

Infrastructural services and foreign capital in the Brazilian economy (1850-1930)

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The establishment of a modern tertiary or service sector and the incorporation of growing amounts of foreign capital investments are, up to now, the least well studied elements of the Brazilian national market economy's integration. Their importance, however, has been comparable to that of the other two, better known and directly related factors of the same process –which we may situate in a period going from the 1870s to the 1950s– namely the development of a manufacturing industry, and an increasing State interventionism in all economic activities.

To be sure, the former did precede the latter, although their importance and the results of their existence could only fully show up with the emergence of these, particularly from the 1930s on. For such reasons, we shall be adopting here a slightly different periodization, also covering a time span of eighty years, but starting from the 1850s. This was the decade in which, due to the expansion of the coffee export economy and to the definite prohibition of the import of slaves from Africa, Brazilian internal capital accumulation acquired a new momentum, attracting to the country ever-larger amounts of foreign resources. One of the results of this was the construction of its first railroads.

We are including among the services all the exogenous infrastructural units and activities which are needed in a modern capitalist economy for the production and circulation of both its productive factors and its intermediate or finished commodities. This encompasses all the units and activities underlying any productive process, and which, taken collectively, form a specific sector of the economy comprehending a large array of collective agents, equipments and installations, ranking from land and water transportation systems to financial and commercial enterprises.

Living aside for a while the essentially governmental activities, which also are part of this sector, we can immediately perceive that a very important part of Brazil's service infrastructure was actually introduced from abroad by the initiative, or at least with the collaboration, of foreign capital, through public or private loans and/or direct investments. And also that it has been initially installed according to the needs of the country's integration in the nineteenth century international division of labour. This economic order, established within the context of a great growth of international trade, was dominated by the so-called Business Imperialism, first under British hegemony, and later shaped by an increasing competition among the economies of the various more industrialized countries.

The infrastructural services required for this kind of development were primarily directed towards the international flows of tradable goods, and later on also of capital resources, either under the form of loans to governments and private enterprises, or as direct investments in the production of goods and services. In the case which we are discussing here, such capital applications were directed on the one hand to facilitate the access of foreign firms to Brazil's export goods and to its growing internal market, and on the other to find lucrative inversion opportunities for the surplus of capital then accumulating in most of the more industrialized countries. Actually, the growing volume of this surplus was at the time one of the main factors responsible for the increasing flow of foreign loans and direct investments to Latin America in general and more particularly to Brazil, which, due to its growing foreign trade superavits, was then becoming a «good risk» for such idle capital applications.

It is always worthwhile to recall that the fundamental purpose of these loans and investments was not the development of the Brazilian economy, but mainly that of generating tangible benefits for the agents and economies of their originating countries. These benefits usually included: (1) a cost reduction of the commodities that they imported –namely the raw materials and unprocessed foodstuffs exported by Brazil and other countries, the latter being important for the maintenance of their low labour force wage levels; (2) the opening of new markets for the commodities which they exported, mainly for their industrial manufactured goods; and (3) the openings of new markets for the profitable application of their surplus capital resources, devoid of more lucrative domestic alternatives (as we all well know, interest rates in Europe remained quite low during most of the nineteenth century). We may still add to all this the fact that foreign loans and/or direct investments are not philanthropic operations, always implying an increased return for the capital

resources thus advanced – be it under the form of interest, profits, royalties etc. And also remind that these capital applications usually carry with them some strings attached to the obtention of concessions and privileges in commercial, financial or institutional areas.

During an initial phase, which extended roughly from the mid-nineteenth century to the beginning of the First World War, foreign capital's penetration in Brazil occurred mainly under the aegis of British commercial and financial interests¹, and fundamentally as a result of the country's coffee export economy's rapid development.

The first of these features was due to the fact that Brazil, together with the rest of Latin America, constituted at the time a part of what Eric Hobsbawm has called the «informal British Empire». Although challenged and menaced by the inroads of competition from other industrialized countries, Britain succeeded in maintaining its economic hegemony in that part of the world up to the beginning of the First World War – even if, as we shall see in a while, Brazil, and more particularly the state of São Paulo, became some sort of an exception within this general trend.

Coffee on its side was remained for decades the main and most profitable Brazilian export staple. Its spatial expansion during the second half of the nineteenth century and the first decades of the twentieth has been in great part determined by the spread of railroads, specially after it reached the uplands of western São Paulo. This was an expansion in which British capital played a paramount role, both in the form of direct investment and of loans to local entrepreneurs, as well as through the supply of rails, locomotives, wagons, technical personnel, etc.²

The first proposal to build a railway in Brazil was made already in 1839 by the British engineer Thomas Cochrane, who thus intended to provide a faster land-link between the cities of Rio de Janeiro and São Paulo. Nothing came out of his proposal, but a suggestion that he made was retained and would be put into practice more than a decade thereafter. The proposal in question was that both the construction and the operation of railroads in Brazil should be financially supported by the Government through: (a) the public costing of the necessary land appropriations; and (b) the establishment of a yearly guaranteed interest rate of 5 per cent to be paid to the railway constructors and operators whenever their profits did not reach that minimal level.

This proposal became law in 1852, but despite of it, foreign capital did not at once become available for that purpose. The apparent lack of interest of

¹ In 1913, more than one fifth (23 per cent) of British loans and investments in Latin America were destined to Brazil, against 37 per cent to Argentina and 16 per cent to Mexico, with the other countries except Chile (7 per cent) receiving less than 5 per cent each. This flows as a whole (around 5 billion American dollars at the exchange rate of that time) represented approximately 20 per cent of British capital exports, which means that Brazil got roughly 4.6 per cent of them. Other European countries and the United States held at the same time some USA 3.5 billion. Cf. estimates made by W. P. Glade, *The Latin American Economies: a Study of their International Evolution* (New York 1969) 216-220.

² The following paragraphs are mainly based on the second chapter of Richard Graham's important book, *Britain and the Onset of Modernization in Brazil, 1850-1914* (Cambridge 1968) 51-72, of the 1972 paperback edition.

potential investors was not due to Brazil's internal conditions, which at the time were quite satisfactory, but rather to the outburst in Europe of the Crimean War (1853-1856). Because of this, in order to establish a railroad between the capital of the Empire and the coffee producing areas of the Paraíba river valley and basin, the Brazilian government was forced to organize a public corporation, the *Estrada de Ferro D. Pedro II*, which would later be renamed *Estrada de Ferro Central do Brasil*.

One of the first initiatives of that governmental enterprise, created in 1855, was to borrow 1.5 million pounds on the London financial market for beginning the railway's construction. This resulted much more expensive than had been initially forecast, and soon became troubled by disagreeable and unforeseen incidents. Almost at the start of the works, the British engineers hired for the build-up had to be dismissed and substituted by American ones. Until 1858 only 48 km had been installed, at a cost of 13 thousand pounds per kilometer, which almost led the company to bankruptcy, forcing the Brazilian government to take direct control of all its affairs from 1865 on, and to contract two other foreign loans, in 1871 and 1875, for concluding it.

But, when this railway began to operate on its full extension, the coffee economy of the Paraíba river valley was already in decadence –a trend which it only helped to postpone somewhat, by reducing substantially the transportation costs between the coffee producing areas and the seaport of Rio de Janeiro–. On the other hand, it also helped to expand coffee cultivation to the adjacent provinces (later states) of Minas Gerais and São Paulo.

British loans were also made for linking these coffee producing areas to the city of São Paulo, thus completing Cochran's original project, and also to several railway companies located in the above-named two provinces. Some of this loans could not be repaid with ease, mainly due to the continuous devaluation of the *milreis*. Because of this, and sometimes due to their inefficient administration, several Brazilian railway companies had to hand over their assets to the creditor's control. That was the case, for instance, of the Leopoldina railway, which would become the largest and most extended British railroad in Brazil, with its more than 2.6 thousand km of tracks in 1912. But, despite its extension and its regional importance (by linking the states of Rio de Janeiro, Minas Gerais and Espírito Santo), this railway never became really lucrative with its dividends rarely transcending the 4 per cent level, thus forcing the Brazilian government to subsidize its operations.

To be sure, the same occurred with the great majority of British-owned railways in Brazil, whose number increased from eleven at the end of the 1880s to 25 around 1900, and which were responsible for almost one half of the value of British capital investments in Brazil. As a matter of fact, these railways only did really become lucrative if and when they were directly associated to the expansion of the coffee export economy, something that actually did occur solely in three cases: the Minas-Rio railway, the Rio Claro to São Paulo railway, and, most notably, the famous São Paulo Railway Co., renamed *Santos a Jundiá* at its nationalization after the Second World War.

The first of these railroads had only 170 km of track in a mountainous region, linking Cruzeiro, in the São Paulo part of the Paraíba river valley, with

Três Corações, a coffee producing area in the south of Minas Gerais. The floating of its shares in London at the end of the 1870s had been a great success, and its financial performance remained quite satisfactory until the end of Empire. After this, some problems incurred by the *Central do Brasil* railway, to which it was a tributary, affected unfavorably its operation, and the Brazilian government in 1902 finally acquired its assets. But, during its entire existence as a private company, it never had to require any financial support from the government³.

The Rio Claro to São Paulo railway, in turn, never arrived to operate, by being fundamentally a short-lived speculative undertaking held by the English bank of Rio de Janeiro, which bought its concession in 1889 for 850 thousand pounds, and resold it three years later to the São Paulo coffee planters' Cia. Paulista railway for more than the triple of that value (2.75 million pounds). This operation did only become possible by virtue of the latter's high profitability⁴.

Finally, the third exception among the British-owned railroads in Brazil, the São Paulo Railway Co., deserves a special chapter due to its macroeconomic significance and to its microeconomic profitability. Despite having an extension of only 139 km, this railroad was well known internationally both as a technical feat of nineteenth century engineering and, in financial terms, for being undoubtedly the most profitable railway in the whole country, a veritable gold mine for its lucky shareholders. Its tracks remained for decades the obligatory passage of most Brazilian coffee exports –which, from the end of the nineteenth century, were embarked in Santos, and no more in Rio de Janeiro– as well as of all the imports of São Paulo and several neighboring states.

Inaugurated in the mid-1860s, and duplicated before the end of the nineteenth century, the São Paulo Railway Co., has always been extremely profitable, as can be seen from the dividends that it paid, and more particularly from the prices of its shares, usually much above their par-value⁵. Its prosperity only did decline with the coffee overproduction crisis of the 1930s, but its strategic importance remained thereafter, almost up to present times. Together with those of the Leopoldina Railway and of other remaining British-owned railroads, its property and control passed to the Brazilian government at the end of the Second World War, as a payment for British war-debts and by way of a transaction which was financially harmful to the country.

British capital investments in Brazil were made not only in railroads, but also in import and export trade, in maritime and fluvial transportation, in banking and insurance companies, in urban public utilities, and even in some industrial manufacturing enterprises, mainly belonging to the textile, shoemaking and wheat flour-milling branches. But, before talking about them, let us return to a point which has been briefly mentioned at the beginning of this chapter: namely to the fact that Brazil, and more particularly the state of São Paulo, represented

³ The financial record of its shares is reproduced in appendix A of Graham's book, o. c., 325.

⁴ On this transaction, see the comments by F.A.M de Saes in his valuable *A Grande Empresa de Serviços Públicos na Economia Cafeeira, 1850-1930* (São Paulo 1986) 110-112.

⁵ Cf. Graham, o. c., appendix B, 326-329.

some sort of an exception with regard to the preeminence of British economic interests in South America.

Taking into consideration the main sectors, which integrated São Paulo's coffee export economy, we can observe that many of them remained entirely, or at least in good part, outside of British control. Such were the cases mainly: (a) of coffee plantations themselves; (b) of many of its commercial and financial intermediary activities; (c) of industrial manufacturing; and (d) of most public utilities.

In the first and second of these sectors, British interests had to face, almost from the beginning, a fierce resistance and strong competition from the part of other capitalist interests, which were equally powerful, and both local and foreign. The latter originated in the countries, which absorbed the greatest part of Brazil's coffee exports, while the former belonged mainly to the strong coffee bourgeoisie of São Paulo, which always did show to be sufficiently capable and skilful in exploiting the commercial rivalries among its foreign partners and / or competitors. Up to the end of the 1920s, this ruling class proved quite successful in the defence of its most immediate interests through the formulation and execution of their profitable coffee valorization schemes, which maintained the product's prices at high levels for long years, even if at the end, by attracting an increasing volume of competition from other producing countries and regions, they definitely crumbled in the depression of the thirties. On the other hand, São Paulo's manufacturing industry only arrived to have a very small British participation, with almost the same occurring in the field of its public utilities, the newer and more profitable of which –like electrical power generation and distribution, and urban mass transportation– were in the hands of a Canadian-American group⁶.

One of the factors that seems to have been responsible for this rather anomalous situation was the lack of spatial coincidence of the capital flows and the trade flows between São Paulo and the rest of the world. While the former –at least until the beginning of the First World War– tended to originate (as elsewhere in South America) from Britain, the latter were never subject to the same hegemony, since coffee was exported mainly to Continental Europe and to the United States. At the beginning of the twentieth century, when coffee represented 50 per cent or more of the value of Brazilian exports, Britain absorbed only 18 per cent of it, while the United States were taking 43 per cent, and other European countries the remaining 39 per cent⁷.

The main British imports from Brazil were sugar and cotton up to the 1870s, and rubber and cotton between 1890 and 1910. With the exception of rubber, whose exports from Brazil only declined substantially after this latter date, such

⁶ With regard to this, see T. Szmrecsányi and F.A.M. de Saes, 'L'Industrie Electrique et les Capitaux Etrangers au Brésil: le cas de la São Paulo Light, 1899-1904, in: M. Trédé (ed.), *Electricité et électrification dans le Monde: Actes du Deuxième Colloque International d'Histoire de l'Electricité* (Paris 1992) 369-377.

⁷ Cf. Graham, o. c., 76.

products were of a lesser importance within Brazilian foreign trade, and none of them did normally participate in São Paulo's external sales during the period under analysis⁸. For these reasons, British presence and influence were less felt in São Paulo than in places like Recife and Belém, or even in the capital city of Rio de Janeiro.

But this feature didn't avoid that, in the country as a whole, British interests succeeded in maintaining their administrative and / or financial control over the greatest part of the Brazilian export trade, including that of coffee, although, with regard to the latter, they had to face, in São Paulo and Santos, an increasing competition from German and American trading companies. These, together with the British, were able, at the end of the nineteenth century to eliminate the local factors (or *comissários*) from that business circuit, and to establish direct relationships with the Brazilian planters, by providing these with the services of their warranting warehouses. And, in some cases, through these same means, they even came to take possession of a few larger coffee plantations.

Nevertheless, foreign trading houses' control of Brazilian coffee production never became more than partial. And, in practice, the coffee bourgeoisie of São Paulo always succeeded, not only in retaining a sizeable part of the surplus generated by that profitable export economy, but also in increasing it considerably through capital accumulation in those sectors which remained under its major supervision, such as the state's banks and railroads, its main manufacturing industries, and, of course, its public administration, which remained under the full control of that oligarchy during all four decades of the First Republic (1890-1930).

At the same time, competition among foreign enterprises was very harsh with regard to the Brazilian imports of goods and services, in relation to which Britain succeeded in retaining its supremacy until the outbreak of the First World War, not only due to the level of development of its manufacturing industry, but also –and perhaps mainly– because of the size and diversity of British direct investments in Brazil. The former characteristic allowed Britain's exporters to accompany the development of the Brazilian economy, whose changing needs and demands could always be promptly attended by them. Thus, in the second half of the nineteenth century, the participation of coal in the value of British exports to Brazil could increase from 4 to 14 per cent, that of iron metal from 3 to 11 per cent, and that of machines from 1 to 9 per cent⁹. And in all this, of course, the efficiency and omnipresence of Britain's merchant marine, insurance companies and banking services vigorously aided British exporters.

The latter began to operate in Brazil precisely during the period under analysis, and they have always been very secure and lucrative. They did not

⁸ Actually, there was some export of cotton from São Paulo to Europe at the time of the American civil War. Later on, after the First World War, this would be resumed, particularly in the 1930s to Germany and Japan.

⁹ Cf. Graham, o. c., 128 and 133.

finance agricultural production, but to the emerging Brazilian, foreign or immigrants' industrial manufacturing firms they did easily provide not only suppliers' credit for the acquisition of machinery and equipment, but also short term credit for their current productive necessities¹⁰. The biggest among them was the London and Brazilian Bank, which, between 1873 and 1923, distributed an average yearly dividend of 12.8 per cent –and, during the years immediately preceding the outburst of the First World War, this arrived to reach the level of 19.2 per cent–¹¹. Even so, in 1923, that bank merged with the London & River Plate Bank, forming the Bank of London & South America (BOLSA)¹², which survived until quite recently, when it was finally incorporated by present days' Lloyds Bank.

British enterprises also arrived to participate, and even to predominated, in some public utilities –like gas lighting, water supply and sewage services– and, more importantly, in urban development. These activities were important not only in themselves, as means of profitable investments opportunities, but also through their impact on the country's general modernization process. This was so because they powerfully contributed to the rapid alteration of the life and consumption habits of Brazilian society as a whole, thus helping to create propitious conditions for the country's subsequent industrialization¹³.

With regard to the latter, British contribution can be viewed as having been substantial in relation to: (a) the construction and initial operation of a sizeable part of the modern transport system, comprehending not only the railroads and both oceanic and fluvial navigation, but also those of some harbour installations and facilities –like that of the port of Manaus–. Investments in these fields, which originally had been made for export-import purposes, could later on at least in part be put to good use by Brazil's emerging manufacturing industries, contributing to create and reinforce the functioning of a regional division of labour within the country, thus furthering in it the integration of an expanding national market economy; (b) the supply of modern machinery, equipment, inputs, installations, technology, and the necessary financing for their acquisition¹⁴.

This contribution reached its zenith at the eve of the First World War, after which Britain was definitely and irreversibly superseded by the activities and interventions of enterprises and governments of other nationalities. But, even

¹⁰ On this, see F.A.M. de Saes and T. Szmrecsányi, «The Role of Foreign banks in the Early Industrialization of São Paulo, 1880-1930», in: C. Marichal (ed.), *Foreign Investment in Latin America: Impact on Economic Development, 1850-1930, Proceedings of the Eleventh International Economic History Congress*, vol. B-10 (Milano 1994) 141-153.

¹¹ Cf. Graham, *o. c.*, 95.

¹² Although being the oldest British bank in South America, the London & River Plate Bank only entered the Brazilian market in 1891, after having operated for decades in Buenos Aires and Montevideo. It had a decisive and important participation in the formulation and negotiations of the 1898 Funding Loan, becoming thereafter one of the main financial agents of the Brazilian government, and also of several railroads temporarily leased to British enterprises.

¹³ Cf. Graham, *o. c.*, 116-120.

¹⁴ *Idem.* 125-126.

before that conflict, British presence and influence in Brazil had already begun to be eroded, mainly through German and American competition¹⁵.

The United States became the main importer of Brazilian products (particularly coffee) already in the second half of the nineteenth century. In order to become Brazil's main commercial partner, it only had to overcome its other main suppliers of goods and services, something which effectively –and definitely– did occur from the 1920s on. But, before ascertaining how this happened, it may be worthwhile to look at the performance of Germany, whose goods and capital exports to Brazil had been increasing very fast in the last decades of the nineteenth and during the first years of the twentieth century.

Besides being a great importer of Brazilian coffee, Germany became, several years before the First World War, the second provider of goods and services to Brazil, only remaining inferior to Britain in this regard. German banks began to operate quite early in Brazil, with one of them even partially financing the construction of a railway link between São Paulo and Sorocaba¹⁶. The German trading company Theodor Wille, seated in Hamburg, played a decisive role in the first Brazilian coffee valorization scheme, initiated in 1906 by the *Convênio* (agreement) of Taubaté, between the governors of São Paulo, Minas Gerais and Rio de Janeiro¹⁷.

All this growing penetration of German goods and services into Brazil was considerably facilitated by the great number of immigrants of that nationality which settled in Brazil, specially in its southern provinces (later states) of Rio Grande do Sul and Santa Catarina, and also elsewhere –as in Rio de Janeiro, Espírito Santo and São Paulo–. It was also helped by the active importers and salesmen of that same origin, who, for instance in the market for textiles, rapidly succeeded in eliminating their British competitors, by associating or becoming themselves local manufacturers of cloth and yarn.

But this expanding presence and influence of German enterprises and capitals came to an abrupt halt with the outbreak of the First World War, which caused the temporary disappearance of both from the Brazilian scenery, an experience which would be repeated on an even larger scale during the Second World War. In both cases this temporary elimination did not benefit other European countries, like Britain or France, but, above all, the United States.

Although the political relationships between that country and Brazil had always been good, even improving further after the proclamation of the Republic in 1889, up to the First World War the exports of American goods and

¹⁵ Idem, 316-317 and 300-301. The arguments presented in the following paragraphs have been further developed in T. Szmrecsányi, «German Capital Investment in the Early Industrialization of São Paulo», *Ciência e Cultura*, 44(5), Sep/Oct. (1992) 320-325; and in W. Suzigan and T. Szmrecsányi, «Os investimentos Estrangeiros no Início da Industrialização do Brasil», *Texto para Discussão*, n° 33 (Campinas jan. 1999).

¹⁶ Cf. F.A.M de Saes, *As Ferrovias de São Paulo, 1870-1940* (São Paulo 1981) 162.

¹⁷ See in this regard *Cem Anos da Casa Theodor Wille & Cia. no Brasil* (São Paulo 1946); S. Zimmermann, *Theodor Wille: 1844-1969* (Hamburg 1969); and M.L. de Paiva Moraes, *A Atuação da Firma Theodor Wille & Cia. no Mercado Cafeeiro do Brasil, 1844-1918*. Ph.d thesis in History (São Paulo 1988).

services to Brazil had always been comparatively small, trailing much behind those of British origin, and growing at a much slower pace than those of Germany¹⁸. They only began to increase more substantially during, and because of the First World War, from whence on they became coupled to some sizeable capital investments in Brazil's manufacturing industries, through the establishment of: (a) the subsidiaries of large American frozen meat processing plants like those of Armour, Swift and Wilson; (b) the automobile and truck assembly lines of Ford and General Motors; and (c) the branches of several other multinational enterprises of the USA.

This ever-growing and irreversible penetration of large American enterprises was completed by the entry into Brazil of the American banks, led by the First National City Bank of New York, which, after having helped to finance the Taubaté coffee valorization scheme in 1906, finally opened in 1915 its first Brazilian branch. That delay was not due to its lack of interest in operating in the country, but to restrictions of the US banking legislation to investments abroad, probably caused by the fact that, up to the First World War, the United States had been a net importer of capital resources.

In the rest of this chapter, I shall present a characterization of the development of some infrastructural services in which the role of foreign capital has been most important. Once again, I shall take up in the first place the case of the railroads, whose evolution during the period under analysis can be gathered from the data of the table below.

Table I. Track Extension of Brazilian Railroads (km)

Periods	Total length at the end	Addition (total)	Yearly average addition
1854-1873	932	932	49
1873-1888	9,321	8,389	524
1889-1907	17,605	8,284	436
1908-1914	26,062	8,437	1,208
1915-1928	31,851	5,789	413
1929-1934	33,106	1,255	209

SOURCE: A. V. Villela and W. Suziyan, *Política do Governo e Crescimento de Economia Brasileira, 1889-1945* (Rio de Janeiro 1973) 393.

As can be seen in the first line of this table, their initial growth was very slow and discontinuous. The minimum interest rate for governmental subsidy payments was first fixed at 5 per cent per *annum*, and later it was increased to 7 per cent of the invested capital. Another financial incentive adopted by the Brazilian government during the 1870s was the guarantee of a favoured exchange rate for the remittance abroad of the profits made by foreign railway companies. These stimuli were the main factor behind the great track increase

¹⁸ On these relationships, see among others, the works of Victor V. Valla, *A Penetração Norte-Americana na Economia Brasileira, 1898-1928* (Rio de Janeiro 1978) and S.C. Topik, *Trade and Gunboats: The United States and Brazil in the Age of Empire* (Stanford 1996).

observable during the second period, from 1873 to 1888, when the total extension of the Brazilian railroads increased ten times, mostly on the basis of British loans and direct investments.

With the advent of the Republic in 1889, and due to the increasing foreign exchange problems and rising financial difficulties, governmental policies had to be changed, and the effect of this can be observed in the last column of the third line, where we notice a decrease of the yearly average increments. Most foreign-owned railway companies were deficitary, and thus required growing governmental subsidies to remain in operation. Because of this, the Brazilian government was forced to suspend the payments warranted by the minimum interest rates policy described at the beginning of this paper. And, after the 1898 Funding Loan agreement, it had to acquire the foreign-owned railway companies, which were subsequently leased back to their former operators or to other foreign entrepreneurial groups. Later on, further foreign loans were taken by the Brazilian government in order to expand the tracks, something that happened mainly in the years that preceded the outbreak of the First World War, when annual increments reached a level of more than 1.2 thousand kilometers.

It is important to note that, with the exception of the state of São Paulo, where there was some sort of railway network, Brazilian railroads tended to remain isolated from each other, having been built and maintained fundamentally as ways of penetration to the interior, and as means of transportation of a few exports staples to their ports of embarkation. For this reason they seldom played a decisive role in the integration of the national market economy. Only in the areas served by the railways of São Paulo did they prove capable to transport foodstuffs and raw materials from the interior to the main urban and industrial centers, and industrially manufactured goods from there to the interior.

A much more important role in this regard began then, and still continues nowadays, to be played by Brazil's motorways, whose expansion was strongly intensified from the 1920s on, contributing in part to the subsequent decline of the railroads growth rates, as can be observed in the two last lines of the table. This decline, however, has to be attributed not only to a reduction of the investments in railroads, both during and after the First World War, and later also in the depression and wartime years of the 1930s and 1940s, but also –and perhaps mainly– to an increasing priority of governmental investments in road transportation, which coincided –and not by chance– with the beginning of the installation of Brazil's automobile industry, by Ford in 1919, and General Motors a few years later.

The expansion of motorways and the preference for roads vis-à-vis the railroads are mainly due to the lower fixed costs required by the former in both their construction and operation. But they also derive in no small measure from the mechanical improvements and the decreasing costs of the vehicles themselves, which began to be imported by Brazil already in the first years of the twentieth century. Actually, it was their growing acceptance and demand in the country, which determined the early establishment of automobile and truck assembly lines in Brazil. To this concurred the fact that, around 1920, the

extension of Brazilian highways, notwithstanding their quality, was already four times greater than that of the railroads.

This great diffusion and generalization of motorways in Brazil was to become a source of its high internal circulation costs for all commodities, since the freight rates per kilometer would undoubtedly be much lower by rail. But, at the same time, Brazil's growing highway network, together with its increasing demand for motor vehicles, also would become an important factor for the rapid development of its automobile industry, and for the development of manufacturing industries in general after the Second World War. It is possible to imagine that a slower pace of industrialization might have resulted from the adoption of an alternative path.

Still within the transport sector, a reference needs to be made to the improvement of several Brazilian harbours. Initially built and / or expanded and modernized for the furthering of foreign trade, the ports of Brazil did also contribute to the spatial and sectorial integration of the country's national market economy, through the increment and improvement of both coastal and fluvial transportation¹⁹. The need of improving Brazilian harbours was already voiced in 1808, when Portugal's royal family, court and higher administration moved from Lisbon to Rio de Janeiro because of the Napoleonic wars, but, in this case again, more concrete measures and actions in that direction were only taken decades after the country's political independence from Portugal, more specifically at the beginning of the 1850s, after the establishment of regular navigation services between Brazil and Britain.

In order to stimulate the construction and/or modernization of harbours along the extended seashore of the country, the Brazilian government created, by a law of 1869, a system of financing port improvements and reforms through a specific tax levied on both imports and exports. This measure was later reinforced, in 1886, by the guarantee of a minimal interest rate for the remuneration of capital invested in these public construction works and activities. These incentives resulted in the building of new docks in the harbour of Rio de Janeiro, and in the construction of new ports in Santos and Manaus, which were inaugurated respectively in 1892 and 1903, and whose administrations were trusted to private companies (national in the case of Santos, and British in that of Manaus). Although the number of these improvements may seem rather small, their importance was undoubtedly very great, since these ports really were the main export and import gates of the country.

A further stage in this development did set in at the beginning of the twentieth century, during the government of president Rodrigues Alves, and in the context of a general modernization program of the country's service infrastructure, which was financed by a succession of foreign loans taken by the Brazilian government for this purpose. These loans were authorized by the 1903 federal budget law, which also stated that each of the modernized ports would adopt the administrative structure more in accordance with its specific needs. Their produce was assembled in a specific fund managed by a specially created state

¹⁹ The subsequent paragraphs are based on A.V. Villela and W. Suzigan, *Política do Governo e Crescimento da Economia Brasileira, 1889-1945* (Rio de Janeiro 1972) 383-391.

agency, charged with the financing of each project, and the reimbursement of the foreign loans.

The latter were entirely paid back in the early 1920s, after which the state agency itself was extinguished. Thanks to this program, the following harbours were modernized and reshaped during those years: Belém (1908), Rio de Janeiro (1910), Salvador (1914), Recife (1918), and Porto Alegre (1921). With the exception of Salvador and Ilheus (whose reform was completed in 1925), both of them attributed to private concessionaries, all of them became administered by governmental agencies. This has been viewed as an innovation by several authors who insist to consider the First Republic an essentially liberal system, and even a model to be followed in the present neoliberal times.

Anyhow, besides allowing a smoother handling and a faster flow of Brazil's foreign trade, these upgraded ports also became quite useful for the integration of the country's national market economy. At a time when railroads remained unconnected with each other, and when motorways were still quite precarious, coastal and fluvial navigation constituted the main transportation means linking the various states of the Brazilian federation. And both were also relatively efficient and inexpensive in handling a great part of Brazil's interregional trade. Between the early 1920s and the second half of the 1930s, the tonnage transported by them doubled.

Turning now from transport to energy, we shall focus on electric power, whose generation and distribution was, like nowadays again, in the hands of private initiative and foreign capital. This was, and still remains, a key infrastructural service for the expansion of manufacturing industry in general. Its first appearance in Brazil occurred relatively early, and was almost immediately followed by a rapid absorption and diffusion of its underlying technologies²⁰.

The last years of the nineteenth century and the first ones of the twentieth were those of most rapid growth in generating capacity, which then increased at an annual rate of almost 30 per cent. This was specially so in the field of hydroelectricity, whose participation in total generating capacity did expand constantly, increasing from 31 per cent in 1889 to 46 per cent in 1900, and more than 80 per cent in 1910. This proportion remained virtually unchanged until the beginning of the Second World War in 1939. At the same time, however, the yearly growth rates generating capacity began to falter already from that first date, attaining 8.4 per cent between 1910 and 1920, 7.6 per cent during the 1920s, and only 4 per cent in the 1930s.

According to the French specialist Jean Marie Martin, who in 1966 published a study entitled *Processus d'Industrialisation et Développement Énergétique du Brésil*, this slackening was due on the one hand to the dual structure of that industry –dominated by a couple of large multinational corporations, and at the

²⁰ Cf. T. Szmrecsányi, «Les Ingénieurs Electriciens de l'Etat de São Paulo, Brésil», in: L. Badel (ed.), *La Naissance de l'Ingénieur-Electricien: Origines et Développement des Formations Nationales Electrotechniques. Actes du troisième Colloque International d'Histoire de l'Electricité* (Paris 1997) 435-441.

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same time integrated by a great number of small municipal firms— and on the other by the decreasing financial rentability of its power production activities.

The first of these features can be gathered from the following data obtained by his study:

Table II. Number of Electrical Power Generating Firms and Plants in Brazil

Years	Firms	Plants	Total	Per firm	Per plant
1889	3	3	3	1	1
1900	11	11	17	1.6	1.6
1910	88	88	119	1.4	1.4
1920	306	343	431	1.4	1.3
1930	791	891	1,536	1.9	1.8
1940	1,312	1,499	2,205	1.6	1.5

We can see by them that, until the 1910, no firm had more than one power plant, and that the number of plants per firm increasing very slowly from then on. Almost the same applies to the number of municipalities served by these firms and plants, whose highest figures during the period under analysis were reached in 1930.

At the end of the last decade, two great foreign controlled more than 70 per cent of Brazil's total electricity generating capacity, with 50 per cent pertaining to the Canadian firm Light & Power Co., which supplied electrical power to the Rio de Janeiro and São Paulo metropolitan areas, and 20 per cent to the American Foreign Power Corporation (AMFORP), controlled by General Electric, which did the same in other larger consuming centers of the country. Both of them, having achieved a monopolistic position in their respective areas of operation, ceased to reinvest their profits in the expansion of their power generating capacity²¹.

On the other hand, the electrical power provided by the numerous small municipal firms and plants was not only more expensive, but also quite irregular in its supply, making industrial manufacturing activities rather difficult outside of the larger towns and, more particularly, outside of the São Paulo-Rio axis, controlled by Light & Power. And even there, due to the lack of investments in the expansion of generating capacity, very serious problems began to occur from the 1930s on. This situation would only be overcome well after the Second World War, through an increasing state intervention in the sector.

Concluding this chapter, I would like to stress that foreign capital's presence and influence has always been very substantial in Brazil. It undoubtedly helped to develop and modernize the country. But, initially, it also contributed to reinforce its specialization in the production and exports of a few primary goods, and this in turn was responsible for the maintenance of slavery during

²¹ See in this regard my «Apontamentos para uma História Financeira do Grupo Light no Brasil. 1899/1939», *Revista de Economia Política*, 6 (1), Jan./Apr. (1986), pp. 132-135.

several decades after 1850, and also for the permanence, up to our times, of a great landownership concentration. Later on, with Brazil's industrialization, it introduced new productive technologies which were not always suited to the country's material and human resources, while the growth pace of the foreign firms which were being installed in the country frequently did not accommodate to the needs of its development –as we have just seen in the case of the electrical power industry–. And, through time, it has also contributed to reduce the national economic surplus eventually available for investment and reinvestment, by taking out from Brazil more resources than it had brought to it. This applies particularly, but not only, to the foreign banks, whose assets grew out of local financial operations, instead of resulting from actual inflows of external capital resources.

Of course, the main responsibility for all this does not rest with foreign capital itself; but rather with the successive Brazilian governments, which have not learned (or did not want to learn) how to deal with it. Past policies in this respect have been usually rather erratic and, nowadays, the multinational corporations have become too powerful for being faced of challenged by single local administrations.