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The role of Brazil's inheritance system in wealth inequality

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By Pedro Humberto Bruno de Carvalho Junior

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THE ROLE OF BRAZIL'S INHERITANCE SYSTEM IN WEALTH INEQUALITY

Pedro Humberto Bruno de Carvalho Junior[1]

1 ABSTRACT

The study debates the role of Brazil's inheritance system in wealth inequality. Brazilian civil laws have encouraged the transfer of property to children due to the rule of forced heirs. Household surveys show that the richest 5 per cent of the population have had fewer children and more capital to transfer to their heirs under minimal taxation, especially during the military dictatorship (1964–1988), when only transfers of real estate were taxed.

Keywords: *Wealth inequality, elites, inheritance, estate tax, Brazil*

2 INTRODUCTION

Brazil's high inequality has been discussed by many studies over many years, but none has considered the role of the country's inheritance system in the concentration of wealth. More recent methods of estimating income concentration have combined several databases, such as household surveys, income tax declarations, national accounts and the *Forbes* list of billionaires, to provide a more reliable measure of income concentration. Using this methodology, estimates by Chancel et al. (2022), from the World Inequality Lab, show that the wealthiest 1 per cent hold, on average, 20 per cent of total wealth in advanced countries and approximately 40 per cent in developing countries. For Brazil, the authors estimate that the wealthiest 1 per cent held 48.5 per cent of total wealth in 2019. This means that Brazil is one of the countries with the highest wealth concentration in the world, where the wealthiest 1 per cent have more than 40 per cent of total wealth. Other countries with similar indexes are Thailand (43.6 per cent), Peru (44.7 per cent), Mexico (46.9 per cent), Russia (47.7 per cent), Chile (49.5 per cent) and South Africa (55.0 per cent). In addition, data on revenues collected show that taxation on inheritance is very low in both developed and developing countries (OECD 2022). This exacerbates the challenge of overcoming wealth concentration in the global South and highlights the importance of inheritance and its taxation.

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In this context, this study intends to analyse the relevance of Brazil's inheritance system and its taxation to the country's high wealth inequality over time by confirming the following five statements:

- Wealthy families have fewer children than the rest of the population.
- Wealthy families have more capital to transfer than the rest of the population.
- Inheritances have been mostly transferred to children.
- Inheritances have been taxed at low rates over time.
- There is significant income and wealth concentration in Brazil.

The first four statements linked to inheritances theoretically impact the concentration of wealth over generations, and confirming and quantifying them for Brazil will be the main contribution of this study. The evolution of socio-demographic indicators available from the National Household Sample Survey (*Pesquisa Nacional por Amostra de Domicílios*—PNAD) will verify the first two statements from 1976 to 2015, while research into historical legislation will verify the next two. The last statement will be assessed through a recent literature review of income concentration estimates in Brazil that combines data from PNAD and the Personal Income Tax Declarations Database (*Declaração do Imposto sobre a Renda das Pessoas Físicas*—DIRPF).

The importance of inheritance systems and their taxation is due to the world's growing wealth inequality, with many countries facing ageing societies together with a decreasing share of salaries to total income (Krenek et al. 2022). Lower fertility rates, especially among the wealthy, have reduced the number of heirs, leading to a concentration of even more wealth over time, as more accumulated wealth is being transferred, reducing the importance of education and entrepreneurship for an individual's wealth. Piketty and Zucman (2015) highlight that in recent decades, the share and value of inherited wealth in total household wealth has increased in most countries, varying from 30 per cent to 60 per cent in Western countries. Inheritances are also distributed unequally among families and are expected to grow in value due to asset price increases, reinforcing high inequality. Indeed, the lower fertility rates and number of children mean that estates are being divided among fewer heirs than in the past, meaning they receive larger inheritances. Given the significance of inheritance in perpetuating inequality, inheritance taxation can play a role in supporting social mobility and equality of opportunity.

In Sweden, research by Adermon et al. (2018) shows that gifts and bequests explain at least half of the correlation between a parent's and their child's wealth, while education only explains a quarter. In Brazil, Medeiros and Galvão (2015) used counterfactual simulations to find that although formal education may be an important factor in explaining total inequality, there is no evidence that can explain the differences between the richest 1 per cent and the rest of the population.

There are basically two antagonist views about the reasons for personal savings and inheritance transfers even in old age. According to the 'Theory of the Cycle of Life' of Bernheim (1986) and Modigliani (1975), individuals accumulate wealth during their younger working lives to consume during their own old age, rather than to transfer to their descendants. However, Kotlikoff (1987) highlights the altruistic behaviour of transferring wealth to one's descendants, even during old age. This is still more relevant among the richest people, whose level of savings is not primarily to maintain them in old age.

Cowell et al. (2017) demonstrate that although inheritance taxes typically raise very little revenue, they are a powerful tool of wealth redistribution in the long run due to their cumulative effects on distribution for generations, reducing equilibrium inequality. The authors state (p.12): "Changing the tax rate, or abolishing the tax altogether, will change the amounts passed on from one generation to the next and will thereby change the amounts of wealth accumulated in different parts of the distribution: the wealth distribution in subsequent generations changes and so the long-run equilibrium distribution of wealth changes."

In Organisation for Economic Co-operation and Development (OECD) member countries and Brazil, the main component of wealth for most families is their primary residence, especially for those in the medium income strata (Carvalho Junior 2015; OECD 2021); however, according to McKee (2012), young households have increasingly faced difficulties in purchasing their first home due to rising house prices. Therefore, children of smaller families accumulate more wealth than children of large families, since the real estate wealth will be split among a smaller number of heirs, especially in countries with strict rules of forced heirs (such as in most European and South American countries). Cowell and Van der Gaer (2017) demonstrate that changes in fertility rates and inheritance rules are relevant to explain a country's long-term inequality. The authors state that if the 'Primogeniture Law' had not been changed in France, along with the verified change in fertility rates, the equilibrium wealth inequality would have increased substantially.

According to the OECD (2021), recipient-based inheritance tax is more equitable than an estate tax on the total wealth transferred by donors, since the amount of wealth received by each heir is more important than the overall amount of wealth left by the donor. A recipient-based inheritance tax also facilitates the use of progressive tax rates to be levied on the amount of wealth received by the beneficiaries, encouraging the division of estates. Brazil's inheritance and donation taxes are legislated and levied by each of the 27 state governments; however, they are also regulated by federal regulations, which established that only the amount of wealth received by each heir is taxed. Exemptions, on the other hand, are granted discretionally by Brazilian states, which often include the main residence (up to a certain value), pensions and insurance policies, and a threshold value. State governments also set tax rates, but they have been capped at a national level since 1966 (the current maximum tax rate has been 8 per cent since 1992).

Recent challenges in inheritance tax administration include the use of opaque trusts or foundations by the richest people to hide their real wealth and transfers. Thus, assets settled through trusts must be included in the taxable estate of the settlor or the beneficiaries (OECD 2021). The study also states that there is a lack of available data on untaxed gifts and exempted wealth transfers in most countries. In addition, transfers of real estate are often managed by local governments, generally with no national, consolidated database of wealth transfers. The reporting of property (market) values can be included in income tax declarations to track lifetime wealth transfers. In Brazil, despite inheritances and donations being taxed at state level and real estate transfers at municipal level, federal income tax legislation requires that most property acquisitions should be reported in income tax declarations.

This study is divided into five sections. The first section is this introduction. The second section provides a historical view of Brazil's inheritance system and its taxation. The third section describes the recent estimates of Brazil's 'real' income concentration that combine information from the PNAD and DIRPF databases, and considers the main challenges in estimating the concentration of wealth and inheritance. The fourth section presents

indicators of the average number of children per woman and the proportion of capital holders (capitalists), by income strata, using PNAD data from 1976 to 2015. Finally, the last section provides the final discussions and considerations, debates the study limitations, and proposes follow-up studies and statistical updates.

3 EXPLAINING THE INHERITANCE SYSTEM AND ITS TAXATION IN BRAZIL

According to the Brazilian Civil Codes of 1916 (old) and 2002 (new), as well as the imperial laws from the 19th century, the inheritance system has the rule of 'necessary heirs' (forced heirs), who are those with the legal right to receive an estate in the absence of a will or at least half of an estate if a will exists (Schmidt 2020).[2] In other words, since 1907, a will in Brazil cannot freely transfer more than half of a decedent's estate if there are forced heirs. On the other hand, if there are no forced heirs, the will's content will prevail in full. The legislation establishes that forced heirs are the direct descendants, direct ascendants and spouse (since 2002, if married in a community of property). In addition, there is a hierarchy among them, with the preference for children and the exclusion of ascendants, while the spouse married in a community of property always shares the estate with the descendants or ascendants in relation to those properties acquired before the marriage. Thus, for transfers after 2002, the estate must be shared in this order:

- first, the children (or grandchildren) and the spouse married in a community of property
- second, the parents (if no children) and the spouse married in a community of property.

Still, siblings or other relatives can share an estate in the absence of forced heirs and a will. Spouses married in community of property are owners of half of the property accumulated during their partnership; consequently, they are not heir to these properties. However, the new Brazilian Civil Law of 2002 replaced the old Brazilian Civil Law of 1916 and included spouses as forced heirs (with the children or parents) in relation to the property that was accumulated before their relationship.

The taxation of inheritances is characterised by three different moments in Brazilian history. The first was the introduction of an inheritance and donations tax in 1811, with the arrival of the Portuguese court in Brazil (named the 'tenth on transfers'). Second, under the first republican Brazilian Constitution enacted in 1891, the tax regime (including supplementary legislation, administration and receipts) was devolved to the states (Nicacio 1948, cited in Machado Neto 2015). Lastly, for 75 years (1889–1964), states had broad autonomy to legislate their own inheritance tax, including the application of tax rates that could be progressive and vary according to the donor's degree of kinship (higher tax rates for more distant relatives).[3]

2. According to the imperial civil laws until 1907, primary forced heirs were only the legitimate children with the right to at least two thirds (called legítima) of the inherited estate, even if a will existed. Adopted and illegitimate (natural) children were secondary forced heirs in the absence of primary forced heirs. Under the discussions of the first Brazilian Civil Code, the Congress enacted Decree No. 1,839 of 1907, which reduced the legítima to half of the estate. Finally, the Civil Code of 1916 included legitimate and natural children as primary forced heirs (Schmidt 2020) but excluded adopted children. Only with the Brazilian Constitution of 1988 were adopted children also considered primary forced heirs.

3. States levied very high progressive tax rates on all inheritance values. For example, from 1940 to 1965 in Rio de Janeiro, large inheritances could be taxed up to 60 per cent if there was no degree of kinship between the donor and the heir. In this same period, the top tax rates applied to transfers to children were 12 per cent, 11 per cent and 7 per cent in Rio de Janeiro, Minas Gerais and São Paulo, respectively.

However, under the military dictatorship (1964–1988), a Constitutional Amendment largely reformed the tax in 1965 (Federal Republic of Brazil 1965). The tax base was restricted to real estate only, exempting all transfers of financial wealth. The Senate was entitled to establish the maximum tax rate applied by the states, but provisionally, a federal Decree established it at 2 per cent in 1966. In 1981, the Senate finally set the maximum tax rate at 4 per cent (Federal Republic of Brazil 1966; 1981).

Following the return to democracy, the Brazilian Constitution of 1988 expanded the tax base again to all type of assets and maintained the Senate's mandate to stipulate the maximum tax rate, which was established at 8 per cent in 1992. The Senate also permitted progressive tax systems, which were, however, considered unconstitutional by the various state courts. Therefore, between 1992 and 2015, the 8 per cent tax rate was not applied, resulting in a proportional rate of 4 per cent or 5 per cent in most states. In 2015, the Federal Supreme Court authorised the use of progressive rates, and several states modified their legislation. By 2021, 15 of the 27 Brazilian states applied progressive tax systems (Carvalho Junior 2018). However, some important states such as São Paulo, Minas Gerais and Parana (which account for about a half of Brazil's gross domestic product—GDP) still have proportionate systems with reduced tax rates of 4 per cent or 5 per cent. It is important to mention that the constitutional permission for the tax base (re)expansion to all type of assets effectively strengthened inheritance taxation in Brazil. For example, in the State of São Paulo, where this broad taxation was only implemented in 2001, real revenues increased by 86 per cent from 2000 to 2004, while in Rio de Janeiro, which has been taxing financial assets since 1990, real revenues increased by 31 per cent in this same period.[4]

Another Federal Supreme Court judgement in 2016, following the state courts' decisions, declared it unconstitutional for state legislation to favour close relatives (for example, lower tax rates for spouses, parents or children). This encouraged sharing estates with more individuals regardless of the degree of kinship. Although only two states had applied different tax rates based on degree of kinship (later declared unconstitutional by their state courts), these judicial decisions were particularly important to prevent states from overtaxing transfers to non-family beneficiaries, such as to philanthropic entities, domestic servants, caregivers or same-sex partners (before the equal recognition of same-sex marriage in 2013).

Unfortunately, there is an important loophole in inheritance tax legislation that largely benefits the richest people. The Brazilian Constitution of 1988 established the need for a federal law to regulate the taxation of inheritances located overseas or donors residing overseas. However, no such federal law has yet been enacted; therefore, the richest families have placed their wealth in offshore trusts and made tax-free transfers to their children. Some states, such as São Paulo, tried to enact supplementary regulations for overseas tax events, but the Brazilian Supreme Court considered them unconstitutional in 2021.[5] Nevertheless, in 2022, the Supreme Court established that the National Congress should enact a federal law to regulate offshore inheritance taxation by 2023.

4. These progressive tax rates are often mitigated by exemptions and other loopholes in national and state legislation. De Freitas (2021) shows that, despite having a progressive system from 2 per cent to 6 per cent, the effective taxation of all registered inheritances and donations in the State of Rio Grande do Sul was only 2.1 per cent in 2015. In his research, inheritances over BRL1 million were effectively taxed at 2.6 per cent—far below the 6 per cent level established by the state's legislation.

5. The State of São Paulo published that only 30 families were arguing the unconstitutionality of the state's supplementary regulations in court. These inheritances and donations had a value of BRL46 billion, and the contested taxes had a value of BRL2 billion (2 per cent of São Paulo's total revenues in 2021).

A subnational inheritance tax may lead to some peculiarities that are not present in most countries. In Brazil, the states are entitled to levy only three taxes (the State Value Added Tax, the Vehicle Tax and the Inheritance Tax). Although the Value Added Tax (*Imposto sobre Circulação de Mercadorias e Serviços*—ICMS) is the main estate tax and has represented approximately 80 per cent of states' tax revenues, the design of inheritance tax also has fiscal purposes that do not generally occur in countries where taxation is centralised. This is evidenced by the very low threshold applied by all states and very few discretionary exemptions. Table 1 shows that in 2019, despite its low tax rates, Brazil's revenues are not so low relative to other developing countries and even some developed countries.

TABLE 1. Inheritance and estate taxes in 2019: top marginal tax rate (for children) and revenues as a percentage of GDP

Country	Top tax rate	Revenue/ GDP (%)	Country	Top tax rate	Revenue/ GDP (%)
France	45	0.62	Ireland	33	0.15
Belgium	30	0.62	Greece	10	0.13
Korea	50	0.43	Brazil	8	0.12
Japan	55	0.41	USA	40	0.10
Denmark	15	0.37	Italy	4	0.05
Finland	19	0.31	South Africa	25	0.05
UK	33	0.23	Chile	25	0.03
Netherlands	20	0.22	Australia, Austria, Argentina, Canada, Costa Rica, Hungary, Israel, Mexico, New Zealand, Norway, Panama, Peru, Portugal Sweden and Uruguay.	No tax	0.00
Spain	32	0.20			
Germany	30	0.20			

Note: Subnational taxes on inheritances or estates are still applied in some Canadian provinces (Probate Tax) and in the Province of Buenos Aires in Argentina.

Source: Author's design based on OECD (2022) and tax legislations of selected countries.

Table 1 shows that inheritance tax revenues were equivalent to 0.12 per cent of Brazil's GDP, with a top marginal tax rate of only 8 per cent, whereas Ireland had a top marginal tax rate of 33 per cent and revenues equivalent to 0.15 per cent of GDP. This suggests that inheritance tax applied by Brazilian states also has fiscal purposes, covering the relatively small inheritances due to the low tax threshold applied, on average USD10,000 (Carvalho Junior 2018). In addition, Brazil's inheritance taxation also has an efficient tax administration for developing countries. For example, real estate assessments tend to be assessed close to market values due to partnerships with municipal governments, while the tax collection is carried by the notaries that register the transfers (ibid.). Revenues could be higher if the State of São Paulo (32 per cent of Brazil's GDP in 2019) were to increase the tax rate to 8 per cent. Indeed, Krenek et al. (2022) assert that in terms of equity, valuation and exemption rules are equally as important as the level of tax rates. The table also shows that 15 countries do not tax inheritances. Indeed, as part of the agenda of many right-wing governments over time, inherence taxes were abolished in Mexico (1962) Canada (1972), Argentina (1976), Australia (1979), Israel (1981), India and Peru (1985), Malaysia (1991), New Zealand (1992), Egypt (1996), Italy (between 2001 and 2006; it has since been re-introduced with a weaker scope), Panama (2002), Portugal and Slovakia (2004), Russia and Sweden (2005), Hungary (2006), Austria (2008), and Norway and Czech Republic (2014) (Morgan and Carvalho Junior 2021).

Data on inheritance tax revenues have been available in Brazilian states since 2000. According to Carvalho Junior (2018), revenues represented approximately 0.05 per cent of GDP in Brazil between 2000 and 2011. However, due to improvements in tax administration and the increasing tax rates under progressive systems, revenues represented an average of 0.13 per cent of GDP between 2016 and 2021. São Paulo represented approximately a third of Brazil's GDP and 38 per cent of national inheritance tax revenues in this period. By 2022, the tax rates ranged from only 2 per cent in Amazonas to 4 per cent in São Paulo and Parana, 5 per cent in Minas Gerais and up to 8 per cent (progressive systems) in 10 states, including Rio de Janeiro. Exemptions are also very diverse, covering the primary residence (up to a specific value in most states), while the tax threshold averages BRL50,000 (equivalent to USD9,434 in December 2022). Finally, 11 states apply more favourable taxation on donations rather than inheritance, which encourages tax planning. According to the State Revenue Secretariat of Pernambuco, Santa Catarina and Rio de Janeiro, real estate has represented approximately 75 per cent of the inheritance values each year, demonstrating that transfers (especially lifetime donations) of cash or financial assets have been largely unreported.

There is limited incentive in Brazil of people adopting a possible strategy of choosing a state with more favourable taxation to register transfers. The taxation of real estate must follow the legislation of the state where it is located, and administrative requirements would discourage this strategy for other classes of assets. Good revenue performance as a percentage of state GDP between 2016 and 2021 was found in the central-western states of Goias (0.34 per cent) and Mato Grosso do Sul (0.36 per cent). Goias has a threshold of just BRL20,000 and a progressive tax system of up to 8 per cent with reduced tax brackets, while Mato Grosso do Sul has a proportional tax rate of 6 per cent. Only very low-value primary residences are exempt in both states. In addition, these states have good revenue performance from the recurrent municipal property tax and the property transfer tax, which impact the assessed property values for inheritance tax. Land trade due to the agribusiness sector is also strong in the region (evidenced by the high performance of property transfer tax revenues), which provides a broad tax base related to both rural and urban real estate. On the other hand, in Amazonas, where the tax rate is only 2 per cent, inheritance tax revenues have represented only 0.03 per cent of the state's GDP. This is also the case in other low-income northern states.

4 NEW ESTIMATES OF INCOME AND WEALTH CONCENTRATION IN BRAZIL

Kennedy (2019) argues that individual tax record microdata are more reliable than survey data for analysing income and wealth distribution. It records the entire population of taxpayers, does not have problems with non-response and respondents, and contains a significantly larger sample size. In addition, income tax administration often includes data on wealth and wealth transfers due to the taxation of capital gains. Survey data, on the other hand, tend to underestimate the concentration of wealth due to the usual underrepresentation of the very wealthiest households. This is seen even in cases where surveys attempt to oversample the wealthy, such as in France and Germany (Schroder et al. 2020).

In Brazil, four surveys present individual or household income in Brazil:

- the national census, conducted once per decade since 1872;

- the Household Sample Survey (PNAD), carried out annually since 1976 (except in the years coinciding with the national census) and covering a weighted sample of approximately 150,000 families and 350,000 individuals;
- the Survey of Household Budgets (*Pesquisa de Orçamentos Familiares*—POF), which has collected detailed data on families' purchases and earnings, without a precise cycle, in 1995-1996, 2002-2003, 2008-2009 and 2017-2018; and
- the Personal Income Tax Declarations Database (DIRPF), released in 2006, which has provided data annually on about 25–30 million income tax declarations (approximately 20 per cent of the adult population) and catalogues relevant information per income strata (including very small upper-income strata, such as the richest 0.01 per cent). It also covers taxable and exempt income, deductible expenses, net wealth and inheritance receipts, among other information.

Therefore, the income distribution in the DIRPF differs considerably from the income distribution in the PNAD. Despite providing more detailed and reliable different sources of income, including capital income, rents and dividends (which is relevant among the richest), the DIRPF omits persons with informal jobs or no/low income (who are under the tax threshold). In contrast, the PNAD underestimates the richest, who often do not participate in housing surveys. According to the 'official' index of income concentration in Brazil in 2019 based on the PNAD, the richest 10 per cent and 1 per cent held 17.5 per cent and 11.1 per cent of Brazil's income, respectively. However, some studies have recently provided more reliable estimates, combining PNAD and DIRPF data to adjust the usual underreporting of income of the richest and the absence of the richest individuals from household surveys.

Medeiros et al. (2015) were pioneers in combining the PNAD and DIRPF databases from 2006 to 2012. The authors state that the income of the richest 10 per cent should be estimated according to the DIRPF, while the remaining 90 per cent should be estimated according to the PNAD. For 2012, using 'Pareto interpolation' to combine both databases, they estimated that the richest 1 per cent and 0.1 per cent of individuals held 27 per cent and 11 per cent of income, respectively. They conclude that, from 2006 to 2012, the income of the richest deviated from the mean, contrary to what the PNAD indicated.

Morgan (2017) estimates Brazil's income distribution from 2001 to 2015 using national accounts, imputed rents of households, the PNAD and the DIRPF. These latter two databases were combined through 'generalised Pareto interpolation' developed by Blanchet et al. (2017), while national accounts were used to estimate the missing part of capital income. The author also concludes that, contrary to the PNAD's indication that inequality fell in the period (the top shares fell, and the middle and bottom shares rose), there was an increase in concentration in the top 1 per cent, less of an increase in the bottom 50 per cent and a squeezing in the middle-income strata. In 2015, the richest 1 per cent and 0.1 per cent held 28 per cent and 14 per cent of total income, respectively.

Nery and Hecksher (2018) also combined data from the PNAD and the DIRPF using 'Pareto interpolation' to provide a more reliable picture of the concentration of income in Brazil from 2007 to 2015. The authors took DIRPF data on the richest 10 per cent and found that the variation of the Theil-T (more sensitive to the variations in the income of the richest than the Gini index) decreased by 2.7 per cent per year using raw PNAD data but increased by 4 per cent per year when combining both databases. According to their estimates, the richest 1 per cent and 0.1 per cent of individuals held 28 per cent and 12 per cent of total income, respectively.

Finally, one of the few studies that estimates both Brazil's income and wealth concentration is by the World Inequality Lab (2023), applying a methodology developed by Bajard et al. (2022). Combining data from the PNAD, the DIRPF, national accounts and the *Forbes* list of billionaires and making some imputations, the institution estimates that the richest 10 per cent and 1 per cent hold 59.8 per cent and 25.7 per cent of total income, respectively. In relation to the wealth concentration, the wealthiest 10 per cent and 1 per cent hold 79.9 per cent and 48.9 per cent of total wealth, respectively. Table 2 displays the income held by the richest 10 per cent, 1 per cent and 0.1 per cent of individuals according to the 'official' PNAD index, and according to the cited authors' estimates that combined the PNAD, the DIRPF and other sources.

TABLE 2. Proportion of total Brazilian income held by the richest 10 per cent, 1 per cent and 0.1 per cent of individuals according to different sources and estimates, 2007 and 2015 (%)

Source	2007			2015		
	10%	1%	0.1%	10%	1%	0.1%
Medeiros et al. (2015)	n.a.	24.0	10.5	n.a.	27.0*	11.0*
Morgan (2017)	55.0	28.2	13.8	55.6	28.3	13.7
Nery and Hecksher (2018)	58.8	27.1	11.1	59.8	27.9	12.2
World Inequality Lab (2022)	58.7	23.9	10.0	59.9	22.8	8.7
Average authors' values	57.5	25.8	11.4	58.4	26.5	11.4
PNAD (raw data)	48.8	14.2	3.3	44.1	12.8	2.9

Note: *Data for 2012.

Table 2 shows that, according to raw PNAD data, the 'official' levels of concentration for the three groups decreased between 2007 and 2015. However, the cited authors estimated that they remained almost the same. Moreover, the levels of concentration for the richest 1 per cent and 0.1 per cent were approximately two and three times higher, respectively, than the official estimates. This reveals the magnitude of Brazil's 'real' inequality, encouraging the argument for changing the official indexes of concentration in the country.

Except for the World Inequality Lab (2023) study, estimates of wealth concentration in Brazil are far scarcer due to the lack of data and their quality. The DIRPF provides taxpayers' net wealth, but a significant drawback is that properties' acquisition values are declared annually, which are generally lower than their market values. In addition, informal properties (generally owned by poorer people) are omitted. The POF just provides the rents paid and imputed rents for owner-occupied properties, also excluding properties' market values. According to the 2019 DIRPF, real estate represented 39 per cent of total wealth held by Brazilian families, financial assets represented 51.2 per cent, and vehicles 6.2 per cent. The DIRPF does not provide the distribution by asset class and income strata together, but based on some studies such as by the OECD (2018), financial assets are generally more important among the richest households. Nery and Hecksher (2018) noted that while real estate is underestimated, financial assets are overestimated in the DIRPF due to its declaration in nominal values, rather than in (inflation-adjusted) real values. Therefore, further research would be necessary to reveal whether the wealth distribution in Brazil would be more or less concentrated taking these issues into account.

Inheritance receipts are also reported in both the DIRPF and the POF. Legislation compels all beneficiaries to declare their inheritance and donation receipts above BRL40,000 in their

income tax declarations, including for overseas assets. This was for transparency and because of the realisation that capital gains might occur between the donors' acquisition and the heirs' sale, which are liable to capital gains tax. However, in addition to the drawbacks related to reported wealth, the DIRPF also does not display transfers under the tax threshold of BRL40,000.

The POF contains a comprehensive list of income sources, and the number of income tax declarations in the DIRPF exceeds the number of individuals over 24 years old for income levels above approximately BRL25,000 (99th percentile). Inheritance receipts were extremely underreported in the POF in 2017-2018, representing just 14 per cent of the values declared in the DIRPF in 2018. Even excluding the richest 1 per cent, this ratio was approximately 30 per cent. Table 3 displays the income and inheritance concentration indicators generated by the combination of the POF in 2017-2018 and the DIRPF in 2018.

TABLE 3. Proportion of Brazil's total income and inheritance receipts in 2018 held by the richest 10 per cent, 5 per cent, 1 per cent and 0.1 per cent of individuals: combined data from the POF in 2017–2018 and the DIRPF in 2018 (%)

Monthly income (BRL)	POF 2017-2018		DIRPF 2018		Combination of POF and DIRPF		
	Individuals over 24	Average income (BRL)	Income tax declarations	Average income (BRL)	Percentile	Income share	Inheritance share
< 5,420	119,193,372	1,460	18,575,964	3,387	P0-P90	45.2%	1.8%
5,420–9,017	6,641,330	6,878	5,633,694	6,890	P90-P95	11.9%	3.3%
9,017–24,962	5,168,693	14,174	4,872,384	14,279	P95-P99	19.0%	11.5%
24,962–81,621	1,220,065	38,033	1,218,096	43,117	P99-P99.9	13.6%	19.7%
> 81,621	103,986	137,503	152,262	261,466	P99.9-P100	10.3%	63.6%
Total	132,327,446	2,673	30,452,400	8,461	P0-P100	100.0%	100.0%

Source: Author's design based on IBGE (2020) and RFB (2019).

According to Table 3, in 2018, the top 10 per cent, 5 per cent, 1 per cent and 0.1 per cent held 54.8 per cent, 43 per cent, 24 per cent and 10.3 per cent of income, respectively, and 98.2 per cent, 94.8 per cent, 83.4 per cent and 63.6 per cent of reported inheritances, respectively. Even considering the unreported inheritances of small values and of informal properties among the poorest, the table shows that inheritances are particularly concentrated among the richest.

Conclusively, this section shows that income concentration in Brazil is high and has remained almost unchanged for the richest 1 per cent, if PNAD and DIRPF data are treated and combined. It can be assumed that wealth concentration is also high. However, due to a limited number of studies and data issues, its magnitude still needs to be assessed more precisely, and future studies must consider the impact of informal properties, real estate valuations and inflation effects on the assets. Finally, inheritances are also very concentrated, but the small transfers not reported in the POF and DIRPF databases reveal the need to address the issues debated in this section.

FERTILITY RATES AND CAPITAL POSSESSION OVER TIME

As mentioned above, there are two main features of Brazil's inheritance system that have enhanced the concentration of wealth over time: first, the rule of the old Brazilian Civil Law

(1916–2001) establishing only children as primary and forced heirs, thus narrowing the number of potential beneficiaries; and second, the low rate of inheritance tax during the Brazilian military dictatorship (1964–1988), which was restricted only to real estate and taxed at 2 per cent (1966–1981) and 4 per cent in 1982–1992 (Federal Republic of Brazil 1916; 1965; 1966; 1981). In addition, income, wealth and inheritance are highly concentrated in Brazil, as stated by the literature cited above.

Thus, the study confirms two other statements that are associated with the inheritance system and wealth concentration. First, the average number of children among the richest is significantly lower than in the rest of the population.[6] The rationale is that with fewer children to share estates, the wealth will be concentrated even more. Second, the proportion of individuals who declare being an employer as their main occupation (likely those who own companies) and/or receive rents (likely owners of secondary properties) is significantly higher among the richest than the rest of the population. The rationale is that if a meaningful part of capital is highly concentrated among the richest (capitalists), the wealth will become increasingly concentrated over time.

The PNAD will be used to confirm these two statements from 1976 to 2015, and the richest households will be considered the top 5 per cent of the income distribution.[7] The study could also use life expectancy as an additional relevant variable to express the potential for capital accumulation. The heads of families who live longer have more time to accumulate capital and transfer wealth to their children either by inheritances or lifetime donations, in contrast to the heads of families with a lower life expectancy. However, the PNAD only has data on mortality for 1978 and covers a relatively small sample (1,365 surveyed deaths in 1978 among people over 18 years old). The 1978 PNAD shows that the average age of death was 68 years among the richest 5 per cent and 59 years in the rest of the population. In other words, the deaths that occurred among the richest 5 per cent were an average of a decade later. This suggests that the richest people have a higher life expectancy, which provides more time to accumulate capital and transfer it to their children than individuals in other income strata. Unfortunately, no more survey data are available since 1978 to confirm this trend.

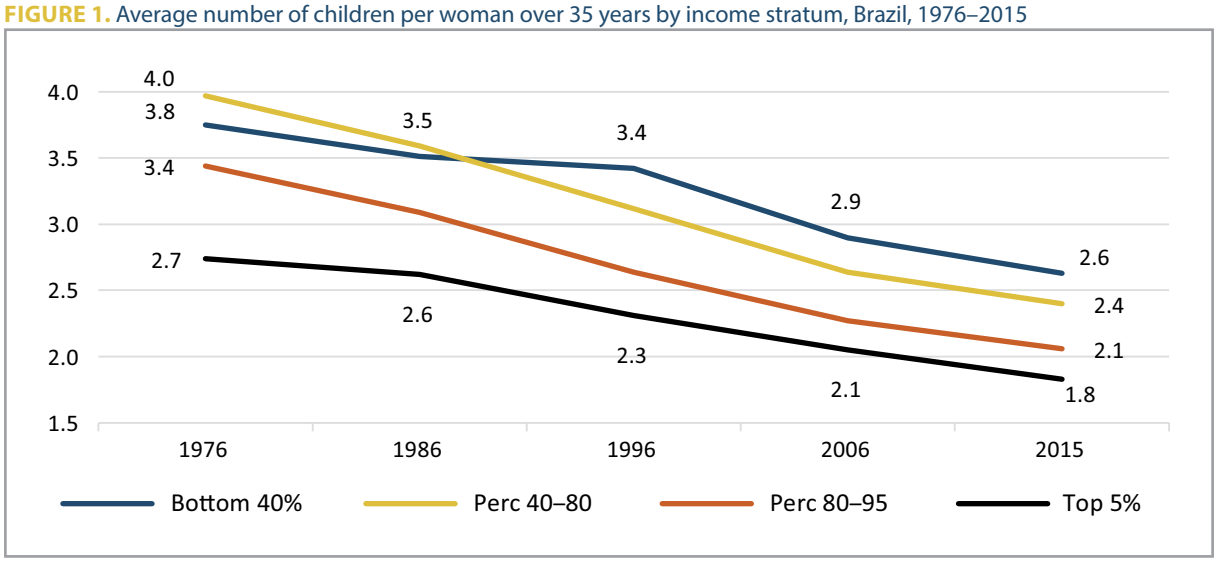
Figures 1 and 2 present, between 1976 and 2015, the average number of children of women over 35 years and the percentage of capitalists (heads of families who declared being employers and/or rent recipients).[8] The data are divided into four income strata (the bottom 40 per cent, the top 5 per cent and those who are in the intermediate percentiles: 40–80 and 80–95).

6. PNAD data just provide the cumulative number of children per woman, and this study considers the average number of children of women older than 35 years (approximately the end of woman's reproductive life), which is different from the fertility rate index. According to the World Health Organization, the total fertility rate is calculated as the sum of age-specific fertility rates among women aged 15–49 years, or five times the sum if data are given in five-year age groups. The fertility rate is calculated as the ratio of annual births to women at a given age or in a given age group to the population of women of the same age or in the same age group in the same year.

7. The PNAD was chosen as a source of income data due to its availability since 1976. Other surveys that could be a better source of income, such as the POF and the DIRPF, started in the 2000s. The PNAD makes it easier to analyse the evolution of socio-demographic indexes and changes in inheritance rules.

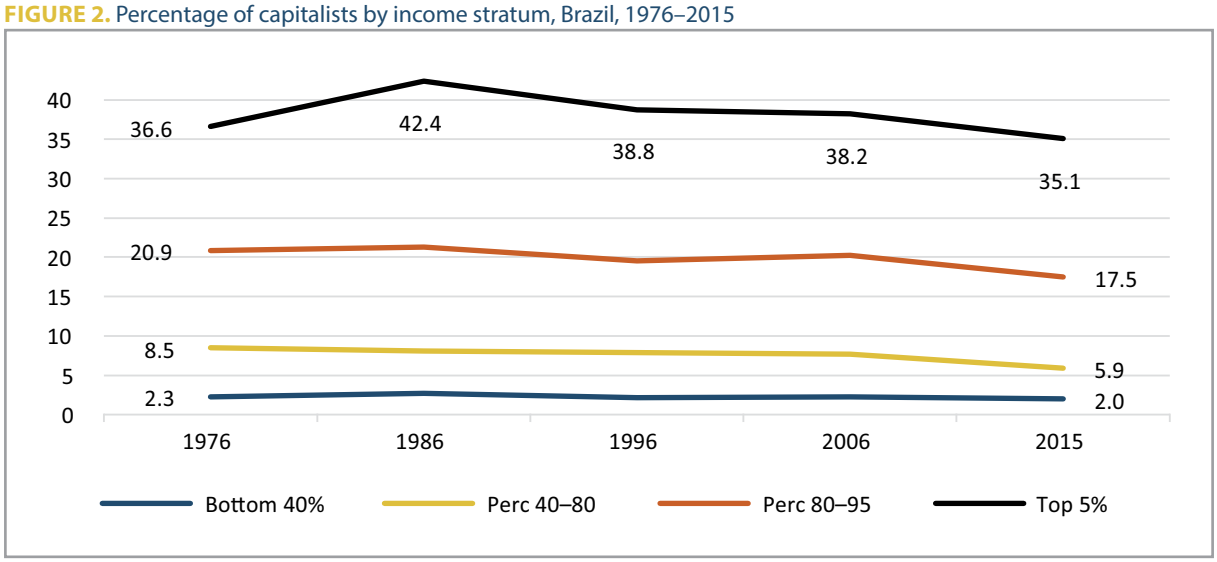
8. Slightly more than a third of the top 5 per cent were classified as capitalists in 2015, which may indicate the limited scope of the PNAD in detailing sources of income. The POF 2017-2018 shows that employers and receivers of rents represented 23 per cent and 21.6 per cent of the top 5 per cent, respectively. Other occupations and sources of income with a high frequency among the top 5 per cent were the liberal professions (39.4 per cent) and financial income (64 per cent). The frequency of this latter was just 13.2 per cent among the bottom 40 per cent, revealing the importance of financial income among the rich. Unfortunately, this information is not available for the PNAD.

FIGURE 1. Average number of children per woman over 35 years by income stratum, Brazil, 1976–2015



Source: Author's design based on IBGE (various years).

FIGURE 2. Percentage of capitalists by income stratum, Brazil, 1976–2015



Source: Author's design based on IBGE (various years).

According to Figure 1, between 1976 and 2015, woman in the richest 5 per cent of the population had an average of approximately 30 per cent fewer children than those in the poorest 40 per cent. This likely enhanced the intergenerational concentration of wealth in Brazil, given the absence of significant and progressive inheritance taxation. Figure 2 corroborates this fact, showing the much higher frequency of capitalists among the richest 5 per cent of the population. Indeed, between 1976 and 2015, 38 per cent of the top stratum were capitalists, compared to only 2 per cent among the bottom stratum, and 8 per cent in the stratum between the 40th and 80th income percentiles.

Conclusively, this section confirms the statements that the richest have fewer children and hold proportionally more capital than the poor, as expected.

FINDINGS AND DISCUSSIONS

Evidence has shown that providing information on inequality and the lack of progressivity in inheritance taxation improves the public acceptability and political feasibility of inheritance tax reforms (Bastani and Waldenstrom 2021). The study shows that the inheritance legislation in Brazil has encouraged the transfer of wealth to children instead of being divided among more beneficiaries, since donors cannot freely allocate more than half of their bequest if a forced heir exists. Highly progressive inheritance taxation, therefore, would serve as an appropriate counterforce against the perpetuation of inequality. Research into the legislation covering inheritance taxation in Brazil reveals that the scope of the tax was substantially reduced during the period of military dictatorship (1965–1988). Even after the return to democracy, despite the renewed expansion of the tax base to all types of assets, progressivity is still mitigated by the national capping of tax rates, prompting calls for inclusive tax reform.

This study confirmed or evidenced all five statements under investigation. First, wealthy families have fewer children than the rest of the population. From 1976 to 2015, the average number of children per household in the top 5 per cent of the income distribution was 2.3, compared to 3.2 among the bottom 40 per cent. Second, wealthy families hold proportionally more capital than the poor, and potentially transfer it to their children as inheritances or donations. From 1976 to 2015, the average percentage of capitalists (employers and/or rent recipients) among the top 5 per cent of the income distribution was 38.2 per cent, compared to only 2.3 per cent among the bottom 40 per cent. Third, inheritances have mostly been transferred to children who are preferential and forced heirs, as evidenced by historical and legislative research into Brazil's civil codes. Fourth, inheritances have been negligibly taxed, as evidenced by legislative research and the indicators of revenue collection. Finally, several recent studies that combine surveys with tax data in Brazil show that income and wealth are concentrated significantly among the richest, and this concentration has remained almost unchanged since the 2000s. The studies found, on average, that the richest 1 per cent and 0.1 per cent of the population held 27 per cent and 12 per cent, respectively, of the country's total income in 2015. Therefore, the study provides some of the reasons for the high and historical persistence of Brazil's wealth inequality. Life expectancy by income stratum was not analysed; however, the data on deaths from the 1978 PNAD suggests that high-income individuals had a higher life expectancy than poorer individuals, with deaths occurring among the top 5 per cent of the income distribution on average a decade later than among other income strata.

In terms of public policies, inheritance tax should be substantially reformed at national level. Higher progressive tax rates should be imposed, as well as the taxation of wealth from overseas, including the opaque offshore holdings of Brazilians citizens, which are currently exempt due to a lack of specific legislation. This, certainly, will require better tax policy design and administrative measures against tax avoidance and evasion.

This study makes some recommendations in terms of enhancing statistics in Brazil. Besides the oversampling of the richest households, the PNAD should also catalogue households' stock of wealth, covering properties' market values (including formal and informal residences), vehicles, savings, financial assets, and receipts of inheritance and donations. The parents' age and the parents' age of death should also be surveyed to analyse life expectancy by income stratum. Changes in the official index of income concentration should also be discussed further. These adjustments can be made in the future by increasing the sample of wealthier households and by combining survey results, the personal income tax database, national accounts and third-party information, rather than by using only PNAD data.

In relation to the recommendations on tax administration, Brazil's Federal Revenue Department should compel taxpayers to declare their assets at market values and publish the distribution of asset classes by income stratum. However, the main data shortcoming is the value of inheritances and donations, and their effective taxation by the 27 Brazilian states. States should be forced by federal law to display the total value of legacies reported, their asset classes and the type of transfer (inheritance or donation).

The study indicates that inheritance and wealth inequality are significant and related. Therefore, further studies should develop statistics to conduct some correlational or causal analysis on this topic. In addition, despite the recent studies estimating the concentration of income in Brazil, there is a lack of studies that estimate the concentration of wealth, likely due to shortcomings in wealth data in Brazil. Therefore, new studies should provide innovative ways to measure the wealth of Brazilian families, especially the 'hidden' wealth of the rich.

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