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Inclusive growth without structural transformation? The case of Brazil

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Inclusive growth without structural transformation?

The case of Brazil

Sergio Firpo,¹ Renan Pieri,² and Rafaela Nogueira³

May 2020

Abstract: Through rapid urbanization, Brazil—previously a country where most workers were in the agricultural sector—went through a strong process of structural transformation that lasted almost four decades until economic liberalization at the beginning of the 1990s. During the same period, income inequality remained practically stable and at high levels, only falling at the end of the 1990s. Taking a historical point of view, this paper analyses the Brazilian experience during three periods: 1950 to 1964, 1964 to 1994, and 1994 to 2011. The analysis provides evidence that an import substitution system based on tariff and non-tariff barriers to foreign products, combined with low investment in human capital, meant that the structural transformation process was not correlated with inclusive growth.

Key words: Brazil, import substitution system, inclusive growth, structural transformation

JEL classification: E02, O40, P48

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1 Introduction

In this paper we discuss the developer's dilemma in Brazil. The dilemma faced by middle-income countries, as defined by Kim, Sumner, and Yusuf (2019), is between promoting economic growth through structural transformation and productivity growth, or promoting inclusive growth. This developer's dilemma is not new in economics. In a seminal paper of 1955, Simon Kuznets, despite a lack of data, pointed out that economic growth could promote the reduction of income inequality for developed countries, but could have the opposite effect for developing countries.

For developing countries, Kuznets (1955) described the drop in income inequality in the first half of the 20th century as a 'puzzle'. That interpretation is explained by the fact that in this period there were strong industrialization and urbanization processes, which according to the author should have increased inequality, because agricultural societies faced lower inequality at that time. Urbanization, however, led to a fall in inequality, because it increased the incomes of low-income workers in urban areas. At the same time, the burden of rural households fell on the national economy. Therefore, inequality decreased even though urban workers had higher incomes than rural households.

Kuznets (1955) also argued that inequality would usually be lower in developing countries. This was because even the rich would be poor compared with high-income citizens in developed countries, while the poorest would have to have enough to survive. However, this was not the case for many countries. Brazil, for example, during its pre-industrial era had a very rich elite despite its low average income per capita.

Industrialization and urbanization do not necessarily reduce inequality in developing countries. According to Sen (2014), at times of accelerated growth formal institutions are created to stabilize the relationship between politicians (and bureaucrats) and the firms (investors) that promote growth. This might explain the high level of income inequality in Brazilian society during the urbanization process. Naturally, accelerating growth creates inequality. In periods of growth maintenance, there is room to create institutions that promote inclusive growth.

For the Brazilian economy, the dilemma is that structural transformation led to a significant increase in labour productivity, especially between the 1950s and the 1980s. The Brazilian experience shows that the lack of certain factors during the process of structural transformation is fundamental with regard to the shift to sustainable inclusive growth. In particular, these factors included a lack of investment in basic human capital or the creation of an institutional setting that would secure market transactions. Thus, if we follow the framework of Kim and Sumner (2019), Brazil experienced an incomplete structural transformation: its secular deindustrialization was marked by a decline in the value-added and employment shares of the manufacturing sector during the 1990s and 2000s.

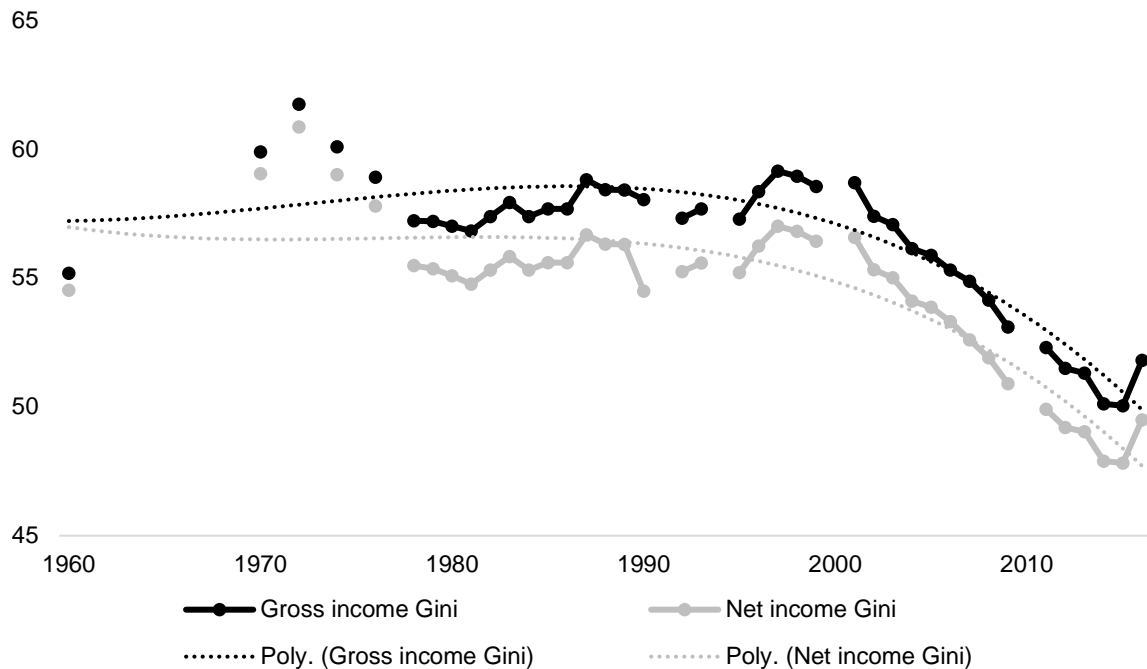
In section 2 of this paper, we present a general assessment of the developer's dilemma in Brazil. Next, we divide recent Brazilian economic history into three periods. The period before 1964 (the year of the beginning of the Brazilian military regime) is explored in section 3. The period from 1964 to 1994 (the year of monetary stabilization) is discussed in section 4. Section 5 discusses the period from 1994 to 2011, when there was a significant drop in economic inequality. Section 6 deals with the evolution of the economy after 2011—a period when the country experienced a severe economic crisis—and Brazil's economic prospects for the future. In section 7, the main conclusions are presented.

2 The developer's dilemma in Brazil: an overview

Herrendorf et al. (2013) define structural transformation as a process of the reallocation of economic activity across sectors. The process of structural transformation moved Brazil from a rural economy to an urban and more complex economy, and was the main driver of the labour productivity growth that occurred between the 1950s and 1970s. In 1940, 68 per cent of the population lived in rural areas. By 2010, this figure had fallen to 15 per cent (IBGE 2020).

The structural transformation of Brazil was directly related to its industrialization process. The combination of rapid urbanization with an active import substitution policy created the basis for the growth of the manufacturing sector. Initially a base industry with strong state investment in the 1930s, and with a growing consumer goods industry from the 1950s onwards, the manufacturing sector started to play a more relevant role in economic growth, even in an economy that was still predominantly agricultural. However, the progress of the structural transformation process did not appear to be related to a reduction in economic inequality in these first decades of industrialization.

Figure 1: Gross and net income Ginis, Brazil, 1960–2016

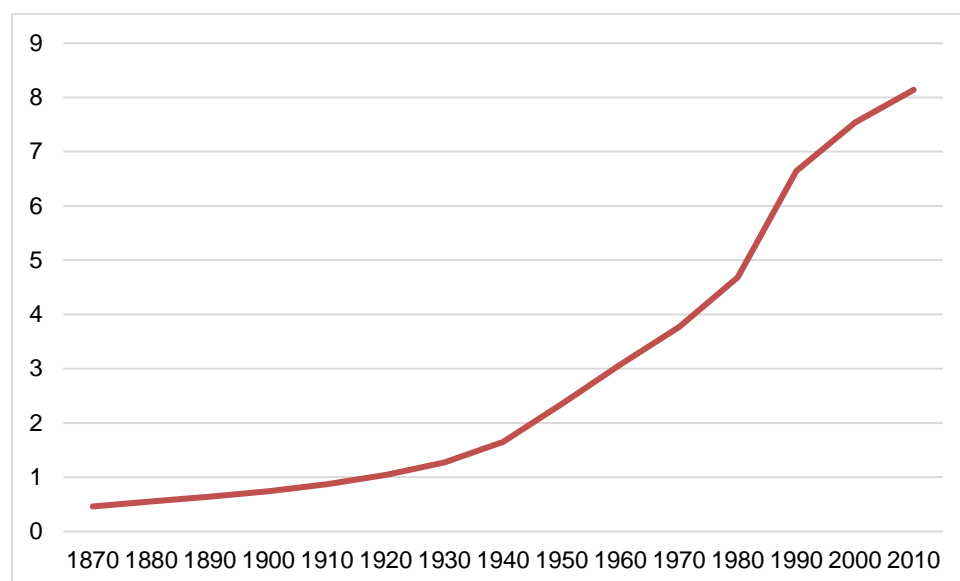


Source: authors' calculations based on UNU-WIDER's World Income Inequality Database (WIID).

Figure 1 presents Gini indices between 1960 and 2016. Economic inequality grew between the 1960s and the beginning of the 1970s, a period when the process of structural transformation had greater weight in the growth of labour productivity. After this, between the mid-1970s and the end of the 20th century, inequality remained stable. It would only fall again with the new cycle of economic growth in the 2000s, which will be described in section 5. Firpo and Pieri (2017) investigated how structural transformation drove Brazilian productivity between 1950 and 2005. They concluded that it was an important force until the mid-1970s. After that period, labour productivity did not increase, and the sparse episodes of productivity gain were mostly associated with within-sector changes, such as during the mid-1990s, when the country faced an intense process of trade liberalization.

Following the end of the hyperinflation era in 1994, Brazil struggled with low economic growth and stagnant labour productivity. However, the combination of social policies focused on the poor, the boom in commodity prices, and the rise of consumer credit promoted a wave of the creation of formal contract jobs, which successfully reduced poverty and income inequality. Also, Brazil increased access to education in such a way that average schooling rose from 4.7 years in 1980 to 8.1 years in 2010. Figure 2 presents the evolution of average schooling years in Brazil. Despite the facts that school quality was still a troubling problem and a large share of students did not have access to higher education, advances in the amount of schooling contributed to a fall in the returns to education over the period.

Figure 2: Average schooling years



Note: population aged 15 years and older.

Source: authors' illustration based on data from van Leeuwen and van Leeuwen-Li (2015).

Unlike many other (mostly developed) countries that promoted openness in their trade flows with the rest of the world economy, Brazil did not experience a subsequent increase in inequality. Indeed, inequality has fallen since the 2000s. Historical data comparing the evolution of the Gini during the 1970s—the period of annual 10-percentage-point increases in gross domestic product (GDP)—with more recent years reveals that the Brazilian ‘golden age’ of structural transformation and rapid economic gains was also the period when inequality dramatically increased. By contrast, in more recent periods, especially the 2000s, productivity was stagnant, but nevertheless the economy grew, and inequality fell. The growth of the Brazilian domestic consumer market and changes in the demographic profile of workers caused a massive reduction in inequality, despite some recent setbacks due to the economic crisis of 2014.

The developer’s dilemma in Brazil is about how to reconcile a new cycle of structural transformation with inclusive growth. In the following sections we detail the political economy and the process of structural transformation for the periods before 1964 (the year of the military coup), from 1964 to 1994 (the years of dictatorship and hyperinflation), and from 1994 to 2011 (the years after monetary stabilization).

3 A brief economic history of Brazil up to 1964

Brazil started the 20th century with a rural economy based on the production and export of coffee. Only in 1888 did the country abolish slavery. The end of slavery still did not mean the economic inclusion of the black population, and Brazil entered the 20th century with an illiterate and essentially poor population. Until 1930, political power was shared by the rural elites of the states of São Paulo and Minas Gerais, representing the interests of coffee and milk producers. There was no electricity in most cities, and there were very few manufacturers in the country.

The political environment began to change in 1930 with a revolution organized by states from outside the centre of power. The dictatorship of Getúlio Vargas, following nationalist movements of the time, created the first base industries, focusing on state companies in steel and oil. In the next two decades, a non-durable goods industry flourished in Brazil, mainly due to the policy of import substitution. A trade policy with high tariffs and various forms of non-tariff barrier (NTB) has featured in several periods of Brazilian history. In addition to being a conscious strategy of development through the domestic production of goods that had previously been imported, for most of the long period between the 1880s and 1980s Brazilian protectionism was due mainly to problems with the balance of payments (de Paiva Abreu 2004a). The import substitution system, as it is known nowadays, was created because of government difficulties in dealing with debts in foreign currency after the 1929 crash, but over time Brazilian policy makers came to see it as a strategy to develop the manufacturing sector in Brazil.

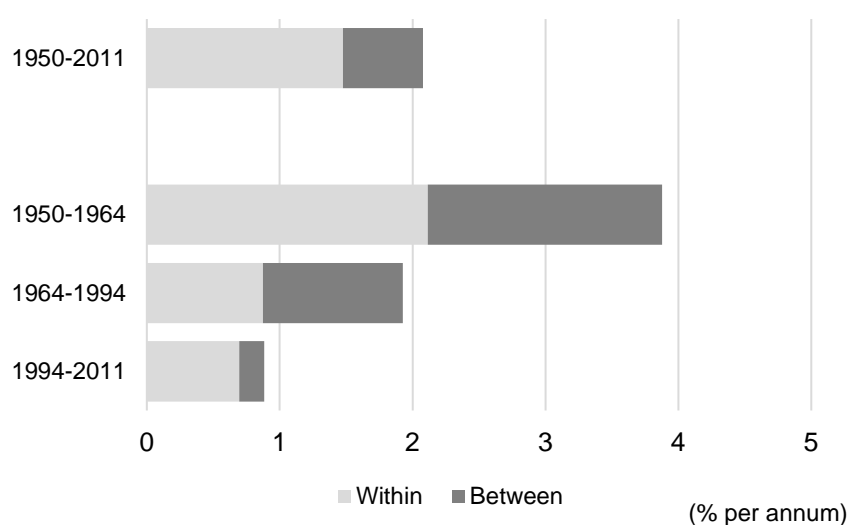
According to de Paiva Abreu (2004a), the average import tariff in the 1880s was 38 per cent in Brazil, a situation shared with other Latin American countries such as Mexico (39.7 per cent) and Colombia (45.7 per cent). The highest rates were set mainly for consumer goods, while tariffs for capital goods were also high. For de Paiva Abreu, the reasons for Brazil's development of a protectionist trade policy were the size of the territory and the inelasticity of demand for coffee, which allowed farmers to pass on most of the enhancement of production inputs due to high tariffs. Another relevant factor was the dependence of government revenues on import taxes.

In the 1950s the durable goods industry also grew in Brazil, and there was a rapid process of urbanization, with people migrating from poorer regions in the north and north-east to the south-eastern region, where most manufacturers were concentrated. This movement would last until the end of the 1980s, and this was the most important period of structural transformation in Brazil. Thus, structural transformation in Brazil has been directly related to urbanization and the interregional migration process.

As the urban population grew, unions became more important in political life. At the end of 1950s, Brazil was a very different country than it had been at the beginning of the century: most people now lived in cities, and new political actors had emerged. In the context of the Cold War, moreover, Brazilian political groups started to question democracy and its results. There followed some years of growing inflation and political turbulence, with the resignation of President Jânio Quadros in 1961; three years later, in March 1964, the military took political power, and it ruled the country for 25 years.

Along with this industrialization process, there was a strong growth of labour productivity. Figure 3 shows the growth rate of labour productivity in each of the three periods analysed. Between 1950 and 1964, average labour productivity grew by 3.8 per cent per year.

Figure 3: Decomposition of labour productivity growth, Brazil, 1950–2011



Note: decomposition uses the methodology of McMillan and Rodrik (2011).

Source: authors' calculations based on GGDC (Groningen Growth and Development Centre) 10-Sector Database Version 2015 (Timmer et al. 2015).

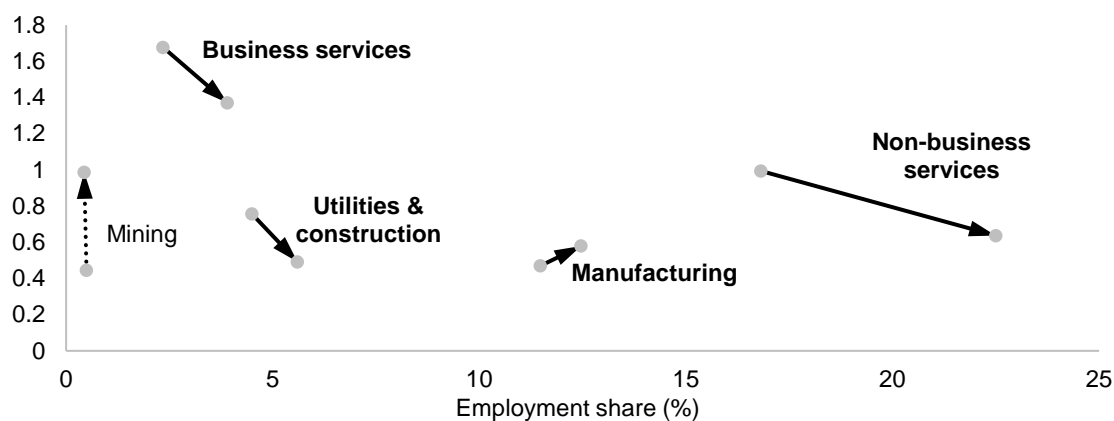
Structural change is closely linked to the migration of people from less productive sectors to more productive sectors. In decompositions of productivity development, this component is called the 'between' component. Labour productivity changes may also include 'within' components, related to improvements in the companies themselves, their processes, or their employment of more productive workers. In the case of Brazil, Figure 3 shows that most of the productivity growth between 1950 and 2011 was due to 'within' changes, possibly related to an increase in the capital stock of the economy over time and significant improvements in access to education. Figure 3 also shows that productivity grew significantly more between 1950 and 1964 than in subsequent periods. For the years between 1950 and 1964, around 45 per cent of productivity growth can be explained by the structural transformation component.

Figure 4 shows the variation of the log of the ratio between sectoral productivity and the average productivity of the economy. For values above zero, the sector had productivity above the economy average. In the first panel, it is observed that between 1950 and 1964 the productivity of all sectors presented is higher than the economy average because agriculture is excluded. Between 1950 and 1964, the share of agricultural employment in total employment fell from 64 per cent to 55 per cent; thus agriculture was still the sector that employed the greatest number. At the same time, its share in GDP fell from 13.3 per cent to 9.5 per cent.

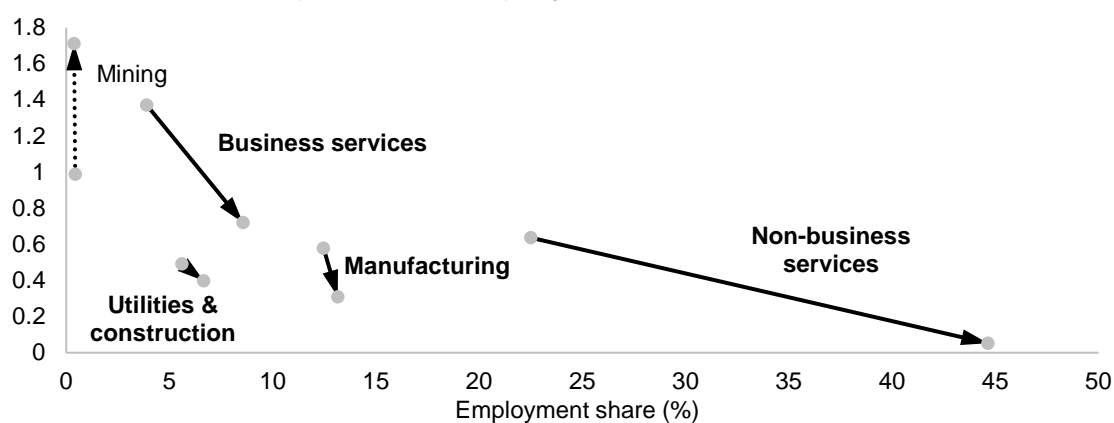
It is also observed that the service sectors (business and non-business) and the utilities and construction sector underwent a relative fall in productivity, as they began to have a greater employment share (the employment share of non-business services grew from 16.8 per cent to 22.5 per cent). This highlights the phenomenon of structural transformation, since these sectors incorporated workers from agriculture during the industrialization process. The average product per worker in the period increased by 70 per cent. In the opposite direction, the mining and manufacturing sectors had an increase in productivity in relation to other sectors, with the average product per worker in the manufacturing sector growing by around 90 per cent.

Figure 4 Changes in labour productivity and employment share by sector, Brazil, 1950–2011

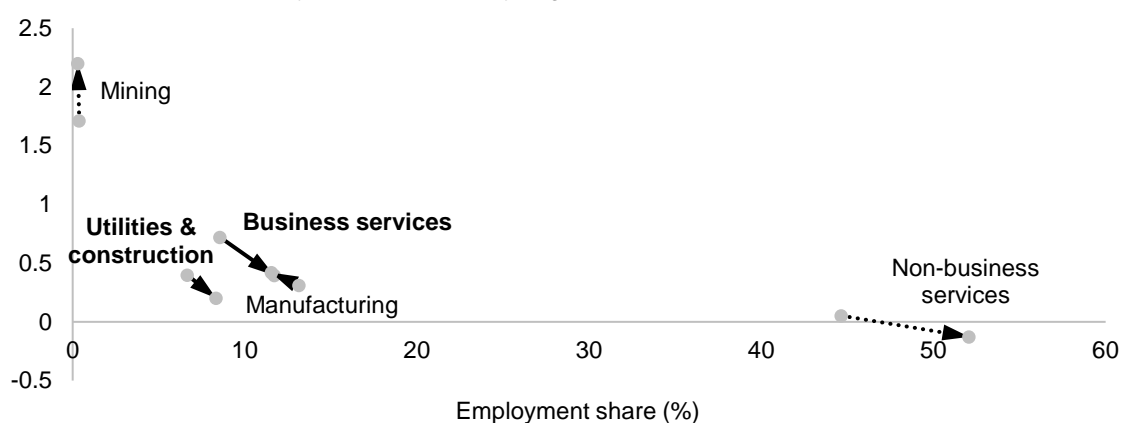
Ratio of sectoral productivity to total productivity (log), 1950–64



Ratio of sectoral productivity to total productivity (log), 1964–94



Ratio of sectoral productivity to total productivity (log), 1994–2011



Note: sectors with higher than economywide average labour productivity that experienced an increase in employment share are in bold.

Source: authors' calculations based on GGDC 10-Sector Database Version 2015 (Timmer et al. 2015).

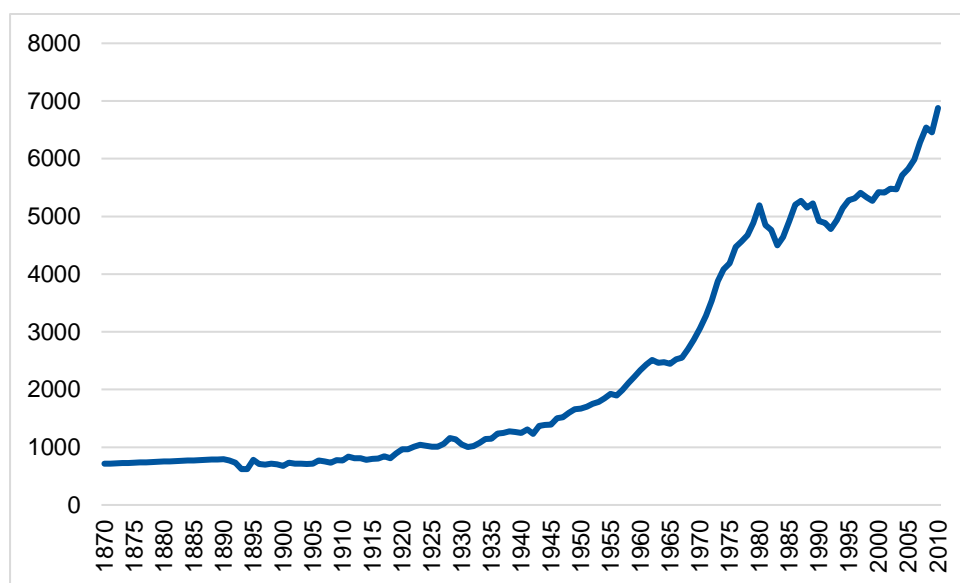
4 Trends in structural transformation, 1964 to circa 1994

After General Castelo Branco assumed the presidency of Brazil, the government's first economic plan ('Programa de ação econômica do governo') dealt with high inflation by reducing the money supply and controlling the labour unions. The plan also regulated the financial system, establishing the rules that continue to organize financial activity in Brazil today. At this time the Brazilian Central Bank was created.

Maintaining the nationalist ideology that had been followed by Getúlio Vargas, the military presidents continued the use of an import substitution system with high tariffs on imports, and they increased the state's participation in the economy. The military governments of the 1960s and 1970s invested heavily in manufacturing, expanding Brazilian production of non-durable consumer goods and capital goods. During these years there were also numerous infrastructure projects such as roads and hydroelectric plants. From 1967 to 1973, Brazil experienced very high GDP growth rates. This period is known as the 'economic miracle' in Brazil.

As Figure 5 shows, GDP per capita grew by 108 per cent between 1964 and 1994. In the period from 1967 to 1973 alone, GDP per capita grew by 52 per cent (Bolt and van Zanden 2015). However, the rapid GDP growth was accompanied by a growth in income inequality.

Figure 5: GDP per capita



Source: authors' illustration based on data from Bolt and van Zanden (2015).

The Gini index went from 54.5 in 1960 to 61.7 in 1972, the latter being the historical maximum of this indicator for Brazil. This economic performance was based on the accumulation of physical capital; Brazil did not put the same energy into human capital accumulation. As Figure 2 shows, in 1970 the average duration of schooling in Brazil was 3.77 years, significantly below Chile (6.45) and Argentina (6.82).

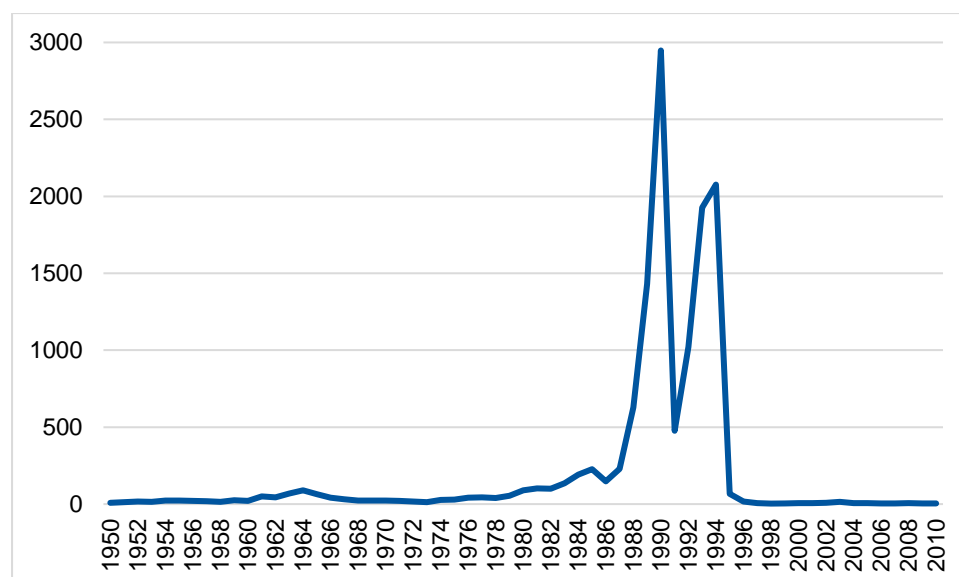
The two oil shocks and unruly government expenditure led the Brazilian federal government to default on its foreign debt in 1982. The closure of the financial markets and the political pressure to maintain the tax burden left the Brazilian government with inflation as the only mechanism to finance government expenditure. In the 1980s Brazil faced a period of incredible hyperinflation, comparable only to that seen in certain countries during the 1930s. The redemocratization process

after 1985 brought a number of social demands that it had not been possible to voice under the military regime. This made the battle against inflation even harder. Various economic plans tried to reduce price levels, but all of them failed to deal with the government deficit. As is common during hyperinflation, economic activity was very disorganized. As poor people had less access to financial market products, they suffered most of the consequences of inflation, and income inequality grew faster in this decade.

Figure 6 presents the annual inflation rates between 1950 and 2010. From 1981, the inflation rate remained above 100 per cent per year, and it maintained an increasing trend throughout the 1980s. In 1989, inflation was 1,430 per cent; in 1990 it reached 2,947 per cent, the highest rate in the Brazilian historical inflation series. The hyperinflation period lasted until 1994, a year that ended with 2,079 per cent inflation. With the success of the Real Plan in 1994, inflation suddenly dropped to 66 per cent in 1995, and it has converged at less than one digit since 1997. To fight hyperinflation, the Real Plan acted on several fronts: it promoted a privatization programme for some state companies, which increased the economy's competitiveness; it promoted fiscal reform; above all, it introduced a fixed exchange rate regime at a very appreciated level. Hyperinflation ended, but the manufacturing sector's share of GDP fell due to the economic liberalization (as will be described further below). As shown in Figure 7, the manufacturing sector's share of job creation fell from 15.3 per cent in 1989 (pre-liberalization) to 11.6 per cent in 1998.

Between 1964 and 1994, the growth in the share of the services sectors in employment, especially non-business services, accelerated: this sector went from 22 per cent of workers to 44 per cent. Conversely, the agricultural sector went from 55 per cent of workers to 26.5 per cent. This movement was accompanied by a relative fall in productivity in the non-business service sector, which converged with the average productivity of the economy. Mining was the only sector that once again showed relative productivity growth, although it was not relevant in terms of the number of job openings. The average product per worker in the economy grew by about 70 per cent during the period.

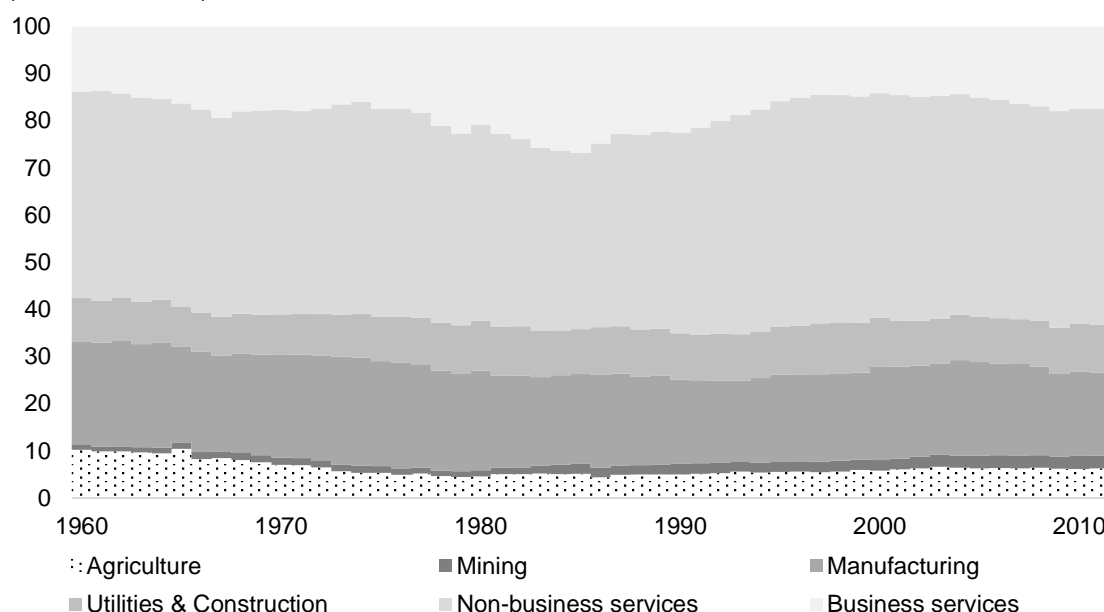
Figure 6: Annual inflation rate (%)



Source: author's illustration based on data from de Zwart (2015).

Figure 7: Value-added composition, Brazil, 1960–2011

(% of value added)



Notes: business services: financial intermediation, renting, business activities. Non-business services: (a) wholesale and retail trade, repair of motor vehicles, motorcycles, and personal and household goods, hotels and restaurants; (b) transport, storage, communications; (c) public administration, defence, education, health, social work; (d) other community, social and personal service activities, activities of private households.

Source: authors' calculations based on GGDC 10-Sector Database Version 2015 (Timmer et al. 2015).

4.1 Trade liberalization

As mentioned above, the import substitution system was one of the main drivers of the manufacturing sector's growth in Brazil.¹ However, from the late 1970s the process began to run down: Brazil faced serious constraints in the balance of payments, and it was not possible to further expand the range of imported products that could be substituted with similar domestic products. A debate emerged about the possibility of greater openness to foreign trade in order to mitigate the economic crisis.

According to Kume et al. (2003), in the years that preceded Brazil's opening-up to trade, the country's foreign trade policy consisted of the following: a widespread presence of tariffs with redundant parts; the collection of additional taxes, such as taxes on credit, exchange, and insurance (IOF), the rate of port improvement (TMP), and additional freight for merchant marine renewal; the existence of 42 special regimes allowing exemption from or reductions of taxes; and the use of NTBs, such as lists of products on which the issuance of import licenses was suspended, specific authorizations for some products, and annual import quotas for companies.

Thus, an effective process of trade liberalization would depend not only on tariff reductions, but also on the elimination of NTBs and special arrangements. In Brazil, the first phase of the liberalization process occurred between 1988 and 1989. It consisted of the fixing of lower tariffs and the elimination of IOF and TMP charges, but it did not eliminate special schemes or other

¹ The discussion in this section draws on Pieri (2015).

NTBs, which were the major effective forms of protection for domestic production (de Paiva Abreu 2004b; Kume et al. 2003).

Some studies have measured the effects of liberalization on Brazil's labour market. Dix-Carneiro and Kovak (2015) analyse the impact of liberalization on migration and wages in local markets. They conclude that locations where the tariff reduction was 10 per cent higher than average saw a 9.4 per cent greater fall in wages than other regions. In addition, the states most affected by liberalization lost approximately 0.5 per cent of their populations because of trade liberalization.

Ferreira, Leite, and Wai-Po (2007) test the impact of liberalization on the distribution of hourly wages. They find that liberalization did not particularly affect the manufacturing sector, but its overall impact on the economy contributed to a reduction of inequality. Krishna et al. (2011) find a positive effect of liberalization on wages in export sectors compared with non-importing sectors.

Gonzaga et al. (2006) obtain other evidence on inequality. They show that liberalization affected skilled-labour-intensive sectors more than unskilled-labour-intensive sectors. As a result, there was a reduction in income differences between the two groups in the post-liberalization period.

Also exploring the labour channel, Dix-Carneiro et al. (2018) exploit the shocks due to trade liberalization on labour demand to estimate its impact on crime rates. They find a negative relationship between labour demand and crime rates.

In the second phase, which occurred between 1991 and 1993, there was a strong reduction of tariffs such that the modal tariff was 20 per cent. Tariffs on virtually all products suffered drastic reductions, except in industries such as computing, chemicals, automobiles, and other innovative technologies. However, it was the elimination of NTBs that caused the greatest impact of liberalization. De Paiva Abreu (2004b) and Kume et al. (2003) explain that this period saw the elimination of import licence suspensions, special import regimes, and company import quotas. Thus, the end of NTBs led prices to become the main instrument of trade protection, directly reflecting the degree of protection of each industry.

The third stage of the process occurred in 1994 with the need for monetary stabilization. Import tariffs of zero or two per cent on products with greater weightings in the price index were established, and the Mercosur common external tariff was anticipated to begin in 1995. Brazilian tariffs are now 10.2 per cent on average, a level comparable to other developing economies that are more open to international trade (de Paiva Abreu 2004b; Kume et al. 2003).

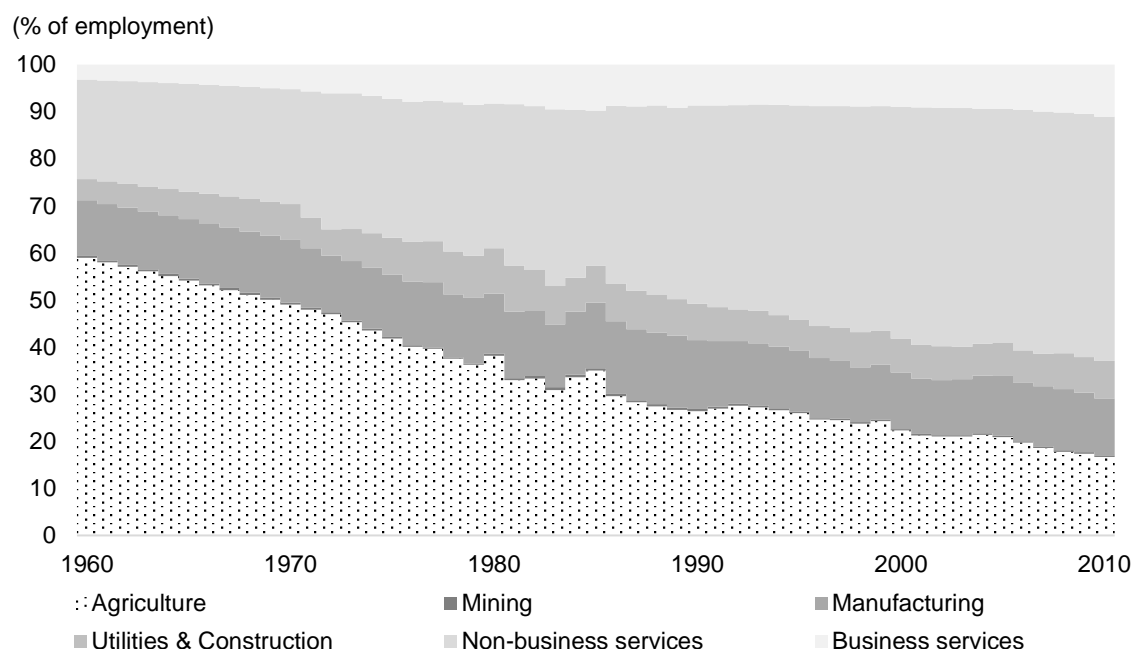
4.2 Structural transformation and inclusive growth

The manufacturing sector in Brazil experienced a period of growth until the end of the 1980s, and a process of retraction from the 1990s with economic liberalization. Thus, between 1964 and 1994, there was an intense structural transformation of the Brazilian economy. Figure 7 presents the historical evolution of value added by sector. Notably, agriculture's share of GDP lost ground, falling from 10.2 per cent in 1960 to 6.3 per cent in 2011, although the most critical period seems to have been in the late 1970s, when it reached 4.5 per cent. The share of the manufacturing sector also fell, from 22 per cent to 17.6 per cent. The sector that has the greatest share throughout the historical series is non-business services, which includes trade, restaurants, hotels, transport, storage and communications, government and community services, and social and personal services. This sector has a historical average of 44 per cent of GDP.

As in other countries, the structural transformation of Brazil was associated with workers' transition from the agricultural sector to the service sector, as shown in Figure 8. This was a direct

consequence of the urbanization process. Although manufacturing had a relevant role in the economy in the 1960s and 1970s, it is less labour-intensive, so the share of workers in the manufacturing sector has been almost stable over time.

Figure 8: Employment composition, Brazil, 1960–2011



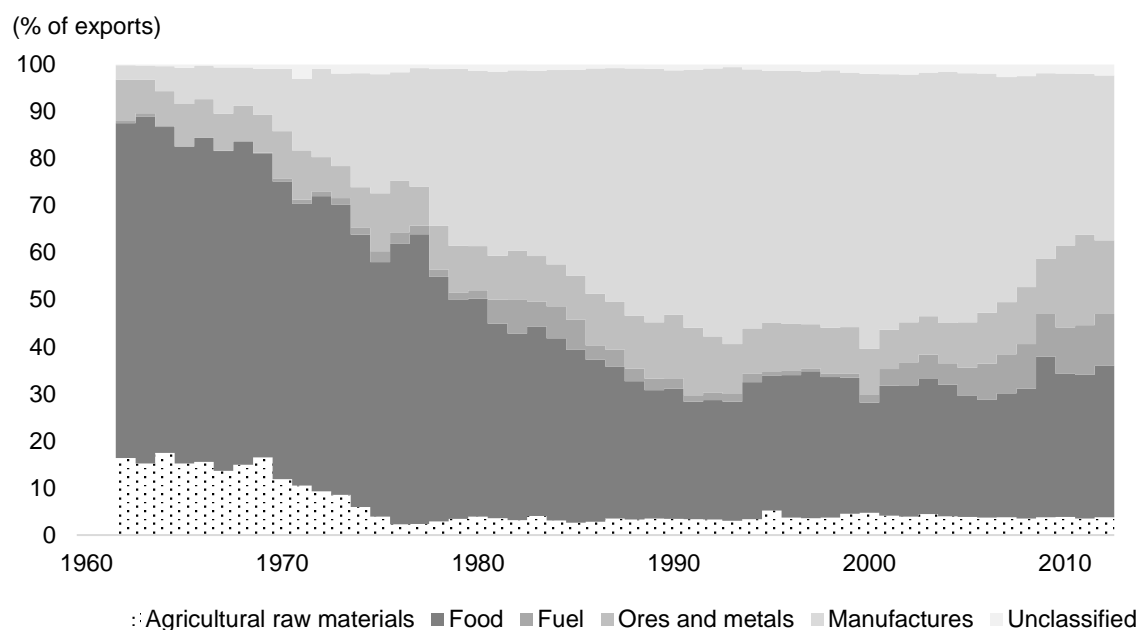
Notes: business services: financial intermediation, renting, business activities. Non-business services: (a) wholesale and retail trade, repair of motor vehicles, motorcycles, and personal and household goods, hotels and restaurants; (b) transport, storage, communications; (c) public administration, defence, education, health, social work; (d) other community, social and personal service activities, activities of private households.

Source: authors' calculations based on GGDC 10-Sector Database Version 2015 (Timmer et al. 2015).

The Brazilian export composition shows the country's transition from a well-defined role as exporter of food and raw materials to a model with a greater share of manufacturing. The share of manufacturing in Brazilian exports peaked in the late 1980s and early 1990s, with a subsequent decline alongside the deindustrialization of the country, as seen in Figure 9.

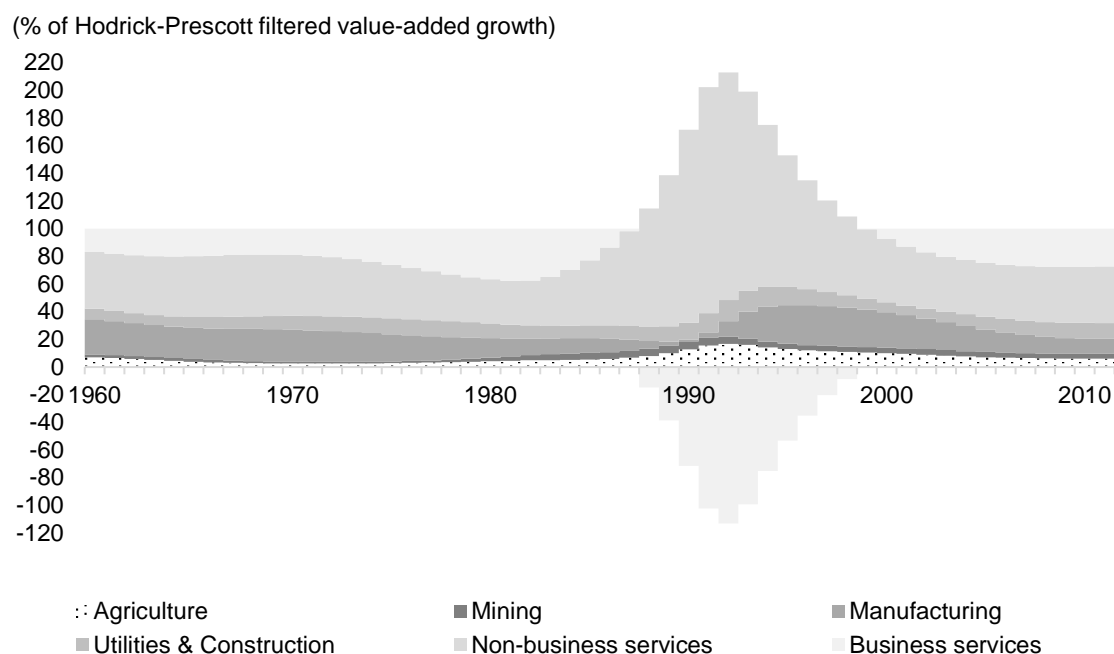
Figure 10 shows the breakdown of the growth in value added by sector between 1960 and 2011 using the Hodrick-Prescott filter. There was a reversal in the trends for most sectors around 1991. From then on, the share of non-business services began to drop, and the share of utilities and construction, agriculture, and especially manufacturing increased. It is possible that this reversal in the trends was related to the strong economic liberalization that occurred under Fernando Collor's government, which suddenly changed the economic sectors' relative prices, causing a shock of competition with foreign companies.

Figure 9: Export composition, Brazil, 1962–2012



Source: authors' calculations based on data from Timmer et al. (2015).

Figure 10: Growth decomposition by sector, Brazil, 1960–2011



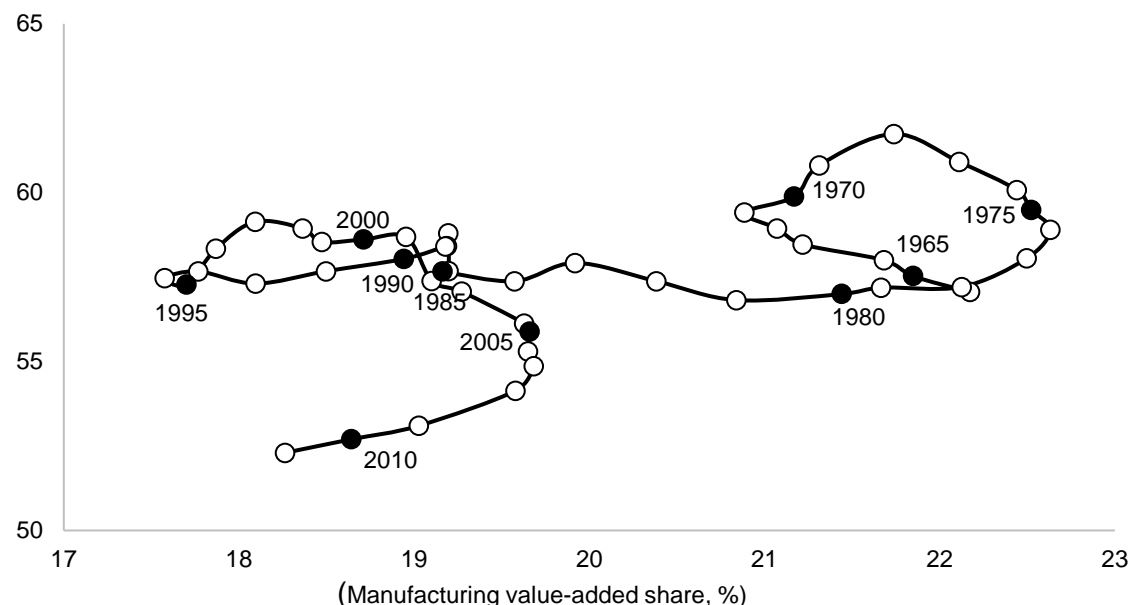
Source: authors' calculations based on GGDC 10-Sector Database Version 2015 (Timmer et al. 2015).

For most of the period between 1964 and the early 2000s, the gross income Gini fell very little. In the same period, the manufacturing sector's share of total value added in the economy fell, although there were some fluctuations. This is shown in Figure 11. Graphically, there is no clear relationship between the evolution of the Gini and the share of the industry in value added. For most of the period, the Gini was almost stable, while the industry share fell from 22 per cent in 1964 to 18.3 per cent in 2011. After the mid-2000s, the figure suggests that the fall in Gini was

associated with a slight decline in manufacturing's share, although it is not possible to confirm the statistical significance here.

Figure 11: Gross income Gini and manufacturing value-added share, Brazil, 1964–2011

(Gross income Gini)



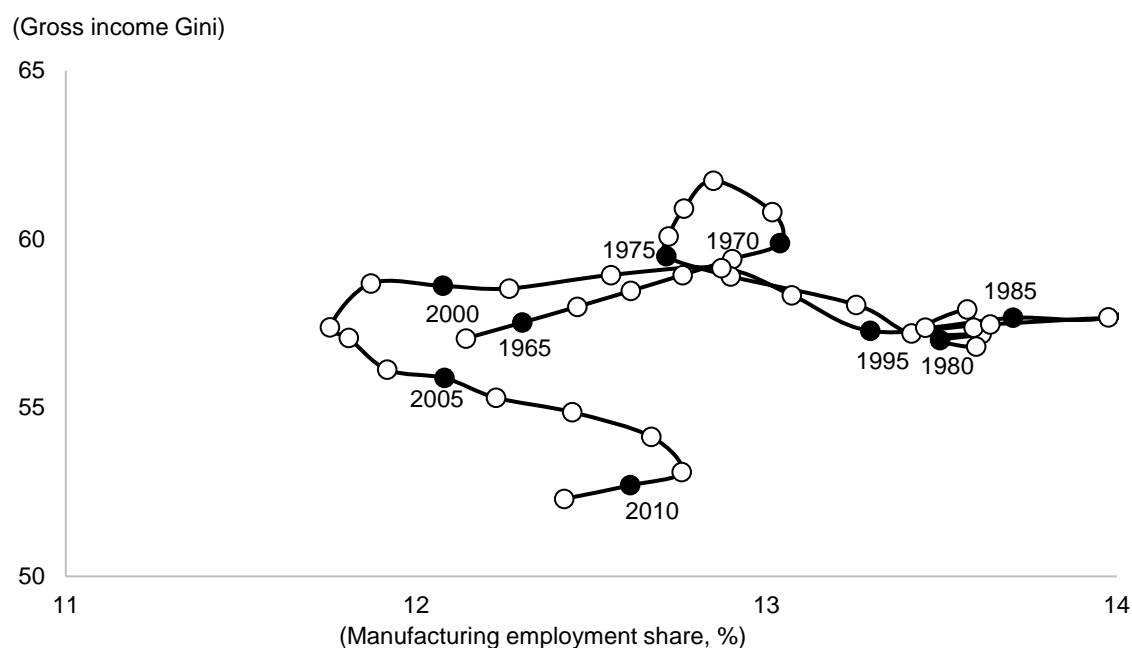
Notes: missing Gini coefficients calculated using linear interpolation. Manufacturing value-added and employment shares are five-year moving averages. For example, the data for 1975 is an average of data for 1971–75.

Source: authors' calculations based on GGDC 10-Sector Database Version 2015 (Timmer et al. 2015) and WIID (UNU-WIDER).

The manufacturing sector's share of total employment ranged between 11.8 per cent and 14 per cent. In light of Figure 12, this small oscillation does not appear to be correlated with the gross income Gini, at least not from aggregated data. Figure 12 shows that in the last decade analysed there was a drop in the Gini index, with a slight increase in the share of manufacturing in employment—a trend that changed in the last two years of the series.

Figure 13 shows the relationship between the Gini index and the non-business services sector's share of GDP. Between 1965 and 2000, the Gini remained practically unchanged, despite the fluctuation in the share of the non-business services sector. The exception is the period from 1965 to 1978, when the Gini oscillated. There was initially a drop in the non-business services sector's share of GDP between 1978 and 1986, followed by a significant increase until 2000. Thereafter, a new trend is noted, with a slight drop in the sector's share of GDP accompanied by a reduction in inequality, at least until 2011.

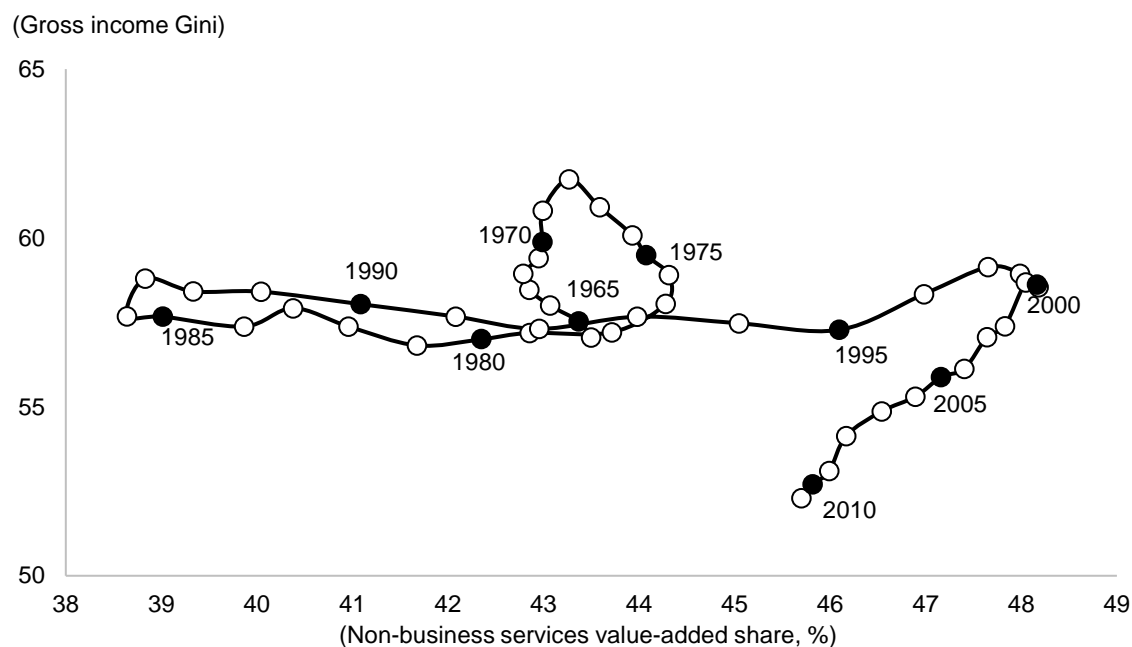
Figure 12: Gross income Gini and manufacturing employment share, Brazil, 1964–2011



Notes: missing Gini coefficients calculated using linear interpolation. Manufacturing value-added and employment shares are five-year moving averages. For example, the data for 1975 is an average of data for 1971–75.

Source: authors' calculations based on GGDC 10-Sector Database Version 2015 (Timmer et al. 2015) and WIID (UNU-WIDER).

Figure 13: Gross income Gini and non-business services value-added share, Brazil, 1964–2011



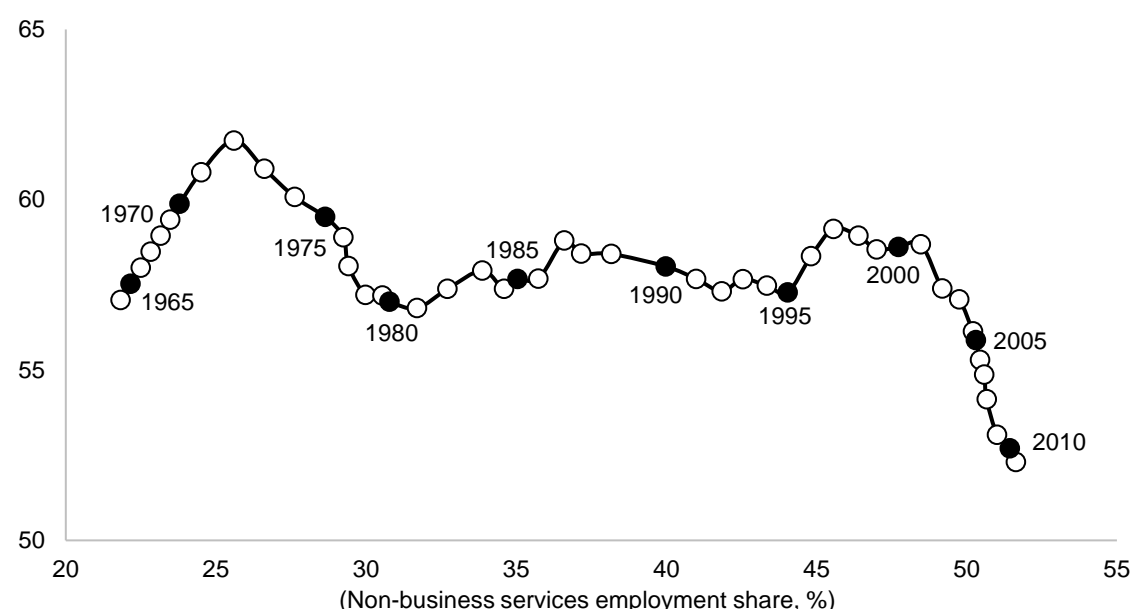
Notes: missing Gini coefficients calculated using linear interpolation. Manufacturing value-added and employment shares are five-year moving averages. For example, the data for 1975 is an average of data for 1971–75.

Source: authors' calculations based on GGDC 10-Sector Database Version 2015 (Timmer et al. 2015) and WIID (UNU-WIDER).

Figure 14 shows two relevant findings about the recent evolution of the Gini index in Brazil. First, there has been a steady increase in the share of non-business services in total employment, which more than doubled between 1964 and 2012. In 1965, 22.2 per cent of employed people were in the non-business services sector; in 2012, the figure was 51.5 per cent. Second, at least until the end of the 20th century, there seems to be no relationship between the non-business services sector's increased share of employment and income inequality, as measured here by the Gini. The exception occurs at the beginning of the series, between the 1960s and 1970s, when there is an abrupt increase in the Gini. From the 2000s onwards, the Gini declines at the same time as the share of the non-business services sector. The main hypothesis to explain this is that during this period, labour income increased because there was an increase in the number of formal contract jobs generated, which contributed to a reduction in inequality. In addition, the facts that average schooling has increased and there has been a consequent drop in the schooling premium contributed to the reduction of income differentials.

Figure 14: Gross income Gini and non-business services employment share, Brazil, 1964–2011

(Gross income Gini)



Notes: missing Gini coefficients calculated using linear interpolation. Manufacturing value-added and employment shares are five-year moving averages. For example, the data for 1975 is an average of data for 1971–75.

Source: authors' calculations based on GGDC 10-Sector Database Version 2015 (Timmer et al. 2015) and WIID (UNU-WIDER).

5 Trends in inclusive growth, 1994 to circa 2011

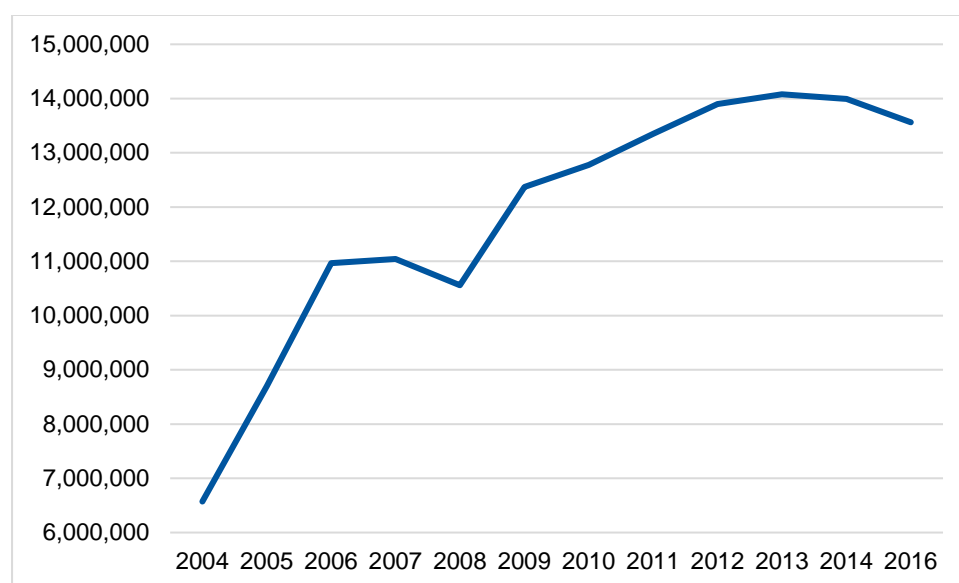
The Real Plan stabilized prices, and the country was free of hyperinflation after 15 years. Income inequality then decreased at a faster pace from the 2000s onwards. In the first years following the Real Plan, economic growth was slow. To fight inflation, the Central Bank fixed the exchange rate at a level that made it very difficult to export goods or compete with foreign goods. Moreover, the 1990s was a decade of economic crises that reduced demand for Brazilian products in countries including Mexico (1994), Russia (1997), the 'Asian Tigers' (1998), Brazil itself, (1999), and Argentina at the beginning of the next decade (2001).

In the 2000s, Brazil's economic performance started to rise. The boom in commodity prices and the stability of the currency after 1994 led to years of reduction in unemployment rates, an increase in the percentage of formal contract workers, an increase in labour earnings, and a reduction of income inequality. The growth of Chinese demand for grain boosted commodity exports, and the consumer credit expansion allowed the generation of jobs in regions outside the industrial centre, especially in north-eastern Brazil.

In 2004 the federal government introduced social programmes for income and goods distribution, and it created the Bolsa Família, a large conditional cash transfer programme that almost eradicated extreme poverty. Income inequality then decreased not because the rich were losing income, but due to the increase in labour earnings among the poorest.

Figure 15 shows the evolution of the number of Bolsa Família participants between 2004 and 2016. The number of beneficiary families grew from 6.5 million in 2004 to 13.5 million in 2016. These numbers indicate that the programme contributed to a significant fall in income inequality. In addition, the conditions of the programme included the requirement that children should attend school, which also contributed to the increase in schooling in the period. The figures after 2014 coincide with a period of more inclusive growth: there was a rapid fall in the Gini index following the introduction of the Bolsa Família, from 57.07 in 2003 to 50.04 in 2015.

Figure 15: Number of beneficiary families in the Bolsa Família programme



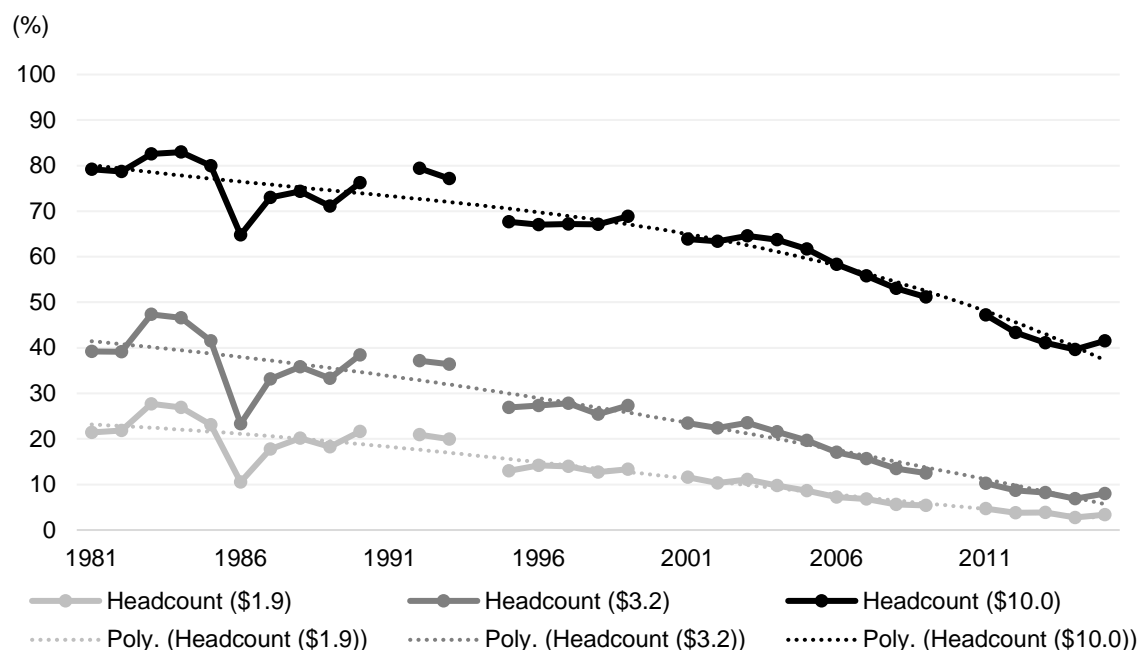
Source: authors' calculations based on data from Ipeadata (2020).

The Bolsa Família programme has been very successful in fighting poverty in Brazil. Using the poverty line of US\$10 a day, 79 per cent of Brazil's population was poor in 1980, and this dropped to 42 per cent in 2015. Using the poverty line of US\$1.9 dollars a day, extreme poverty dropped from 28 per cent in 1983 to three per cent in 2015. Although the decreasing tendency of poverty rates started in the 1980s, it was only after the macroeconomic stabilization of the 1990s, and the consequent growth of formal contract jobs combined with social programmes, that Brazil speeded up its poverty reduction (see Figure 16).

Coincidentally or not, these movements in inequality were correlated with the intensity of structural transformation. The structural transformation was greater when inequality rose, and when it fell, inequality also decreased. But does this imply that structural change affects inequality negatively? Ferreira et al. (2017) provide some evidence that the reduction in inequality during this

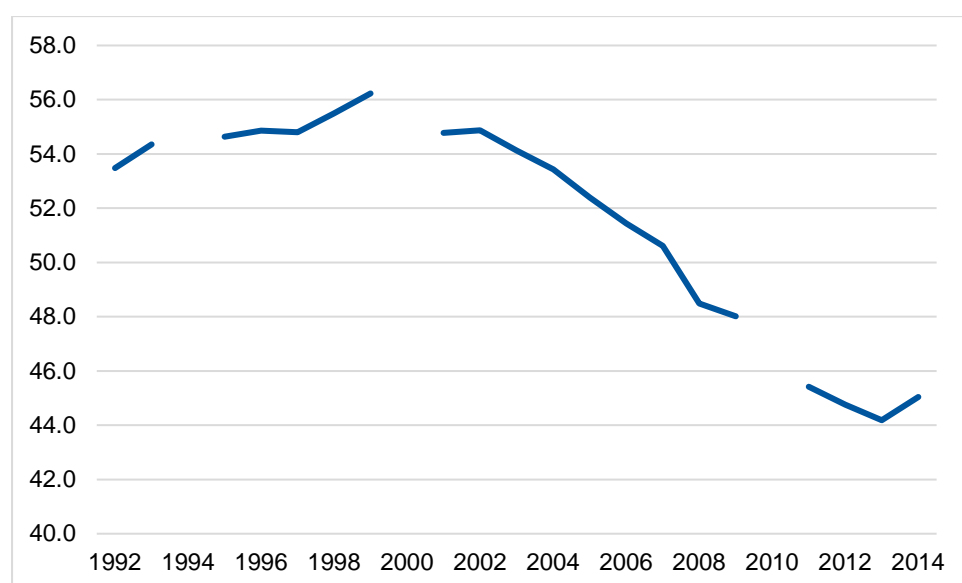
period was related to changes in how observable individual characteristics were rewarded in the labour market. A reduction in the gaps on those returns is the main explanation for the reduction of inequality in Brazil.

Figure 16: Poverty rates, Brazil, 1981–2015



Source: authors' calculations based on Povcalnet Version March 2019 (World Bank 2019).

Figure 17: Percentage of informal contract workers



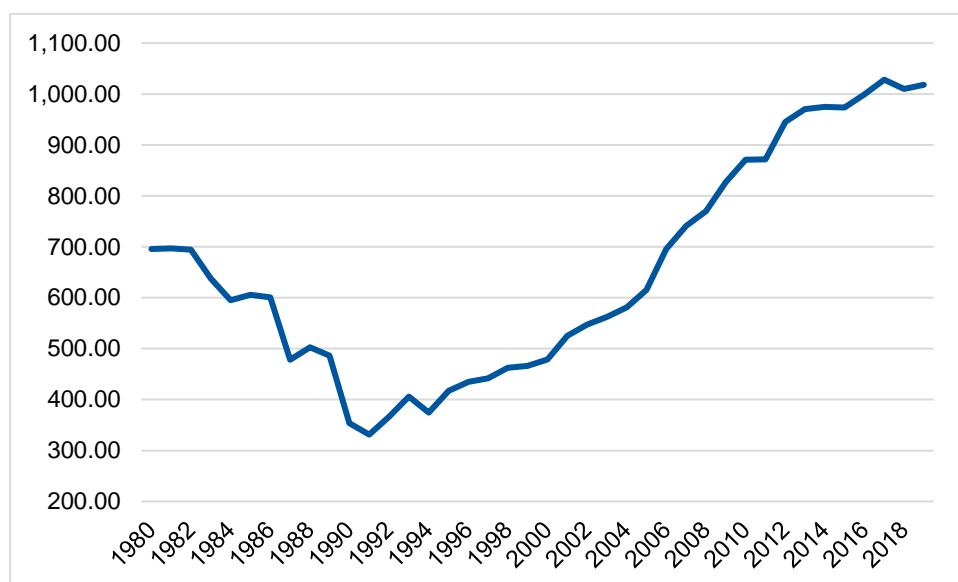
Source: authors' calculations based on data from Ipeadata (2020).

This inclusive growth in the labour market is evident when we analyse the evolution of formal contract jobs. Figure 17 presents the recent evolution of the percentage of informal employment contracts in Brazil. Informal workers are employees without a formal contract or self-employed workers, who in Brazil usually do not enjoy social protection. The percentage of informal contract workers fell from 56.2 per cent in 1998 to 45 per cent in 2014. Even so, the percentage of informal

contract workers is quite high and contributes to the inequality of earnings in the labour market, since this type of employment pays less on average.

In addition to the Bolsa Família, another important public policy of the 1990s and 2000s was the growth of the minimum wage. Figure 18 shows the real evolution of the minimum wage from 1980 to 2018. It is observed that between 1990 and 2000, the minimum wage saw a real increase of 35 per cent. Between 2000 and 2010, the gain was greater, around 82 per cent.

Figure 18: Minimum wage



Notes: series deflated using the Brazilian consumer price index. Values in BRL. December 2019 = 1,000.

Source: authors' calculations based on data from Ipeadata (2020).

The combination of monetary stabilization (which benefited all social strata), real increases in the minimum wage (which benefited the middle class), and the Bolsa Família programme (which focused on the poorest) led to a significant fall in economic inequality, promoting more inclusive growth. However, there was a significant drop in the growth of labour productivity, leading to stagnation. As shown in Figure 3, productivity growth between 1994 and 2011 was only 0.44 per cent per year. Of this change, 78 per cent was due to 'within' changes: workers within each sector of economic activity became more productive, and structural transformation played a less relevant role in the period. This increase in the 'within' component was possibly due to the large increase in average schooling in the period. As Figure 2 shows, between 1990 and 2010 average schooling increased from 6.6 to 8.1 years (an increase of 22.5 per cent).

The period from 1994 to 2011 saw a drop in product per worker in some sectors, such as utilities and construction, business services, and non-business services. The latter started to see productivity below the economy average. In the opposite direction, the mining and agriculture sectors saw an increase in productivity during the period, with output per worker growing by 89 per cent and 123 per cent respectively. Average productivity grew by about 16 per cent in the period.

6 Trends after 2011, and future trajectory

Brazil ended the first decade of the new millennium with a positive outlook. Poverty had never been so low. The boom in commodity prices had increased exports and boosted the agricultural sector. The services sector had benefited from more credit in the market and generated millions of jobs. Brazil seemed finally to have left behind the years of bad economic performance.

But the country had only postponed some important problems that would generate the worst economic crisis in Brazilian history. In 2015 and 2016, GDP dropped by nine per cent and the unemployment rate reached 13 per cent, with more than 28 million workers working fewer hours than they wished. Since then, the economy has stagnated and productivity growth has been very slow. What has happened to Brazilian economy?

There has been a severe fiscal crisis. Government expenditure (at all three levels: federal, state, and municipality) has increased continuously since the last Constitution of 1988. The Constitution includes some groups in the social security system that do not contribute to their future pensions. Additionally, there has been a growth in the public worker pension deficit, and the government has substantially increased the number of public workers over time. If the government were a private company, it could reduce its expenditure by firing some workers. But in Brazil it is illegal for the government to do so.

At the end of 2014, the prediction of a collapse in public finances reduced private investment, and consequently labour demand fell abruptly. Many companies went bankrupt, and the government decreased its purchases, pushing unemployment even higher.

So, the developer's dilemma in Brazil today is about how to organize public finances through a reform of the Constitution that will allow the government to reduce the fiscal deficit. Only after this, and with the confidence of economic agents, can there be a return to the path of policies that promote inclusive growth.

7 Conclusions and policy implications

This paper has analysed the evolution of the structural transformation of the Brazilian economy in recent decades from a historical point of view. In doing so it has evaluated the role played by different economic sectors in the historic reduction of economic inequality that occurred over the period.

In Brazil, structural transformation was associated with a strong displacement of workers from less productive sectors (in this case, agriculture) to more productive sectors (manufacturing and services). This structural transformation was the main driver of the increase in productivity between 1950 and 1964. Even between 1964 and 1994, a period that saw smaller growth in productivity, structural transformation still played an important role.

In this paper, there have been two outstanding issues. First, as the structural transformation process diminished, the growth of labour productivity decreased, as did GDP growth. Second, economic growth only became inclusive—that is, reduced economic inequality—at the beginning of this century, when productivity was practically stagnant and average schooling increased substantially.

What the Brazilian experience seems to suggest is that structural transformation affects labour productivity, but inclusive growth is not an obvious consequence of this process. It seems to depend on the causes behind the structural transformation. In the Brazilian case, the industrialization process was not accompanied by an accumulation of human capital and was mainly due to the import substitution system, which created opportunities for the manufacturing sector by making foreign products more expensive for consumers, thereby concentrating income.

Given the stagnation of labour productivity in Brazil, a new cycle of structural change should be followed by social policies that focus on the most vulnerable, as has been the practice since the late 1990s.

References

- Bolt, J., and J. van Zanden (2015). ‘GDP per Capita: IISH Data Collection, V1’. Available at: hdl.handle.net/10622/8FCY0X (accessed March 2020).
- de Paiva Abreu, M. (2004a). ‘The Political Economy of High Protection in Brazil Before 1987’. Special Initiative on Trade and Integration Working Paper SITI-08a. New York: Inter-American Development Bank.
- de Paiva Abreu, M. (2004b). ‘Trade Liberalization and the Political Economy of Protection in Brazil Since 1987’. Special Initiative on Trade and Integration Working Paper SITI-08b. New York: Inter-American Development Bank.
- de Zwart, P. (2015). ‘Inflation: IISH Data Collection, V1’. Available at: hdl.handle.net/10622/UJ3H1Q (accessed March 2020).
- Dix-Carneiro, R., and B. Kovak (2015). ‘Trade Liberalization and the Skill Premium: A Local Labor Markets Approach’. *American Economic Review Papers and Proceedings*, 105(5): 551–57.
- Dix-Carneiro, R., R.R. Soares, and G. Ulyssea (2018). ‘Economic Shocks and Crime: Evidence from the Brazilian Trade Liberalization’. *American Economic Journal: Applied Economics*, 10(4): 158–95.
- Ferreira, F., S. Firpo, and J. Messina (2017). ‘Ageing Poorly? Accounting for the Decline in Earnings Inequality in Brazil, 1995–2012’. Policy Research Working Paper 8018. Washington, DC: World Bank Group.
- Ferreira, F., P.G. Leite, and M. Wai-Poi (2007). ‘Trade Liberalization, Employment Flows, and Wage Inequality in Brazil’. Policy Research Working Paper 4108. Washington, DC: World Bank Group.
- Firpo, S., and R. Pieri. (2017). ‘Structural Change, Productivity Growth, and Trade Policy in Brazil’. In M.S. McMillan, D. Rodrik, and C. Sepúlveda (eds), *Structural Change, Fundamentals, and Growth: A Framework and Case Studies*. Washington, DC: IFPRI.
- Gonzaga, G., N.M. Filho, and C. Terra (2006). ‘Trade Liberalization and the Evolution of Skill Earnings Differentials in Brazil’. *Journal of International Economics*, 68(2): 345–67.
- Herrendorf, B., R. Rogerson, and A. Valentinyi (2013). ‘Growth and Structural Transformation’. Working Paper 18996. Cambridge, MA: NBER.
- IBGE (2020). ‘2010 Census’. Available at: www.ibge.gov.br/ (accessed February 2020).
- Ipeadata (2020). ‘Ipeadata’. Available at: ipeadata.gov.br/ (accessed March 2020).

- Kim, K., and A. Sumner (2019). 'The Five Varieties of Industrialisation: A New Typology of Diverse Empirical Experience in the Developing World'. Working Paper 18. London: ESRC GPID Research Network.
- Kim, K., A. Sumner, and A. Yusuf (2019). 'Is Structural Transformation-Led Economic Growth Immiserizing or Inclusive? The Case of Indonesia'. In P. Shaffer, R. Kanbur, and R. Sandbrook (eds), *Immiserizing Growth: When Growth Fails the Poor*. Oxford: Oxford University Press.
- Krishna, P., J.P. Poole, and M.Z. Senses (2011). 'Wage Effects of Trade Reform with Endogenous Worker Mobility'. Working Paper 17256. Cambridge, MA: NBER.
- Kume, H., G. Piani, and C.F.B. de Souza. (2003). 'A política brasileira de importação no período 1987–1998: Descrição e avaliação'. In C.H. Corseuil and H. Kume (eds), *A abertura comercial brasileira nos anos 1990: Impactos sobre emprego e salário*. Rio de Janeiro: MTE/IPEA.
- Kuznets, S. (1955). 'Economic Growth and Income Inequality'. *American Economic Review*, 45(1): 1–28.
- McMillan, M., and D. Rodrik (2011). 'Globalization, Structural Change and Productivity Growth'. In M. Bacchetta and M. Jansen (eds), *Making Globalization Socially Sustainable*. Geneva: ILO and WTO.
- Pieri, R.G.D. (2015). *Ensaio em economia política aplicada*. Doctoral thesis. São Paulo: Getulio Vargas Foundation.
- Sen, K. (2014). 'Inclusive Growth: When May We Expect It? When May We Not?' *Asian Development Review*, 31(1): 136–62.
- Timmer, M. P., G. J. de Vries, and K. de Vries (2015). 'Patterns of Structural Change in Developing Countries'. In J. Weiss and M. Tribe (eds), *Routledge Handbook of Industry and Development*. London: Routledge, 65–83.
- UNU-WIDER. 'World Income Inequality Database' (WIID). Helsinki: UNU-WIDER.
- van Leeuwen, B., and van Leeuwen-Li, J. (2015). 'Average Years of Education: IISH Data Collection, V1'. Available at: hdl.handle.net/10622/KCBMKI (accessed March 2020).
- World Bank (2019). 'PovcalNet'. Available at: iresearch.worldbank.org/PovcalNet/povOnDemand.aspx (accessed September 2019).