BRAZIL POVERTY AND EQUITY ASSESSMENT

LOOKING AHEAD OF TWO CRISES

WORLD BANK GROUP

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Abbreviations

AB .... Auxílio Brasil

AE........................... Auxílio Emergencial

BPC .... Benefício de Prestação Continuada

CadUnico .... Cadastro Único (social registry)

CLT......................... Consolidação das Leis do Trabalho

CNES .... Cadastro Nacional de Esbelecimentos de Saúde

COVID-19.............. Coronavirus disease of 2019

FGTS...................... Fundo de Garantia do Tempo de Serviço

GDP .... Growth Domestic Product

GOB   .... Government of Brazil

HCI .... Human Capital Index

IBGE .... Brazilian Institute of Geography and Statistics

INCRA .... Instituto Nacional de Colonização e Reforma Agrária

INEP .... Instituto Nacional de Estudos e Pesquisas Educacionais

INSS....................... Instituto Nacional do Seguro Social

IP............................ Indigenous Populations

iRDC....................... Indice de Risco de Desastres por Capacidades

LFP .... Labor Force Participation

MP........................... Medida Provisória

MW.......................... Minimum Wage

PBF........................ Programa Bolsa Família

PNAD..................... Pesquisa National por Amostra de Domicílios

PNAD-C................. Pesquisa National por Amostra de Domicílios - Contínua

POF........................ Pesquisa de Orçamentos Familiares

PPP   .... Purchasing Power Parity

RAIS....................... Relação Anual de Informações Sociais

SAEB...................... Sistema de Avaliação da Educação Básica

SUS .... Sistema Único de Saúde

WDI   .... World Development Indicators

"Eu classifico São Paulo assim:
O Palácio, é a sala de visita. A
Prefeitura é a sala de jantar e
a cidade é o jardim. E a favela
é o quintal onde jogam os lixos. "

Carolina Maria de Jesus describes São Paulo of
1955 in her published diary "Quarto de Despejo"

"O senhor tolere, isto é o sertão...
O senhor sabe: sertão é onde
manda quem é forte, com as
astúcias.

Guimarães Rosa in "Grande Sertão: Veredas" de-
scribing in his 1956 novel the rural livelihoods in
north of Minas Gerais and the south of Bahia.

EXECUTIVE
SUMMARY

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In 2020, Brazil was about to face socio-economic disruptions of historical proportions. The onset of the COVID-19 pandemic has broken several undesirable Brazilian records. First, the pandemic wreaked an enormous direct human toll, sickening millions and causing the death of 195,441 Brazilians in 2020 and 619,056 in 2021. Second, the Brazilian economy experienced its worst contraction in recorded history, with real gross domestic product (GDP) per capita growth in 2020 at -4.7 percent (compared to the previous record of -4.4 percent in 2015).[1] Third, COVID-related closures and other measures led to a massive, unprecedented exit of workers, with an estimated 10 million people leaving the labor force between the third quarter of 2019 and the third quarter of 2020. Employment opportunities were scarce for those who remained in the labor force, with the unemployment rate standing at 14.6 percent in the third quarter of 2020.

COVID—19 was Brazil's second economic crisis in recent history. Brazil responded to the 2008 global financial crisis with macroeconomic stimulus. While this helped the Brazilian economy emerge quickly, it exacerbated economic imbalances, including rising fiscal deficits, inflation, current account deficits, and a sharp increase in credit growth, especially from state-owned banks (Ciaschi et al. 2020). Brazil entered a technical recession in the second half of 2014 and its currency experienced one of the largest depreciations among emerging markets (Ciaschi et al. 2020). Furthermore, a political crisis accompanied the economic recession, unleashing a president's impeachment and continued polarization. While growth turned positive in 2017, the recovery remained tepid through the end of 2019.

These downturns have nearly halted Brazil's poverty reduction progress. At the pandemic onset, roughly three of 10 Brazilians were poor and about 8 percent were extremely poor.[2] These shares had not changed much since 2012 (33 percent and 7.4 percent, respectively), the earliest year for which there is comparable data. The pandemic could have increased poverty in Brazil significantly more had it not been for the Government's fiscal package and direct cash transfer to 67 million individuals. Having decreased substantially in 2020, poverty rates increased sharply as soon as Government assistance decreased, making Brazilian households' dependence on public support evident in the context of weak labor markets. Poverty rates are estimated to be just over 1 percentage point lower in 2021 than in 2019. In contrast, estimates suggest that poverty rates may have dropped about 16 percentage points in the decade 2002-2011.[3]

The 2014 to 2016 crisis and the COVID-19 pandemic widened disparities in Brazil, already one of the most unequal countries in the world. Before the pandemic, the richest 10 percent of Brazilians had an average income per capita over 50 times that of the poorest 10 percent, and the top 5 percent's income was over 77 times higher. Indeed, the 2017-2019 economic recovery was significantly regressive, and by 2019 the poorest decile had yet to recover the income levels they had before 2014. One in five Brazilians were chronically poor, with most deprived of formal jobs and residing in households headed by someone with less than elementary-level education. As in a number of countries, Brazil' poor and vulnerable felt the pandemic's negative economic effects more harshly (Narayan et al. 2022).

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[1] World Development Indicators "GDP per capita growth (annual %)" https://databank.worldbank.org/source/world-development-indicators# (accessed April 22, 2022).
[2] Poverty is based on a half a minimum wage (R$499) per capita threshold, and extreme poverty based on a R$178 per capita threshold.
[3] In this period, the household survey had a different methodology than the PNADC used throughout the report. Thus, it is not strictly comparable.

In Brazil, women, the young, and the low-educated were more likely to lose their jobs as a result of the pandemic. Low-income families experienced higher food insecurity and were less likely to be able to afford basic needs. Children living in low-income households and higher-poverty regions experienced more significant decreases in school engagement than did children from better-off households.

Many individuals at the bottom of the income distribution work in precarious jobs and lack a resilient source of income, forcing them to rely on public transfers during the pandemic. The significant progress in Brazilian households' welfare in the 2000-2010 decade responded mainly to labor market dynamics. Between December 2003 and December 2014, formal employment grew on average 5 percent annually, outpacing annual GDP growth of 3.5 percent (Campos and Souen 2017). Increases in the minimum wage (Cord, Genoni, and Ro-dríguez-Castelán 2015) and a surge in skills (including more highly skilled labor among the vulnerable) contributed positively to the increase in welfare. Still, a significant share of Brazilian workers has remained informal or not protected by the National Social Security System (INSS). When economic shocks hit Brazil, the labor market outcomes of low-income individuals are the first to be affected. Thus, income effects for the poorest are strongly correlated with the rollout of social protection cash transfers. The Programa Bolsa Família (PBF) decreased its coverage in the years following the 2014 crisis when Brazil's poverty rate was increasing. Meanwhile, the widespread coverage of the Auxílio Emergencial program in 2020 contributed to the decrease of national poverty rates. Other income groups can weather economic shocks much better. People in middle of the income distribution maintain their steady pensions, and the richest Brazilian recover quickly thanks to savings, wealth, and accumulated assets that help them to adapt.

Brazil in the Time of COVID-19

Starting as a severe health crisis, the COVID-19 pandemic had significant economic ramifications. With more than 22 million diagnosed cases, Brazil is the most COVID-19-affected country in the Latin America and the Caribbean (LAC) region and the third most affected worldwide. It has the second-highest number of total deaths due to COVID-19 in the world, with more than 600,000 fatalities as of January 2022. As a result of the COVID-19 shock, the Brazilian economy contracted by -3.9 percent in 2020. The fall in GDP followed a drop in all its components: lower goods and services imports (-9.8 percent) as well as private and government consumption (-5.4 and -4.5 percent, respectively). The service and industrial sectors, employing over 90 percent of the workforce, contracted 4.3 percent and 3.4 percent, respectively.

The pandemic reversed Brazil's declining unemployment trend that had prevailed since 2017. The COVID-19 pandemic also resulted in an unprecedented drop in labor force participation (LFP). In the first quarter of 2017, the unemployment rate in Brazil reached 13.7 percent, close to twice the rate of three years prior. It declined steadily after that, only to rise sharply again in the first three quarters of 2020 up to 14.6 percent. Meanwhile, close to 5 percent of the working-age population left the workforce in the first half of 2020 – an outflow of individuals not seen before (figure ES.1). Even in 2015, the average LFP was barely 0.3 percentage points lower than in 2014, before the crisis hit the economy. Although LFP started to recover towards the end of 2020, the labor market was only partially able to reabsorb individuals and unemployment remained high.

The unemployment shock was more persistent in Brazil's north and northeast regions and more pronounced for traditionally vulnerable individuals. Afro-Brazilians[4] and residents in the north and northeast, groups characterized by lower education and a higher propensity to be in informal work or self-employed, experienced large drops in their employment rates in 2020. Women—more likely to work in sectors more heavily-affected by lower mobility and demand, such as accommodation and domestic services—also saw their employment rates decrease substantially in the first year of the pandemic (figure ES.2). By mid-2021, according to the Brazil COVID-19 Phone Survey[5], the proportion of people who had lost their prepandemic job and were not working was highest among those with elementary education[6] or less (32.7 percent) and lowest among those with tertiary education or more (13.5 percent).[7] Women were more than twice as likely as men (36.8 percent versus 16.4 percent) to have lost their prepandemic jobs and be either unemployed or out of the labor force. This is likely a result of their involvement in the service sector where physical distancing measures have been especially stringent (Lustig and Tommasi 2020), as well as the traditional societal gender roles that have increased women's unpaid domestic housework and burden of accompanying the education of children during COVID-19 school lockdowns.

The deteriorating labor market environment decreased household labor income, with the most vulnerable population hit hardest. In May 2020, per capita household labor income of the bottom 40 percent was only 65 percent of usual, whereas for the top 60 percent, this proportion was 88 percent. Despite improvement over the following months, differences remained in October 2020, with the bottom 40 percent still falling short of their usual labor income by more than 10 percent, while income returned to near normal for the top 60 percent.

FIGURE ES.1. **Unemployment Rate and Labor Force Participation 2012-2021**

Source: PNAD-C - World Bank estimates.

FIGURE ES.2. **Employment Rate by Population groups, 2012-2021**
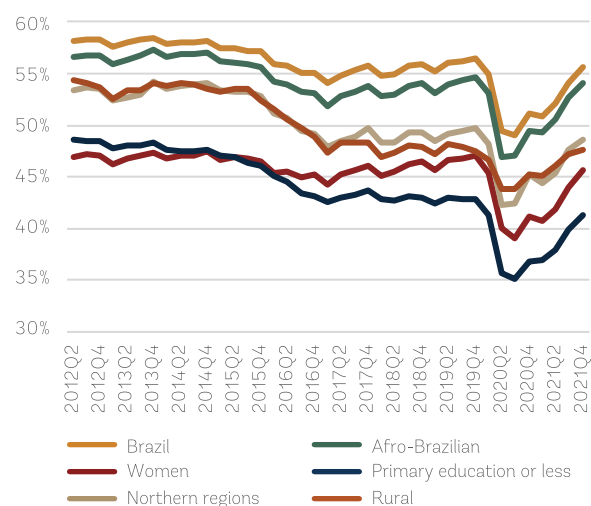
Source: PNAD-C - World Bank estimates.

[4] IBGE distinguishes five racial and ethnic categories in its household surveys, according to self-declaration: preto (generally understood as dark-skinned Afro-descendants), pardo (generally light-skinned Afro-descendants or those of mixed race), indígena (indigenous), amarelo (Asian-descendants), and branco (white). Pretos and pardos comprise the broader group of Afro-descendants, who, in Brazil, are also collectively referred to as "negros." In this report, we use the term "Afro-Brazilian" when referring to both preto and pardo demographics together.

[5] The Brazil COVID-19 Phone Survey is part of the World Bank – UNDP Latin America and the Caribbean High-Frequency Phone Survey Project. See World Bank and UNDP (2022) and Mejia-Mantilla et al. (2021).

[6] Elementary school is a person's expected educational attainment by 14 years old. This is equivalent to the complete basic education up to the level 2 of International Standard Classification of Education (ISCED 2011).

[7] Job loss is defined as not being occupied in the reference week but having had a job just before the pandemic outbreak. See Chapter 3 for more details.

Emergency aid deployed by the Government of Brazil (GOB) provided a lifeline for many households, especially those in the bottom of the income distribution. On March 30, 2020, the GOB introduced the Auxílio Emergencial aid program consisting of an initially monthly cash transfer of US$116 (R$600) for three months to informal or self-employed workers and low-income families. The first payment launched on April 9. The GOB extended the program in July for another two months and in September for four more months, although with a one-half reduction in the monthly transfer. The transfers were a significant help for households in the bottom of the distribution. For example, between June and September 2020, they accounted for about one-half of the income for the Brazilians in the poorest income per capita quintile, and for one-third among those in the second quintile. The aid was also significant for those in the middle of the distribution, representing about 20 percent of their overall income between May and September.

The substantial aid increased income for the poorest in Brazil and poverty decreased from 2019 to 2020, in contrast with the rest of the LAC region. Brazilian Institute of Geography and Statistics (Instituto Brasileiro de Geografia e Estadística or IBGE, 2021) estimates and World Bank simulations in this report show that these transfers were a driving force behind the over 7 percentage points decrease in poverty rates in 2020. The transfers increased the income of households in the bottom of the distribution—despite labor market deterioration. Simulations on inequality, as measured by the Gini coefficient, also suggest a decrease of 0.04 in 2020 (see Chapter 3).

Poverty and inequality likely increased in Brazil after the substantial reduction and eventual Auxílio Emergencial discontinuation in 2021 amid persistently high unemployment and increased cost of living. Unemployment rates remained above prepandemic levels in 2021. Households also lost considerable purchasing power in 2021 as the cost of living increased more than 9 percent.[8] Although comprehensive household income data will not be available until well into 2022, evidence from a phone survey suggests that, a year into the pandemic, a significant share of Brazilians are still suffering from pandemic socioeconomic shocks (Paffhausen et al. 2021). First, apart from higher unemployment, the pandemic increased job precarity: there was higher informality, higher self-employment rates and lower average working hours for those who remained employed. Second, 44.6 percent of households reported lower total household income compared to before the pandemic. Finally, 38.7 percent of households said that they were not able to cover their basic needs. The temporary welfare gains of 2020 quickly disappeared and the poverty rate in 2021 increased close to 6 percentage points. Meanwhile, inequality probably also increased, with the Gini coefficient reaching 0.506—up from 0.474 in 2020 (see Chapter 3). Put together, while 2020 saw a non-negligible share of the poor move out of poverty and vulnerable households move into the "middle class", most of them fell back to their prepandemic income groups by 2021 (figure ES.3).

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[8] Measured by IBGE's Índice Nacional de Preços ao Consumidor (INPC).

FIGURE ES.3. **Simulated Transitions Across Income Groups 2019-2021**

a. 2019-2020
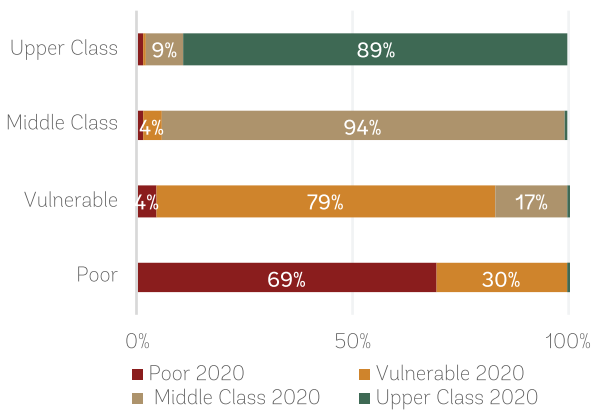
b. 2020-2021
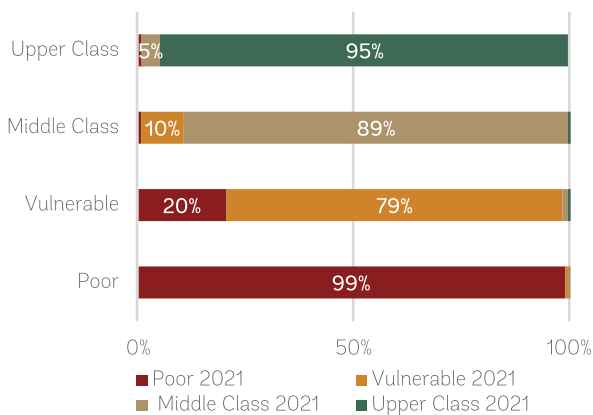
Source: World Bank estimates
Notes: Poor households have an income per capita below R$499. Vulnerable households have an income per capita between R$499 and R$998. Middle Class have an income above R$998 and less than R$3992 (equivalent to four minimum wages). The upper class earns more than four minimum wages per capita. Data labels refer to the proportion of the income group in the initial year. Transitions of less than 1 percent of the population not labeled.

The pandemic has also taken a high toll on human capital accumulation, which may have long-term negative consequences on poverty and equity. Given the severe transmission of COVID-19 in Brazil, schools remained closed in most of the country throughout 2020. In July 2020, one in five school-aged children were either not enrolled in school (4.4 percent) or did not have access to any schooling activities (15.7 percent).[9] By November 2020 this share was still above 10 percent, although highly unequal: 27.8 percent of children in the poorer north and northeast were either not enrolled or without access (Paffhausen et al. 2021). Meanwhile, Brazil COVID-19 Survey data showed that children who attend public schools are much less likely to attend face-to-face classes, even if hybrid modes are considered (42.8 versus 76.6 percent of children in private schools).

Besides the direct effects of COVID-19 on sickened individuals, other health issues have become a source of concern. Mental health degeneration symptoms were widespread, with about seven of 10 adults (69.6 percent) reporting at least one symptom. Job loss and not being able to cover basic household needs correlate with increased likelihood of experiencing symptoms. This suggests the presence of important feedback between income-earning potential and economic vulnerabilities, and human capital in the form of mental health.

[9] Access to schooling activities is defined as respondents having been provided with school activities to be carried out at home, for example online classes, homework, or guided study in the previous week. In November, it also explicitly included presential classes, while in the previous months, this distinction was not made.

Food security decreased since the pandemic outbreak, partly due to recent price hikes. By mid-2021, 29.0 percent of households said they were not able to afford healthy or nutritious food. The proportions were much higher among households headed by women (35.9 percent), people with low education (38.9 percent) and low-income households (51.0 percent), identified as those who received PBF assistance before the pandemic. For almost one in five households (18.1 percent), the situation is very concerning; they reported having run out of food at least once because of a lack of money or resources in the month prior to the COVID-19 Survey. Only 9.4 percent of households remember a similar situation to have happened before the pandemic. This increase is likely to be related to the 11 percent increase in overall prices from January 2020 to November 2021. Prices for food consumed at home rose 27 percent, a category to which households in the bottom quintile devote 21.3 percent of their total expenditures.[10]

Without means to weather pandemic income shocks, Brazilian households have increasingly resorted to debt. The household debt burden is at a record high 60 percent of household income; mostly driven by nonmortgage borrowing, it has increased by almost 11 percentage points since February 2020. According to the Brazil COVID-19 Phone Survey, in July/August 2021, borrowing money—even without knowing if the borrower would be able to pay it back—was a frequent strategy households employed to make ends meet. Almost 30 percent of households had incurred debts and almost one-quarter exhausted their savings. At the same time, more than 20 percent did not pay back or deferred payback of a credit installment. Implications for these households' future economic development may be significantly negative.

Simulated projections imply that poverty and inequality could stagnate or increase slightly in 2022 but will remain lower than in the prepandemic period. An optimistic scenario assumes a highly responsive labor market, where jobs and wages increase despite the sluggish economy, as well as adjustment in the country's main cash transfer program to a minimum amount of R$400 and an increase in its coverage. Despite this positive backdrop, a still-growing population, low economic growth, rising inflation, and the end of a large emergency cash transfer program, hinder poverty and inequality reduction. Still, the economy's expected real growth of 1.2 percent from 2019 to 2022 and the expanded coverage of Auxílio Brasil, reaching 18 million families in 2022, may keep poverty and inequality below prepandemic levels.

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[10] According to POF 2017/18 data. If all food expenditures are taken into account, the share is 24.6 percent.

A Broader View of Poverty, Inequality, and Vulnerability in Brazil

Despite the large gains of earlier decades, deep economic disparities remain in Brazil. Historically poor population groups continue to be highly vulnerable (figure ES. 4). Almost three in 10 poor individuals[11] are Afro-Brazilian women living in urban areas. Three-quarters of all children living in rural areas are poor. Residents of the northern part of the country continue to lag the rest of Brazil in both monetary and nonmonetary welfare dimensions. Northern states have poverty rates 2.7 times higher than southern states, income per capita averages about 52 percent lower, the adult population has 1.5 fewer years of education, and people's access to sanitation and water are both 8 percentage points lower.

Poverty affects people very early in their lives, compromising their human capital accumulation. Mothers with a low education are less likely to attend prenatal care visits than mothers with higher education; only 39 percent of mothers with no formal education go for seven or more visits compared with 85 percent of mothers with 12 or more years of school. The urban bottom 40 percent depends much more on the overloaded public health system than the top 60 percent. About 88 percent of the former group visit Sistema Único da Saúde (SUS, the public health system) when sick and only 9 percent go to a private medical service, contrasting with 52 percent and 45 percent, respectively, among the top 60 percent. Intergenerational education mobility increases at a slow pace: 1 percent of poor parents have a college or equivalent degree, and 5 percent of their children do, compared with 12 percent of nonpoor parents and 26 percent of their children. At the current progress rates, after three generations a mere 12 percent of the poor will have achieved tertiary education. The dwelling conditions of poor households are much less healthy than nonpoor households; for example, 25 percent of the poor do not have improved sanitation.

Poor Brazilians do not have enough financial or physical capital to support generation of subsistence income. The government's fiscal policies are not always able to fill the gaps and sometimes are even regressive. The disparity between poor and non-poor individuals regarding land titling ownership rates is about 15 percent points in urban zones and 17 percentage points in rural areas. The Instituto Nacional de Colonização e Reforma Agrária (INCRA)—a federal agency created to regulate land reform and register rural properties—does not have a streamlined process to provide beneficiary families with formal land titles. Transfers from social programs can represent a significative share of underprivileged families' income. Nonetheless, the largest public provision is in the form of pensions, which tend to reinforce disparities in income and labor market opportunities. The average per capita urban nonpoor's pension is R$391 compared to a pension for the poor of R$38. Meanwhile, the Benefício de Prestação Continuada (BPC) program pays an average of R$25 to the rural non-poor and R$11 to the rural poor. The poor also carry a larger burden of indirect taxes; by some accounts, the first income per capita decile pays on average 45 percent of their monetary income in indirect taxes, while the top decile pays an average only 13 percent. Moreover, the poor do not have access to financial tools to smooth risks or accrue capital for a better future; roughly only 30 percent of Brazilian adults have enough money to cover an unexpected expense equivalent to their monthly income.

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[11] A person is considered poor if she resides in a household with an income per capita lower than R$499 per month per capita.

FIGURE ES.4. **Socioeconomic Characteristics Across the Brazilian Population 2019**
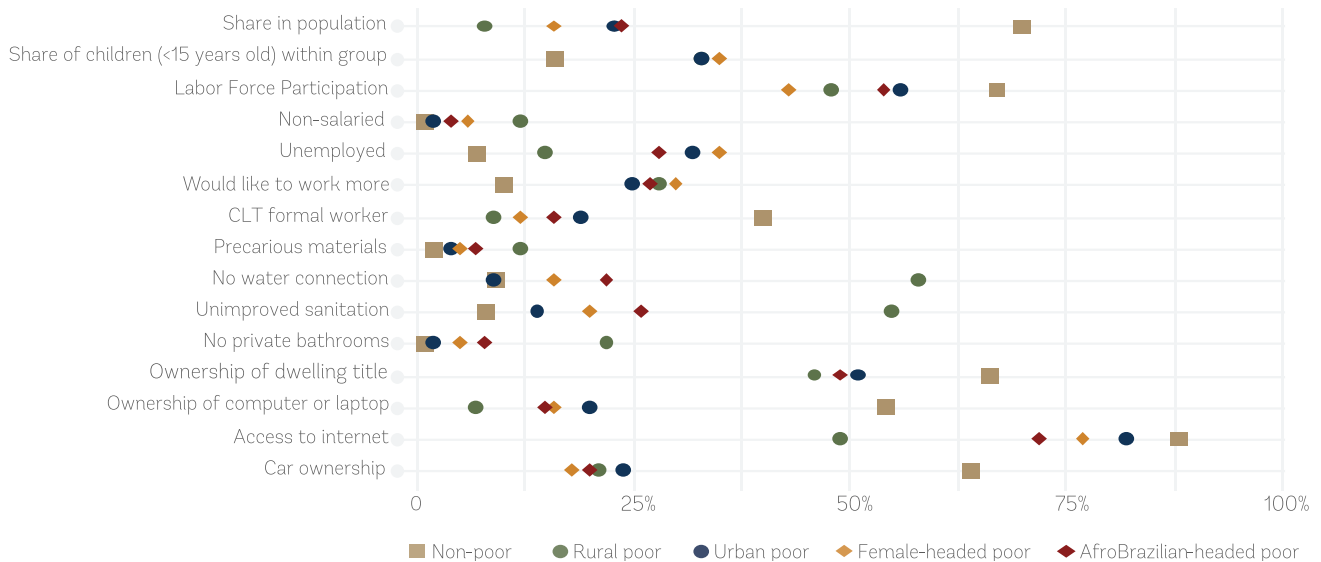
Source: World Bank estimates. Notes: Poverty status based on an income per capita lower than R$499 per month per capita.

Gender inequality still influences social and economic outcomes.

Increased women's access to the labor market contributed to reduced inequality; between 1976 and 2013, the share of women older than age 20 with at least one source of their own income grew from 35 percent to 76 percent (Souza 2016). Despite this, women still participate significantly less in the labor market than men, and poor women's labor participation is even worse. Overall, only 42 percent of women participate in the labor market. This is due in part to the lower pay for women despite comparable or higher qualifications, curtailing potential individual and economy-wide benefits of the high relative educational mobility Brazilian women have achieved. Limited access to daycare and preschool also inhibits female LFP. Finally, women are more likely to be victims of domestic violence, further affecting their agency and economic opportunities.

Afro-Brazilians face more obstacles to economic development than other population groups.

The Brazilian poor are largely Afro-Brazilians, with about 73 percent of the poor self-identifying as black or pardo. Among households headed by an Afro-Brazilian individual, close to 38 percent are poor. Constrained social mobility is one of the factors behind this persistent historical problem. When comparing parents to their co-resident sons and daughters, about 15 percent of Afro-Brazilian children achieved a tertiary education degree or higher, more than double the 6 percent rate of their parents. For the average Brazilian, however, those rates are 22 percent and 10 percent, respectively. Among working Afro-Brazilians, 30 percent are low-skilled, compared to 25 percent of the overall population. Further, gaps in educational attainment go beyond poverty status. Non-poor Afro-Brazilians average 8.7 years of education compared with 9.4 years for the overall non-poor. In terms of labor income, non-poor Afro-Brazilians receive an average R$ 12.2 hourly wage compared with R$15.7 for the general population. Afro-Brazilian individuals' hourly wages are lower than those received by non-Afro-Brazilians even when controlling for educational level and other demographic characteristics. With respect to gaps in physical assets, 50 percent of poor Afro-Brazilians own titles to their dwellings compared with 62 percent of the overall population; 72 percent have internet access compared with 84 percent overall; and 20 percent have a car compared with 52 percent overall.

While data is scarce, evidence indicates high monetary and non-monetary deprivations for traditional communities. Official Brazilian national surveys do not include indigenous peoples (IPs) and quilombola territories.[12] This report partially circumvents this statistical blind spot by analyzing those peoples in the Cadastro Único (CadUnico) data.[13] Besides estimated high poverty rates of 96 percent and 91 percent for IPs and quilombolas, respectively, other fragilities stand out. Close to one-third of the IPs and 8 percent of quilombolas lack access to electricity, much higher even than the 2 percent of the rural poor. Missing infrastructure can cause obstacles for these families to integration into economic value chains, but their needs are even broader. Roughly 51 percent of IP and 42 percent of quilombola households have no water supply, and a significant share of their dwellings do not have protective layers over walls (78 percent of IP and 49 percent of quilombola households) and floors (33 percent of IP and 19 percent of quilombola households), conditions which can harm health and human capital development. Despite improvements in recent decades, 42 percent and 49 percent of IP and quilombola household heads in CadUnico families, respectively, have not completed primary education.

The urban poor reside close to economic centers but are not fully integrated into them. About 86 percent of Brazilians and three-quarters of the poor live in urban areas. The urban poor struggle to find a job, with almost 32 percent of the workforce in the group is unemployed. The working urban poor also lag in human capital accumulation. On average, they have completed 7.9 school years compared with 10.9 for the urban non-poor. Few urban poor have health insurance and rely on the overloaded public health system. Moreover, 14 percent do not have improved household sanitation, as opposed to 5 percent for other urban residents. Beyond human capital gaps, the urban poor face mobility barriers: many of them live in city peripheries where access to most jobs and amenities requires long and often expensive commutes. The urban poor also face greater risk of exposure to possible climate disasters such as floods.

Brazil's rural poor continue to be the most disadvantaged across several dimensions. More than one-half (54 percent) of rural residents are poor, having missed out on of the benefits from the country's push to expand education. Average years of education among the rural poor is 5.8, lower than the other rural residents (7.5) and the urban poor (7.9). Other non-monetary deprivations among the rural poor are also cause for concern. For example, 21 percent of the rural poor still practice open defecation, and 22 percent have no private bathrooms, compared with 5 percent of the non-poor rural population. Rural areas also have the lowest numbers of doctors per inhabitants (Scheffer et al., 2020). A substantive portion of the rural poor work in non-salaried jobs (12 percent). About 60 percent of the rural poor work in agriculture—a sector that has experienced a long-term contraction, despite recent growth. The rural poor are more likely to work in small, low productivity family establishments. Improving agricultural productivity requires closing gaps in underlying land tenure security and related credit access; only 46 percent of the rural poor have a formal land title, a proportion lower than the urban poor at 51 percent and the rural non-poor at 62 percent. Finally, municipalities with large rural areas will face higher climate dangers. In the absence of additional targeted support, the rural poor will remain among the least protected groups.

About 20 percent of Brazilians are chronically poor, facing both monetary and non-monetary deprivations. Besides being monetary poor (as their income per capita is below half of minimum wage), the chronically poor are also deprived in other dimensions. The chronically poor face a dire situation: 87 percent belong to a family headed by someone who does not have sick leave, almost three-quarters (73 percent) reside in a home headed

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by someone who did not complete elementary education, and over half (53 percent) live in an overcrowded household. Deprivation of at least one basic service—such as having potable water to drink, adequate electricity, sanitation and cooking conditions—affects 37 percent of chronically poor households compared to 15 percent of overall Brazilian households.

Low access to technology and human capital are common among the chronically poor, thus limiting their ability to adapt to the COVID-19 work setting. Internet access is markedly lower among the chronically poor (68.2 percent) compared to the overall population (84.4 percent), and only about one of eight chronically poor households have a computer or a tablet at home. Moreover, they may not have the human capital required to operate digital tools effectively to potentially generate income. The share of chronically poor Brazilian adults having completed at least secondary education-level is only 22.6 percent. This share is 51.8 percent in the overall population.

Obstacles to promoting prosperity go beyond socioeconomics as about one in five Brazilians are highly vulnerable to climate change risks, including residents of São Paulo. Average temperature increases affect regional climate characteristics, increasing the frequency of heavy rain in several regions while decreasing rain in others. This triggers many negative effects, from threats to agriculture and food security to natural disasters that directly threaten densely populated urban areas. An estimated 814 municipalities are highly vulnerable to environmental disasters, which include droughts, storms, hail, landslides, erosion, fires, and other extreme events. Those municipalities host 45.4 million people, or 21 percent of Brazilians, including São Paulo, the largest and most important economic center. However, the municipalities that are both socioeconomically and environmentally vulnerable—those concentrated in the semi-arid northeast zone and in the very hot and rainy zones of the Amazon biome—are the most in danger.

MAP ES.1. **Vulnerability Levels of Brazilian Municipalities According to the Socioeconomic and Environmental Capacities Indexes**
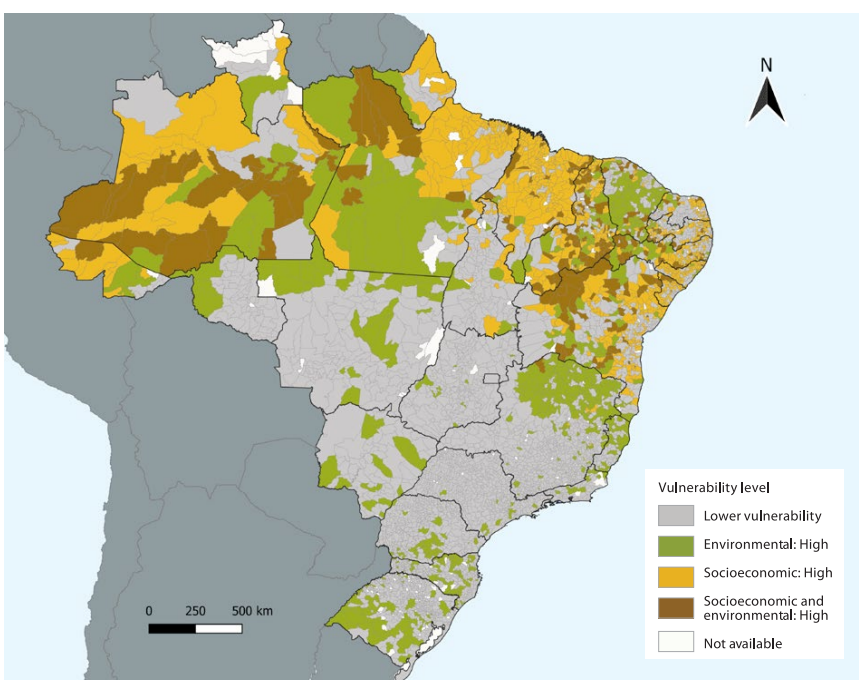
Source: World Bank estimates.

A New Opportunity to Address Old Problems

Brazil's past decade has laid bare the limiting effects of its structural economic weaknesses and long-standing inequalities. Brazil's "golden decade" in the 2000s—marked by strong economic growth, poverty reduction, and increased shared prosperity—benefited from structural reforms undertaken in the 1990s. The commodity prices "super-cycle" benefited commodity-exporting countries such as Brazil, and was a key development catalyst: between 2001 and 2012, Brazil's GDP grew 2.6 percent in real terms annually, poverty reduced by half, and the income inequality gap narrowed significantly. When the commodity boom ended in late 2014, it was clear that Brazil's structural economic problems became obstacles to continued inclusive growth. The manufacturing sector was highly protected, productivity had stagnated, and demand was reliant on consumption rather than investment. Meanwhile, government current spending was steadily expanding, in particular, on the social security system (World Bank 2016). Other issues included underdeveloped infrastructure, inadequate basic services, and gaps in access to financial services. Finally, Brazil's tax and labor regulatory environment constrained the creation of firms and jobs (Cord, Genoni, and Rodríguez-Castelán 2015). The COVID-19 pandemic shock should be used as an urgent call for policy action.

In the short term, Brazil must protect against further erosion of human capital among children and the workforce. Losses in language and math skills caused by the pandemic already represent more than a year's worth of lost learning (Azevedo et al. 2021); thus, supporting children to go back to school is crucial. Teachers should receive tools to identify each child's level of learning achievement, and the educational system must embrace in-school and after-school remedial programs. At the same time, Brazil's social protection system should continue providing financial support for the most vulnerable given the slow recovery of the labor market from COVID-19 and continued high food insecurity. Services that connect individuals to job opportunities, especially women bearing the largest burden of increased housework, should be pursued. Finally, incentives for firms to revert some pandemic-induced layoffs should be explored.

In the long term, policy efforts should focus along four areas. First, human capital investments are needed to boost immediate and future workforce productivity. Second, investments in infrastructure and increased access to productive assets (that is, land and digital tools) are required to better connect and protect vulnerable populations to help the Brazilian economy grow more inclusively and resiliently. Third, there should be a strong push to pursue needed structural reforms that speed economic growth for all Brazilians. Finally, a modern statistical system should be put in place to create the necessary evidence to design effective policies.

Sustainable growth cannot be achieved without major investments in the human capital of Brazilians, especially enhancements to quality of education. Improving targeting and increasing government spending for education is critical. Improving basic skills in Brazil's north and northeast regions requires higher investment in educational infrastructure coupled with improving teacher quality and management (World Bank, forthcoming b). Expenditures in education are a relatively high share of the Brazilian GDP, but targeting could be improved. Expenditures on federal universities could be revisited as they are highly regressive: more than 65 percent of students in federal universities belong to the richest 40 percent of the population (World Bank 2017). In addition, a comprehensive strategy must be developed to improve educational quality. Almost one-half of Brazilian children are considered "learning-poor" (World Bank 2019), and Brazilian students

perform systematically lower than the Organisation for Economic Co-operation and Development (OECD) average in Programme for International Student Assessment (PISA) standardized testing. Previous studies have identified interventions, such as appointment of school directors on the basis of performance and experience and bonus pay to teachers and school staff based on school performance. All these, coupled with knowledge and experiences exchange, can improve educational results (World Bank 2019).

Brazil needs to invest heavily in "reskilling" and "upskilling" its workforce to overcome demographic and technology challenges.

The current dependency rate[14] in the population of 45 percent is projected to increase to 67 percent by 2060. Meanwhile, about 78 percent of the workforce and close to 95 percent of the working poor work in occupations facing relatively high risk of automation. Currently, about one-third of Brazilians aged 20 to 39 have not completed secondary education, and only about 17 percent have a higher education degree. The shares of the female and the male youth population not in education, employment, or training (NEET[15]) were, respectively, 32.8 percent and 20.1 percent. Gaps in NEET rates also exist between Afro-Brazilian and whites (29.7 vs. 21.3 percent respectively). Finally, only 17.9 percent of total graduates in Brazil earn degrees in science, technology, engineering, and mathematics (STEM). With declining or stagnating labor productivity, Brazil badly needs to improve its human capital. This calls for policies to engage firms in workforce skills development and encourage formal technical and vocational training. Incentives for on-the-job training as a path to employment could be beneficial. Long-term decline in agricultural employment is likely to continue and increase pressure on the livelihoods of rural households. Programs that help individuals transition to other sectors could ease the pressure in urban labor markets caused by rural-urban migration.

Further investment in health services provision will be crucial.

The health and economic hardships created by the COVID-19 pandemic and the aging of the Brazilian population will continue to increase the number of families dependent on the health care system. Estimates suggest that in 2017, one-third of Brazilian households spent more than 10 percent of their budget on health, with medicines being the main contributor to out-of-pocket (OOP) health spending (Araujo and Coelho 2021). Moreover, more than 10 million Brazilians are pushed into poverty due to OOP health care payments each year. Policy making must include dialog about strengthening the health care system and reducing of OOP expenditures.

Policies to increase financial and digital inclusion for low-income groups can promote accumulation of productive assets.

Consumer credit and bank account ownership are higher in Brazil than the LAC average, but bank account ownership among the bottom 40 percent of the population is much lower. In addition, the proportion of Brazilian adults who saved money during the year (32 percent) was below the region's average of 37 percent (2017 Global Findex). Increasing access to financial products should be part of the government's strategy to build assets among the poorest. The implementation of the Auxílio Emergencial aid program boosted financial inclusion by creating a bank account for about 40 percent of its beneficiaries. Brazil's cash transfer program could also be linked to a dedicated savings account (Morgandi et al. 2021). Meanwhile, support for digital inclusion of rural and vulnerable populations require policies to make connectivity affordable, reliable, and relevant. Affordability and quality of fixed broadband and mobile services in Brazil is below key benchmarks[16]. In addition, the high cost of internet is the primary reason households are not connected to the inter-

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[14] This is equivalent to the ratio of the dependent population (individuals aged 0 to 14 and those aged 65 or more) over the active population (individuals aged 15 to 64).
[15] Youth defined by people aged 15 to 29. The NEET rates were calculated with PNADC 2020 microdata and comprise young people that do not work, and do not report attending any type of courses nor avoiding work because of studies.
[16] World Bank calculations based on International Telecommunication Union (ITU) World Telecommunication/ICT Indicators Database (25th edition/December 2021).

net, according to the Brazil COVID-19 Phone Survey. Policies therefore need to ensure competition in the sector to bring down costs.

Improving land regularization and integration of land information systems is crucial to promote asset accumulation, especially for poor and rural households.

Lack of land tenure creates a myriad of economic barriers and costly behaviors, thus hindering the ability of many households to escape poverty; but land titling issues are widespread. Survey data suggest that about 57 percent of the rural chronic poor lack legal land titling. Overlapping land tenure records still cover half the registered territory of Brazil and another 16.5 percent of land has no official land tenure registration (World Bank, forthcoming [a]). Meanwhile, the more than 20 agencies involved in land tenure regularization and their databases are not coordinated. The GOB should renew efforts to identify and register federal and state lands, rectify or cancel improperly registered land rights, and invest in field-level land tenure regularization. This should be accompanied by simplification of bureaucratic processes and integration of land cadasters. Technical capacity is available in Brazil, and some states such as Piauí offer successful examples.

Brazil must improve natural resource management and enhance strategies to mitigate natural disaster risks.

High climate-change risk affects an estimated 45.4 million Brazilians in both rural or urban areas (see Chapter 2). Better environmental management includes regularization of access to land and provision of secure property rights, but also better pricing policies in areas that directly affect natural resources use. Secure access to land can create incentives to confer usufructs in a sustainable way. At the same time, land should be priced appropriately using channels such as the rural land tax and the requirement to follow environmental regulations. Pricing should be done to allow only the most productive farmers to stay in the sector and

disincentivize land-intensive growth that damages Brazilian forest resources (World Bank, forthcoming a). To help curb deforestation, strengthening law enforcement by using modern tracing technologies can help address high illegal Amazônia exploitation (World Bank, forthcoming a). Finally, although rural areas have a few climate-change insurance options, urban poor populations at high risk (due to floods, for instance) of losing their few income-generating assets have little access to insurance.

Brazil must urgently pursue structural reforms to speed economic growth and regain social progress.

Brazil was already vulnerable when the COVID-19 pandemic hit. Structural weaknesses are linked to the legacy of import substitution industrialization, with a highly protected manufacturing sector contrasting with highly competitive commodity exports. This development model is exhausted. Brazil's fundamental development challenge is to accelerate structural change by raising productivity in the manufacturing and services sectors. This will promote growth, diversify its competitive export base, and allow Brazil to participate more in global trade. Reform momentum was high after the previous general elections and some important reforms passed, but the reform agenda was overshadowed by the COVID-19 pandemic. Starting in 2022, Brazil must renew its focus on fostering productivity, including promoting competition in product and service markets, gradually liberalizing trade, and encouraging foreign direct investment (FDI), especially in the most protected sectors. Infrastructure represents another key reform area as current investment is insufficient to replace depreciating capital. Infrastructure is critical for productivity and requires financial resources, but Brazil must create the fiscal space to invest in its future. Reforms to reduce earmarking of expenditures could introduce some flexibility within the budget and allow a better control of mandatory expenditures. This would also generate fiscal space for public investments without exceeding the overall expenditures ceiling.

Fiscal policies can play a critical role in promoting equality in Brazil through better-targeted government spending. Public resources are currently used to tackle myriad objectives, but a clear, uniform view of the public goal is missing. Large outlays through pension and subsidies for already high-income individuals exacerbate and perpetuate income inequality. Programs such as Bolsa Família were well targeted, yet the magnitude of transfers seem untethered from an analysis of adequate level of subsistence. While PBF (now Auxílio Brasil) is progressive and has large poverty reduction benefits, resources devoted to it are lower than for noncontributory pensions. Programs for working populations, such as Salario Familia and Abono Salarial, also tend to benefit those in the middle of the income distribution. Reallocating government resources from programs with low social benefits to socially progressive expenditures could help reduce poverty and boost share prosperity. The improved efficiency of government spending could even free resources to improve access to, and quality of, public services (World Bank 2016). Finally, simplification of indirect taxes through adoption of a value added tax-based system could lead to improved welfare outcomes.

Better data, a modern statistical system and an official poverty measurement methodology would improve information for government spending decisions. Having IPs and quilombolas as a statistical blind spot should not be acceptable for a country with Brazil's level of development. Efforts to collect representative indicators for these populations through the traditional household survey data collection must increase. Brazil should renew its efforts to improve the Statistical Office's relevance and strengthen its capacity to lead Brazil's Statistical System, including incorporating new data sources, such as administrative records, digital and GPS identifiers, and other big data. Finally, revision of income eligibility thresholds in Brazil's flagship cash transfer program to up to R$210 for families with children is a welcome, but insufficient, step. Adopting an official methodology for poverty measurement would better reflect the magnitude of needs of the poorest to inform welfare policies, promote a common reference point for targeting government programs, and improve their monitoring and evaluation.

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A CHALLENGING DECADE FOR POVERTY REDUCTION IN BRAZIL

A CHALLENGING DECADE FOR POVERTY REDUCTION IN BRAZIL

Brazil entered the 2010s full of hope in a positive evolution of income distribution. After all, the first decade of the 21st century had seen remarkable economic growth and had been the best for income redistribution compared to historical records. Between 2001 and 2011, the gross domestic product (GDP) per capita grew 32 percent in real terms, while inequality, measured by the Gini coefficient (a standard measure of inequality), dropped 9.4 percent. Poverty and extreme poverty were cut by about half. The share of the population living under US$5.50 per day in 2011 purchasing power parity (PPP) fell from 41.1 percent to 23.8 percent, and the share in extreme poverty (living under US$1.90 per day in 2011 PPP) went from 11.5 percent to 4.7 percent.[1]

The second decade turned out to be very different. Instead of another golden decade, the country experienced a loss of control over public accounts, a strong recession, a traumatic impeachment, a polarized election, and a slow economic recovery. Brazil's 2014–16 crisis and slow recovery resulted in significantly regressive growth. As millions of jobs were lost, Brazil's expansive social protection system was unable to effectively serve as a countercyclical protection system. Poverty and extreme poverty rates increased during the crisis period.

The economic instability that started in late 2014 did not affect the different income strata in the same way. For the poorest, there was an acute crisis that caused a partial reversal of the previous distributive and welfare gains. These most disadvantaged groups remain hostage to unstable positions in the labor market and depend on social protection policies, which, in turn, have contracted in recent years. For the wealthier, the storm was

somewhat episodic, concentrated mainly in 2015, and quickly was left behind. In 2018, the economic recovery was already in full swing at the top of the income distribution (Barbosa et al. 2020). However, as of 2019, the recovery had yet to reach the poorest. This tendency of crisis-level poverty rates to resist recovery was found throughout the five regions of Brazil through 2018.

The 2010s was a challenging decade in the fight against poverty and inequality in Brazil. The setbacks brought welfare indicators back to levels equal to or worse than those observed at the beginning of the decade. A sharp reversal in shared prosperity during the crisis and regressive income growth fueled an increase in poverty and inequality. Between 2014 and 2017 the income of the poorest 40 percent fell 10 percent. Conversely, during the same period, the income of the average Brazilian fell just 4 percent. As of 2019, the income of the poorest 40 percent remained below its pre-crisis level. From its lowest levels since the 21st century, inequality rose sharply in 2016—1.5 Gini points in one year, the largest single-year jump in inequality since at least the early 1990s—and continued to grow until 2018. All told, the Gini index grew from a low of 52.5 in 2015 to a maximum of 55.0 in 2018 (Ciaschi et al. 2020).

This chapter provides an account of recent trends in welfare indicators in Brazil. Focusing on the 2010–2020 decade, we document the evolution of economic growth, changes in poverty, shared prosperity, and inequality. The chapter concludes with a brief review of the labor market and the drivers of the evolution of poverty. Trends are presented until 2019, the year before the COVID-19 pandemic hit Brazil and the world.

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[1] Based on Latin America and Caribbean (LAC) Equity Lab tabulations of Socio-Economic Database for Latin America and the Caribbean (SEDLAC) and World Development Indicators. https://www.worldbank.org/en/topic/poverty/lac-equity-lab1/poverty/head-count [accessed 8/18/21]

Evolution of Growth and Household Income

After enjoying relatively strong and stable growth in the first decade of the 21st century, a strong recession afflicted Brazil between 2014–2016 causing GDP per capita to recede. At an average real annualized growth rate of 2.6 percent per year from 2001 to 2011, per capita income grew faster in Brazil than in the Latin America and Caribbean (LAC) region (1.8 percent) (Cord et al. 2015) and more rapidly than in the two preceding decades in Brazil (0.79 and 0.23 percent in the 1980s and 1990s, respectively). Brazil was able to respond successfully to the 2008 global financial crisis by adopting a macroeconomic stimulus and initially emerged quickly from the crisis. However, it did so at the cost of growing economic imbalances, rising fiscal deficits, increasing inflation, growing current account deficits, and sharply increasing credit growth, especially from the state-owned banks (Ciaschi et al. 2020). In the 2010s, economic performance was a lot frailer – GDP per capita reached its peak in 2013 and a strong recession afflicted the country

between 2014-2016 causing GDP per capita to recede 9 percent. Brazil entered a technical recession in the second half of 2014, accumulating a significant fiscal deficit, high inflation, and one of the largest depreciations among emerging market currencies (Ciaschi et al 2020). While growth reentered positive terrain in 2017, the recovery remained tepid through the end of 2019 (figure 1.1).

Household final consumption expenditure calculated from National Accounts followed a similar trend to GDP per capita. After a positive period of growth during the 2000s that reached an average of 2.7 percent yearly between 2001 and 2011, it grew just 0.2 percent yearly between 2012 and 2019 (still a less negative performance than GDP per capita). The years 2015 and 2016 presented a reduction of almost 9 percent with growth getting back to positive figures in 2017, albeit at a relatively modest pace, but household expenditure never returned to the highest level recorded in 2014 (figure 1.2).

FIGURE 1.1. **Growth of GDP Per Capita and Households Expenditure Per Capita (2001–2019)**

GDP growth (annual %)
Households final consumption expenditure per capita growth (annual %)
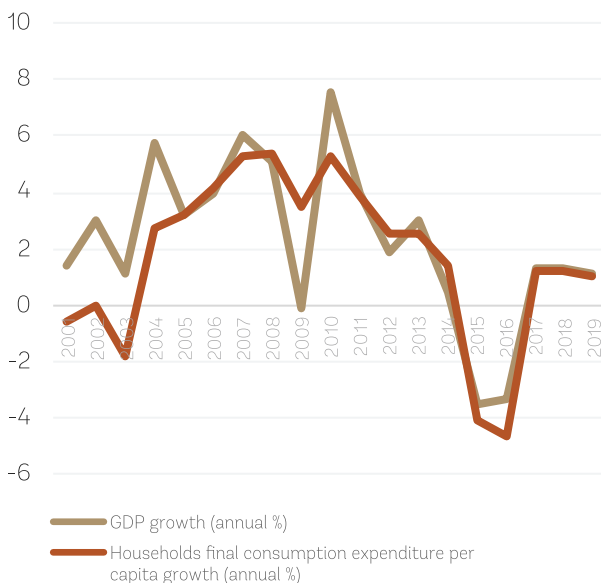
Source: World Development Indicators

FIGURE 1.2. **GDP Per Capita and Households Expenditure Per Capita (2001–2019)**

GDP per capita (constant 2010 US$)
Households Final Consumption Expenditure per capita (constant 2010 US$)
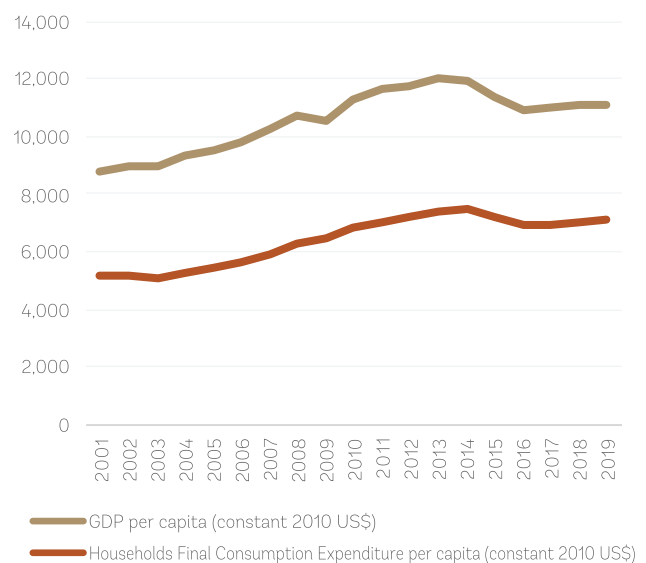
Source: World Development Indicators

The crisis led to a weak economic performance in the 2010s, while some of the slowdown causes were present long before. Between 2010–2019, Brazil's annual GDP growth averaged 0.53 percent, much below that of comparable countries (figure 1.3). Meanwhile, low productivity growth, rising unit labor costs, demand reliant on consumption rather than investment, and a steady expansion of government current spending (in particular on the social security system) were building problems for the future (World Bank 2016). These became binding constraints once the commodity cycle turned after 2011. Moreover, other barriers to inclusive growth had not been tackled during the expansion period (Cord et al. 2015). These

issues included underdeveloped infrastructure, inadequate basic services, gaps in access to financial services, and a regulatory environment that constrained the creation of firms and jobs. During this period, an important increase in years of schooling occurred without any noticeable progress in labor productivity.[2] Similarly, the gain in individual labor remuneration was independent of productivity gains; since 2003, average wage growth outpaced labor productivity growth (figure 1.4). Neri (2021) mentions that it was as if the social improvement observed in human development indicators—including life expectancy, fertility, and school attendance—missed the economic fundamentals that could provide greater long-term sustainability.

FIGURE 1.3. **Average Annual GDP Per Capita Growth 2010–2019 in Brazil and Selected Comparator Countries (Percent)**
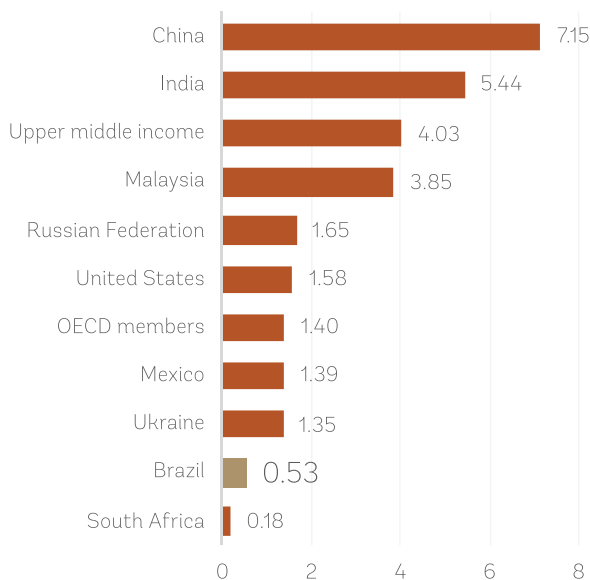
Source: World Development Indicators

FIGURE 1.4. **Productivity and Wage Indices, 2003-2019 (2003=100)**
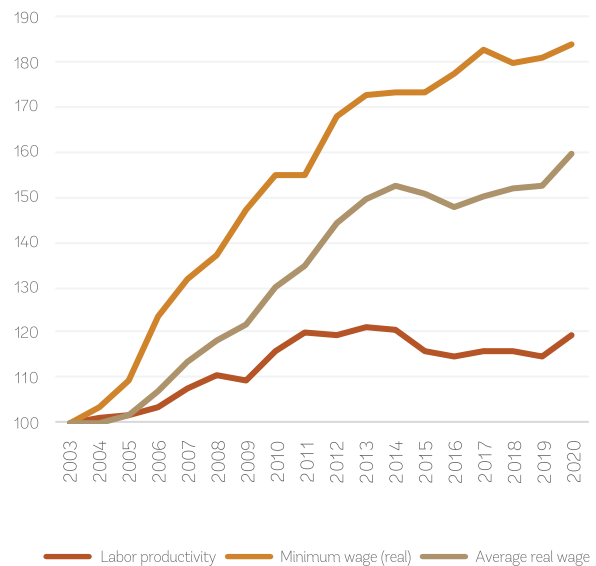
Source: World Bank estimates

[2] For example, in 1980, the adult population had only three years of schooling on average, while in 2015 it had eight years. At the same time, in 1980, Brazil's productivity was equal to the Republic of Korea's, while today it is just one third of the Korean productivity level (Neri 2021).

Survey data confirms what the household final consumption expenditure numbers indicated: the crisis hit Brazilian families hard in 2015. The average income per capita according to the Pesquisa Nacional por Amostra de Domicílios - Contínua (PNAD-C)[3] increased by 6.3 percent between 2012 and 2014. In 2015, everything changed: the real average income plunged 3.5 percent, the biggest fall of the decade. In the following years, incomes mostly stagnated, with an accumulated decrease of less than 1 percent between 2015 and 2017. Only in 2018 positive growth was regained, with an increase of 4.4 percent of average income per capita. It was not until 2019 that the average Brazilian household surpassed its pre-crisis level.

Even so, the findings based on survey data suggest a better outlook than the macroeconomic results for the period. According to National Accounts, GDP per capita peaked in 2013, and the recession was much more severe, causing a 9 percent decrease until 2016. In comparison, the average household income in the PNAD-C peaked in 2014 and fell 4.2 percent in real terms by 2017. Conversely, while PNAD-C registered 6.7 percent growth in household income between 2016 and 2019, National Accounts indicated an increase of only 1 percent in GDP. These differences are not surprising, since household surveys and National Accounts follow different concepts and standards; the same discrepant pattern was observed in the last editions of the old PNADs (Barbosa et al.2020). This excess of survey-based household income growth with respect to GDP is, however, Brazil-specific. Between 2002 and 2012, Brazil was 3rd among the 17 Latin American countries in terms of household income growth but 10th in terms of GDP growth. In most of the world's emerging or developed countries, the growth in GDP was larger than the rise in household incomes and inequality.[4]

Evolution of Poverty, Shared Prosperity, and Inequality

The growth in income observed in the 2000s was accompanied by significant reductions in poverty and inequality. The share of Brazilians living below US$1.90 per day (in 2011 PPP) fell from 11.5 percent in 2001 to 3.8 percent in 2012.[5] Between 1999 and 2012, an estimated 27 million Brazilians escaped poverty (Cord et al. 2015). Such a reduction in poverty is an achievement of regional significance, representing half of the reduction in poverty in the whole LAC region (Cord et al. 2015). Moreover, this reduction represented a continuation of a long-term trend that has been documented since at least 1980 (Rocha 2013) (figure 1.5). While economic growth in general always tends to reduce poverty in Brazil, the relationship between economic growth and inequality is not straightforward. GDP growth can be accompanied by an increase, maintenance, or decrease in income inequality depending on which strata of the population benefit most from economic prosperity. For that reason, the progress made in the 2000s was remarkable in Brazilian history (figure 1.6). Even if remaining one of the most unequal countries in the world, Brazil reduced overall inequality

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[3] The Pesquisa Nacional por Amostra de Domicílios Contínua (usually known as PNAD-C) is a household survey that started in 2012. Its sample was designed to produce results for Brazil and its Major Regions, Federation Units, Metropolitan Regions that contain Capital Cities, Integrated Development Region (RIDE Grande Teresina), and Capital Cities. It replaced two older household surveys: the Monthly Survey of Employment (Pesquisa Mensal do Emprego or PME) and the Pesquisa Nacional por Amostra de Domicílios (PNAD). PNAD-C expanded the results of the PME and PNAD to cover the entire territory and to provide more information frequently. The differences in scope, sample, and methodology between PNAD, PME, and PNAD-C make the process of comparison between them unfeasible. Thus, the current series of household statistics in Brazil starts in 2012 and has no direct comparison to previous years.

[4] Neri (2021) explored potential explanations for the differences observed in the Brazilian case. Their decomposition exercise suggests that the difference lies outside the National Accounts versus the household surveys' information sets. Instead, a large part of the explanation may come from differences between the GDP implicit deflator and the official consumer price index (IPCA) inflation rates.

[5] Poverty headcount rates in this figure are based on internationally comparable harmonized data. Box 1.1 provides detail on the Brazil-specific poverty lines used in most of this chapter and the rest of the report.

substantially during the 2000s. The trend for the Gini coefficient shows a significant and sustained reduction from 0.584 in 2001 to 0.527 by 2012 (figure 1.7).[6] Notably, the progress on inequality has been subject of debate. By complementing survey data with tax data and indicators from national accounts, De Rosa et al. (2020) show that inequality didn't decrease but may have slightly increased in the first decade of the 2000s.

However, Barros et al. (2020) seek to improve the analysis of inequality by combining other sources of data: the detailed expenditure survey (POF), tax data and national accounts. According to their estimates, they are able to capture almost 99% of GDP and provide a better picture of the whole income distribution. Their results confirm the fall in income inequality until about the year 2015 (figure 1.8).

FIGURE 1.5. **Evolution of Poverty and Extreme Poverty Headcount Rates, 1981–2001 (Percent)**
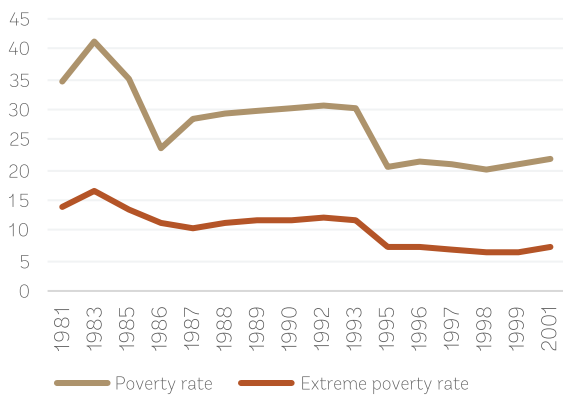
Source: Adapted from Rocha 2013.
Note: Poverty and extreme poverty rates are not based on internationally comparable lines and PNAD. Estimates are not directly comparable to more recent estimates.

FIGURE 1.6. **Poverty and Extreme Poverty Headcount Rates Based on International Poverty Lines (Percent)**
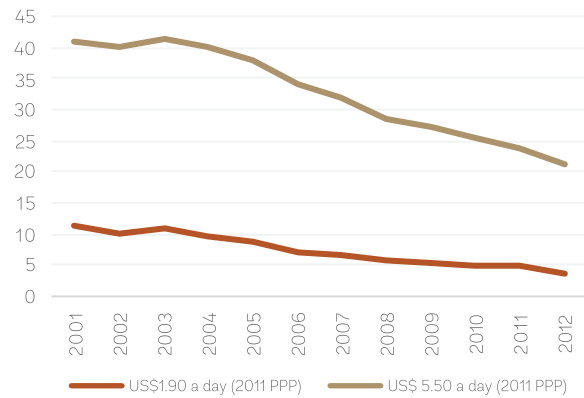
Source: World Development Indicators

FIGURE 1.7. **Evolution of Gini Coefficient, World Bank Estimates**
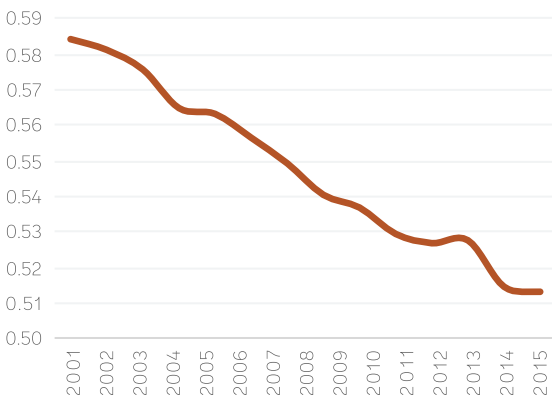
Source: World Bank LAC Stats Team using SEDLAC data.

FIGURE 1.8. **Gini Coefficient, Competing Methodologies**
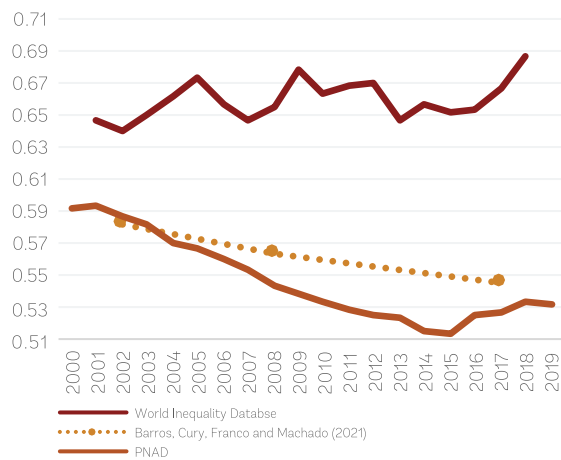
Source: Adapted from Barros et al.(2021) who use De Rosa et al. (2020) data. Notes: WID refers to data from the World Inequality Database.

[6] There is extensive literature dedicated to this decrease (See for instance Alvarez et al. (2018), Barros et al. (2007); Brito et al. (2017); Firpo and Portella (2019); Morgan (2018); and Souza (2016). There seems to be no doubt that economic growth guaranteed the reduction, but the phenomena that accompanied this growth should be highlighted: the creation of jobs and their formalization; the expansion of the supply of skilled workers; the increase in the real minimum wage; and the growth of public social spending associated with the 1988 Constitution (via conditional cash transfer programs, pensions, and other social benefits).

Poverty

Brazil entered the 2010s in an optimistic mood but, as the recession hit, poverty started to increase again. Extreme poverty, measured by the income eligibility threshold for the Program Bolsa Família (PBF) (R$ 178 per capita per month in 2019 or US$2.25 per day in 2011 PPP), was 7.2 percent in 2012 and decreased until 2014, reaching 5.6 percent. As the crisis hit, extreme poverty started growing until it reached 7.7 percent in 2017 (figure 1.9). The population living in extreme poverty grew from 11.4 million in 2014 to 15.9 million by 2017 (Ciaschi et al. 2020).[7] This group continued growing, albeit at a slower rate, until 2018, reaching 7.8 percent of the population, a number that remained unchanged in 2019. The moderate poor—those whose income is above the PBF eligibility but below the Cadastro Único (the registry for public assistance programs) eligibility threshold, which is equivalent to half of the minimum salary (R$499 in 2019 or US$6.32 per day in 2011 PPP)—accounted for 25.2 percent of the population in 2012. This group shrank until reaching 22.8 percent in 2014, grew during the crisis, reaching 23.8 percent by 2016, and fell again to 21.3 by 2019 (Ciaschi et al. 2020). Vulnerable households—those facing a high risk of falling into moderate poverty in the event of economic shocks given the predominant role of labor income in their household finances (Ferreira et al. 2013)—account for about 30 percent of the Brazilian population. Vulnerability is stubbornly pervasive in Brazil even after having significantly decreased in the 2000s (Cord et al. 2015). Finally, households that could be considered as "non-vulnerable" (those earning more than one minimum wage per capita) increased their share in the population – reaching 42.6 percent in 2019. Together, these results point to increased inequality with the poorest and non-vulnerable groups expanding as a share of the population.

FIGURE 1.9. **Population Shares by Income Group Based on Administrative Lines, 2012–2019**
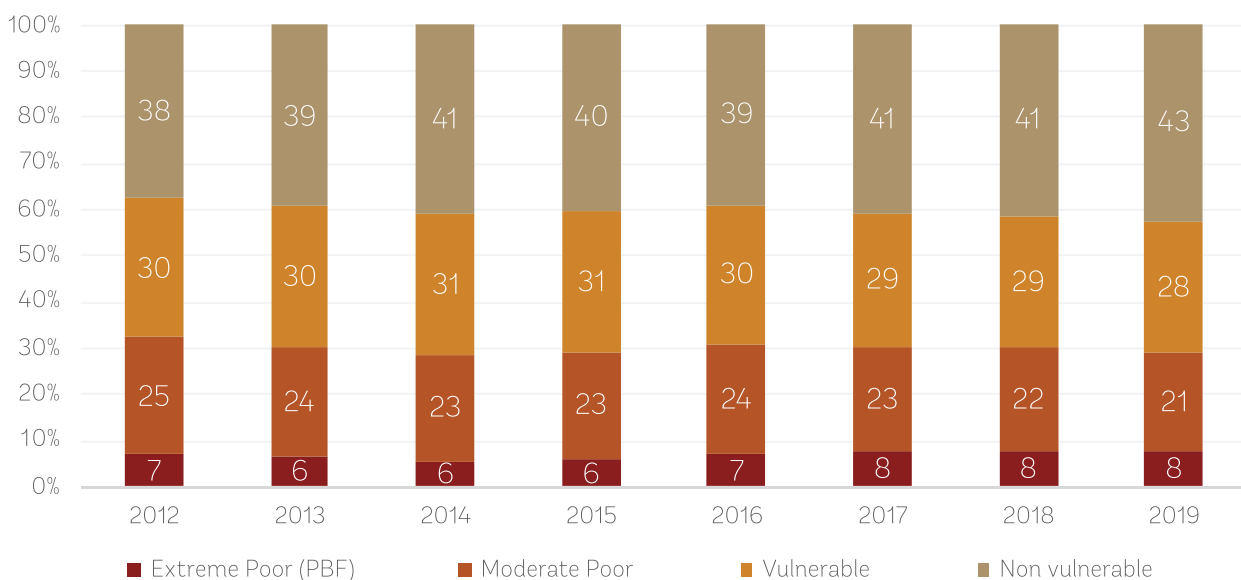
[7] Some studies cited in this chapter used the PNAD-C data available at the time of their writing. At the end of November 2021, the IBGE published a new set of sampling weights to better represent gender-age groups and attenuate the bias from the data collection process. Estimates using the PNAD-C recently published weights may yield different (yet qualitatively similar) values (IBGE 2021).

A closer look at the growth of income across the distribution shows the severe contraction of income suffered by those in the poorest decile—a contraction that has persisted throughout the recovery and only stabilized in 2019 (figures 1.10 and 1.11). Even as other segments of the population have begun to recover, the poorest continued to lose income until 2018, and the meager recovery in 2019 was not enough to raise the poorest to the income level they had in 2012.[8] At the same time, we can see that the reduction of household income during the crisis was smaller for higher-income households; growth during the recovery has, in general, been higher for households at the top. From the figure, it is also clear that the poorest were benefiting from the highest rates of growth before 2014, thus suggesting the start of a decrease in shared prosperity following the crisis.

BOX 1.1. Poverty Lines in Brazil

Brazil does not have an official poverty line, although several, mostly administrative, lines have been used to monitor poverty. In recent years, the income threshold for eligibility to social programs (like Programa Bolsa Família) have also been used as a reference for poverty tracking (e.g. IBGE 2020). Moreover, the national statistical office Instituto Brasileiro de Geografia e Estatística (IBGE) has published poverty rates using the World Bank poverty lines of US$1.90 and US$5.50 (in 2011 PPP). National poverty lines usually are based on the Cost of Basic Needs Approach. Using household survey data on consumption expenditures, first the cost of acquiring enough food for adequate nutrition – specified in calories per person per day – is estimated. Then costs of essentials such as clothing and shelter are added. In order to monitor poverty over time, the poverty line remains fixed over a reasonable period of time, only being adjusted for inflation to ensure it continues representing the same level of real consumption.

The use of administrative poverty lines or global poverty lines is not ideal for measuring national poverty. Administrative lines are usually not designed to measure poverty. They respond to different objectives and may depend on budget for social assistance programs. These lines might not necessarily adequately capture the cost of meeting basic needs. Moreover, in Brazil lines (or more accurately eligibility thresholds for certain programs) have not been updated regularly for inflation. Similarly, global poverty lines were not designed with the intention to measure national poverty either, but to allow comparisons across countries and to monitor progress towards global poverty reduction targets. Therefore, they will never reflect exactly the cost of meeting basic needs in Brazil. Besides, to make comparisons across countries, global poverty lines require data that is comparable across countries. To benchmark countries against the international poverty lines, the World Bank harmonizes the underlying household data to make it comparable across countries. As a result, the poverty rates published by IBGE and other institutions, which are based on unharmonized data, are not the same as those published by the World Bank even though they are based on the same poverty lines.

In the absence of a national poverty line, this report relies on two administrative lines as guidance to monitor the number of families struggling in monetary terms in Brazil: the values of the eligibility thresholds for PBF and the minimum monthly salary (R$998/month per capita in 2019). These thresholds have been key reference values in Brazilian public policy and, as such, may give an indication of the proportion of households living on limited income based on local expectations. There are two relevant eligibility thresholds for PBF: the threshold applied to those with earnings below R$89/month per capita in 2019 (US$1.13 per day in 2011 PPP), and another threshold for families with eligible children at R$178/month per capita in 2019 (US$2.25 per day in 2011 PPP). The latter has often been used as a proxy poverty line for Brazil. Notably, although these values are higher than the original thresholds set for PBF in 2003 (R$50 and R$100, respectively), their real value

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[8] In 2019, households in the first decile had an income per capita equal to R$107 (expressed in July 2019 prices). This group's income in 2012 was R$121.

has fallen over time: due to inflation, in 2019, the R$178 stood closer to the original "low" PBF threshold of R$50 in real terms than to its own original value. The R$178 threshold is equivalent to US$2.25 per day in 2011 PPP, just above the US$1.90 USD 2011 PPP international poverty line. Because of this, we use the high PBF threshold as an indicator of extreme poverty.

The minimum wage is also a sensible good reference point for poverty monitoring. Based on it, three groups can be identified: 1) those who live on less than half a minimum salary in 2019 (US$6.32 per day in 2011 PPP), which incidentally is also the income eligibility threshold for the Cadastro Único (the registry for public assistance programs); 2) those with more than half a minimum salary in 2019 (and hence not eligible to the sign up in the social registry) but living on less than one minimum salary; and 3) those living on more than one minimum salary in 2019 (US$12.64 per day in 2011 PPP). Notably, the World Bank's international extreme poverty of US$1.90 (2011 PPP) and of US$5.50 used to identify poverty among upper middle-income economies are close to Brazil's PBF and Cadastro Único income eligibility thresholds, respectively (figure B1.1.1). Similarly, the World Bank's line of US$13 per person per day, which separates the vulnerable from the middle class and richer income groups, was almost the same as Brazil's minimum salary in July 2019.

A recent study (Lara Ibarra et al. 2021) found that a poverty line estimated based on the Cost of Basic Needs Approach and using the 2017/18 Brazilian Household Budget Survey Pesquisa de Orçamentos Familiares (POF) resulted in a similar value to half a minimum wage - the threshold value for Cadastro Único. In fact, the preferred estimation specification resulted in a poverty line of R$455 per person per month (in 2018 Southeast urban prices; values from different specifications ranged between R$441 and R$507). In 2018, half a minimum wage was R$477. This result could hence be interpreted as providing empirically backed evidence of the relevance of the Cadastro Único threshold to identify the destitute and vulnerable populations in Brazil in the absence of a national poverty line. Taking together the proximity to values of national lines used by other middle-income countries, as well as the Cadastro Único threshold's reference value in the social protection debate in Brazil, this report uses the half a minimum wage threshold as the line to define poverty status in Brazil. A final point is worth noting. Lara Ibarra et al. (2021) also suggests that a threshold value for extreme poverty in Brazil would likely be above PBF thresholds, however. Estimations for a so-called food poverty line, which only considers basic nutritional requirements range between R$251 and R$287 in 2018 Southeast urban prices, with the preferred estimation delivering a value of R$258, equivalent to US$3.46 in 2011 PPP per person per day.

FIGURE B1.1.1. **Comparison of Administrative and International Poverty Lines, July 2019 (Monhtly income per capita R$)**
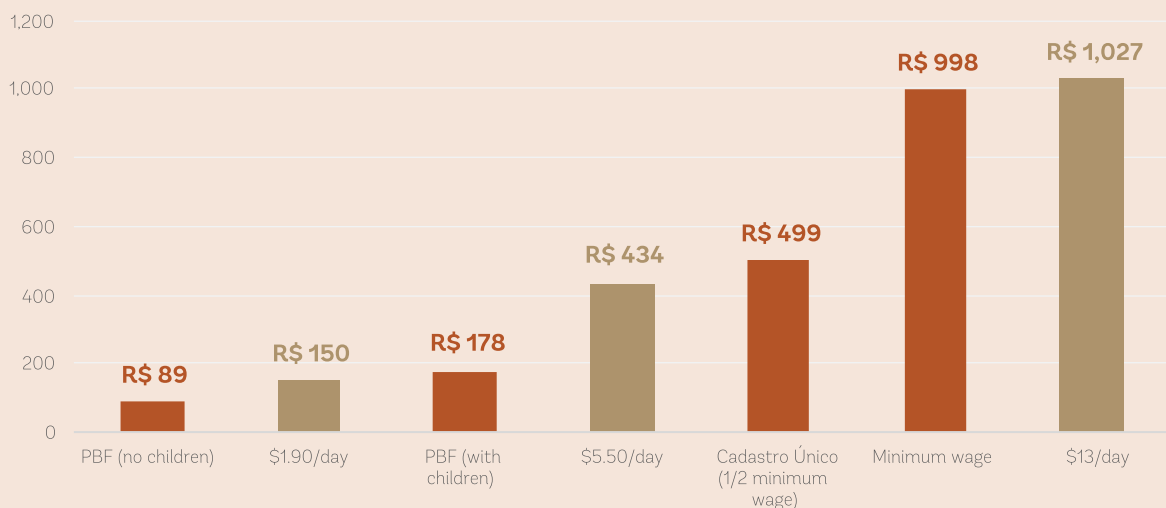
Source: Ciaschi et al. 2020.
Note: The lines per day are expressed in US dollars at the 2011 PPP.

FIGURE 1.10. **Annual Growth of Household Per Capita Income for Selected Income Deciles 2013–2019 (Percent)**
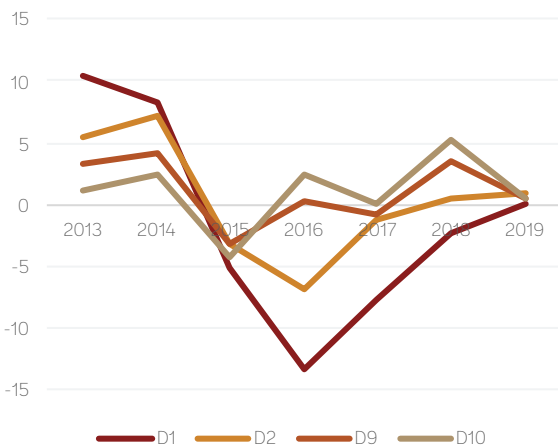
Source: World Bank estimates using PNAD-C.
Note: All incomes are considered at July 2019 prices.

FIGURE 1.11. **Household Per Capita Income Growth 2012–2019 (Percent)**
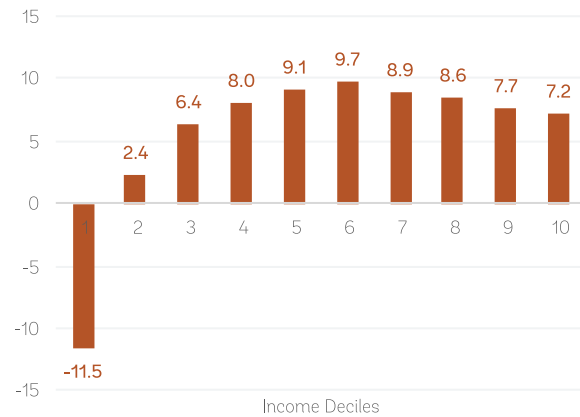
Source: World Bank estimates using PNAD-C.
Note: All incomes are considered at July 2019 prices.

Shared Prosperity

Shared prosperity was a salient feature of the pre-crisis period, but there was a significant reversal during the 2014–16 crisis and its recovery.[9] Between 2002 and 2012, the income of the poorest 40 percent grew at an annualized rate of 6.1 percent—well above the average income growth of 3.5 percent during this same period (Cord et al. 2015). Though the levels are not comparable, the new data series beginning in 2012 showed a continuation of this trend until 2014, as income for the poorest 40 percent outperformed the average income growth (6.3 percent annualized growth rate versus 3.3 percent) (Ciaschi et al. 2020). However, this pattern underwent a significant reversal during the 2014–2016 crisis and its recovery. The poorest 40 percent, already starting from a lower income base, saw a sharper decline with their incomes shrinking 10 percent between 2014–2017. The average income during this period shrank by 4 percent.

As of 2019, the income of the poorest 40 percent remained below its 2014 pre-crisis level. It had, however, caught up with its 2012 value. Besides the fact that the bottom 40 percent saw a sharper decline in income during the crisis, another important difference between average income and the income of the poorest 40 percent emerged during the recovery. Whereas the average income began recovering in 2017, the poorest 40 percent continued to lose income for one more year (Ciaschi et al. 2020). Between 2017 and 2019, the poorest 40 percent saw their income grow by only 1.3 percent per year, while the average income grew at an annualized rate of 2.5 percent. Combining pre-crisis, crisis, and recovery, between 2012 and 2019 the income of the poorest 40 percent grew a total of 4.6 percent. During this same period, the income of the average Brazilian grew by 7.5 percent.

[9] Shared prosperity, measured by the income growth of the bottom 40 percent, is one of the twin goals of the World Bank Group, together with eradicating extreme poverty.

Inequality

Another result of the crisis was a sharp increase in inequality. After reaching its lowest levels since the 21st century in 2015, inequality rose sharply in 2016 and continued to increase during the recovery until 2018. The sharpest increase was during 2016 when inequality grew by 1.5 Gini points in one year—the largest single-year jump in inequality likely since the 1990s.[10] The Gini coefficient grew from a low of 0.525 in 2015 to 0.55 in 2018, though by 2017, the inequality gains since 2012 had been fully erased (Ciaschi et al. 2020). While the Gini coefficient is sensitive to changes in the extremes of the income distribution, other inequality measures confirm this pattern (figure 1.12 a and b). In 2014, the 75th percentile had income that was 3.18 times higher than the 25th percentile; by 2018, this value had grown to 3.46. Finally, the stagnation at the bottom of the distribution is also evident. The ratio of the 50th percentile and the 90th percentile with respect to the 10th are higher in 2019 than before the crisis. Certainly, data shows a slight improvement in 2019 in inequality, but it is indisputable overall: the 2010s presented little gains in the fight against inequality (and poverty).

FIGURE 1.12. **Inequality in Brazil, 2012–2019**

a. Ratio 75/25

b. Ratio 50/10 and 90/10

Ratio 50/10 (left axis)   Ratio 90/10 (right axis)
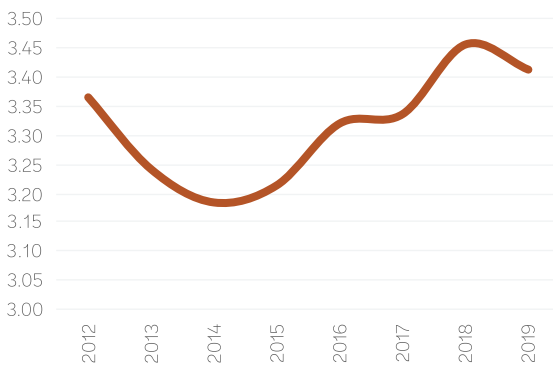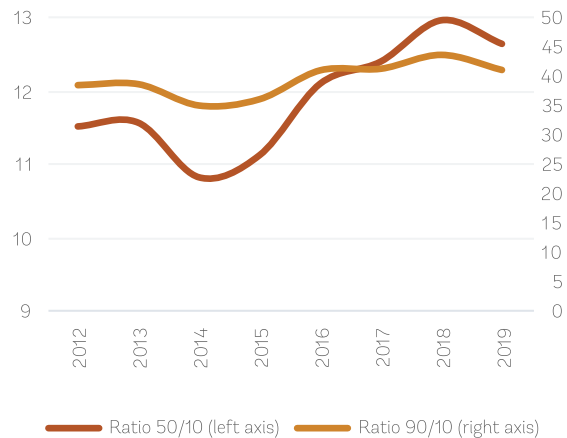
Source: PNAD-C – World Bank estimates

Location is a key element to understanding poverty and equity in Brazil. The incidence of poverty has traditionally shown a strong correlation with geographical borders. States in the north and northeast macroregions face levels of poverty greater than those at the national level; these regional inequalities date back to the 19th century (Fandiño et al. 2022). During the 2000s, poverty convergence was observed across Brazil with, for the most part, poverty rates falling more rapidly in states that had higher poverty rates before 2001 (Cord et al. 2015).

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[10] Looking at the Gini Index trend from the World Development Indicators database—despite being calculated using a different method and though not perfectly comparable is a good indication regarding this indicator's trend—the largest jump in this coefficient had happened in 1992. Since then, most reported years showed decreases with a few smaller jumps.

In 2019 all regions presented higher levels of extreme poverty than in 2012. During the 2010s, the trends in poverty in each macroregion followed similar trends to the country-level trend, with poverty reducing until 2014 in a prolongation of the positive trend from the previous decade (figure 1.13). The share of households living with less than R$178 in each region reached a minimum in 2014, increasing during the crisis period and then remaining stagnant. The recovery did not translate into further poverty reduction even for the wealthier regions of the country—the South, Southeast, and Center-West. Compared to 2014, as of 2019, there were 2.7 million more people living in extreme poverty in the northeast; 900,000 more in extreme poverty in the southeast and north; and a total of 300,000 and 200,000 more in the south and center-west, respectively (Ciaschi et al. 2020).

During the crisis, inequality increased in all regions, but the longer-lasting effects happened in the northeast and the southeast (figure 1.14). In the center-west, inequality had the lowest increase and by 2019 presented a Gini Index of 51.4, almost the same level as the minimum observed in 2014 and significantly lower than 2012 (53.6). The crisis in this region did not have a strong or durable effect in terms of inequality. The southern region of Brazil presents the lowest incidence of inequality but saw important increases during the crisis; however, after a reduction in 2019, it was at a level below 2012 (47.1) but higher than 2015. The longer-lasting effects in inequality happened in the northeast and southeast where the Gini Index in 2019 were higher than at the beginning of the series. The southeast, one of the richest regions of Brazil where the major cities of Sao Paulo and Rio de Janeiro are located, suffers from levels of inequality closer to the much poorer northern states, and even during the expansion period (2012–2014), did not experience a sharp reduction in inequality as observed in the other regions.

BOX 1.2. **How Did Brazil's Other Welfare-related Indicators Fare with Respect to Other Countries?**

Brazil is one of the most unequal countries in the world and its economic troubles between 2012 and 2019 did not help improve its relative position. The bottom 20% of the income distribution held only 3.3 percent of the total income of the country, a lower share than other developing economies such as Russia (6.7 percent), China (5.9 percent) or Mexico (4.9 percent). Brazil's Gini coefficient averaged 0.53 between 2012-2019. This indicates higher inequality than other upper middle-income countries such as Mexico (47.3 percent) and Malaysia (42.1 percent). It is also higher than comparator economies that have experienced periods of increased inequality. For example, Brazil's average Gini coefficient is higher than the United States', where earnings inequality rapid increase has been observed since the 1970s majorly driven by between-firms differences arising from market concentration (Song et al. 2019, Autor et al. 2020). Brazil's Gini index is also higher than that of China's, where inequality soared in the period of economic reform started in 1978 that set place to the transition from a centrally planned economy to a market-based economy (Knight 2014).

FIGURE B1.2.1 **Income share held by lowest 20% (average 2010-2019)**
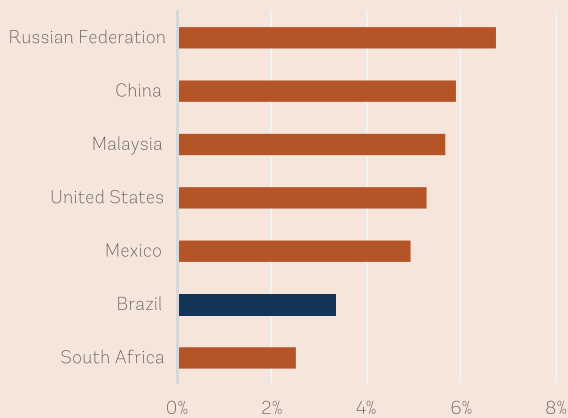
Source: WDI

FIGURE B1.2.2 **Gini coefficient (average 2010-2019)**
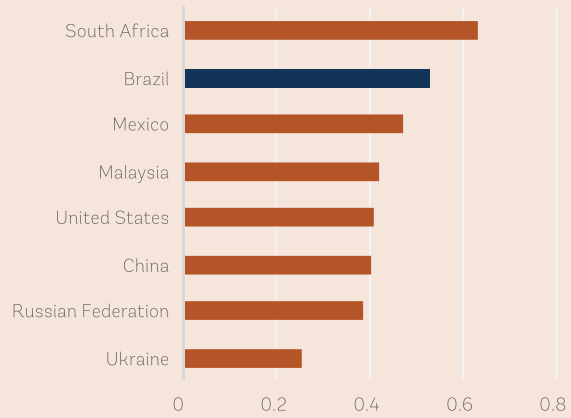
Source: WDI

Brazil lags behind in non-monetary indicators internationally too. The share of Brazilian that is able to use a safely managed sanitation service in their houses is less than a half (44 percent). This percentage is much lower than the 83 percent seen in the OECD member countries, Malaysia, China and Mexico (figure B1.2.3) Finally, Brazil also performs worse in the Human Capital Index

(HCI). Brazil's HCI suggested that a child born today would be able to reach only 55 percent of their future earnings potential compared with what they could have achieved with complete education and full health (World Bank 2020). The Russian Federation, the United States, China and Mexico all overperformed Brazil in HCI.

FIGURE B1.2.3 **Percentage of population using safely managed sanitation services (average 2010-2019)**
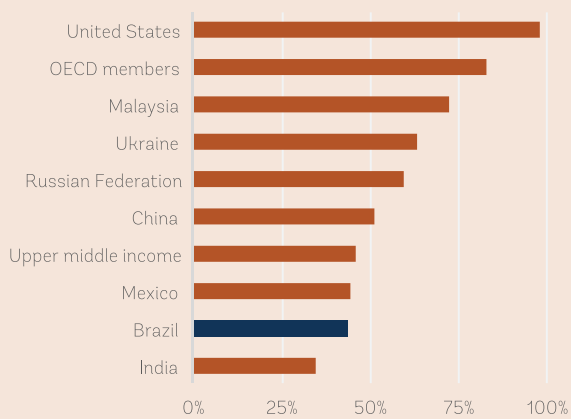
Source: WDI

FIGURE B1.2.4 **Human Capital Index**
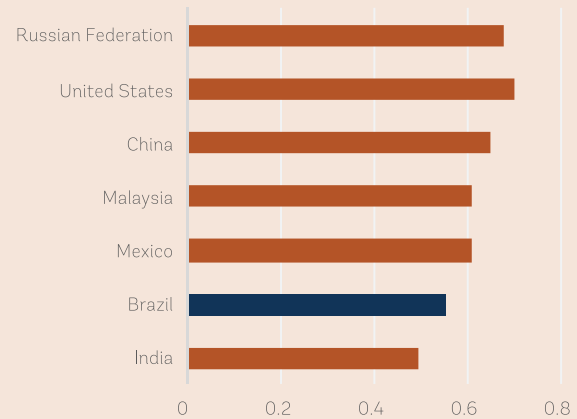
Source: World Bank (2020)
Notes: HCI estimates typically reflect data collected in earlier years.

The incidence of poverty is significantly greater in rural areas than in urban areas, with little convergence in recent years. The incidence of rural poverty in 2012 was more than four times the incidence of urban poverty; the extreme poverty (based on the PBF eligibility line) rate reached 20.2 in rural areas in 2012, compared to 4.8 percent in urban areas (figure 1.15). By 2019 extreme poverty had increased to 5.7 in urban areas and remained at almost the same level in rural areas (20.6 percent). Incidentally, we observe an increase in the percent of the population living above one minimum wage per capita (middle class) in both urban and rural areas: 41.7 percent to 46.3 percent in urban areas and 14.3 to 19.8 in rural areas. This increase of the extremes was accompanied by a shrinkage of both the vulnerable and the moderately poor.

FIGURE 1.13. **Extreme Poverty Rates by Brazilian Macroregion, 2012–2019 (Percent)**
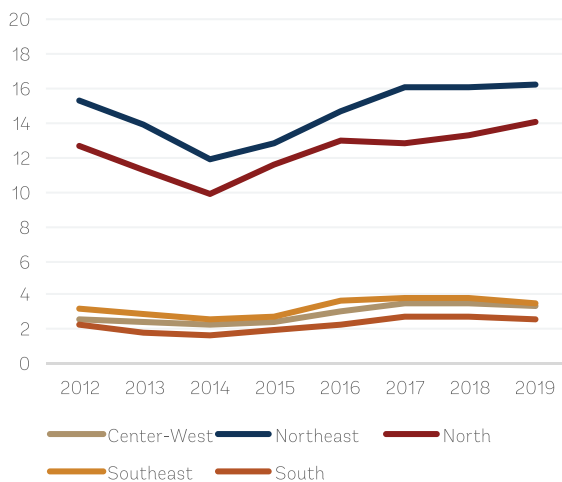
Source: PNAD-C – World Bank estimates
Note: Extreme poverty is measured by the income eligibility threshold for the PBF (US$2.25 per day in 2011 PPP).

FIGURE 1.14. **Inequality by Region, 2012–2019 (Gini Index)**
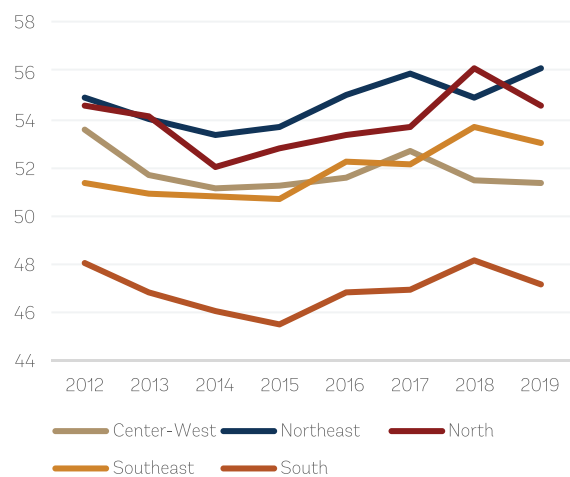
Source: PNAD-C – World Bank estimates

Race-based socioeconomic disparities are known in Brazil, and the legacy of three hundred years of slavery is still evident. The extreme poverty rate by race is higher for pardos (mixed-race) (10.9 percent) and blacks (9.3 percent) than for whites (4.0 percent).[11] All race groups were affected by the crisis and faced higher levels of extreme poverty in 2019 than in 2012 (figure 1.16). Finally, pardos and blacks consistently show about twice the poverty rates of whites.

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[11] Brazilian statistics usually collect race information based on self-declaration of color or race. People are asked to select from the following options: white, black, pardo (mixed-race), indigenous or yellow. In 2019, 46.8 percent of Brazilians declared themselves as pardos, 42.7 percent as white, 9.4 percent as black, and 1.1 percent as yellow or indigenous.

FIGURE 1.15.   Income Groups by Urban and Rural Locations (Percent of Population)

FIGURE 1.16.   Extreme Poverty by Race, 2012–2019 (Percent of Population)
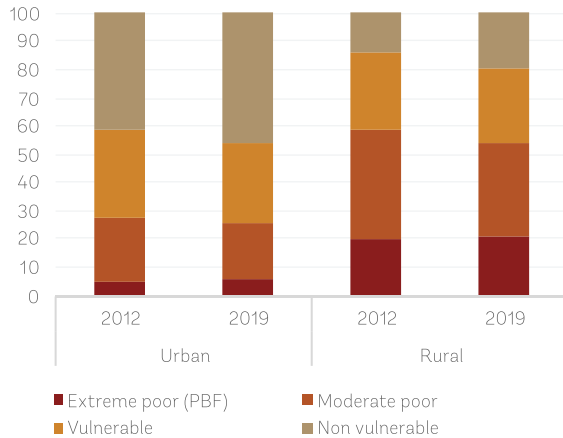
Source: PNAD-C – World Bank estimates
Notes: Poverty lines do not refer to the internationally comparable lines used by the World Bank. Extreme poverty is based on a R$178 threshold; moderate poverty is based on a R$499 threshold; and those in the non-vulnerable group earn more than one minimum wage (R$998) per person.
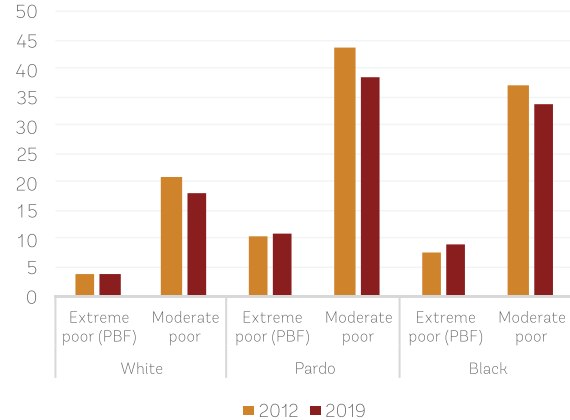
Source: PNAD-C – World Bank estimates
Notes: Extreme poverty based on the PBF income eligibility threshold. Poverty is based on half of a minimum wage threshold.

Drivers of the Evolution of Poverty and Inequality in Recent Years

The dynamic labor market was an important force behind the successful welfare improvements of the early 2000s. Largely as an outcome of strong growth, the labor market performed at record levels. Healthy job creation was accompanied by a rise in labor force participation and employment rates. The quality of jobs also improved significantly. The formal labor stock developed at fast rates starting in 2003/2004, with growth rates that exceeded the GDP growth rate, pointing to a process of deep restructuring of the labor market in the country. Between December 2003 and December 2014, formal employment grew 67.8 percent, about 5.0 percent yearly, according to the Risk Assessment Information System (RAIS), while GDP grew at a yearly average of 3.5 percent (Souen

and de Souza Campos 2017). An important driver behind increases in formalization were policies that simplified tax regimes for micro and small entrepreneurs and individual microentrepreneurs[12] (Firpo and Portella, 2021). Finally, the economy saw a large expansion in real wages, partly fueled by periodic boosts in the minimum wage (Cord et al. 2015). Two factors came together: a widespread surge in skills (including more highly skilled labor supply among the vulnerable) and a substantial rise in females participating in the labor force.

Formalization of employment fed into a positive cycle that reinforced economic growth. The movement of increasing formal employment and income enabled the increase in con-

[12] Micro and small entrepreneurs follow the SIMPLES Nacional regime introduced in 2007. The individual microentrepreneurs follow the MEI (microempreendedor individual)regime introduced in 2009.

sumption at the bottom of the social pyramid (with a strong propensity toward consumption), making small businesses more dynamic. It also changed the consumption pattern, shifting it to goods and services offered in more formal stores and leading to growth in employment in larger and more structured companies. In this scenario, underemployment occupations gave way to formal wage jobs. The workers themselves began to demand greater formalization to guarantee the rights associated with formal employment, which also contributed to raising opportunities to access credit (Souen and de Souza Campos 2017). Likewise, Firpo and Portela (2019) suggest that significant reductions in unemployment due to the better economic situation might have increased workers' bargaining power, placing them in a better position to demand formal labor contracts.

Together with favorable external conditions that increased labor demand, changes in labor supply and institutions – namely the minimum wage - acted together to depress wage inequality in an unprecedented manner. This decline in wage inequality was the major factor behind the remarkable decline in income inequality in the 2000s, accounting for 50-60 percent of the decline in inequality in household incomes (Ferreira et al., 2017).[13] It resulted of a faster increase of labor income at the bottom of the distribution in a context of overall wage increases (Firpo and Portella, 2019). On the supply side, reviewing the literature on the determinants of the decline in wage inequality in Brazil, Firpo and Portella (2019) conclude that increased supply of better educated workers resulted in lower relative returns to skills. Ferreira et al (2017) find reductions in the experience premium to have dominated the wage inequality dynamics in the 2000s. On the demand side, international trade, boosted by liberalization, reduced regional, racial, and gender wage gaps (Firpo and Portella, 2019). The substantial increase in the minimum wage in the 2000s was a major institutional change that contributed strongly to reduce wage inequality.[14] However, the literature suggests that the minimum wage was only able to exert this effect in the context of strong economic growth, in which the labor market was able to afford complying to it (e.g. Ferreira et al., 2017).

The labor market did not go unscathed by the brutal recession after 2014, however. Beginning in 2015, there was strong growth in the unemployment rate that reached a maximum of 13.7 percent in the first quarter of 2017 (figure 1.17). At the same time, the cyclical indicators of the labor market began to show negative results for formal employment, which had not been observed since the 1990s (Souen and de Souza Campos 2017). Labor income, which had been the engine of growth, became the great villain of the crisis, bringing down the average income and increasing inequality due both to unemployment and falling wages.

Increases in unemployment were particularly severe among the youth (18 to 24 years old), and while unemployment increased for all levels of education and never got back to pre-crisis levels, the recovery was generally better for more educated groups and the lowest educated. For young men and women, unemployment reached 23.76 percent at the end of 2019 in what was a 45 percent increase since 2012 (figure 1.18). Meanwhile, in terms of educational attainment, the no-instruction group experienced the highest levels of unemployment growth (92.41 percent), followed by those with some primary school (54.33 percent), and those with incomplete tertiary education (52.05 percent). Recovery was generally better for more educated groups, with everyone above primary schooling experiencing reduction rates above 20 percent between

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[13] In addition to falling wage inequality, the Bolsa Familia program is estimated to have accounted for 30-40 percent of the fall in household income inequality in the 2000s (Barros et al., 2010; Azevedo et al. 2013), and another 10 percent have been attributed to demographics, in particular the rapid decline in family sizes that was more pronounced for poorer households (Ferreira et al., 2017).

[14] Between 2003 and 2012 the minimum wage increased by 62 percent (Firpo and Portella, 2019).

2017 and 2019. It is interesting to see the different trends for those with no education and those with tertiary education. These groups presented very similar levels of unemployment in 2012 and 2014, the lowest levels of all groups (figure 1.19). When the crisis hit, though, unemployment increased significantly more for the no-instruction individuals, more than doubling by 2017, and continued to increase until the beginning of 2019. All other groups peaked at the beginning of 2017. In the case of individuals with tertiary education, between this peak and the end of 2019, unemployment had reduced 21 percent. All things told, individuals with no education started the period with a 4.60 unemployment rate and ended it at 8.85 percent, while those with tertiary education went from 4.30 percent to 5.65 percent. These results are consistent with the idea that it was the people with better jobs that were able to better survive the crisis and that the labor market was an important force behind increasing inequality.

FIGURE 1.17. **Unemployment Rate, 2012–2019 (Percent)**

Source: PNAD-C (IBGE Tables)

FIGURE 1.18. **Unemployment Rate by Age Groups (2012/Q1–2019/Q4) (Percent)**
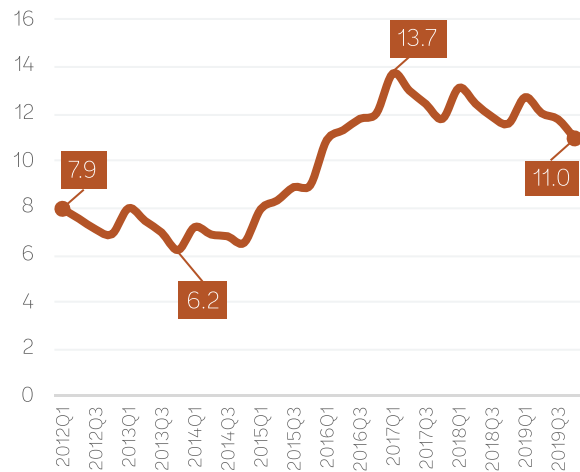
Source: PNAD-C (IBGE Tables)

FIGURE 1.19. **Unemployment Rate by Level of Education (2012/Q1–2019/Q4) (Percent)**
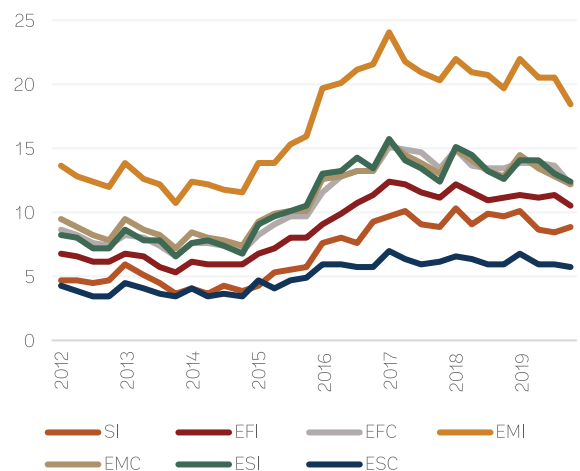
Source: PNAD-C (IBGE Tables)
Notes: SI refers to No instruction; EFI is Incomplete Basic Education (Ensino fundamental); EFC is Complete Basic Eduation; EMI is Incomplete Secondary Education (Ensino médio); EMC is Complete Secondary Education; ESI is Incomplete Higher Education (Ensino superior); and ESC Complete Higher Education.

The sectoral distribution of occupations followed a consistent trend, with occupations gravitating toward a concentration in the services and trade sectors, to the detriment of agriculture. This trend was accentuated with the emergence of the crisis starting in 2015. Both in absolute and relative terms, during the 2012–2019 period agriculture, livestock, forestry production, fisheries, and aquaculture presented the largest losses among all sectors, with a variation in its stock of employed persons of –2.8 percent per year. The sector lost about 1.8 million employed individuals, and at the end of 2019, the sector accounted for just 8.1 percent of the total employed population (figure 1.20). Although job loss was aggravated during the recession years, the year-over-year reduction in the labor force in agriculture was in place before and can be explained by productivity gains, the advancement of mechanization, and the greater concentration of production. In this sector, despite job reductions, there was almost continuous growth of agriculture production in the country during the 2010s (Carrança 2020).

Industry and construction contributed to the expansion of unemployment. In the industry sector, the first moment of job closings had already occurred in 2013, but it accelerated in 2015 and 2016 when 1.2 million jobs were lost. Construction has been losing workers every year since 2014. Between the last quarter of 2013 and the last quarter of 2019, the sector lost over 1.3 million jobs. Notably, industry and construction sectors had been contributing consistently to job growth and the formalization of employment before the recession; construction alone had created close to 1 million jobs in 2012/2013. Pesquisa Mensal do Emprego (PME) data shows that the sectors that most contributed to the growth of formal employment until 2014 were the large sectors of retail and repair, services in general, and civil construction (Suoen and de Souza Campos 2017). At the end of the period, services had expanded their importance in the economy, representing over 70 percent of the jobs in the economy (figure 1.20).

FIGURE 1.20. **Share of Employment by Sector, 2012 (Q4) and 2019 (Q4) (Percent)**

■ 4th quarter 2012   ■ 4th quarter 2019
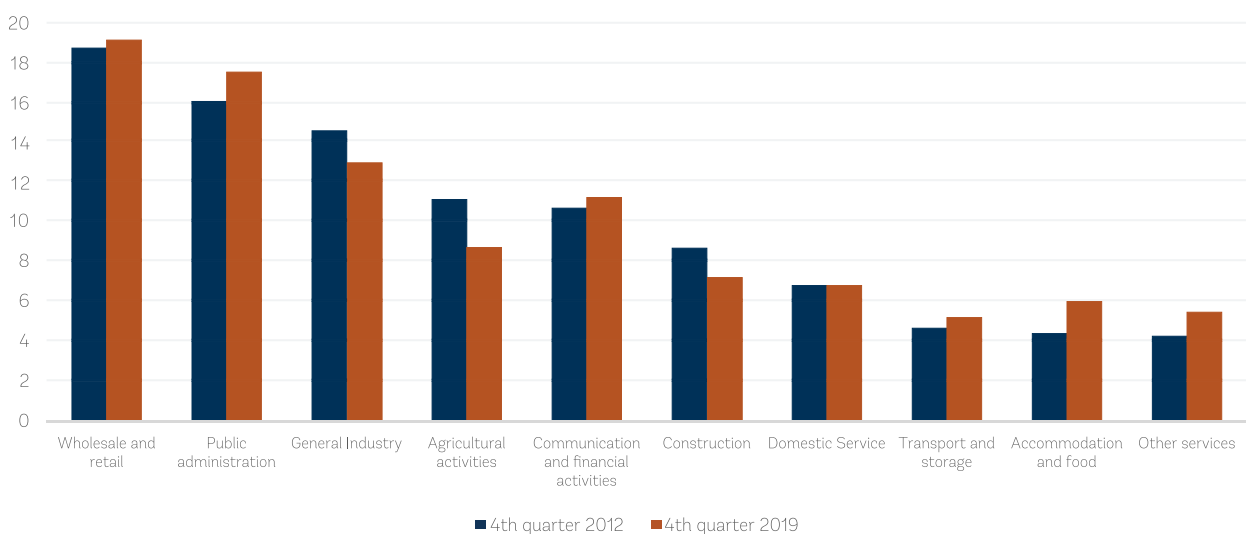
Source: PNAD-C (IBGE Tables).
Notes : Agricural activities includes: Agricultura, pecuária, produção florestal, pesca e aquicultura; Wholesale and retail includes: Comércio, reparação de veículos automotores e motocicletas; Communication and financial activities includes: Informação, comunicação e atividades financeiras, imobiliárias, profissionais e administrativas; Public administration includes: Administração pública, defesa, seguridade social, educação, saúde humana e serviços sociais.

Besides the destruction of employment, a consequence of recessions is often the shift to informal employment. Evidence from other crises suggests that informal and independent work act as an employment buffer during periods of economic downturn in LAC, reductions in net flows into formality are often accompanied by increased flows into informality and independent work and vice versa. While informality offers an opportunity for firms and workers to operate with less regulatory control and lower wage costs, it is often associated with inadequate insurance and retirement savings among the workers, unfair competition, and non-compliance with tax collection. Ultimately, informality can create a drag on productivity and growth. Furthermore, the uneven incidence of informality may undermine efforts to mitigate inequality and foster shared prosperity (Cord et al. 2015).

The recession led to an increase in informal jobs and less costly employment modalities. Informality was on a downward trend until 2014 when it reached 39 percent.[15] It completely stagnated during the recession and started to rise thereafter. With the economy growing slowly between 2017 and 2019, it was the emergence of informal jobs that prevented unemployment from increasing. In 2019, informality reached the maximum number since the beginning of the series in 2012, 41.6 percent. It thus seems that mostly low-quality jobs were created during the recovery, and that, as in previous recessions, informality compensated for job loss in the formal sector. Informality in the labor market is more prevalent in the north (61.6 percent) and northeast (56.9 percent) regions where poverty rates are also highest (IBGE 2020). Data from PNA-DC further indicates a growth in subsistence strategies and transitions to less costly contract types in the face of fewer formal employment opportunities. Starting in the third quarter of 2014, self-employment – both formal and informal – began to grow both in absolute and relative terms. At the end of 2019, there were over 4 million more people self-employed than at the end of 2012, meaning that now self-employment represented 26 percent of the labor force in 2019 compared to 22.8 percent in 2012. This relative increase happened exclusively at the expense of formal wage employment, which saw its relative contribution being reduced, while other types of employment modalities remained stable.

At the end of 2019, the Brazilian labor market presented higher unemployment and more informality/self-employment, and the primary and secondary sectors had decreased their contribution to employment. These changes may push the labor market into a new reality. Silva et al. (2021) show that crises do not just shape worker flows temporarily—they have significant after-crisis effects on the structure of employment that last for several years. It takes LAC economies multiple years to recover the formal employment contraction induced by a crisis. Overall, 20 months after the start of a recession, employment remains lower. For formal employment, this is true more than 30 months after the start of a recession. These findings suggest that exposure to sluggish labor markets not only moves people into informality temporarily, but rather, it leads to more fundamental structural changes. In the presence of a severe crisis, employment may not recover to what it had been previously.

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[15] Following IBGE (2020), informal work is a condition comprising the set of occupations related to employees and domestic workers without a formal contract, self-employed workers who do not contribute to social security, employers who do not contribute to social security, and auxiliary family workers.

Decomposition analyses of poverty and inequality

Decomposition analyses show that between 2012–2019, growth would have pushed poverty down by close to 18 percentage points, but redistribution effects severely curtailed this decrease, especially during the crisis period.[16] Between 2012–2014 there was a reduction in extreme poverty and poverty, with both processes being driven by economic growth, while redistribution had just a slightly offsetting effect (figure 1.21 a and b). However, after the crisis started in 2014, increased income inequality offset the potential poverty reduction from the income growth that took place during the recovery (Ciaschi et al. 2020). Though the crisis reduced income levels initially, as discussed above, by 2019 the recovery had already pushed average real incomes higher than pre-crisis levels. This means that, even though income growth during the recovery could have lowered poverty rates significantly, distributional effects led to an "increase" of about 11 percentage points between 2014–2019 (figure 1.21 c-f).

The average per capita household income is the sum of the average values of each source of income weighted by the relative number of recipients; their relative importance helps understand the evolution of poverty. For example, even though the average labor income of employed people increases, if there are more unemployed in the household, household income may fall. Following Aʒevedo et al. (2012), we break down the evolution of household income per capita in different factors: changes in men's employment, changes in men's labor earnings if employed, changes in women's employment, changes in women's labor earnings if employed, changes in nonlabor income such as pensions and transfers, and changes in the share of the household that is working age (15 to 69). This last component captures the effect of changes in the dependency ratio due to the demographic transition.

Labor income played a mixed role in driving poverty rates between 2012–2019, while nonlabor income helped decrease poverty throughout the period. Poverty (measured using the half a minimum wage threshold) was reduced mostly due to increased men's labor income, followed by the positive evolution of nonlabor income. Increased labor incomes among women played a relatively small role (figure 1.22 a, b, and c). During the crisis period, the weak labor force outcomes are made evident by the increasing effects of (lower) employment rates among both men and women. Nonlabor income played the most important role in poverty reduction, yet not enough to counterbalance the negative effects of decreasing labor income.

The recovery period's (small) poverty reduction was driven by nonlabor income. With a jobless recovery, labor incomes led to a slightly further decrease in poverty. Between 2017–2019, nonlabor income would have led to a 1.34 decrease in poverty, absent of any other changes in the households' income distribution. The income of the employed men also helped lower poverty (figure 1.22). In contrast, falling employment rates offset the gains from increased labor earnings for those who continued to work, contributing to the stagnation in poverty reduction during this period.

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[16] The decomposition analysis follows Datt and Ravallion (1992).

FIGURE 1.21. Decomposition of Extreme Poverty and Poverty by Period (Percent)

a. Drivers of Extreme Poverty, 2012 - 2014
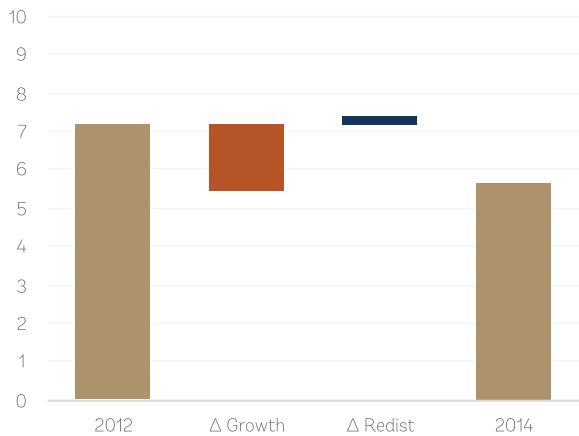
b. Drivers of Poverty, 2012 - 2014
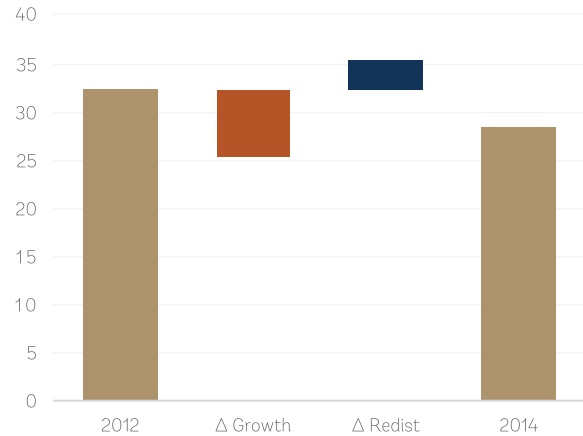
c. Drivers of Extreme Poverty, 2014 - 2017
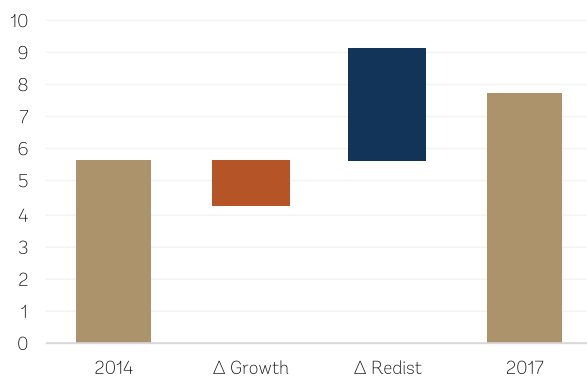
d. Drivers of Poverty, 2014 - 2017
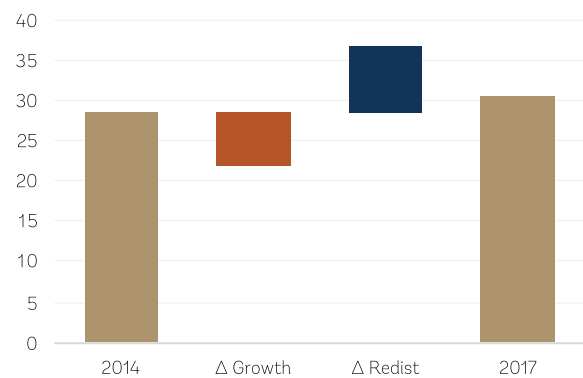
e. Drivers of Extreme Poverty, 2017 - 2019
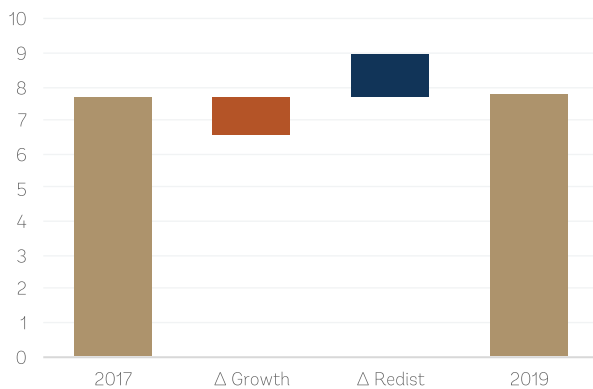
f. Drivers of Poverty, 2017 - 2019
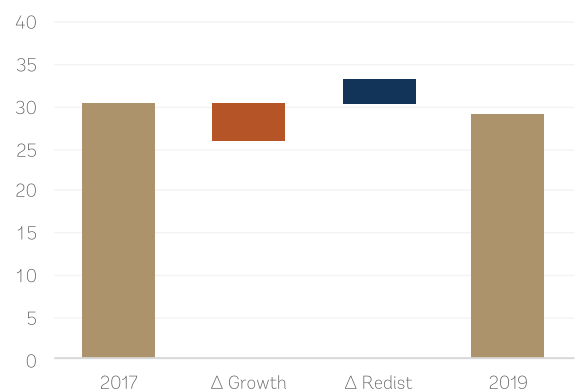
Source: PNAD-C – World Bank estimates and Ciaschi et al. (2020).
Note: Extreme poverty is measured by the income eligibility threshold for the PBF. Poverty is measured by the half a minimum wage threshold.

FIGURE 1.22. **Decomposition of Poverty by Income Sources and Period (Percentage points)**

a. Drivers of Poverty, 2012 - 2014

b. Drivers of Poverty, 2014 - 2017
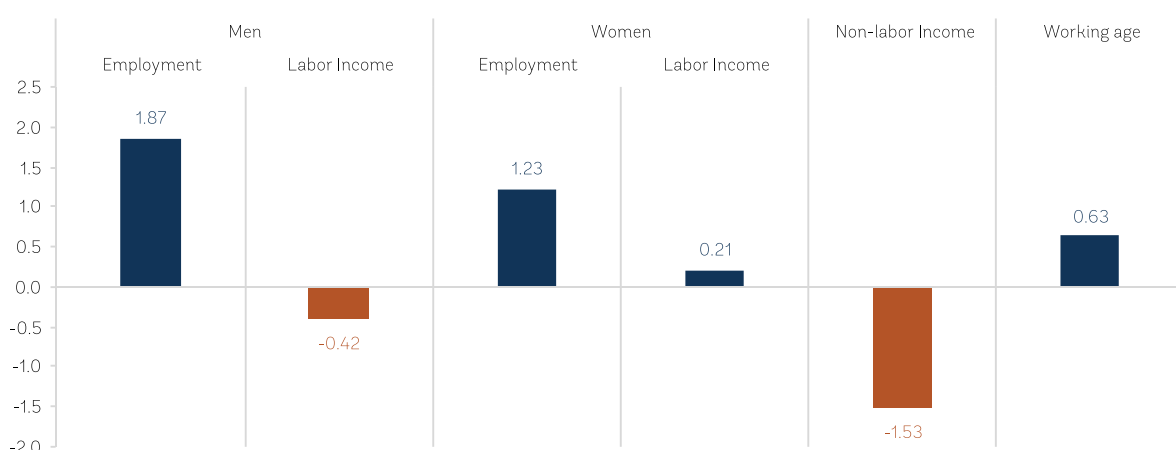
c. Drivers of Poverty, 2017 - 2019

Source: PNAD-C – World Bank estimates and Ciaschi et al. (2020).
Note: Extreme poverty is measured by the income eligibility threshold for the PBF. Poverty is measured by the half a minimum wage threshold.

Nonlabor income, particularly pensions, served to offset some of the increases in poverty. Specifically, it mitigated the increase in the poverty rate by approximately 4.7 percentage points throughout the period. The majority of the elderly in Brazil receive some form of pension. As a result, poverty among the elderly population in Brazil is below 5 percent, which is a great achievement for a developing country (World Bank 2017). However, these low levels of poverty come at a cost. The significant number of resources transferred to the elderly contrasts with higher poverty levels among the younger population, and fewer resources spent on them. Also, while Brazil is still at an early stage of its demographic transition, pension expenditures are already higher than in many advanced economies with much older populations, so there are serious concerns about the sustainability of the system (World Bank 2017).

Transfers from the Benefício de Prestação Continuada (BPC) and PBF social programs and, to some extent, the unemployment insurance appear to have pla-

yed a minor role in the evolution of per capita household income during this crisis and recovery period. It would be expected that, in a time of crisis, social protection acts in a particularly intense way to compensate for the incidence of harmful effects on the poorest. Nevertheless, in the case of PBF, there was a reduction in the number of beneficiaries due to budgetary constraints, instead of fewer people being eligible. The percentage of households benefiting from the program reduced from 15.9 percent in 2012 to 13.5 percent in 2019. This trend stayed downwards even during the crisis years: the average number of beneficiary families in 2017 was 13.46 million compared to the average of 13.78 million in 2013, driven heavily by the reduction to 12 million beneficiaries in July 2017 during the political crisis (figure 1.23). Meanwhile, BPC appears to have accompanied demographic dynamics and the minimum wage until 2019, regardless of the country's position in the economic cycle (figure 1.24). Unemployment insurance, in turn, did offset the loss of income earned in the labor market work, but only partially, pointing to potential problems in its design (Barbosa et al. 2020).

FIGURE 1.23. **Programa Bolsa Família, Beneficiaries (Million Families) and Average Benefits (R$)**

Beneficiary Families   Average Benefit (right axis)
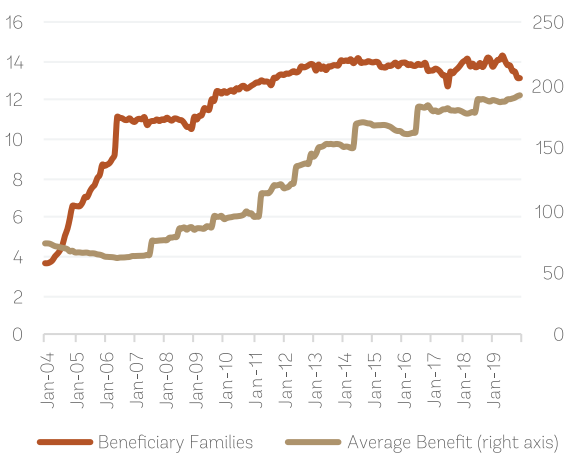
Source: CECAD 2.0

FIGURE 1.24. **Benefício de Prestação Continuada, Recipients (Millions) and Average benefit (R$)**

BPC recipients   Average BPC benefit (right axis)
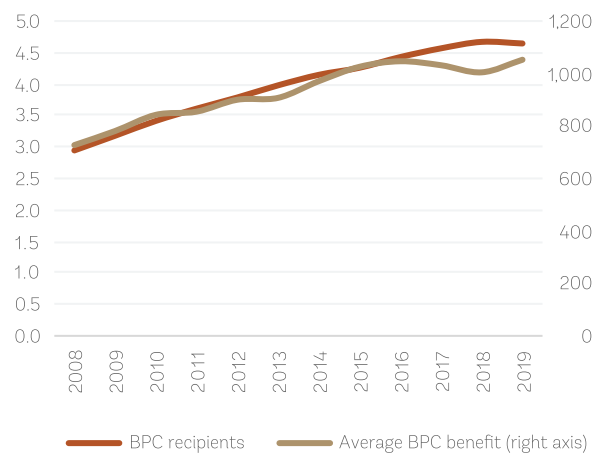
Source: Calculations using Portal da Transparência.
Notes: Values were adjusted to December 2019 by the inflation index (IPCA).

Labor income played a minor role in the post-crisis evolution of poverty. However, it substantially affected extreme poverty and inequality in Brazil. For extreme poverty, the crisis and recovery periods implied stagnant households' income as the (lower) number of employed individuals and their labor income could not climb back to pre-crisis levels. In contrast to poverty rates, the evolution of labor income did worsen extreme poverty rates (figure 1.25a). The forces that acted to increase labor income and compress the distribution in the 2000s were mostly absent during the recession. The minimum wage, a major factor in boosting labor income at the beginning of the millennium, is much harder to be complied with when economic growth is low or negative. Moreover, having risen to a level as high as 70 percent of the median wage, there might be no room for any further compressing effects on the earnings distribution (Firpo and Portela, 2019). Sectoral movements away from agriculture and construction which are unskilled labor-intensive and the devaluation of the real could have led to differential impacts on labor income – with basically only exporting firms experiencing increased employment. Moreover, Firpo et al. (2021) suggest that increasing education of workers was a key driver leading to increased earnings inequality between 2012 and 2019, resulting in a "paradox of progress" (Bourguignon, Ferreira and Lustig, 2005) due to the convexity of returns to education.[17]

For inequality trends, measured by the Gini coefficient, distributional changes in income from work were very important. Between 2012–2014 employment and labor income for both men and women contributed to a reduction in inequality. After the crisis hit and in the recovery period, changes in labor income and employment started to contribute to increasing inequality with male earnings explaining close to 70 percent of the increase in the Gini coefficient. Research shows that the individuals who lost their jobs during the crisis were located mainly in the lower half of the distribution (Barbosa et al. 2020). Thus, the contingent of "survivors" to the crisis—in particular, the subgroup that had its earnings from work—who stayed at the same level (or even increased) is located predominantly at the top of the distribution. During this period non-labor income became a factor of increasing inequality (figure 1.25b). This is likely related to a disproportional increase in the pensions above one minimum wage, that started to increase its share in 2015 (Barbosa et al. 2020). It has been shown that pensions in Brazil primarily benefit the richest in society (World Bank 2017), and the situation was aggravated during this period.

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[17] Due to the convexity of returns to education a right shift of the distribution of education increases the density mass at the range of years of schooling with the steepest returns (Ferreira et al., 2017).

FIGURE 1.25. Decomposition of Changes in Extreme Poverty and Inequality in 2014–2019
by Income Source (Percentage points)

a. Extreme poverty

b. Inequality (Gini)
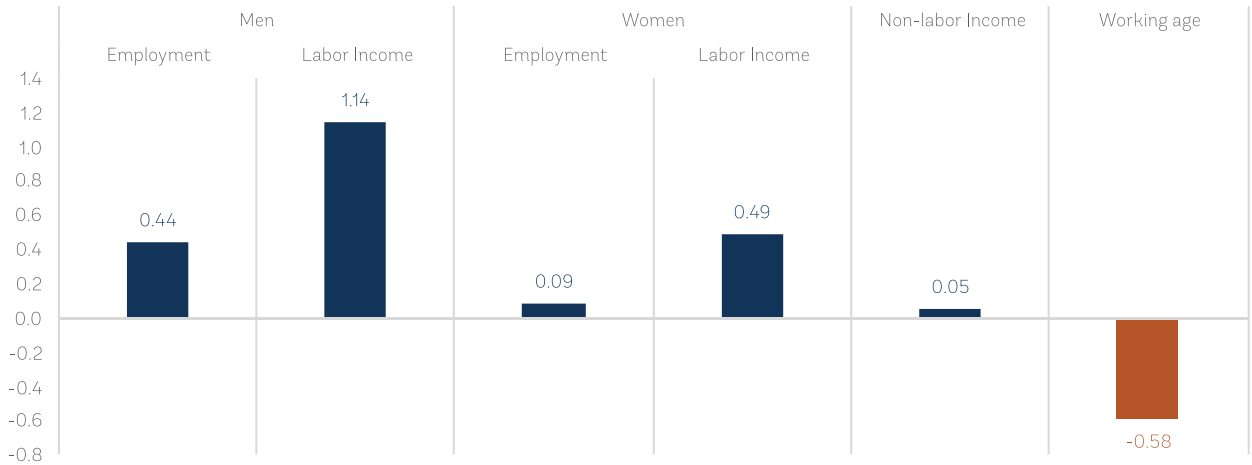
Source: PNAD-C – World Bank estimates
Note: Extreme poverty is measured by the income eligibility threshold for the PBF (US$2.25 per day in 2011 PPP).

Conclusions

Brazil experienced impressive economic growth and made remarkable progress toward a more equitable income distribution during the first decade of the 21st century. In the following decade, the situation was very different. After GDP per capita reached its peak in 2013, Brazil entered a technical recession in the second half of 2014, accumulating several macroeconomic imbalances. While growth reentered positive terrain in 2017, the recovery remained slow through the end of 2019.

During the crisis and recovery period, Brazil's inclusive growth turned significantly regressive. As millions of jobs were lost, Brazil's expansive social protection system was unable to effectively serve as a countercyclical protection system. In fact, the evolution of the flagship social programs from the 2010s contrasted with active redistributive policy in the 2000s when the government accelerated poverty reduction by implementing ambitious progressive social policies including the design and implementation of noncontributory, unconditional, and conditional cash transfer programs targeted at low-income families.[18]

In the most recent recovery period poverty and inequality increased. Modest reductions in inequality in 2019 suggested, at the time, the beginning of recovery after a very challenging decade in the fight against poverty and inequality.

This period of economic instability was particularly severe for the poorest, who experienced a partial reversal of the distributive and welfare gains previously observed. The most disadvantaged groups remain hostage to unstable positions in the labor market and depend on social protection policies. As of 2019, the recovery had yet to reach the bottom of the distribution. Even as other segments of the population began to recover, the poorest continued to lose income until 2018, and the meager recovery in 2019 was not enough to raise those in the poorest decile to the income levels they had in 2012.

At the dawn of the COVID-19 crisis, further improvements in welfare did not seem to be a likely scenario, and the prevalence of poverty in Brazil was the same or worse than in 2014. The next chapter goes deeper into the profile of the poor before the pandemic crisis. Unemployment remained higher in 2019 than it had been at the beginning of the series, and informality reached a maximum since 2012. This means that a large share of the population was extremely vulnerable as the effects of the pandemic started to be felt in the second quarter of 2020.

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[18] The PBF conditional cash transfer program and the noncontributory pension program BPC are the largest programs (Cord et al. 2015).

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A CLOSER LOOK AT POVERTY, VULNERABILITY, AND INCLUSION

A CLOSER LOOK AT POVERTY, VULNERABILITY, AND INCLUSION

Brazil entered 2019 with 7.7 percent of its population living in extreme poverty (household income per capita below R$178), and 30 percent of its population living in poverty (measured by those living with less than one-half the minimum wage [R$499] per month). Distinct patterns of inequality continued to be an enduring feature of the welfare landscape in the country, with certain population groups—women, Afro-Brazilians, children, residents of the north region—standing out. The fact that they are overrepresented among the poor has been, alas, a perennial empirical finding.

This chapter takes a deep dive into the profile of the poor and vulnerable in Brazil following the structure of an asset-based framework. This scheme puts the household in the center of its analysis; in doing so it helps the household understand its ability to be poverty-free by decomposing the income-generating capacity of its members. A household's capacity to generate income is affected by the household's accumulation of assets, the intensity with which the assets are used and their rate of return, transfers received, the prices the household faces, and the outside shocks it endures. The profile of the Brazilian population is thus built through the review of each of those components by several income and demographic groups. Finally, by linking the multidimensionality of the asset framework and monetary poverty, the chapter sheds light on the chronically poor population.

Human capital, being a fundamental asset to economic development (Uhr et al. 2020; World Bank 2018), is the starting point.

The overall level of educational attainment in Brazil can be considered low: in 2019, the average years of education among those people age 25 or older was 8.7. This average is low relative to the standards currently conveyed in the country's law.[19] The situation is worse for the poor, who have even fewer years of schooling on average. Improvement of educational attainment in low-income families has been made in the past decades, but intergenerational mobility is limited. Suppose the same progress rates continue in the future, after three generations. In that case, just 12 percent of the poor will have achieved tertiary education—a lower share than the 16 percent found currently in the population at least 25 years old.

Coupled with the lesser accumulation of formal instruction, the poor have lower participation levels in the labor markets. This lower participation level could be a result of an imbalanced demand for low-skilled workers. Indeed, the poor population is overrepresented in the primary sector of the economy, in which physical skills still play an important role in activities such as crop cultivation, cattle raising, or fishing.

The poor are heavily dependent on public health care services. And despite Brazil having a public and comprehensive system, there is a waiting cost that can harm users. Several other indicators, from mental health to access to prenatal care to the lack of basic services (that is, sanitation) suggest there are wide gaps to be addressed in Brazil.

Formal property rights among the poor are lagging. The number of poor people that own their dwellings and land is similar to the non-poor. Howe-

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[19] Brazilian Law No. 12,796/2013 establishes the universal offering of seats from the age of 4 until the end of secondary education, which would be equivalent to 14 years of education from preschool to the end of high school, or 12 years of school taking out the first two years of preschool (Law No. 11,274/2006).

ver, the situation is vastly different when looking at the number of individuals who have the referent titles to the properties. In addition to the insecurity of land ownership, people who do not have legal entitlement may face obstacles when accessing credit because of the lack of collateral. In the rural context, insecure land rights can also lead to inefficient investments decisions and underdeveloped rental markets (Damasceno, Chiavari, and Lopes 2017). Many of the poor that are living in rural areas have their lands organized into familiar establishments, which are characterized by being smaller and less productive than nonfamiliar enterprises (Veiga 2000). The lower productivity could be influenced by the lack of access to the most effective inputs and it could be indirectly influenced by the limited access to credit and by the suboptimal level of investment driven by insecure land rights.

Public transfers represent a core component of household income that generate capacity for a nonnegligible share of the population. Pensions represent the highest share in households' total income: on average, they are 19 percent of total income, and they can be as high as 49 percent of total income among households in which at least one member is 60 years or older. Because pensions are based on the contributions that workers make during their lives, they tend to preserve past

labor income distribution and contribute to the income disparities observed in the data. Among the fiscal policies reviewed, the Bolsa Família program stands out as having the highest progressivity and impact on poverty.

Vulnerability to climate change–related shocks is a reality for one in five Brazilians. A complete picture of the vulnerability profile of the Brazilian population goes beyond the monetary and non-monetary interpretation of poverty and socioeconomic disparities. The danger of and exposure to (climate change–induced) shocks through natural disasters and other weather-related events affect not only municipalities in the Amazonas, but also municipalities in areas as big as São Paulo. The low capacity of residents of these municipalities existing pockets of poverty should be a focus of the policy dialogue.

Indigenous people and quilombola communities are among the groups that are in the worst economic position in Brazil. Data from Brazil's social registry shed light on these groups' level of deprivation—a view that cannot typically be observed in surveys. Evidence suggests that these groups have comparable levels of access to services as the rural poor in Brazil, but they tend to have lower income and much higher poverty rates.

A Characterization of Poverty in Brazil

Poverty in Brazil is strongly correlated with demographic characteristics. In 2019, roughly 3 in 10 Brazilians lived with less than one-half the minimum wage per person per month (R$499). Using this threshold as a yardstick for poverty,[20] in rural areas this poverty rate is more than twice (56 percent) the poverty rate in urban areas (26.3 percent). With close

than 86 percent of Brazil's population living in urban areas, poverty is also heavily skewed toward cities: 74 percent of the poor reside in urban areas, and about 26 percent reside in rural areas. Put differently, urban poor households constitute 23 percent of the overall population and rural poor households about 8 percent of the overall population.

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[20] This amount is about $6.32 per person per day in USD 2011 purchasing power parity (PPP).

The poor are overrepresented among households headed by women and Afro-Brazilians. About 47 percent of Brazilians live in a female-headed household, yet more than half of the poor (53 percent) have female-headed households (table 2.1). Among urban poor households, women are especially overrepresented, leading 6 in 10 households. Meanwhile, in the general population, 59 percent reside in a household in which an Afro-Brazilian (a person who self-reported herself as pardo or black) is the head. However, three-quarters (74 percent) of poor households are headed by an Afro-Brazilian. The Afro-Brazilian population is overrepresented in any population group identified as poor, including urban or rural households headed by women.

Even when controlling for certain characteristics, differences in family composition correlate with the economic condition of the household. Average family size ranges from 3.2 to 3.4 people among the non-poor population and between 4.4 and 4.5 people among the poor. The more economically advantaged households have older heads of household, on average. The mean age of households' heads is 50 years old in non-poor households and it is around 42 years old in poor households. This difference could be because typically families are formed earlier and start childbearing earlier among the lower-income population. Finally, children are overrepresented among poor families, while the elderly are overrepresented among the non-poor population.

TABLE 2.1. **Characteristics of the Brazilian Population, 2019**

	Urban		Rural		Female headed		Afro-Brazilian headed		Brazil		
	Poor	Non poor	Poor	Non poor	Poor	Non poor	Poor	Non poor	Poor	Non poor	Overall
Share of total population	23%	63%	8%	6%	16%	31%	23%	36%	30%	70%	**100%**
Population Demographics											
Black or Pardo	72%	49%	76%	56%	73%	50%	88%	85%	73%	50%	**57%**
Indigenous	.	.	1%	.	.	.	.	.	1%	.	**.**
Average family size	4.4	3.3	4.5	3.2	4.4	3.3	4.5	3.4	4.4	3.3	**3.7**
Share of children (<15 years old)	33%	16%	33%	14%	35%	16%	33%	16%	33%	16%	**21%**
Share of elderly (60+ years old)	6%	17%	4%	26%	5%	19%	5%	16%	5%	18%	**14%**
Household head											
Male's share	41%	53%	64%	69%	n.a	n.a	47%	55%	47%	55%	**53%**
Mean age	42.6	49.5	41.8	54.1	42.0	51.2	42.1	48.9	42.4	49.9	**48.1**

Source: World Bank calculation using Pesquisa Nacional por Amostra de Domicílios (PNAD) 2019 data.
Notes: Average family size calculated among people, not among unique households.
n.a. = not applicable; . less than 0.5 percent
Poverty status is based on the one-half minimum wage threshold.

Disparities across the country's regions are large. For instance, Maranhão's poverty rate is more than five times the rate in Santa Catarina. A north-south divide is evident (Map 2.1). States in the Northern region where the Amazon rainforest is located show high levels of poverty as do those of the Northeast. Alagoas, Amazonas State, Pará, Amapá and Piauí have poverty rates of over 50%. The highest poverty rates observed is in the Maranhão State (59.9%). Despite the national advances in agriculture and the recent exploitation of large mineral reserves within the state, some studies have pointed to Maranhão's long-standing dysfunctional institutions as the main impediment to the population benefitting from the exploitation of the state's economic resources (Rolim Filho 2016). The north-south disparities in Brazil have been documented in-depth in the literature. The disparities are evident across monetary and non-monetary dimensions of welfare. This chapter will present, however, a complementary view of welfare gaps in the Brazilian population. By analyzing the urban and rural poor separately, it will become evident that inequality within states (even among those with low levels of poverty) is an urgent issue for public policy to address.

MAP 2.1. **The North-South Disparities in Brazil**

a. Poverty rates in 2019
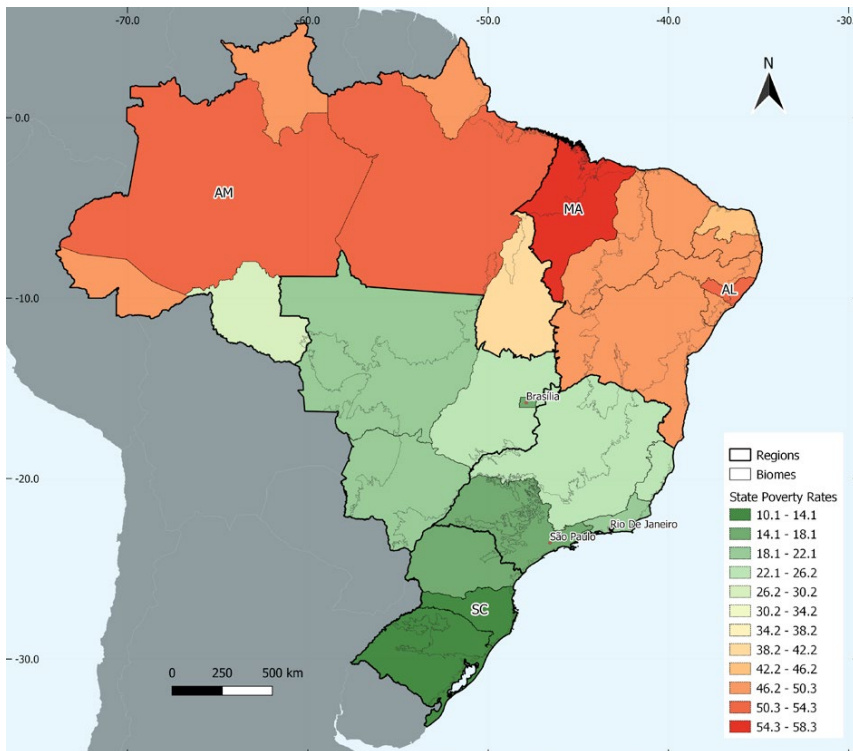
Source: World Bank calculation based on microsimulations and with PNAD 2019 data.
Note: Poverty status based on one-half the minimum wage in 2019 (R$499).

b. Share of population receiving Bolsa Familia
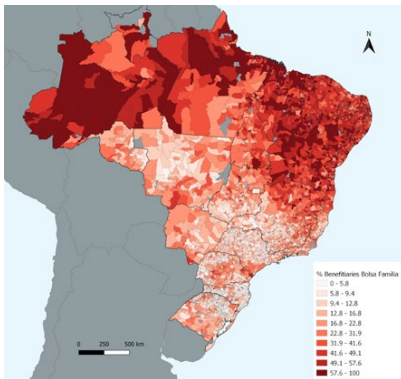
c. Adequate prenatal care
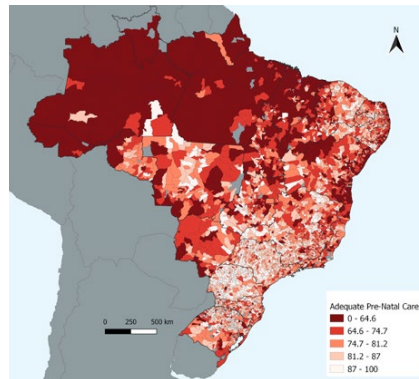
d. Improved sanitation
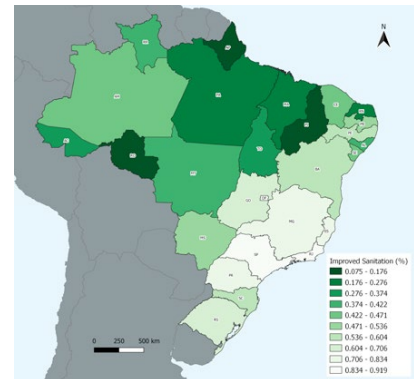
Source: World Bank estimates using Pesquisa Nacional por Amostra de Domicílios Continuous (PNAD-C) 2019 data.
Note: Adequate prenatal care is defined by the percentage of childbearing mothers who attended seven or more prenatal care visits

BOX 2.1. **An Income Measure as Proxy for Households' Welfare**

To assess poverty it is necessary to have both a welfare aggregate and a threshold that will differentiate those with a minimum level of subsistence and those that cannot afford it. The discussion of the absence of a poverty line in Brazil was described in chapter 1. That discussion also included this report's choice to use the commonly referred phrase "administrative lines" as the yardstick to measure poverty.

Using data from the Pesquisa Nacional por Amostra de Domicílios Continuous (PNAD-C) 2019 survey, an aggregate of households' income is estimated. This aggregate comprises all income sources (both labor and nonlabor) from all members of the household. This summation is used as a proxy for households' welfare and thus it is used to estimate the poverty rates and inequality measures presented in this report. The measure includes labor income (called renda habitual) from all occupations, rents, and income from public and private transfers. The aggregate does not include an imputation on the implicit rent for households that own their dwelling.

On average, the monthly income per capita in 2019 was R$1,364 (or about $17.5 USD 2011 purchasing power parity [PPP] per day). Reflective of the high inequality in the country, the levels of income varied widely. The bottom decile of this aggregate had an income per capita of R$107 (US$1.37 USD 2011 PPP), whereas the top decile had more than 50 times that average: R$5,844 (US$74.99 2011 PPP).

Similarly, the differences across Brazilian states are notable. States in the north and northeast register disposable income per capita of about R$842 and R$853, respectively. The average among southeast states is R$1,670.

FIGURE B2.1.1 **Monthly income per capita by decile (R$)**
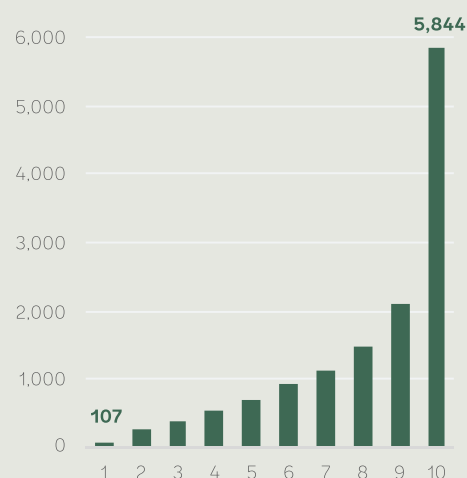
FIGURE B2.1.2 **Monthly income per capita by state (R$)**

Source: World Bank calculations using PNAD-C 2019.
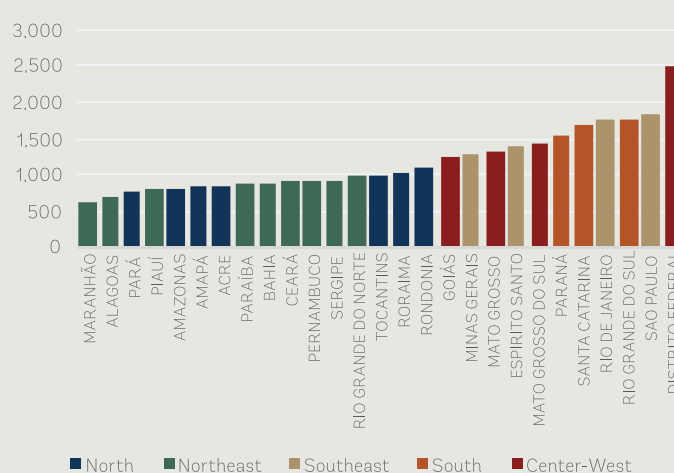
Source: World Bank calculations using PNAD-C 2019.

Analyzing Poverty in Brazil using an Asset-based Framework

To help understand the poverty in Brazil, as well as the possible policy avenues for households to be lifted out of poverty, an asset-based approach is used for the framework. This approach helps guide the analysis of poverty and vulnerability by placing households in the center and focusing on their capacity to generate income. The framework is taken from Lopez-Calva and Rodríguez-Castelán (2016), which is an extension of a model presented by Attanasio and Székely (2001) and Bussolo and López-Calva (2014). The asset-based framework clearly presents the elements that support households' market incomes. The following four components make up households' income:

(1) Assets owned by households, which can be broken down into three subcomponents:
  a. the stock of income-earning assets owned by each household member, which may include human capital, financial and physical assets, social capital, and natural capital
  b. the rate at which these assets are used by each household member to produce income
  c. the returns to assets

(2) Prices (of the goods and services households consume and receive)

(3) Transfers (monetary or in kind, both within and outside the country)

(4) The potential realization of shocks (health, natural disasters, crime, loss of employment)

An appealing idea behind this framework is that it recognizes that households' income-generating capacity (and hence their ability to escape poverty) is based on distinct factors that support or weaken their economic position. Similar to how a house is built (figure 2.1), a household's foundation to generate income depends on what it has (that is, assets owned) and how much the household can earn from them. Transfers can provide cover, but they are less protective and sustainable than the house's foundation. (High) prices erode the value of a household's income. In addition, the absence of shocks allows households to enjoy what they have built. But when shocks hit, they can affect any or all components of a household's capacity to generate income.

An adaptation of the asset-based framework from Lopez-Calva and Rodríguez-Castelán (2016) includes looking at the role of negative public transfers, specifically in the form of taxes that households pay. Work on fiscal incidence has shown that payments into the fiscal system in Brazil vary greatly across income groups (Higgins and Pereira 2013; Lara Ibarra, Rubião, and Fleury 2021; Lustig 2016; World Bank 2017). Thus, the net cash position that households have once fiscal policies are considered may be significantly different than in a prefiscal environment.

FIGURE 2.1. **Households' Income-Generating Capacity**
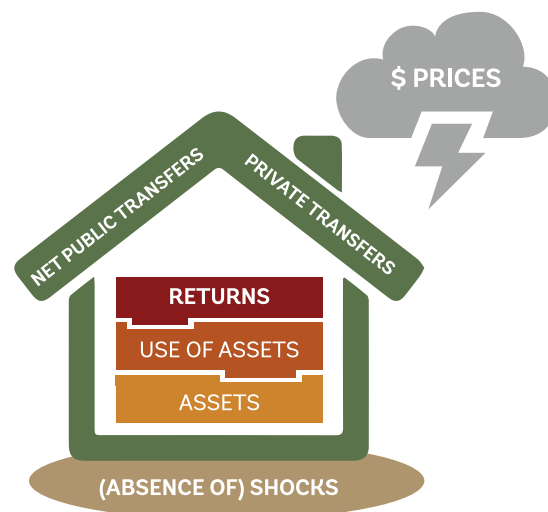
Source: Adapted from Lopez-Calva and Rodríguez Castelan, 2016

The elements of the asset-based framework are presented somewhat independently of each other, but they interact with each other (Cord, Genoni and Rodríguez-Castelán, 2015). For instance, prices can affect the purchasing power of households from a buyer's perspective, and prices can affect households' purchasing power through their income, to the extent that a household is also a producer of certain goods. Another important point is that the observed accumulation of assets and the rate of their utilization should be understood in way that already captures individuals' agency, or their ability to define their own goals and act on them. If, for instance, lack of aspirations prevents households and individuals from accumulating assets and from participating in productive activities, this would lead to suboptimal investment in human capital (Robalino et al. 2013) or to the abandonment of the search for employment in formal sector firms (Benati 2001; Gonzaga and Reis 2011).

Actual household market income may differ from potential household market income because of shocks. Risk—from natural hazards, crime, macroeconomic crisis, and sudden illness or the death of a member, among others—can have detrimental consequences to the income-generating capacity of households. Negative shocks, the realization of said risks, could lead to significant decreases in households' income (and hence to poverty), as well as to the adoption of suboptimal coping mechanisms (such as reduction of nutritious foods consumption, postponing medical treatments, or child labor) thus lowering the outlook of future income generation and limiting intergenerational mobility. Because certain subgroups of the population often are more vulnerable to the (negative) effects of certain shocks, the probability of being affected by external shocks should be analyzed separately for different groups of the population.

The asset-based approach incorporates the macroeconomic and microeconomic dimensions into our understanding of growth. In the short run, the framework considers the distribution of assets as given, and changes in the income-generating capacity of households will be influenced by macroeconomic factors that affect the demand for labor across sectors, relative prices (returns), and the intensity of the use of assets during the economic cycle (Bussolo and López-Calva 2014). Other policy levers affect the level of assets (human, natural, physical); how those assets are accumulated and distributed will thus shape income growth in the long run.

The data needs are multiple to fully present the asset-based framework. Thus, to the extent available through the data, this chapter focuses on a few key components of the framework. These components can help provide an understanding of the gaps that exist in households' income-generating capacity. At the same time these components help show, from a policy perspective, the extent to which vulnerable households will be included in the future growth model of Brazil.

Human capital

Human capital is a central piece of households' income-generating capacity and thus it takes a primordial place in this analysis. According to the World Development Report 2019, human capital includes the knowledge, skills, and health that people accumulate throughout life, allowing them to develop their potential as productive members of society (World Bank 2019b). Human capital is an important factor in the growth of people's income and in national economic growth (Blundell et al. 1999). For example, having an additional year of schooling usually generates more income; this increased benefit is found to be greater in low- and middle-income countries, especially for women in those countries (World Bank 2018). The benefits of human capital also transcend private benefits because they spread to other people and from generation to generation (McKenzie 2017). Finally, health is an essential component of human capital because people are more productive when they are healthier (Daruich 2018). Even from very early in life, the interconnectedness of human capital's components is evident: proper nutrition in utero and during early childhood increases children's physical and mental well-being (Canning, Raja, and Yazbeck 2015).

In the following sections, we first discuss the accumulation of formal instruction proxied by educational attainment, the intensity of the use of this capital represented by labor market outcomes, and the returns of education. Next, we discuss a few health indicators, which are directly connected to people's capacity to accumulate human capital and preserve it. Last, we present evidence on dwelling characteristics that speak to the environment in which families live and whether those characteristics are conducive to supporting the human development of residents. Certain dwelling characteristics are related more to health conditions, such as water access and sanitation adequacy. Other characteristics, such as electricity access, are related more to the provision of educational and work-related activities, as well as a broader integration with society.

Education

On average, the poor in Brazil have fewer years of education than are needed to complete what is considered elementary school (ensino fundamental). Attaining a mere seven years of education hints at the difficulties this population faces to engage in labor activities that demand the use of intense or complex technical knowledge. The situation is worse for rural inhabitants, who have on average less than six years of education (see Table 2.2). Overall, Brazilian education attainment could be considered low even for the non-poor. The average years of education among those 25 years old or older is 8.7 years; the average among Organisation for Economic Co-operation and Development (OECD) countries is 12 years.[21] With the exception of non-poor working women, non-poor population groups have less than 11 years of education on average, which is equivalent to a completed secondary education until 2010.[22]

The problem of relatively low educational attainment is compounded by the low quality of basic education. Brazilian students perform systematically lower than average on international standardized tests—on the Programme for International Student Assessment (PISA), students in Brazil scored lower than the OECD average

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[21] Data are from the Human Development Reports (database), United Nations Development Programme (accessed December 23, 2021), http://hdr.undp.org/en/indicators/103006.
[22] Since 2001, Brazil has undergone an educational reform in which children start primary school at the age of 6. This reform made the number of schooling years change from 11 to 12 for completion of the secondary level. See http://www.planalto.gov.br/ccivil_03/leis/leis_2001/l10172.htm.

in reading, mathematics, and science (figure 2.2). In 2018, only 2 percent of students performed at the highest levels of proficiency (Level 5 or 6) in at least one subject (OECD average: 16 percent), and 43 percent of students scored below the minimum level of proficiency (Level 2) in all three subjects (OECD average: 13 percent). Since 2009, students' performance has not improved significantly in any of the subjects. In Brazil, as is true everywhere but even more so in unequal societies, socioeconomic status is a strong predictor of performance in reading, mathematics, and science—in 2018, advantaged students outperformed disadvantaged students in reading by 97 score points (OECD average: 89 score points).[23] Additional evidence of the disparities in learning can be found across Brazilian states. States with higher poverty levels not only tend to have populations with lower levels of educational attainment, but also they tend to have lower averages of learning-adjusted years of schooling (figure 2.3).

TABLE 2.2. **Labor Market Characteristics by Location and Poverty Status**

	Urban		Rural		Women		Afro-Brazilians		Brazil		
	Poor	Non poor	Poor	Non poor	Poor	Non poor	Poor	Non poor	Poor	Non poor	Overall
Average years of education (adults)	7.6	9.9	5.8	6.1	7.5	9.7	7.0	8.9	7.1	9.6	**9.0**
Average years of ed (working adults)	7.9	10.9	5.8	7.5	8.1	11.3	7.2	9.9	7.3	10.6	**10.0**
Average years of ed (25+ years old)	7.1	9.7	5.1	5.6	7.0	9.5	6.4	8.6	6.6	9.3	**8.7**
Labor Market characteristics											
Labor Force Participation	56%	68%	48%	57%	43%	59%	54%	68%	54%	67%	**64%**
Employer	1%	5%	1%	3%	0%	3%	1%	3%	1%	5%	**4%**
Employee	44%	66%	40%	51%	41%	68%	43%	66%	43%	65%	**60%**
Self-employed	22%	21%	33%	34%	18%	17%	25%	22%	24%	22%	**22%**
Non-salaried	2%	1%	12%	7%	6%	2%	4%	1%	4%	1%	**2%**
Unemployed	32%	8%	15%	4%	35%	9%	28%	8%	28%	7%	**12%**
Hourly wage (R$)	5.6	15.9	4.9	11.4	5.4	14.1	5.3	12.1	5.5	15.6	**13.8**
Work in agriculture or fishing	7%	3%	60%	49%	11%	3%	22%	7%	22%	6%	**9%**
Would like to work more	25%	10%	28%	12%	30%	11%	27%	11%	26%	10%	**13%**
Average job tenure (years)	5.0	7.4	8.4	10.3	5.1	6.9	5.9	7.0	5.9	7.6	**7.3**
Public servant or military	1%	9%	1%	5%	2%	11%	1%	8%	1%	9%	**7%**
Public sector (all)	3%	13%	4%	9%	4%	16%	3%	12%	3%	13%	**11%**
CLT formal worker	19%	41%	9%	26%	12%	39%	16%	40%	17%	40%	**35%**

Source: World Bank calculations using PNAD-C 2019.
Notes: Poverty based on the one-half minimum wage threshold. CLT formal worker defined by having employment legally registered in the Brazilian workbook under the Consolidação das Leis do Trabalho (CLT) legislation. Public sector (all) includes public servants with tenure (estatutários), public servants with registered employments (CLT), and temporaries working for the public sector and military. Non-salaried includes only people working with their families without a regular wage. Hourly wage reflects main occupation.

[23] Results from PISA 2018, Brazil Country Note, Organisation for Economic Co-operation and Development (accessed December 23, 2021), https://www.oecd.org/pisa/publications/PISA2018_CN_BRA.pdf.

FIGURE 2.2. **Gap in PISA Results, Brazil and OECD average, 2000–2018**
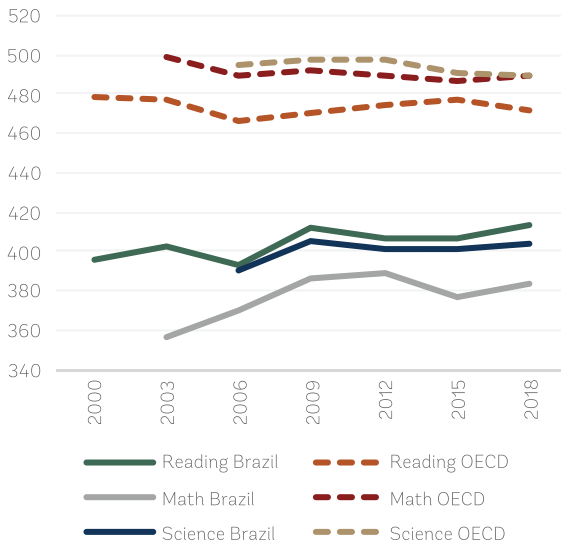
Source: OECD PISA Data Explorer (database), accessed December 23, 2021, https://pisadataexplorer.oecd.org/ide/idepisa/

FIGURE 2.3. **Learning Adjusted Years of Schooling and Poverty Rates by State, 2019**
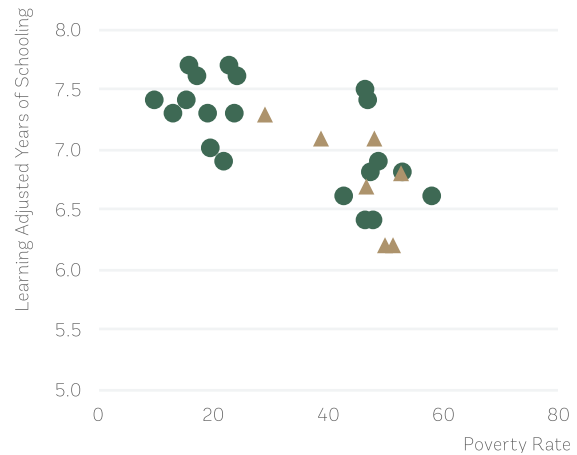
Source: World Bank estimates using Human Capital Review (World Bank 2022a) and PNAD-C 2019 data.
Note: Poverty is based on one-half minimum wage threshold.
States in the north region are highlighted as light beige triangles.

Nonetheless, the labor force is now significantly more educated compared with the recent past. In 1992, the mean years of schooling was 5.2; in 2018, it increased to 9.1. Survey data from recent years suggest that the level of education of the workforce is improving. In 2012, 51.1 percent of the labor force had not completed the secondary level of education, however, by the end of 2019, this percentage had decreased to 39.1 percent. The workers that had completed the tertiary level of education went from 13.7 percent to 19.3 percent, a remarkable increase in such period. The increase was the result, among other factors, of an extensive expansion of higher education: in 1992, 5.1 percent of youth attended the tertiary level of education, however, this increased to 13.3 percent in 2002 and 24.7 percent in 2018. The expansion also included affirmative policies that supported the entry of black students into universities in the twenty-first century (Fandiño et al. 2022).

Women have more years of schooling than the average worker and they are overrepresented in the public sector. The average years of schooling for both poor and non-poor working women is slightly higher than the averages for the respective socioeconomic groups in the urban population (table 2.2). In fact, they have higher educational attainment than white men (7.4 years of education among the working poor and 10.8 years of education among the working non-poor). The insertion of women in the Brazilian labor market was marked by higher shares of employment in the public sector for women than for men (Wajnman and Perpétuo 1997). In 2019, 16 percent of non-poor working women had positions in the public sector—a share higher than any other population group.

The poor population is underrepresented in labor markets and, among those participating, the poor are less likely than the average worker to hold a remunerated job. Combined with lower educational attainment, the poor also show a lower use of this type of capital. While about 67 percent of non-poor Brazilians of working age[24] participate in the job market, the participation of the poor is about 54 percent, with lower participation in rural areas (48 percent). For the poor who self-report as black or pardo, the participation rate is 54 percent. Poor women show the lowest labor-market attachment: only about two in five poor women (43 percent) are in the economically active population. Lower demand for unskilled labor could be one of the factors contributing to the lower participation. The rate of unemployment among the underprivileged demographic groups in the market is close to 30 percent. Only in rural locations is this rate relatively low, at 15 percent. However, in those places the share of nonsalaried labor among the poor is 12 percent, and the self-employed account for 33 percent. These shares likely reflect those workers' engagement in agricultural activities with their families or in precarious highly informal jobs. Finally, about a quarter of the working poor would like to work more. This could be interpreted as additional evidence of the suboptimality of the jobs held by the poor.

The high unemployment rates among the urban poor could also reflect the low levels of connectedness to jobs. It has been well documented that those individuals in less well-off households are further away from economic opportunities. The ratio of accessible jobs that individuals in the top 10 percent hold with respect to jobs accessible by those in the bottom 40 percent was 11.5 in Belo Horizonte, 10.8 in São Paulo, 10.2 in Curitiba, and 4.4 in Rio de Janeiro.[25]

A high share of the poor work in the primary sector of the economy. Roughly one-fifth of the workers in poor households are employed in agriculture, hunting, or fishing activities. Approximately 18 percent are in the wholesale and retail sector and another 11 percent are in construction. In addition, 11 percent of the poor work in private households as domestic workers (table 2.3). The poor population is underrepresented in certain subsectors of services, such as transport and real state and renting. Almost one-half of the employed poor have not completed primary education, which could be associated with the higher participation in sectors that demand physical skills, such as construction and agriculture.

Working women are concentrated in the wholesale and retail sector, education, health and social work, and in private households. Together these sectors employ more than one-half of the female workforce. In turn, women are less concentrated in the primary sector, construction, or transportation. Working women are more likely, on average, to have reached the tertiary level of education compared with the overall workforce. About 24 percent of them have tertiary schooling, close to 10 percentage points higher than the 15 percent among working men.

With low participation rates and high unemployment rates, only about 55 percent of Afro-Brazilians of working age were employed in 2019. The rate among whites was 59 percent. About one-fifth of Afro-Brazilians work in wholesale and retail. Notably, the distribution of Afro-Brazilian workers across sectors is similar to that of the non-poor population, with a relatively small concentration in the agricultural sector.

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[24] Working age is defined as people ages 14 and older.
[25] Data are from Acceso a Oportunidades, IPEA (Instituto de Pesquisa Econômica Aplicada), Brasília, accessed January 16, 2022), https://www.ipea.gov.br/acessooportunidades/mapa/. Accessible jobs are defined as those that can be reached in 30 minutes or less by public transportation. Deciles are based on income estimates from the 2010 Population Census.

TABLE 2.3. **Distribution of Workers across Brazil by Employment Sector**

	All workers	Poor	Non Poor	Men	Women	Afro-Brazilians
Agriculture, hunting, fishing and forestry	9%	22%	6%	13%	4%	10%
Manufacturing	12%	9%	12%	13%	9%	11%
Construction	7%	11%	7%	12%	1%	9%
Wholesale and retail	19%	18%	19%	19%	19%	19%
Hotels and restaurants	6%	7%	6%	5%	8%	6%
Transport, storage and communications	7%	4%	7%	10%	2%	6%
Real estate, renting	9%	5%	9%	9%	8%	7%
Education	7%	3%	8%	3%	12%	6%
Health and Social Work	5%	2%	6%	2%	9%	4%
Activities of private households	6%	11%	5%	1%	14%	8%
Others	13%	9%	15%	13%	14%	13%
Demographic characteristics						
Median age	38	36	38	38	38	37
Percent with low skill (less than primary schooling)	24%	46%	19%	29%	18%	29%
Percent with tertiary schooling	19%	2%	22%	15%	24%	12%

Source: World Bank calculations using PNADC 2019

Women and Afro-Brazilians earn lower wages than white males, even when looking at jobs with similar characteristics. Despite controlling for education level, location, and sector of employment, women and Afro-Brazilians appear to be paid less than their pairs (figure 2.4). Afro-Brazilian women are the worst placed with respect to white males for hourly wages for similar jobs. At least since 2012 (when comparable data are available), they have earned about 30 percent less than white males.

A decomposition analysis using 2016 data found that, once the differences in the workforce distribution across sectors of employment are accounted for, the wage gap between women and men was about 11.9 percent in Brazil (among the highest in Latin America and the Caribbean). Moreover, there was an unexplained 22 percent difference between women's salaries and those of men—a difference that could not be related to observable characteristics (World Bank 2019a). Data from 2019 suggest that, holding other factors constant, compared with white males, the return for an additional year of education is 0.5 percent lower for white females, 2.5 percent lower for Afro-Brazilian males, and about 2.9 percent lower for Afro-Brazilian females. These statistics set the background for some key facts. For example, women have greater education attainment than men, but they face significantly lower returns for their education than their male counterparts. In fact, the law does not mandate equal remuneration for work of equal value (World Bank 2021). All these factors could explain in part the decision by some women to stay out of the labor market.

FIGURE 2.4. **Hourly Wage Percentage Differences with Respect to White Male Workers, 2012–2019**

■ Afro-Brazilian male   ■ White female   ■ Afro-Brazilian female
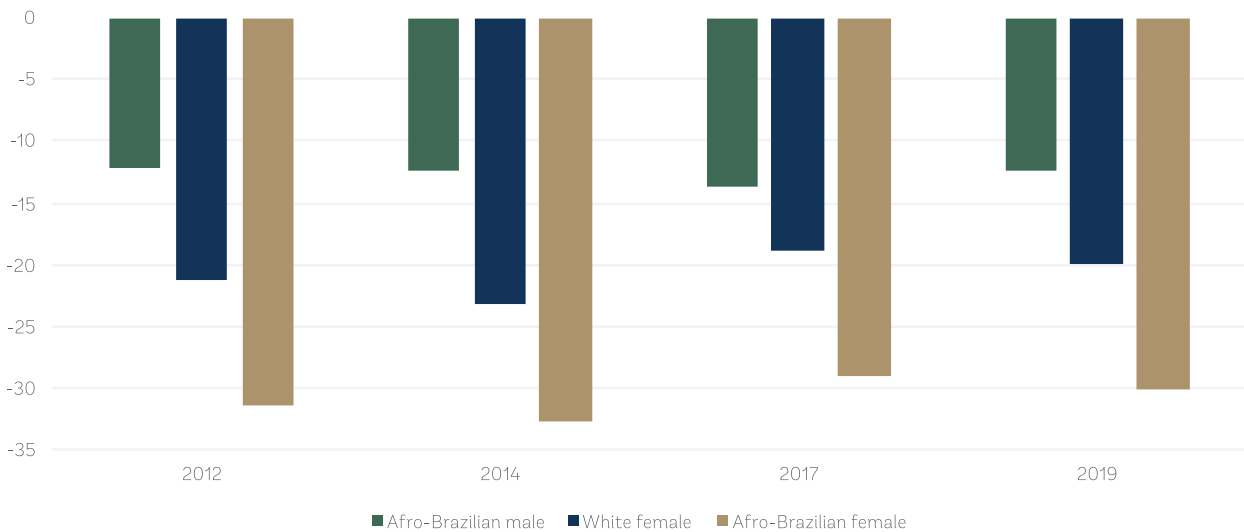
Source: World Bank calculations using PNAD-C 2012, 2014, 2017, and 2019.
Notes: Estimations are based on regressions that are based on Mincer's (1958) approach including state dummies, sector of employment dummies, and a quadratic of an individual's age. The bars show the percent difference between the average hourly wages of each population group with respect to white males, holding all other factors constant. Afro-Brazilian include individuals who self-reported as black or pardo in the survey.

Limited income-generating capacity also is due to the limited intergenerational improvement of formal education levels. Intergenerational education mobility for Brazil in 2019 can be obtained from survey data, though the data only allow us to analyze parents whose adult offspring are living under the same roof. Nonetheless, some clear patterns emerge. Most of the descendants of parents that did not attain secondary education have surpassed the educational attainment of their progenitors (table 2.4). That is consistent with patterns of education advancement highlighted previously and in the literature. For example, van der Weide et al. (2021) studied the educational attainment using data from a population cohort born in the 1980s and placed Brazil in the top quintile of absolute mobility[26] in a sample of more than 150 countries. Neri (2021) finds that in 1990, 16 percent of children between ages 7 to 14 were out of school and that by 2018, the share was less than 2 percent. Still, the evidence also suggested that it was only among parents with at least a tertiary education that a majority of the offspring completed higher education themselves. Neri (2021) shows that the mean interge-

nerational persistence of education went from 0.7 to 0.47 between 1996 and 2014, placing Brazil among the countries with the highest levels of education inertia across generations (close to Mexico and Peru's position in the end of the last century). Indeed, according to van der Weide et al. (2021), Brazil was in the second quintile of relative intergenerational educational mobility.

Among the Afro-Brazilian and the poor population, educational mobility is lower than for the average Brazilian. The new generation of Afro-Brazilians has more than twice the probability of reaching the tertiary level of education than their parents did (14.5 percent compared with 6 percent). However, they lag in terms of speed. For each level of educational attainment among parents of Afro-Brazilians, the likelihood that their children reach the tertiary level of education is lower than among the overall population. For instance, only 25 percent of children of Afro-Brazilian parents who completed secondary school achieve tertiary education, though the rate increases to 49 percent among parents who completed tertiary education.

[26] Absolute mobility was based on the share of respondents with a higher educational category than both parents, conditional on neither parent having tertiary education.

Those probabilities are higher in the overall population: 32 percent and 58 percent, respectively. The (adult) children in poor households have experienced an increase in average educational attainment compared with their parents, mostly reflecting the raise in education among the bottom: about 62 percent of the new generation with parents that did not complete primary education have reached a higher level—with more than 40 precent reaching at least the secondary level of education. Still, there is little mobility in the upper levels: only 12 percent of individuals whose parents achieved secondary education were able to attain the tertiary level of education.

Differential educational mobility among vulnerable groups could perpetuate the

limited income generation among those households. Absent a change in educational policies, if the current education transition probabilities stay the same, after three more generations, about 40 percent of the adult-children population would have reached the tertiary level of education. The share of Afro-Brazilians reaching the tertiary level of education would be 29 percent. Meanwhile, only 12 percent of the poor would have reached this level of education. In line with this low educational mobility and the high income inequality shown in chapter 1, the inertia in intergenerational income mobility has been estimated to be high. OECD (2020) simulations suggest that it would take approximately nine generations for children of the bottom decile households to reach the mean income in the country.

TABLE 2.4. **Distribution of Educational Attainment for Parents and Offspring, 2019, by Population Group**

a. Overall population

Parents' educational attainment	Sons and daughters' educational attainment			
	Less than primary	Primary	Secondary	Tertiary
Less primary	29%	15%	45%	11%
Primary completed	7%	13%	58%	22%
Secondary completed	4%	6%	59%	32%
Tertiary completed	2%	2%	38%	58%

b. Afro Brazilian population

Parents' educational attainment	Sons and daughters' educational attainment			
	Less than primary	Primary	Secondary	Tertiary
Less primary	33%	16%	44%	8%
Primary completed	9%	15%	59%	17%
Secondary completed	4%	8%	64%	25%
Tertiary completed	3%	4%	45%	49%

c. Women

Parents' educational attainment	Daughters' educational attainment			
	Less than primary	Primary	Secondary	Tertiary
Less primary	20%	12%	52%	16%
Primary completed	4%	10%	58%	28%
Secondary completed	2%	4%	53%	41%
Tertiary completed	1%	1%	31%	67%

d. Poor population

Parents' educational attainment	Sons and daughters' educational attainment			
	Less than primary	Primary	Secondary	Tertiary
Less primary	38%	19%	39%	3%
Primary completed	15%	22%	57%	6%
Secondary completed	10%	14%	64%	12%
Tertiary completed[a]	8%	5%	58%	28%

Source: PNAD-C 2019.
Note: The matrix is restricted to parents and offspring living together in the same household and to people older than 21 years old. Primary completed includes individuals who dropped out without completing secondary.
a. Just over 1 percent of the sample of parents achieved the tertiary level of education.

Health related indicators

Most Brazilians rely on the national public health system (Sistema Único de Saúde, or SUS). Only households living in urban areas and belonging to the top 60 percent of the income per capita distribution have relatively high rates of private health care usage (45 percent) and are covered by health insurance (43 percent) according to survey data from 2019. Despite SUS being a "universal" system that provides basic to complex health procedures and is available countrywide, most of its cost to the user is the long wait to be examined by a specialist or to undergo more specific procedures (Marinho 2009). It is notable that a smaller share of the poor population reports having a chronic disease, a result that may reflect the differential probability of timely diagnoses in this population. In fact, it has been documented how access to health services is unequal across the country with rural areas having the lowest numbers of doctors per habitants (Scheffer et al., 2020).

Close to one-half of Brazilians suffer from depression and mental health problems, with higher rates reported among urban low-income households. At least one-quarter of Brazilians reported being depressed in the past week for the National Survey of Health (PNS) conducted in 2019. Among the urban low-income households, 34 percent reported being depressed and 54 percent reported having at least one mental health problem (table 2.5). The situation is only somewhat better in rural locations, where 25 percent within the bottom income group reported having depression and 46 percent reported having at least one symptom of mental health problems. This issue places an additional challenge on the generation of income by the more economically disadvantaged group because in addition to material scarcity, many people are suffering from emotional distress that makes their lives difficult.

A nonnegligible share of urban residents have been affected by violence. Around 16 percent of urban residents who are in the top 60 percent of the income distribution reported suffering some type of violence. This number grows to 21 percent of urban residents in the bottom 40 percent. These statistics are higher than those for people living in rural areas. In part, the differential could be explained by economic features, such as a lower unemployment rate, and by broader social characteristics of rural locations. For instance, those zones have a lower populational density, which means that people know each other more intimately and build more trustful social networks (McPherson and Ranger-Moore 1991; Thomas and Mark 2013).

TABLE 2.5. **Health-Related Indicators**

	Urban **T60**	Urban **B40**	Rural **T60**	Rural **B40**	Brazil
Percent of people with (any) health insurance	43%	10%	9%	1%	26%
Percent of people using SUS when sick	52%	88%	86%	97%	70%
Percent of people using private health services when sick	45%	9%	12%	1%	27%
Percent of people with a smoking habit	12%	15%	15%	14%	13%
Percent of people with a chronic illness	61%	52%	61%	46%	58%
Percent of people depressed in the past seven days	26%	34%	24%	25%	28%
Percent of people with a mental health problem	48%	54%	43%	46%	49%
Percent of people reporting suffering violence	16%	21%	13%	14%	17%
Percent of women reporting suffering violence	17%	24%	14%	18%	19%

Source: World Bank calculations using the 2019 National Survey of Health (PNS), Instituto Brasileiro de Geografia e Estatística (IBGE).
Notes: T60 = top 60 percent; B40 = bottom 40 percent; SUS = Sistema Único de Saúde (national public health system).

Women are more likely to suffer from episodes of violence. Gender-based violence is a serious and major public health issue, coming from historically unequal power relations between women and men. Thus, it is not without reason that it is constituted as a violation under international human rights law and that the United Nations has the elimination of violence against women as one of its major goals (OHCHR 1993; UNHCR 2020). The problem is highly persistent in Latin America and the Caribbean. According to the Economic Commission for Latin America and the Caribbean (ECLAC 2020), about two in three women have been a victim of violence. The problem is even more worrisome when one looks at the empirical studies that indicate that a major part of the violence is practiced by intimate partners or family members (UNW and OHCHR 2014). Brazil is not an exception in the region. Nineteen percent of women report suffering some type of violence. For women in the bottom 40 percent of the income distribution who reside in urban areas, this rate goes up to 24 percent. Meanwhile, administrative data show that about 19 in 10,000 women reported searching for public health care because of domestic aggressions, a rate more than twice that of men (7 in 10,000).[27]

Inequality in access to health care can start even before birth. Afro-Brazilian mothers and less-educated mothers attend fewer prenatal visits than the average Brazilian mother. Most Brazilian mothers do seven or more prenatal care visits, which is the highest level of visits that administrative data show (table 2.6).[28] This number is positive and indicates that most children are benefiting from some level of care that is essential to enhance human capital formation during the whole life. However, when one disaggregates the analysis by demographic characteristics of the mother, it is evident that the situation is worse for population groups in which economically vulnerable households have a higher weight. The share of Afro-Brazilian mothers that go for seven or more visits is lower than the national average. Further, the lower the educational level of the mother the higher the probability that she visited the appropriate care less than seven times. In sum, families that have a lower level of human capital use prenatal health services less, which can result in a low level of human capital intergenerational perpetuation.

TABLE 2.6. **Prenatal Care Visits by Demographic Characteristics of the Mother**

	No visits	1 to 3 visits	4 to 6 visits	7 or more visits
Overall	2%	5%	20%	73%
Race				
White	1%	3%	14%	82%
Afro-Brazilians	2%	7%	23%	68%
Other	1%	13%	32%	54%
Education				
No formal	10%	20%	31%	39%
1 to 3 years	4%	12%	27%	57%
4 to 7 years	3%	10%	28%	60%
8 to 11 years	1%	5%	21%	72%
12 years or more	1%	2%	12%	85%

Source: World Bank calculations using data from SUS.

[27] Nationally, the rate was 13 per 10,000 inhabitants (DataSUS 2019).
[28] The minimum number of prenatal visits established by law in Brazil is six.

Dwelling characteristics and access to services

Dwellings' characteristics can also play a role in their residents' ability to use and keep the accumulated human capital. The availability of high-quality materials, access to water, access to sanitation, and access to electricity are positively correlated with individuals' human capital usage. In a simplified example, individuals' health risks increase in the presence of dirt floors and moldy walls and they increase because of a lack of access to water or sanitation. Moreover, access to electricity can enable people to invest in human capital by allowing longer hours of study at night or extending housework to evenings to use day hours for education or outside work.

Access to basic services in Brazil is still far from universal. In particular, the lack of access to improved sanitation is troubling. Brazilian rural households have difficulties accessing water and sanitation services, but this worrying situation is pronounced among the poor. About 40 percent rural poor individuals do not have access to a water supply, 55 percent do not have improved sanitation, and roughly 20 percent reside in a household that resorts to open defecation (table 2.7). Unsanitary conditions are not limited to rural areas—14 percent of urban poor individuals do not have access to improved sanitation. Among poor female-headed and Afro-Brazilian–headed households, 20 percent and 26 percent, respectively, do not have improved sanitation. In addition, 16 percent of poor households led by women and 22 percent of poor households led by Afro-Brazilians do not have access to a water network connection.

TABLE 2.7. **Dwelling Characteristics and Living Conditions by Location and Poverty Status**

	Urban		Rural		Female headed		Afro-Brazilian headed		Brazil		
	Poor	Non poor	Poor	Non poor	Poor	Non poor	Poor	Non poor	Poor	Non poor	Overall
Precarious materials	4%	2%	12%	5%	5%	2%	7%	3%	6%	2%	**3%**
No Water supply	3%	1%	39%	28%	9%	2%	13%	4%	13%	3%	**6%**
No Water network connection	9%	4%	58%	59%	16%	7%	22%	10%	21%	9%	**13%**
Unimproved Sanitation	14%	5%	55%	37%	20%	7%	26%	10%	25%	8%	**13%**
Open Defecation	2%	0%	21%	5%	5%	0%	8%	1%	7%	1%	**2%**
No Trash Collection	3%	0%	68%	52%	12%	3%	21%	6%	19%	5%	**9%**
No electricity access	0%	0%	2%	1%	0%	0%	1%	0%	1%	0%	**0%**
No electricity network	0%	0%	5%	2%	1%	0%	2%	0%	2%	0%	**1%**
No private bathrooms	2%	0%	22%	5%	5%	1%	8%	1%	7%	1%	**3%**

Source: World Bank calculations using PNAD-C 2019.
Notes: Poverty status is based on one-half the minimum wage threshold. Water supply is defined by having access to tap water inside the dwelling. Improved sanitation is defined by having access to a piped sewer system or to a septic tank regardless of whether the tank is connected to a broader system.

The urban poor residing in Brazil's metropolitan areas also deal with increased travel times—another example of low-level access to services. The bottom quintile living in metro areas spends more time (about 3 minutes) than the top quintile to access low-level health services. It varies more for medium-level services, but on average, in Belo Horizonte, the bottom quintile travels 23 minutes, 10 minutes more than the top quintile.[29] Data from the Brazilian favelas (slums) in 2019 point to a similar conclusion. Residents of favelas within highly populated urban areas are many times in the least-connected areas of the city and thus the share of job opportunities and accessibility to public services are the lowest among urban residents (Map 2.2). Moreover, longer commuting times mean that the poor actually have lower hour-values of working time, since they trade their working hours plus commute for their salary.

MAP 2.2. **Accessibility in the São Paulo Metropolitan Area and Recife Municipality, and Delimitations of Informal Settlements.**

a. Proportion of accessible jobs (São Paulo)
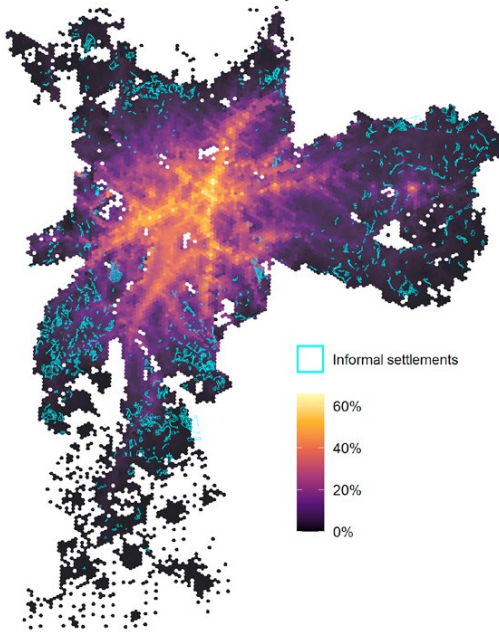
b. Proportion of accessible public high schools (São Paulo)
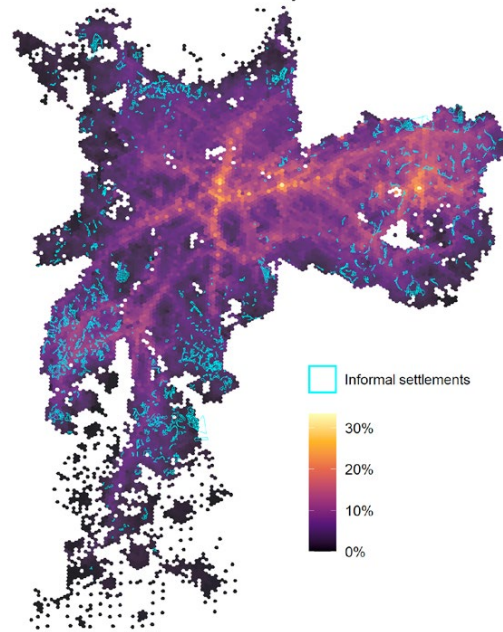
c. Proportion of accessible jobs (Recife)
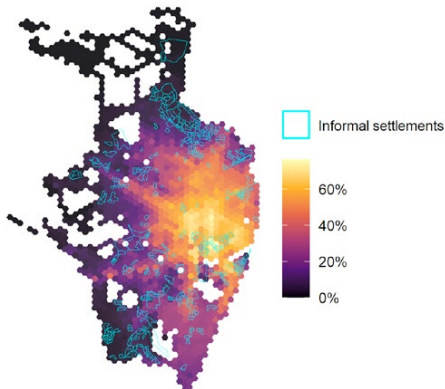
d. Proportion of accessible public high schools (Recife)
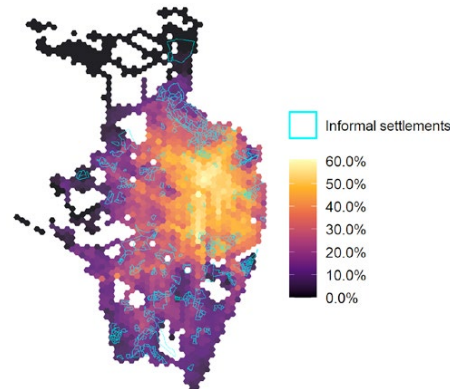
Source: World Bank calculations using IPEA data and IBGE (Instituto Brasileiro de Geografia e Estatística) informal settlements (aglomerados subnormais) data.
Note: Accessibility is defined as reaching a feature by public transportation in 60 minutes or less

[29] Data are from Acceso a Oportunidades, IPEA (Instituto de Pesquisa Econômica Aplicada), Brasília, accessed December 23, 2021, and are based on Pereira et al. (2019).

Physical assets

Human capital says much about the capacity of individuals to perform tasks but the income-generating potential of individuals is crucially complemented by a means of production or physical assets. Land and land rights have a potentially large impact on economic activity that goes beyond the household level. The Inter-American Development Bank notes that the security of land and property enhances economic development through the higher incentive of property investment when risk of expropriation is low, resources are not devoted to defending property, market transactions can be more easily carried out, and in certain contexts, property functions as collateral for credit that can promote other economic activities (IDB 2014). Thus, the following sections turn to an analysis of the possession of lands followed by a brief look at differences in agricultural production. After that, the discussion moves to the assessment of indicators related to financial instruments and other assets that could be used for productive activities.

Land

Brazil's economic inequality is, at least in part, linked to its historical uneven distribution of land. Between 1534 and 1536, the Portuguese Crown divided its territorial domains in South America into 15 slices, called Capitanias Hereditárias, and the right of possession and exploitation of those slices was given to members of the Portuguese lower nobility and to bureaucrats who were close to the court (Bueno 2006; Innocentini 2009). This policy was followed by the institution of Sesmarias, a system with Roman roots that persisted until 1822 in Brazil. Under the Sesmarias system, the distribution of land rights was delegated to some individuals by the Empire, instead of being an outcome of free-market transactions (Carvalho 2015).

Moreover, the concentration of lands remained through Brazil's history. At the time of the first national census in 1872, 1.5 million slaves and 4.2 million black and pardos had already conquered their freedom (about 15 percent and 42 percent of the population, respectively) (Gomes 2021; IBGE 1987). As this was a mainly rural society, in which at least more than 70 percent of the population was based in the field (Brazil Directoria Geral de Estatística 1874), lands were a coveted asset. Yet, the end of slavery, officially promulgated in 1888, came without any land rights or indemnity. The settlement of the new agricultural frontier in the center-west's Cerrado was commissioned by the federal government between 1940 and 1980. During the 1970s, one of the main strategies for settlement was the donation of extensive pieces of land to consolidated private companies or to individuals coming from southern regions (Cunha 2006; Sicsú e Lima 2000) For illustration, the name of one of the main agricultural cities in the country, located north of Mato Grosso, is Sinop. This name originated from Sociedade Imobiliária Noroeste do Paraná, one of the companies that received the concession of lands from the state in 1971.[30]

Compared with the non-poor population, poor families in Brazil do not show lower ownership rates of their dwelling or land. Rather, the difference stands out in the possession of the respective legal titles. According to survey data, differences in the share of the poor and the non-poor owning their dwellings and lands are found in the urban context and in the groups of households headed by women (table 2.8). However, relatively small differences exist in the rural context or in the households headed by an Afro-Bra-

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[30] See https://www.sinop.mt.gov.br/A-Cidade/Historia/ and https://gruposinop.com.br/o-grupo (accessed October 13, 2021).

zilian. In a way, this result could be seen in a positive light in terms of equity because land is more necessary to economic activities in rural locations than in urban ones. However, even among the rural poor that own their houses and land, many of them do not have the official titles. Insecure land rights can cause several negative consequences, such as land-related conflicts and additional deforestation. From the perspective of income-generating capacity, insecure land

rights can lead to underdeveloped rental markets and inefficient investment decisions in properties (Damasceno, Chiavari, and Lopes 2017). Insecure land rights create high obstacles to gaining access to credit that can be very important to agricultural cycles. Finally, urban inhabitants that cannot offer their properties as collateral to a formal financial institution can have limited opportunities to take on entrepreneurial activities or be forced to accept highly costly credit.

TABLE 2.8. **Dwelling and Land Ownership by Location and Poverty Status**

	Urban		Rural		Female headed		Afro-Brazilian headed		Brazil		
	Poor	Non poor	Poor	Non poor	Poor	Non poor	Poor	Non poor	Poor	Non poor	Overall
Own dwelling	66%	73%	80%	80%	69%	73%	71%	72%	70%	73%	**72%**
Own Land	61%	67%	71%	75%	62%	67%	64%	66%	63%	68%	**66%**
Ownership title	51%	66%	46%	62%	49%	65%	49%	62%	50%	66%	**61%**

Source: World Bank calculations using PNAD-C 2019.
Notes: Poverty status is based on the one-half minimum wage threshold.

Although a relatively high proportion of poor families in rural locations report that they own their land, the properties of familiar agriculture are characterized by their small size and low levels of production. Most small properties (including those up to 4 hectares) have an annual production value of less than R$5,000 (table 2.9). Within familiar establishments, even among the properties that are larger than 50 hectares, the registered value of production does not surpass R$25,000. This means that the return on land assets in familiar arrangements is not very high, which is potentially driven by the lack of productive inputs that, in turn, can be a consequence of limited access to credit.

Meanwhile, non-familiar establishments have a significant number of large properties and a higher share of more productive enterprises. Property groups that are bigger than 500 hectares have the highest share of establishments with production valued at more than R$500,000 annually (table 2.10). In addition, as an example of comparison, approximately 30 percent of the share of establishments of non-familiar establishments within each of the 50-100, 100-200- and 200-500-hectares groups have production levels valued at R$100,000 to R$500,000. This share ranges from 13 percent to 19 percent in the same respective groups of familiar establishments. Non-familiar establishments comprise the advanced agriculture in Brazil that is highly competitive in the international markets of commodities.

TABLE 2.9. **Distribution of Familiar Establishments in Brazil, 2017**

Area (ha)	N	Production Value						
		< R$ 5,000	R$ 5,000 – 10,000	R$ 10,000 – 25,000	R$ 25,000 – 50,000	R$ 50,000 – 100,000	R$ 100,000 – 500,000	> R$ 500,000
[0 ; 0.1)	51,358	79%	9%	8%	2%	1%	1%	0%
[0.1 ; 0.2)	38,218	79%	9%	7%	3%	1%	1%	0%
[0.2 ; 0.5)	126,017	82%	9%	6%	2%	1%	1%	0%
[0.5 ; 1)	227,796	79%	11%	7%	2%	1%	0%	0%
[1 ; 2)	355,601	71%	13%	10%	3%	1%	1%	0%
[2 ; 3)	257,612	59%	16%	15%	6%	2%	1%	0%
[3 ; 4)	203,558	51%	17%	19%	8%	3%	1%	0%
[4 ; 5)	170,100	43%	17%	22%	11%	5%	2%	0%
[5 ; 10)	515,279	36%	16%	23%	14%	8%	3%	0%
[10 ; 20)	589,299	28%	14%	22%	17%	13%	7%	0%
[20 ; 50)	683,858	24%	13%	22%	15%	13%	13%	1%
[50 ; 100)	282,013	19%	12%	22%	18%	13%	15%	1%
[100 ; 200)	109,438	16%	11%	22%	20%	16%	13%	1%
[200 ; 500)	26,086	13%	9%	19%	19%	18%	19%	3%

Source: Agricultural Census 2017.
Notes: Family establishments greater than 500 hectares are less than 1 percent of the total number of family establishments and are not shown. ha = hectares; N = Number of familiar establishments. The group [a ; b) refers to properties that extend a hectares or more, but less than b.

Land tenure insecurity is still a problem across Brazil, due in large part to uncertainties about the reliability of land registries. Large tracts of federal and state land are not registered and many private land rights were registered at a time when parcels were not precisely checked and when land cadasters and registries were more loosely kept than they are today. Inaccuracies and fraud are typically uncovered when conflicts occur or when federal or state governments attempt to demarcate their land. The problems are more pronounced in regions of expansion of the agricultural frontier, especially along the Amazon Forest borders, but not only in those areas. It is difficult to quantify how much of the land in Brazil is lacking a designation, but in the Legal Amazon territory (59 percent of Brazil's area), 143.6 million hectares (or 28.5 percent of the area) do not have a designation (Castro 2021).

TABLE 2.10. **Distribution of Non-Familiar Establishments in Brazil, 2017**

Area (ha)	N	Production Value						
		< R$ 5,000	R$ 5,000 – 10,000	R$ 10,000 – 25,000	R$ 25,000 – 50,000	R$ 50,000 – 100,000	R$ 100,000 – 500,000	> R$ 500,000
(0 ; 0.1)	16,513	91%	5%	2%	0%	0%	0%	0%
[0.1 ; 0.2)	12,848	90%	6%	3%	1%	0%	0%	0%
[0.2 ; 0.5)	39,174	91%	6%	2%	0%	0%	0%	0%
[0.5 ; 1)	62,212	88%	7%	3%	0%	0%	0%	0%
[1 ; 2)	90,912	83%	10%	4%	1%	0%	1%	0%
[2 ; 3)	60,435	74%	14%	8%	2%	1%	1%	0%
[3 ; 4)	42,044	67%	17%	11%	3%	1%	1%	1%
[4 ; 5)	34,745	60%	18%	13%	4%	2%	2%	1%
[5 ; 10)	92,465	53%	18%	16%	6%	4%	3%	1%
[10 ; 20)	93,335	44%	18%	18%	8%	6%	6%	1%
[20 ; 50)	113,871	34%	15%	18%	10%	8%	12%	3%
[50 ; 100)	83,551	17%	9%	15%	12%	12%	28%	7%
[100 ; 200)	92,971	8%	5%	10%	12%	16%	33%	16%
[200 ; 500)	109,633	7%	4%	9%	11%	15%	32%	23%
[500 ; 1,000)	50,037	6%	3%	6%	7%	11%	33%	33%
[1,000 ; 2,500)	31,298	5%	2%	4%	4%	7%	28%	50%
[2,500 ; 10,000)	12,968	4%	1%	3%	3%	4%	17%	68%
10,000 ha or more	2,189	3%	1%	1%	2%	1%	8%	84%

Source: Agricultural Census 2017.
Notes: ha = hectares; N = Number of establishments. The group [a ; b) refers to properties that extend a hectares or more, but less than b.

A representative example of the challenges in land tenure is found in the reform settlements. Most of the Instituto Nacional de Colonização e Reforma Agrária's (INCRA) 9,374 agrarian reform settlements in Brazil, or assentamentos, were established beginning in the 1970s as part of the government's development strategy for the north and the northeast and its broader land reform efforts. The settlements represent about 88 million hectares, roughly 10.3 percent of the national territory; as of 2017, the settlements have hosted 972,000 families (with a capacity to host up to 1.1 million).[31] Beneficiaries of the program are intended to be low-income households.[32] In practice, however, it is hard for a settled family to get formal land ownership, which is retained by the federal government; this difficulty limits farmers' ability to access credit. INCRA beneficiaries are eligible for a federal loan program (PRONAF "A") with concessional interest rates; however, the low productivity and commercial viability of the production of many small farms are limiting factors in the potential benefits of such loans.[33]

Financial and other productive assets

Wealth is highly concentrated in Brazil. The richest 1 percent of Brazilians are estimated to

[31] Data obtained from Painel Incra, "Incra nos Estados - Informações gerais sobre os assentamentos da Reforma Agrária". https://painel.incra.gov.br/sistemas/index.php (last updated December 31, 2017) (accessed January 19, 2022).
[32] Eligibility criteria include being at least 18 years old, being a Brazilian national, and not being a civil servant. For income, it includes not owning rural land, not being a shareholder of an agricultural enterprise, and not receiving income from nonagricultural activities of more than three times the minimum monthly wage or one minimum salary per capita when household income is considered. See INCRA at https://www.in.gov.br/en/web/dou/-/instrucao-normativa-n-98-de-30-de-dezembro-de-2019-236095812.
[33] For a more detailed description of the land titling problem in the Amazon, consult World Bank (2022b).

own almost half the country's household wealth in 2019, compared with the estimated 40.5 percent in 2010 (Global Wealth Report, 2021). This high concentration translates into a wealth Gini coefficient of 0.89 in 2019 up from 0.822 in 2010. Moreover, the number of millionaires is expected to increase in the country in the next five years. This trend may be reinforced by the fact as late as 2019, the bottom 50 percent was estimated to earn 10% of the country's national income, while the share of the richest 10% is closer to 58.6 percent.[34]

Despite limited data, it appears the use of financial instruments has been on the rise in Brazil, though certain groups still lag in this area. Between 2011 and 2017, a continuous increase in account ownership was evident, increasing from 55 percent to 70 percent.[35] Account ownership still lags among the bottom 40 percent. In 2017, 56 percent of the bottom 40 percent had an account compared with 79 percent of those in the top 60 percent. Differential banking access has also translated to gaps in credit access—many entrepreneurs still face difficulties in accessing financing.

Access to credit has an additional role for consumption smoothing. For consumer credit, credit card ownership is relatively high in Brazil: in 2017, 27 percent of the population ages 15 and older owned a credit card, compared with only 19 percent in upper-middle-income economies. Still, among those in the bottom 40 percent, the share is only 15 percent.

Gaps in credit card use (a proxy for credit access) are also found in survey data. About one in three individuals in the top 60 percent of income distribution report using a credit card. In contrast, only 10 percent of the poorest 40 percent use a credit card (table 2.11). Households headed by women or those headed by Afro-Brazilians fall in the middle for use: 22 percent and 19 percent, respectively, of those households use credit cards. The average amount spent on debt per capita by the richest 60 percent is R$54, compared with R$10 spent by the poorest 40 percent, and R$35 and R$31 spent by households led by a woman or an Afro-Brazilian, respectively. It is still unclear if the use of this credit instrument is constrained only by the lenders or also by risk aversion.

TABLE 2.11. **Financial Behavior, by Population Group, 2019**

	Brazil			Female headed	Afro-Brazilian headed
	All	Poorest 40%	Richest 60%		
Gross Monetary Income	R$ 1,808	R$ 375	R$ 2,762	R$ 1,536	R$ 1,198
Paying debt	21%	15%	25%	22%	22%
Using credit card	23%	10%	32%	22%	19%
Average amounts*					
Spent in debt	R$ 37	R$ 10	R$ 54	R$ 5	R$ 31
Paid using credit card	R$ 57	R$ 7	R$ 90	R$ 48	R$ 28

Source: World Bank calculations using POF 2017/18
Note: * = Amounts per capita per month. Households not reporting any expenditure in a group of consumption were included in the calculations as having zero consumption in that group.

[34] World Inequality Database https://wid.world/data/ [accessed 1/29/22].
[35] Global Financial Inclusion (Global Findex) Database report, World Bank, Washington, DC, October 31, 2018, https://microdata.worldbank.org/index.php/catalog/3263.

Evidence indicates that only a small share of the Brazilian population manages to save as a precaution. Only 28 percent of the Brazilian adult population would be able to cover an unexpected expense that equals their monthly income. Faced with an income shock, such as losing their jobs, about 16 percent would be able to cover their needs for less than a week (Arellano, Cámara, and Desmet 2019; OECD 2015) Meanwhile, only 30 percent report that they are managing to save money every month for one year (OECD 2015). Higher rates of financial vulnerability are found among women and young adults (ages 29 or younger), with one in five able to cover their needs for less than a week, compared with 12 percent of men (Arellano, Cámara, and Desmet 2019).

In addition to reflecting wealth accumulation among households, some assets can also be used to enhance the productivity of a household's members. Owning a car or a bike could allow individuals to participate in the gig economy, and this participation could smooth income shocks (Abdelhak, Sulaiman, and Mohd 2012, Daidone et al. 2019, Stoeffler, Mills, and Premand 2016). Having an internet-enabled computer or tablet can create new employment opportunities or reduce the cost of finding employment opportunities. Less than 20 percent of the Brazilian poor have a computer and only 3 percent have a tablet, while 54 percent of the non-poor have a computer and 12 percent have a tablet (table 2.12). The gap is minor but significant regarding internet access—73 percent of the poor have it and 88 percent of the non-poor have it. Still, rural households show the lowest levels of internet access among the Brazilian population. Even among the non-poor rural households only 62 percent have access to the internet. The proportion of non-poor people having access to a car at home is 40 percentage points greater than the poor's proportion (64 percent and 24 percent). However, 28 percent of the poor count on motorcycles as a mean of transport, while only 25 percent of the non-poor do so. The use of motorcycles is pronounced in rural areas, where 45 percent of the population that live in poor households have a motorcycle.

TABLE 2.12. **Asset Ownership by Population Group**

	Urban		Rural		Female headed		Afro-Brazilian headed		Brazil		
	Poor	Non poor	Poor	Non poor	Poor	Non poor	Poor	Non poor	Poor	Non poor	Overall
Ownership of tablet	3%	13%	1%	3%	3%	11%	2%	9%	3%	12%	**10%**
Ownership of computer/laptop	20%	57%	7%	24%	16%	52%	15%	46%	17%	54%	**43%**
Access to internet	82%	91%	49%	62%	77%	89%	72%	86%	73%	88%	**84%**
Motorcycle ownership	22%	23%	45%	43%	21%	21%	28%	27%	28%	25%	**26%**
Car ownership	24%	64%	21%	55%	18%	56%	20%	54%	24%	64%	**52%**

Source: World Bank calculations using PNAD-C 2019 data.
Notes: The ownership of tablets is calculated from the question that asks if anyone in the household connects to the internet using a tablet.

The role of transfers

The difference between poor and non-poor household income levels is significant in Brazil—though it is largest in the urban context. In urban areas, the average income of the non-poor is more than six times that of the poor. The gap is also notable (albeit smaller) in rural locations. The non-poor's average is almost five times that of the poor. Within the households headed by Afro-Brazilians, non-poor households' income is more than five times that of the poor.

Even within the non-poor population, there is inequality of income that is correlated to race. The average household income for non-poor households in which the head of household is an Afro-Brazilian is approximately 75 percent of the average income of urban non-poor households. Labor income plays a significant role in this gap. This finding is in line with the results presented earlier—that, on average, Afro-Brazilians are paid less than the rest of the population even when they have comparable characteristics.

Pensions represent the largest share in transfers received by households and they tend to reinforce the income gaps between the poor and the non-poor. The average pension per capita hovers around R$360 for most of the non-poor groups analyzed, with the notable exception of the Afro-Brazilian group (table 2.13). The average pension among non-poor households is enough to accrue in an amount that is more than nine times the average pension per capita received by underprivileged households. This substantive distinction is likely related to the nature of the work of the poor during their lives. Most of them are informal workers that do not contribute to the social security system (Neri 2006).

TABLE 2.13. **Family Income per Capita by Source in R$, 2019**

	Urban		Rural		Female headed		Afro-Brazilian headed		Brazil		
	Poor	Non poor	Poor	Non poor	Poor	Non poor	Poor	Non poor	Poor	Non poor	All
Total without Imputed Rent	289	1908	272	1331	281	1695	280	1422	285	1857	**1379**
Labor Income	210	1438	166	849	187	1202	192	1077	199	1386	**1024**
Non-labor Income	80	470	106	482	93	493	88	345	86	471	**354**
Pensions	35	352	46	398	41	374	37	270	38	356	**259**
Private Transfers	9	21	5	7	12	33	7	14	8	19	**16**
Other Non-labor Income	1	25	1	6	1	19	1	7	1	23	**16**
Public Transfers	34	25	54	45	39	29	41	33	39	27	**31**
Bolsa Família	19	2	33	6	23	3	24	3	23	2	**9**
BPC- Loans	11	13	11	24	12	16	11	17	11	14	**13**
Other Public Transfers	4	10	10	16	4	10	6	12	5	11	**9**

Source: World Bank calculations using PNAD-C 2019.
Notes: Other nonlabor income includes capital gains, and other rents. Private transfers include income from abroad, legal support payments, and donations. BPC = Benefício de Prestação Continuada.

The Programa Bolsa Família (PBF) represents the largest public transfer among the poor in Brazil. The program was designed to benefit the families that fall below certain income thresholds (R$89 and R$178, depending on family structure). In addition, the program has a rule that aims to encourage people to exit the program when they overcome the program's poverty lines. The PBF was extensively analyzed by researchers and technical professionals from different social sciences backgrounds. There is consensus in the literature that the program was successful in reaching the poor without major targeting or compliance problems (Hoffmann 2010; IPEA 2010; Soares, Ribas, and Soares 2009).

Incidence of public transfers

Fiscal policies in Brazil have a significant effect on households' income and, ultimately, on poverty and inequality. Taken together, fiscal policies reduce inequality in Brazil: the concentration curve of the distribution of "prefiscal" income plus pensions lies completely below that of households' income after direct transfers and taxes (see figure 2.5). This means that, compared with a "prefiscal" state in which the household does not pay anything to or receive anything from the government, a "postfiscal" situation that accounts for direct taxes and transfers, as well as work-related contributions, shows that the overall distribution of households' income is more equal.[36]

Indeed, the net cash position of the bottom of the income distribution improves given the fiscal policies in 2019, and that of the upper deciles is negative. The estimated net cash position for the bottom 40 percent[37]

is improved thanks to noncontributory pension programs such as Benefício de Prestação Continuada (BPC) and Bolsa Família. These sources improve the position of households in the bottom 20 percent many times over, in part because of their estimated prefiscal income of less than R$85. On the other side of the distribution, the richest quintile sees its net cash position reduced by about 20 percent due to fiscal policies, with the largest impact coming from the personal income tax (8 percent).

Looking through the objective of poverty or inequality reduction only, fiscal policies could be restructured to maximize their impact. Fiscal policies are implemented to serve a multitude of purposes. Sometimes one of the objectives is to reduce income disparities in the country and provide support to the most vulnerable. Such an objective, underlying the social protection systems in certain countries, is negatively affected by the multiplicity of programs and the high costs of implementation and targeting. Several reforms could yield improvements in welfare accompanied by even fiscal savings. The pension system and a simplification of the safety net could be a place to start.

Contributory pensions in Brazil historically contained a significant subsidy that goes largely to the better-off sections of the population (World Bank 2017). Although pensions can be treated as deferred income (or forced savings), when the system ends up providing higher benefits than the contributions, it effectively subsidizes those that are able to meet the eligibility criteria. When the criteria are typically based on formal employment and the associated minimum contributions into the system, a large segment of the bottom of the income distribution can

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[36] The analysis broadly follows the Commitment to Equity methodology or CEQ (Lustig 2018). Prefiscal income includes all labor income (including simulated 13th payments from all jobs, social security contributions, FGTS and Cota Patronal), alimony and child support, income from rents, other nonlabor income, and pensions. Deducting direct taxes, social security contributions, FGTS, and Cota Patronal and adding public transfers yields the second income concept presented here. This aggregate is close to what is considered a household's disposable income. Notably, an estimation of imputed rent is not used in the income definitions. The CEQ's concept for consumable income is not presented because the source data does not include information on payments of indirect taxes.
[37] Deciles based on prefiscal income plus pensions.

be left out. In Brazil, it is estimated that as of 2014 about 50 percent of pension subsidies were received by the top 40 percent of the income distribution, and only 4 percent of pension subsidies were received by those in the bottom 20 percent. About 20 percent of pension beneficiaries are concentrated in the sixth decile of income per capita distribution (whose threshold is just above one minimum wage) and an additional 30 percent belong to the highest income quintile. The 2019 reform is expected to reduce some of the inequality of pension subsidies but it will take time for the full effects to be felt.

The Bolsa Família program stands out because of its progressivity, as well as its marginal contribution to poverty reduction. However, it is not the program with the largest expenditures. According to World Bank simulations, BPC expenditures are 77 percent higher than PBF expenditures, and expenditures on noncontributory

pensions are close to 3.9 times those of PBF. Both programs do contribute to poverty and inequality reduction, but they appear to be less efficient than PBF in doing so (figure 2.6 and figure 2.7).

Among the working population, Abono Salarial (with expenditures equivalent to two-thirds that of PBF) does not reach the poorest workers. Using deciles based on households' labor income as reference, the concentration of Abono Salarial, uniquely available to formal workers, starts around the middle of the income distribution and benefits a large share of workers in the third and fourth quintiles of the labor income distribution. Salário Família plays a relatively minor role in the government's expenditures, yet it also benefits mostly individuals in the middle of the income distribution. In contrast, PBF is largely concentrated in the bottom of the income distribution (figure 2.8).

FIGURE 2.5. **Concentration Curves: Prefiscal Income Plus Pensions and Income after Direct Taxes and Transfers**
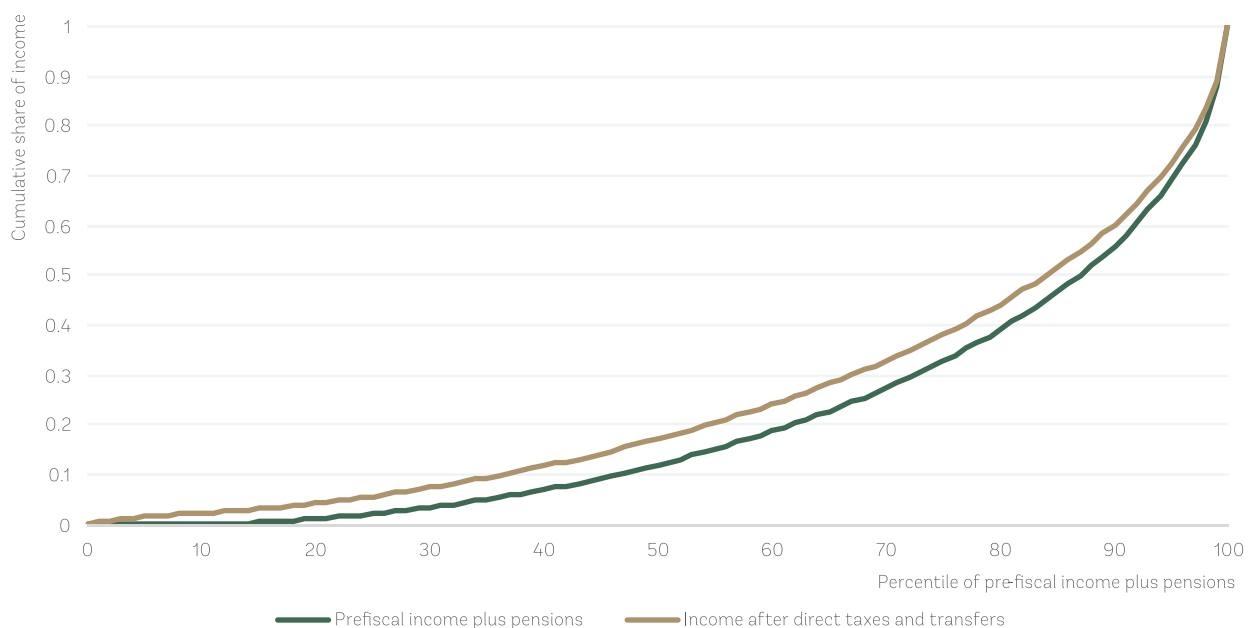
Source: World Bank estimates.

FIGURE 2.6. **Progressivity of Fiscal Policies**
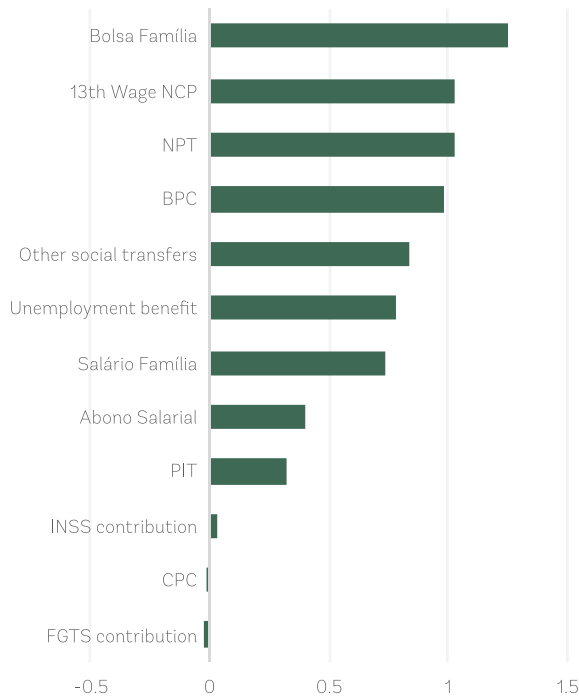
FIGURE 2.7. **Marginal Contribution to Poverty Headcount (PBF Threshold)**
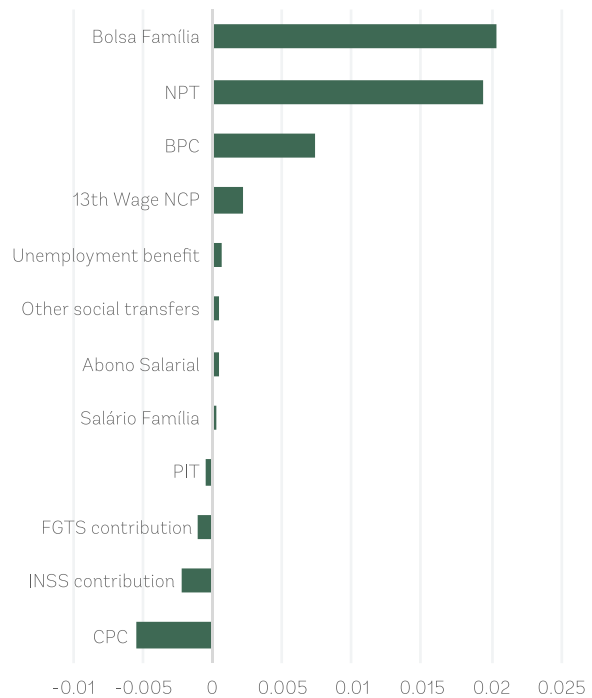
Source: World Bank estimates.
Notes: 13th Wage NCP refers to the thirteenth wage of noncontributory pension transfer. FGTS = Fundo de Garantia do Tempo de Serviço; INSS = Instituto Nacional do Seguro Social; PIT = Personal Income Tax; CPC = Cota Patronal contribution; NPT = Noncontributory pension transfers. Progressivity is based on the Kakwani index for each tax or transfers (Lustig, 2018).

FIGURE 2.8. **Share of Workers Receiving Bolsa Família, Abono Salarial, and Salário Família, by Household Labor Income Decile**
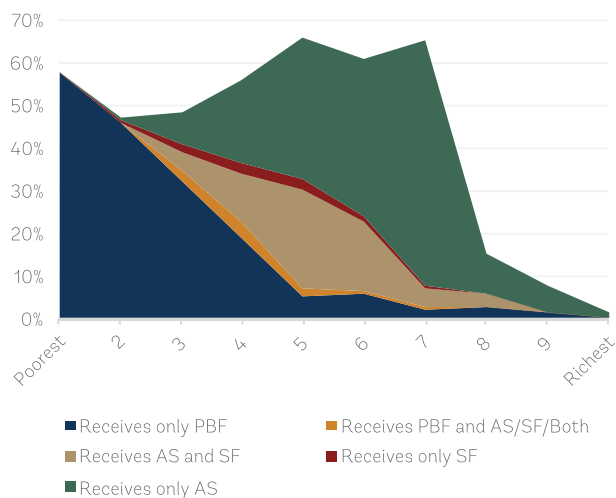
Source: World Bank estimates.
Notes: PBF = Programa Bolsa Família; AS = Abono Salarial; SF = Salário Família

Indirect taxes in Brazil are varied, levied at all three levels of the administration, and implemented in a relatively complex manner. Notwithstanding the potential harm to the productivity of the economy, the business environment, and thus the country's economic growth (Appy 2017; Oliveira 2020), indirect taxes further affect households' purchasing power. The estimated R$799.2 million collected in indirect taxes in 2018 may not be uniformly distributed across the Brazilian population and thus could be disproportionately affecting the poorest.

Data from 2017/18 suggest that the first decile contributes approximately 2 percent of total indirect taxes collected (Lara Ibarra, Rubião, and Fleury 2021). A similar percentage is paid by the second decile. Meanwhi-

le, about R$50 of every R$100 collected in indirect taxes are paid by the top 20 percent. The ninth decile contributes about 16 percent of all indirect taxes and the tenth decile contributes about 33 percent of the total tax revenue. Because relatively richer households spend more overall, it is expected that indirect taxes are concentrated in the top incomes.

The relative incidence of indirect taxes across income groups reveals that households in the bottom of the income distribution bear a larger burden than richer households. The specialized literature points out that no perfect measure exists to put the indirect taxes paid in perspective. Income measures tend to overestimate the tax burden of the poorer income deciles because poorer individuals underestimate their (habitual) income in surveys such as Consumer Expenditure Survey (POF)—currently the only source to conduct this analysis (Silveira et al. 2013; Siqueira et al. 2017). In addition, individuals in this group very often present a budgetary deficit in the survey. That is, they typically report spending more money than they earn. Thus, monetary consumption is larger than monetary income in the bottom of the income distribution and the tax burden is estimated to be very large—or overestimated (Siqueira et al. 2017). One alternative to income is to compute the tax burden as a share of monetary consumption (Siqueira et al. 2017).[38] Finally, Silveira et al. (2013) use an adjusted income measure to estimate the tax burden. The adjusted income is an income aggregate that is "topped-up" to match monetary consumption whenever a household reports budgetary deficits.

Indirect taxes represent between 23 and 45 percent of income among the poorest households. Table 2.14 shows that when using monetary income, on average, 17.9 percent of households' income is paid as indirect taxes, but significant variation exists across deciles. The first decile has the highest relative tax burden, which is approximate to 45 percent. This burden drops significantly for the second decile to just below 28 percent. The burden continues decreasing as income rises, reaching 12.7 percent for the richest decile. The decreasing pattern is found when using other income aggregates, but the gaps are much lower. Based on the adjusted monetary income, the poorest decile destines 21 percent of its income to indirect taxes, and the richest decile spends 12 percent. Using monetary consumption, these rates are 23 percent and 19 percent, respectively.

TABLE 2.14. **Tax Burden as a Share of the Different Parameters Used in the Literature**

Deciles	Monetary income	Adjusted monetary income[a]	Monetary consumption
1	45%	21%	23%
2	28%	20%	23%
3	24%	19%	23%
4	22%	18%	22%
5	22%	18%	23%
6	19%	16%	22%
7	19%	17%	22%
8	18%	16%	22%
9	17%	15%	21%
10	13%	12%	19%

Source: Lara Ibarra, Rubião, and Fleury 2021.
Notes: Deciles and income are based on monetary income per capita.
a. Income adjusted to match monetary consumption whenever the household's monetary consumption is higher.

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[38] There are two clear limitations to this approach: (a) because the richer consume a much lower fraction of their income, this is likely to provide a biased picture of the tax burden among rich households; and (b) non-monetary consumption can be argued to be an important part of the "long-term" income of households (Lara Ibarra et al. 2021).

The high complexity of the indirect tax system has brought up discussions on a possible reform. Simulations of a value added tax (VAT) reform suggest that it could be inequality reducing both horizontally and vertically. Results suggest that a reform implementing a flat 26.9 percent VAT could reduce families' expenditures[39]. Expenditures are lower because the increase in prices of some goods is more than compensated by the reduction in prices in various consumption categories. On average, expenditures per capita are estimated to be 4.3 percent lower than the previous levels for the same quantities consumed. The impact could be greater on the poorest deciles' budget (that is, larger expenditure reductions as a share of income). The reform impacts range from –10.2 percent among the poorest, to –2.5 percent in the 10th decile. Furthermore, such a reform may also be equity-enhancing in another way. The share of taxes paid by the richest households increases under a VAT system when compared with the status quo. Under the current system, the poorest decile contributes about 2.4 percent of total indirect taxes while the richest decile contributes about 33 percent (figure 2.9). After the reform, the poorest decile contribution would fall to 2.2 percent and the richest decile contribution would increase to 36.9 percent.

FIGURE 2.9. **Share of Total Indirect Taxes Paid by each Income Decile–Status Quo versus VAT Simulation**

■ Pre-reform ■ VAT (26.9%) simulation
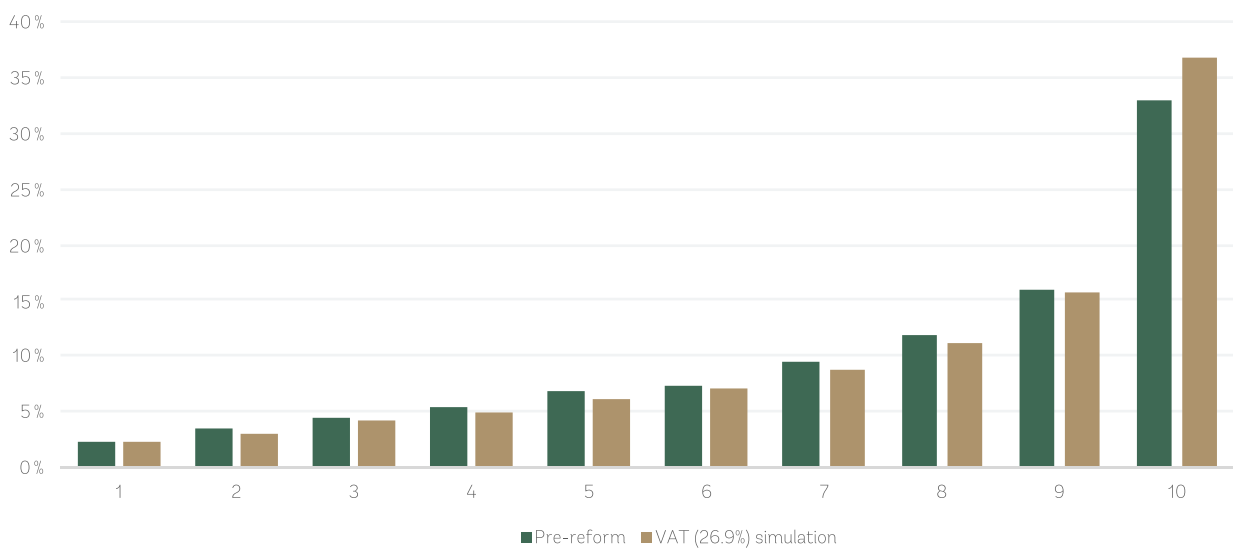
Source: Lara Ibarra, Rubião, and Fleury 2021

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[39] The results are obtained from a partial equilibrium ex-ante simulation in which no behavioral responses are available from households or firms in the face of price changes.

Analyzing households' risk to shocks: climate change

Climate change is a harsh reality across the world, and its effects will be increasingly felt by the population. The Intergovernmental Panel on Climate Change estimates that human-induced warming reached approximately 1°C above pre-industrial levels in 2017 and it estimates that human-induced warming will reach 1.5°C above pre-industrial levels between 2030 and 2052 with a high confidence level (IPCC 2021). The changes in the mean temperatures affect food production and consequently can have impacts on food security. Moreover, it has impacts on regional climate characteristics, increasing the probabilities of heavy precipitation in several regions and of drought and precipitation deficits in some regions (IPCC 2021). Altogether, the increase in the frequency of natural disasters is highly likely.

To worsen the situation, climate change costs are highly inequitable. Most of the rich countries are concentrated in relatively colder zones of the earth and will not feel the negative effects of warming as much as developing countries (such as Brazil) will (Banerjee and Duflo 2019). Within the developing country context, the poor are less equipped to cope with the reverberations of the manifestations of climate change. As discussed in this chapter, the Brazilian poor and vulnerable have relatively low levels of asset accumulation, they use assets less, and sometimes even get lower returns. Although public transfers have been a support in recent history, they do not constitute a certain source of stable income in the long run. Extreme climate events such as droughts and floods are shocks in the asset-based framework and are likely to differentially affect the household income of the less well-off.

Projected climate change impacts to food production, agricultural livelihoods, and food security in Brazil are significant national concerns. Changes in rainfall patterns and rising temperatures present serious challenges to the evolution of productivity in the agricultural sector and the country's food security (Brazil, Ministry of Science, Technology and Innovations 2020). Climate change-related phenomena may lead to up to 11 million hectares of agricultural land by 2030 to be lost could be lost decreasing agricultural production (Giannini et al. 2017). The livestock industry and fishing industry also face increased risk because of increased temperatures on land and in the ocean (World Bank Group 2021).

The effects of climate change will not be limited to the agricultural sector. The literature on understanding the impacts of climate change manifestations on poverty-related outcomes is expanding (see table 2.15), including analyses focused on Brazil. It has been documented that increases in the frequency of droughts risk displacing populations from the hinterlands to large coastal cities—depressing the economies where they lived and increasing congestion in the destinations where they relocate to (Albert, Bustos, and Ponticelli 2021). Increases in the frequency of droughts and wildfires might further adversely affect health indicators because they negatively affect human capital investments and income in the long run (Rangel and Vogl 2019; Rocha and Sant'Anna 2022; Rocha and Soares 2015). Finally, heat waves might decrease manufacturing employment as well as generate learning losses among students (Xie 2019; Goldemberg and Costa 2020).

Brazil's natural hazards affect households' capacity to generate income. In 2021 alone, Brazil suffered a series of major disasters. In January, there were the floods in the Amazon region, which harmed at least 130,000 people in the state of Acre, many of them becoming homeless.[40] For the rest of the year, Brazil dealt with drought; because of the scarcity of rains that year, in September, the water tanks that feed hydroelectric plants in the center-west and the southeast were under 20 percent of their capacity-level. It was the lowest precipitation levels in the past 90 years, also causing the use of polluting thermic power plants and a rise in electricity prices (Roubicek 2021). The same drought contributed to the worst fires in the Pantanal and Amazon since 2020, causing damage to these precious biomes. In December, the south of Bahia and the north of Minas Gerais endured the worst storm and flood in the past 35 years; roads were blocked, which made it hard, if not impossible, for more than 200,000 people to gain access to basic goods (Pitombo and Anizelli 2021).

TABLE 2.15. **Documented Effects of Climate Change Manifestations on Determinants of Poverty in Brazil**

| | **Climate Change Manifestation** | | |
	Temperature	Rainfall	Natural Disasters
Productivity	**Negative effects** of extremely hot days on agricultural and labor productivity in other settings. Some (albeit limited) evidence of these mechanisms for Brazil.	**Negative effects** of droughts on agricultural productivity both outside and inside Brazil.	No studies on this relationship were found.
Labor market outcomes	**Mixed evidence** on workers' ability to ensure negative shocks by migrating to other sectors and regions	**Negative effects** of droughts on wages found both outside and inside Brazil. Strong evidence that workers from regions affected by droughts in Brazil emigrate to other regions, weakly reducing the wages in destinations.	No studies on this relationship were found.
Health	**Negative effects** of exposure to extremely hot days on health driven both by the direct heat stress and the indirect effect of lower income. Air conditioning mitigates the effects of heat stress completely.	**Negative effects** of droughts on infant health driven by malnutrition found in other settings. Negative effects of droughts on infant health driven by lack of water access and completely mitigated by sanitation infrastructure found in Brazil.	Strong evidence that wildfires negatively affect infant health in other settings. Evidence of the health effects of agriculture fires in Brazil consistent with the findings from other countries. Very few studies on the effects of floods both in Brazil and elsewhere. Literature on cyclones not reviewed because not relevant for Brazil.
Education	**Negative effects** of exposure to extremely hot days on student performance driven both by the direct heat stress and the indirect effect of lower income. Air conditioning mitigates the effects of heat stress completely.	**Positive effects** of droughts experienced at ages older than 5 years on educational outcomes. **Negative effects** of droughts experienced in the womb or at ages birth to 2 years on educational outcomes experienced both inside and outside Brazil.	No studies on this relationship were found.

Source: Bragança (2022).

[40] Brasil, Janine and Iryá Rodrigues, 2021 "Acre já tem quase 130 mil pessoas atingidas pela cheia de rios na capital e no interior do estado" https://g1.globo.com/ac/acre/noticia/2021/02/20/acre-ja-tem-quase-130-mil-pessoas-atingidas-pela-cheia-de-rios-na-capital-e-no-interior-do-estado.ghtml (accessed December 22, 2021).

BOX 2.2. Analyzing the Overlap between Socioeconomic Vulnerability and Climate Change Vulnerability

An analysis at the municipality level for Brazil was performed to study the distribution of socioeconomic vulnerability and climate change-related vulnerability. By doing this, we expect to add to the monetary and non-monetary poverty-based analytics described so far in this report and help broaden the field of view when finding priority areas for policy interventions.

To find the vulnerable municipalities, we produce one index for each dimension of vulnerability. The starting point is the compilation of about 100 municipal characteristics from different administrative sources. After running a control for quality, availability for recent years, or redundancy a smaller list of characteristics was used to run the analysis (figure B2.2.1). The socioeconomic index was made on the basis of wealth, income, health, and education features. A principal components analysis was run, the index being a standardized measure of the first principal component.

The environmental capacities index follows closely the Índice de Risco de Desastres por Capacidades (iRDC) developed by CEPED/UFSC and World Bank (2020). From the iRDC, our index uses the danger and exposure components only to capture the municipal-level variation of climatological, hydrological, and meteorological hazards. After taking the geometric average of these components, we further adjust it by the iRDC's capacities index. The reason for this last adjustment being that the population in two equally vulnerable municipalities should be better prepared for and be able to cope with the consequences of a disaster if the municipality is better prepared.

A municipality is considered vulnerable if it falls below minus 1 standard deviation in each corresponding index distribution.

FIGURE B2.2.1 **The Methodology of the Vulnerability Indexes**

| INDEX | SOURCE | VARIABLE |
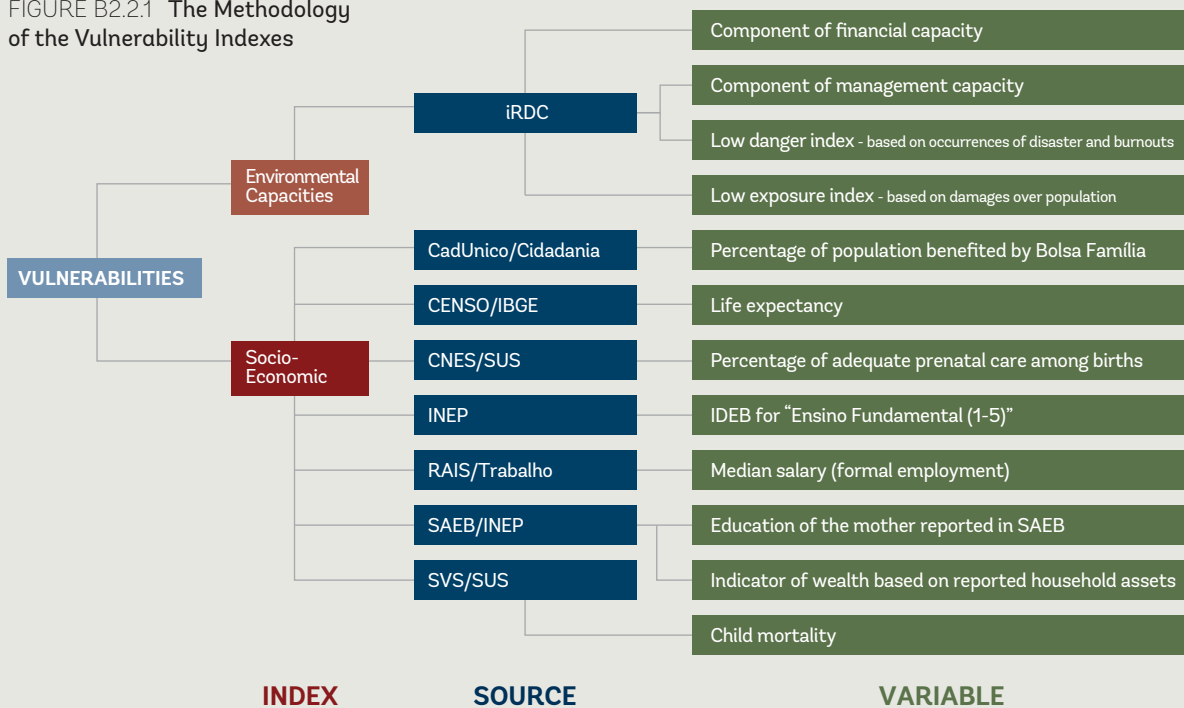
Source: World Bank compilation.
Notes: To build the Environmental Capacity index, we obtain the geometric average ($\sqrt{[(100 - D)(100 - E)]} \times \frac{\log \sqrt{C_F C_m}}{\log \overline{C_{FM}}}$) of the components. Where C_F refers to Component of Financial Capacity and C_m refers to Component of Management Capacity. $\overline{C_{FM}}$ is the average of the geometric average among municipalities. D is a danger indicator based on the frequency of disasters and fires, and E is an exposure indicator built upon absolute and relative damage measures.

Bringing vulnerability to climate change to the forefront of public policy debate is crucial. Though the north-south divide of socioeconomic disparities has been long documented, the potential overlap to vulnerabilities regarding climate change is still understudied. Moreover, the large existing gaps within Brazilian states may come into play when identifying relevant policy actions to address the economic effects of climate change-related vulnerabilities at the local level. Thus, a deep dive that goes beyond state-level disparities is warranted.

Although the socioeconomic index replicates the well-known north-south contrast that could be seen in the map of poverty and welfare-related correlations (map 2.1), environmental vulnerabilities are dispersed in different regions of the country. Environmental vulnerabilities are mostly defined by the danger and exposure of climate change-related manifestations, which are, respectively, constituted by the occurrence of natural disasters and fires, and by the damages and losses caused by these disasters (see Box 2.2). The alternance between heavy precipitations causing floods and long periods of low precipitation that compromise water supply is not an exclusivity of the poorest regions of the country, being also frequently noted in the large municipalities located in the southeast and the south (figure 2.10). Consequently, having the greatest economy and one of the lowest poverty rates of the country did not prevent the municipality of São Paulo from being flagged as environmentally vulnerable. Certainly, the most worrying scenario is highlighted for municipalities that are both socioeconomically and environmentally vulnerable. These municipalities are mostly located in regions of the semiarid northeast and along the Great Amazon Basin in the north.

The regions marked by the environmental vulnerability highlight the fragilities of the

FIGURE 2.10. Environmental Capacities Index and Socioeconomic Index, by Brazilian Municipality
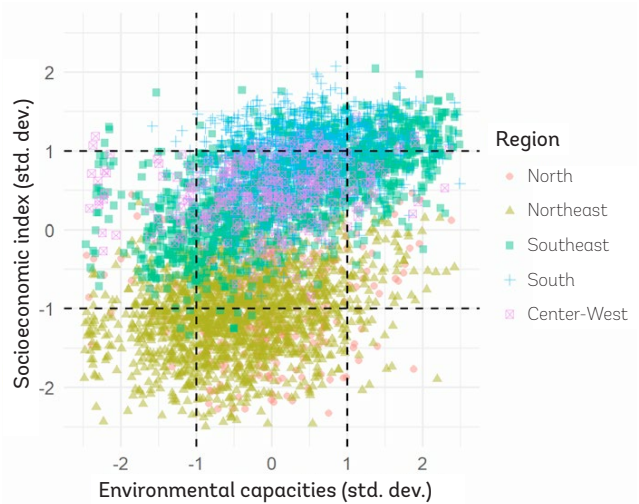
Source: World Bank calculations.

Brazilian biomes. The semiarid climate in the caatinga with its underlying droughts characterizes the region that goes from the north of Minas Gerais to the upper boundaries of the northeast (IBGE 2022). The biggest rainforest in the world, the Amazon, is in the tropical zone that starts in the northern Mato Grosso and spreads across the whole north region. Moving toward the south, the Mato Grosso do Sul state is very distant from the coast, where the dry season is severe and consequently favorable to fires that punish the Pantanal and Cerrado vegetations (map 2.3). The south region, by its turn, is the spot where the hot climate of low latitudes transitions to the temperate climate of mid-latitudes, and consequently has the biggest amplitudes in terms of annual temperatures (MIN 2014). That facilitates the shocks between hot and humid masses of air coming from the north and the dry and cold masses coming from the south, generating atmospheric instability propitious to the formation of storms and even cyclones affecting zones across Paraná, Santa Catarina, and Rio Grande do Sul. [41]

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[41] Regional maps are presented in Annex A.

MAP 2.3. **Vulnerability Levels of Brazilian Municipalities According to the Socioeconomic and Environmental Capacities Indexes**
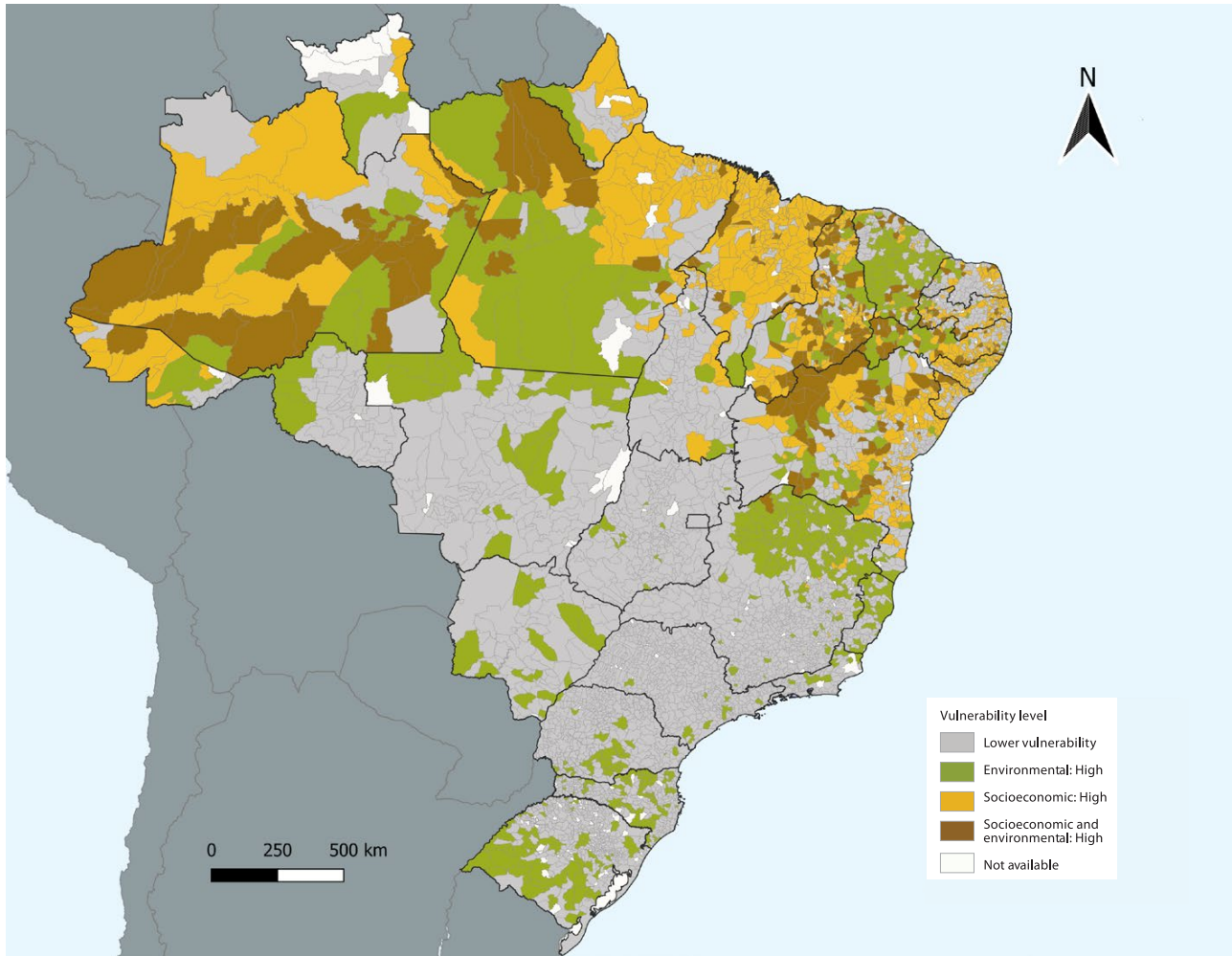
Source: World Bank estimates.

Socioeconomically vulnerable municipalities have lower health and education outcomes and weaker economic outcomes.

Environmentally vulnerable municipalities have suffered more natural disasters, fires, and more damages and losses registered because of these events. In general, vulnerable municipalities display lagging indicators compared with the rest of the country (figure 2.11). The socioeconomically vulnerable municipalities have lower life expectancies, higher child mortality, a lower IDEB (basic education development index), and more people receiving Bolsa Famí-

lia. Meanwhile, natural disasters are defined by the occurrence of landslides, erosion, storms (including hailstorms, lightning, gale force winds), floods, and droughts. The environmental vulnerability index is corrected by a capacities component that has a minor weight in the results but still influences it. The profile of the environmentally vulnerable municipalities reveals that they have lower proportions of their populations covered with improved sanitation, less of them have managerial capacities to deal with their watersheds, and less of them manage recyclable trash collection.

There are a few insurance programs designed to protect Brazilian producers.[42] The Premium Subsidy Program (PSR) is a public-private partnership program that became effective in 2006. Administered by the Ministry of Agriculture, Livestock and Food Supply, the federal government subsidizes the cost of acquisition of rural insurance policy for producers while encouraging them to insure their crops. The Agricultural Activity Guarantee Program (Proagro) was created in 1973. An insurance subsidized by the federal government, it protects farmers from risks associated with weather and climate-related occurrences, as well as pests and blight, though it focuses on reimbursements of production costs. Garantia-Safra, created in 2002, is aimed at farmers in the Brazilian semiarid region and is a conditional benefit to promote a minimum level of security for their beneficiaries. Finally, the Minimum Price Guarantee Policy (PGPM) is an insurance policy in which the federal government invests in supporting, maintaining, and guaranteeing minimum prices for producers and cooperatives. PGPM mechanisms include direct purchasing, equalization of prices, and lines of credit for product storage. The program covers very high changes in prices.

The support to farmers, especially those in the bottom of the income distribution, could be improved, however. For instance, while agricultural credit at preferential interest rates represents a significant share of agricultural support in Brazil, the National Rural Credit System does not explicitly target well-defined objectives. The regulations and procedures still appear to be an obstacle for rural borrowers (OECD 2021). Brazil's insurance market is highly concentrated, with few companies operating and one with a significant market share. Increasing the number of companies in the market will reduce market concentration and provide broader and diversified risk-management options for farmers. Furthermore, the role of private insurers should be reinforced, and the reinsurance options should be expanded and developed (Souza and Assunção 2020). According to Loyola et al. (2016), the concentration of the agricultural insurance market in the southern region results in a challenge to create a portfolio that promotes risk dilution geographically with different cultures. In regions with a high incidence of poverty, holistic approaches are needed that promote subsidized insurance and interlink complementary programs with the same poor and vulnerable target groups.

FIGURE 2.11. **Distribution of Selected Characteristics by Position in Vulnerability Index**

a. Environmental profiles

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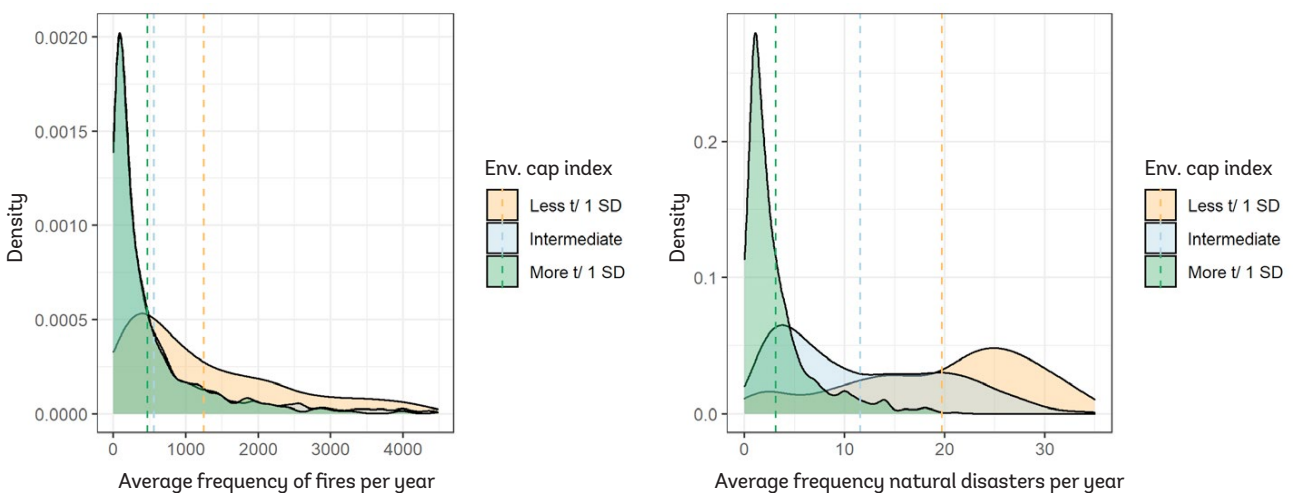
[42] See a thorough review in Souza and Assunção (2020).

b. Socioeconomic profiles
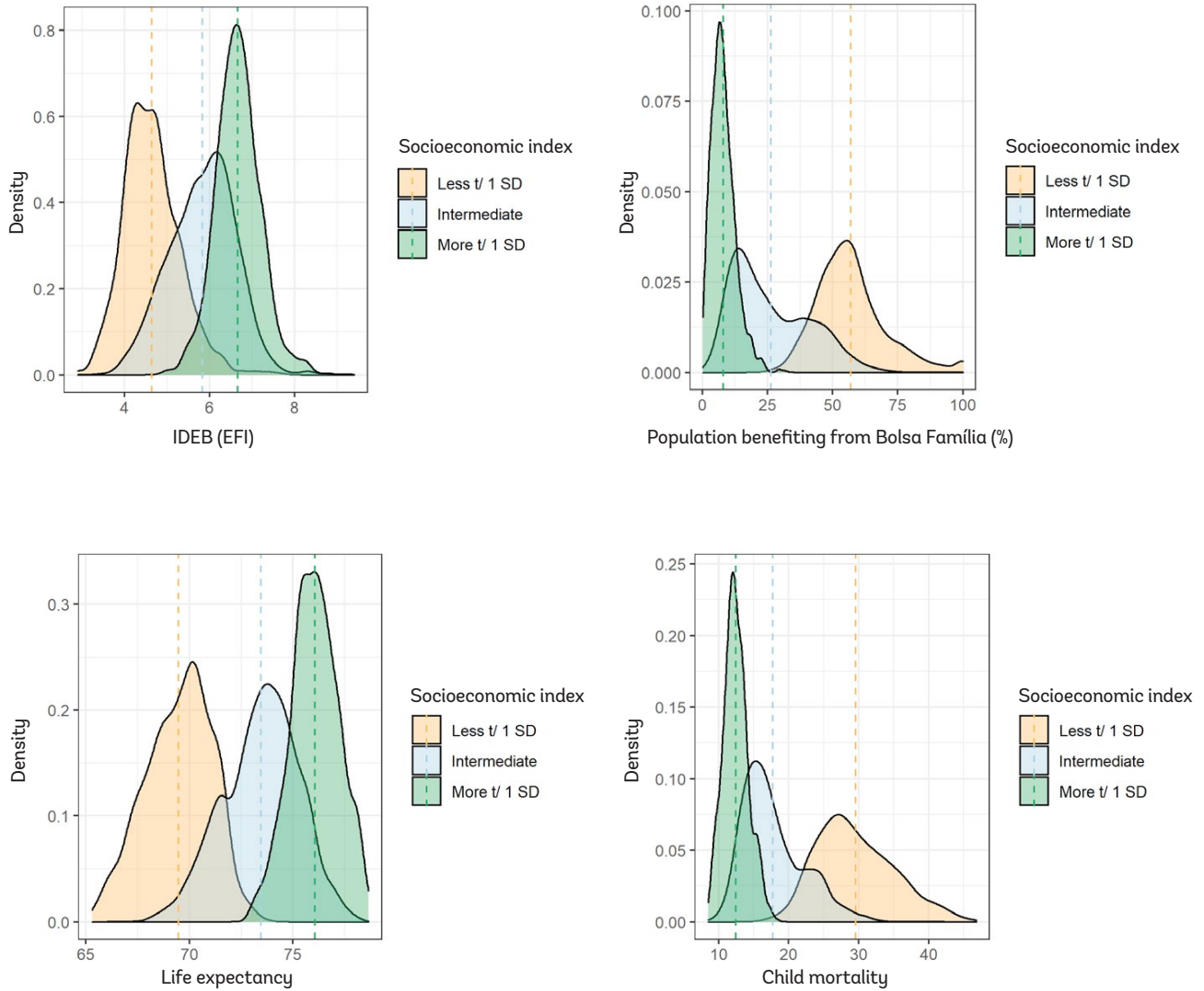
Source: World Bank estimates
Notes: EC = Environmental Capacities; SD = Standard deviation

The harm materially provoked by the elements of the nature of disasters is influenced by anthropic pressure. We do not need to limit ourselves to look at the global warming and indirect causation to foresee that. For example, houses built on declivity banks and the impermeabilization of the soils as a result of concrete-made buildings and roads in urban centers are features directly affecting landslides and floods, respectively. It is not unsurprising thus, that we can see some of the most populous cities in the country appearing among the environmentally vulnerable.

Of the municipalities with populations greater than 250,000, 22 are environmentally vulnerable, including the biggest metropolis in South America. São Paulo, along with its 12.3 million inhabitants (within the munici-

pality's limits) is considered vulnerable (figure 2.12). Other state capitals located in different regions fall in the vulnerable category, too: Manaus-AM (2.2 million), Maceió-AL (1 million), Campo Grande-MS (906,000), Cuiabá-MT (617,000), Porto Velho-RO (540,000), and Rio Branco-AC (413,000). Taken together, about 45.4 million Brazilians, or approximately 21 percent of the population, can be classified as residents of municipalities under high environmental risk. In contrast, there are only eight municipalities with more than 100,000 people among the socioeconomically vulnerable, the most populated being Caxias-MA (165,000). Bearing in mind that the indexes reflect the relative position of the municipalities' averages in comparison with others, it is understandable why it is hard to find the municipalities having the largest populations and economies among the socioeconomically vulnerable. Nonetheless, there are still 21.9 million people (about 10 percent of the population) living in municipalities with high socioeconomic vulnerability.

The analysis of the vulnerability maps evidences another fragility in the north, and it sheds light on the vulnerable face of the richest areas. Two clear messages should be integrated into the policy dialogue in the fight against poverty in Brazil. First, the evidence highlights the additional challenge brought by climate change that is faced by the populations in the northern regions of the country beyond the socioeconomic dimensions that were profiled at the beginning of this chapter. Second, a separate urgent need must be addressed by the biggest and richest cities of Brazil. Notwithstanding the relatively high socioeconomic indicator levels and lower poverty rates in general in big cities, small shares of large numbers of people still result in large absolute numbers of people. This is the picture for the large urban centers under environmental risk, where a mass of poor people is likely to reside under the worst dwelling conditions. Houses of poor people in the flood zones of the ri-

FIGURE 2.12. **Brazilian Municipalities according to the Socioeconomic Index and Environmental Capacity Index**
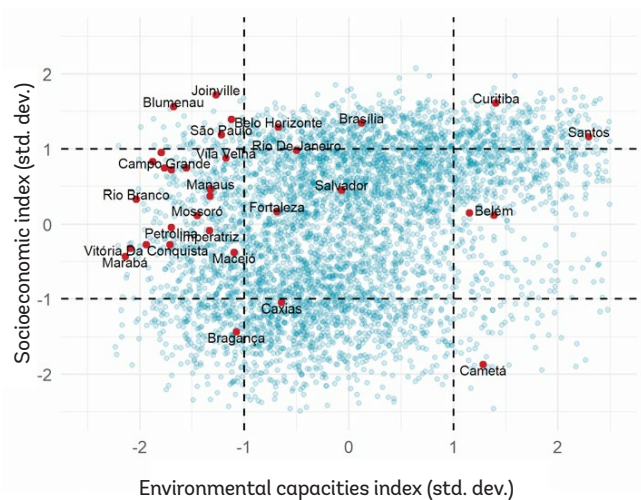
Source: World Bank estimates.
Notes: Municipalities with populations greater than 250,000 are highlighted in red.

vers or on slippery banks are a common piece of the landscape of Brazil's greatest cities. Moreover, these households lack the means of and access to basic urban services to prevent incidents. The case of São Paulo-SP is enlightening: the municipality generated 10.3 percent of the country's GDP in 2019, it has the greatest population, it is 543rd in life expectancy (76.3) and 4,592nd in Bolsa Família recipients (8.6 percent). Still, it has about 1.7 million living with less than one-half the minimum wage and 296,000 earning less than R$178 per month. It is third in overall occurrence of disasters, first in hydrological disasters, 428th in meteorological disasters, and 279th in dangers caused by disasters (table 2.16). Regardless of having strong and financial capacities, the municipality still struggles to address the needs of a huge amount of people living in the plains of the Pinheiros and Tietê rivers, who are often alerted of both the risk of rains and the risk of water shortages in the Cantareira water system.

TABLE 2.16. **Ranking of Selected Variables for Some of the Biggest Economies and Populations of Brazil**

Municipality	GDP	Pop.	GDP per capita	Disasters	Climatic disasters	Hydrologic disasters	Meteo-rologic disasters	Fires	Damages
São Paulo-SP	1	1	179	3	3279	1	428	1067	279
Rio de Janeiro-RJ	2	2	253	2553	3279	553	1703	727	12
Brasília-DF	3	3	78	2901	2293	4203	428	506	2706
Salvador-BA	9	4	1864	1777	2094	371	1023	3051	16
Fortaleza-CE	10	5	1614	2901	2094	1799	1703	3186	70
Belo Horizonte-MG	4	6	733	248	2646	48	1023	2426	41
Manaus-AM	8	7	781	1311	2646	130	1023	761	8
Curitiba-PR	5	8	416	2044	3279	447	428	3620	3531
Belém-PA	23	11	1930	1777	2293	1058	1023	3157	2877
Maceió-AL	38	17	1866	2138	3279	371	1703	1269	4
Campo Grande-MS	29	19	984	7	1722	25	21	529	34
Joinville-SC	28	36	331	39	3279	14	81	3115	5
Santos-SP	35	55	251	2553	3279	553	1703	4196	3814
Blumenau-SC	58	74	371	573	3279	28	1023	3808	3

Source: World Bank compilation using the Índice de Risco de Desastres por Capacidades (IRDC) dataset.

In urban areas, and compared overall with Latin America, Brazil's average penetration rates of insurance products are strong but they are still much lower than those in developed economies. Given these low penetration rates and the recent economic and regulatory developments, private insurers still see great potential for a continued expansion of the non-life insurance market in the country (World Bank 2014). In that context, one possible solution to increase the insurance penetration among the strongly exposed poor population is a flood and homeowner microinsurance scheme.[43] A classical system covering fire, explosion, and lightning has been shown, in theory, to offer a market potential of about 42 million homes (Swiss Reinsurance Company 2011).

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[43] The risk to natural disasters is one risk in a long list of challenges that affect welfare among the urban poor. In Rio de Janeiro, Fahlberg et al. (2020) document that floods, severe illness, and violent police invasions are chronic shocks among residents of favelas. The current support from the government must be complemented by coping strategies that include varying levels of formal engagement in the economy and addressing the needs of the individual through kinship and networks in the neighborhood.

Linking the Asset Framework to an Analysis of Multidimensional Poverty

Until now, the report has presented the gaps and disparities in access to assets separately. However, households' income generating capacity is the outcome of a multidimensional equilibrium. Households' initial levels of assets can be determinant to their ability to move into a stronger welfare position or, by never being able to cross a critical threshold to be stuck into "poverty traps" (Carter and Barret 2006). Through the examination of the relationships between material assets, general human capacities and income, some mechanisms that are likely impeding families to move out of monetary poverty can be highlighted (Barret, Carter and Chavas, 2019).

Understanding whether households cope with shocks by lowering consumption or asset depletion is crucial for policy. In the aftermath of a shock to households' income, households may choose to sell their productive assets (or deplete their savings) or reduce their consumption and protect the assets they own. The latter phenomenon is called "asset smoothing" in Carter and Lybbert (2012). Nonetheless, when households reduce the consumption of nutritious food, educational or health services, the negative effects can be long-term and ultimately lead to an intergenerational slow accumulation of productive assets. In these cases, timely financial support from policies has large potential positive impacts on households' possibilities to escape poverty.

The non-monetary dimensions of poverty can be a good proxy to identify persistent and chronic poverty. Low access to basic services, poor-quality of dwellings, low accumulation of

human capital are all readily available indicators that can help explain the lack of households' ability to consistently stay out of poverty. Following Bolch et al. (2022), a taxonomy of Brazilian households can be created to identify households who have a higher likelihood of being in poverty and/or have a high risk of falling back into poverty even if they have managed to have a boost to their income and being, perhaps temporarily, out of monetary poverty.[44] In short, chronic poor households are those that are both monetary poor and who are below an acceptable threshold in non-monetary indicators (captured by a multidimensional poverty index).[45] Structural poor are those who are not monetary poor, but are non-monetary (or multidimensional) poor. Finally, the transient poor are those who are monetary poor, but are not considered multidimensional poor (see figure 2.13).

FIGURE 2.13. **Population Groups Based on Monetary and Non-Monetary Indicators**
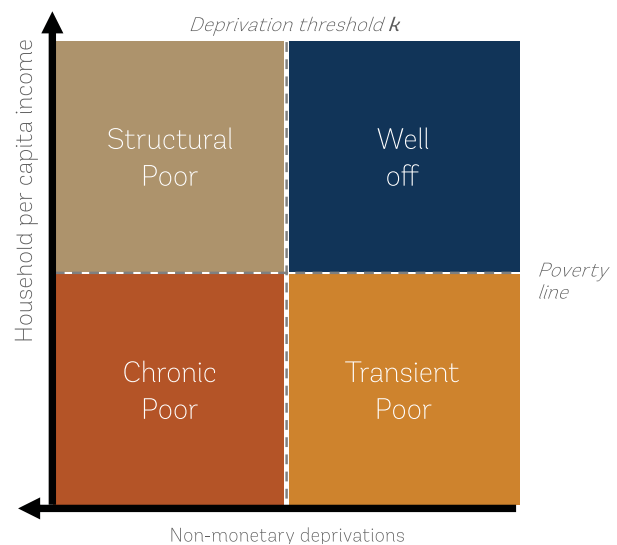
Source: Bolch et al. (2022).

BOX 2.3. Analysis of Chronic Poverty Using a Multidimensional Poverty Index

Poverty rates are typically based on (annual) income or consumption measures and provide a snapshot of deprivation in the country in one point in time. However, policies that seek to eradicate poverty need to address not only temporary dips in households' welfare levels, but eliminate the type of poverty that is persistent over time. There is a long-standing literature that aims at estimating chronic poverty but they largely rely on the availability of panel data (Bolch et al. 2022). To overcome this limitation, Bolch et al. (2022) propose a method that relies on both monetary and non-monetary indicators (such as access to basic services, or the household head having a "good" job) to identify the chronic poor using only cross-sectional data. Data from Chile, Mexico, and Peru confirm the reliability of this approach.

To explore how a multidimensional poverty approach would help identify the chronic poor in Brazil, we apply a similar methodology as Bolch et al. (2022) to pursue two objectives. First, to show the changes in chronic poverty over time. A second objective is to explore in depth persistent poverty in 2019.

To study the non-monetary dimension of poverty in the previous decade we use the PNAD 2012 and PNADC 2019 surveys and proceed as follows. First, we use the following dimensions to identify non-monetary poverty: i) overcrowding (if household has 2.5 or more people per bedroom), ii) privation of basic services (if household either does not have access to water through the network or a 'running water' source; is not connected to the sewage network or has a septic tank; does not have electricity from network, generator or solar panel; or uses coal/firewood for cooking); iii) privation of quality of dwelling (low quality of walls or roof); and economic outlook because iv) the head's educational level is less than elementary education; or v) her job does not provide sick leave (as a proxy for formality). A household is multidimensional poor if it is deprived in at least 2 dimensions.

For both approaches, the multidimensional poverty is combined with income poverty status to create the poverty classifications à la Bolch et al. (2022) for the Brazilian case.

Between 2012 and 2019, non-monetary poverty was reduced. Still, 20 percent of the Brazilian population was chronically poor and another 15 percent was structurally poor in 2019. This chapter documented that there were only small movements in monetary poverty in the 2012—2019 period. Meanwhile, the multidimensional approach suggests that some non-monetary dimensions of poverty showed improvements (figure 2.14). Mostly led by the decrease in the share of household heads with less than elementary education and the share of households without improved sanitation[46] the share of the chronic poor in the Brazilian population decreased (2.7 percentage points), as did the share of the structurally poor (6.8 percentage points). These led to increases in the shares of the well-off (7.6 percentage points), and to a lower extent in the transient poor (1.8 percentage points).

The profile of the chronic poor changed little in 2012—2019, confirming the long-term deprivation of certain demographic groups. The share of Afro-Brazilians among the chronic poor went up between 2012—2019 reaching 74.8 percent. More than a third of this group are less than 15 years old and close to half live in the northeast region. In contrast, only 2.5 percent of the chronic poor are over 65 years old and 6.3 percent live in the southeast region (table 2.17).

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[46] The share of the population with a head with less than elementary education went down from 49.8 percent to 39.2 percent. The share of households without a connection to the sewage network or a septic tank decreased from 20.9 percent to 12.9 percent.

FIGURE 2.14. **Population Groups based on Monetary and Multidimensional Poverty Status**

a. 2012

b. 2019
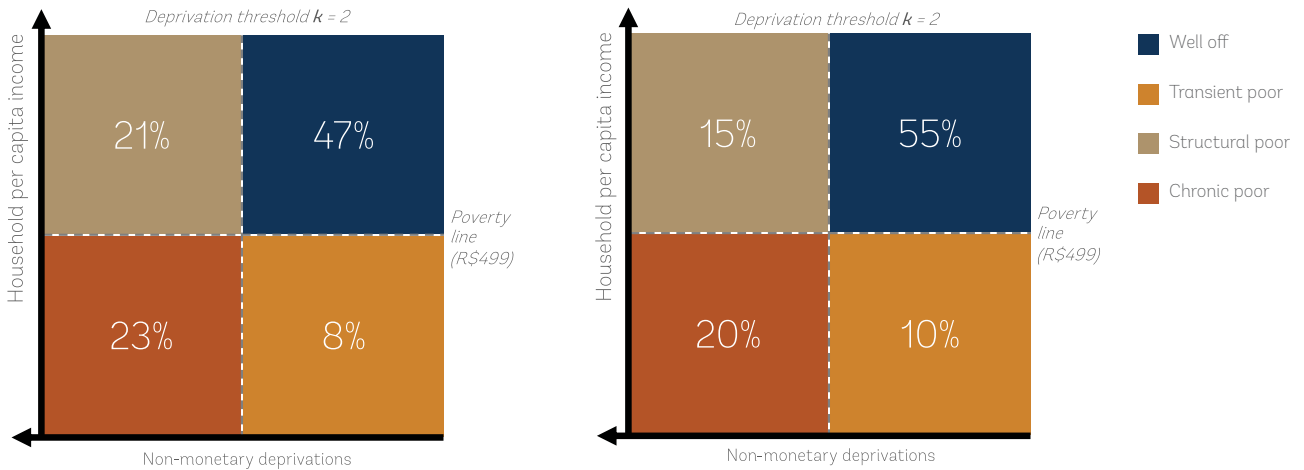
Source: World Bank estimates.

TABLE 2.17. **Demographic Characteristics Among the Chronic Poor, 2012 and 2019**

		2012	2019
Race	White	27.4	24.2
	Afro-Brazilians	71.7	74.8
	Indigenous	0.6	0.7
	Others	0.2	0.4
Region	North	14.3	16.1
	Northeast	48.9	47.6
	Southeast	24.3	25.3
	South	7.2	6.3
	Center-West	5.4	4.8
Age group	0-14	36.7	34.1
	15-24	18.5	19.6
	25-40	22.3	23.6
	41-64	19.3	20.1
	65+	3.2	2.5

Source: World Bank estimates.

Chronic poverty in 2019 is underlined by low-quality jobs and low-educational attainment among heads, and a lack of living space in the dwellings. This report has shown how informality is a strong predictor of monetary poverty in Brazil. It also plays a key role in defining chronic poverty: 87 percent of the chronic poor belong to a family with a head who does not have sick leave. In Brazil, this share is only 43 percent. Almost three quarters (73 percent) of the chronic poor reside in a home where the head did not complete elementary education – compared to 39 percent in the overall population. Over half (53 percent) of the chronic poor live in an overcrowded household, while only one in five Brazilians do, on average. Deprived of at least one basic service (i.e. having potable water to drink, adequate electricity, sanitation and cooking conditions) affects 37 percent of the chronic poor households. The corresponding share for the average Brazilian is 15 percent.

There are strong correlations between the non-monetary poverty dimensions and monetary poverty. A regression of the non-monetary indicators over monetary poverty show statistically significant correlations for all the variables. Even when included controls for demographic characteristics (i.e., household size and structure, household head characteristics), location, economic sector and type of job (i.e., public servant,

CLT formal employee, own account or unemployed), the statistical significance persists. The relative magnitude of the coefficients reinforces the patterns found previously: the job quality and human capital attainment of the household head are the strongest predictors of monetary poverty.

TABLE 2.18. **Logit Regression Results on Correlates of Monetary Poverty**

Dependent variable: Monetary Poor Status		
	No controls [1]	All controls [2]
Overcrowding	1.538*** (0.001)	0.588*** (0.001)
Deprivation of basic services	0.850*** (0.001)	0.308*** (0.001)
Deprivation of quality materials in dwelling	0.384*** (0.002)	0.273*** (0.002)
Household head did not complete primary	0.759*** (0.001)	0.894*** (0.001)
Household head does not have sick leave	1.884*** (0.001)	1.711*** (0.001)
Observations	150,667	150,663

Source: World Bank estimates using PNADC-2019 data.
Notes: Regression ran at the household level. Controls include the number of household members, an indicator of children living in the household, age, age squared, dummies for being male, Afro-Brazilian (black or pardo), and residing in urban area, indicators of the state where the household is located, indicators of the economic sector in which the head of household works (17 levels following ISIC 1 digit plus one category for those not working), indicators of the type of employment that the head of household has (CLT private-sector employee, non-CLT private-sector employee, CLT domestic worker, informal domestic worker, CLT public-sector employee, temporary public-sector employee, military and public servants, employers, own account worker, non-paid working with family, not working). Weighted observations are equivalent to 70,645,803 (column 1) and 70,643,300 (column 2).

The north and northeast regions show the highest levels of non-monetary deprivations. By having the highest rates of monetary poverty, it was not unexpected that the north and the northeast regions would show the highest levels of deprivation in the different non-monetary

dimensions. However, there is heterogeneity in the most important gaps across regions. Overcrowding is a problem for 22 percent of the people living in the northeast and for about 35 percent in the north. The deprivation of basic services is a reality for 31 percent of the people in north region and for 27 percent of households in the northeast. The gaps in the educational dimension are inverted: while 51 percent of the households' heads did not complete primary education in the northeast, this share is 45 percent in the southeast. The relatively rich southeast has a noticeable 38 percent share of people without a sick leave[47], though lower than 58 percent in the north. Put together, these results suggest that 38 and 36 percent of the populations of the north and the northeast are chronic poor, respectively.

FIGURE 2.15. **Share of Population Suffering from Non-monetary Deprivation, by Region**
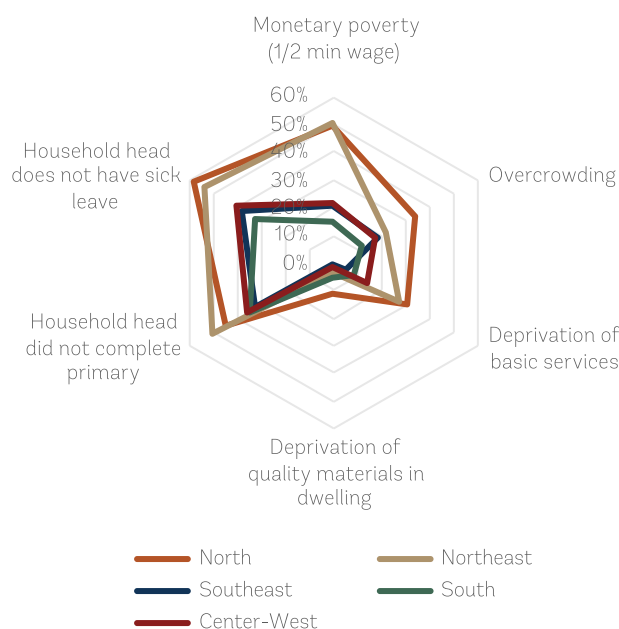
Source: World Bank estimates.

Low levels in access to technology and human capital accumulation are a common denominator across households in any type of poverty. While mobile phone technology is widespread, access to internet is markedly lower among the chronic poor (68.2 percent) and the structural poor (74.1 percent), when compared to the overall population (84.4 percent). Ownership rates of computers or tablets are lower across all poverty groups than for the average Brazilian households. Only about 1 out of 8 chronic poor households have a computer at home. Lower access to technology is bound to have had a deterrent effect on the poor households' ability to adapt to the virtual setting required by the COVID-19 pandemic. Moreover, the human capital required to operate digital tools effectively as, say, a means to generate income, may also not be readily available within the chronic and structural poor. The share of adults that completed the secondary education-level monotonically increases towards the better-off groups: only 22.6 percent of chronic poor adults completed at least high school education, while about a third of adults among the structural poor did. Other asset ownership indicators suggest a somewhat similar profile between the structural poor and the transient poor. The chronically poor are consistently the most underperforming group.

The chronically poor are notably overrepresented in rural areas. As noted in previous sections, Brazil is a largely urbanized country with about 86 percent of its population residing in urban areas, and 14 percent in rural areas. The monetary poor are overrepresented in rural areas, with about a quarter of them residing in rural zones. The share of chronic poor population living in rural areas is even higher: 32 percent. This group's combined gaps in access to technology, their higher likelihood to work in agriculture, and the lowest levels of land title ownership make the chronically poor especially vulnerable.

TABLE 2.19. **Asset Accumulation by Multidimensional Poverty Status**

	Chronic poor	Structural poor	Transient poor	Well-off	Overall
Washing machine	32.7%	57.5%	51.1%	81.9%	66.5%
Mobile phone	89.7%	92.8%	96.7%	98.1%	95.7%
Computer or tablet	12.9%	29.0%	26.3%	61.1%	44.6%
Internet	68.2%	74.1%	83.1%	91.9%	84.4%
Motorcycle	28.8%	28.3%	26.9%	25.4%	26.5%
Car	19.3%	45.8%	30.8%	67.3%	51.7%
Own dwelling title	46.9%	58.1%	55.6%	66.9%	60.7%
Teenagers attend school	84.9%	85.5%	90.1%	91.5%	88.3%
Adults completed high-school	22.6%	32.7%	50.6%	67.9%	51.8%
Urban population	68.0%	78.0%	83.0%	94.0%	86.0%
Population	42,507,400	21,921,719	28,008,298	123,768,523	209,419,199

Source: World Bank calculations using PNADC-2019.
Notes: Teenagers attend school = share of 15–17-year-old individuals currently attending school; Adult completed high-school = share of population 19 years old or more who have completed high school

An Asset-based Framework for the Indigenous People and Quilombolas

Indigenous people (IP) are the descendants of the natives who were in Brazil before the arrival of the Europeans in 1500. In 2010, the most recent population estimate, there were fewer than 900,000 IP in Brazil, with about 58 percent living on indigenous lands (most in rural areas—95 percent) and 42 percent living outside indigenous lands (most in urban areas—78.7 percent). The north region was home to more than one-third (37.4 percent) of the indigenous population of Brazil, with the state of Amazonas having the largest concentration in the country (168,680 individuals). According to the IBGE,[48] IP resided in 7,103 indigenous locations distributed across 827 Brazilian municipalities, from which 632 are officially registered as indigenous lands.

Quilombos, or quilombola communities, were the villages mainly settled by black people escaping from slavery during the Brazilian colonial period. Even after the legal end of slavery in 1888, these communities resisted with their own rules and social norms that worked apart from the central government. Since the federal constitution in 1988, ownership of quilombos lands was legally granted to the quilombolas,[49] those people that remain in the traditional communities. As of 2019, the IBGE estimates there were 5,972 quilombola locations, spread over 1,672 municipalities.[50]

Indigenous people and the quilombolas are usually underrepresented in household surveys conducted in Brazil and thus their known vulnerable status make this statistical blind spot an important limitation for policy making and poverty eradication in Brazil (box 2.4). In the absence of a recent population census, administrative data can provide hints as to their status and can be the most representative up-to-date piece of information for these communities. The "Cadastro Único" (CadUnico) keeps records of the families that have registered to apply for any of the Brazilian social programs that are devoted to targeting low-income families. The share of indigenous registered in CadUnico according to our upper estimation of the population is around 71 percent, or 622,943 people divided into 163,346 families (table 2.20).

The indigenous people and the quilombolas registered in CadUnico are mainly poor families living in rural areas. Among the IP registered in CadUnico, 75 percent live in rural areas, 96 percent live under the R$499 income threshold, and 79 percent live under the R$178 income threshold. If we assume these are the 71 percent of people in the bottom of the IP's income distribution, the rates adjusted by this factor would amount to a 68 percent rate of poverty and to a 56 percent rate of extreme poverty (i.e. below the PBF eligibility threshold), respectively. Unfortunately, the situation for the quilombolas registered in CadUnico is not very different. The share of quilombolas living in rural locations is 80 percent, composed of 91 percent poor and 73 percent living with less than R$178. To the best of our knowledge, no poverty headcount rates have been estimated for the quilombolas. Alas, looking at the history of these communities and the people who refuged themselves from a slaving society, it is not completely unsurprising to find high levels of monetary income poverty.

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[48] See "Base de Informações sobre os Povos Indígenas e Quilombolas: Indígenas e Quilombolas 2019" (database), IBGE (accessed September 27, 2021), https://www.ibge.gov.br/geociencias/organizacao-do-territorio/tipologias-do-territorio/27480-base-de-informacoes-sobre-os-povos-indigenas-e-quilombolas.html?=&t=o-que-e .
[49] Regulated by Decree No. 4,887 of the Brazilian Presidency.
[50] See "Base de Informações sobre os Povos Indígenas e Quilombolas: Indígenas e Quilombolas 2019" (database), IBGE (accessed September 27, 2021), https://www.ibge.gov.br/geociencias/organizacao-do-territorio/tipologias-do-territorio/27480-base-de-informacoes-sobre-os-povos-indigenas-e-quilombolas.html?=&t=o-que-e.

TABLE 2.20. **Demographic Characteristics of Indigenous People and Quilombolas**

	IP	Quilombolas
Number of families	163,346	188,435
Total people in families	622,943	553,693
Average family size	3.81	2.94
Receives Bolsa Família	87%	81%
Average income per capita	R$ 158.43	R$ 205.91
Poverty headcount	96%	91%
Ext. poverty headcount	79%	73%
Urban	25%	20%

Source: CadUnico 2019.
Notes: Poverty is based on R$499/month and extreme poverty is based on R$178/month. The average per capita income reported here is not the original one found in CadUnico's "families" dataset. It was recalculated from the merge with the "individuals" dataset, which contains individuals' income by source, and with Bolsa Família Payroll Register data.

BOX 2.4. **Statistical Challenges to Study the Indigenous People and Quilombolas in Brazil**

According to the Brazilian Census of 2010, there were 817,963 self-reported indigenous people (IP) in Brazil. If we assume that this population followed the same estimated growth rate as the one for the entire population, there could be around 882,000 in Brazil as of 2019. From this projected universe, only 2,350 (0.2 percent) were sampled by PNAD-C 2019. Although the standard error regarding binary variables could be minor with this number of observations,[a] the variance of estimators concerning continuous variables is high. The estimated frequency of IP across different years also hints at the limitations of the analytics that could be carried out. For example, data from the PNAD-C 2018 estimates the indigenous population at 40,000 more than that of 2019 with only 31 more self-reported IP. Information on whether an individual belongs to a quilombola community was not collected in the 2010 census, nor has it been collected in the PNAD-Cs. The Population Census of 2020 (currently planned to be in the field in August 2022) was originally planned to include a self-report of respondents' belonging to a quilombola community.

The Cadastro Único (CadUnico) data improves upon the analysis of using exclusively household surveys, but it is not without caveats. Information that is submitted to the CadUnico needs to be updated by households once every two years (more often in case there is a change in the labor status or income sources). Incomewhich is typically outside the formal labor market is self-reported. Thus, the information from Cad Unico is far from perfect. However, the broad patterns obtained from the registry's information can hopefully be reflective (if not a perfect representation) of the reality of these vulnerable groups and be enough to understand the broad patterns of their livelihoods.

[a.] A conservative standard error of 2.02 percentage points at a 95 percent confidence level.

The IP dwelling conditions appear to be worse than those of poor families living in rural locations. In general, IP and quilombolas have high shares of lack of access to some essential services, such as water supply or trash collection. These rates are similar to the ones found for rural poor families in PNAD-C 2019. One characteristic that stands out among indigenous people's house conditions is the prevalence of low-quality materials in floors and walls, and the low levels of access to electricity (table 2.21). While the former could be a result of preserving indigenous traditional architecture, it raises concerns about the exposure to zoonotic diseases. Also, the absence of electricity could be an impediment to economic integration and, consequently, an obstacle to end poverty.

Despite gains in previous decades, the education of IP and quilombolas is characterized by low levels of formal instruction attainment. Data from the 1991 and 2010 population census indicate that the illiteracy rate among indigenous people (ages 15 years and older) was cut in half during the period between the censuses (going from 51 percent to 23 percent) although it remained twice as high as the national rate (9.6 percent). The share of IP and quilombolas household heads registered in CadUnico that never attended school is less than 1 percent. However, it is possible this indicator may be underestimated given that a nonnegligible share of them do not have information on their education level. In turn, most of the heads of the families have not completed primary education. About one-fifth of household heads in IP and quilombolas families completed secondary education, and less than 1 percent had some tertiary education.

Fewer indigenous and quilombolas heads of household self-report to be working when compared with heads in disadvantaged rural families. The rate of IP heads of household working (36 percent) is noticeably lower than the rate among quilombolas (45 percent) and among rural poor heads of household (54 percent). Most of the IP and quilombolas working are self-employed, which probably means that they are working on their own lands. The second, yet still large, concentration of economic activity among IP and quilombolas heads of household is temporary employment in agriculture and other rural activities.

Brazil has a strong framework to protect traditional communities. Since 1976, the Brazilian legislation has regulated indigenous settlements, protecting the extension of their domains and their effective control over the land. Their health is under the purview of the Ministry of Health, which is supported by local organizations and institutions. The Ministry of Education is responsible for the Indigenous Peoples Education Policy, which is organized on a territorial and ethnic basis. Brazil has designated vast territories as indigenous areas (13 percent of the country counts as indigenous lands) and the government has made large investments to support regularization of land tenure for indigenous people and to establish conservation units. The National System of Conservation Units (Law 9,985/2000) allows the people of traditional communities to remain in the territories of "Sustainable Use Units" and "Extractive Reserves" and to make use of resources in a sustainable way. Under article 68 of the Transitional Constitutional Provisions Act of the Federal Constitution of 1988, quilombola settlements are recognized as property and the state must issue titles to the land. Since 2003, quilombola lands can be entitled by the Institute for the Agrarian Reform (INCRA). In 2004, the National Commission on Traditional Communities and Peoples (CNPCT) was created. The CNPCT is a deliberative and consultative body formally composed of 15 representatives of the federal government and 15 representatives of nongovernmental organizations. It is responsible for proposing principles and guidelines for governmental policies related with the sustainable development of traditional communities and peoples as well as for coordinating and monitoring their implementation.

However, evidence suggests that several challenges remain. Welfare-related indicators point to several gaps between IP and quilombolas

populations and the rest of the country. For land security among quilombolas, the first land title award was not granted until November 1995, and since then only 186 quilombola territories have been titled, 52 of them only partially. Over 1,700 land-titling processes are pending.[51] According to FUNAI[52], unregistered indigenous land accounts for 9% of total land. Just in the Amazonian region (where a large share of the IP reside) it represents 2 percent. Two law projects transiting trough the Brazilian legislative bodies in the present may affect the natives' control over their territory. The bill (or projeto de lei) 490 (PL 490/07) proposes to transfer the authority over indigenous lands delimitation from the Executive to the Legislative, to allow nonindigenous to obtain usufruct over the IP lands and to restrict land tenure warranty only for the IP who can prove that they were occupying or reclaiming lands by the day of 1988 Constitution promulgation. The bill 191 (PL 191/20) proposes a regulation for the exploitation of mineral resources under indigenous lands conditionally to Congress permission. Advocates for the proposed laws point that the new legislation might bring economic gains to the Indigenous People and reduce detrimental effects arising from illegal economic activities already being conducted in their lands currently (i.e., violence, illegal deforestation, labor legislation violations). Moreover, IP may have the opportunity to take advantage of the new economic permits, partner with non-indigenous to explore the land or receive shares of third-parts' business. Nonetheless, the fact that congressmen, instead of FUNAI, will have the effective control on IP land demarcation, acceptable usufruct, and prescription period for land reclamation, and that the local communities will not have power of veto over new entrepreneurial projects pose serious risks to the IP.[53] The potential for harm to these communities is high, especially in the light of their low political representation and the low bargaining power compared with other rent-seeking groups acting in the Congress.

TABLE 2.21. **Demographic and Economic Characteristics of Indigenous People and Quilombolas and the Rural Poor in Brazil, 2019**

	CadUnico		PNAD
	IP	Quilombolas	Rural poor
A. Dwelling characteristics			
Permanent and private residence	92%	96%	n.a.
Low-quality materials floor	41%	22%	5%
Low-quality materials walls	47%	43%	20%
No water supply	51%	42%	39%
No water network connection	66%	64%	58%
No bathrooms	36%	25%	22%
Unimproved sanitation	76%	73%	55%
No trash collection	74%	70%	68%
No electricity access	28%	8%	2%
Nonpaved street	89%	86%	n.a.
B. Educational attainment among household heads			
Missing values	25%	15%	n.a.
Never attended	0%	0%	19%
Incomplete primary education	42%	49%	53%
Complete primary education	7%	7%	8%
Incomplete secondary education	6%	8%	6%
Complete secondary education	18%	20%	13%
Incomplete tertiary education	0%	0%	1%
Complete tertiary education	1%	1%	1%
C. Labor market outcomes among household heads			
Working	36%	45%	54%
CLT formal employee	4%	3%	11%
Public servant or military	5%	4%	4%
Self-employed	44%	39%	45%
Temporary in agriculture	33%	44%	10%
Domestic worker	1%	1%	6%
Non-salaried	10%	7%	2%

Source: CadUnico 2019 and PNAD 2019.
Notes: Poverty in PNAD-C is defined by one-half the minimum wage income threshold. The employment categories in the table are the standard in CadUnico. They were explicitly calculated for PNAD-C. CLT formal worker is defined by having the employment legally registered in the Brazilian workbook under the Consolidação das Leis do Trabalho (CLT) legislation. "CLT formal employee" does not include domestic workers in the table. "Public servant or military" includes public servants with tenure (estatutários), public servants with registered employments (CLT), temporaries working for the public sector, and military. "Non-salaried" includes only people working with their families without a regular wage. n.a. = Not applicable.

[51] "Quilombolas Communities in Brazil," Comissão Pro-Indio de São Paulo (accessed March 14, 2022), https://cpisp.org.br/direitosquilombolas/observatorio-terras-quilombolas/quilombolas-communities-in-brazil/.
[52] Available at https://www.gov.br/funai/pt-br/atuacao/terras-indigenas/geoprocessamento-e-mapas comparing "Homologadas" and "Não Homologadas". Accessed in January 17, 2022.
[53] See the discussion in Ministerio Público Federal (2022), Vick (2021), Rocha (2020) and Instituto Socioambiental (2020).

Conclusions

A deep dive into the profile of the poor and vulnerable in Brazil shows that major disparities still exist and they require policy makers' attention. Population groups that historically have been overrepresented among the less well-off continue to be highly vulnerable. Almost 3 in 10 poor individuals are Afro-Brazilian women living in urban areas. Three-quarters of all children living in rural areas are considered poor. Residents of the northern part of the country continue to experience lagging indicators both in the monetary and non-monetary dimensions. Compared with states in the south, northern states' poverty rates are over three times higher, they have income per capita that is about 50 percent lower on average, the employed population has 1 fewer years of education, their access to improved sanitation is more than 23 percentage points lower and their access to water is 8 percentage points lower.

Poverty affects people very early in their lives and compromises their human capital accumulation. Mothers with a low educational attainment level are less likely to attend prenatal care visits than mothers with higher educational attainment—only 39 percent of mothers with no formal education go for seven or more visits. In comparison, 85 percent of mothers with 12 or more years of school go that frequently. The urban bottom 40 percent depend much more on the often-overloaded public health system than the top 60 percent. The intergenerational education mobility increases at a slow pace, especially among the poor.

Poor Brazilians do not have the financial or physical capital to support the generation of a subsistence income level. In many circumstances, the state is not able to help fill the gaps. The disparity between the poor and the non-poor regarding land titling ownership rates is about 15 percentage points in urban zones and 17 percentage points in rural areas. Transfers from social programs represent a significant source of income for underprivileged families. Nonetheless, the largest public outlays are in the form of pensions, which tend to reinforce the pre-existent disparities in labor income and labor market opportunities. Finally, the bottom of the income distribution also carries a larger burden of indirect taxes.

The inequality of power between men and women is still influencing social and economic outcomes. Despite substantial gains in labor market participation in earlier decades, women are significantly less attached to the labor market than other groups in the population. Among the poor population it is worse: only 43 percent of women participate in the labor market. Lower pay—despite comparable (and even higher) qualifications—can partly explain this phenomenon. Limited access to daycare and pre-school is another inhibitor to higher female labor force participation. Less than a third of Brazilian households with children of ages 3 or younger (31 percent) send their children to daycare and households with lower income are even less likely to do so.[54] Lower female labor force participation severely curtails the potential benefits—both for the individual and economy-wide—of the relatively high educational mobility that Brazilian women have experienced recently. Finally, the overrepresentation of women among the victims of domestic violence is another dimension in which better and broader policies need to be put in place.

Afro-Brazilians still have fewer opportunities than the rest of the population. The Brazilian poor are largely represented by Afro-Brazilians: about 73 percent of the poor self-identify as black or pardo. Among households headed by an Afro-Brazi-

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[54] In the poorest decile of the income distribution, only 23 percent of households send their children aged 3 years and younger to daycare. This share increases with increasing position in the income distribution to 30 percent in deciles 3 and 4, averages around 45 percent in deciles 7-9 and reaches 60% for households in the highest decile (World Bank staff calculations based on POF 2017-18).

lian individual, close to 39 percent are poor. The constrained social mobility is one of the factors behind this historical persistency. Gaps in educational attainment go beyond poverty statues. Non-poor Afro-Brazilians have 8.9 years of study on average compared with 9.6 years of the Brazilian non-poor. Consequently, among working Afro-Brazilian individuals, 29 percent are low-skilled compared with 24 percent of the overall population. To make matter worse, Afro-Brazilian individuals appear to receive lower hourly wages even when controlled for educational level and other demographic characteristics. The aforementioned gaps for the poor with respect to physical assets translate directly to the Afro-Brazilian population: 49 per cent of poor Afro-Brazilians own land title, 72 percent have internet access and 20 percent own a car. These percentages in the overall population are 61 percent, 84 percent and 52 percent, respectively.

A full view of the welfare status of the traditional communities is still missing. Suggestive evidence shows they have monetary and non-monetary needs that must be addressed. Besides the estimated high rates of poverty among the vulnerable families included in CadUnico (96 percent of the IP and 91 percent of the Quilombolas), other fragilities stand out. Close to 28 percent of the IP and 8 percent of the quilombolas lack access to electricity, which is much higher than the 2 percent of the rural poor. This missing infrastructure can compromise the integration of these families to economic chains; however, their needs are even broader. About 51 percent of the households of IP and 42 percent of the households of quilombolas have no water supply, and a significant share of their dwellings are built with inadequate materials: 41 percent of the households of IP and 22 percent of the households of quilombolas have low-quality materials (when any) coating their floors, and 47 percent of the households of IP and 43 percent of the households of quilombolas have low-quality materials in their dwellings' walls. All these factors can negatively affect their health and consequently their human capital development. Despite the improvements made in recent decades, 42

percent and 49 percent of the households of IP and quilombolas CadUnico families, respectively, have not completed primary education. The upcoming 2022 census will be the first time in which people will have the opportunity to report their quilombola identity. This opportunity is a good first step in moving forward the policy dialogue on the support needed to boost the life opportunities of traditional communities.

The urban poor reside close to economic centers but they are not fully integrated in them. The Brazilian population is concentrated in urban areas thus making poverty to have an urban face in Brazil: three-quarters of the poor are urban residents. The urban poor struggle to find a job and they lag in human capital accumulation. Few among the urban poor have health insurance and almost fully rely upon the overloaded health public system for any needed assistance. The urban poor residing in the metropolis face an additional barrier to connect to labor and services: many of them live on the periphery, where access to most of the available jobs and amenities require long and often expensive trips. An additional characteristic of the urban poor's residences is their greater risk of exposure to the effects of climate change through more frequent and harsher natural disasters such as floods.

The rural poor continue to be disadvantaged in several dimensions. More than half (56 percent) of the residents of rural areas are poor. The rural poor missed many of the benefits from the country's recent push to expand education. Their average of schooling years is 5.8, lower than the rest of rural residents (6.1 years) and the urban poor (7.3 years). Access to some basic services are lower among the rural poor: for example, 21 percent of the rural poor still practice open defecation and 22 percent have no private bathrooms compared with 5 percent and 5 percent of the non-poor. About 60 percent of rural poor workers are employed in agriculture—a sector that has experienced a long-term decreasing trend and that is likely to continue shrinking, despite the growth in the sector. Rural poor individuals are likely to be working in one of the familiar establishments of Brazil, which are

small and less productive than the ones serving the agricultural industry. Closing the gap in productivity for agriculture households would likely require closing the gaps in credit access and underlying land tenure security. Only 46 percent of the rural poor have a formal land title, a proportion that is under the urban poor's one (51 percent) and the rural non-poor's (62 percent). The chronic rural poor have even lower levels of asset accumulation. Finally, municipalities with high concentrations of rural populations are also projected to face augmented climate change-related challenges in the coming years. In the absence of additional targeted support, the rural poor will be among the least protected groups of the population.

The obstacles to promote prosperity go beyond the socioeconomic dimension.
The effects of climate change are gradually harming more Brazilian locations and with greater intensity. As the average temperatures go up over the years, regional climate characteristics are affected, increasing the frequency of heavy precipitation in several regions and of precipitation deficits in other regions. Many negative effects are triggered, expanding from threats to agriculture and food security to natural disasters that directly affect the most populated urban zones. We estimate that at least 814 municipalities present high vulnerability to environmental disasters, which include droughts, storms, hailstorms, landslides, erosions, fires, and other extreme events. Those municipalities (including São Paulo, the greatest and most important economy in the country) host 45.4 million people (21 percent of the country's population). The worst position, though, is occupied by the municipalities that are both socioeconomically and environmentally vulnerable. Those municipalities are concentrated in the semiarid northeast zone and in the very hot and rainy zones of the Amazon biome.

Brazil faced numerous challenges as the previous decade came to an end.
In 2019, about 3 in 10 Brazilians were considered poor, and their needs went beyond the monetary realm. About 20 percent of the population could be considered chronic poor. The rurality of poverty in Brazil is evident, but the most common face of poverty comes from the deep pockets of urban poverty. Large investments are needed, especially in building and protecting the human capital of this population if they are to have any chance to develop economically in a sustainable way. Better and more efficient spending could be a starting point. In addition, the risk of climate change effects overlaps and go beyond the socioeconomic vulnerabilities. The government should do more to allow households to protect themselves from the manifestations of climate change.

The years ahead will be very difficult for the Brazilian population, especially for the structurally and chronic poor.
As chapter 3 will show, the enormous fiscal efforts made by the government to support the vulnerable were more than enough to smooth the income shock caused by the COVID-19 pandemic that started in March 2020. The main emergency program, Auxílio Emergencial, reached up to 68 million individuals thus preventing significant increases in monetary poverty and transient poverty. Unfortunately, as the transitory support (mostly through emergency cash transfers) was lifted, the underlying low ability of households to generate income became apparent once more. The profile illustrated in this chapter points to disparities that worsened in the 2020–21 period. For the chronic poor facing poverty traps, cash transfers may be a palliative (Balboni et al. 2020; Banerjee, Duflo and Sharma 2021) as most of the received funds are spent on necessities and are insufficient to acquire productive assets. Households' likelihoods to escape poverty depend on the interdependence of human capabilities and capital stocks (Barret, Carter and Chavas 2019). Thus, multi-faceted interventions have the best chances to successfully reduce poverty. Examples of these include graduation programs that use personalized strategies to strengthen capabilities and mental health first, followed by the provision of tangible productive assets. Without a transformative approach to support the most vulnerable households, they may have little chance to escape poverty in the coming years.

Annex A. Regional Maps of Environmental and Socioeconomic Vulnerability

Environmental Security   **Socioeconomic Development**

Higher vulnerability

-3 to -2
-2 to -1
-1 to 0
0 to 1
1 to 2
2 to 3
3 to 4

Lower vulnerability

Center-West

North

Northeast

South

Southeast

Higher vulnerability

-4 to -3
-3 to -2
-2 to -1
-1 to 0
0 to 1
1 to 2
2 to 3

Lower vulnerability

Missing

Center-West

North

Northeast

South

Southeast
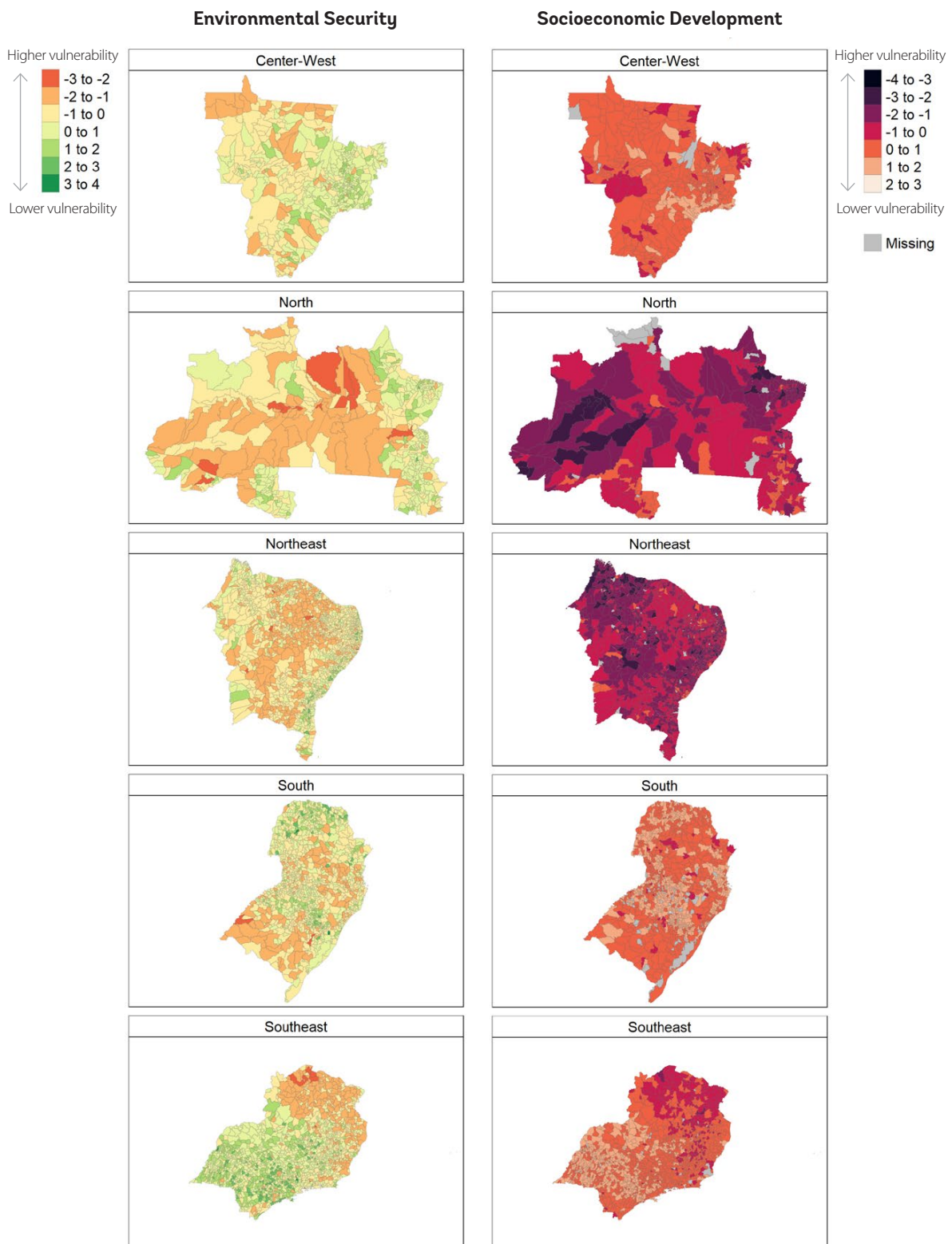
Source: World Bank estimates.

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BRAZIL IN THE TIME OF COVID

BRAZIL IN THE TIME OF COVID-19

After the first confirmed case of COVID-19 in Brazil was identified on February 26th, 2020, the situation escalated quickly. As a result, Brazil became the most COVID-19-affected country in the Latin and Caribbean (LAC) region and the third-highest number of diagnosed cases worldwide—22,328,252. Moreover, it has the second-highest number of total deaths worldwide due to COVID-19, with over 600,000 fatalities in January 2022 (see figure 3.1 a and b).[55]

Contrary to what happened in the other countries in the region, the Brazilian Government did not decree general quarantines to control the increase in COVID-19 infections. On March 23, the federal government published a Provisional Measure[56] with a series of labor regulations during the pandemic. The regulations included the adoption of teleworking, the anticipation of an individual and collective vacation, and other measures that sought to prevent people from going to their workplaces (see figure 3.2).

Quarantines measures were left to local governments, thus making implementation of restrictions varied across the country. On March 24, most of the country's schools were closed. By March 27, in 22 states of the country, there was some restriction on mobility. At the same time, the federal government prohibited foreigners of all nationalities from entering the country (CEPEDISA 2021 and KPMG 2020). To mitigate the effects of the pandemic on household income, on March 30, the Brazilian Senate approved a bill that provided emergency aid in the form of a monthly transfer of R$600 (US$116) over an initial three months, to informal or own-account workers and low-income families.[57] Transfers were made to individuals with a maximum monthly value per family of R$1,200 (US$232), which was also the value paid out to single mothers. The first payment of this benefit, the Auxílio Emergencial, was effective on

April 9, 2020. The program was extended in July for another two months and again in September for four more months, although with a reduction in the monthly transfer by half. On May 5, some states declared closure measures, further restricting the mobility of citizens and social contact. These measures would be in force until the beginning of June.

FIGURE 3.1. **Cases and Deaths, Brazil and Selected Countries**

a. Cumulative confirmed COVID-19 cases (Millions)
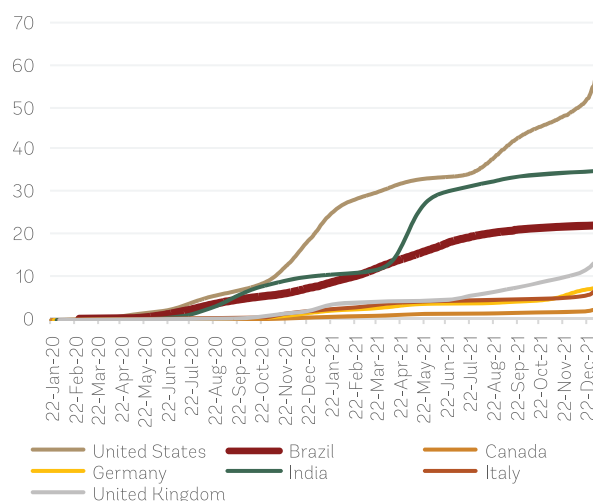
b. Cumulative confirmed COVID-19 deaths (Thousands)
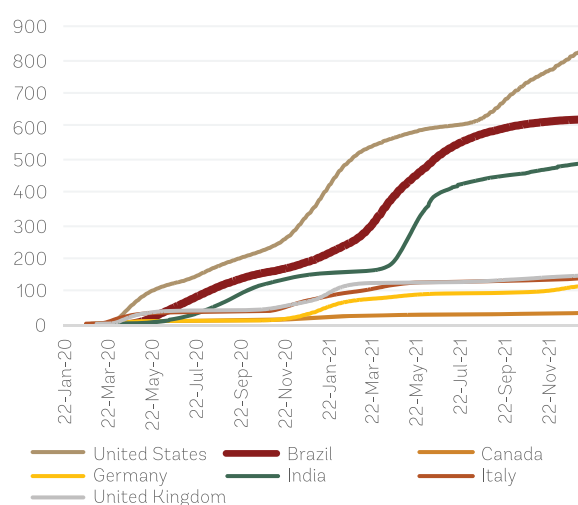
Source: Our World in Data/European Centre for Disease Prevention and Control (ECDC). Accessed January 5, 2022.

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[55] COVID data are from the Our World in Data website. "Brazil: Coronavirus Pandemic Country Profile." Accessed January 5, 2022. https://ourworldindata.org/coronavirus/country/brazil.
[56] A provisional measure is a legal act in Brazil through which the President of Brazil can, "in important and urgent cases," enact laws effective for a maximum of 60 days without approval by the National Congress.
[57] The program rules required families to have either a household income of less than three minimum wages or a household income per capita lower than half of a minimum wage.

FIGURE 3.2. **Timeline: Main Measures Adopted in Brazil to Face the COVID-19 Shock in 2020**

FEB 26

First confirmed case COVID-19 in Brazil was identified

MAR 13

Ministry of Health suggests avoiding commuting; work from home when possible

Ministry of Health announces that each local government will adopt their own strategy to try to contain the spread of the virus

MAR 16

Creation of the Crisis Committee for Supervision and Monitoring the Impacts of COVID-19

MAR 23

Federal government publishes a Provisional Measure (MP) that alters a series of labor regulations during the pandemic

MAR 24

No federal policy on school closure, but most schools in Brazil remain closed due to measures adopted by state governors and mayors

MAR 27

In 22 states of Brazil, there is some type of restriction on internal movement in place

Brazil prohibits foreigners of all nationalities from entering the country

APR 09

The federal government sends its first financial assistance to the public (Auxilio Emergencial). Over 2.5 million people received R$600 (US$116)

MAY 05

Some state governors, including Maranhão, Para, Amapá, Rio de Janeiro, Minas Gerais, adopt lockdown policies

JUN 01

In many major cities (such as São Paulo, Recife, Manaus and Fortaleza) part of the economic sectors will gradually return to activities

Brazil confirms more than 30,000 deaths by COVID-19

Source: Adapted from CEPEDISA 2021 and KPMG 2020.

By 2021, amid a slowdown in new infections, the management situation in the country regarding the pandemic remained the same as in 2020. Local governments made decisions according to the infection rate and the occupancy levels of intensive care units. The federal government's recommendation was not to generate blockages in the economy. Additionally, vaccines began to play a fundamental role in controlling the effects of COVID-19.

Vaccinations in Brazil got off to a slow start compared to other countries, though they accelerated in the second half of 2021. Even though the vaccination campaign began on January 17, 2021,[58] by March 17 (two months later), only 5 percent of the Brazilian population had received a dose of the vaccine. The vaccination process continued slowly, and by June 1, 20 percent of the country's population had received the COVID-19 vaccine. After mid-June, the vaccination process accelerated, and by the end of September, 70 percent of the population had at least one dose of the COVID-19 vaccine, and 44 percent were fully vaccinated. As of December 31, 2021, 77 percent of the population had at least one dose of the COVID-19 vaccine, and 67 percent were fully vaccinated.

As a result of the COVID-19 shock, the Brazilian economy contracted by 3.9 percent in 2020. The fall in the gross domestic product (GDP) followed a drop in all its components: lower imports of goods and services, private consumption, and government consumption (table 3.1). Private consumption contracted by 5.4 percent. The service and industrial sectors presented falls of 4.3 percent and 3.4 percent, respectively. While the agriculture sector grew 3.8 percent. Brazil's economy recovered quickly, and in 2021 GDP growth reached 4.6 percent (table 3.1). After presenting a significant drop in 2020, the industry and services sectors surpassed their prepandemic levels. The agriculture sector, however, stagnated. The fiscal stimulus that the government made to face the pandemic explains the fiscal balance and debt increase in 2020. The government implemented an aid package of BRL 815.5 billion, an equivalent to 11.4 percent of GDP, in 2020 and another one of BRL 137.2 billion in 2011 (World Bank 2021a). As a result, expressed as a percentage of GDP, the fiscal balance in 2011 was much closer to prepandemic values and the debt registered some improvement.

TABLE 3.1. **Selected Macroeconomic Indicators for Brazil**

	2019	2020	2021
Real GDP Growth, at constant market prices	1.2	-3.9	4.6
Private Consumption	2.6	-5.4	3.6
Real GDP Growth, at constant factor prices	1.0	-3.5	4.3
Agriculture	0.4	3.8	-0.2
Industry	-0.7	-3.4	4.5
Services	1.5	-4.3	4.7
Inflation (Consumer Price Index)	3.7	3.2	8.3
Fiscal Balance (% of GDP)	-6.6	-14.2	-4.3
Debt (% of GDP)	74.4	88.6	80.3
Primary Balance (% of GDP)	-1.0	-9.5	0.7

Source: World Bank (2022).

[58] Matosso, F. and Laís Lis (2021) "Anvisa autoriza por unanimidade uso emergencial das vacinas CoronaVac e de Oxford contra a Covid-19": https://g1.globo.com/bemestar/vacina/noticia/2021/01/17/relatora-na-anvisa-vota-a-favor-do-uso-emergencial-das-vacinas-coronovac-e-de-oxford.ghtml (accessed April 15, 2022).

Effects of the COVID-19 Pandemic on the Brazilian Population

Starting as a health crisis, the COVID-19 pandemic quickly affected the population on a wide range of other dimensions, with implications for poverty and equity that can extend far beyond the period of the pandemic. In the short term, for monetary welfare, the impact of the pandemic affected labor income, nonlabor income, and prices. Looking at long-term welfare, analyzing the accumulation of human capital is vital since human capital is one of the first aspects affected when a crisis occurs (World Bank 2019). Thus, damages to human capital in the form of long-term health consequences and education gaps become important. In both cases, the effects on poverty and equity depend on the interaction of three main factors that can play out differently for different groups of the population. The first factor is the intensity of the shock (previously described), including confinement measures such as school closures and associated disruptions to other services and demands. The second factor is the transmission of the shock through channels such as the labor market. The susceptibility of households and individuals to the shock is directly related to their characteristics, for instance, whether they are formally or informally employed and hence how much job and social protection they can rely on. Finally, since governments responded in many cases with emergency cash transfers, the mitigating effect of monetary aid is a third factor that needs to be considered.

The first year of the pandemic

The arrival of the pandemic reversed a declining trend in unemployment that had prevailed throughout 2019 and resulted in a sharp drop in labor force participation (figure 3.3). Survey data[59] collected in the second half of 2020 shows that, although labor force participation started to recover after July, the labor market was only partially able to incorporate individuals joining the labor force, and unemployment continued to rise (figure 3.4). The unemployment shock was more persistent in the north and northeast regions. Unemployment in the southeast, center-west, and south had stabilized or even fallen since June and July 2020. Unemployment increases were more pronounced for traditionally vulnerable individuals such as women, Afro-Brazilians, and youth. Using data from the Pesquisa Nacional por Amostra de Domicílios Contínua (PNAD-C), Costa et al. (2021) show that transitions from employment to unemployment or inactivity in 2020 were also highest among the less educated, informal wage workers, own-account workers, and those at the bottom of the salary distribution. Workers in construction, accommodations, domestic services, and those in part-time jobs were affected the most. Moreover, these characteristics correlate with sex, race or color, and age of workers. The authors show that this indeed explains the higher job loss among women, black, and young workers in 2020 to a large degree. Nevertheless, there remains a part of the job transitions that was not explained by these characteristics, suggesting additional factors behind these unequal labor market effects, which could include discrimination.

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[59] The Pesquisa Nacional por Amostra de Domicílios COVID-19 (PNAD COVID-19) is a phone-based nationally representative high-frequency household survey that IBGE collected monthly between May and November 2020.

FIGURE 3.3. **Unemployment Rate and and Labor Force Participation (LFP), 2019–2020**

Unemployment rate (left axis)   LFP (right axis)

Source: World Bank staff calculations based on PNAD-C.

FIGURE 3.4. **Unemployment, Employment, and Inactivity, July–November 2020**

Total employed   Total out of the labor force
Total unemployed (right axis)
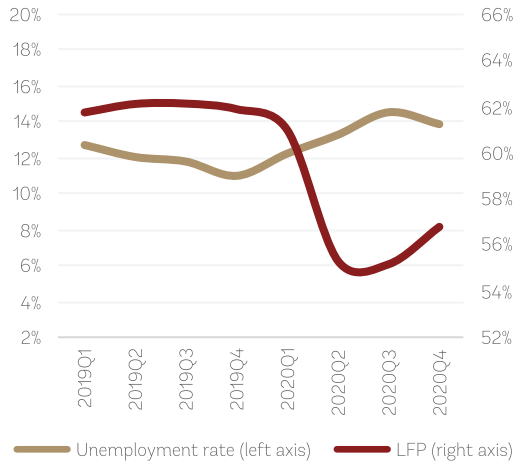
Source: World Bank staff calculations based on PNAD COVID-19

The situation in the labor market also translated into lower household income from labor, with the most vulnerable populations being hit the hardest. In May 2020, the effective per capita household labor income of the bottom 40 percent was only 65 percent of what could usually be counted on, while for the top 60 percent this proportion was 88 percent (figure 3.5). Despite an improvement in effective versus habitual labor income over the following months, in October 2020, the difference for the bottom 40 percent still amounted to 11 percent, while for the top 60 percent the gap was almost closed, at 4 percent.

During this time, emergency help from the government proved to be a lifeline for many Brazilian households, especially those in the bottom of the income distribution. Between June and September 2020, COVID-19-related income support accounted, on average, for about half of the income of those in the poorest quintile and for a third of the income among those in the second quintile (figure 3.6). The assistance was still significant for those in the middle of the distribution, representing about 20 percent of their overall income between May and September.

FIGURE 3.5. **Effective Real Per Capita Labor Income as a Proportion of Habitual, 2020**

Top 60%   Total population   Bottom 40%
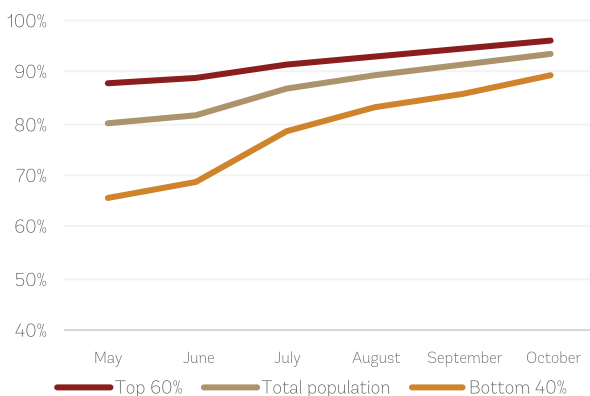
Source: World Bank staff calculations based on PNAD COVID-19

FIGURE 3.6. **COVID-19 Related Income Support as a Proportion of Total Per Capita Household Income, 2020**

May   June   July   August   September   October
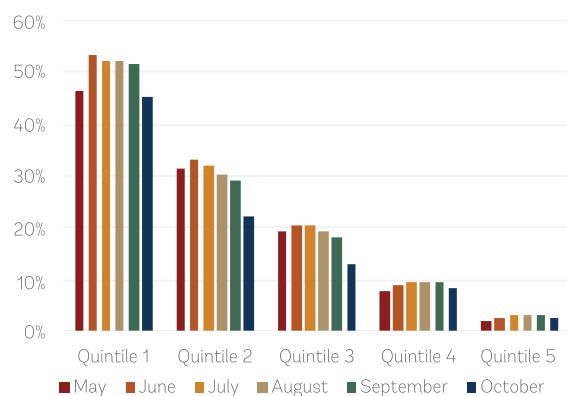
Source: World Bank staff calculations based on PNADC COVID-19

As a result, and notwithstanding the devastating effect of the COVID-19 pandemic on Brazil's economy and the labor market in 2020, the income at the bottom of the distribution increased compared to 2019. This was achieved with the widespread and substantial emergency cash transfers provided by Auxílio Emergencial in 2020. In fact, both IBGE (2021c) estimates and World Bank simulations show that without these transfers, income in the bottom would have fallen substantially. Such a massive impact on

protecting the vulnerable population with emergency social protection transfers in 2020 is unique in the region (World Bank 2021b). But Auxílio Emergencial was reduced substantially in September 2020 and discontinued in December. These changes resulted in a sharp drop in real per capita income of the bottom 40 percent between September and October (figure 3.7). Nonetheless, the role of government support to smooth families' incomes may have prevented significant negative effects, including an enhanced probability of children looking for work (Duryea et al. 2007) versus moving ahead with their education (Duryea 1997).

FIGURE 3.7. **Changes in Real Per Capita Total Household Income (Percent)**
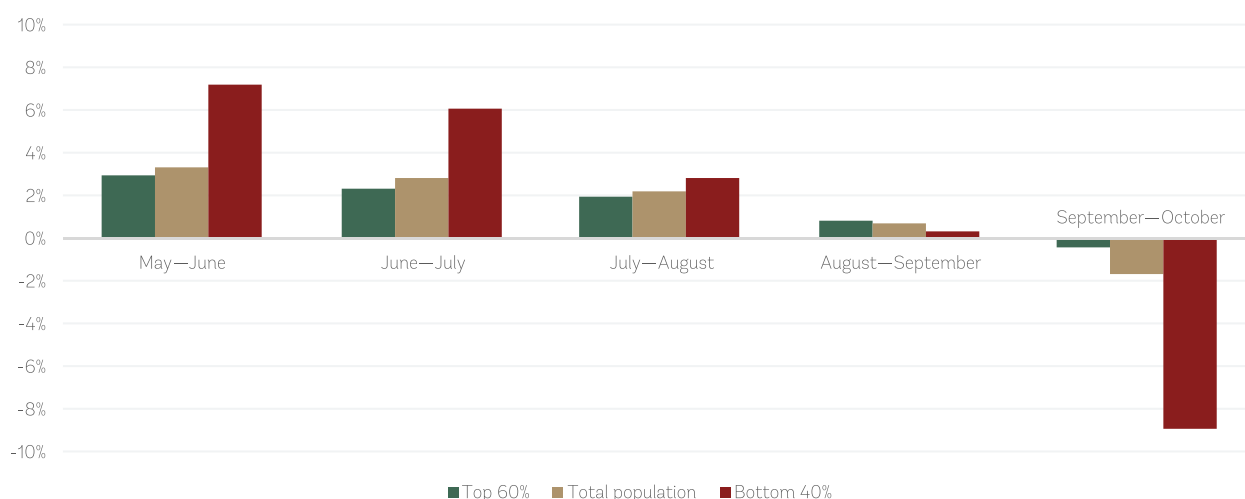
Source: World Bank staff calculations based on PNAD COVID-19

Restricted access to education during the pandemic could have a long-term negative impact on poverty and equity through human capital damages. Given the severe transmission of COVID-19 in Brazil in 2020, schools remained closed for presential classes in most of the country throughout the year. In November 2020, exclusively-presential classes were still an exception, with only 2.4 percent of children aged 6 to 16 who were enrolled in school attending these. In

this situation, not all children were able to engage in schooling. In July 2020, one in five children of school age was either not enrolled in school (4.4 percent) or did not have access to any schooling activities (15.7 percent).[60] While this proportion decreased over the year, it still amounted to more than 10 percent in November 2020, totaling 4.6 million school-aged children. Access to schooling activities was not equal across the country. Children in the north and northeast had the lowest access (27.8 percent of

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[60] Access to schooling activities is defined as respondents having been provided with school activities to be carried out at home, for example online classes, homework, or guided study in the previous week. In November, it also explicitly included presential classes, while in the previous months, this distinction was not made.

children either not enrolled or without access), while it was almost universal in the south (only 4.6 percent of children were not enrolled or without access) and above the national average in the center-west and southeast (Paffhausen et al. 2021). Access to school activities was also lower for children living in rural areas and increased with household income.

The time children spent engaged in schooling activities during the pandemic positively correlated with household income, further suggesting that the pandemic will increase learning gaps. In addition to having less access to schooling activities, children in lower-income households showed lower levels of engagement when activities were offered. In November 2020, almost 60 percent of Brazilian children were engaged in schooling activities for five days or more, including having presential classes (figure 3.8). Among children living in the richest households, this was the case for 75.6 percent. In the bottom income quintile, however, only 50 percent of children were engaged in schooling activities over the whole week. Taken together, among children in the bottom income quintile, one in five kids did not participate at all in any schooling activities, either because they were not enrolled, activities were not offered, or they did not participate in any activities that were offered. Among children in the top income quintile, this proportion was 9.4 percent.

FIGURE 3.8. **Participation in Schooling Activities During the Pandemic Differs with Income, November**
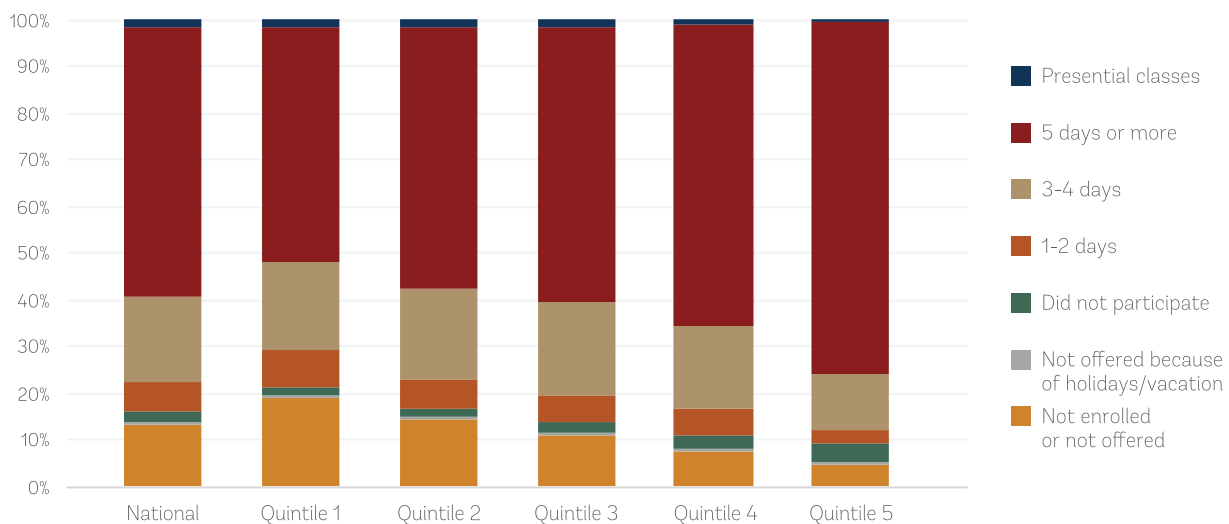
Source: World Bank staff calculations based on PNAD COVID-19.
Note: Income quintiles are based on total effective household income per capita. Schooling activities include activities to be carried out at home, like for example online classes, homework, or guided study, as well as presential classes.

A year after the start of the pandemic

With the substantial reduction of Auxílio Emergencial in 2021[61] amid persistently high unemployment rates and increases in living costs, longstanding inequalities are expected to have increased. Unemployment rates remained above prepandemic levels in 2021, and households lost considerable purchasing power. The cost of living for families increased by more than 9 percent in this year.[62] While comprehensive data on household income to assess the evolution of poverty in 2021 will not be available until well into 2022, household data collected over the phone in August and September of 2021 provide some valuable insights on how the population is faring as the pandemic continues to linger.[63] There is evidence that a year into the pandemic, the vulnerable population was much more susceptible to the socioeconomic shocks induced by the pandemic, such as job losses, increases in prices for essential goods (food in particular), and damages to the stock of income-earning assets through disruptions in education services.

More than 4 out of 10 households reported experiencing a decrease in their total income, with the most vulnerable affected to a larger degree. Compared to before the pandemic, 44.6 percent of households reported lower total household income at the time of the survey.[64] At the same time, almost 40 percent of households said that they were not able to cover their basic needs (38.7 percent). Lower labor income is an important factor behind lo-

wer total household income in 2021. Before the pandemic, 56.6 percent of households received income from wage work of at least one member. Around the time of the survey, 45.6 percent of these reported lower wage income compared to before the pandemic. The survey also captures whether households were receiving transfers from the Programa Bolsa Família (PBF) before the pandemic, which can be used to classify households as having been vulnerable before the pandemic. Among these households, the share who reported reductions in wage income was higher (50 percent) than for the average household.

The pandemic also impacted populations differently in the labor market, in line with pre-existing vulnerability profiles. The lower the education level, the higher the probability of losing a job. At the time of the survey, the proportion of people who had lost their prepandemic job and were not working was highest among those with elementary education[65] or less (32.7 percent) and lowest among those with tertiary education or more (13.5 percent).[66] Women were more than twice as likely as men to have lost their prepandemic job and were either unemployed or out of the labor force (36.8 percent versus 16.4 percent). Lustig and Tommasi (2020) show that this may be because most women are involved in the service sector where physical distancing measures have hit especially hard. Data from household surveys further confirm this gender gap. According to the PNAD-C, inactivity and unemployment increased more among women than men

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[61] In 2021, Auxílio Emergencial was paid from April to October with a base benefit of R$250 per household, an additional R$120 for single mothers, and a reduction of R$150 for single-person households.

[62] Measured by IBGE's Índice Nacional de Preços ao Consumidor (INPC).

[63] The Brazil COVID-19 Phone Survey is part of the World Bank – UNDP Latin America and the Caribbean High-Frequency Phone Survey (LAC HFPS) Project. The 2021 LAC HFPS was conducted in over 20 countries in the region. In Brazil, the survey was collected between July 26 and October 1, 2021, resulting in a total of 2,166 completed interviews. The survey is nationally representative of the population aged 18 and above who owns a phone. See World Bank and UNDP (2022), Mejia-Mantilla et al. (2021) and Paffhausen et al. (2022).

[64] Note that for the percentage of households reporting reductions in income (total or from wage income) the denominator includes households in which the survey respondent did not know the answer to the question (less than 2 percent of households), so the estimate presents a lower bound.

[65] Elementary school is a person's expected educational attainment by 14 years old. This is equivalent to the complete basic education up to the level 2 of International Standard Classification of Education (ISCED 2011). Currently, elementary school is equivalent to the "Ensino Fundamental" in Brazil. Before the creation of the "Ensino Fundamental" level, individuals attended a first stage of "Primário" (Primary education) followed by a second stage of "Ginásio" (Lower secondary education).

[66] Job loss is defined as not being occupied in the reference week but having had a job just before the outbreak of the pandemic. We defined not being occupied in the reference week as 1) not having worked in the reference week and not having a job to return to as well as 2) not having worked in the reference week because of the following reason: the workplace closed, nonremunerated absence due to COVID-19, closing of a contract, closing of an agricultural cycle or work season, lack of money or resources to continue with the business, no work, or plans to retire or resign even if the respondent said there was a job to return to.

since the start of the pandemic. The female unemployment rate rose by 4.1 percentage points between Q4-2019 and Q2-2021 compared to a change of 2.4 percentage points in male unemployment. The reduction in labor force participation (LFP) over the same period was 3.8 percentage points for men and 4.3 percentage points for women.

Drops in LFP among women are also partly explained by increased unpaid domestic work in the household, a higher burden of accompanying the education of children

during school lockdowns, as well as traditional gender roles in society. A higher proportion of women experienced increases in the time spent accompanying the education of their children, compared to men (figure 3.9 a and b). Women were also more likely to say that since the beginning of the pandemic, they had felt unequal treatment at work because of having kids. Apart from spending time with the education of their children, women were also more likely to increase the time spent on unpaid work in the household like washing, cooking, and cleaning, as well as caring for children (feeding, etc.).

FIGURE 3.9. **Differences in Labor Market Outcomes and Time Use**

a. Job loss (% population) by education and gender
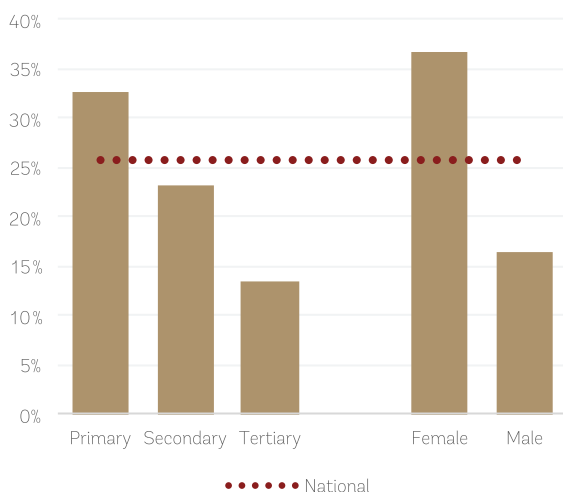
b. Time use and treatment by gender
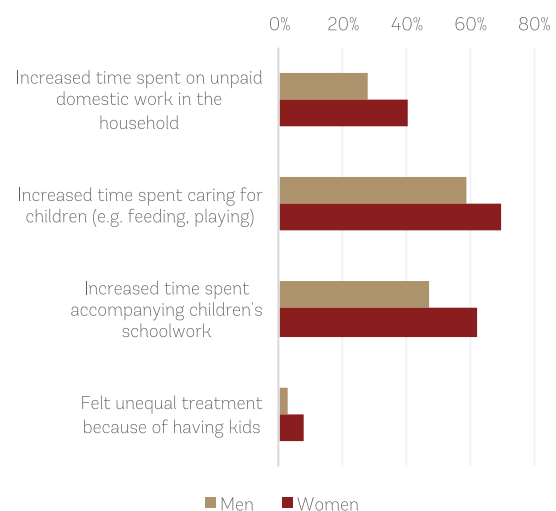
Source: LAC High Frequency Phone Survey 2021 – Brazil and Paffhausen et al. (2022).

Apart from higher unemployment, the pandemic was also resulting in higher job precarity for those who remained employed. A reduction in formal employment and an increase in self-employment at the expense of formal wage employment were observed in 2021. While 72.4 percent of workers said that before the pandemic, they had had jobs where social insurance contributions were made (a proxy measure of formality), at the time of the survey, only 66.1 percent had such employment. The proportion of workers reporting to be self-employed rose from 35.6 percent for the prepandemic period to

41.6 percent at the time of the survey, an increase of about 6 percentage points. At the same time, the data suggests a reduction in the proportion of formal wage workers of about 5 percentage points. The survey also shows a reduction in average hours worked, from 42.6 hours before the pandemic to 39.2 hours around the time of the survey, as well as a shift toward employment in smaller firms. Before the pandemic, about 41 percent of workers reported to have been working in firms with fewer than five workers, while at the time of the survey, workers were split approximately equally between working in small and larger firms (with five

workers or more). Sacchet de Carvalho (2020) found that a reduction in people's income accompanies this job precariousness. A year into the pandemic, Brazilian workers reported receiving a salary equivalent to 82 percent of the wage they usually receive.

Survey data suggest that the economic hardship faced by households was mirrored by firms.
In São Paulo, a study that focused on small businesses found that the pandemic's impact on revenue and employment was large and swift (Cirera et al. 2021). They found that in more than half of the companies experiencing affected operations, the average drop of sales was 53 percent, and 40 percent of the companies had to dismiss employees after the shock. About 26 percent closed their business permanently.[67] Moreover, the initial shock was especially strongest among the self-employed, women-led companies and firms in the services sector. While there has been a recovery, it has been unequal. Smaller firms in the state of São Paulo have not recovered the levels of sales of 2019; the median revenue variation was 37 percent lower. Firms have managed to adjust the intensive margin through reductions in wages and hours worked, which has minimized large-scale layoffs in the medium run. Finally, to recover some of the lost ground, firms have also had to adopt new management practices and accelerate the incorporation of digital tools. Approximately 82 percent of the smaller companies in São Paulo started or expanded their use of internet-based technologies.

The observed negative effects on human capital can potentially leave long-term consequences and further inhibit intergenerational mobility.
In 2021, Brazilian children were 9.5 percentage points less likely to be engaged in school, compared to before the pandemic (98.7 percent of children before the pandemic versus 89.2 percent at the time of the survey). The difference was largest in the northeast, one of the poorest regions in Brazil, where the difference in school engagement between the time of the survey and before the pandemic amounted to 14.7 percentage points. In other states, this difference ranged between 6 to 7 percentage points. At the time of the survey, only about one in five children were attending exclusively face-to-face classes (20.9 percent); the remaining four were either in hybrid teaching modes (28 percent) or attending exclusively virtual teaching modes (51 percent), which could be of lower quality than presential classes.

The pandemic is likely to increase already pre-existing learning gaps.
Children who attend public schools are much less likely to attend face-to-face classes, even if hybrid modes are considered (42.8 versus 76.6 percent of children in private schools). Moreover, among children not attending face-to-face classes, even in hybrid mode, those attending public schools have less interaction with the teacher and are less likely to rely on digital tools for learning (figure 3.10). In fact, Neidhöfer et al. (2020) show that the COVID-19 pandemic puts the achievement of educational attainment at risk for individuals who come from households with lower levels of human capital. Lustig et al. (2020) simulated that in a situation without a pandemic in Brazil, children from households with parents with a low educational level have a 60 percent probability of completing secondary school when compared to their peers in households with parents who have a high educational level. After COVID-19, in Brazil, such a 'risk ratio' falls to less than 30 percent—a larger drop than the one experienced in Argentina, Colombia, and Mexico. The combination of these factors is likely to have long-term consequences in human capital accumulation overall and across the income distribution.

Besides the direct effects of COVID-19 on individuals affected, other health issues have become a source of concern.
Symptoms related to mental health issues were widespread, with about 7 out of 10 adults (69.6 percent) reporting at least one symptom. Job loss and not being able to cover the basic needs of the household are correlated with an increased likelihood of experiencing symptoms (figure 3.11). This suggests the presence of important feedback between income-earning potential, vulnerabilities, and human capital in the form of mental health, as limits to poverty reduction.

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[67] Cicera et al (2021) warn that given the attrition in the survey, the statistic on total exits may not be precisely estimated.

FIGURE 3.10. **Learning Modes of Children Not Having Face-to-Face Interaction with the Teacher, by School Type**

■ Overall   ● Private   ▲ Public
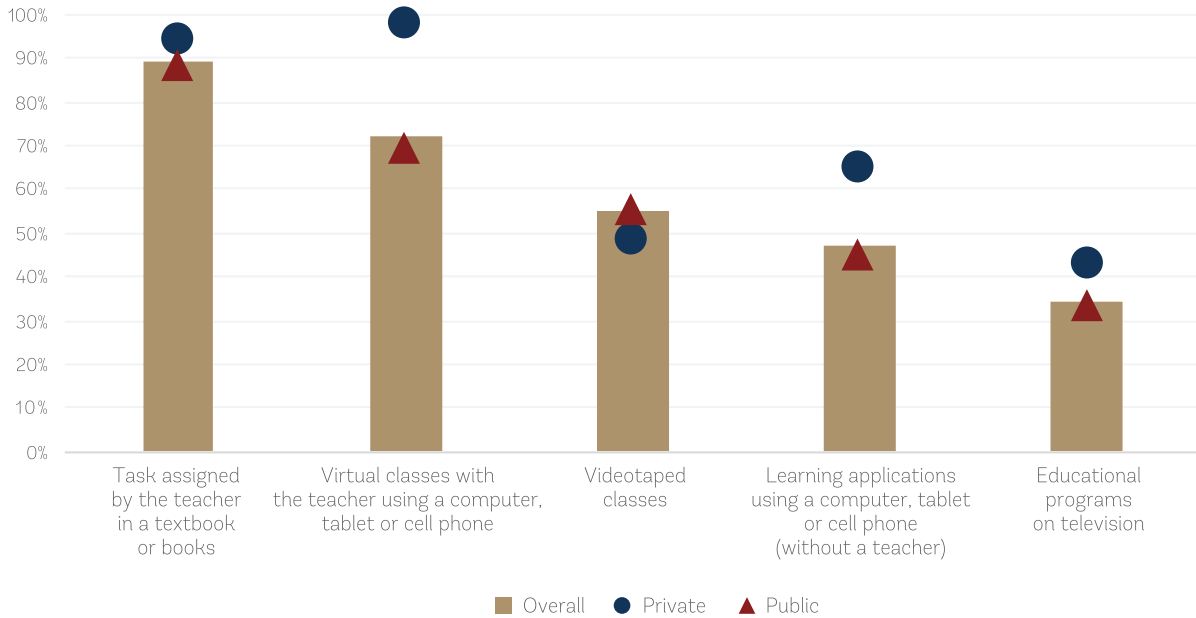
Source: LAC High-Frequency Phone Survey 2021—Brazil.
Note: Children attending face-to-face classes, even if in hybrid mode, are not considered.

FIGURE 3.11. **The Proportion of the Population Reporting Symptoms Related to Mental Health Issues**

●●●● National
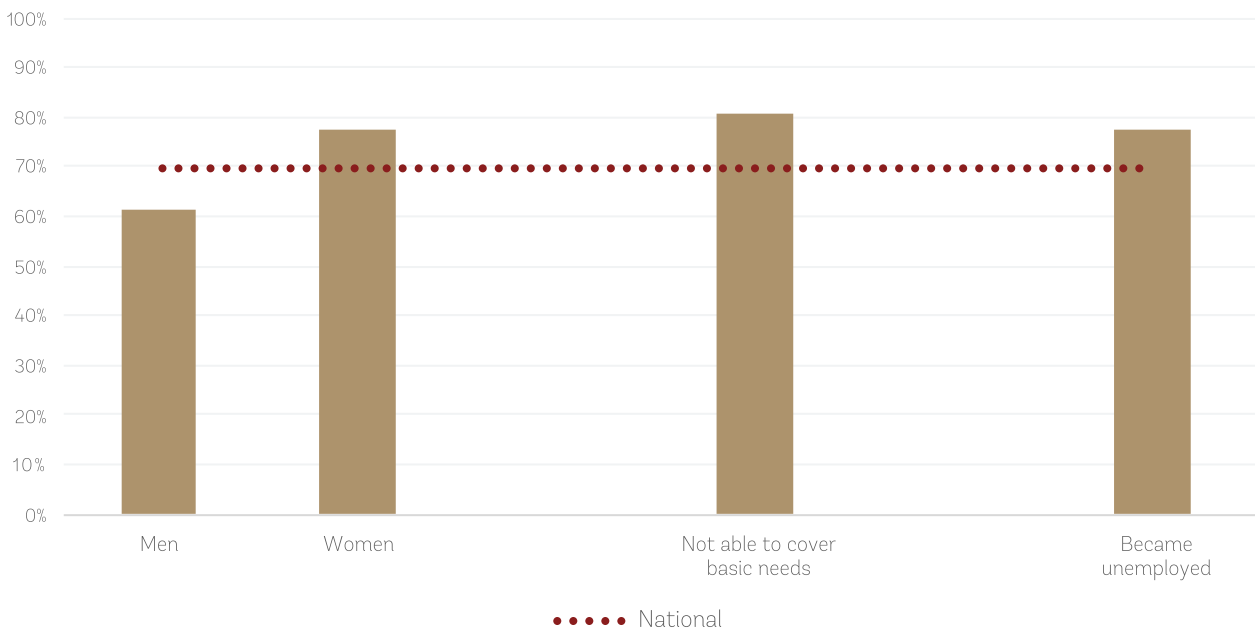
Source: LAC High-Frequency Phone Survey 2021—Brazil.
Note: The following symptoms were considered: Feeling anxiety, nervousness, or worries; feeling lonely; difficulty sleeping; aggressive attitudes or irritability with other household members; conflicts or arguments with other people

Another link between vulnerability and aspects of human capital became apparent through food security, which deteriorated since the outbreak of the pandemic. At the time of the survey, 29.0 percent of households said they were not able to afford healthy or nutritious food (figure 3.12 a and b). The proportions were much higher among traditionally vulnerable households, such as those headed by women (35.9 percent) or people with low education (38.9 percent), and low-income households (51.0 percent) identified as those who received PBF assistance before the pandemic. For almost one in five households (18.1 percent), the situation is very concerning; they reported to have run out of food at least once because of a lack of money or resources in the month before the survey. Only 9.4 percent of households remember a similar situation to have happened before the pandemic. Again, among vulnerable households, the proportion who faced this severe form of food insecurity was considerably higher. The potential negative long-term consequences of episodes of malnutrition and food deprivation should not be understated.

FIGURE 3.12. **Food Insecurity and Household Vulnerability**

a. Food insecurity indicators
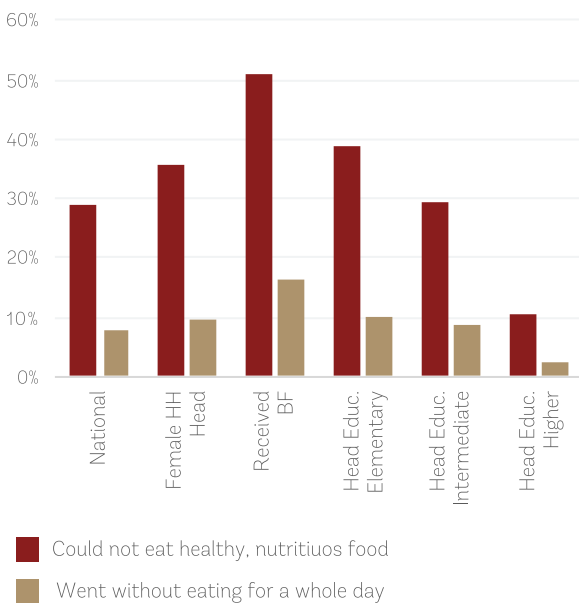
b. Evolution of food insecurity
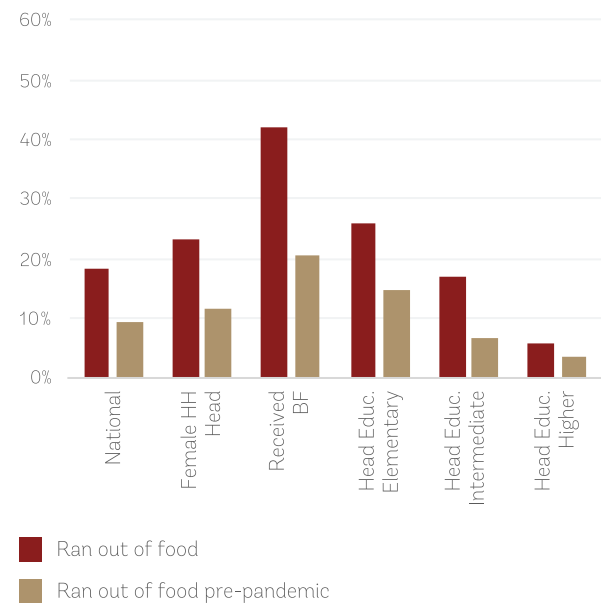
Source: LAC High-Frequency Phone Survey 2021—Brazil.
Note: HH = Household; BF = Bolsa Família (PBF); Head Educ. = Head of household educational level.

Worsening food insecurity is likely due to the sharp increase in the price of food, which matters the heaviest for the most vulnerable households. Prices, another key component of the asset framework, increased considerably during the second year of the pandemic, with the highest increases being observed for food consumed at home, transportation, and housing (figure 3.13). With expenditure shares for different consumption items varying across the income distribution, these increases hit households differently. The sharp increase in prices for food consumed at home hit households at the bottom of the expenditure distribution the heaviest. Prices for this food category rose by 27 percent between January 2020 and November 2021, a category to which households in the bottom

quintile devote over a fifth (21.3 percent) of their total expenditures.[68] Two other expenditure categories had price increases exceeding those of the overall index and represent relatively high expenditure shares among households at the bottom of the income distribution: transportation and housing (figure 3.14). For wealthier households, expenditure shares were only relatively high for transporta-tion, and expenditure shares were more balanced across items with different price increases. Overall prices increased by 11 percent in the January 2020–November 2021 period, severely affecting the purchasing power of the Brazilian population. However, the loss of the real value of household income during the pandemic was felt more heavily by the poor and vulnerable households.

FIGURE 3.13. **Evolution of Prices 2020–2021, by Índice Nacional de Preços ao Consumidor (INPC) Categories**
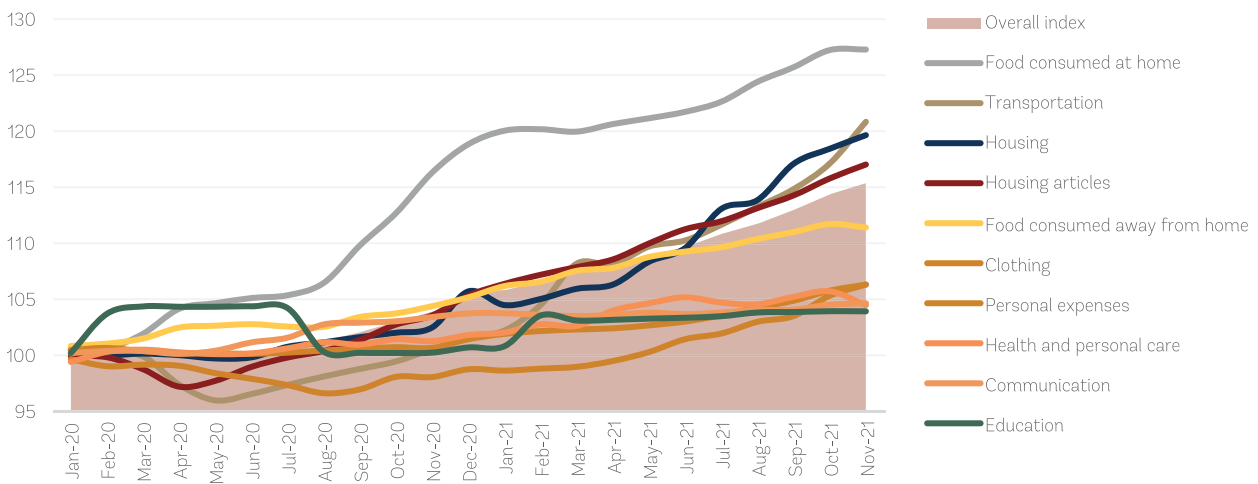
Source: World Bank estimates using Instituto Brasileiro de Geografia e Estatística (IBGE) inflation data

FIGURE 3.14. **Relationship between INPC Products' Price Changes and Households' Expenditure Share, by Income Quintile**

Source: World Bank estimates using IBGE inflation data and Consumer Expenditure Survey (POF) 2017/18 data.
Note: CLTH = clothing; COMMS = communication expenditures; EDU = education expenditures; FAFH = expenditures on food away from home; FHOME = expenditures on food consumed at home (that is, groceries purchased to prepare meals at home); HART = housing articles; HEALTH = health and personal care expenditures; HOUS = housing; PEXP = personal expenses; TRANS = transportation expenditures.

[68] According to POF 2017/18 data. If all food expenditures are taken into account, the share is 24.6 percent

Without enough means to weather income shocks induced by the pandemic, households have increasingly resorted to debt. The household debt burden is at a record high 60 percent of household income (figure 3.15). It is mostly driven by nonmortgage borrowing and has increased by almost 11 percentage points since February 2020. According to the Brazil COVID-19 Phone Survey, in July/August 2021, borrowing mo- ney—even without knowing if the borrower would be able to pay it back—was a frequent strategy employed by households to make ends meet (figure 3.16). Almost 30 percent of households had incurred debts and almost a quarter exhausted their savings. At the same time, more than 20 percent did not pay back or deferred payback of a credit installment. The implications for these households' economic development may be significantly negative.

FIGURE 3.15. **Household Debt Burden, 2007-2021 (Percent of Household Disposable Income)**

Total household debt   Household debt without mortgage loans
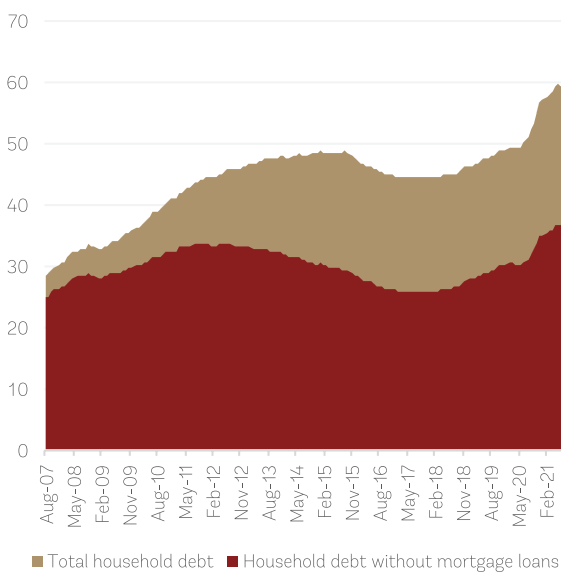
Source: World Bank staff based on Central Bank of Brazil.

FIGURE 3.16. **Coping Strategies Employed by Households, July/August 2021**

Strategy	Percent
Borrowing money, even without knowing if able to pay back	28.7%
Exhausting savings	24.3%
Defer/not pay back credit installment	21.9%
Selling assets	20.4%
Not paying rent	8.6%
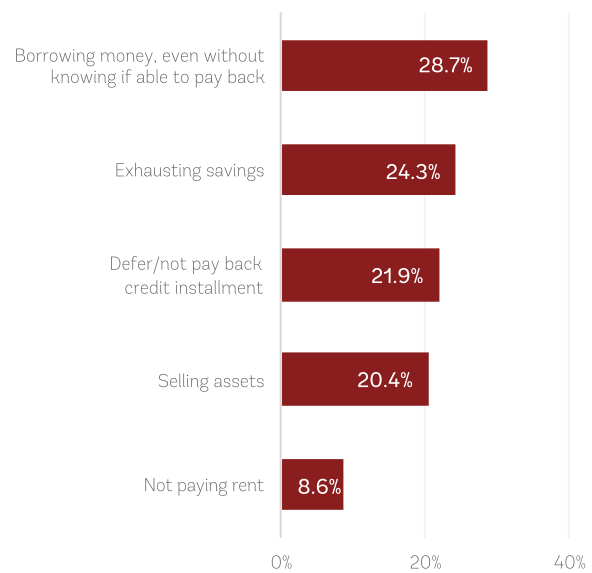
Source: LAC High Frequency Phone Survey 2021 – Brazil

Poverty and Inequality Projections for 2020-2022

Estimating how the pandemic affected poverty rates in Brazil presents a series of important challenges. Poverty estimates typically use the PNAD-C survey annual release. After social distancing measures were put into action in March 2020, IBGE suspended all the in-person data collection and started to use telephone surveys to continue PNAD-C. The PNAD-C's response rate fell significantly: in February 2020 it was 87.9 percent and by April it had gone down to 60.2 percent (IBGE 2021a). PNAD-C's sampling design follows a rotation scheme in which a household is interviewed 5 times over 15 months, and the first and fifth interviews are the most detailed in terms of income sources. Due to the pandemic dynamics in 2020, the response rate of the first interviews—the interview typically used to measure income and estimate poverty—was 47.4 percent. Therefore, exceptionally, IBGE decided to officially disclose its social indicators and microdata referring to the fifth interview as it recorded a response rate of 72.7 percent (IBGE 2021b). As of March 2022, the analyses that have been conducted do not indicate any problem for comparability across years, except for the absence of the dwelling characteristics module in the released interview (IBGE 2021d).

Nonetheless, analyses indicate that poverty rates were lower in 2020 than in 2019. Mostly thanks to the largesse of the Auxílio Emergencial program that covered over 67 million Brazilians, the income of households in the bottom of the distribution increased—notwithstanding the documented deterioration of their labor market outcomes. Simulations show that poverty rates (using the half a minimum wage threshold) decreased in 2020 to 20.4 percent, or about 7.1 percentage points lower than in 2019.[69] Indeed, simulated counterfactuals suggest that in the absence of Auxílio Emergencial, the poverty rate in 2020 would have been 1.3 percentage points higher than in 2019. IBGE (2021d) estimates show a similar pattern in poverty rates.[70] Finally, simulations suggest that the bottom of the distribution experienced the largest relative increases (figure 3.17), and inequality may have also decreased thanks to Auxílio Emergencial. Our estimates suggest a Gini coefficient of 0.474 in 2020. The coefficient would have been 0.521 in the absence of the emergency aid.

Some reports have pointed out that since food insecurity in Brazil went up, this presented a paradox with the estimated trends in poverty. However, this apparent paradox is explained by what is measured by the surveys that result in these numbers. While poverty rates are based on the average income across the year, food insecurity is marked by the occurrence of one event during the period of reference. In other words, the rise in food insecurity found in FAO (2021) and PENSANN (2021) highlights the effects of income volatility, especially those experienced by the poorest individuals (Lara Ibarra and Vale 2022b).

[69] Results in this section were obtained with the World Bank-developed BraSim microsimulation tool and using as basis the PNAD-C 2019 data. The tool models many Brazilian fiscal policies to study their effects on households' disposable income and other welfare-related outcomes (see also Chapter 2) and thus is well-placed to simulate changes to the social safety net programs that occurred during the COVID-19 pandemic. The welfare aggregate used to calculate poverty and inequality is households' disposable income — the income that is available to the household once direct taxes and direct transfers are considered. The poverty rates and inequality indicators for 2019 are slightly different than those presented in Chapter 2 though qualitatively similar.
[70] IBGE (2021d) estimates that in 2020, in the absence of all social program's benefits (Bolsa Família, BPC, and other programs including Auxílio Emergencial), the poverty rate based on a US$5.50 2011 PPP poverty line would have been 32.1 percent instead of 24.1 percent. The effects on AE may be underestimated in these calculations, however. The PNAD-C 2020 data released in November 2021 suggests that about 20 million individuals received the Auxílio Emergencial. If compared to administrative numbers, Auxílio Emergencial's coverage is significantly underestimated in PNAD-C (Lara Ibarra and Vale 2022a). Indeed, recently published indicators suggest that poverty rates in 2020 based on the US$5.50 line were about 13.1 percent (World Bank 2022). Simulations show that, if AE would not have been implemented and PBF would have kept the same coverage in 2020 as in 2019, the poverty rate could have been 8.9 percentage points higher.

FIGURE 3.17. **Simulated Growth Incidence Curves with and Without the Implementation of Auxílio Emergencial by Vintiles of Income per Capita, 2019–2022**

a. 2019–2020
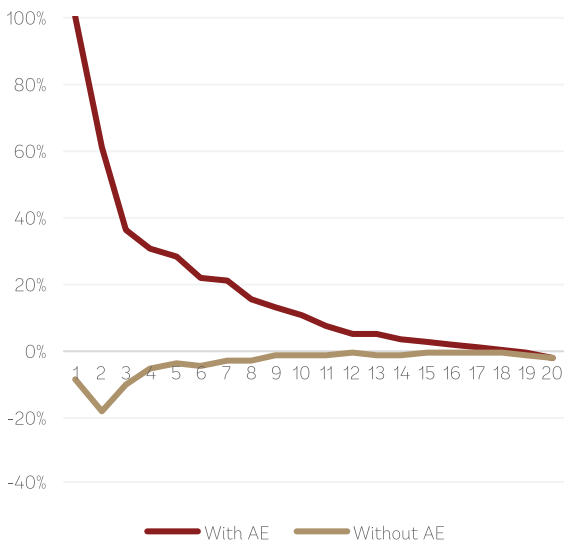
b. 2021–2022

Source: World Bank estimates.
Note: With AE = income vector from a simulation of the implementation of AE as per program's rules; Without AE = the income vector obtained as if there was no Auxílio Emergencial implemented, while PBF kept the same coverage as of 2019.
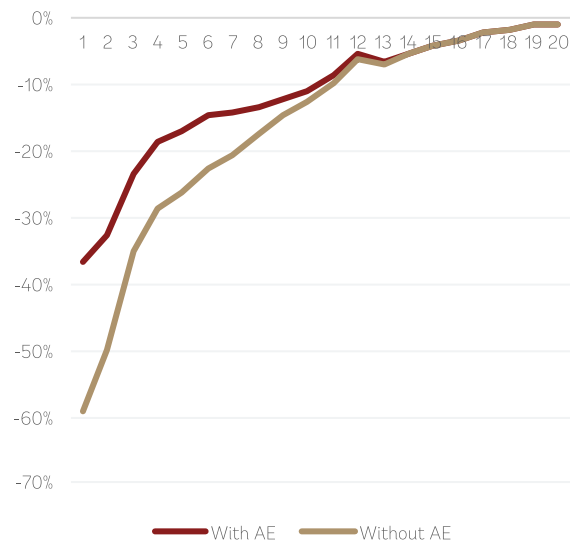
Source: World Bank estimates.
Note: With AE = income vector from a simulation of the implementation of AE as per program's rules; Without AE refers to the income vector obtained as if there was no Auxílio Emergencial implemented, while PBF kept the same coverage as of 2020.

Poverty and inequality are expected to be worse in 2021 than in 2020, though slightly better than before the pandemic. The continuous support from the Auxílio Emergencial program in 2021 counterbalanced the sluggish labor market dynamics, but it was not enough to contain the rebound of poverty and inequality in 2021. Using the threshold of half of a minimum wage, over a quarter (26.3 percent) of the population is expected to be in poverty in 2021. Meanwhile, inequality is expected to increase, with the Gini coefficient reaching 0.506 (figure 3.18).

For 2022, the war in Ukraine coupled with the uncertainties surrounding the national elections pose challenges to economic growth. In terms of the employment rate, projections assume it would hover around 53 percent, about 3 percentage points lower than the pre-crisis

level (56.4 percent). While unemployment rates could be 12.7 percent according to an optimistic forecast or 13.7 percent in the worst-case scenario, compared to 11.8 in 2019. Among the consequences of the war, there are shortages of important industrial inputs at the international markets, resulting in hindered investments and surging inflation.

The social protection system in Brazil underwent a major change in November 2021. The historically famous PBF was replaced in November 2021 by a new program called Auxílio Brasil (Provisional Measure 1,061/2021). While the targeting strategy of the program was basically the same,[71] the income thresholds for eligibility were increased from R$89 to R$105 for childless families and from R$178 to R$210 for families with children. In addition, the structure of the benefits was slightly modified. Moreover, two key features were changed. First, the go-

[71] Identification of the program's beneficiaries will be done through their registration in the Cadastro Unico. This social registry application is needed for individuals or households to be considered for all government programs.

vernment managed to give a benefit floor of R$400 in December 2021 and through December 2022. That is, all Auxílio Brasil beneficiaries are receiving at least R$400, regardless of the income needs or family structure. Secondly, an expansion of the budget to cover an additional 3.5 million families during 2022 was passed by the Legislative houses, thus allowing Auxílio Brasil to reach 18 million families starting January 2022.

Two scenarios are simulated for Brazil 2022.
The first scenario is considered optimistic, it assumes that employment in 2022 will have a high response to projected economic growth and that real wages will grow concomitantly to economic sectoral growth rates. The second scenario, the pessimistic one, depicts a slow reaction of employment to economic growth, while inflation deteriorates real wages. Box 3.1 provides more details on the parameters adopted in each of the scenarios.

Estimates suggest that in 2022, poverty and inequality could stagnate or increase – thus getting closer to prepandemic levels.
Our optimistic scenario exhibits a 26.5 poverty rate and a 0.508 Gini coefficient (figure 3.18). This scenario would lie upon a reactive labor market and wages despite the sluggish economy, as well as the adjustment in the country's main cash transfer program to a minimum of R$400 and its increased coverage. Still, against a backdrop of a still-growing population in the context of low economic growth, rising inflation and the end of a large emergency cash transfer program, poverty and inequality barely change. In the pessimistic scenario, uncertainties from the international and local scenes keep employment elasticities down by reducing investment in new hirings and labor income growth is eroded by inflation. Thus, overall welfare worsens leading to a Gini coefficient to 0.509 and a poverty rate of 26.9 — implying 1.6 million more people in poverty than in 2021.

FIGURE 3.18. **Simulated and Projected Poverty and Inequality in Brazil 2019–2022**

a. Poverty Rates
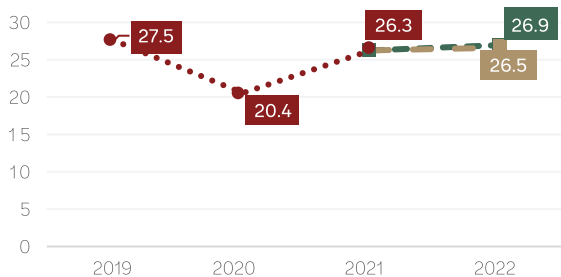
b. Gini Coefficient

Source: World Bank estimates.
Note: The beige and green lines refer to the first (optimistic) and second (pessimistic) scenarios, respectively.
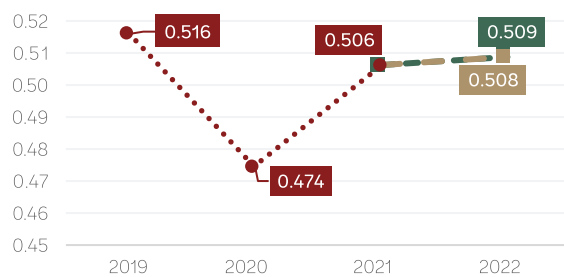
Source: World Bank estimates.
Note: The beige and green lines refer to the first (optimistic) and second (pessimistic) scenarios, respectively.

The projections for poverty and inequality across all scenarios suggest that these welfare outcomes would be slightly better than those observed in the prepandemic period.
While this could be surprising, it is notable that altogether, the economy is expected to have an accumulated real growth of 1.2 percent in the 2019–

2022 period. In addition, the flagship program for cash transfers to the poor, previously known as Bolsa Família and now Auxílio Brasil, has expanded with respect to 2019. In 2019, there were about 13 million beneficiary families in Bolsa Família according to administrative data. By 2022, about 18 million families are receiving the benefits.

BOX 3.1. Simulating Poverty and Inequality in 2020/2022

The poverty and inequality estimates presented in Chapter 3 are obtained through a combination of nowcasting and simulations following the methodology in Olivieri (2020). The PNAD-C 2019 data is used as the baseline. Estimates for 2020 and 2021 are nowcasted following a three-step process. First, the working-age population is transformed via a multinomial logit estimation to match the labor market outcomes observed in the data. Second, labor incomes are adjusted to match the observed growth in the data. Finally, adjustments to the social programs effective in each year are modeled and incorporated as non-labor income to create a new income vector.

For 2022, simulations work with macroeconomic projections of (overall and sectoral) economic growth combined with employment elasticities to estimate a broad series of labor market outcomes, such as labor force participation (LFP) and employment (by sector). Having simulated a new distribution of working individuals for a target year, the associated labor incomes can be estimated. Next, we use a microsimulation tool to calculate the corresponding disposable income distribution for all households. The 2019 benchmark is obtained.

Economic growth projections are obtained from World Bank (2022). In 2022, real GDP growth is expected to grow 0.7 percent, while the agriculture, industry and services sectors are projected to grow 2.5, 0.3, and 0.6 percent, respectively.

The second building block of the simulation is the Brazilian labor market quarterly data between 2012(Q1) and 2021(Q4), which we use to compute the recent labor market trends and estimate several sets of growth-employment elasticities for a series of key indicators: 1) labor force participation (LFP), 2) sectoral employment, and 3) informality share. This set of estimated elasticities is used to project those for 2022. For 2022, and recognizing the inherent uncertainty of the country's landscape, we estimate two different employment scenarios with different sectoral composition changes.

To keep simulations manageable, a single set of elasticities for LFP and informality are used in both two scenarios. LFP for 2022 is projected as 61.4 percent. Unemployment is computed residually after considering the projected participation and sectoral job creation numbers. To define the employment scenarios, we rely on the labor market information that resembled the most to the current situation: the low- economic growth years following the 2014/16 crisis. We use the employment-sector GDP highest elasticities from 2017 to 2019 as the first scenario (implying high employment to sectoral growth response) and the smallest of the same period as the pessimistic (implying low response). Table B3.1.1 shows the elasticities used in the simulation. It should be noted that – according to the annual data releases available- there is substantial variation in the elasticities across years, however. For instance, between 2012-2020 the average elasticities for agriculture, industry and services were respectively -0.62, 1.18 and 1.07 with standard deviations of 1.51, 2.33 and 0.91. We thus recognize the choice of elasticities for the simulations as a potential caveat of the analysis.

TABLE B3.1.1. **Elasticities Used in Employment and Poverty Simulations by Scenario**

	Maximum 2017–2019 (Optimistic scenario)	Minimum 2017–2019 (Pessimistic scenario)
Agriculture	1.71	–0.54
Industry	6.36	-1.51
Services	1.67	1.39

Source: World Bank staff estimates.

Simulations suggest that about 18 percent of the Brazilian population could be chronically poor. Chronic poverty is typically measured using longitudinal data because it allows estimating the persistence of (monetary) poverty status over time for the same household. In chapter 2, multidimensional poverty indexes allowed the identification of a group equivalent to 20 percent of the population that were highly likely to be chronically poor and trapped in poverty. While the simulations presented here can only provide suggestive evidence, it is notable that the share of the population that is projected to be consistently monetary poor in 2019—2022 is 18.4 percent[72]. These individuals reside in households whose per capita income is estimated to stay under half a 2019 minimum wage in real terms notwithstanding the year. These families are in a very vulnerable situation in which the emergency cash transfers of the past years were not enough to bring them over the poverty line.[73]

The correlation between the persistence of poverty and certain demographic – typically vulnerable – groups is once more confirmed. About three quarters of the chronically poor are nonwhite individuals. Half of them live in the northeast region. They are almost twice as likely to be less than 18 years old (45 percent) than the overall population (26 percent). Only 6 percent of this group is 65 years and over, compared to 26 percent in the overall population. The chronic poor are more likely to be in a women-led household, and only 3 percent of them reside in a household where the head has tertiary-level education.

Compared to the overall population, the (simulated) chronic poor were employed in less stable jobs at the outset of the pandemic. In 2019, individuals in chronically poor households participating in the labor force were al-most three times as likely to be unemployed than the average individual in the labor force. Very few (16 percent) of the working chronic poor have a *carteira assinada* and three quarters are informal. About 29 percent of the working chronic poor were engaged in agriculture, compared to 9 percent in the overall working population.

TABLE 3.2. **Profile of the Chronically Poor based on the 2019 - 2022 Simulations and the Brazilian Population**

	Overall population	Chronically Poor
Female	51%	51%
White	42%	24%
Female head	47%	53%
White head	40%	21%
Young (<= 24) head	5%	7%
Underage (< 18)	26%	45%
Children 0–5	8%	15%
Children 0–14	21%	38%
Elderly (65+)	26%	6%
Average members	3.7	4.8
Location		
Urban	86%	69%
North	9%	16%
Northeast	27%	49%
Southeast	42%	25%
South	14%	6%
Center-West	8%	4%
Head's Education		
Primary	48%	69%
Secondary	34%	28%
Tertiary	19%	3%
Labor Market Outcomes		
Unemployment rate	12%	33%
Type of occupation		
CLT	40%	16%
Public or Military	10%	2%
Informal	35%	76%
Economic sectors		
Agriculture	9%	29%
Industry	13%	10%
Construction	7%	11%
Wholesale and trade	19%	16%
Domestic services	6%	11%
Other services	34%	17%
Public administration	5%	2%

Source: World Bank estimates.
Note: The chronically poor are defined as people who were under the poverty line in 2019, and the simulations of 2020, 2021, and 2022 optimistic scenario. Unemployment rate is calculated over individuals in the labor force. Not all types of occupations and economic sectors are shown.
CLT is defined by having a formal employment registered in the Brazilian workbook under the Consolidação das Leis do Trabalho (CLT) legislation.

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[72] Result based on the optimistic scenario projection for 2022. If the pessimistic scenario results are used instead the chronic poor rate is 0.1 percentage points higher.
[73] Transfers appear to affect other poverty-related measures besides the headcount. The poverty gap index is reduced significantly after 2019, according to our calculations. The gap index decreases from 55.4 percent in 2019 to 35.1 percent in 2020 and goes back up to 49.8 percent in 2021.

Conclusions

The disruption caused by the COVID-19 pandemic in Brazil and the world was a game-changer. The first year of the COVID-19 crisis brought a few firsts for Brazilian history. First, there was an enormous human toll directly created by the sickness and death of 195,441 Brazilians in 2020 and 619,056 as of December 2021. Second, the Brazilian economy experienced its worst drop in recorded history. The real GDP per capita growth in 2020 was –4.7 compared to –4.4 from 2015.[74] Third, and relatedly, the closures and other measures led to a massive exit of the labor force that had not occurred ever: 10 million people are estimated to have left the labor force between the third quarter of 2019 and the third quarter of 2020. In 2015, the average LFP was barely 0.3 percentage points lower than in 2014, before the crisis hit the economy. Among those who stayed in the labor force, employment opportunities were scarce: the unemployment rate stood at 14.6 percent in the third quarter of 2020.

The massive response of the government prevented Brazil from joining the rest of the LAC region and many other middle-income countries in observing their poverty and inequality levels increase. Excluding Brazil, the poverty rate in LAC increased by 3 percentage points between 2019 and 2020, which means 13.7 million more people in poverty as measured by the US$5.50 2011 purchasing power parity (PPP) international poverty line (World Bank 2021b). World Bank (2021b) also produces poverty estimates including Brazil. Its inclusion would have brought the LAC poverty rates down in 2020. The poverty and inequality estimates for Brazil in 2020 were lower than the estimates from 2019. The main factor is the fiscal package put in place by the government, and the boost provided to 67 million individuals through the Auxílio Emergencial program.[75]

An understanding of the effect of the pandemic needs to go beyond the monetary dimension of deprivation. The estimated losses in human capital are huge. Survey data suggests that the percentage of children not engaged or not having activities in school summed up to 20.1 percent by July 2020, compared to 1.3 percent during 2019. Estimates from administrative records suggest that students in Brazil lost 116 percent of the expected one-year of language learning and 188 percent of math learning (Azevedo et al. 2021[76]). More importantly, these losses are not uniformly distributed among the population. Access to school was recovered and almost universal in the south (95.4 percent) during November 2020 compared to roughly 72.2 percent of the children in the northeast who were engaged with school activities. Only a half of the children in the bottom quintile of income were engaged for five days or more, contrasted by three-quarters in the richest households.[77]

The effect on food security is bound to have long-lasting effects on people's health and long-term economic development. The negative impact of the pandemic on food security may have implications for malnutrition levels and eventually, lead to worsening economic outcomes (Heltberg 2009; FAO et al. 2020). The price effects are also eroding the purchasing power of the poor, who will keep facing a worsened situation in the

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[74] World Development Indicators "GDP per capita growth (annual %)" https://databank.worldbank.org/source/world-development-indicators# (accessed April 22, 2022).

[75] By some accounts, the fiscal package was of the order of R$1.034 trillion in 2020 (Orair 2021). Expenditures in the AE program were around 334 million (IFI 2022).

[76] The blog note with precise average effects by country is available at: https://blogs.worldbank.org/education/global-education-crisis-even-more-severe-previously-estimated. Accessed January 24, 2022.

[77] Incidentally, due to the sanitary preventions, the Citizenship Ministry lifted all conditionalities for PBF beneficiaries during the pandemic. Survey data from the LAC HFS Brazil Phone Survey 2021 suggests that the observed decreases and 2021 levels in children's engagement in school among PBF beneficiaries are similar to that of other low-income households not receiving PBF.

absence of enhanced economic opportunities. It may be in line with this finding that, despite the monetary support provided to a large share of the population, many still had to resort to debt to stay afloat. Phone survey data points out that about 39 percent of respondents were considered unable to cover their basic needs. Even among Auxílio Emergencial recipients, this share was 50 percent, indicating that not even the relatively large emergency aid was an effective buffer against the economic shock for a large share of the population.

By the end of 2021, the labor force was still thinner than at the onset of the pandemic.
The detachment to the labor market can impact human capital accumulation over the long-term. As otherwise working individuals stay unemployed or out of the labor force, their skills deteriorate (Pissarides 1992; Ortego-Marti 2017) making it harder to come back to work. Finding work and receiving a steady income flow may prove to be more difficult for low-income individuals that used to work in the services sector—a sector highly impacted by the crisis. The difficulty may also be accompanied by firms' need to resort to digitalization or automation to stay afloat.

Women have suffered the largest burden of the impacts on labor.
Already starting from lower labor market outcomes (evidenced by higher unemployment rates and lower LFP), women had been the first to leave the labor force. By mid-2021, female LFP was 48.8 percent; among Afro-Brazilian women, the rate was 48 percent, and among women with primary school or less, it was 27 percent. At the same time, women have taken up most of the burden of housework—many times in the shape of accompanying virtual classes for their children.

Closing the gap of the close to 20 percent of Brazilians who are chronically poor requires a comprehensive set of policies if they are to escape poverty in the future.
This group represents the most vulnerable people in the Brazilian population, largely lacking strong income-generating capacity and perhaps illustrating the biggest social fragilities in the country. The existence of chronic poverty was already hinted at in Chapters 1 and 2 when analyzing the evolution of poverty in Brazil in previous years. While poverty came down substantially, extreme poverty (measured in different ways) was much harder to eliminate. In 2014, at the end of Brazil's long-running economic growth spell, the share of the population living with less than the PBF income threshold (R$178 per capita in 2019) was 5.6 percent. Extreme poverty increased in the years that followed. Its notable drop in 2020 was markedly temporary, according to simulations. Meanwhile, a nonnegligible share of households earn more than R$178, but still make less than half a minimum wage and do not manage to accumulate enough productive assets that could put them on a path of stable economic development. These multidimensionally poor are likely to be the ones failing to receive enough support to escape the poverty traps they face. As Levy and Cruces (2021) suggest, social protection in LAC provides incomplete and erratic security that does not conduce inclusive growth. One main problem is that social protection is usually organized as an agglomeration of independently designed and evaluated programs, while the ultimate outcomes depend on their joint effects. As an example, in Brazil, BPC outlays and (subsidies to) pensions are not implemented in a way that incorporates the whole distribution needs. Improving the social protection system, the authors argue, would require a new comprehensive logic.

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OLD PROBLEMS, NEW OPPORTUNITIES

OLD PROBLEMS, NEW OPPORTUNITIES

Brazil's challenges to eradicate poverty and boost shared prosperity are both long-standing and new. A broad renewed vision is needed to give the most vulnerable population groups a decent living in the future. Brazil is well-known for its long-standing inequalities. As shown in this report, the unequal distribution of income, wealth, and asset accumulation creates lagging population groups with reduced opportunities for economic development. Women, Afro-Brazilians, and traditional communities suffer from different types of exclusion that severely curtail their economic freedom. The urban poor live in areas where all public services are provided and economic opportunities abound. At the same time, the costs to be connected to most of those features are prohibitively high, effectively limiting their ability to generate income. Rural residents in Brazil face low levels of provision of public services and they also are (still) largely connected to the agricultural sector. The economic opportunities for these residents are diminishing as time goes on, with no clear outside option for them to become less dependent on public transfers.

This report documented how the COVID-19 pandemic widened the existing gaps in Brazil. Evidence from administrative and survey data has shown that the economic effects of the pandemic were felt more heavily among the poor and vulnerable, a feature that, unfortunately, replicates the overall situation in several countries around the world (Narayan et al. 2022). In Brazil, women, young workers, and the low-educated had higher likelihoods of losing their jobs during the pandemic. Low-income families experienced higher levels of food insecurity and were less likely to be able to cover their basic needs. Children living in low-income households and in traditionally higher-poverty regions experienced higher drops in school engagement than children from better-off households.

Policies addressing short-term and long-term needs should be implemented if the most vulnerable populations are to be able to accumulate assets and escape poverty (table 4.1). In the short term, policy priorities should focus on protecting these populations against the erosion (or depletion) of assets. Policies should address the direct impacts of the pandemic: protecting the human capital of children and helping individuals get back to work. In the long term, efforts should be put into building and promoting the accumulation of assets for the broadest-possible base. Investments in human capital are needed to boost the productivity of the workforce—both present and future. There should be a strong push to support the structural economic transformation occurring in Brazil. In addition, investments in infrastructure and access to productive assets are required to better connect and protect the vulnerable populations so that Brazil can gear toward inclusive and resilient growth.

Protecting Against Asset Erosion and Depletion

Brazil needs to move quickly to recoup the learning lost from school closures. Before the pandemic, Brazil's learning-adjusted years of schooling and quality of education were below the average of other upper-middle-income economies. The losses in language and math caused by the pandemic already represent more than a year's worth of learning (Azevedo et al. 2021). Thus, supporting children to go back to school is crucial. Teachers should be provided the necessary tools to effectively identify where each child is in terms of learning achievement, and in-school and after-school remedial programs should be embraced. Moreover, strategies need to be devised to prevent further dropouts and to actively search for those who have already dropped out. Certainly, because many children have only remote learning as an option, further support to teachers, especially in public schools, should promote the adoption of practices that allow for interaction with these students. In digitally deprived environments, this support may entail developing programs that work with simplified digital tools or physically delivering homework. In addition, this juncture may be a good opportunity to develop and provide teachers (and principals) the skills they need to specialize in the delivery of remote activities and as a result support the broader expansion of the educational system to underserved areas.

The Brazilian social protection system was able to protect a large share of the population during the worst economic crisis in recorded history. Continued, yet better targeted, support should be put in place to help individuals transition back into the labor force. The effects of the expansion of the Programa Bolsa Família (PBF) and of Auxílio Emergencial on smoothing households' income cannot be understated. As the economy continues to recover, there is high uncertainty about how much the labor market can respond. Further government support may be warranted to keep low-income families afloat. As of the third quarter of 2021, the labor force had returned to almost the same levels as those of the third quarter of 2019. Nonetheless, the average income among workers is 4.3 percent lower in nominal terms and certainly much lower in real terms.[78] In addition, recovery has not been equal for women and men. Higher unemployment rates compared to before the pandemic (12.6 percent compared with 11.9 percent) are driven almost exclusively by female unemployment rates (15.9 percent versus 14.3 percent). If the labor market does not improve, the social protection system still has an important role to play, especially for single mothers and the most vulnerable households—those without strong labor market prospects.[79] To support female reinsertion in the labor market, the policies and programs that are needed are those that focus specifically on women and the sectors in which they are most involved. These policies and programs could include the retraining of women and the provision of subsidies for rehiring, as has been done, for instance, in Chile.[80] Financial and technical assistance can support female entrepreneurs and self-employed women. Finally, raising awareness of the unequal distribution of unpaid childcare responsibilities and work in the household, combined with promoting co-responsibility for the family and household across genders could further support these policies.

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[78] Inflation between January 2020 and September 2021 was 15.1 percent. There is no comparable inflation series for the period before.

[79] The Auxílio Brasil program will provide a minimum benefit of R$400 through 2022—a larger benefit than its predecessor (PBF). However, this increased benefit amount is not expected to disincentivize seeking work or formal work opportunities (Gerald, Naritomi, and Silva 2021; Morgandi et al. 2020).

[80] For more information, see the "COVID-19 Global Gender Response Tracker Global Fact Sheet," Version 3, United Nations Development Programme-United Nations Women (November 11, 2021).

TABLE 4.1. **Policy Implications to Promote Asset Accumulation and a Pathway Out of Poverty**

Protecting against asset erosion and depletion	Time frame
• Support children, teachers, and staff to incorporate flexible tools that focus on learning and remedial education whenever possible	ST
• Continue financial support to the most vulnerable	ST
• Support reinsertion in the labor market, especially for women (i.e., retraining, subsidies for rehiring, and financial assistance to female entrepreneurs); increase protection from future labor shocks	ST + LT
Improving human capital and its returns	
• Improve targeting and increase government expenditures in education, especially in north and northeast regions	LT
• Improve quality of education	LT
• Implement reskilling and upskilling programs; foster firms' engagement to develop skills of workforce and encourage training	LT
• Support to health services (especially through reduction of out-of-pocket expenditures)	LT
Supporting the accumulation/protection of productive assets	
• Push for broad land tenure regularization	LT
• Increase access to finance and financial education of low-income population through targeted interventions	LT
• Support digital inclusion of the rural and vulnerable population by making connectivity affordable, reliable, and relevant	LT
• Promote mitigation strategies to face increased climate change risks	LT
Building a minimum asset level for the broadest-possible base	
• Promote competition and gradual trade liberalization	LT
• Invest in infrastructure investment to (at least) replace depreciating capital	LT
• Create fiscal space, coupled with more efficient spending (funds relocated to high social-value items and ensure sustainability of safety net)	LT
• Pursue indirect taxes reform	LT
Promoting the creation of evidence for better informed policy design	
• Adopt an official poverty measurement methodology; broaden data coverage and integration of data systems	ST + LT

Source: World Bank compilation.
Notes: ST = short term; LT = long term.

Protecting more Brazilians from future labor market shocks will require a renewed vision. A reform to the existing unemployment programs is needed.[81] Also, policies to extend protection to the self-employed and to provide active labor market services for displaced and unemployed workers are important to prevent the unnecessary erosion of skills or negative behaviors, like the "asset smoothing" described in chapter 2. For instance, labor market insertion of low-productivity or inexperienced unemployed workers can be promoted through targeted wage subsidies (as the "Contrato Verde e Amarelo" proposed), as well as through simplifications of labor regulations (which differ from deregulation) that reduce employers' uncertainties. In addition, to protect the growing number of self-employed, Brazil could explore instruments for financial self-insurance through individual savings accounts that exploit behavioral nudges and tax incentives (Morgandi et al. 2020).

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[81] In 2019, before the pandemic, only 17.7 percent of the 12.6 million unemployed received unemployment insurance, well below the OECD average of 37 percent. Despite the low coverage, Brazil spends about 2.3 percent of its GDP on labor market programs, most of which finances the Seguro Desemprego and Fundo de Garantia do Tempo e Serviço withdrawals due to layoffs. The level of spending is high compared with any international comparator. The low coverage rate points to an outdated labor program design, which still assumes formal dependent employment and cash-based assistance as the main ways to engage in the labor market (Muñoz Moreno and Morgandi 2021).

Improving Human Capital and Its Returns

A sustainable growth path for Brazil cannot be achieved without major investments in the human capital of the population. The average adult in Brazil has less than nine years of education, which is less than the average for adults in OECD countries. Brazil's most recent Human Capital Index (HCI) estimate, released in September 2020, was 0.55—meaning that children born in Brazil that year will grow up to achieve just 55 percent of the productivity they could have attained, had they enjoyed full health and education. Notably, most of the variation in the HCI comes from gaps in the education component (World Bank, forthcoming [b]). Increasing government expenditures in education and improving their targeting towards poorer households must be key components of the government's strategy going forward. For instance, the enduring feature of lower educational attainment in the northern and northeastern regions calls for immediate action. The improvement of basic skills could come from higher investments in infrastructure coupled with a strong push to increase teacher quality because teacher rotation, workload, working conditions, and wages have been shown to be limiting factors for higher educational attainment (World Bank, forthcoming [b]). In Brazil, expenditures in education are 6.08 percent of GDP—a higher share than the 3.88 percent among upper-middle-income economies[82]—but the targeting could be improved. Approximately 0.7 percent of GDP was spent on federal universities in 2015, and at the same time, more than 65 percent of the students attending federal universities were from families that were among the richest 40 percent of the population (World Bank 2017).

Investments to enhance the quality of education in an equitable way should be part of any future government strategy. In Brazil, learning poverty—the inability to read and understand a short, age-appropriate text by age 10—affects almost half of the children (48 percent) (World Bank 2019). Brazilian students perform systematically lower than average in the PISA international standardized test. Students in Brazil scored lower than the OECD average in reading, mathematics, and science. In 2018, only 2 percent of students performed at the highest levels of proficiency (Level 5 or 6) in at least one subject (OECD average: 16 percent), and 43 percent of students scored below the minimum level of proficiency (Level 2) in all three subjects (OECD average: 13 percent). To improve the quality of education, a comprehensive strategy is required. Interventions that have been previously identified include the appointment of school directors based on their performance and experience, and bonus pay to teachers and school staff based on school performance. For example, the results-based financing component of Ceará's strategy has proven to be a model for reducing learning poverty (Loureiro et al. 2020). All these, coupled with the exchange of knowledge and positive experiences can bring in improved results (World Bank 2019).

Brazil's future growth model will need to deal with an aging economy and a labor force in need of reskilling. IBGE's population projections show that in recent years Brazil has started to lose ground in its demographic bonus because the growth in the share of elderly people (ages 65 and older) has surpassed the decline of the proportion of younger people (ages 15 and younger). The dependency rate is currently 45 percent and it is projected to be 52 percent by 2040 and 67 percent by 2060. Meanwhile, the workforce's human capital may not be able to stand up to the challenge of this demographic transition. In 2021, approximately one-third of Brazilians ages 20 to 39 had not completed the secondary level of education, and only about 17 percent had a higher-education degree. The share of female

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[82] Based on 2018 data from the World Development Indicators, World Bank, Washington, DC (accessed January 27, 2022), https://data.worldbank.org/indicator/SE.XPD.TOTL.GD.ZS?locations=BR-XT-OE.

and male youths not in education, employment, or training (NEET) was 31.5 percent and 21.1 percent, respectively. The rates are worse than the Latin America and the Caribbean's average (29.5 percent and 18.3 percent, respectively) and represent a deterioration relative to the 27.8 percent and 11.4 percent from 2001.[83] According to PNAD-C 2020 data, gaps in NEET rates also existed between Afro-Brazilians and whites (21.3 percent and 29.7 percent, respectively). The average learning-adjusted years of schooling[84] of the Brazilian youth is 7.87, a lower level than that of other Latin America and the Caribbean economies like Mexico (8.8) or Colombia (8.6) or of other upper-middle-income economies such as Malaysia (8.9), China (9.3), or the Russian Federation (10.9) (World Bank 2020b). An additional challenge to the economic gap is that only 18.4 percent of the total graduates in Brazil have degrees in science, technology, engineering, and mathematics (STEM), compared with 32.6 percent of graduates in India and 31.1 percent of graduates in Russia.[85]

The increasing automatization of tasks is likely to create further disruptions in the economic outlook of certain groups. Although it is not clear if the impacts of the rapid development of artificial intelligence will have net positive or negative effects on jobs generation, it is highly likely it will affect some groups of workers more than others (Autor 2015, 2019). Lo Bello et al. (2019) argue that routine tasks—those likely to be more affected by automation—are executed by the bottom of the distribution in developing economies. In Brazil, workers who did not complete secondary school are at high risk of being affected by automation (about 60 percent).[86] Workers with a college degree show lower risk of being affected by automation. Notably, only 6 percent of the working poor have a college degree. The risks of automation for positions in sectors such as agriculture and construction, where a large share of the poor work, are concentrated above 50 percent. The sectors with lower risks of automation are those in which human care is demanded (for example, education and health)—sectors in which the poor are underrepresented.

Brazil needs to invest heavily in reskilling and upskilling its workforce to overcome the demographic and technology challenges. With declining or stagnating labor productivity, the country needs to take drastic steps toward improving the human capital of its population. Policies that foster firms' engagement to develop the skills of their workforce and that encourage them to provide formal technical and vocational training are needed. Incentives that promote on-the-job training as a path to employment could be beneficial for workers of all ages. The long-term decline in agricultural employment is likely to continue and it is likely to increase pressure on the livelihoods of rural households. Programs that allow individuals to transition to other sectors could also ease the pressure in urban labor markets caused by rural-urban migration.

Further investments in the provision of health services will be crucial going forward. The health and economic hardships created by the COVID-19 pandemic and the aging of the Brazilian population will continue to increase the number of families dependent on the health care system. Estimates suggest that in 2017, one-third of households spent more than 10 percent of their budget on health, with medicines being the main contributor of out-of-pocket (OOP) health spending (Araujo and Coelho 2021). Moreover, more than 10 million Brazilians are pushed into poverty due to OOP health care payments each year. Stronger support to the health care system that is accompanied by the reduction of OOP expenditures should be part of the policy dialogue going forward.

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[83] World Development Indicators, "Share of youth not in education, employment or training," World Bank, Washington, DC (accessed February 1, 2022), https://databank.worldbank.org/source/2?series=SL.UEM.NEET.MA.ZS.

[84] Learning-Adjusted Years of Schooling are calculated by multiplying the estimates of Expected Years of School by the ratio of most recent Harmonized Test Score to 625, where 625 corresponds to advancement attainment on the TIMSS (Trends in International Mathematics and Science Study) test.

[85] Based on 2018 data from the World Development Indicators, World Bank, Washington, DC (accessed May 4, 2022), https://databank.worldbank.org/id/cd77ac48?Report_Name=US-STEM-(ISCED-and-Tertiary).

[86] Estimations are based on Frey and Osborne's (2017) work, which predicted the probability of automation for 706 ONET-classified occupations in the US, and upon Lima et al's (2019) who converted the classification to the PNAD-C surveyed occupations. The risks of automatization shown here are estimated using the PNADC 2019.

Supporting the Accumulation and Protection of Productive Assets

Policies to increase access to finance and financial education should be targeted to low-income groups of the population. Consumer credit, measured by usage of credit cards, and bank account ownership are higher in Brazil than the average in the LAC region, according to 2017 data. However, bank account ownership among the bottom 40 percent of the population is much lower. In addition, the proportion of Brazilian adults who saved money during the year (32 percent) was below the region's average of 37 percent (2017 Global Findex). This implies that only few Brazilians are able to weather unexpected expenses equaling their monthly income, or an income shock, such as job loss, even for a small period like a few days. An important aspect of increased access to finance is the promotion on savings products, especially among low-income individuals. One suggestion is to connect Brazil's cash transfer program – to dedicated savings accounts (Morgandi et al. 2021). To increase the chances of a successful deployment of such accounts, complementary strategies such as matching contributions and behavioral nudges, as well as better affordability (through branchless banking and lower administrative fees) will also be needed (Morgandi et al. 2021).[87] In addition, financial education can support people in making the right choices, including choosing lower-cost products. Tailored programs should also target children in school age, where financial education has shown to yield better results, and the informal self-employed to enable them to assess suitability of the formal microentrepreneur regime (MEI) and eventually access less costly credit products (Morgandi et al., 2021).

To support digital inclusion of the rural and vulnerable population, policies need to make connectivity affordable, reliable, and relevant. Affordability and quality of fixed broadband and mobile services in Brazil is below key benchmarks.[88] According to data from the Brazil COVID-19 Phone Survey, the high cost of internet is the primary reason for households not to be connected to the internet (50 percent of unconnected households). The survey also showed poor internet quality, high costs and power outages as top-3 challenges of households that were connected to the internet (Gelvanovska-Garcia et al. forthcoming). Policies therefore need to continue ensuring competition in the sector in order to bring down costs. Limited taxation of end-user devices and digital connectivity at education institutions can be important accompanying interventions (Strusani et al. 2021). Still, a third of households that are not connected to the internet report no interest or need for it according to the Brazil COVID-19 Phone Survey. Digital awareness and literacy programs that communicate to households the services, applications, and information available to them online can address this barrier (Gelvanovska-Garcia et al. forthcoming). Finally, security of personal data, cybersecurity, and safeguards need to be improved. Brazil scores poorly on these aspects (Chen 2021) and building trust in digital interactions is an important step to advance digital inclusion (Puliti 2022).

Furthermore, to enable workers to reap the benefits of digitization, policies need to support them in developing new skills

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[87] The instant retail payment system PIX was introduced in November 2020 by the Brazilian Central Bank with the objective of increase the affordability of retail payments. The system has helped in promoting competition, reducing costs of financial services and increasing financial inclusion, as evidenced by a quadrupling between 2017 and 2020 in the number of clients having transaction accounts with providers of payment services, with most of the acceleration occurring in 2020 (Banco Central do Brasil, 2021).
[88] World Bank calculations based on International Telecommunication Union (ITU) World Telecommunication/ICT Indicators Database (25th edition/December 2021).

and provide a conducive regulatory framework. Almeida et al. (2017) assess the link between access to digital technologies and the demand for skills in Brazil during a period of strong growth in internet service expansion (1996-2006). The research suggests that investments in higher-level cognitive abilities should be prioritized – especially interactive and communication abilities – to prepare students for jobs in demand. Moreover, attention should be given to labor market regulations to ensure that restrictive labor codes do not hurt low-skilled workers more than high-skilled. Almeida et al. (2017) show that shifts in the employment composition towards cognitive abilities and non-routine activities happen where labor regulations are enforced more heavily.

A push for systematic land regularization and integration of land information systems will be crucial to promote asset accumulation, especially among the poor and rural households. Lack of land tenure creates a myriad of economic barriers and costly behaviors, thus hindering the ability of many households to escape poverty. Indeed, survey data suggest that about 57 percent of the rural chronic poor lack legal land titling. But land titling issues are widespread. Overlapping land tenure records still cover half the registered territory of Brazil and another 16.5 percent of land has no official land tenure registration (World Bank, forthcoming [a]). Meanwhile, land databases are not organized, and the more than 20 agencies involved in aspects of land tenure regularization are not well coordinated. The government of Brazil should renew its efforts to complete the identification and registration of federal and state lands, reviewing and rectifying or canceling improperly registered land rights, and investing in field-level land tenure regularization. This should be accompanied by both the simplification of bureaucratic processes, and an effective integration of land cadasters. The technical capacity is available in the country, and some states such as Piauí already offer successful examples.

The country must improve its management of natural resources and enhance its mitigation strategy for increased risk of natural disasters. By some estimates, high climate change risk affects about 45.4 million Brazilians who can be located in either rural or urban settings. Renewed efforts that can help face this risk should include the regularization of access to land and provision of secure property rights, better pricing policies that directly affect natural resources use, and, more broadly, environmental management. Secure access to land can create the appropriate incentives to usufruct from it in a sustainable way. At the same time, pricing of land (through direct costs such as the rural land tax and the requirement to follow environmental regulations) should be done right so only the most productive farmers find it profitable to keep producing and disincentivize a land-intensive growth model that has put great pressure on the Brazilian forest (World Bank, forthcoming[a]). To support curbing deforestation and address the high levels of illegality in Amazônia, stronger law enforcement that is supported by modern tracing technologies is needed (World Bank, forthcoming[a]). In addition, while rural areas have few options for climate change insurance, there is a void that should be filled in urban areas. Urban poor populations are at the highest risk (due to floods, for instance) of losing the few income-generating assets they own, yet there are few insurance mechanisms available to them.

Building a Minimum Asset Level for the Broadest-Possible Base

Stronger economic growth is needed to make progress again on the social agenda. Brazil's golden decade in the 2000s benefited from the structural reforms undertaken in the 1990s, including the adoption of the Real Plan, which brought macroeconomic stability to Brazil, notably by taming inflation (World Bank, forthcoming [a]). The momentum from those reforms was further propelled by the commodity prices supercycle, which benefited commodity-exporting countries like Brazil particularly. When the cycle ended in late 2014, growth momentum faded, laying bare Brazil's structural growth problems. Barriers to inclusive growth became ever evident too, including an underdeveloped infrastructure, inadequate basic services, gaps in access to financial services, and a regulatory environment that constrains the creation of firms and jobs (Cord et al. 2015). Brazil was already vulnerable when the COVID-19 pandemic hit. Structural weaknesses are particularly linked to the legacy of import substitution industrialization, with a highly protected manufacturing sector contrasting with highly competitive commodity exports. This development model is exhausted. Brazil's fundamental development challenge is to accelerate structural change by raising productivity in the manufacturing and services sectors. This will promote growth, diversify its competitive export base, and allow Brazil to participate more in global trade.

The challenges presented in recent years and those brought by the COVID-19 pandemic have pushed the government of Brazil to take a hard look at the reforms needed to keep the economy growing. The implementation of crucial structural reforms should not be delayed. Reform momentum was high after the previous general elections and the government has managed to pass some important reform, such as a new water and sanitation bill that unlocked private investment in the sector, and the pension reform. Yet the reform agenda was quickly overshadowed by the pandemic. The year 2022 can present a window for another attempt. The

focus needs to be on fostering productivity. This could be achieved by promoting competition in product markets but also in services. Gradual trade liberalization and encouraging foreign direct investment, especially in the most protected sectors, are among the available options to foster competition. Another key area for reform is infrastructure, where current investment is insufficient to replace depreciating capital. Infrastructure is critical for productivity but it requires fiscal space. Going forward, Brazil requires creating fiscal space for investments in its future. This requires a return to a credible fiscal anchor, Brazil's expenditure rule.

Fiscal policies can play a critical role in promoting equality in Brazil through better targeted government spending. In Brazil, as in the Latin America and the Caribbean region, the low growth and inequality challenges that have been exacerbated by the pandemic point to a critical policy action: ensuring that fiscal resources are used efficiently and, whenever possible, reallocated to their higher social value-added uses (World Bank 2021). Public resources in the country are currently used to tackle a myriad of objectives, but a clear uniform view of the public purpose that should be attained is still missing. Large outlays through the pension system and the subsidies received by high-income individuals exacerbate and perpetuate income gaps in the population. Programs such as PBF are well targeted, yet the magnitude of the transfers appear to be dissociated with what an adequate level of subsistence would be. The PBF (now Auxílio Brasil) was found to be the most progressive and to have the largest impact on poverty, but the resources devoted to it are lower than those of noncontributory pensions. Resources provided to the working population, such as Salário Família and Abono Salarial, also tend to benefit those in the middle of the distribution. Reviewing and repurposing government spending could prove to be a sustainable approach to promote poverty reduction and shared prosperity. More efficient government spending could even provi-

de fiscal space to improve access to and the quality of public services through greater public investment.

Simplifying the indirect tax system through the adoption of a value added tax–based system could lead to improved welfare outcomes.

In general, Brazilian firms are estimated to spend more than 1,500 hours a year to pay taxes and prepare for them—close to 10 times the average in OECD high-income countries (World Bank 2020a). Specifically, for indirect taxes, ongoing policy discussion on the adoption of a flat value added tax (VAT) rate is based on the recognition that the current system is unnecessarily complex and very costly to deal with. The different types of indirect taxes, levied at different administrative levels, create incorrect incentives that ultimately affect firm productivity and business creation. The simplification of the system could lead higher economic growth (Oliveira 2020). Finally, ex-ante simulations suggest that a flat VAT rate could lead to increased purchasing power in the bottom of the distribution, and at the same time be inequality reducing both horizontally and vertically (Lara Ibarra et al. 2021).

Promoting the Creation of the Evidence for Better Informed Policy Design

Better and recent data are required to be able to assist one of the most vulnerable populations in Brazil: traditional communities.

The blind spot where the indigenous people and quilombolas find themselves within the Brazilian statistical system should not be acceptable for a country with the development level and available tools such as Brazil. The push to be able to identify the individuals belonging to the quilombola communities in the upcoming 2022 population census is a step in the right direction. Nonetheless, more should be done so that policy makers are aware of the evolution of welfare within these fragile communities. At the minimum, an additional effort to provide representative indicators for these populations should be carried out as part of the traditional household survey data collection.

Brazil should develop and implement an official poverty measurement methodology.

This will promote evidence-based guidance to policy makers and help monitor progress among the vulnerable population. The recent changes to Brazil's flagship cash transfer program were accompanied by a revision of the income eligibility thresholds. In 2022, the highest income eligibility threshold for Auxílio Brasil is R$210 (up from PBF's R$178 threshold). Nonetheless, the April 2021 Supreme Court order to set up a basic income scheme for the poor suggested a close revision of the parameters that define poverty in the country. Adopting an official methodology for poverty measurement would help better reflect the magnitude of the needs in the bottom of the distribution. It would also allow a clearer study of the correlates of poverty (that is, education, skills, access to services) that in turn inform policies to enhance people's welfare beyond cash transfers. Finally, it would also promote a common reference point for targeting the different government programs, ultimately allowing for better monitoring and evaluation to take place.

A modern statistical ecosystem is required to improve the information available for decision making and better use of government's resources.

The government of Brazil should renew its efforts to improve the Statistical Office's relevance, including its products and services to domestic users. A push to incorporate new data sources (administrative records, digital and GPS identifiers, and other big data) for statistical purposes should be part of the strategy going forward. Part of the success and speed of deployment of the emergency transfers in 2020 were due to the current interconnectedness of several information systems. Stronger and better tailored government responses could be made possible with an updated national statistics system.

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