation. The term μ incorporates the specific fixed effects not observed for each country and an error term.

The representative variables for the liberalizing reforms are *IFI-FT*, *IFI-SGDP*, *KAOPEN* and *kaFernandez*. The first two variables reflect the degree of integration or *de facto* financial liberalization of the sample countries, and the last two variables reflect the degree of *de jure* financial liberalization. An increase in *KAOPEN* implies greater financial liberalization, whereas an increase in *kaFernandez* indicates an increase in legal restrictions on the free mobility of capital. The impacts of trade reforms are approximated by *tman*, the average tariff on imports of manufactured goods, and *open*, the traditional proxy for the trade openness, given by the sum of exports and imports in proportion to GDP. A detailed description of the series is shown in Table A2 in the Appendix.

Tables 3 and 4 summarize how liberalization reforms relate to the performance of the manufacturing sector and per capita GDP.

All variables are in order so that the coefficients can be interpreted as elasticities.

With respect to the effects of trade liberalization on value added of manufacturing (Table 3), it can be observed that on average, the variable of tariffs on manufactured imports was positive and significant for explaining value added of the industry, and the variable used as a proxy for the degree of trade liberalization was not statistically significant. These results reinforce the argument advocated in the previous sections that the abrupt reduction in the mechanisms that protect industry in Latin America was one of the factors that led to worse performance of this sector in the region, especially in comparison to Asian nations where the process of trade liberalization occurred more slowly.

Regarding financial openness, the variable *IFI-FT* was negative and significant, indicating that the degree of integration negatively affected value added of manufacturing. Additionally, the variable *KAOPEN* had a negative sign and was statistically significant; since this variable represents the degree of *de jure* financial liberalization, greater financial liberalization led to reduction in the value added of the industry. These results support the arguments advocated in the prior sections, which showed both in theoretical terms and based on the presentation of data that Latin America's more intense openness to foreign capital increased the levels of interest rates and appreciated exchange rates and brought great losses to the industrial sector and the performance of the region. The opposite results were observed for Asian economies that remained more closed and protected in relation to external capital flows.

In all of the estimated models, the exchange rate was positive and significant in terms of its effects on industry value added. However, significant results were not obtained for the real interest rate, which can be explained by the fact that not all countries had data for this variable in all analyzed years.

Regarding the other variables included in the model, as expected, human capital and GDP growth were positive and significant for explaining the performance of the industrial sector, whereas inflation had a significant negative relationship with industry value added. It is noteworthy that all models were robust and that Sargan's test, which is used to identify whether the constraints of a model are valid, confirmed the validity of the instruments used in the models.

Because the focus of this article is to investigate and discuss other determinants of the average income trap, in addition to estimating the models from Table 3 with value added of the industry as a dependent variable, the models of Table 4, which have growth per capita as a dependent variable, were also presented.

The results of the models presented in Table 4 also confirm the article's central thesis that the aforementioned liberalizing, trade and financial reforms were detrimental to economic growth and are the explanatory factors of the worse performance of Latin American economies compared with Asian economies. In the estimated models, indicators of greater trade and financial liberalization negatively affected economic growth during the examined period. Moreover, higher interest rates also hindered economic growth during this period, whereas higher exchange rates and greater participation of the industry in value added to the economy contributed positively to stimulating economic growth in the analyzed countries.

Thus, we have offered an explanation why Latin American economies are among those that stopped growing in the 1980s, while certain East Asian economies have continued to grow. In adopting the liberal reforms the Latin American countries dismantled the mechanisms that neutralized the Dutch disease; in incurring in current account deficits and searching to finance them with capital inflows, they harmed twice the private investment rate: by increasing the interest rate to attract the foreign capitals, and by appreciating the national currency and making the manufacturing

¹¹ Real Exchange rate is the average nominal rate adjusted by purchasing power parity, and the real interest rate is the average nominal lending rate adjusted by GDP deflator.

Table 3

Liberalizing reforms and the performance of the manufacturing sector.

VARIABLES	(1) logvaman	(2) logvaman	(3) logvaman	(4) logvaman	(5) logvaman	(6) logvaman	(7) logvaman
L.logvaman	0.894*** (0.027)	0.796*** (0.040)	0.876*** (0.030)	0.894*** (0.027)	0.911*** (0.027)	0.921*** (0.029)	0.836*** (0.041)
gdppcgrowth	0.004*** (0.000)	0.006*** (0.001)	0.004*** (0.001)	0.004*** (0.001)	0.004*** (0.000)	0.004*** (0.000)	0.004*** (0.001)
L.loginflation	-0.003 (0.002)	-0.005* (0.003)	-0.003 (0.002)	-0.003 (0.002)	-0.003 (0.002)	-0.004* (0.002)	-0.007*** (0.003)
loghc	0.091** (0.038)	-0.071 (0.066)	0.072** (0.035)	0.084** (0.038)	0.055 (0.034)	0.102** (0.045)	0.057 (0.054)
L2.logrir	-0.001 (0.003)	-0.000 (0.003)	-0.002 (0.003)	-0.001 (0.003)	-0.002 (0.003)	-0.001 (0.003)	-0.002 (0.003)
L.logrer	0.064*** (0.012)	0.057*** (0.015)	0.057*** (0.011)	0.061*** (0.012)	0.056*** (0.011)	0.059*** (0.011)	0.071*** (0.014)
L2D.logtman		0.012** (0.006)					
L.logkaopen			-0.011** (0.005)				
D.logifi- sgdp				-0.012 (0.013)			
L2D.logifi- ft					-0.006* (0.003)		
L3.logopenc						-0.017 (0.012)	
logkafernandez							-0.000 (0.007)
Constant	0.170** (0.073)	0.612*** (0.145)	0.241*** (0.077)	0.178** (0.073)	0.162** (0.071)	0.158** (0.072)	0.378*** (0.135)
Observations	245	119	221	245	238	238	153
Number of countries	13	13	13	13	13	13	13
Estat Sargan	253.0584	126.0658	230.4475	254.3368	258.7718	253.9516	164.0312
prob	0.1871	0.1718	0.2097	0.1724	0.1312	0.1434	0.1461

Note: Standard errors in parentheses.

*** $p < 0.01$.** $p < 0.05$.* $p < 0.1$.**Table 4**

Relationship between liberalizing reforms and GDP per capita.

VARIABLES	(1) gdppc	(2) gdppc	(3) gdppc	(4) gdppc	(5) gdppc	(6) gdppc	(7) gdppc
L.gdppcgrowth	0.297*** (0.055)	0.134** (0.068)	0.281*** (0.059)	0.231*** (0.049)	0.275*** (0.054)	0.329*** (0.055)	0.264*** (0.075)
D.logvaman	48.290*** (5.693)	57.611*** (7.006)	50.499*** (6.044)	33.232*** (5.256)	47.009*** (5.586)	45.676*** (5.665)	63.278*** (7.449)
loginflation	-0.444** (0.215)	0.351 (0.273)	-0.392* (0.231)	-0.408** (0.196)	-0.378* (0.213)	-0.440** (0.222)	-0.834*** (0.299)
L.loghc	7.144 (38.793)	16.163*** (5.326)	1.369 (38.567)	-1.343 (2.863)	1.761 (2.909)	8.099 (5.129)	4.275 (5.882)
L.logrir	-0.739*** (0.267)	-0.416 (0.290)	-0.776*** (0.298)	-0.395 (0.249)	-0.724*** (0.267)	-0.740*** (0.274)	-0.731** (0.335)
L.logrer	2.506** (1.083)	2.859** (1.403)	2.532** (1.110)	0.886 (1.092)	2.348** (1.185)	4.143*** (1.346)	2.246 (1.687)
L2D.logtman		-0.301 (0.521)					
L2.logkaopen			0.438 (0.493)				
D.logifi- sgdp				-9.865*** (1.055)			
L2D.logifi- ft					-1.148*** (0.390)		
logopenc						-2.727** (1.374)	
logkafernandez							0.754 (0.919)
Constant	2.006* (1.160)	-13.850** (5.919)	2.421** (1.208)	4.741 (3.227)	3.737 (3.574)	4.578 (3.870)	-0.395 (6.462)
Observations	259	133	230	266	259	266	165
Number of countries	13	13	13	13	13	13	13

Note: Standard errors in parentheses.

*** $p < 0.01$.** $p < 0.05$.* $p < 0.1$.

companies non-competitive. The consequence was a severe process of deindustrialization and a significant reduction in the economic growth rates of these economies.

7. Final considerations

This article highlighted the difference in the growth trajectories of the Asian and Latin American economies, emphasizing the importance of the processes of integration or financial and commercial liberalization, as well as their relationships with the key macroeconomic prices and the productive-commercial structure in this process.

With regard to trade liberalization, the evidence indicated that the Latin American countries have achieved a liberalization that is apparently similar to that of the Asian countries; in 2016 the average import tariff was 7.57% in Latin America and 6.37% in Asia. In fact, the gap was much wider in Latin America because, with the dismantling of the mechanism that neutralized the Dutch disease, the cost of importers of industrial goods fell in proportion to the severity of the Dutch disease, and therefore the loss of competitiveness was greater than that expressed through the reduction of tariffs. This severity varies according to the price of commodities, but assuming that in 2016 it was 15%, the Latin American tariff that would be the equivalent to Asia's would not be 6.37% (from above) but 21.37%. On the other hand, although there was a higher tariff protection for the average Asian economy vis-à-vis Latin American country until the 2000s, trade liberalization did not affect its export capacity for manufactured goods, which increased significantly, while exports of manufactured goods from Latin America declined in so far that to neutralize the Dutch disease in relation to the foreign markets there was an export subsidy which was fully eliminated with the trade liberalization, and once again the Latin American countries became commodity exporters. The fact that in a country like Brazil the trade openness ratio is small means that the effect of stopping neutralizing the Dutch disease on its economy was smaller than in a country with higher trade ratio but has a powerful effect in causing deindustrialization.

As for financial liberalization, evidence has shown that Latin American economies have rapidly reduced capital controls since

1990, becoming more financially open at the end of the decade than the Asian average. In addition, with regard to the Asian economies, the movement towards intensifying Latin American integration into international markets occurred predominantly through financial channels, with the intensification of capital flows, rather than through the real economy, with trade flows.

This configuration implied for Latin America the maintenance of interest rates and exchange rates at higher and appreciated levels, respectively, which put the manufacturing industry at a great competitive disadvantage. This reinforced the external constraints imposed on long-term economic growth, which tends to be overly sensitive to global financial cycles and commodity prices.

That said, the main conclusion of this study is that, in the 1990–2016 period, the Latin American countries didn't fall into a middle-income but a liberalization trap. While the East Asian countries already exported manufactured goods and were relatively open, the Latin American countries adopted trade liberalization that dismantled the pragmatic mechanisms that neutralized the Dutch disease which were imbedded in they trade system, and financial liberalization that limited their ability to control the capital flows while facilitating the increase in the interest rates. In a context of strong competition between nation-states, the maintenance of a more favorable environment for productive investment requires overcoming the interest rate-exchange rate trap; it requires the rejection of growth using foreign savings and the policy of using the exchange rate to control inflation; it requires also that the current and the fiscal accounts are kept balanced, the latter being expansive only countercyclically. In other words, it involves offering to the companies in the country (national or multinational companies) equal conditions of competition in relation to companies abroad.^{12,13,14}

Supplementary materials

Supplementary material associated with this article can be found, in the online version, at doi:[10.1016/j.strueco.2019.11.007](https://doi.org/10.1016/j.strueco.2019.11.007).

Appendix

[Figs. A1–A2, Table A1–A2.](#)

¹² A comprehensive analysis for potential control variables for economic growth literature can be found in [Bhalla \(2012\)](#) and [Easterly \(2001\)](#).

¹³ There is an English (2014) version of this book (*Developmental Macroeconomics*, from Routledge), but as new developmentalism is a work in progress, the 2016 Portuguese version reflects this progress.

¹⁴ ECI is the Economic Complexity Index developed by [Hausmann and Hidalgo et al. \(2011\)](#), where complexity is measured by the concepts of diversification (complexity of the country) and ubiquity (product complexity). Basically, diversification refers to the number of products a country exports with revealed comparative advantage, and ubiquity refers to the number of countries exporting products with a revealed comparative advantage.

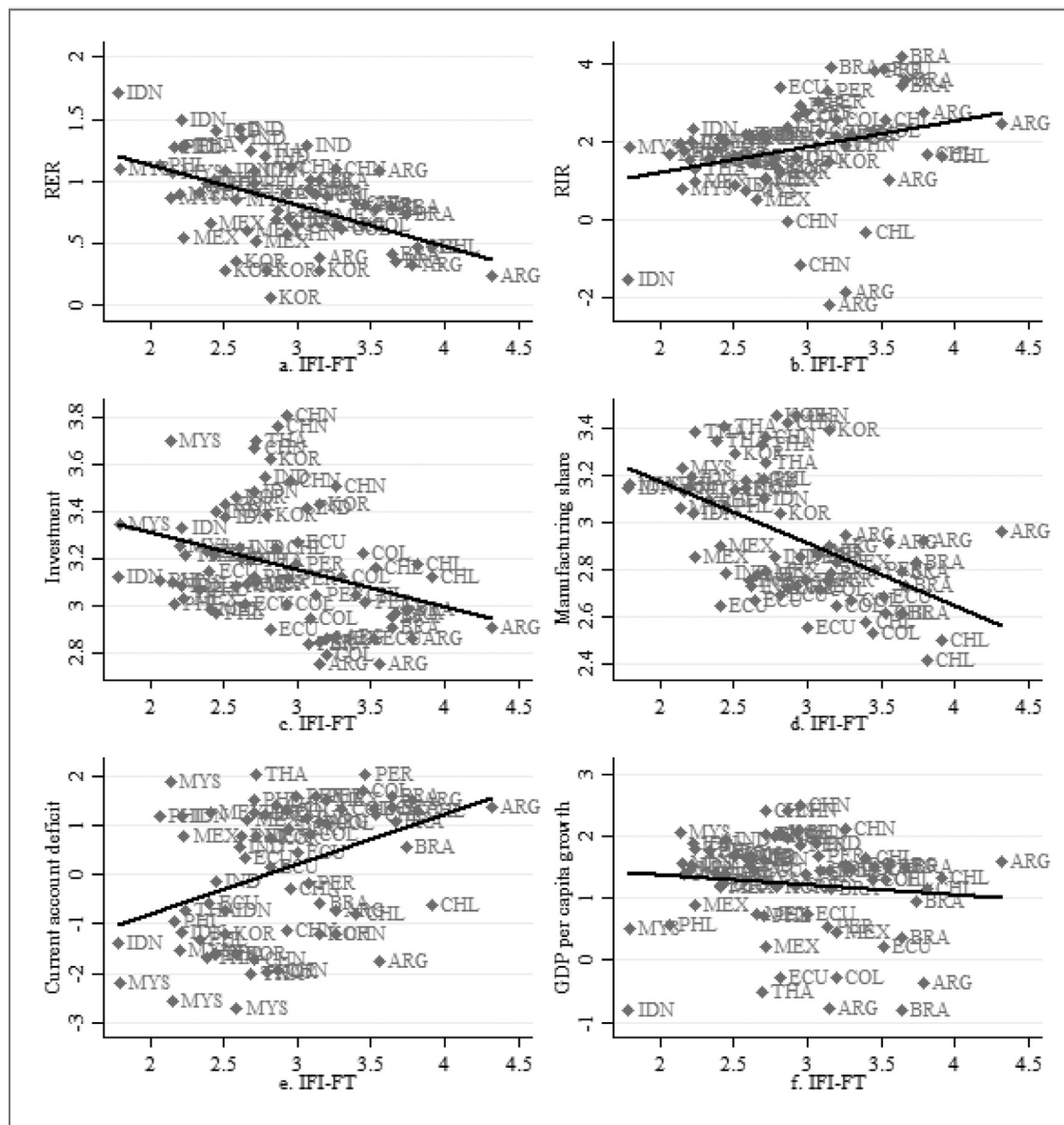


Fig. A1. International financial integration and macroeconomic variables (1992–2016, five-year average).

Source: Source: Authors' elaboration based on United Nations Statistics Division, [International Financial Statistics and World Development Indicators \(2018\)](#). Notes: Logarithmic scale data. Investment is the Gross Fixed Capital Formation as% of GDP. Countries: Argentina, Brazil, Chile, Colombia, Ecuador, Mexico, Peru, China, India, Indonesia, Korea, Malaysia, Thailand and the Philippines.

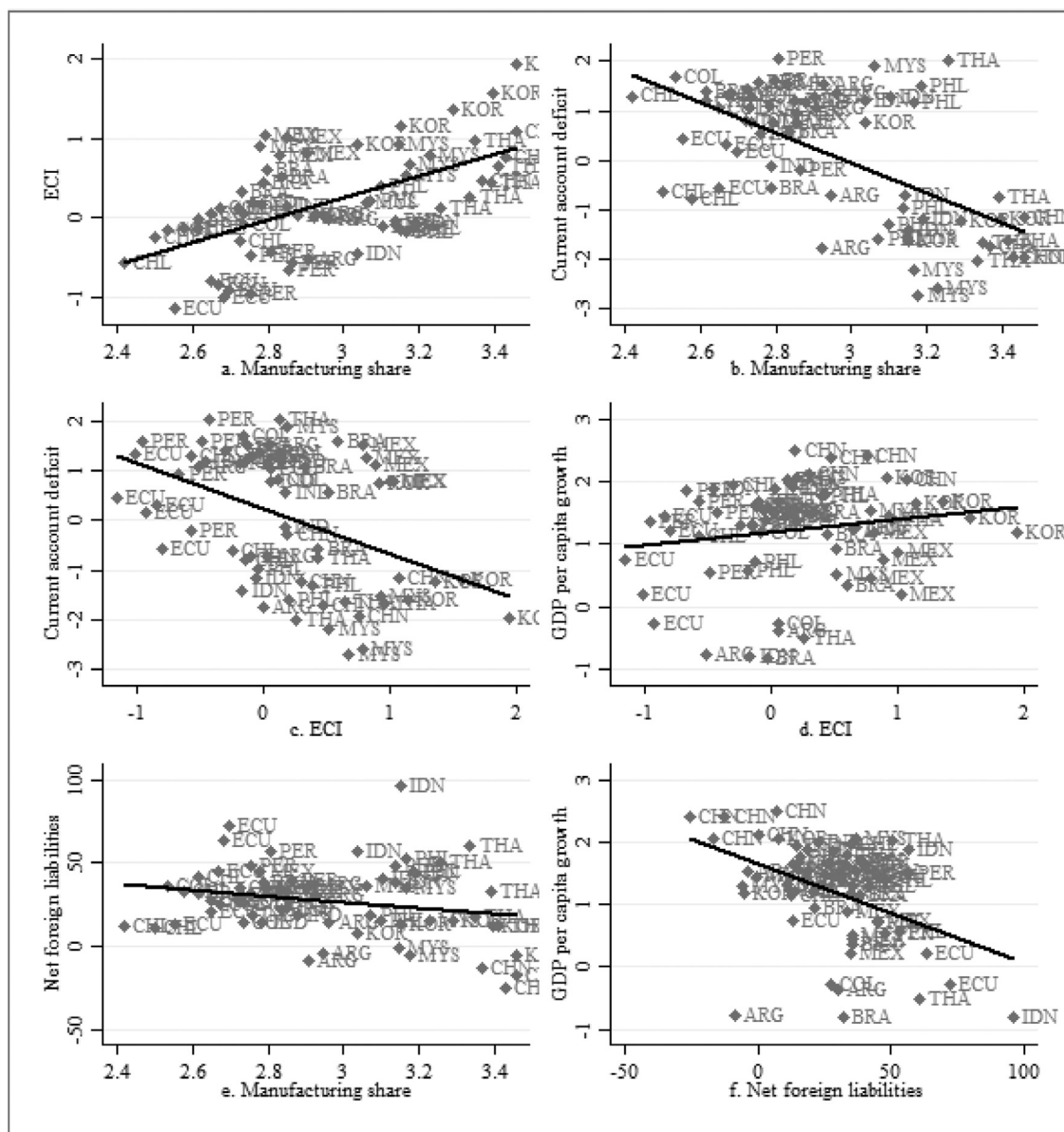


Fig. A2. Manufacturing, exports complexity, external balance and real GDP per capita growth (1992–2016, five-year average).

Source: Source: Authors' elaboration based on United Nations Statistics Division, World Development Indicators, [International Financial Statistics](#) (2018), [Hausmann et al. \(2011\)](#) and Lane and Milesi-Ferretti (2011). Notes: Logarithmic scale data except for net foreign liabilities. Countries: Argentina, Brazil, Chile, Colombia, Ecuador, Mexico, Peru, China, India, Indonesia, Korea, Malaysia, Thailand and the Philippines.

Table A1

Matrix of correlation coefficients between selected variables (1992–2016, five-year average).

Variables	Δ GDPpc	IFI-FT	Fernández et al. Index	Manufacturing share	ECI	Primary Comm. Exp.	Current account deficit	Net foreign liabilities	Investment	RIR (ln)	RER (ln)	Trade ratios	Investment volatility	Δ GDPpc volatility
Δ GDPpc	1													
IFI-FT	-0.16	1												
Fernández et al. Index	0.31 ¹	-0.33 ¹	1											
Manufacturing share	0.33 ¹	-0.44 ¹	0.24 ²	1										
ECI	0.15	-0.21 ³	0.29 ²	0.59 ¹	1									
Prim. Comm. Exp.	-0.29 ²	0.48 ¹	-0.54 ¹	-0.73 ¹	-0.80 ¹	1								
Current account deficit	-0.10	0.34 ¹	-0.22 ³	-0.56 ¹	-0.42 ¹	0.41 ¹	1							
Net foreign liabilities	-0.46 ¹	-0.09	-0.30 ²	-0.27 ²	-0.42 ¹	0.29 ²	0.37 ¹	1						
Investment	0.72 ¹	-0.32 ¹	0.33 ¹	0.53 ¹	0.33 ¹	-0.49 ¹	-0.11	-0.38 ¹	1					
RIR (ln)	-0.19	0.27 ²	-0.33 ¹	-0.30 ²	-0.20 ³	0.29 ²	0.38 ¹	0.34 ¹	-0.19	1				
RER (ln)	0.13	-0.49 ¹	0.41 ¹	0.13	-0.30 ²	-0.10	-0.18	0.38 ¹	0.04	-0.07	1			
Trade ratios	-0.001	-0.48 ¹	0.14	0.54 ¹	0.32 ¹	-0.39 ¹	-0.60 ¹	-0.04	0.21 ³	-0.21 ³	0.17	1		
Investment volatility	-0.09	-0.11	0.13	0.08	-0.09	-0.02	-0.16	0.20 ³	0.07	-0.04	0.34 ¹	0.23 ³	1	
Δ GDPpc volatility	-0.39 ¹	0.22 ³	-0.15	-0.08	-0.06	0.14	-0.18	0.21 ³	-0.34 ¹	-0.14	-0.04	0.01	0.48 ¹	1

Source: Authors' elaboration based on the research data. Note: ^{1,2,3}; Significant at 1%, 5% and 10%, respectively.**Table A.2**

Description of variables used in estimations.

Variables	Description	Source
vaman	Value added of manufacturing sector (ISIC D), as% of total value added.	UNSD (2018)
gdppc	Real GDP per capita growth rate. GDP per capita is PPP, constant 2011 international \$.	WDI (2018)
hc	Human Capital Index based on years of schooling and returns to education.	PWT 9.0
open	Trade ratio: sum of value of exports and imports of goods and services as% of GDP.	WDI (2018)
tman	Tariff protection on manufactured goods, applied, simple mean (%).	WITS (2018)
IFI-FT	Sum of total inflows and outflows of capital as% of trade.	IFS (2018)
IFI-SGDP	Sum of total stock of external assets and liabilities as% of GDP.	Lane and Milesi-Ferretti (2011) dataset; IFS (2018)
KAOPEN	Chinn-Ito Index. Report the existence or absence of legal restrictions on capital flows and enforcement intensity. Higher values indicate higher level of financial liberalization.	Chinn-Ito (2006) dataset
kaFernandez	Fernández et al., (2015) Capital Control Index. Higher values indicate lower level of financial liberalization.	Fernández et al., (2015) dataset
infla	Annual change in GDP deflator.	WDI (2018)
rer	Annual average nominal exchange rate, adjusted by PPP. An increase corresponds to a real depreciation of the domestic currency against the \$.	IFS-WEO (2018)
rir	Annual average interest rate charged by commercial banks on short and medium term loans in local currency, adjusted by GDP deflator.	IFS and WDI (2018)

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