THE OXFORD HANDBOOK OF

THE BRAZILIAN ECONOMY

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CHAPTER 3

THE NINETEENTH AND EARLY TWENTIETH CENTURIES

ANDRÉ VILLELA

Eric Hobsbawm famously dubbed the 1789–1914 period the "long" nineteenth century.[1] With this he intended to highlight elements of continuity in the sociopolitical landscape of Europe, starting with the French Revolution and running all the way through World War I and the collapse of the "old order." A case could be made for a similarly "long," if slightly different, nineteenth century in Brazilian economic history. Such a period would start sometime in the early nineteenth century proper (perhaps in 1808, with the transfer of the Portuguese royal family to Brazil and the opening of the ports to friendly nations) and would extend into the early 1930s, at which point the collapse of the coffee industry brought down the First Republic and allowed for a so-called shift in the dynamic center of the Brazilian economy (Furtado 1970, Chapter 32). Out went the leading role that the primary-export sector had played since the early days of Portuguese settlement and in came the domestic sector—the manufacturing industry, especially—as the main source of economic growth.[2]

Within this long nineteenth century of Brazil's economic history, one can identify two subperiods, which roughly coincide with the country's political history, namely 1808–1900 and 1900–1930. The former covers the years in which Brazil served as the political and economic center of the Portuguese Empire (1808–1822), the years of the Brazilian imperial period itself (1822–1889), and the first republican decade. The latter represents most of the period corresponding to the First (or "Old") Republic. What sets these two subperiods apart is the pace of economic growth. While for most of the 1800s the Brazilian economy certainly did grow in size, per capita gross domestic product (GDP) barely inched forward. Economic growth until the early 1900s, for the most part, was extensive and was enabled by rapid population growth in a land-abundant and resource-rich setting. Productivity gains in this period were few and far between, faced with a host of obstacles. From the early twentieth century onward, however, some of these obstacles were gradually removed, and economic growth picked up and became intensive, allowing for continued population expansion amid rising (if still low) per capita incomes. In a sense, then, at the beginning of the 1900s, Brazil gradually embarked on what economists call "modern" economic growth—characterized by sustained increases in per capita GDP—in a process that had been pioneered earlier by a few economies of the West and their so-called offshoots.

3.1. Brazil's Long Nineteenth Century: An Overview

The population of Brazil in 1798 has been estimated at 3.3 million.[3] By the time of the first official census in 1872, the total population had reached approximately 10 million, implying an average annual growth rate of 1.5%. By the end of the imperial period in 1890, the Brazilian population had increased to 14.3 million, and in 1930 it was 34–35 million, meaning that the average annual rate of population growth in these four decades had increased to 2.2% (Merrick and Graham 1979).[4]

While population figures for the pre-census period in Brazil (that is, before 1872) are still subject to dispute, estimates of the size of the Brazilian economy in the nineteenth century carry an even greater degree of uncertainty. Several authors have attempted to provide a measure of the size of market-based economic activity in Brazil before the twentieth century, including Contador and Haddad (1975), Goldsmith (1986), Leff (1982), and, more recently, Tombolo (2013).[5] Although their estimates vary, they seem to agree that per capita GDP barely grew during the first half of the nineteenth century, and displayed a moderate rate of growth for the remainder of the imperial period.[6] As shown in Table 3.1, from the early twentieth century onward—as a result of a number of factors, to be analyzed later in this chapter—the Brazilian economy began to display higher rates of per capita growth, on the back of the country's engagement in the liberal international world order that would prevail until the onset of the Great Depression.

To a large extent, Brazil's role in the evolving international division of labor—that of exporter of tropical commodities and importer of manufactured goods, capital, and labor—determined the relative dynamism of its economy. During the period under review here (the early 1800s to 1930), coffee undoubtedly figures prominently in the story, alongside crops such as sugar, cotton, and (briefly, around the turn of the century) rubber. This export-oriented sector comprised the more advanced part of the Brazilian economy, at a time when the manufacturing industry was still in its infancy. Throughout the imperial period and, in part, in the First Republic (1889–1930), the behavior of this export sector (its share of GDP, growth over time, terms of trade, etc.) would have a great bearing on overall economic performance, although modern industry, from its inception at the turn of the century, took on an increasing role in providing the Brazilian economy with further sources of dynamism. However, the definitive shift in this process

Table 3.1 Brazil: Population and Per Capita GDP, 1820–1930[a]

Year	Population (Million)	Per Capita GDP (1990 Geary-Khamis Dollars)	Average Annual Rate of Growth (%)
1820	4.7 (1819)	683	
1870	10.1 (1872)	713	0.1
1890	14.3	794	0.5
1900	17.3	672	−1.7
1930	34–35	1,048	1.5

[a] Population figures in IBGE (1990). Per capita GDP estimates from the Maddison. Project Database, http://www.ggdc.net/maddison/maddison-project/home.htm,2013 version (accessed December 26, 2016).

would have to wait until the Great Depression and the accompanying collapse of the coffee industry; at this point, the manufacturing industry and the domestic economy more generally took over from the export sector as the linchpin of the Brazilian economy.

Throughout this long nineteenth century, agriculture was the mainstay of the Brazilian economy, although its share of GDP began to decline around 1900. As there are no statistics for agricultural output during the imperial period, one must rely on figures for exports in order to get a glimpse of the structure of the primary sector—in particular, the one oriented toward the international market.[7] As shown in more detail in Table 3.2, before 1830 sugar, cotton, and hides—the main export items for most of the colonial period—still prevailed, only to see coffee overtake sugar as Brazil's top export item (a position it would hold for more than a century). Although it had been introduced into Brazil in the 1720s, it was only in the early nineteenth century, with a combination of political upheaval in Saint-Domingue (theretofore the major world producer) and the narrowing of Cuba's specialization toward sugar alone, that Brazil filled the void and established itself as the world's main coffee producer and exporter.[8] This capacity, in turn, stemmed from the country's vast supply of land and labor (slaves), which drew into the chain of production and commercialization domestic and foreign capital, respectively.

While coffee took over from sugar as the chief export item in Brazil, the latter, alongside cotton and tobacco, remained an important crop in the Northeastern region. To a great extent, the contrasting fortunes of these other crops—whose output and exports grew at a much slower rate vis-à-vis coffee—help explain the spatial shift in the center of the Brazilian economy that unfolded after mid-century, from the Northeast toward the Southeast (Rio de Janeiro, São Paulo, and Minas Gerais).

The emphasis that the literature places on export crops during the nineteenth century might suggest that they comprised the largest sector of the Brazilian economy in this period. But this would be misleading. Indeed—and despite some dispute concerning the

Table 3.2 Commodity Distribution of Brazilian Exports, 1821–1913 (%)

	Cacao	Coffee	Cotton	Hides	Rubber	Sugar	Other	Total
1821–1829	1.4	25.7	13.5	11.6	0.0	30.4	17.4	100.0
1830–1839	0.8	37.4	9.9	8.0	0.0	31.5	12.3	100.0
1840–1849	1.4	38.6	4.5	8.7	0.0	32.1	14.7	100.0
1850–1859	1.1	48.2	6.2	7.7	2.1	21.6	13.2	100.0
1860–1869	0.8	47.0	17.9	5.7	3.3	11.5	13.8	100.0
1870–1879	1.0	55.8	10.6	4.7	5.3	12.8	9.9	100.0
1880–1889	1.7	60.1	4.2	3.2	10.9	11.4	8.5	100.0
1890–1899	1.6	68.0	1.7	2.8	13.8	3.8	8.3	100.0
1900–1909	3.0	53.6	2.4	4.1	25.5	1.2	9.3	100.0
1912–1913	2.4	61.0	2.2	5.9	19.8	0.1	8.6	100.0

Source: Online appendix in Absell and Tena-Junguito (2016).

true share of exports in GDP (to be discussed in the next section)—there seems to be little doubt that *domestic* agriculture employed the bulk of the labor force in nineteenth-century Brazil. The backward technology—and, hence, low productivity—of this type of activity, combined with its sheer size, helps explain the low rates of GDP growth mentioned earlier. This state of affairs would slowly begin to change at the dawn of the republican period, as railway expansion brought significant productivity gains to the economy, allowing for higher rates of per capita GDP growth from the turn of the century onward.

Structural change would also contribute to higher rates of growth from the early twentieth century onward. In 1900 agriculture comprised approximately 45% of the Brazilian economy, with the services sector accounting for a similar share, whereas industry amounted to just over 10% of the whole. Three decades later, these shares had changed to 36%, 49%, and 15%, respectively (Bonelli 2003). The increasing share of the manufacturing sector in the economy, enhanced market integration, and the general expansion of capitalist relations in both goods and factor markets all combined to produce—for the first time in Brazilian history—high and sustained per capita GDP growth.

Throughout the nineteenth century, slaves represented a significant—though declining—share of the Brazilian population and workforce. Between 1800 and 1856 (when the final, illegal, landing took place), some two million African slaves entered Brazil, out of a total estimated 3.2 million brought to the Americas in the same period.[9] Starting in mid-century, immigration of free European labor increased, amounting to an estimated flow of some 220,000 individuals between 1851 and 1870. This was followed by a similar number of immigrants in the 1870s, half a million in 1881–1890, and a peak of more than 1.1 million in the final decade of the nineteenth century. Between 1900 and

1930, another 2.3 million immigrants would enter Brazil, mostly from Southern Europe, but also from Germany, Central Europe, Japan, and the Middle East.[10]

If the supply of labor to the Brazilian economy was kept perfectly "elastic" by means of both forced and free immigration, access to the two remaining factors of production would have to rely on a combination of nature and legislation in the case of land, and the willingness and/or capacity of Brazilian and foreign entrepreneurs in the case of providing capital in order to fund investments in railways, ports, and public utilities, and to finance government debt.

Prior to 1822, access to land in Brazil took the shape of either a royal grant of a tract of land of up to 50 square miles (*sesmaria*) or outright squatting (*posse*). The *sesmaria* system would be discontinued in 1822 with political independence from Portugal, and for the next three decades land policy would remain in legal limbo. This did not stop, however, the march of the coffee frontier northwest from the city of Rio de Janeiro along the Paraíba River valley, mostly by means of squatting on public land. In 1850—and after decades of debate in Parliament—the new Land Law was passed. However, its main objectives—to provide for the legalization of land titles by way of proper demarcation and registration, and to prevent further encroachment on public land—were largely frustrated (Bethell and Carvalho 1989).[11]

Nineteenth-century Brazil was a capital-scarce economy. Such local resources as existed were channeled to the most productive sectors, such as coffee, railways, the slave trade, sugar, and, later in the century, rubber. In the absence of even sparse data on domestic investment, one must rely on information on foreign investment to get an idea of trends in capital formation in Brazil. Foreign investment (both portfolio and direct) in 1825 amounted to just over £4.1 million; by 1895 this stock had increased to £79.6 million, roughly split between direct and private portfolio investment, on the one hand, and loans to the public sector, on the other. In 1930 the total stock stood at approximately £500 million, with public portfolio investments accounting for just over half of this amount (Abreu 1985).[12]

The stock of human capital in Brazil—as proxied by the literacy rates of the population aged five years or more—was very low throughout the nineteenth and early twentieth centuries. The 1872 census indicated a rate of 17.7%, which would increase modestly until 1920 (when it was at 28.8%), reaching 38.8% in 1940.[13]

From early on, the Brazilian economy was geared toward providing foreign markets with primary products. Estimates put Brazil's share of world exports at 2.3% on average between 1830–1850, inching up to a peak of 2.7% in 1850–1870. From then on, this share would continuously drop and reached 1.7% on average between 1913 and 1929 (Federico and Tena-Junguito 2016).

As noted earlier, the imperial period marked the ascendancy of coffee as Brazil's main export crop. In 1830 coffee accounted for just over 40% of total exports, amounting to £3.3 million; by 1889 coffee exports exceeded 60% of a total valued at £28.5 million.[14] Over the course of the First Republic, the absolute value of merchandise exports increased further, exceeding £100 million in a couple of years. In the 1920s they averaged around £90 million per annum, largely due to high international coffee prices resulting from the so-called valorization schemes carried out by Brazil (IBGE 1990). Coffee's share of total merchandise exports ranged from 50% to 70% in the early decades of the twentieth century. The remaining export items consisted of traditional staples such as sugar, cotton, tobacco, hides, and so on.[15] Wild Amazonian rubber experienced a boom at the turn of the century, with its share of total exports peaking at nearly 40% in 1910. Competition from Southeast Asia on the eve of World War I would spell the end of this boom, however.

During both the imperial period and the First Republic, the *milréis* (expressed as 1$000) was the official currency of Brazil. The exchange rate against sterling began the nineteenth century at between £0.29–£0.35/1$000, embarking on a downward trend from the late 1910s onward. In 1833 a (notional) gold parity of £0.18/1$1000 was set, later (1846) reduced to £0.11/1$000. Apart from the 1854–1864 years, when gold-backed note issues comprised a significant share of the money supply, for the remainder of the imperial period a fiduciary system prevailed. This arrangement also applied for most of the First Republic, barring the 1906–1914 and 1927–1930 intervals, during which convertible notes were issued by a currency board. Throughout this 100-plus-year period, the rate of exchange varied greatly, although its trend was unambiguously downward, reflecting persistent inflation in Brazil.[16]

The Brazilian banking system remained underdeveloped for most of the imperial period. The government-controlled Bank of Brazil aside, few other banks operated outside the capital. Banking services were also, partially, performed by commercial houses and private banks. From mid-century onward—and on account of the growth of the export sector and economic activity at large—several foreign banks set up operations in Brazil. Commercial banks other than the Bank of Brazil were also established, often with countrywide branches. Banking activity expanded in the early days of the First Republic, only to subside in the wake of the boom and bust episode known as the *Encilhamento*, which brought two successive waves of bank failures. Economic recovery at the start of the twentieth century was accompanied by renewed banking activity. From 1906 a refounded Bank of Brazil would gradually establish itself as the largest bank in the land, combining private banking operations with proto-central bank functions until well into the 1980s.[17]

In line with the rest of the world, the size of the public sector in nineteenth- and early-twentieth-century Brazil was markedly smaller than it would become in the 1930s. Raymond Goldsmith puts central government revenues at around 10% of GDP during the imperial period, increasing to 12.5%–16.4% during the First Republic (Goldsmith 1986). The share of central government receipts in the public sector total stood at just over 80% in 1856, and declined consistently afterward, reaching 54.2% in 1929. For most of the nineteenth century, import taxes comprised the single most important source of central government revenues, bringing in 50%–65% of total tax receipts. This share declined during the early decades of the twentieth century, as taxes on domestic consumption and income gained importance amid the diversification of economic activity in general. A combination of note issues and debt (both domestic and foreign) helped finance recurrent budget shortfalls during the whole period under examination here. As a result, foreign public debt, which stood at £5.3 million in 1830, reached £30.4 million in 1889 and £267 million in 1930 (Abreu and Lago 2014; Villela and Suzigan 2001).

In what follows, I confine discussion to just two aspects of the Brazilian economy during the empire and the First Republic, namely its growth over time, and the resultant structural changes.[18]

3.2. The Imperial Period: Falling Behind

The publication, almost 20 years ago, of an influential collection of essays (Haber 1997) served to stimulate academic interest in the roots of Latin America's relative economic backwardness.[19] The qualifier "relative" in this sort of context usually refers to a comparison of growth rates (or per capita GDP levels) between different Latin American countries, on the one hand, and the United States. Against this yardstick, Brazil's performance throughout the nineteenth century was underwhelming. It is estimated that US per capita GDP in 1800 was already twice as high as Brazil's; by 1850 the ratio had increased to 3:1, and in 1890 it stood at just over 4:1.[20]

What accounts for this difference? Or, to put it differently, why did GDP per capita grow so slowly in nineteenth-century Brazil? A popular explanation would point to slavery as the reason for Brazil's underperformance in the imperial period. After all, slavery has been often thought of as archaic and anti-capitalistic, and this form of labor was all too pervasive in nineteenth-century Brazil.

However, this explanation is clearly insufficient, as it does not account for Cuba's superior economic performance in the nineteenth century, despite the sharp decline of its terms of trade starting in the 1840s.[21] Nor does it explain the marked contrast in economic performance of two contemporaneous slave-based economies, the US South and Brazil's coffee region, in favor of the former (Graham 1981).

A different hypothesis for the contrasting fortunes of the North American and Latin American economies over the long run was put forward by Engerman and Sokoloff (1997) in their oft-cited chapter.[22] Essentially, these authors credit institutions such as slavery itself, schooling, access to land, and voting rights with the ultimate influence over what they perceive as Latin America's (and Brazil's) slower growth performance in the long run and in comparison with the rates of growth achieved by the United States and Canada. According to Engerman and Sokoloff, these institutional differences in turn stemmed from differences in the factor endowments (as captured, for instance, by climate, soil type, or the supply of indigenous labor) of Latin America vis-à-vis British North America.[23]

The Engerman and Sokoloff argument, identifying colonial institutions as the reason for slower long-run growth rates in Latin America as a whole, has not gone unchallenged. In this regard at least two skeptical views stand out.

In the first of these, associated with the work of Leandro Prados de la Escosura, the very notion of Latin American economies "falling behind" sometime in the nineteenth century should be revised, on at least two counts. First of all, the benchmark normally used in these types of comparisons is the United States, admittedly the most successful instance of per capita GDP growth over the past two centuries (de la Escosura 2007). If instead of the United States a composite made up of rich (that is, current members of the OECD) countries were used as benchmark, Latin America's growth record since the mid-nineteenth century would not stand out as so disappointing. Indeed, from 1860 to 1938 the region managed to post growth rates on a par with the group of industrialized countries (de la Escosura 2007, 22).[24] Second, the author shows that the severest drop in Latin America's (and Brazil's) per capita GDP vis-à-vis the Organisation for Economic Co-operation and Development (OECD) countries took place between 1980 and 2000; therefore—and *contra* Engerman and Sokoloff—it would make more sense to search in the very recent past, rather than in the colonial era, for the factors that account for the continent's relative economic underdevelopment.

The second strand of criticism of the Engerman and Sokoloff view comes from Leticia Arroyo Abad. Contrary to those authors, whose argument endows factors occurring in the distant past with a great deal of persistence over centuries (path dependency), Arroyo Abad reminds us that endowments themselves are not fixed, but rather, change over time as countries are more or less open to the outside world. Indeed, as merchandise trade and flows of both capital and labor grew in Latin America (and the world as a whole) throughout the nineteenth century, the region's endowments changed in tandem, resulting in varying rates of growth and distribution of income across the different countries (Abad 2013).

The previously mentioned shortcomings of the Engerman and Sokoloff argument serve to reinforce the idea that there is no "silver bullet" or single factor when it comes to identifying the cause(s) of such a multivariate and complex phenomenon as economic growth. Institutions must certainly be included in any list of explanations, as must geography (or factor endowments). Trade—both foreign and internal—and economic policy are also likely candidates in any "holistic" explanation of why the nineteenth-century Brazilian economy grew at a slow rate.

One attempt at identifying the main factors accounting for such a trajectory was made by an often overlooked student of Brazilian economic history, Nathaniel Leff. In a number of articles published in the 1960s and 1970s in prestigious journals in the fields of economics and history, and subsequently revised and published in book form, Leff advanced an interpretation that involves three main points (Leff 1982; for a shortened version of the same arguments, see Leff 1997).

The first point involves a composition effect, namely, the fact that the Northeast region as a whole—which, at the start of the independent period (1822) was home to approximately half the Brazilian population—probably experienced a decline in per capita GDP over the nineteenth century. This contrasted with the fortune of the Southeast, where economic growth attracted increasing numbers of workers, both free men and slaves, resulting in it becoming, by the end of the monarchic period, the demographic and economic center of the country. These opposite trajectories, in turn, stemmed from the divergent paths taken by the main export staples in both regions. While Northeastern cotton and sugar experienced competition from more efficient suppliers in the United States and Cuba, respectively, in coffee—the main export crop of the Southeast—Brazil gradually established itself as the world's leading producer and exporter, capable of exercising market power.[25] (A similar point is also made by Furtado 1970, Chapter 18).

The second—and most original—point emphasized by Leff concerns what appears to have been the occurrence of a peculiar form of the "Lewis model" in Brazil.[26] For Leff, contrary to the original version of the model, the Brazilian historical experience consisted of a supply of labor that was for political reasons kept *permanently* "unlimited"—at first, by importing of millions of African slaves and, from the last quarter of the nineteenth century onward, by subsidizing the entry of an almost equal number of European immigrants. Two outcomes of this deliberate policy may be discerned. On the one hand, there was little pressure on average wage rates in Brazil, with dire consequences for the welfare of the majority of the population. Consumer demand, as a result, was kept limited to simple wage goods. The other long-term—and negative—consequence of this excessive supply of labor was the limited incentive it provided for the substitution of capital for labor, and thus the increase in the marginal productivity of the latter.

Leff's third and final reason for why the Brazilian economy grew so little in the nineteenth century has to do with the limited size attained by the modern—in this case, export—sector of the period. The idea here is that while the overall productivity of the Brazilian economy during the imperial period was low, the export sector—which attracted more capital and entrepreneurial talent, and adopted the most productive technology—displayed a relatively higher degree of efficiency. As a result, depending on the relative size of this sector (that is, its share of GDP) the average productivity of the economy will be higher or lower.

Establishing the actual size of the export sector in nineteenth century Brazil is a difficult undertaking. As already noted, trade statistics for the period are far from reliable, although a recent revision has managed to correct some of the major errors in previous compilations (Absell and Tena-Junguito 2016). Still, there remains the problem of constructing better estimates of the size of the Brazilian economy itself for the nineteenth century, which makes the export/GDP ratios calculated by Absell and Tena-Junguito questionable. Based on the GDP estimates provided by Tombolo (2013), these authors claim that exports accounted for between 10% and 45% of Brazilian GDP in the nineteenth century, averaging about 30% over the whole period.[27] This ratio appears too high, as it would imply an openness ratio (that is, imports plus exports as a percentage of GDP) of, roughly, twice that size (i.e., some 60%).[28]

If one accepts a more likely export ratio in the 15%–20% range, then it becomes clear that the most productive sector in nineteenth-century Brazil accounted for a small share of the economy as a whole. Furthermore, given the small size of both the manufacturing and service sectors, it remains that domestic agriculture employed the largest share of the workforce at the time. Ultimately, then, it was the absence of significant productivity gains in the domestic agricultural sector that held back economic growth in the imperial period.

Two interrelated factors explain the limited growth potential (and performance) of the domestic agricultural sector. First is the often rudimentary techniques that were employed (slash and burn technology with little recourse to metal implements such as hoes, scythes, and plows) in the production of foodstuffs (Linhares and Teixeira 1981). Second—and, arguably, more important—are the huge transport costs that characterized inland trade in Brazil. Geography, of course, played a part in this, as the almost 1,000-mile-long Serra do Mar mountain range, rising just a few miles in from the Southeast coast (where the largest urban settlements had been established since colonial times), posed a formidable obstacle to the movement of goods and people between this area and the hinterland. Moreover, the absence of a network of navigable rivers (let alone man-made canals) near the coast, in addition to poor roads, made the mule train the main mode of transportation well into the second half of the nineteenth century. High transport costs, in turn, militated against specialization and accompanying gains from trade. As a result, commodity markets remained poorly integrated, and the incentives for the adoption of productivity-enhancing technology were small.[29] In the end, then, the more efficient export sector, comprising a relatively small share of the Brazilian economy, was unable to push the rest of the productive sector forward.[30]

This state of things would only begin to change with the advent of the railway. The first track was laid in 1854, but significant expansion did not occur until the 1880s.[31] The potential impact of the new technology on overall efficiency (and, thus, economic growth) was tremendous, coming as it did to upgrade an antiquated transportation system. As a result, the volume of output produced for the market increased, as did the extent of interregional specialization (Leff 1997, 46).[32] The tardiness and relatively modest scale of the introduction of such a growth-enhancing transport technology should not be ascribed either to short-sightedness on the part of the local elite or to acritical adherence to laissez-faire ideology. Rather, it was the limited fiscal resources at the disposal of the government (provincial governments, especially) that prevented a more aggressive investment policy, either directly or through subsidies to the private sector (Leff 1997, 51–54).

One might speculate as to whether Brazil could have escaped this slow growth scenario that prevailed throughout the nineteenth century. However, returning to the major points highlighted in the preceding provides us with no indication of (historically meaningful) alternative scenarios that would have enabled the imperial economy to perform much better. Indeed, the factor of geography—which locked the Northeastern economy into the production of sugar and cotton, with their declining terms of trade—also figures in the way that mountainous topography and a dearth of navigable waterways both formed major obstacles to greater market integration and overall productivity gains. By the same token, to the landed elite's unwillingness to provide tax resources, which could have enabled the state to fund the provision of public goods such as railroads or schools, must be added the possibility that the value of their taxable land was not that significant anyway, given their distance from markets. Finally, an official policy of restricting the inflow of foreign labor (which would have pushed up local wages) was always going to have been highly unlikely, given the elite's dependence on abundant and thus cheap hands to work the land (Leff 1997, 58–59).

Nevertheless, by the end of the imperial period things started to change, albeit very slowly. Railway construction proceeded apace, as did the abolition of slavery and the start of mass European immigration in the late 1880s, the latter providing the market with abundant and better educated labor.[33] In addition, some of the institutional barriers that had hindered growth for most of the nineteenth century would come down, as in the cases of the ban on the free incorporation of joint-stock companies (repealed in 1882) and the taxation of interprovincial trade (prohibited by the 1891 Constitution). Finally, the beginnings of modern industry in the late nineteenth century would introduce a further potential source of productivity gain to the Brazilian economy. It is to this slowly evolving economic scenario—which coincides with the demise of the imperial regime and the onset of the Republic—that I now turn.

3.3. Modern Economic Growth (Slowly) Kicks In: The First Republic

At the outset of the Republic, Brazil was still a very poor country, even by regional standards. It is estimated that Argentina's per capita GDP in 1890 was almost three times as high, while Mexico's was 30% higher. The difference in relation to the United States and the United Kingdom was even greater: 4:1 and 5:1, respectively. Other indicators attest to Brazil's relative underdevelopment. The urbanization rate (measured by the percentage of the population living in cities of over 20,000 inhabitants) in 1890 was a mere 5.7%, as against 19.3% in Argentina and 14.8% in Chile. In schooling, Brazil displayed an enrollment rate of only 2.3% of the population, compared to 7% in Argentina in 1890; in the same year, 85% of the Brazilian population was illiterate (all figures in this paragraph in Franco and Lago 2012, 199).

The early republican period was highly unstable, both politically and economically, thus contrasting with the relative stability of the previous regime (at least during most of the Second Reign).[34] In the financial arena, major changes to monetary policy and capital market legislation helped fuel a boom in the Rio stock exchange in the 1890s, followed by an equally spectacular bust. The *Encilhamento* episode, with its aftermath of exchange-rate collapse and two successive waves of bank failure, helped strengthen the position of monetary orthodoxy for the remainder of the First Republic. Still, there is no disputing the real effects of this early republican experiment in monetary profligacy in fostering—if only unwittingly—the first wave of import substitution industrialization in Brazil, in the cotton-weaving industry (Fishlow 1972).

Economic policy for the rest of the first republican decade was geared toward attempts at restoring exchange rate stability, which was attained in the early twentieth century—and only then after a bailout loan from British creditors, in tandem with the adoption of harsh deflationary policies.[35] The resultant recovery of the exchange rate, in combination with coffee prices languishing at an all-time low, led to the decision to intervene in both the commodity and money markets in 1906, which resulted, on the one hand, in the first so-called coffee valorization scheme, involving the withdrawal from the market of part of Brazil's ever-increasing produce, and on the other, the setting up of the Conversion Office (*Caixa de Conversão*), marking Brazil's embrace of contemporary gold standard orthodoxy.[36]

Economic growth in the decade before World War I stemmed, mostly, from the coffee and rubber booms and attendant infrastructure investments in railroads, ports, city improvements, and so on.[37] Industrial production also benefited from a combination of growing markets, expanded infrastructure, and a stable currency (during 1906–1914), which favored the importation of capital goods.[38] Throughout, the Brazilian government adopted a mostly laissez-faire approach in the economic sphere, except for crucial support (via special concessions or subsidies) to the railway and steel sectors and indirect backing (through loan guarantees) to the first coffee valorization scheme.[39]

The (admittedly incomplete) industrial survey carried out in 1907 provides a snapshot of the manufacturing sector in the early years of the twentieth century. In that year the number of industrial units reached 3,258, employing some 152,000 workers. The textile industry, individually, accounted for about a third of this workforce, with the bulk of the manufacturing sector consisting of the food-processing and beverage industries. The survey also counted firms operating in other sectors of the light manufactured goods industry, such as shoes, matches, hats, tobacco, ceramics, and so on. As is to be expected, the metal and mechanical industries employed but a small fraction of total workers in the manufacturing sector in 1907 (Bonelli 2003).

In spite of the performance of both the industrial and export sectors, overall economic growth in the first two decades of the republican period was disappointing, with per capita GDP barely budging between 1889 and 1913.[40] World War I, rather paradoxically, helped to change this, as pent-up demand for manufactured goods amid severe import restrictions helped fuel a second round of import-substitution industrialization. In a repetition of the sequence observed in the early 1890s, a previous phase characterized by a stable (and relatively appreciated) rate of exchange facilitated the purchase of capital goods from overseas, to which was added local production of technologically simpler machinery (Franco and Lago 2012, 228). The increased productive capacity thus achieved was to be employed during the war years, allowing for an average growth of manufacturing output of 8.5% per annum during 1914–1918 (Bonelli 1996, 84).

By 1919, when the first full industrial census was undertaken, Brazil had achieved near self-sufficiency in the production of light consumer goods, which accounted for some 80% of manufacturing value added. The intermediate goods industry, in turn, comprised 16.5% of manufacturing value added, with the remainder being made up of the more technologically complex capital goods and consumer durables industries. In those sectors, consumption was met mostly by imports (Fishlow 1972, 322–323).

The 1920s mark the pinnacle of Brazil's export-led growth "model." Indeed, with the end of the Amazonian rubber boom, coffee reigned supreme once again, making up 70% of total exports on average. Coffee exports doubled in value in the final decade of the First Republic, amounting to £57 million per annum, on average, against £29 million per annum in 1900–1919. Most of this increase, in turn, is explained by the higher coffee prices that were ensured from 1922 on by the so-called permanent policy of withdrawing from market excess output.[41]

The Brazilian economy grew at an average rate of 5.7% per annum between 1919 and 1929, while manufacturing output expanded at a slightly slower pace of 5.2% per annum. It was during this decade that the first large-scale steel and cement plants were set up in Brazil. Together with investments in the chemical and mechanical industries, as well as the assembly lines for automobiles and light trucks built by Ford and General Motors, they testify to the increased sophistication of the industrial landscape.[42]

Three phases stand out in this decade: a boom in the immediate aftermath of World War I that extended until 1920; slowdown and recovery in 1921–1914, followed by deflation in 1925–1926; and a final boom in 1927–1929. The first beginnings of this latter phase came in the early months of 1929, when difficulties in balance of payments set in motion a monetary contraction by the Stabilization Office. The resultant credit squeeze led to a drop in industrial output, but its greatest impact would be felt by the coffee valorization scheme. Two successive bumper crops, in 1927 and 1929, made further financing of coffee stocks untenable in the midst of the credit crunch, leading to massive shipments of coffee to the market and a price collapse (Bonelli 2003, 381–382).[43]

Taking the 1900–1930 period (for which there are reliable estimates of physical output) as a whole, it becomes clear that the escape from a regime of virtual stagnation of GDP per capita, which characterized the nineteenth century, began sometime in the 1900s—although only slowly. Sustained growth of per capita GDP would continue, with a few bumps along the way, all the way to the Great Depression, and beyond.[44]

By 1930 the Brazilian economy was, certainly, a very different beast from the economy at the outset of the First Republic four decades earlier; it was bigger, more industrialized and urban, and average incomes stood some 30% higher. Nevertheless, in absolute terms Brazil was still a poor, mostly agrarian, country, its social indicators (literacy and urbanization rates, for instance) lagging behind those of the major Latin American economies at the time. Faster and sustained economic growth, coupled with equally faster social and political change, would be a feature of the post-1930 era.

3.4. Specialization and Long-Term Growth

Since the period discussed in this chapter broadly corresponds to that of so-called classical globalization, that phenomenon serves as a good lens for taking stock of the nature and pace of economic change in Brazil in the nineteenth and early twentieth centuries.

The vast literature on the first great wave of globalization emphasizes two interrelated aspects of the period, namely, the so-called Great Divergence and the Great Specialization.[45] The former refers to the growing gap in economic growth between, on the one hand, a group of countries in Europe and their offshoots and, on the other, the vast majority of countries, which remained trapped in a low/no growth regime. The Great Specialization, meanwhile, refers to the observed trend toward the specialization of the economies of different countries in the production and export of goods in which they possessed comparative advantages. Such specialization, in turn, was greatly aided by the significant reduction in transport costs (thanks, for instance, to railways and the steamship) over the nineteenth century, making the shipment of vast amounts of bulky merchandise over large distances feasible for the first time in human history.

This chapter has discussed Brazil's laggardly performance for most of the circa 1820–1930 period, when per capita GDP increased by no more than 50%. This lackluster growth record places Brazil among the large group of countries that diverged from those few economies which managed to achieve high rates of economic growth in the period.

One might speculate as to whether Brazil's poor growth record was the to-be-expected outcome of its specializing in the production and export of primary goods, in contrast to those economies that successfully industrialized and embarked on a British-style mode of modern economic growth. However, the historical evidence does not back this up. In other words, it is not necessarily the case that the gradual escape from poverty achieved by a few countries over the course of Hobsbawm's "long" nineteenth century was predicated on their experiencing some form of industrial revolution. Rather—and as cogently argued by Harley (2014)—modern economic growth in the period was driven, more than anything else, by the spread of capitalism and its attendant institutions, prominent among which were markets (for goods, services, and factors of production).

The cases of economies that displayed a remarkable growth record before World War I and where the manufacturing sector did not figure prominently are well known: Australia, New Zealand, Argentina, and Uruguay.[46] What these countries have in common is their specialization in the export of temperate commodities, whereas Brazilian exports consisted of tropical goods. Perhaps it is the nature of the commodities being exported—rather than the specialization in the production and export of commodities as such—that accounts for differing growth trajectories among these economies.

In discussing the impacts of the first wave of globalization on the fortunes of developing countries, Jeffrey Williamson (2011) highlights three possible channels through which the growth prospects of Third World countries might have been hampered: (1) through a process of deindustrialization; (2) by means of the possibly perverse economic effects of disproportionate political power being conferred on a landowning elite; and (3) via exposure to price volatility, made worse by excessive concentration in the export of just a few commodities.[47]

The first factor does not apply to the Brazilian case, but the remaining two do. As already discussed, legal access to land in Brazil was restricted to a minority, who also exercised control of the political process. As a result, public policies that would have implied the provision of a larger amount of public goods (such as schools, hospitals, and investments in infrastructure in general) and, hence, economic growth were precluded. Also, Brazil's specialization in the production and export of coffee—itself a consequence, at least in part, of its geography—may have meant a somewhat unfortunate draw in the so-called commodity lottery, given the long-term behavior of its international price.

According to Williamson, the Brazilian economy displayed some of the highest degrees of price volatility among Third World countries between the 1860s and World War I. This was in part due to the high commodity export concentration ratio (compared to Argentina, for example). To make matters worse, Brazilian exports per capita were between one-quarter and one-half of the value exported by countries in the region, such as Argentina, Chile, Uruguay, and Cuba, all of which achieved much higher rates of growth in the period (Bulmer-Thomas 2003, 68). Finally, compared to other commodities, coffee seems to have provided far fewer linkages to other domestic sectors, thus limiting even further its overall propensity to push the rest of the Brazilian economy forward.[48]

In sum, Brazil's disappointing growth performance during the Great Specialization derived, to a large extent, from a combination of two factors: (1) a relatively small export sector (and, conversely, a large, unproductive domestic agricultural sector); and (2) its reliance on the sales of a commodity that was neither particularly successful in world markets—in terms of both its prices (which were volatile) and overseas demand (which grew in line with incomes)—nor did it have as widespread and significant an impact on domestic economic activity as other primary products had in various countries.

We are back, then, to Nathaniel Leff's broad assessment of Brazil's growth record in the nineteenth century, as discussed earlier. Ultimately, it appears that one could not reasonably have expected the Brazilian economy to have fared much better than it did at the time, given the several constraints under which it operated. Geography was one such constraint (another was institutions), with a major bearing on transport costs and on Brazil's specialization in the production of coffee, a crop that failed to have as great—and as positive—an impact as temperate commodities had for frontier economies such as Argentina, Uruguay, Australia, the United States, and Canada.

However, one should not conclude from the preceding discussion that some form of geographical determinism is being advocated. As Brazil's post-1930 history would go on to demonstrate abundantly, against the same geographical backdrop highly significant socioeconomic and political change could take place.

Notes

1. I wish to thank the volume editors for their helpful comments. I am also indebted to Marcelo de Paiva Abreu and Carlos Accioly for their careful reading of ad comments on an

earlier draft chapter. Finally, I would like to thank our dear friend, the late Werner Baer, for the invitation to contribute to this *Handbook*.

2. Rapid industrialization notwithstanding, commodities (with coffee looming large) would still comprise the bulk of Brazilian exports well into the 1960s.
3. This section follows a "canonical" division of topics aimed at providing a broad overview of the Brazilian economy from ca. 1800 to 1930. For a similar treatment (albeit confined to the imperial period), see Abreu and Lago (2014).
4. Aggregate rates of population growth in this period mask a distinct difference in the patterns observed depending on the racial/ethnic groups concerned. Hence, the population of European descent grew at an average rate of 1.79% per annum between 1798 and 1872, while the free black population grew at 3.17% per annum. The slave population, meanwhile, actually dropped slightly, reflecting the harshness of their labor regime (and overall inferior living conditions) and the end of the slave trade in 1850. For a summary discussion of long-term Brazilian population history, see Livi-Bacci (2002). Due to political turmoil the population census was not carried out in 1930.
5. For the first half of the twentieth century, the best estimates are those by Haddad (1978). From 1947 onward, official GDP data calculated within a national accounts framework became available.
6. This view is shared by Furtado (1970, Chapter 25) and is, broadly speaking, the subject of consensus. In contrast, a highly implausible claim is made by Engerman and Sokoloff (1997) according to whom per capita GDP in Brazil grew at an average rate of 0.4% per annum between 1800 and 1850, only to decline 0.4% per annum between 1850 and 1913. For a critique of this contrarian claim, see Abreu and Lago (2014, 3).
7. As one approaches the end of the nineteenth century, though, export figures for items such as sugar, cotton, and tobacco lose their relevance as a proxy for output, as the local market becomes an important outlet for domestic producers (Abreu and Lago 2014, 4–6).
8. The literature on the history of the coffee industry in Brazil is, of course, huge. A recent contribution that places this history within the broader international context is Marques and Tomich (2009).
9. Data in the Slave Voyages Database, http://www.slavevoyages.org/assessment/estimates (accessed August 17, 2016).
10. Data on immigration in Merrick and Graham (1979, 37). The marked increase in the annual rate of immigrant arrivals that Brazil experienced at the end of the imperial period/early Republican period is partially explained by legislation enacted in 1884, which provided for the granting of government subsidies covering travel expenses for immigrant families coming into São Paulo.
11. On land policy in nineteenth-century Brazil, see Dean (1971). The 1850 Law was instrumental, however, in the success of the official colonization schemes that were carried out in the southern provinces, and which provided for the parceling out of public land in smallholdings to European immigrants.
12. British capital dominated these flows for most of the period, although American investments made up an increasing share from World War I onward.
13. Brazilian literacy rates lagged behind not only those achieved by industrialized countries, but also most of the rest of Latin America (see Mariscal and Sokoloff 2000). Data on literacy rates in Brazil are in Ferraro (2002). On the relationship between low levels of human capital and Brazil's poor economic record until the 1930s, see Barros (2016).

14. Brazilian trade statistics for the early imperial period are notoriously inaccurate, as they rely on so-called official (rather than market) values. For a recent attempt at revision, see Absell and Tena-Junguito (2016).
15. For the breakdown of Brazilian exports, see Villela and Suzigan (2001, 63).
16. For example, the exchange rate, which in 1889 stood at close to parity (that is, at 27d/1\$000), would average a mere 4.9d/1\$000 in 1930. The history of the financial system during the empire is discussed in detail in Abreu and Lago (2001).
17. For the early history of banking in Brazil, see Cavalcanti (1893). The facts leading to the *Encilhamento* are discussed in Franco (1987) and Schulz (1986). For the history of banking during the First Republic, see Triner (2000). The development of the *paulista* capital market is the subject of Hanley (2005). On the connection between the coffee sector and capital markets in nineteenth-century Brazil, see Sweigart (1987).
18. On the long-run performance of the Brazilian economy, see Villela (2013).
19. Although the imperial period would only begin in 1822, following political independence from Portugal, since 1808 Brazil had become the administrative center of the Portuguese empire, which only served to reinforce its status as de facto economic center. In the following I treat the whole period extending from the early nineteenth century to 1890 as the "imperial" period.
20. If, alternatively, one were to choose as the baseline the group of Southern Cone countries, Brazil's performance would not look so bad, yet the country would still stand out as a laggard: it has been estimated that Argentinean per capita GDP was 1.4 higher than Brazil's in 1800, and this ratio increased to 3:1 by 1890; in the case of Chile, the ratios were 1:1 in 1800 and 2.5:1 in 1890; for Uruguay, 1.6:1 and 2.7:1 over the same period. All ratios calculated from data on GDP per capita (in 1990 international dollars) in the Maddison Project Database, http://www.ggdc.net/maddison/maddison-project/home.htm, 2013 version (accessed August 20, 2016).
21. Cuba's GDP per capita in 1800 was estimated by the Maddison Project as equivalent to just over \$500 (in 1990 international dollars), against Brazil's \$683; by 1890, it had climbed to \$1,510, while in the case of Brazil it had crawled to just \$794. As for the so-called net barter terms of trade (that is, the ratio of export prices to import prices—a measure of the purchasing power of exports), these dropped by half in Cuba between the 1820s and 1880, while increasing by 70% over the same period in Brazil. This difference, essentially, reflects the contrasting fortunes of sugar and coffee, respectively, in the international market in this period. For the terms of trade, see de la Escosura (2009).
22. In later years these authors would refine their original arguments in a host of essays ultimately collected in Engerman and Sokoloff (2012).
23. It is worth noting that the argument linking factor endowments ("geography") in the New World to different outcomes of European colonization is not new. In Brazilian historiography it was famously advanced in 1942 by Caio Prado, Jr. (Prado 1942; also published by the University of California Press in 1967 as *The Colonial Background of Modern Brazil*). In contrasting the fortunes of the tropical and temperate colonies in the Americas, Prado (1942)followed nineteenth-century European historians, especially Paul Leroy-Beaulieu (1882). For discussion see Leonidio (1999).
24. In this respect, it must be said that the Brazilian experience was somewhat different, as catching up with OECD countries would only start sometime around 1930, extending into the early 1980s.

25. One might wonder why, in light of the declining competitiveness of the sugar and cotton crops in the Northeast, resources were not redirected into coffee. This was no simple task, as Leff explains. Not only did the shallow capital markets of the day render this relocation more difficult, but climatic reasons made coffee less adapted to environmental conditions in the Northeast. To make matters worse, the author speculates that the Northeast may have also suffered from the so-called Dutch disease, as the (nationwide) exchange rate, mostly determined by export earnings from the coffee sector, proved to be overvalued for the sake of the competitiveness of sugar and cotton exports (Leff 1982, Chapter 1).
26. The model was first presented by Lewis (1954). The Lewis model predicts that as countries develop, surplus labor is pulled in from the "subsistence" (agricultural) sector into the "capitalist" (industrial) one, attracted by the higher wages paid by the latter. At first—and while the supply of labor is still unlimited—the industrial sector manages to grow while preventing wage costs from denting its profits, which help finance capital investments in this sector. Over time the marginal productivity of workers in the industrial sector will increase with capital formation, while being driven down by the arrival of new workers. Eventually, the wage rates in both sectors will tend to equalize as workers leave the subsistence for the capitalist sector, increasing marginal productivity—and hence wages—in the former while driving down productivity (and wages) in the latter.
27. Exports/GDP ratios in Absell and Tena-Junguito (2016), derived from "eyeballing" Figure 3 in their article. Export ratios of 30% for Brazil, as posited by Absell and Tena-Junguito, are almost twice as high as the figures suggested by, among others, Leff (1982, 41) and Goldsmith (1986, 52).
28. Openness ratios of 60% in the nineteenth century contrast markedly (and implausibly) with 30% in Western Europe in 1870. For the latter, see O'Rourke, de la Escosura, and Daudin (2010, 106).
29. Long distances and high transport costs also reduced potential outlets for manufacturing goods produced in urban centers closer to the coast, thus thwarting productivity gains arising from economies of scale in production and distribution.
30. A simple exercise shows that with a population growth rate of 2% per annum, a share of the export sector of 20% of GDP and a domestic agricultural sector that expanded either at the same rate as total population (that is, displaying no productivity gains) or at a rate of 2.5% per annum (.5% annual productivity gain), Brazilian exports would have to grow, on average, between 7.5% and 9.5% per annum between 1850 and 1913 in order for GDP per capita to increase by 1.5% per annum. In practice, though, exports grew at just 2.8% per annum in this period. For this exercise, see Bulmer-Thomas (2003, 61). Export growth rate in Absell and Tena-Junguito (2016, 692).
31. Still, by 1890 the country would have only 9,973 kilometers of operating track. Total track of just over 26,000 in 1914 was equivalent to the amount achieved by the United States in the 1850s. See Leff (1997, 44–45).
32. The social savings (that is, the difference between shipping a given amount of freight by railway and the cost of shipping the same amount over the same distance without the railway) accruing from the introduction of this novel transport technology has been estimated at 18% of Brazilian GDP in 1913. Comparable estimates for the antebellum United States put these gains at less than 4% of GDP, reflecting the country's efficient transport system prior to the massive subsequent expansion of the American railway network. See Summerhill (2003, 97–98).

33. On the long and varied process of transition from slave to free labor in Brazil, see Lago (2014). For European immigrants' higher levels of basic education when compared to native Brazilians, see Merrick and Graham (1979, 111) and Barros (2016, 164).
34. For the political history of the period, see Cardoso (1985)).
35. On economic policy during the first republican decade, see Franco (1987) and Fritsch (1988, Chapter 1).
36. It is worth noting that the *Caixa de Conversão* introduced convertibility to gold "at the margin" only, that is, strictly of those notes issued by this office, but not to the (much higher) volume of Treasury notes already in circulation.
37. In the wake of railway expansion and the massive inflow of European immigrants, the Brazilian coffee sector experienced a boom at the turn of the century, its output increasing from an average of 8 million 60-kg bags in the 1890s to 14 million bags in 1900–1913. By then São Paulo had taken over leadership of the industry from Rio de Janeiro, with the number of trees in the state increasing fourfold between 1886 and 1905 (from 150 million to 600 million) and stabilizing thereafter. See Holloway (1984, 264). Meanwhile, exports of wild rubber increased from an average of 20,000t in the 1890s to more than 35,000t between 1900 and 1913. See IBGE (1990, 347).
38. On the increased productive capacity prior to World War I, see Baer and Villela (1973, 221). For an excellent history of Brazilian industrialization, see Suzigan (2000). For the capital goods industry in particular, see do Lago, Almeida, and Lima (1979). Dean (1969) remains the classic treatment of the social origins of the *Paulista* industrial entrepreneurs.
39. Import tariffs throughout the First Republic were among the highest in the world. Still, their protective effect on industry was relatively minor compared to protection afforded by the exchange rate. For this point, see Fishlow (1972) and Villela (2000).
40. GDP estimates in constant "international" dollars from the Maddison Project Database, http://www.ggdc.net/maddison/maddison-project/home.htm. Population, meanwhile, increased 2.4% per annum on average in the same period, from 14 million to 24 million.
41. From 1927 to 1930 coffee exports were also sheltered from exchange rate appreciation with the operation of a currency board, the Stabilization Office (*Caixa de Estabilização*), which fixed the value of the *milréis* at 5.9 pence.
42. However, light consumer goods would still dominate the industrial structure in the 1920s, with an estimated 80% of total value added. For industrialization in the 1920s, see Bonelli (1996, 83–87) and Suzigan (2000, 90–92).
43. For a detailed account of economic policy and its consequences during the final decade of the First Republic, see Frisch (1988).
44. As a result of their different rates of growth along this 30-year period, agriculture lost 10 percentage points. of its share of Brazilian GDP, estimated at 35.8% in 1930, whereas industry increased its share of GDP from 11.6% to 14.8% over the same period, with the services sector comprising the largest part of the economy in 1930 at 49.4%. See Bonelli (2003, 374).
45. For an excellent treatment of the period, see Findlay and O'Rourke (2007, Chapter 7).
46. Although not a frontier economy, Denmark could be added to this list of fast-growing economies where industrialization did not play a significant role.
47. The idea being that export price (or terms of trade) volatility hampers growth by "encouraging low-risk and low-returns investment projects as well as less investment" (Williamson 2011, 184).
48. On the limited linkage effects involving the coffee industry in Brazil, see Catão (1992).

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