THE CONTRIBUTION OF EXPORTS TO THE MEXICAN ECONOMY DURING THE FIRST GLOBALISATION (1870–1929)

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This article provides an assessment of the contribution of exports to the Mexican economy during the first globalisation. This implies revisiting conventional explanations based on the tradition of structuralism and dependency theory, using a new, complete set of data on Mexico’s foreign trade, and evaluating the direct contribution as well as the indirect benefits provided by export activities, through mechanisms that linked foreign trade to the rest of the economy. The most important among these were positive externalities, spillovers, and backward and forward linkages.

JEL categories: F14, F63, N56, N76, O13

Keywords: export, first globalisation, Mexico

INTRODUCTION

Starting at some point in the second half of the nineteenth century, Latin American countries engaged in a process of integration into the world economy now known as the first globalisation. They provided industrial economies with foods and raw materials of agricultural and mining origin, generally with a low (industrial) value added. An export-led pattern of growth defined the structural features of these countries’ economies. This phase of Latin America’s development came to an abrupt end due to the impact of the 1929 Great Depression and its aftermath. What followed was a long period of economic protectionism and inward-looking growth, which in the case of the largest economies was also characterised by import-substituting industrialisation.

* The article was written during a sabbatical year granted by El Colegio de México and spent at the Hoover Institution of Stanford University, where I was invited thanks to the W. Glenn Campbell and Rita Ricardo-Campbell as well as the William C. Bark National Fellowships. I would like to thank the insightful comments of two anonymous reviewers.
This shift in the pattern of growth after the 1929 crash resulted in the emergence of a new economic culture that emphasised the negative aspects of integration to the international economy. The most influential current of thinking that emerged from the new consensus was structuralism, and its most broadly diffused offspring, dependency theory, which dominated Latin American thought and scholarship in the last third of the twentieth century. Export-led growth was seen as providing very small immediate benefits to the economy, while hindering industrialisation and the consolidation of an internal market, thus having perverse consequences for short- and long-run economic development. Dependency theory held that the export sector operated as an enclave isolated from the rest of the economy, and thus yielded few, if any, benefits to the exporting country. The export sector was largely under the control of foreign interests; wages were low and the value added to exports practically non-existent. As local resources employed in these activities were meagre, so was the return value of exports. The small income retained by the exporting economy was wasted on an external consumption linkage due to the propensity of the local elite to buy luxury imports. While these circumstances nullified domestic capital formation stemming from the more dynamic sector of the economy, low wages hindered the formation of an internal market. This combination of factors constrained economic modernisation and cancelled the possibility of industrialisation.

This interpretation may have been helpful in explaining the situation of countries characterised by extreme export specialisation, where production of a single commodity was controlled by foreign investment and took place under conditions of a feeble domestic entrepreneurial class and a weak national State. However, it has also been applied to larger and more complex economies that could have been more responsive to the stimulus provided by export expansion, particularly if the latter experienced broader geographic and productive diversification, included the participation of local entrepreneurs and perhaps the implementation of modernising policies by a stronger State.

This article addresses the case of Mexico during the first export era to show that some notions based on the structuralist tradition do not fit this historical experience. Far from impeding economic modernisation and growth, export specialisation partially promoted by foreign investment was probably the only way to spark off a process of economic development after decades of stagnation or rather slow economic growth. In fact, the adoption of an export-led pattern of development helped to substitute for missing prerequisites for modern economic growth (to put it in Gershenkron’s terms), such as internal capital formation and an internal market.
There were static gains as well as positive indirect effects that helped the economy create those requisites for growth, allowing it, in a second moment, to pursue inward-looking development and industrialisation. By these means, industrialisation took place as an endogenous outcome of export-led growth.5

The export sector impacted on the Mexican economy in a variety of ways. On the one hand, there was a direct contribution. As export activities grew faster than any other economic activity, they contributed to faster gross domestic product (GDP) growth than what would have been the case without them. On the other hand, there were indirect effects, including positive externalities of investment in export or export-related activities, spillovers stemming from the retained value of exports, as well as production and consumption linkages that fostered economic activities in the domestic sector. Besides, the growing capacity to import provided by export earnings was increasingly employed to import machinery, equipment, and inputs that contributed to economic modernisation and the starting of industrialisation. A government with developmental goals played a significant role in this process by providing stimulus to investments in infrastructure and implementing a selectively protectionist commercial policy.

This article aims to assess the contribution of exports to the Mexican economy, while acknowledging that the lack of quantitative data impedes a more accurate, statistical demonstration or even an estimate of its precise scope. It does so by using the existing information and newly reconstructed series of Mexico’s foreign trade to analyse the characteristics and performance of the export sector and to identify its various links with other fields of economic activity to which it contributed. The article is organised as follows. Section two introduces the case of Mexico and the overall features of its foreign trade during the first globalisation, with particular emphasis on its export sector. It also provides a brief description of the primary sources employed. Section three addresses the direct contribution of exports as well as the different mechanisms by which export activities provided an indirect contribution to the Mexican economy during this period. The last section presents some concluding remarks.

THE CASE AND THE SOURCES

Mexico in the long nineteenth century

Mexico achieved its independence from Spain in 1821. During the next 50 years it lived in a state of political distress, due to the weakness of the newly born State, the confrontation between regional oligarchies, and external threats. The latter

4 Kuntz Ficker, El comercio, pp. 23–4.
5 Haber, ‘The political economy’; Salvucci, ‘Export-led industrialization’. The idea that export-led growth favored the Mexican economy may also be found in Cárdenas, Cuándo se originó; Beatty, The impact; Beatty, Institutions.

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included two wars (1835–36 and 1846–48) that resulted in the loss of half of Mexico’s territory to the US, and the armed intervention of foreign powers as retribution for Mexico’s default in the payment of its external debts (1861). The latter led to the establishment of a so-called empire under an Austrian monarch backed by a French army (1864–67). All this caused sluggish economic performance, with periods of recovery and some regional booms, which was not enough to bring the country out of an overall state of economic stagnation.\(^6\) As a result, by the early 1870s the Mexican economy was backward and small. Population grew slowly; about 80 per cent of the total lived in the countryside, and the workforce was dedicated to traditional agricultural activities, with scant participation in the market. The market itself was thin and heavily fragmented due to an intricate geography and lack of modern transportation. Both circumstances posed a clear limitation to the growth of industry, which was restricted to some textile plants and a few other establishments close to the largest cities. Banking institutions were practically non-existent, save for a British bank in Mexico City and a small American-owned bank in the capital of a northern state. The only functioning railroad was a 425 kilometre line opened in 1873 between Mexico City and the port of Veracruz, which was the most important door to the world market. Mexico was also rather isolated from the international economy, both because of the alienation caused by a long default on its foreign debts (contracted in the 1820s) and because its external connections were limited to the exportation of silver and the importation of a small basket of luxury goods for the consumption of the local elite.

In the 1850s a group with liberal ideas overcame strong resistance from traditional institutions to achieve political power, consolidating its rule in the late 1860s. These liberals embraced the privatisation of vacant land, the disentailment of land that was in the hands of the church or peasant communities, strengthening the national government \textit{vis-à-vis} regional powers, and unification of the country. In 1876 General Porfirio Díaz took power and continued the work of the first generation of liberals, bringing about an era of political stability under authoritarian rule that lasted 34 years. This period became known as the ‘\textit{Porfiriato’}. Soon after assuming the presidency, Porfirio Díaz took steps to create more advantageous conditions for economic activity and integration to the world economy by promoting the expansion and diversification of the export sector. A successful renegotiation of foreign debt opened the doors to foreign capital markets that had remained locked for Mexico in the past 50 years. New legislation relaxed restrictions on foreign investment, improved property rights, and facilitated business transactions.\(^7\) The most conspicuous outcome of these policies was the construction of 20,000 kilometres of railroads that materially integrated the country and enhanced its connection to the US market. In turn, internal market integration and a successful incorporation to the world economy fostered

\(^6\) Cárdenas, \textit{Cuándo se originó}, chpts. III-IV.
domestic capital formation and, together with a developmentalist commercial policy, contributed to the beginnings of industrialisation led by native entrepreneurs from the 1890s. In short, the Mexican economy started a process of economic growth that was accompanied by structural changes, initiating a transition to a modern economy.

Porfirio Diaz was overthrown in 1911 by an armed movement that unleashed a decade of political and military struggle known as the Mexican Revolution. This coincided in part with the First World War, with paradoxical consequences for the Mexican economy. The War increased external demand and prices, providing fabulous earnings in exchange for Mexican exports such as minerals, oil, and hard fibres. However, much of those earnings was wasted in domestic military campaigns or sent abroad by fearful investors, rather than reinvested within the Mexican economy. The mechanism that had allowed the transmission of benefits from the external to the internal sector of the economy was temporarily broken. The state of generalised civil war came to an end by 1917, with the rise to power of a new political coalition with more statist and nationalist views, and the enactment of a new constitution. Post-war demand and prices for some export commodities fell and protectionist barriers were raised among the main economic powers. This, together with a more uncertain domestic business environment resulting from the revolution, affected the performance of Mexico’s export sector and of the Mexican economy as a whole, but did not change the overall pattern of growth. The breakdown of the international market in the Great Depression put an end to the first export era, forcing the Mexican economy to move toward inward-looking development, building on the foundations laid by earlier export-led growth.

The first era of Mexico’s export-oriented growth

To assess the direct contribution of exports to the Mexican economy we need to understand the situation that prevailed at the onset of export expansion. Compared with other Latin American countries, Mexico arrived late to the first globalisation. In 1850 the value of total exports per capita amounted to barely US$3.20, well below that of early comers like Uruguay ($55) or Cuba ($22), and also below smaller economies such as Honduras ($4.90) or Haiti ($4.80). Moreover, Mexico’s exports were mostly limited to silver specie, which was used to pay for imports of consumption items, such as textiles, groceries, and wine. Machinery was largely absent from its import trade. Besides silver, the only commodities that Mexico had to offer to the external market were natural dyestuffs, fine woods, cattle, and animal hides, all in small quantities.

8 Beatty, _Institutions_, pp. 48–81; Márquez, _Tariff protection_; Kuntz Ficker, _El Comercio_.
9 For a comparative view with respect to other Latin American countries see Bulmer-Thomas, _The Economic History_, p. 38.
Only in the early 1880s could Mexico take advantage of the window of opportunity opened in the international economy by declining transport costs, the spread of the gold standard, and lower barriers to trade in the most important markets. In addition to the conditions already mentioned (more stable politics, institutional changes favouring modern business, foreign investment, and a renewed foreign credit) export expansion was encouraged by the depreciation of silver, the basis of Mexico’s monetary system.\(^\text{10}\) Silver depreciation provided exporters with surplus earnings stemming from the differential between domestic (silver-based) production costs and gold selling prices abroad. Under these advantageous conditions, Mexico’s exports grew and diversified through the extraction of commodities such as minerals, agricultural, forest, and animal products.\(^\text{11}\)

In general, export expansion took place by incorporating new geographic areas and by exploiting non-competing factors. This allowed a considerable diversification of export activities, which in general did not replace each other, but accumulated over time. Diversification reduced the vulnerability of Mexico’s export sector to external shocks and product cycles, providing relative stability to trade earnings and public revenue in the midterm. Even so, external shocks of some magnitude were felt in 1891, 1901, 1907, 1921, and, of course, 1929. Finally, due to geographic proximity, enhanced in these years by railroad communication, and to economic complementarities, the US soon became the dominant trade partner for Mexico’s exports, with the main European powers, mainly Great Britain, Germany, and France, occupying a secondary yet visible place.

The long-term evolution of Mexico’s export trade is illustrated in Figure 1. In real terms, the total value of exports (including silver and gold specie) grew at an average rate of 4.5 per cent per year between 1870 and 1929. The value of commodity exports (i.e. excluding gold and silver specie) grew even faster, at a yearly rate of 6.5 per cent during the same period. The fastest growth was achieved between 1870 and 1911, with a remarkable average rate of 9 per cent per year. Despite the civil war in Mexico, the real value of commodity exports continued to grow during the 1910s, albeit at a slower pace of 2 per cent per annum. During the 1920s export growth was even slower, amounting to 1 per cent per annum in real terms.

In the beginning of this period, silver specie accounted for 78 per cent of the value of Mexico’s exports; the export sector subsequently diversified to the extent that by 1926 specie transfers contributed only 6 per cent of total export value. Commodity exports per capita, which amounted to only US$1.30 in the early 1870s, reached $20 per capita in the 1920s. Considering the extremely low point of departure, Mexico’s export performance was remarkable. However, it was not enough to match the record of the main exporting Latin American countries.

\(^{10}\) Although bimetallic in theory, Mexico’s monetary system was actually based on silver until a monetary reform changed it to a gold-exchange standard in 1905.

\(^{11}\) Kuntz Ficker, Las Exportaciones.
Between 1870 and 1912 Argentine exports per capita rose from $17 to $62 and Chilean from $14 to $45. In terms of its contribution to GDP, the size of the export sector grew but remained modest in Mexico, with a maximum share of 14 per cent in the 1890s and an average share of 12.5 per cent between 1890 and 1929. As Bulmer-Thomas has suggested, this feature limited the positive impact that the export sector may have had upon the rest of the economy.\textsuperscript{12}

Mexico’s export sector was more successful in terms of achieving a widespread geographic diffusion and a considerable diversification. Silver remained a relevant component of the export basket (with silver bars increasingly replacing silver coins), together with some traditional exports, such as cattle and animal products, vanilla, natural dyes, and fine woods. But a new array of products was added to this old mix in the following decades, from agricultural commodities, including henequen and other hard fibres, coffee, two types of rubber, gum, and chickpeas, to mineral products such as gold, copper, lead, antimony, and zinc. Already in the 1910s an important addition was oil, which experienced a brief boom in the latter part of the decade that led it to temporarily being Mexico’s most significant export in the early 1920s. New crops were added in later years, including cotton, bananas, tomatoes, and other fruits and vegetables. As the export sector diversified, it spread over many regions. Mining and cattle raising were important in the

\textsuperscript{12} Kuntz Ficker, \textit{El comercio}, table 6.1, p. 324; Bulmer-Thomas, \textit{The Economic History}, p. 69. For GDP figures see footnote 14.
north; tropical agriculture developed in the Mexican Gulf and in the south; subtropical crops expanded in the central north and northwest; and henequen was systematically grown in the Yucatan peninsula. As a result, export activities achieved some degree of prominence in three-fourths of Mexico’s states (Fig. 2).

A note on sources

Figure 1 and most of the quantitative analysis of exports in this article come from a reconstruction of the yearly values of Mexico’s foreign trade, based on its own official statistics and on those of its main trading partners (the US, Great Britain, Germany, France, Belgium, and Spain). This reconstruction provides nominal values, as well as price indexes from which real values were obtained. Partner trade statistics are useful because they allow testing of the accuracy of Mexican sources, and identification and correction of possible biases. Furthermore, they make it possible to fill the gaps that exist in Mexico’s official sources.¹³ Other than these series, there is scant quantitative data on Mexico’s

¹³ For a detailed list of sources and a broader explanation of the methodology employed in the reconstruction of foreign trade statistics see Kuntz Ficker, *El Comercio*, ch. 1. For an in-depth study of Mexico’s export sector see Kuntz Ficker, *Las Exportaciones*.
export sector. The information available has been supplemented by qualitative evidence from public and private collections and scholarly research on particular sectors and regions.

THE ECONOMIC CONTRIBUTION OF EXPORTS

The direct contribution

The resources employed in export production were generally formerly idle or engaged in a less productive use. As the opportunity cost of these resources was low, their more productive use was a net gain for the economy, although the magnitude of the latter cannot be calculated with the information available. The direct contribution of exports may be assessed by considering the pace of growth in the export sector relative to that of other sectors within the Mexican economy. To the extent that export activities grew faster than other, inward-oriented activities, the former boosted the growth rate of GDP.

GDP figures for Mexico are fragmented and unreliable; we use them here with great reservation. The striking evidence of the direct contribution of exports to Mexican economic growth is that they grew much faster than GDP throughout the export era. The real value of commodity exports grew at double the rate of the more optimistic estimates of real GDP growth between 1877 and 1929; 6 per cent for the former and 3 per cent for the latter. Partial records confirm this overall view. The real value of mineral exports (excluding gold and silver specie) grew at 12 per cent per annum between 1870 and 1929, while that of agricultural exports expanded at 5 per cent per annum within the same time span. Available indicators by sectors in 1895–1929 also show faster growth in export activities, despite their sluggish performance in the last years of the 1920s. Within this 34 year period the real aggregate value of mining and metallurgical output grew at an average rate of 4 per cent per annum and agricultural exports at 3.2 per cent. Both export sectors grew faster than manufacturing (3 per cent per annum), and well above total agricultural output (0.5 per cent per annum). Export expansion did not hamper growth in the manufacturing sector, which grew at nearly the same pace as total GDP after 1895.

Due to a rather low departure point, the share of exports in GDP remained limited until the end of the period, despite their remarkable absolute growth. It went from 4 per cent of GDP in the 1870s to 11.2 per cent in the 1920s – although this share could be underestimated due to overestimated GDP figures. The relatively small size of the export sector may have constrained its contribution to Mexico’s economic development, but there is no doubt that export growth was positively correlated with economic growth.

Export activities were not equally distributed throughout the national territory. The differential regional presence of export activities also changed over time. They were present in 21 of the 28 Mexican states or territories. Their relative size and scope varied, as there were some states that depended to a large extent on their exports (Yucatán), while others had a small export sector (Michoacán), or a more diversified economy (Nuevo León). Some states developed early export-oriented activities (Veracruz), while others enjoyed a late export boom (Tamaulipas). Specific features and performance also varied from one activity, sector, and region, to another. With the information available it is not possible to estimate the share of output that originated in export activities at the state level; we can only suggest that in states with a large and successful export sector economic growth should have been faster than the national average. In those cases the share of locally produced exports in the states’ aggregate output should have been larger than the actual share of total exports in national GDP. This does not mean that states with a successful export sector should necessarily have become wealthy or have overcome backwardness, as many other factors influenced the final outcome. However, ceteris paribus, state economies were better off than they otherwise would have been due to the existence of a successful export activity within their jurisdiction. What appears to have been a small contribution at the national level was probably much greater for the states that developed a large or diversified export sector.

The indirect contribution

Positive externalities

Externalities, also called external economies, are the effects generated by an economic activity to a third party. Positive externalities are the benefits that accrue to third parties from an investment in which they did not participate and thus had no cost for them. Among the external economies produced by the export sector were those stemming from railroad transportation (consisting of lower transportation costs available to all consumers) and from the provision of electricity and drainage, which were primarily for mining purpose but were soon made available to neighbouring towns.

During the export era the only surge of railroad expansion in Mexico’s history took place, under State promotion and direct foreign investment. The correlation of export activity and railroad expansion has led some scholars to conclude that railroads were built only to favour exports, or even that railroad expansion caused an export-led path of development. Such an interpretation stresses the foreign linkages and the leakage of indirect benefits to foreign countries over the possible internal advantages of railroads. Some export activities benefited greatly from

15 Since then the number of states has increased to 31.
16 Coatsworth, Growth, pp. 121–147.

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modern transportation, particularly in the vast mining zone of northern Mexico, where minerals of lesser value became profitable thanks to lower transportation costs. In Yucatán, returns from henequen exports allowed the local elite to build a railway network to bring the fibre from the plantations to the port and to supply the local market. Chickpeas and tomatoes from Sinaloa and cotton from La Laguna boomed thanks to the arrival of railroads, although not all of their output was directed to the external market.

However, railroads were not the most important means that Mexican exports used to reach their destinations abroad. Despite a border of more than 3,000 kilometres between Mexico and the US, in 1926 less than 4 per cent of the export cargo was transported by railroads, whereas 96 per cent was shipped by sea.\(^\text{17}\) Moreover, many exports expanded despite deficient or non-existent modern transportation. Most of the coffee harvested in Veracruz, Oaxaca, and Chiapas was sent by mule to the closest harbour. Some export ventures profited from a good geographic location near the ocean, like rubber, gum, and fine woods, while others, like bananas, used boats to take the fruit to the nearest port through the very few navigable rivers existing in Mexico. In a nearby area oil production boomed from 1913 to 1925 without the use of railroads. It is not by chance that many export activities developed near the Mexican Gulf, where they had the advantage of efficient maritime connections to the international economy.

Beyond links to foreign markets, railroads contributed to the integration of the domestic market and the development of the northern areas, by fostering agricultural specialisation based on comparative advantage. Even if railroads had been built for the purpose of stimulating the export sector, they created significant positive externalities that favoured industry and commercial agriculture for the domestic market, as both could profit from fast and cheap transportation. Railroads were essential for transporting heavy machinery to interior sites, and hence were a prerequisite for industrialisation. Consumers enjoyed a wider range of commodities at lower prices. Railroad companies were required to install telegraph lines along their track, thus providing an efficient form of communication that facilitated business transactions throughout the country. The modernisation of the main ports was aimed at expediting exports, but also facilitated the importation of machinery and equipment used in infrastructure and industrial plants.

**Economic spillovers**

Spillovers are the resources generated by the export sector and made available to the domestic economy by means of taxes, payment of production factors, and other expenses.

Mexican exports had fiscal spillovers that reached several levels of the public administration: federal (national), state, and municipal. From 1870 to 1929 their
direct contribution to the federal treasury averaged 9 per cent of ordinary income, which represented 4 per cent of the total value of exports. This positive, if modest, fiscal contribution at the federal level is suggestive of a broader positive impact on other areas of the economy.

Assessing the fiscal spillover of exports at a state level is more difficult because of insufficient information and because of their variety and changing character. However, some interesting findings arise from a preliminary approach. First, let us consider the overall performance of the state treasuries during the export era. Real public income per capita in states that were to develop a sizable export sector was initially lower than in those with little or no export activities (1.12 Mexican pesos compared with 1.44 Mexican pesos), but showed faster and more consistent growth. Real public income grew at 7 per cent per annum in the former and 5 per cent per annum in the latter from 1879 to 1926. By the end of the period, public income per capita in the exporter states was 41 per cent higher than in the states with little or no export activity. As state taxes stem from a variety of sources, this outcome only suggests that the economies of the former states did relatively better, although it could also indicate that their governments were stronger or implemented better fiscal policies. Second, if we focus only on export-related taxes levied in states with significant export sectors, fragmentary evidence indicates that the direct fiscal spillover was substantial (between 10 and 50 per cent of public income) at some point during the export era in at least 12 of the 21 states.

Dependency theory adherents acknowledge the fiscal implications of exports but look at them in a negative way. First, it is argued that governments imposed a fiscal contribution on exports because export activities had no other link with the national economy. The higher the fiscal linkage, the lower the overall contribution that exports would have provided to domestic economic activity. Second, because the State used fiscal resources to improve conditions for the export sector, through investment in ports and subsidies for railroad construction, positive effects on the rest of the economy were likely to be limited. Third, tax revenue was subject to external vulnerability, which meant that the State would develop a degree of dependence on this source of income and suffer accordingly as conditions in external markets changed.

In Mexico, several mechanisms linked export activities with the rest of the economy. In this sense, a rather modest fiscal spillover could indicate a broader contribution in other areas of the economy. Public investments that were focused on providing better conditions for the export sector created positive externalities for agricultural producers, domestic entrepreneurs, and consumers. The external vulnerability associated with the fiscal linkage of exports was as big as the linkage

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18 This includes federal taxes on exports and on the exploitation of natural resources, which comprised mining and oil. Kuntz Ficker, Las Exportaciones, table 1.3, p. 56.
19 Hirschman, A Generalized, pp. 66–70.
20 In five more cases insufficient information precludes any assessment. Kuntz Ficker, La contribución. The fiscal contribution of exports at the municipal level is much more difficult to assess.
itself. At the federal level this shortcoming was buffered by a low dependence on export taxes during most of the period and by the diversified nature of the export mix. Exports probably played a more significant role at the state level and at particular junctures. For the handful of states that derived a large part of their income from one or two export activities, sudden changes in demand could have had ruinous effects. At the federal level, at least two episodes of external vulnerability deserve mentioning. In the mid-1920s, oil exports (which were heavily taxed) fell, affecting federal incomes and creating imbalances in the public administration. A more serious occurrence took place during the breakdown of international trade following the 1929 economic crash, when not only public finances but the economy as a whole was severely hit, signalling the end of the era of export-led growth.

With the available information it is possible to shed some light on some other positive effects of export activities that often have been left aside in the extant literature. Let us consider first spillovers stemming from direct foreign direct investment, as it provided a bulky share of the total capital invested in Mexico’s export sector. Dependency theory holds that direct foreign investment yielded few spillovers to the recipient economies, as domestic linkages were scant and earnings were paid as a return to capital abroad. This does not seem to have been the case in Mexico, as part of those earnings were reinvested within the country, largely inside the same export sector. Many foreign firms expanded their activity during the Porfiriato, and some of them, mainly in mining and oil, did so during and after the Mexican revolution, even though others closed down their business as conditions worsened during the 1910s. Furthermore, foreign control of some export activities did not preclude a connection with the internal sector. On the whole, it is safe to suggest that direct foreign investment made a positive net contribution to the Mexican economy, adding to scarce domestic savings and contributing to raise the level of economic activity.

Another type of spillover stems from the remuneration of domestic factors of production. Mexico’s export sector was not entirely controlled by foreign concerns. Domestic capital was present in many branches of activity, particularly in agriculture, and to a lesser extent in mining and metallurgy, although it was almost absent in oil exploitation. Native peasants and entrepreneurs predominated in the production of henequen and coffee, the most important export crops. Local producers were dominant in more traditional exports, such as vanilla, natural dyes, and fine woods; they also participated in some activities that were characteristic of the later phase, notably the cultivation of chickpeas, fruits, and vegetables. A combination of native and foreign investment characterised

22 Oil-related federal taxes reached a record of 42 million dollars in 1922 and fell continuously in the next years amounting to only four million by 1929. Other sources of revenue compensated in part for this loss, so that at the same time the share of oil taxes fell from 26 to 11 per cent of federal income. Meyer, México, p. 31; Kuntz Ficker, Las Exportaciones, table 8.2.
23 Cardoso y Faletto, Dependency, p. 53.
24 For a thorough picture of foreign investment in Mexico during this period see Riguzzi, Mexico.
large-scale cattle breeding, rubber and gum recollection, tomato and cotton growing. In some cases, Mexican producers controlled the cultivation while foreign entrepreneurs concentrated on the processing and/or distribution of crops, such as guayule rubber, coffee, and bananas. Some agricultural assets that were in the hands of foreign investors during the Porfiriato were nationalised after the revolution, increasing the share of domestic investment in export agriculture. This was not the case in mining and oil, where despite the official nationalistic rhetoric, foreign interests continued to prevail.

The role of export activity in changing land ownership and use remains a controversial subject, raising social issues that cannot be addressed here in depth. Although many nuances and exceptions have been introduced into the narrative by recent research, the overall picture still holds. Export growth was part of a broader phenomenon of economic modernisation that had far-reaching consequences for the ownership and use of land. In the north, modern agricultural development was preceded by a huge process of demarcation of vacant lands, which led to their concentration in the hands of a few. In the south, many peasant communities were deprived of their plots as commercial agriculture or plantation-type activities expanded. The cost of this process in terms of social dislocation and changes in the traditional ways of reproduction was probably high. Within the context of an export-led pattern of development, at least part of this cost must certainly be attributed to the expansion of exports. However, it should also be acknowledged that many peasants and some peasant communities benefited from the export surge, as long as they were ready to engage in export activities. This was the case with vanilla producers in Veracruz, small and medium-size coffee and banana growers in Veracruz and Oaxaca, and cotton raisers in La Laguna, among others.

Medium and large land-owners derived benefits from their properties in several ways. Some gave land a more productive use by simply shifting away from corn to the cultivation of an export commodity. The imbalances generated by lower production of basic foodstuffs were compensated by a more efficient and thus profitable use of resources. Some others sold or leased their lands to mining or oil companies, receiving rents and royalties as a result. In the early 1920s, six million hectares of lands were leased in the oil area with rents ranging from $2 to $4,000 per hectare, with a statistical mode between $500 and $1,000 per hectare. Many signed contracts for royalties, namely, a share in returns that ranged from 5 to 15 per cent of the value of the oil extracted. Even though it is hard to estimate the relative importance of land rental as a source of wealth, and almost impossible to assess whether or not it was conducive to an optimal allocation of

25 Zuleta y Marino, Una visión.
26 The idea that food production declined during this period has been discarded with sound arguments by Coatsworth, Los Orígenes, pp. 162–177.
27 Meyer reports fixed rents between 2.5 y 200 dollars per hectare per year, or royalties between five and 15 per cent of output value. Meyer, México, p. 33.
resources, it seems safe to suggest that it contributed to domestic saving and, at the very least, to increase aggregate demand.

There is only fragmentary information available on the remuneration of labour in the most important branches of the export sector at particular junctures of the period. At the peak of its development in 1910, the mining and metallurgical industry employed 150–200,000, which at the time represented 3–4 per cent of the economically active population in Mexico. From 1880–1910 the wages of mining workers were 40 per cent higher than the national average; these wages were the only ones that experienced real growth during the inflationary period of 1900–1910. At the crest of the oil boom in the early 1920s the industry employed about 50,000 Mexican workers, who overall enjoyed the highest wages for similar levels of qualification in the country.

By 1910, around 110,000 workers were involved in henequen production. It is more difficult to estimate the size of the workforce in other agricultural industries, which generally retained a permanent labour force working on a variety of contracting conditions and hired additional free labour on a temporary basis. Estimates of employment in the coffee sector for 1929 indicate that there were about 45,000 permanent and 130,000 temporary labourers, plus around 2,600 workers in the processing of the crop. We do not have reliable figures on the people employed in the production of rubber, gum, guayule, ixtle, cotton, fruits and vegetables, products of the forest, cattle, and other export crops of lesser importance, but their number could easily have been a further 200,000.

Despite regional and sectorial variations, workers engaged in export agriculture generally earned higher wages than in the rest of the agricultural sector. In addition to those directly involved in these activities there were a number of individuals providing a variety of services to the export sector, in the processing, packing, and transporting of goods. In a very rough assessment one could suggest that in some of the many good years of the export era, 15–20 per cent of the economically active population could have been engaged in export or export-related activities. This is equivalent to 800,000–1.1 million people in 1910. Multiplying this figure by four provides a rough estimate of the enlargement of the market fostered by the export boom.

Estimating spillovers may also be done through the return value of exports, which provides the share of their value that remained in the country as remuneration to domestic factors or payment for domestic inputs. The retained value of Mexico’s exports was calculated for two years (1909/10 and 1926) for a broad sample of products by the American economist Butler Sherwell, who attempted in the late 1920s to assess Mexico’s capacity to pay its external debt. Using contemporary accounts and direct testimonies, Sherwell estimated that the return value of mining exports was high, despite the dominant participation of

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28 El Colegio de México, Estadísticas, pp. 47, 134.
29 For the scattered data on the labor force engaged in export activities see Kuntz Ficker, Las Exportaciones.
foreign investment. Many inputs were provided locally and wages represented an important part of costs. The establishment of large-scale and technologically advanced processing plants in Mexico from the 1890s increased the value added in this type of exports. Return value was rather low in the oil sector, because of the controlling share that foreign concerns had in this line of activity and the low value added of oil exports up until the late 1920s. Sherwell found the return value to be high for most agricultural exports, because of the significant presence of local entrepreneurs and native workers. The estimated return value of all exports was higher in 1909/10, during Porfirio Díaz’s rule, than in 1926, a finding that challenges the common perception based in the nationalist rhetoric of the Mexican revolution.

Improvements to Sherwell’s estimates (Table 1) show more precise absolute real values of the return value of exports for the entire period. The quality of the results is enhanced by employing figures in dollars instead of Mexican pesos, correcting export values by using partner’s statistics rather than Mexico’s official statistics, and computing real, not current values.

The sample extends to 89 per cent of the total value of exports in 1909/10 and 84 per cent in 1926. As the original shares were not changed, the most important implication of this estimate was already inferred by Sherwell: notwithstanding the important presence of foreign investment in export activities, Mexico retained something between 65 per cent (the lower share belonging to 1926) and 77 per cent (in 1909/10) from the value of a sample of exports. The corrected values in constant dollars show the share at $119 million in 1909/10 and $129 million in 1926. To give an order of magnitude for these figures, they were equivalent to nearly 10 times the value of Mexico’s fast-growing machinery imports in each of those years.

Sherwell’s estimates of the return value of exports may be used to provide a rough assessment of the resources retained by the Mexican economy throughout the export era. The same sample of exports and estimated shares for return value for each product or category is applied to the actual yearly value of exports by product or category, according to the reconstructed trade statistics. Current values are then translated into real values using the export price index. The outcome is a lower- and upper-bound estimate of the real retained value of this sample of exports for each year between 1880 and 1929, presented in Figure 3.

As these estimates were built by adding the lower- and upper-bound estimates of the return value of each category of exports, total return values are weighted by the yearly composition of trade. Even if it does not provide an accurate picture of the return value of this sample of exports, as many factors may have affected that share in the course of time, it is likely that the actual figure lay within the two borders, in the shaded area of the graph. The results show that even a sector dominated by foreign investment and oriented to the external market generated

Table 1. The return value of Mexico’s exports, 1909/10 and 1926 (real value in US dollars)

<table>
<thead>
<tr>
<th>Products or categories</th>
<th>1909/10 EV (dollars)</th>
<th>1909/10 RV (dollars)</th>
<th>% of RV upon EV</th>
<th>1926 EV (dollars)</th>
<th>1926 RV (dollars)</th>
<th>% of RV upon EV</th>
</tr>
</thead>
<tbody>
<tr>
<td>Minerals</td>
<td>100,484,480</td>
<td>79,382,739</td>
<td>79</td>
<td>83,444,514</td>
<td>67,590,056</td>
<td>81</td>
</tr>
<tr>
<td>Henequen and ixtle</td>
<td>13,674,363</td>
<td>13,264,132</td>
<td>97</td>
<td>11,337,206</td>
<td>9,863,369</td>
<td>87</td>
</tr>
<tr>
<td>Coffee</td>
<td>4,703,811</td>
<td>4,327,506</td>
<td>92</td>
<td>8,115,501</td>
<td>6,817,021</td>
<td>84</td>
</tr>
<tr>
<td>Rubber and guayule</td>
<td>19,171,096</td>
<td>8,243,571</td>
<td>43</td>
<td>1,853,481</td>
<td>463,370</td>
<td>25</td>
</tr>
<tr>
<td>Gum</td>
<td>2,003,034</td>
<td>380,576</td>
<td>19</td>
<td>3,391,257</td>
<td>847,814</td>
<td>25</td>
</tr>
<tr>
<td>Bananas</td>
<td>–</td>
<td>–</td>
<td>–</td>
<td>1,923,366</td>
<td>480,842</td>
<td>79</td>
</tr>
<tr>
<td>Vegetables</td>
<td>1,837,292</td>
<td>1,727,054</td>
<td>94</td>
<td>9,260,456</td>
<td>7,315,760</td>
<td>84</td>
</tr>
<tr>
<td>Cotton</td>
<td>29,412</td>
<td>24,706</td>
<td>84</td>
<td>5,845,103</td>
<td>4,909,887</td>
<td>86</td>
</tr>
<tr>
<td>Cattle products</td>
<td>10,942,586</td>
<td>9,957,753</td>
<td>91</td>
<td>2,343,466</td>
<td>2,015,381</td>
<td>87</td>
</tr>
<tr>
<td>Manufactures</td>
<td>1,340,114</td>
<td>1,775,383</td>
<td>96</td>
<td>1,484,582</td>
<td>1,966,774</td>
<td>39</td>
</tr>
<tr>
<td>Mineral fuels</td>
<td>–</td>
<td>–</td>
<td>–</td>
<td>69,134,930</td>
<td>26,962,623</td>
<td>65</td>
</tr>
<tr>
<td>SUM</td>
<td>154,186,188</td>
<td>119,083,422</td>
<td>77</td>
<td>198,133,862</td>
<td>129,232,897</td>
<td>84</td>
</tr>
</tbody>
</table>

% of sample in total export value: 89

Total export value: 172,805,998 236,404,599

EV: Export value; RV: Return value. Return value indicates the value of exports retained by the Mexican economy. Original estimates in Sherwell, *Mexico’s Capacity*, passim. Here, shares were taken from the original estimate but values by category were estimated from the partner’s official sources and deflated with a Fischer price index of exports. For the partner’s sources and the price index see Kuntz Ficker, *El comercio*, passim.
gains to the national economy. The economic significance of these gains may be better weighted by considering the size of the economy. For a small economy like Mexico’s, the yearly inflow of resources could represent a huge difference in terms of domestic capital formation and increased opportunities for growth.

Economic linkages

From the structuralist perspective, the (supposedly limited) resources originating in the export sector that were locally retained were squandered by the small native oligarchy in the consumption of luxury imports. Due to its very nature, the ‘external consumption linkage’, made no contribution to national development. This notion is not borne out by the historical record, at least for Mexico. Part of this growing purchasing power was actually spent within the internal market, fostering economic activity and generating multiplier effects outside the export sector. At a time when Mexico was engaged in a process of import-substituting industrialisation, this growing aggregate demand provided an enlarged market for industry. Furthermore, the mix of imports acquired through external

31 Levin, The Export, p. 10.
32 Beatty, Institutions; Haber, Industry.
consumption linkages included productive inputs, machinery, and equipment that provided a powerful contribution to the modernisation of the economy, and not simply items to satisfy the sumptuary consumption of the elite.

Figure 4 illustrates the changes in the structure of Mexico’s imports. The most striking feature is how the importance of consumption items was reduced from 70 per cent of the total value of imports in the early 1870s to 32 per cent in the late 1920s. The share of producer goods increased from 30 to 68 per cent in the same period. As this change took place in the context of rapidly growing absolute values, it is clear that both categories grew, but producer goods did so much faster than consumption goods: 5 per cent per annum in the case of the former, 2 per cent in the latter.

The most important increase took place in the first four decades of the period and affected machinery imports; their quantum grew at a rate of 8 per cent per annum from 1870–1929. The growth rate was even more remarkable, 14 per cent per annum, in the 36-year period from 1870–1906. This category included equipment for railroads, electrification, telegraphs, drainage, and port works, as well as machinery for mining, metallurgy, and manufactures. As Mexico did not
produce that kind of equipment, this is a good proxy for fixed capital formation, indicating that an accelerated process of economic modernisation was taking place, due to the growing capacity to import provided by export growth.33

In the consumption goods category, the greatest relative decline was in textiles. While the real value of machinery imports multiplied by 70 throughout the period, that of textiles did so by less than twofold, with a growth rate of 0.9 per cent per annum. The main reason for this sluggish growth is that export expansion coincided with import-substituting industrialisation.34 In the cotton textile sector, the volume of total output multiplied by 14 from 1880–1910. Similar developments took place in other branches of industry, from consumption goods (tobacco, beer, soap) to intermediate production goods (cement, paper, construction materials, iron and steel). According to some estimates, by the end of the period as much as 80 per cent of the total supply of manufactures for consumption was provided by domestic industries, and the percentage of imports in the total supply of manufactured products (consumption as well as production goods) amounted to only 40 per cent.35

As Haber and Salvucci have pointed out, the industrialisation that took place during the export era was endogenous, in the sense that its causes were not foreign to the expansion of the export sector.36 But this does not mean that it was a spontaneous outcome of export growth. As several scholars have shown, industrialisation was possible thanks to a commercial policy specifically devised for that purpose. Although this is not the place for a detailed description, it may be roughly described as a twofold policy: on the one hand, an across-the-board reduction in ad valorem import duties that liberalised Mexico’s trade after a long tradition of protectionism. This policy, together with silver depreciation, brought the average height of the tariff from 48 per cent (of the total value of imports) between 1870 and 1991 to 22 per cent between 1892 and 1929.37 On the other hand, a cascading structure was designed in order to provide differential tariffs for different types of imports. By these means, essential inputs and machinery were granted low, fiscal tariffs, whereas manufactures competing with domestic industries bore higher, protective duties.38 Export expansion does not automatically lead to industrial growth, but, as the recent developments in Southeast Asia have confirmed, it can do so if accompanied by a commercial policy with developmental goals.

According to the classic formulation by Albert Hirschman, within an economy productive activities are linked in such a way that, under certain conditions, growth in one branch of production may foster investment – and thus growth – in

33 On the role of machinery imports in fixed capital formation in Latin America, see Tafunell, Capital formation.
34 Haber, Industry; Beatty, The impact.
35 Cárdenas, La Industrialización, pp. 116, 200.
36 Haber, The political economy; Salvucci, Export-led industrialization.
37 The 1910s are excluded from this estimate because of hyperinflation and other problems associated with World War I and the Mexican Revolution.
38 Beatty, The impact; Kuntz Ficker, Institutional change, El Comercio.
another branch, benefiting the entire economy as a result. Linkages may be *backward*, made of the demand for inputs and wage goods generated by a particular production process, or *forward*, consisting of the supply of inputs provided by that production process for a new productive activity.39

In this case, backward linkages consisted of locally produced inputs and consumption goods for the supply of the export sector. Foodstuffs, construction materials, rope, basic tools, cloth, soap, candles, and cigarettes, were among the many products supplied to mining towns by domestic producers. Through these types of linkages commercial agriculture, manufacturing, and commerce were fostered by the expansion of export production. In terms of industrial development the most important backward linkage was that of the iron and steel industry. This consisted of a number of mid-sized foundries and, starting in 1903, a large and modern industrial plant. The scope of this linkage was limited, though, as mining remained to some extent dependent on imported inputs up until the mid-twentieth century.

There were also forward linkages generated from primary production in the export sector, entailing the emergence of an industrial phase that employed, as inputs, the raw materials produced in agricultural or extractive activities originally oriented to the external market. In Mexico, the most remarkable example for this kind of linkage took place in the mining sector, with the creation of a large scale, technologically advanced metallurgical industry starting in the 1890s. But it also happened in the oil sector and, to a lesser extent, in the agricultural sector. Table 2 provides information about the industrial linkages of Mexico’s export sector.

Alongside the remarkable increase in the total value of mining exports from 1890–1929, there was a significant change in their composition, as products with some value added (concentrates and processed products) gained in importance at the expense of raw minerals. As Table 2 shows, the former reached 99 per cent of the total value of mining exports by 1929. A similar phenomenon may be observed in the oil sector, as fuels and refined oil products ended up providing 58 per cent of oil export value in the last year of the export era. In both cases a forward industrial linkage was established. This resulted in higher value added in exports, and growing linkages with the domestic sector. Mining and oil products became inputs for industrial activities oriented to the internal market, and oil was also used as fuel for railroads and internal combustion engines, further benefiting economic activity.

Forward linkages were more limited, but were still visible in the agricultural sector. Apart from the basic processing and packaging of products like rubber or henequen that was common from the early stages, the accumulation of wealth within the export sector also stimulated industrial investment. In Yucatan, the local oligarchy established two regional banks and an 800 kilometre railroad network, and also an industrial plant for fibre manufacturing. By the late 1920s


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cordage and rope from these factories were being exported to Argentina. Another successful story relates to cotton. This fibre was not only the most important input for the Mexican textile industry, but also yielded by-products such as the use of cotton seed to produce pastes and oils, which in turn were used to make animal food, soaps, glycerin, and dynamite. The largest soap factory in Latin America was established near Mexico’s main cotton producing region, La Laguna, in the 1890s, and a dynamite factory was opened in the early 1900s in the neighbouring State of Durango. Export of tomatoes from the Mexican western coast to California and Canada started in the early 1920s. Due to strict requirements on imports by the targeted markets, only the finest product was exported. Since national demand was already satisfied by the production of other regions, a share of the western crop was left with no market. Soon enough, a domestic industry of canned food emerged in the area, giving birth to some of the best known brands for conserves that prospered in Mexico in the twentieth century, like Del Monte, Herdez, and El Fuerte.

Export crops created forward linkages with industrial activities that were mainly orientated to the domestic market, together with a small, complementary demand abroad. The export dimension of these new lines of specialisation in manufactures for consumption that were to prosper in the following decades is shown in the last rows of Table 2. Even if manufactured exports (other than metallurgical products) remained modest during this period, 62 per cent of them stemmed from raw materials originally exported in that state. Significantly, by the

Table 2. Exports of products with industrial value added, 1890–1929 (selected years). (Value in dollars and percentage upon value)

<table>
<thead>
<tr>
<th></th>
<th>1890</th>
<th>1912</th>
<th>1929</th>
</tr>
</thead>
<tbody>
<tr>
<td>Mining products</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Concentrates</td>
<td>609,228</td>
<td>34,426,073</td>
<td>36,321,118</td>
</tr>
<tr>
<td>Metals</td>
<td>7,200,957</td>
<td>38,883,221</td>
<td>124,681,836</td>
</tr>
<tr>
<td>Share in total mining export value</td>
<td>46%</td>
<td>90%</td>
<td>99%</td>
</tr>
<tr>
<td>Oil products</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Fuels and refined oil products</td>
<td>456,416</td>
<td>21,444,596</td>
<td></td>
</tr>
<tr>
<td>Share in total oil export value</td>
<td>6%</td>
<td>58%</td>
<td></td>
</tr>
<tr>
<td>Industrial products</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Manufactures originated in primary exports</td>
<td>281,678</td>
<td>1,096,689</td>
<td></td>
</tr>
<tr>
<td>Share in total industrial export value</td>
<td>20%</td>
<td>62%</td>
<td></td>
</tr>
<tr>
<td>Sum</td>
<td>7,810,185</td>
<td>74,047,388</td>
<td>183,544,239</td>
</tr>
<tr>
<td>Share in total commodity export value</td>
<td>19%</td>
<td>51%</td>
<td>74%</td>
</tr>
</tbody>
</table>

Mining products: Concentrates involve a basic industrial processing, and include copper, silvery copper, mixed gold, silvery lead, silvery zinc, and antimony. Metals involve further industrial processing and include cyanide gold and silver, gold and silver sulfides, silver paste and bars. Oil products: fuels and refined oil products include gasoline, gasoil, kerosene, paraffine, lubricants, and asphalt. Industrial products include fibre cordage and rope, cotton-seed paste, vegetable oils and pastes, tanned animal hides, shoes and other leather articles, and citric-fruits juice. SHCP, Anuario; Departamento de la Estadística Nacional, Anuario; Kuntz Ficker, Las exportaciones, tables 9.2 and 9.3.

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time external demand and prices started to fall in the second half of the 1920s, agricultural activities originally oriented to the foreign market were already finding a domestic industrial linkage, which in turn opened the way for a domestic consumption linkage. By these means some export-oriented activities moved toward inward-looking growth.

CONCLUSION

The conventional interpretations of Latin American economic history during the first globalisation argues that export-led growth limited economic modernisation and cancelled the possibility of industrialisation, as the export sector concentrated the resources available for investment. The enclave nature of the export sector supposedly restricted its links to the internal sector of the economy and low wages impeded the formation of a domestic market. Its contribution to capital formation was meagre, as the allegedly small retained value of exports was largely used to import luxury goods aimed at satisfying the consumption habits of the local elite.

The course of events in Mexico challenges this interpretation. Export success coincided with, and most likely contributed to, the nation’s first surge of economic modernisation and industrialisation. Despite the important presence of foreign investment the export sector was not separated from the internal sector. Some of the gains from export activity were reinvested in other agricultural and industrial ventures. Higher levels of employment and higher wages in the export sector strengthened aggregate demand, while railroads contributed to the integration of the domestic market. Exports boosted domestic savings and the capacity to import, which resulted in the importation of capital goods that fostered economic modernisation and industrialisation, thanks to a commercial policy that was less informed by urgent fiscal needs and more by developmental goals. While the backward linkages generated by the export sector promoted economic activities in the internal sector, forward linkages in several branches of manufacture contributed to the transition from export-led growth to inward-looking development. The origins of Mexico’s industrial landscape of the mid-twentieth century lie in the industrial surge of the 1890s, which in itself was a product of export success.

The most important shortcoming of this pattern of growth was external vulnerability. The fall in demand and prices for a particular commodity or group of commodities in the external market affected the level of employment and investment, as well as public finances, with backlash effects being felt throughout the economy. Several factors ameliorated the significance of this flaw for the Mexican economy. First, the considerable diversification of Mexico’s export sector, in terms of products and regions, created buffers for the national economy even if a particular product or locality was temporarily affected. Second, the impact of periodic episodes of external shock was not big enough as to offset the growth accumulated during decades of export expansion. Finally, inasmuch as positive externalities, spillovers, and forward linkages also accumulated over time and
created their own virtuous dynamics, those external shocks did not find the economy entirely defenceless, as conditions for inward-looking development were being created amid export-led growth.

REFERENCES


