

De-industrialization and Industrial Policy Options for Mexico and Latin America, 1990–2017

Benjamin G. Páez¹

Abstract

The growth of the major Latin-American economies in the first decade of the 21st century was remarkable. They experienced an economy-wide convergence with the US, which was boosted by cheap banking credit and the raw material super-cycle. However, this growth slowed considerably when the commodity boom ended in parallel with both a sluggish global demand due to the 2008-2009 recession and the slowing economy of China. Hence, outperforming Latin-American countries were left in shock, asking themselves what went wrong with the economic programs purported to avoid both the traps predicted by the resource curse hypothesis and previous Economic policy failures. So, this paper showed that Latin America is now facing a de-industrialization process and that the surge in the primary products index in the 2003–2013 period did not benefit their societies as much as expected. In response to the missed opportunities that have recurred in Latin-American's economic history, this article first aims to evaluate de-industrialization as its leitmotif. Second, it explores the relevant literature to show that an unexpected windfall of wealth may become a resource curse and how economic policies may lead to deepening de-industrialization. Third, it identifies de-industrialization sources in Latin America, which has led it into a service economy. Fourth, results obtained are discussed. Some concluding remarks and economic policy options are delivered in section fifth.

Keywords: de-industrialization, natural resource curse, Dutch-Disease, staple tramp model, Re-industrialisation, competitive industrial policy

1. Introduction

During the 2003–2013 period, Latin America seemed to be experiencing an unprecedented economic boom. Moreover, boosted by the super cycle commodity price boom and the abundant inflow of foreign capital, the region was able to withstand the 2008–2009 financial crisis and its aftermath. While Europe and the US were mired in economic stagnation, Latin America enjoyed a strong recovery through enhancing its financial and trading relationships with emerging economies, particularly Brazil, Russia, India, China, and South Africa (the BRICS group), which since the late 1990s had been insatiable consumers of raw materials to support their huge economic programmes and feed their large-populations.²

Even when some Latin American countries adjusted their economic policies during the 2003–2013 period, they maintained the emphasis that had prevailed since 1980s, the main feature of which was the adoption of trade

¹ National University of Mexico, Facultad de Economía, Primer Circuito Escolar, Ciudad Universitaria UNAM, 04310 Coyoacán, CDMX, México, E-mail address: garpaez@unam.mx. This work would not have been possible without the support granted by the programme PASPA-DGAPA, UNAM, throughout my 2013-2014 sabbatical year expended in the Centre of Development Studies of Cambridge University under the mentorship of Professor Ajit Singh (RIP) whose seminal works on de-industrialization allow me to grasp the main points of the underlying ideas in this paper.

² For instance, the impressive growth of Chinese trade was matched by a rise in demand for commodities which soaked up huge amounts of energy and raw materials such as iron, ore, copper and lead. So, price surge generated a great benefit for many commodity-producer countries in Latin America and elsewhere, thus contributing to a broad-based boom.

liberalisation as a part of the structural reforms set in motion mainly by the International Monetary Fund (IMF) and the World Bank (WB).

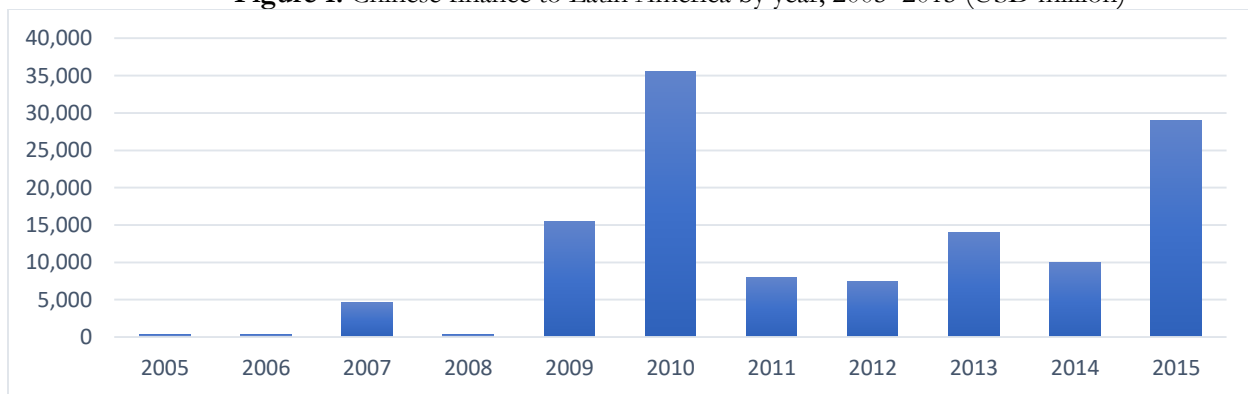
This process caused a historic decline in trade barriers, which, before the falling global transportation costs and the dramatic entrance of emerging economies into the world trading system notably China³, galvanised them to integrate into a much deeper division of international labour, which sent different links to several production chains across the globe. At the beginning of the 21st century, Chinese economy was expanding at a very rapid rate. Much of this success stemmed from the rapid expansion in exports. According to the World Trade Organisation (WTO), in 2011, the destination of its exports to Central and South America reached US\$94 billion⁴. The pattern of exports and imports in trade between China and Latin America was vastly different. For instance, more fuel and mining products were imported than exported, but the reverse was true for textiles and clothing. Furthermore, product categories, such as machinery and transport equipment, accounted for 52% of exports and 38% imports. The overall pattern of exports and imports indicates the comparative advantages of trade between the two China and Latin America.

The arguments in favour of free trade stemmed from the old Ricardian observation that if countries specialise in the production of goods (or services) in which they have a comparative advantage, then it is possible for the overall economic welfare to be increased through engaging in international trade. The central argument is that countries face different patterns of potential specialisation. In other words, there are differing opportunity costs in production. Hence, if each country specialises in producing goods that provide a comparative advantage, the total production of goods can be increased.

In the mid-2000s, even though both views of comparative advantage had been questioned (Rodrik, 2005) and the practical inconsistency of this principle⁵ was revealed by precarious results on the export side, in addition to a mediocre macroeconomic performance, Latin America not only opted to continue the same trade policy but also deepened it to take advantage of the commodity price super cycle then underway, assuming that by doing business with the BRICS coalition, this time the results would be different.

Accordingly, some BRICS governments took two measures to secure the commercial linkages with Latin America. The first was to finance governments and companies. Since 2005, the China Development Bank and Exim-bank had provided upwards of US\$125 billion to finance Latin America and Caribbean (LAC) region until 2015, when Chinese banks began lending to the region (Figure 1). Moreover, the number of bilateral loans by China surpassed the loans to LAC by the WB and Inter-American Development Bank combined. China established US\$35 billion in region-wide funds for infrastructure and other projects during the 2014–2015 period.

Figure 1. Chinese finance to Latin America by year, 2005–2015 (USD million)



Source: Chinese Finance to LAC in 2015: Doubling Down

³ In the mid-1990s as much as 60% of the value of China came from imported parts. That has now fallen to about 35%.

⁴ Even when China's economic model had a diversion towards internal market, in 2016 interregional merchandise trade rose up to 512 US\$ billion, revealing the enduring trading ties forged between China and Latin America.

⁵ For instance, although China's export bundle is that of a country with an income-per-capita level three times higher, it managed to export advanced, high-productivity products that such a poor, labour abundant country is unable to produce, let alone export.

The second measure was to convince LAC countries that their resources could now be effectively managed.⁶ These factors led to a flow of investment in a new generation of huge projects, which the LAC hoped would spur their economic development. As a result, between 2002 and 2013, the LAC enjoyed rapid growth and social progress. Sixty million people in the region were raised from poverty, and the number of those who were living on less than US\$ 4 per day decreased steadily. The income grew by an annual average of 3.4% in the 2003–2014 period (Ros 2015). Hence, the gradual collapse of the industrialised economies meant fortuitous gains to the Latin-American countries as they focused on managing their internal crises.

However, recent data indicate that when the commodity super cycle waned in 2014 and the US Federal Reserve's policy of "easy money" was terminated, Latin America once again missed another historic opportunity to transform structurally and thus enhance and diversify permanent sources of income. Economic activity shrank, manufacturing value added as a percentage of the GDP fell from 20.5 to 12.4 in the 1990–2016 period (WB 2017), and currencies fell against the dollar, all of which failed to drive export growth in contrast to standard economic theory.⁷ However, asset prices and debt in many Latin-American countries remained at elevated levels following the previous decade of liquidity inflows.

The BRICS group was in turmoil. China became overly reliant on investments and exports, while failing to give sufficient support to consumer spending. Brazil became overly reliant on consumer spending at the expense of savings and investment. Russia became heavily reliant on oil, and in India, red tape and bureaucracy weighed heavily on investment and productivity. South Africa succumbed to the negative effects of de-industrialization on its overall economy, which included with substantial social costs (Imbs 2015). These drawbacks did not appear critical because supplies of capital were abundant. Indeed, the generous inflows of funds offset a multitude of negativity in debt-laden emerging markets. However, following the US Federal Reserve's cessation of its quantitative easing monetary programme in 2016, the growth in dollar liquidity slowed.⁸ Because the top Latin-American economies are large exporters of hydrocarbons, foodstuffs, metals, and minerals, they showed fragility before the general slide in their export revenues to the extent they could be trapped in the so-called Dutch- Disease syndrome, this is to say, the long-term developmental consequences of the primary export boom owing to its effects on real exchange rates and the competitiveness and profitability of the industrial sector.

Although several problems in Latin America are self-inflicted, they are also symptomatic of a broader malaise that afflicts almost all developing countries. Export-driven growth is breaking down and threatening to drag the world back toward recession. However, in the Latin American case, it is astonishing that in commodity booms have come and gone. However, the region is now laden with consumer debt after the prolonged credit binge, which is another reason that economic growth slowed.⁹

To reiterate, breakneck economic policies were responsible for the sudden collapse of Latin-American economies (Palma 2005). During times of economic growth, the region's complacent economic policymakers insisted that such growth was explained by structural reforms and sound macroeconomic policies. Nowadays, they do not acknowledge that they failed to rightly manage the windfall of wealth generated by the latest commodity price index reversal or that they were confused about which direction to take.¹⁰ Therefore, the aim of this study is to determine whether the resource curse was the result of governance failure vice versa.

⁶ However, as Stevens (2015) pointed out, those groups were wrong to say better governance would be enough to help countries escape the well-known paradox that nations with abundant natural resources often have sluggish economies compared with those of countries without such resources.

⁷ Based on an analysis of 107 emerging market economies in 2015, FMI found that a weaker currency did not lead to any rise in export volumes, but it did translate into a decline in import volumes of about 0.5% for every 1% that a currency fell against the dollar. A study of 46 countries by the World Bank found between that 2004 and 2012, currency depreciations were only half as effective at boosting exports as they had been between 1996 and 2003.

⁸ The FED's hesitation in deciding when to raise interest rates added to the ensuing turbulence.

⁹ According to Stevens (2015), "The extractive-led agenda was putting forward the view that now was the time to really go for producing as rapidly as possible to take advantage of higher prices. But if higher prices are no longer there that's a basic undermining of the argument."

¹⁰ However, it was the false exuberance of most booms, as many of those achievements were due to events elsewhere and not on management policies.

The purpose of this study is strictly to examine the ability of a sample of South-American countries to decouple trade exports with respect to their traditional trading partners and to build the appropriate foundations for structurally transforming their economies. The study is also aimed to evaluate the ways in which recent productive results of the stubborn development strategy driven by raw materials export departed away other disappointing economic policies experienced. The long-term effects of these strategies on the ability to obtain and sustain a higher rate of economic growth will also be examined. The specific objectives of the study are as follows: (a) to provide a valid economic meaning of the concept of de-industrialization; (b) to assess empirical relevance of de-industrialization; (c) and to predict its economic consequences, which may be deepened as the participation of the country in the international economy grew under free trade.

The overall hypothesis is that even though the BRICs counterweighed both the US and the EU as commercial partners after the 2008–2009 financial crisis, which allowed some Latin-American economies to reach a relatively high rate of growth in the 2000s, they were unable to sustain the rate of growth in the long run just because they did not implement the appropriate policies. Therefore, they again became hostage to the outside world, which is evidenced by their rising current-account deficits of balance of payments even though their *terms of trade* also improved during the study period,¹¹ revealing that raw material exports and elusive finance are always a risky foundation for the long-term benefit of any economy at any time.

This rest of this paper is organised as follows. The second section provides a review of the literature on resource abundance and growth and the relevance of the Dutch-Disease¹² and the resource curse¹³ theories to Latin American economies. The third section examines the sources of the diverse configuration of de-industrialization in the region to identify the reasons for the loss of employment. The fourth section discusses the reasons that primary exports seem to have been both a blessing and a curse for Latin America and sets forth the argument that the lack of appropriate institutions and policy mechanisms have deterred real output. The fifth section concludes the paper and recommends a set of policies for promoting growth, reducing rent-seeking activities, and preventing the excessive dependence of government finances on natural resource exports.

2. Theoretical Framework

2.1 The Resource Curse Hypothesis

Resources benefit economic growth because they directly enter the production function as well as increase the output per worker and the output per person:

$$(1) \quad Y = A(K^\alpha R^\beta L^{1-\alpha-\beta})$$

$$(2) \quad \frac{Y}{L} = A \left(\frac{K}{L}\right)^\alpha \left(\frac{R}{L}\right)^\beta \left(\frac{L}{L}\right)^{1-\alpha-\beta}$$

$$(3) \quad \frac{Y}{N} = \left(\frac{L}{N}\right) \left(\frac{Y}{L}\right) = \left(\frac{L}{N}\right) A \left(\frac{K}{L}\right)^\alpha \left(\frac{R}{L}\right)^\beta$$

Where $\frac{K}{L}$ = capital-labour ratio; $\frac{L}{N}$ = workforce effectively occupied; and $\frac{R}{L}$ = amount of natural resources per worker. In Equations (1), (2), and (3), if ratio R/L increases, then ratios Y/L and Y/N increase. The increase in resources was the major driving force of the economic expansion that occurred during the colonial era until the First World War. However, in most of the 20th century and the beginning of the present one, there is overwhelming evidence that resources may not be good for growth under specific conditions, which led to *resource curse hypothesis*. The resource curse hypothesis has been examined by several development macroeconomists.

¹¹ Liquidity flows from developed to developing economies, financing infrastructure, and corporate investment, allowing consumers to indulge in credit-fuelled retail dreams.

¹² Dutch-Disease syndrome describes economic effects arising after a country discovers and begins to export huge quantities of mineral or fuel wealth. The name comes from Netherland's experience after a gigantic natural gas deposit was discovered in the 1960s.

¹³ The resource curse hypothesis has to do with poor macroeconomic performance of natural-resource exporting economies, which leads also to de-industrialization.

For instance, according to Auty [2001]¹⁴ and Sachs and Warner [1995], countries that have natural resources do worse in macroeconomic performance. Some economists have used this perspective to support the Prebisch–Singer hypothesis and models based on the Dutch-Disease theory.

For example, Sachs and Warner (1995) claimed that resources increase price upturns and cause countries to “miss-out” on export-led growth. Thus, the resource curse is an empirical fact even when trends in commodity prices are considered. Torvik (2009) asked the following question: *Why do some resource-abundant countries succeed while others do not?* Do resource-abundant countries that are trying to industrialise find it particularly difficult in late industrialization? Chang (2009) raised the following question: Is the economy’s dependence on natural resources a cause or a symptom of poverty?

What leads to the resource curse? According to Gylfason (2000), the resource curse is the result of the crowding-out of entrepreneurs and innovation by the following: (i) high wages in the resource sector attract all talent and focus; (ii) natural resource rents are concentrated and easily captured; and (iii) resource abundance leads to rent-seeking behaviour, thus weakening innovation and inhibiting entrepreneurial activities, which are caused by poor governance. Thus, economic growth decreases. According to Auty (2001), the resource curse also reflects that the political system has been crowded out for the following reasons: (a) resources create easily captured rents; (b) politicians become involved in rent-seeking conduct; (c) the predatory state destroys the developmental state. According to Sachs and Warner (1995, 2001), manufacturers are crowded out by two processes: (i) natural resources generate high wages and prices; (ii) export sectors eventually become uncompetitive. To support this thesis, Sachs and Warner (1995, 2001) found evidence that natural resource-intensive economies have had smaller contributions from manufacturing exports to their overall GDP growth than countries that are less reliant on natural capital.¹⁵

The natural resources curse hypothesis is not exempt from criticism. For example, Gavin Wright (2004), David and Wright (1997), and various co-authors have critically attacked the plausibility of the resource curse on several grounds: (i) the concept of “resource abundance” is poorly defined because it based primarily on the export of mineral products¹⁶; (ii) successful resource development is not a matter of endowments¹⁷; (iii) the resource sector may have high returns to investment.¹⁸ Briefly, according to Wright (2004), because resource-based growth is an endogenous process, abundance tells us little. However, the resource curse hypothesis was increasingly accepted because the staples¹⁹ theory favoured primary product dependency in explaining the success of the so-called settler economies according to several factors: (a) geographical determinism: why do countries export staples (Innis 1995)²⁰; (b) vent-for-surplus: how do staple exporters develop (Caves 1965)²¹; (c) linkages and balanced growth: how do staple exporters develop (Mackintosh 1979)²²; (d) Imbalanced growth issues in long-term growth (Watkins 1963²³); (e) core–periphery: why can staple exporters remain trapped? (Innis 1995; Watkins 1963)²⁴.

These theoretical developments have used both *resource curse hypothesis* and *staples theory* to propose an interesting hybrid growth policy to escape the staples trap in balance growth. On one hand, the resource curse theory assumes that resources must be combined with better institutions for the following reasons: (a) resources are “bad” because of rent-seeking and corruption; (b) the focus has been on institutions not on resource exports per se; (c) few policy suggestions have been made to limit free trade or protect industry because it might be detrimental.

¹⁴Since the 1960s, the resource-poor countries have outperformed the resource-rich countries by a considerable margin (Auty, 2001).

¹⁵ In addition, abundant natural resources have negative economic and political effects on sectors

¹⁶Comparative advantage does not prove resource abundance, but it indicates that other sector are underdeveloped; studies using reserves per capita or exports per workers do not support the resource curse.

¹⁷For instance, the US did not dominate in reserves but in use; previously, it required large investments in extraction, transportation, geological knowledge, and technology.

¹⁸The total factor production of the resource sector has been above average; failures have occurred in developing resource potential.

¹⁹Staple crops are made up of basic foodstuffs such as cereal and legumes, which are often referred as wage goods because they constitute the bulk of the diet of working people. The term staples includes basic mineral resources.

²⁰Settler economies are born of, and dependent on, their natural geography.

²¹Settler economies survive and grow due to a surplus of labor.

²²Settler economies develop in the long term via staples linkages: backward (infrastructure → transport and communications), forward (processing and sales → industry and services), and final demand (derived demand → consumer goods). Linkages in staples sectors will diversify the economy and result in balanced long-term growth.

²³Issues can sometimes form in staples-led development.

²⁴Settler economies are dependent on foreign cores and are kept underdeveloped.

On the other hand, the staples theory holds the following: (i) resources are “good” because they drive booms and promote growth through linkages; (ii) resources can be “bad” if they contribute low value-added activity to the economy (i.e., the *staples trap*); (iii) the focus has been on resource-led development; (iv) strong policy responses to protect intermediate inputs and export-oriented industries.

According to Zammit (2013), Canada is the only example of successful staple-based development. Several theories have been put forward based on the staples framework for the Canadian “miracle”: the country has an old European core (unlike New Zealand and Australia), which helped satisfy the core–periphery loop internally; it was a major exporter of wheat, which could be considered a “super-staple” in linkages; it invested more in technological change, which demanded strong adaptation efforts and R&D investment; it benefited from the US’s manufacturing spill overs. Hence, Canadian manufacturing was not crowded out by resources. Furthermore, manufacturing increased its share during resource booms, and Canada sought to diversify its staples base of fish, furs, lumber, dairy, wheat, petroleum, and so on, more than other settler economies did (Zammit, 2013).

Hence, modern staples theory provides room for negative effects of resources in the 21st century. The reason is that it is possible that some modern developers are caught in the “staples trap”, which explains the “resource curse”. Thus, the staples trap spreads as follows: a) resource abundance postpones the labour-intensive stage of competitive industrialization; b) slower industrialization retards urbanisation; c) reduced urbanisation delays demographic transition and the onset of better dependency ratios; d) reduced urbanisation delays the accumulation of human capital; e) delayed transition and low human capital creates surplus rural labour and income inequality; f) resource-abundant countries are often fractional oligarchies or predatory states, where resource rents (inequality) are used to promote sectional interests, which leads the low potential for long-term growth (Auty 2001).

2.2 De-industrialization

In the process of economic development, most countries follow a broadly similar path (Rowthorn and Coutts, 2013). In the early stages of development, the agricultural share in national employment falls, and there is a significant increase in the share of manufacturing. This phenomenon is known as *industrialization*. To a certain extent, however, the manufacturing share stabilises and then begins to decrease. There is a matching increase in the share of services in national employment. This falling manufacturing share is often described as *de-industrialization*, that is, the specialisation of the economy away from manufacturing.²⁵

The causes and significance of de-industrialization have been debated since the phenomenon was perceived. According to Singh (1977, 1985), de-industrialization has raised a host of conceptual difficulties. Among others, Michie and Smith (1996) regarded declining manufacturing employment as a symptom of economic failure and a harbinger of doom. The primary objective of public policy should be to halt or reverse this process. Others regarded declining manufacturing employment as a distinctive feature of economic growth in advanced economies (Rowthorn and Ramaswamy, 1999). They saw it as an inevitable feature of structural change, which may create serious problems in the short and medium term but lead to potential benefits in the long term. For these authors, the primary aim of public policy should be to ease change and smooth the transition to a new economic structure. In reality, the choice is never this simple, and most analysts have taken a balanced position.

On one hand, they recognise the inevitability and potential benefits of structural change, but on the other hand, they believe that some developments in manufacturing may be both undesirable and avoidable. Such developments may reflect the failings of specific industries or firms that could have a viable future if their failings could be overcome (Rowthorn and Coutts, 2013).

Several arguments have been put forward to explain why the employment share of manufacturing should fall in advanced economies (Rowthorn and Coutts, 2013). These include the following: statistical reclassification,

²⁵ Note that relative terms are intended here. If total employment is growing fast enough, then the share of manufacturing may decline even when the absolute number of people working in this sector is actually rising. Note also that employment is not the same thing as production. In many advanced economies, manufacturing productivity is increasing rapidly with the result that this sector produces more output with fewer workers. De-industrialisation in employment terms does not as a rule imply falling production (Chang, 2013).

consumption, international trade,²⁶ investment, and labour productivity. Evidence shows that while de-industrialization in developed economies is indicated by a move into services. However, in Latin America this phenomenon is often associated with the specialisation of its economies away from industries to services regardless of low incomes and weak territorial integration²⁷ or specialisation in extractive activities to take advantage of market circumstances. An example is the recent phenomenon of temporarily extremely high commodity prices. The former yields *premature de-industrialization*, whereas the latter leads to the *Dutch-Disease* syndrome (Ros 2013).

According to Sandbu (2017), the Dutch-Disease syndrome is the phenomenon by which a country's windfall gain from, for example, an oil and gas discovery, drives up prices or the exchange rate to the extent that exporting industries are damaged, possibly to the detriment of the entire economy. Hence, anything that gives rise to a sharp inflow of foreign currency negatively affects the economy, such as the discovery of large hydrocarbon reserves. The currency inflows lead to currency appreciation, making the country's other products less price competitive on the export market. It also leads to higher levels of cheap imports, and it can lead to de-industrialization as the industries that separate from resource exploitation are moved to less expensive locations.

Therefore, the Dutch-Disease syndrome is an obvious effect of the shift in the country's comparative advantage following a windfall regardless of the source of the latter. A country finds a convenient way of earning money to finance its imports, so it does not have to earn money through manufacturing. As a result, a higher living standards can be maintained with less effort. Trade is good because it allows for the division of labour and specialisation in areas where countries have a comparative advantage. However, if the Dutch-Disease syndrome is a "normal" shift in a country's comparative advantage, why is it said to be "bad"? The reasons are as follows: (a) manufacturers have to go out of business and workers have to learn new skills; the adjustment hurts economies; (b) developing new mineral or fuel wealth may be related to decreasing diversity; c) relying on one or a limited number of sources carries significant risks, such as in the form of exposure to price volatility of a single resource or a basket of raw materials; and (d) because mineral and fuel deposits are exhaustible, the interconnected wealth is often ephemeral. Even if the bonanza lasts 50 years, it does not seem to be reasonable to undergo de-industrialization when minerals are discovered and then an equally painful re-industrialization when they are exhausted.²⁸

In fact, the Dutch-Disease syndrome can occur whenever a country finds new sources of foreign investment bringing an unexpected windfall of wealth not only from valuable natural resources but from any inflow of capital. They may have the same effect of causing a temporary boom that boosts growth but directs activity away from manufacturing into low-productivity or unsustainable sectors. The point is that these effects occur in all economies, including well-functioning market economies with strong social and political institutions, which is the reason that governments often attempt to mitigate the negative effects of natural resource wealth.²⁹ However, additional problems arise in countries where governments and the rule of law are fragile because huge and sudden wealth can have corrosive effects on those institutions, and it can exacerbate rent-seeking behaviour in the effort to appropriate economic rents.³⁰

Governments have no option except to build their wealth on investment, research and cooperation-based trade. Creating good conditions that foster these activities should involve the rule of law, the justice system, the protection of property, the enforcement of contracts, and moderate taxation. Countries with abundant natural resources do not have to get such lengths in creating good conditions for economic activity.

The only guarantee of economic survival is to maintain control over the rents. Before the diversion of rents, natural resources may indirectly lead to "bad" institutions that prevent economic progress (Stiglitz 2006). Indeed, de-industrialization can erode wealth. First, much of the service sector depends on the size and the rate of growth of the manufacturing sector. Certainly some service sector jobs are created in the process of liquidating manufacturing

²⁶ Singh (1977, 1985) held that the participation of one economy could possibly lead to shrinking the manufacturing sector, or de-industrialisation, as there are three distinct but related channel through which the trade and payment position of an economy can affect its growth and industrial development: (a) the level of demand; (b) the structure of demand and, most importantly, (c) the structure of demand.

²⁷ Even when the tertiarisation of economies may imply, or not, the spatial relocation of businesses (Imbs 2015).

²⁸ Lost skills, brands, and markets are very costly to reacquire.

²⁹ For example, investing revenues via sovereign wealth funds would smooth out consumption over the years and cushion the economy from price volatility, among other effects, in trying to give the pre-existing exporters some breathing space.

³⁰ Economic rent is a payoff in excess of the minimum effort that is required to bring the resource into use and generate the said payoff. In other words, this is a net gain after all associated costs have been covered. Countries used to fight real wars for natural resources, but internal conflicts may be even more devastating.

enterprises, but it is no longer a long-term solution. Second, as argued by Kaldor (1966), the processes of cumulative causation can lead to a downward spiral that can spread from manufacturing to other sectors. Third, a deteriorating position in manufacturing trade creates many dangers, such as deflationary macroeconomic policies, which tend to follow any resulting balance of payments deficit or pressure on the currency.

2.3 Importance of Industrialization

Manufacturing has traditionally played a key role in the economic development of developing countries. Recently, it was argued that the importance of manufacturing has diminished over the last 20–25 years, which has resulted in premature de-industrialization or non-industrialization in developing countries (Haraguchi et al. (2017)).

However, add Haraguchi et al. 2017, “*the manufacturing’s added value and employment contribution to world GDP and employment, respectively, have not changed significantly since 1970. So achieving economic development by following the path of industrialization will likely remain important for low- income countries because they are able to take advantage of their backwardness relative to those countries which have already experienced rapid industrialization with a disproportionately large share of manufacturing activities, and could so enter a mature stage of industrialization*”.(p.293).

Some researchers (e.g., Haraguchi et al., 2016, 2017) have questioned that the developing world has become de-industrialised. They have argued that although manufacturing employment became more concentrated geographically after 1990, its importance did not diminish. In this view Chang (2015, p.89) argued, “*We may living in a post-industrial society in the sense that most of us work in shops and offices rather than in factories. But we have not entered to a post-industrial stage of development in the sense that industry has become unimportant...As for the idea that developing countries can largely skip industrialization and enter the post-industrial phase directly, it is a fantasy. Their limited scope for productivity growth makes services a poor engine of growth. The low tradability of services means that a more service-based economy would have a lower ability to export. Lower export earnings means a weaker ability to buy advanced technologies from abroad, which in turn leads to a slower growth*”.

On one hand, while some product services are tradable and are becoming more important in global commerce, these activities are highly skill-intensive sectors that employ a fraction of the labour supply, including low-skilled labour, in developing countries. On the other hand, partial productivity gains in non-tradable activities are ultimately self-limiting because individual service activities cannot expand without turning their terms of trade against themselves, thus pushing down their own prices and profitability. In the manufacturing sector, small developing countries could thrive based on a few export successes and diversity over time, whereas in the service segment, where market size is limited by domestic demand, continued success requires complementary and simultaneous gains in productivity in the rest of the economy. Growth, therefore, must rely on the much slower accumulation of economy-wide capabilities in the form of human capital and institutions.

A competitive industrialization model was proposed by Auty (2001) to describe the long-term development of a resource-poor country compared with a resource-abundant country under the sine qua non condition that both are stable political states that capable of developing early competitive light industry and early urbanisation by ensuring equitable income and asset redistribution. These factors then generate an early labour shortage due to the accelerated demographic change, leading to rapid and affordable skill accumulation and eventually to the rapid growth of social capital. When these foundations are cemented in the economy, the country is able to develop early competitive heavy industry linked to a high private savings rate and to set in motion linear liberalisation as well as a consensual democracy. Combined, these features create a closely-knit, highly shock resilient economy.

2.4 Verdoorn’s Law

Postulated by Kaldor (1966), Verdoorn’s Law is focused on the structural aspects of the economy that are held to be detrimental to growth. According to Kaldor’s hypothesis, there is a positive relationship between the growth of the labour force and its productivity,³¹ which is the result of the dynamic economies of scale³² embodied in the country’s manufacturing base, thereby justifying policies to shift employment from agriculture to manufacturing in developing

³¹ Thus, $p_m = a + bI_m$, where p_m = rate of growth of output per worker in manufacturing, I_m = rate of unemployment in manufacturing and b = productivity coefficient greater than zero.

³² Dynamic economies of scale refer to the induced effect that output growth has on capital accumulation and the embodiment of new technical progress in capital (Thirlwall 2006).

countries or from services to manufacturing. Even so, Kaldor held the idea that services were not as dynamic as manufacturing in developed countries (Michie 2006).

In fact, Kaldor’s formulation consists of three basic laws that have been widely tested based on cross-sectional data and time series data. The first law is that there is a strong positive correlation between the growth of manufacturing output (g_m) and the growth of GDP (g_{GDP}): that is, $(g_{GDP}) = f_1(g_m)$. The second law is that there is a strong positive relationship between the growth of manufacturing products and the growth of productivity in manufacturing (p_m): that is, $p_m = f_2(g_m)$. The third law is that there is a strong positive relationship between the growth of manufacturing output and the growth of productivity outside manufacturing (p_{nm}): that is, $p_{nm} = f_3(g_m)$, where $f_1, f_2, f_3 > 0$.

3. Quantitative and Qualitative Analyses

The structural dynamics in the region are characterised by analysing a set of economies—Bolivia, Brazil, Chile, Colombia, Ecuador, Mexico, and Peru—in the period 1990–2016, when they eagerly sought growth stimuli through the implementation of outward-looking policies. All data used in this study were collected from the UN Economic Commission for Latin America (ECLA).

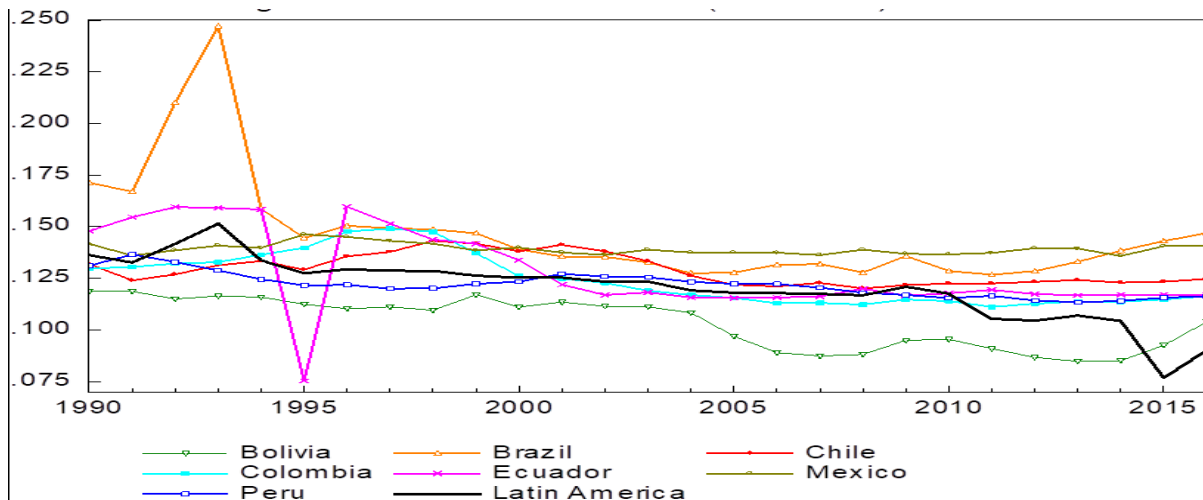
Before undertaking the major analysis, it is worth noting that Mexico is an exception in the sample. Unlike commodity-rich South-American economies, it has rather suffered in the past decade because its economy is tightly integrated with the US industrial cycle, which was greatly affected by the financial crisis. Hence Mexico could be both an example of de-industrialization by economic policy and an example of conditioned industrialization, depending on whether it adjusts to delivering growth now that rising Chinese wage costs have lifted competitive pressure on its manufacturing-led economy. Thus, its terms of trade could become favourable.

3.1 De-industrialization of Latin America

In line with Imbs (2015), the pattern of structural change in Latin America based on a sample of regional countries is investigated. The Herfindahl concentration index, $H_t = \sum_{s=1}^N \left(\frac{Y_{st}}{\sum_{s=1}^N Y_{st}} \right)^2$ is used, where Y_{st} denotes real production in sector s at time t . H_t takes up high values in a range from 0 to 1 when the economy is specialised, that is, when the majority of output is produced in one or few sectors, and the distribution of sector-level output is skewed. Structural change or diversification happens as H_t displays time trends. H_t is computed using ECLAC data on real production at the sector levels. Figure 2 shows the value of H_t over the entire region and in the countries sampled. With the exception of a short spike in specialisation in Brazil and a steep gradient in diversification in Ecuador at the beginning, most of the 1990–2016 period was characterised by a flat trend in the H_t index, which oscillates at a low value.

Interestingly, this trend shows that Latin America began a diversifying effort in the 1980s and managed to maintain it, which possibly offset specialisation impulses through diversifying policies that were financed by the economic rents of raw material exports during the study period.

Figure 2. Coefficient Herfindhal (all sectors)



To confirm that this puzzling pattern is flat, the parsimonious procedure was followed by re-computing the H_t indexes in subsamples of sectors, excluding some categories, in order to determine the subsample that could cease to display downward or upward trends and to ponder sectorial behaviours. Remarkably, the findings showed that neither the primary sector nor the manufacturing sector caused the re-specialisation of Latin America, but the service sector did cause it. Obviously, extractive activities allowed the financing of diversification efforts in the economies in the sample, which was unsuccessful. The same mirror image was found when H_{ot} was computed using the average output shares, which confirmed that Latin America is in a process of de-industrialization. The average share of the manufacturing sectors has collapsed since 1990. Indeed, this collapse was closely correlated with the mild re-specialisation pattern observed in the results of the analysis.

3.2 Quantification

Based on the assumption that the industrial sector is the engine of economic growth (Kaldor 1966), an econometric analysis was conducted to evaluate the role of the primary and tertiary sectors on the real rate of growth in the industrial sector. Specifically, the objective was to determine how important the primary sector's dynamic has been for the evolution of the industrial sector in the countries sampled during the study period. First, the integration order of all variables was the growth rate of the value added of three sectors: primary (Primsector), industrial (Indsector), and tertiary (Tertsector), which was I (1). Then a regression equation had the following functional form:

$Y_t = \beta_0 + \beta_1 \dot{g}\text{Primsector} + \beta_2 \dot{g}\text{Indsector} + \beta_3 \dot{g}\text{Tertsector} + \mu_t(1)$ where $Y = \dot{g}\text{Indsector}$ was estimated by the ordinary least squares method (Table 1).

Table 1: Industrial sector determinants

Country	Constant	Coefficient Primsector	Coefficient Tertsector	R ²
Bolivia	-0.0057	0.3992	0.371	0.6785
Brazil	-0.0122	0.0947	0.3488	0.9305
Chile	-0.0009	0.0114	0.3784	0.9092
Colombia	-0.0025	0.0458	0.367	0.9047
Ecuador	-0.0095	0.0205	0.2166	0.6299
Mexico	-0.0067	0.0318	0.4195	0.9243
Peru	-0.0028	0.1258	0.2863	0.8283
Latin America	-0.0036	0.0607	0.3428	0.9416

Source: Own elaboration with data from ECLAC

The estimated regression did not reveal problems related to normality, autocorrelation, heteroscedasticity, or functional form. Table 1 shows that except Bolivia and Peru, the primary sector did not influence the industrial sector dynamics during the study period. In contrast, the service sector via the industrial sector has been the main driver of economic development. To confirm these findings and keeping the logic underlying Kaldor's laws, the regression equation (1) was adapted as follows: $Y = \beta_0 + \beta_1 \dot{g}\text{Primsector} + \beta_2 \dot{g}\text{Indsector} + \beta_3 \dot{g}\text{Tertsector}$, where $Y = \dot{g}\text{GDP}$ (Table 2). The regression results confirmed the previous findings. The results showed that the tertiary sector, not the primary sector, was significant not only in the real rate of growth of the industrial sector but also in the economy of each country in the sample.³³

³³ However, the results of a co-integration exercise seemed to show that both sectors held a long-run negative relationship, suggesting that the primary sector constrains economic growth in South America.

Table 2: Sectorial determinants of economic growth

Country	Constant	Coefficient \dot{g} Primsector	Coefficient \dot{g} Indsector	Coefficient \dot{g} Tertsector	R ²
Bolivia	-0.0017	0.256	0.2803	0.5264	0.9985
Brazil	-0.0006	0.0711	0.2779	0.6997	0.9998
Chile	-0.0012	0.165	0.1974	0.6313	0.9967
Colombia	-0.0011	0.1548	0.2511	0.5989	0.9998
Ecuador	-0.0023	0.2136	0.2838	0.4996	0.9996
Mexico	-0.0004	0.1172	0.2779	0.5964	0.9997
Peru	-0.0018	0.2063	0.2102	0.5914	0.9995
Latin America	-0.0004	0.1153	0.2612	0.626	0.9999

Source: Own elaboration with data from ECLAC

4. Discussion

A most rigorous test of the Kaldorian laws is required to examine a cross-section of countries or a cross-section of the regions within a country and to perform correlation and regression analyses for each equation.

Table 3 Latin American countries: Share of manufacturing in GDP (%), 1991- 2017^a

Country	1991	2003	2014	2017 ^b	Change (2003-2014)	Change (1991-2017)
Bolivia	17.7	12.8	9.7	10.5	-3.0	-7.2
Brazil	22.1	14.5	10.3	10.2	-4.1	-11.9
Chile	17.5	17.0	11.1	10.2	-5.9	-7.3
Colombia	20.4	14.2	11.5	11.2	-2.8	-9.2
Ecuador	22.2	18.4	8.7	8.6	-9.8	-13.6
Mexico	18.8	16.6	15.9	17.1	-0.7	-1.7
Peru	16.0	15.4	13.9	13.2	-1.5	-2.8
LAC ^c	20.5	16.37	12.90	12.4	-3.5	-8.2

a Manufacturing value added as percentage of gross value added at factor cost.

b 2017 or last available year.

c LAC: Latin American and Caribbean

Source: World Development Indicators

Notwithstanding, economic arguments hold that the windfall of economic rents from a global sharp upturn in raw material prices causes a sudden change in the pattern of Latin America's comparative advantage. The effects, mainly through the consumption and investment aggregate functions, exchange rate, and the interest rate led to de-industrialization, which is socially painful at present.

However, because the change was short-lived, it could be costly for society in the long term. Incidentally, rent-seeking behaviour has exaggerated these effects. If it is not restricted, rentierism may deepen in the near future. De-industrialization in the region is widespread before and after the commodity super cycle, 2003–2014, such as shown in table 3 for the sample as a whole. These findings are in line with the results reported by WB (2018). While the dynamism of Chinese economy and the external demand for commodities stayed high, the favourable short-run effects on the economic growth spread out in Latin America probing that “natural resource abundance in the right amount and at the right time can turn an underdeveloped economy into a high income one in a short span of time” as Ros (2013) postulates. However, that was a short-lived dream as they did not avoid de-industrialization.

With regard to Mexico, previous research (Edwards 1993, e.g.) has followed the common fallacy that trade pays under any circumstances. Mexico evolved from an oil-dependent economy in the early 1990s to a booming manufacturing centre in the aftermath of the North American Free Trade Agreement (NAFTA) in the mid-1990s to

the current international trade hub. Nevertheless, despite ambitious structural reforms and sound macro policies, which seemingly ensured the resilience of the highly open Mexican economy, it remains vulnerable. Mexico's regional disparities in economic growth are significant. The per capita output showed the same diverging path. Mexico's output per hour worked relative to that of the US is at its lowest level since 1950, and growth has not been inclusive enough to achieve better living conditions for many families.

It is worrying that since the collapse of commodity prices in response to China's economic slowdown, Latin America has accumulated a combined general government gross debt of 61.8% of the GDP and an overall government balance of -6.2% of the GDP. The challenge of financing this gap poses the greatest risk. However, although Latin America attracted copious foreign direct investment (FDI) in the past decade, which peaked in 2011 (\$194,007.6 billion), most of which was in mining and energy, such investments could now cease.³⁴ Furthermore, high foreign reserves do not always offer protection for indebted countries when currencies plunge.

Because it seems unlikely that the commodity super cycle will reoccur, Latin America must find other ways to develop.³⁵ In addition to external growth restrictions, any post-boom economic model must take into account the new state of affairs in the region. First, growth rates tend to slow and inequality tends to rise as the economy has moved away from manufacturing industries. Second, manufacturing added value (% of GDP) fell steadily during the study period, and is tempting to associate it with the radically large spike in trade openness that the region has experienced since the early 1990s. Third, the region needs to direct new investment to strategic activities, especially if local manufacturing has been negatively affected by cheap Chinese imports. Third, there may be a re-emphasis on the North-South trade ties that languished during the commodity bonanza, without reducing trade diversification efforts or downplaying South-South trading.

Contrary to advanced economies in which industry does not play a unique role in productivity growth, without a strong industrial sector, Latin America's performance will worsen, and inequalities will become increasingly entrenched. Industrialization continues to be a necessary stage in Latin American development because it induces the diversification of economic activity, which will eventually enable the region to improve income and domestic living conditions and participate more fully in international trade. Furthermore, the region needs to promote the services and agriculture sectors as supplementary engines of economic growth without skipping the usual transition from agriculture to manufacturing to services as economic development progresses.

Nowadays, deliberate industrialization or reliance on other development approaches seems to be more complicated, however, because almost all structural reforms have already taken place in the region. Latin America is not at a stage of development in which profits are easily made. It would be naïve to assume the following: that we can increase economic openness and we will grow, or that we implement macro reforms and we will grow.

Furthermore, any growth model based on labour-intensive manufacturing now faces two unusual threats that obstruct industrialization in Latin America. The first threat is automation. The growing versatility and user-friendliness of robotic technology have eroded the advantages of cheap labour, resulting in premature de-industrialization. The rising efficiency of robots has made us question some of the traditional prescriptions for success in development (Schwab 2016). Kaldor (1966) suggested that modern economic growth requires moving resources out of agriculture into industry and then out of industry into services. This arc of industrialization is supposed to carry poor countries into prosperity before an eventual turndown as sophisticated services take over. However, the arc of industrialization has already changed. According to Rodrik (2015), in today's emerging economies, industry's share of employment is peaking at a lower level and at an earlier point in development than previously. This trend toward premature de-industrialization will have negative effects in Latin America, where the arc of industrialization has lost both height and reach.

A second threat is related to the issue raised by Haskel and Westlake (2016), who proposed the extension of

³⁴ The FDI in Latin America and the Caribbean declined by 7.8 to \$USBN 167,180 in 2016, which was just 16.9% lower than the peak reached in 2011. This outcome is the result of weakened investment in natural resources, particularly metal mining, and slow economic growth in the region. (ECLAC 2017)

³⁵ China has moved to reorient its economy to greater domestic consumption and less investment. The demand for raw materials has slowed, and the commodity super cycle has entered a downturn, so overall growth may slow to a crawl.

GDP to measure intangible and free goods as well as the welfare of societies. These authors state that much of the value of modern businesses lies in intangibles that cannot be measured in traditional ways by accountants. Their examples of the intangibles that companies investing include R&D, training, design, organisational development, branding, marketing, software and data, and original artistic material. Investment in such intangibles has gradually increased over the past half century, eventually overtaking traditional tangible investments in buildings, equipment, and manufacturing around the time of the Great Recession of 2008-2009. There is also a wide effect on society because wealth inequality is seemingly driven by the intangible economy, and there are differences between those in knowledge hubs and those in “left behind places”. In other words, investment now is different than previous one which was prone to employment creation.

5. Conclusions

Although the recent boom in commodity prices seemingly failed to provoke plain diversification or specialization in Latin American countries, it may have been useful because the region managed, on average, to balance both possible polarised outcomes. Most economic effects, however, resembled the Dutch-Disease syndrome: large exports of raw materials led to the sudden inflow of foreign currency in domestic markets, which then caused currency prices to fall. In other words, domestic currencies appreciated. At the same time, all other exporters, including those bringing foreign currency to the domestic market, realised that their revenues were worth less in terms of domestic currency. Therefore, many pre-existing exporters, often manufacturing firms, went out of business in the process of de-industrialization.

Regarding the recent economic growth in Latin America, however, it is worthwhile to note that its main economies did not experience the typical process in the Dutch-Disease syndrome. That is, they did not gain an unexpected windfall of wealth in the form of the discovery of large deposits of valuable natural resources, such as minerals and fuel. On the contrary, such natural resources were already discovered, and significant amounts of agricultural products were already being exported when the super cycle emerged. The reason that the fortunes of primary producers in Latin America were changed overnight is that since the beginning of 2004, the prices of primary commodities increased such that the long price decline was reversed, improving their terms of trade.³⁶ Additionally, export prices were strengthened by favourable market circumstances, such as those created by the high consumption in the BRIC countries, which demanded bulk mineral resources and food staples.

However, the empirical evidence suggests that the excessive reliance on natural resources as a source of finance was inimical to long-term growth in the region. The increasing dependence of Latin-American economies on export commodities and huge foreign capital inflows alleviated fiscal restrictions in the very short run but left less room for fiscal manoeuvring when the commodity price index collapsed³⁷ or when the mineral reserves were depleted. Thus, significant capital outflows occurred, which left these countries vulnerable to shocks and crises.

Contributing to this exposure was that in Latin America there is an endemic pattern of neither saving nor investing as well as the inefficient use of resources. For example, between 1991 and 2014, labour productivity in Latin America grew at annual rate of only 1.4% compared with 3.9% in South Korea and 8.4 % in China. The reasons for this poor performance included a big informal economy, the lack of innovation by firms, and insufficient public investment in education and in the transport infrastructure. Hence, instead of being a blessing, the increased commodity prices exacerbated the negative effects of the collapse of the commodity market. Therefore, Latin America must adapt quickly to the decreased revenue from projects that were aimed to boost its economic development.

The future challenge concerns whether Latin America’s economy can return to a path of higher and sustained growth. So far, the attempts have been mixed. The efforts that helped to see the past 10 years as the “Latin American decade”, that is the period when the continent seemingly had finally found its economic feet, seemed to have missed an opportunity because the region wasted a decade-long commodity boom by focusing on consumption rather than investment and by failing to introduce sustainable reforms.

³⁶ There were two reasons for the surge in agricultural commodity prices: the first was drought, primarily in Australia; the second was the rising demand for biofuels not only in response to higher petrol prices but also the potential reduction in carbon emissions connected with their use.

³⁷ Furthermore, the earning of temporally easy economic rents reduces the saving efforts of a country in both the public sector and the private sector. While the former might reduce saving by relaxing taxation and increasing consumption, the latter may be weakened because low-interest loans may reduce the incentive of local investors to save. Furthermore, easy finance abates domestic savings by stimulating imports.

As Imbs (2015) pointed out, because it was crucially dependent on commodity prices, Latin America postponed the desirable structural changes that began in the 1980s when its economies were diversifying. However, at the beginning of the 2000s, the region displayed a slight reversal in the move toward structural change. The bulk of specialisation corresponded to the increase in the average share of services in Latin America.

Because of the low unemployment levels and the lack of inter-sectorial integration, Latin-American countries need a new growth model that focuses on job promotion and export-oriented industrialization. However, manufacturing has become much more capital- and skill-intensive than previously. Moreover, it has a greatly diminished potential to absorb large amounts of non-educated labour. In addition, the prevailing global supply chains have shrunk the gains in terms of value added susceptible to be accrued by developing countries, and the traditional industries may be too narrow in scope to develop new niches in manufacturing (Rodrik, 2014). Moreover, the unemployment issue has become increasingly complex because a services-led growth model cannot deliver the rapid growth and good jobs that previously existed in the manufacturing sector. However, these benefits might emerge if a competitive *ad hoc* industrial policy were devised and installed across the countries in Latin America.

5.1 Policy options

The main implication for policy of the results of the analyses performed in this study are as follows: faster rates of growth and concomitant dynamic changes in Latin-American manufacturing production are required for this region to compete successfully in both world markets and its domestic market. The question of the best or even the most feasible way to bring about this transformation involves extremely complex issues. The adequate analysis of these issues requires further research. In general, the structural disequilibrium may be so deep seated and the economic and political environment may be such that despite the benefits of natural resources, it may not be possible to bring about the required modifications in the production system without institutional changes.

Future economic growth will require an investment strategy that allows the region to close the gap in capital stock between other major emerging economies, including its main trading partners. Such an investment strategy must include increasing the quantity and quality of equipment accompanied by adequate training. The two major prerequisites of investment-led growth are sufficiently rapid growth in demand and the reform of the financial system. Fiscal, monetary, and exchange rate policies should be aimed to ensure the continuous and sustainable expansion of aggregate demand. Moreover, in the presence of shocks, such instruments should be deployed to ameliorate the adverse effects on investment, output, and employment.

References

- Auty, R.** (2001) "The political economy of resource driven-growth", *European Economic Review*, 45: 839-846.
- Bolio, E. et al.** (2014) "A tale of Two Mexicos: growth and prosperity in a two-speed economy", Report McKinsey Global Institute.
- Caves, R.E.** (1965) "Vent-for-surplus models of trade and growth", in R.E. Baldwin *A trade growth and balance of payment*, Chicago.
- Chang, H. J. (2010)** *23 Things they don't tell you about capitalism*, Penguin.
- Chang, H. J.** (2009) "Economic History of the developed world: lessons for Africa", lecture delivered in the Eminent Speakers Programme of the African Development Bank. Accessed at Faculty staff webpages.
- Crafts, N.F.R.** (1993) *Can de-industrialisation seriously damage your wealth?* Institute of Economic Affairs, Hobart paper 120.
- David, P. and Gavin Wright.** "Increasing returns and the genesis of American resource abundance. Industrial and Corporate Change", 1997, vol. 6, issue 2, 203-45
- Devlin, R. and Graciela Moguillandsky** (2009) "What's new in the new industrial policy in Latin America", in *The Industrial Policy Revolution*, J. Stiglitz (Ed), Palgrave Macmillan.
- ECLAC** (2018) *Estudio económico de América Latina y el Caribe. Evolución de la inversión en América Latina y el Caribe. Hechos estilizados, determinantes y desafíos de la Política.*
- ECLAC** (2017) *Foreign direct investment in Latin America and the Caribbean*, Santiago-Chile.
- Geopolitical Futures** (2017) "In Mexico, hundreds of years of economic inequality".

- Edwards, S.** (1993) Openness, Trade Liberalization and Growth in Developing Countries, *Journal of Economic Literature*, Vol. XXX1 (September) pp. 1358 -1393.
- Grilli, E.R. and Mau Cheng Yang** (2016) *the World economy review*, Vol.2, No. 1: 1-47.
- Gylfason, T.** (2000) “Natural resource, education and economic development”, *European Economic Review*, 45: 847-859.
- Haraguchi, N. et al.** (2017) “The importance of manufacturing in economic development: has this changed?” Inclusive and Sustainable Industrial Development WP 1/2016. UNIDO.
- Haraguchi, N. et al.** (2016) “The importance of manufacturing in economic development: Has this changed? *World Development* Vol. 93, pp. 293-315.
- Haskel, J. and Stian Westlake** (2018) *Capitalism without capital: the rise of the intangible economy*, Princeton University Press.
- Imbs, J.** “The premature deindustrialisation of South Africa”, in J. Stiglitz (Ed.) *the Industrial. Policy Revolution II: Africa in the 21st International Economic Association Series*, Springer link.
- International Monetary Fund (2018)** *Fiscal Monitor: “Capitalising on good times”*, methodological and statistical Appendix.
- Innis, H.A. and D. Drache** (1995) “Staples, market and cultural change”, *Selected papers. Innis Centenary Series.* McGill-Queen’s University Press, URL.
- Kitson, M and Johnathan Michie** (1996) “Rebuilding industrial capacity” in *Creating industrial capacity: towards full employment*, edited by Jonathan Michie and John Grieve Smith, Oxford University Press, pp. 24-51.
- Kwiek, M.** (2015) “Resource curse: how sudden wealth creates havoc”, *Economic Review* February.
- Mattos, F. y Fevereiro** (2014) “¿Se desindustrializa Brazil?” *Revista Problemas del Desarrollo*, 178 (45), Julio-Septiembre.
- Mohaddes, K. and M. Hashem Pesaran** (2014) “*One Hundred Years of Oil Income and the Iranian Economy: a Curse or a Blessing?*” Cambridge Working Papers 1302.
- Myers, M., Kevin Gallagher, and Fei Yuan** (2015) “China-Latin America finance database. Washington, DC: Inter-American Dialogue.
- National Council for the Evaluation of Socio-Political Development** (2017), Mexico.
- Palma, J.G.** (2014) “De-industrialization, ‘premature de-industrialization’ and the Dutch-Disease”, *Revista NECAT*, año 3, n 5, June.
- Palma, J.G.**, (2007) “Four sources of de-industrialisation and a new concept of the ‘Dutch-Disease’”, presented at HSRC EGDI Roundtable the Changing Character of Industrial Development: What Implications for Growth, Employment and Income Distribution? CWP 2458, University of Cambridge, UK.
- Ricardo, D.** (1817) *On the principles of political economy and taxation* (1 ed.), London.
- Rodrik, D.** (2015) “Premature de-industrialization”, NBER Working Paper No. 20935.
- Rodrik, D.** (2014) “Are services the new manufactures”. Project Syndicate.
- Rowthorn R. and Kennet Coutts** (2013) “De-industrialisation and the Balance of Payments in advanced economies” UK-Innovation Research Centre, WP453.
- Rowthorn R. and Kennet Coutts** (2013) “De-industrialisation and the Balance of Payments in Advanced Economies” UK-Innovation Research Centre, WP 453.
- Rowthorn R. and Ramana Ramaswamy** (1999) “Growth, trade, and de-industrialization” *IMF Staff Papers*, Vol. 46, No.1 (March).
- Sachs, J. and A. Warner** (2001) “Natural resource abundance and economic growth”, *European Economic Review*, 45: 827-838.
- Sachs, J. and A. Warner** (1995) *the Curse of natural resource.* NBER WP 5398.
- Sandbu, M.** (2015) “The International competitiveness of Russian Federation”, *Financial Times*.
- Schwab, K.** (2016) *the Forth industrial revolution*, World Economic Forum, Davos Swiss.
- Singh, A.** (1977) “UK industry and the world economy: A case of de-industrialisation?” *Cambridge Journal of Economics*. Vol. I, No. 2. pp. 113-36.
- Singh, A.** (1987) “De-industrialisation” in J. Eatwell, M. Milgate, P. Newman, Rowthorn and Wells (1987) (Eds) *the New Palgrave Dictionary of Economics* (London: Macmillan).
- Stiglitz, J.E.** (2006) “What is the role of the state? Initiative for Policy Dialog Working Paper Series: Resource curse.
- Thirlwall, A.P.** (1999) *Growth and development*, Macmillan, 6th edition.

- Torvik, R.** (2009), “Why do some resource-abundant countries succeed while others do not?” *Oxford Review of Economic Policy*, Volume 25, Number 2, pp.241–256
- Watkins, M.H.** (1963) “A staple theory of economic growth”, *Canadian Journal of Economics and Political Science* 296 (2, May) 141-158.
- World Bank** (2018) *World Bank Indicators*.
- World Trade Organization** (2013, 2016) *International Trade Statistics*.
- Watkins, M.** (1963) “A staple theory of growth”, McGill-Queen’s University Press.
- Wright, G. and Jesse Czelusta** (2004) “Why economies slow: The myth of the resource curse” *Challenge*, 1 2004, vol. 47, issue 2, 6-38.
- Zammit, N.** (2013) *Three essays on the comparative growth of settler economies*, PhD Thesis, the University of Warwick, UK.