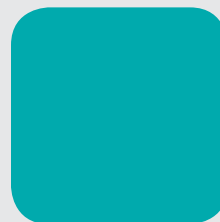


BRAZIL SYSTEMATIC COUNTRY DIAGNOSTIC

UPDATE



JULY
2023

**BRAZIL
SYSTEMATIC
COUNTRY
DIAGNOSTIC**

UPDATE

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1818 H Street NW, Washington DC 20433
Telephone: 202-473-1000
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Cover photos: Freepik and Shutterstock®
Cover and Graphic Design: doublecom.com.br

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Acknowledgements

We would like to thank the members of the World Bank Group's Global Practices, the staff of the International Finance Corporation (IFC), and the Brazilian authorities, and other partners who contributed to the preparation of this Systematic Country Diagnostic (SCD) Update.

This report has been prepared by a team led by Gabriel Lara Ibarra (Senior Economist), Ana Guerini (Senior Transport Economist) and Josefina Posadas (Senior Economist) under the leadership of Carlos Felipe Jaramillo (Regional Vice President), Johannes Zutt (Country Director) and Robert Taliercio (Regional Director), and the guidance of Carlos Rodríguez Castelan (Practice Manager), Bianca Bianchi Alves (Practice Manager), Pablo Gottret (Practice Manager), Doerte Doemeland (Practice Manager), and Sophie Naudeau (Operations Manager). Additional guidance was provided by Manuel Reyes-Retana (Director, IFC) and Hiroyuki Hatashima (Chief Evaluation Officer, MIGA). The team thanks Pablo Acosta (Program Leader) and Luis Alberto Andres (Sector Leader) for their comments and contributions. Special recognition goes to Shireen Mahdi as the lead author of the Brazil Policy Notes that served as testing grounds for the prioritization exercise that informed this update.

Sector-specific knowledge, inputs and contributions were provided by Arthur Braganca (Senior Economist), Werner Kornexl (Senior Natural Resources Management Specialist), Carolina L. Vaira (Senior Governance Specialist), Gustavo Covolan (ET Consultant), Renzo Lavin (Consultant), Bruno Perdigao (ET Consultant), Diogo Bardal (Associate Operations Officer), Marcos Vaena (Senior Strategy Officer), Fabiano Colbano (Senior Economist), Raphael Fernandes (Consultant), Marek Hanusch (Lead Economist), Luigi Calderon (Economist), Michael Weber (Senior Economist), Claudia Tufani (Consultant), Otavio Conceição (ET Consultant) and Ricardo Campante Vale (ET Consultant). This Update strongly benefited from the evidence collected by other colleagues' analytical reports on various development-related areas in the past year. Their findings and availability to answer our queries were important inputs to this Update. We thus would like to thank Gabriel Zaourak (Senior Economist), Ildo Lautharte (Economist), Matteo Morgandi (Senior Economist), Tiago Falcao Silva (Senior Social Protection Specialist), Diji Chandrasekharan Behr (Lead Environmental Economist), Stephane Hallegatte (Senior Climate Change Adviser), Anna Luisa Paffhausen (Economist) and Rita D. Costa (Consultant).

The team would like to thank the peer reviewers Antonio Nucifora (Practice Manager), Rafael Muñoz Moreno (Lead Country Economist) and Samuel Freije (Lead Economist) for their insightful comments and suggestions.

The team is grateful to Desiree González (Program Assistant), Mirela Catuneanu (Operations Analyst) and the Country Office Administrative and Client Support staff for all the assistance and support in the preparation of this SCD Update.

Abbreviations and Acronyms

ABC plan	Plano de Agricultura de Baixa Emissão de Carbono (Low-Carbon Emissions Agriculture Plan)
ABEMA	Associação Brasileira de Entidades Estaduais de Meio Ambiente (Brazilian Association of State Environmental Entities)
AE	Auxílio Emergencial (Emergency Aid)
ALMP	Active labor market programs
B40	Bottom 40 percent
BCB	Banco Central do Brasil (Central Bank of Brasil)
BPC	Benefício de Prestação Continuada (Continuous Cash Benefit)
BRIC	Brazil, Russia, India, China
BRL	Brazilian Reais (the official currency of Brazil)
BTI	Bertelsmann Stiftung's Transformation Index
CADE	Conselho Administrativo de Defesa Econômica (Administrative Council for Economic Defense)
CAR	Cadastro Ambiental Rural (Rural Environmental Registry)
CGU	Controladoria Geral da União (Office of the Comptroller General)
CICC	Comitê Interministerial de Combate à Corrupção (Inter-ministerial Committee of Corruption Fight)
CO ₂	Carbon dioxide
COFINS	Contribuição para o Financiamento da Seguridade Social (Contribution for the Financing of Social Security)
CPI	Consumer Price Index
DETER	Real-Time Deforestation Detection System
Embrapa	Empresa Brasileira de Pesquisa Agropecuária (Brazilian Agricultural Research Corporation)
FGV-IBRE	Fundação Getúlio Vargas – Instituto Brasileiro de Economia (Getulio Vargas Foundation – Brazilian Institute of Economics)
FPE	Fundo de Participação dos Estados (State Participation Fund)
FPM	Fundo de Participação dos Municípios (Municipal Participation Fund)
GDP	Gross domestic product
GHG	Greenhouse gas
GtCO ₂	One billion tonnes of carbon dioxide
HLO	High-level outcomes
HRM	Human Resource Management
IADB	Inter-American Development Bank
IBGE	Instituto Brasileiro de Geografia e Estatística (Brazilian Institute of Geography and Statistics)
ICMS	Imposto sobre Operações relativas à Circulação de Mercadorias e sobre Prestações de Serviços de Transporte Interestadual e Intermunicipal e de Comunicação (Tax on Interstate and Intermunicipality Transactions of Goods, Provisions of Services and Communication)
ICT	Information and communication technology
IDEB	Índice de Desenvolvimento da Educação Básica (Basic Education Development Index)
IMF	International Monetary Fund
INPE	Instituto Nacional de Pesquisas Espaciais (National Institute of Spatial Research)

IP	Indigenous people
IPi	Imposto sobre Produtos Industrializados (Tax on industrialized products)
IPR	Intellectual Property Rights
ISS	Imposto sobre Serviços (Tax on services)
LAC	Latin America and the Caribbean
LPI	Logistics Performance Index
MEI	Microempreendedor Individual (Individual microentrepreneur)
MSME	Micro, Small and Medium Enterprises
Mt	Megatonne
NDC	Nationally determined contributions
NTM	Non-tariff measures
OECD	Organization for Economic Cooperation and Development
PBF	Programa Bolsa Família (Bolsa Família Program)
PIM	Public Investment Management
PIMA	Public Investment Management Assessment
PIS	Programa de Integração Social (Contribution to the Social Integration Program)
PISA	Program for International Student Assessment
PJ	Pessoa Jurídica (Legal person)
PNL	Plano Nacional de Logística (National Logistics Plan)
PNMC	Plano Nacional sobre Mudança Climática (National Plan about Climate Change)
PPCDAm	Plano de Ação para Prevenção e Controle do Desmatamento na Amazônia Legal (Plan for the Prevention and Control of Deforestation in the Legal Amazon)
PPP	Purchasing power parity
PRODES	Projeto de Monitoramento do Desmatamento na Amazônia Legal por Satélite (Project for Monitoring Deforestation in the Legal Amazon by Satellite)
PTA	Preferential Trade Agreement
R&D	Research and Development
REDD+	Reducing Emissions from Deforestation and Forest Degradation in Developing Countries, and the Role of Conservation, Sustainable Management of Forests, and Enhancement of Forest Carbon Stocks in Developing Countries
SCD	World Bank Systematic Country Diagnostic
SCD1	World Bank Systematic Country Diagnostic 2016
SEBRAE	Serviço Brasileiro de Apoio às Micro e Pequenas Empresas (Brazilian Micro and Small Enterprises Support Service)
SINE	Sistema Nacional do Emprego (National Employment Service Office)
SME	Small and medium enterprises
SOE	State-owned enterprises
SUS	Sistema Único de Saúde (Unified Health System)
TFP	Total factor productivity
TVET	Technical and vocational education and training
USD	United States Dollars (currency)
VAT	Value-added tax
WEF	World Economic Forum

Executive Summary

After rebounding from an average negative growth in 2014-2019 and the pandemic, Brazil's economic growth remains far below its peers. Brazil's gross domestic product (GDP) grew on average by 3.3 percent annually in real terms between 2001 and 2014 propelled by the international commodities boom and the domestic expansion of social programs, among other things. However, falling commodity prices, political instability, and unaddressed structural challenges led to an economic recession that began in 2014 and from which the country has yet to recover. Real GDP growth fell to an average of -0.3 percent between 2014 and 2019. Productivity has remained stagnant in the manufacturing and many services sectors, where over 90 percent of the workforce is employed. The COVID-19 pandemic further impacted the economy, causing a contraction of 4.1 percent in 2020. Growth turned positive in 2021 and 2022, but potential growth is expected to remain at a low 2.1 percentⁱ, far below peers such as China, India, Türkiye, and Russia.

Poverty rates in 2022 are projected to be at the same level as in 2014,

which contrasts with a significant progress in poverty reduction observed until 2013. Income inequality is also highly persistent. From 2001 to 2012, poverty was cut in half, and around 27 million Brazilians were lifted out of poverty thanks to economic growth, increased labor formalization, and the expansion of social policies. However, after 2014, the crisis led to stagnant income growth among the poorest and little progress in poverty reduction. COVID-19 emergency measures cushioned the effects of the pandemic on poverty, but by 2021 poverty rates were still higher than in 2019 (28.4 percent and 26.2 percent, respectively). Brazil is still one of the most unequal countries in the world. With a Gini coefficient of 0.529 in 2021, Brazil's income inequality is as high as it was in 2011. At the same time, the wealthiest 1 percent own almost half of the country's household wealth. Disparities across regions, particularly between the poorer North and the richer South, are evident. Female-headed households, Afro-Braziliansⁱⁱ, and Indigenous people (IP) are overrepresented among the poor, and they face worse labor market outcomes and enduring wage gaps (even within comparable sectors and skills).

Brazil needs to revisit its development model to halt deforestation and be able to confront environmental challenges due to the high risks posed by climate change. Similar to other countries in the Latin America and the Caribbean (LAC) region, land use change is the key driver of greenhouse gas (GHG) emissions in Brazil. However, the magnitude of deforestation significantly surpasses that of other countries, reaching 11,568 km² in 2022. The Amazon rainforest alone, of which about 60 percent lies in Brazil, delivers ecosystem services valued at a minimum of USD 317 billion a year to Brazil and the world. Deforestation puts these services at risk, especially if a tipping point is triggered and results in the permanent dieback of the Amazon. The country also faces significant, recurring, and increasing losses from climate-related events: in 2019, reported losses were over BRL 22 billion, almost twice the long-term average of BRL 13.3 billion. Droughts are the costliest hazard, followed by flash floods and riverine floods. These events impact agribusiness, the energy sector (substantially relying on hydro energy), and rural areas, but also disproportionately affect the rural poor, who have few options to protect themselves from natural hazards, and the urban poor, particularly those living in informal settlements.

Brazil's structural challenges to eradicate poverty and boost shared prosperity identified in the World Bank Systematic Country Diagnostic 2016 (SCD1) came to bear with the end of the commodity boom. SCD1 showed how the drivers of socioeconomic progress in the 2000s had gone in reverse by 2015. With commodity prices trending down, Brazil found itself in great need of adjusting its

fiscal policy and growth model if the country was to sustain the gains of previous years.ⁱⁱⁱ The country's fundamental weaknesses relate to its struggle to generate strong and sustained broad-based productivity growth across sectors and the (un)sustainability of public spending commitments. Given the intrinsic linkages of the bottom 40 percent to natural assets, SCD1 also highlighted the need to improve Brazil's environmental impact, including the management of land and water resources.

This SCD update argues that the development challenges identified in SCD1 remain relevant. Moreover, there is a renewed urgency to build the capacity of individuals to generate income and a reinforced need for timely action in a transition to a greener economy. SCD1 identified three key requirements for Brazil to achieve the twin goals: i) creation of sufficient productive and well remunerated jobs to provide opportunities for all Brazilians; ii) smarter management of Brazil's natural resources and better mitigation of environmental pollution and the risk of natural disasters; and iii) more efficient and better targeted government spending. The Update builds on the evidence collected in a long series of recently published analytical reports to review the challenges identified in SCD1 and inform the definition of the Update's challenges. The first requirement is complemented by the definition of another challenge so that not only the need to have productive jobs is highlighted, but also the poverty-reduction prerequisite of building the income-generating capacity of all individuals (through human, natural, and financial capital) is explicitly stated. The third requirement is also expanded to underscore Brazil's need to address increased exposure to climate change risks in a timely manner.

The SCD1 documented that the primary obstacle to increasing Brazilians' incomes is the country's low-productivity economic model in non-agricultural sectors. This challenge, reflected in Brazil's bias in employment creation in low-productivity services and low growth in total factor productivity (TFP) (1.3 percent per year on average between 2006 and 2014)^{IV}, had several underlying causes. Among them, SCD1 documented the high costs of doing business, the poor state of physical infrastructure, and the limits to competition due to heavy regulation and relatively high tariff and non-tariff barriers against imports.

As Brazil's factor accumulation-based growth model reaches its limits, the country stands a lot to gain from boosting productivity growth. Brazil reached its upper-middle income status on the back of factor accumulation. Currently, this approach delivers only limited growth, as demographic tailwinds are fading, low domestic savings constrain capital formation, and land accumulation manifests in deforestation. Brazil needs higher savings and investment rates, and its future prosperity will hinge on its ability to raise productivity growth. Yet, total factor productivity has been falling by 0.8 percent between 2014 and 2022, especially in the non-commodities sectors. While in the past agriculture and mining achieved high productivity gains, other sectors, especially manufacturing, fared much worse, reflecting a model where primary sectors are export-oriented while manufacturing is inward-oriented.

With a fifth of the population in chronic poverty before the pandemic, the

COVID-19 crisis further exposed the vulnerability of Brazilian households to shocks. The gains of earlier years in households' income-generating capacity have not been reproduced. SCD1 highlighted key achievements in widening access to public services for the poor and deprived: completion rates of basic (primary plus lower secondary) education increased by 20 percentage points to close to 70 percent, infant and maternal mortality decreased significantly (70 and 50 percent, respectively) in the previous two decades and access to power supply, drinking water and sanitation improved. Limited gains have occurred since then. In 2019, one-fifth of Brazilians are classified as chronically poor due to their lack of basic assets to leverage their income – this share was 23 percent in 2012. While access to education improved, its quality remains a concern, as the average student has low performance in both national and international assessments. The pandemic further worsened learning outcomes and inequality due to school closures and higher dropout rates, which will have long-lasting consequences on the future productivity of children. It is now estimated that it may take up to 13 years to recover the human capital losses caused by the pandemic. Access to relevant skills for the job market, especially in science, engineering, and technology fields, is limited, and there are gender gaps in these areas. Higher education enrollment is still highly dependent on family income, reinforcing inequality. There are still gaps in basic access to health services and sanitation. Land tenure is unequally distributed, with high insecurity affecting low-income individuals. While financial inclusion has improved, certain groups still struggle to access financial assets.

Deforestation and agriculture are the main contributors to Brazil's emissions. The country must confront head-on the challenge of curbing deforestation. When SCD1 was completed, Brazil stood out for its contribution to climate change mitigation due to its success in reducing deforestation: yearly deforestation dropped 82 percent between 2004 and 2014, before increasing again after the end of the commodity super-cycle. Political pressure on environmental protection mechanisms intensified, and some interest groups were effective in lobbying to the easing of regulations on environmental protection. The lack of law enforcement in remote areas has exacerbated the issue, and weak governance and financial constraints have hindered climate action efforts. Brazil's institutional capacity for climate policies has gaps, and there is a need of better coordination between government agencies and more enforcement of environmental laws.^v Weak management of natural resources had been flagged by SCD1 as a challenge. Today, modernization of land registration practices and incentives for more sustainable land use are crucial to address the country's environmental needs.

Structural fiscal reforms, including addressing persistent structural spending issues and improving the tax system, will be critical for the country to find ways of creating space to support higher and more inclusive growth. SCD1's assessment of public finances remains valid today: "revenues [have a] high reliance on indirect taxes... [and] the share of truly discretionary spending... is very low... [while] the bulk of spending is tied up in social commitments... many of which do not

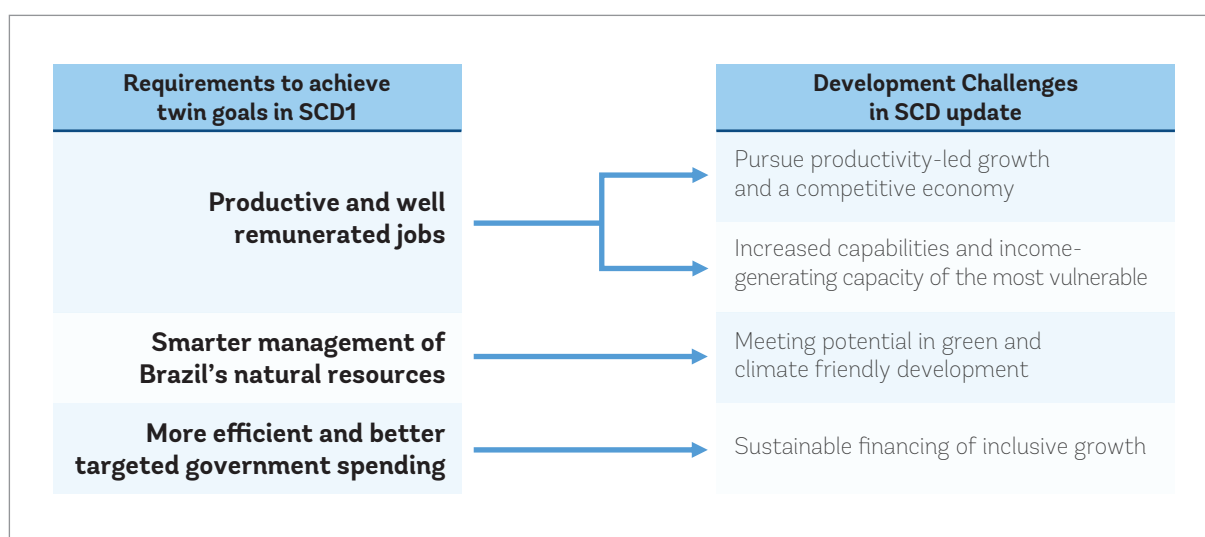
go to the poor". SCD1 documented that less than 15 percent of expenditure was discretionary in Brazil^{vi} while recent estimates suggest it is now closer to 10 percent. Factors such as public sector pay and pensions, and increased demand for social protection spending, continue to strain public finances, leaving limited space for discretionary and much-needed investment spending. The country's tax system, highly reliant on consumption of goods and services, offers opportunities for more progressive taxation and increased efficiency. The highly complex tax system is also an important contributor to the high costs of doing business in Brazil known as "Custo Brasil". The intergovernmental transfer system needs re-vamping to address horizontal gaps between states. Several subnational governments are facing a fiscal crisis, yet states and municipalities are responsible for the front-end provision of basic services to the population, such as education and health. Comprehensive administrative reform is needed, focusing on fiscal aspects, governance, and the quality of public service delivery.

Tackling these challenges must be accompanied by improvements in governance and a complementary removal of institutional constraints. Key legislation has been adopted in recent years, including the state-owned enterprises statute (2016), aimed at aligning state ownership practices with international standards, the fiscal rule (2016), the labor legislation reform (2017), the political reform (2017), which gradually established more rigorous criteria for political parties to have access to electoral party funds, form coalitions and achieve a "performance clause", and the pension system reform (2019). Moving

forward, there are additional reforms needed to address the four development challenges. From opening up to trade and promoting innovation to raise productivity, to enhancing teachers training and a more skill-focused educational system to boost human capital, to improving forest monitoring and law enforcement to curb deforestation, to improving the tax system and addressing human resources challenges in the public sector to increase fiscal space. This update places the agenda of institutional reforms as a cross-cutting priority for Brazil.

The Update identified four development challenges that must be overcome, which are linked to three desired High-Level Outcomes (HLOs). These outcomes, reflecting transformative changes that are critical to achieving the twin goals, are defined as long-term sustained improvements in the well-being of the poorest and most vulnerable. The HLOs are i) increased access to high quality job opportunities; ii) improved households' accumulation and use of productive assets; and iii) reduced vulnerability to climate shocks.

Table 1. SCD1 requirements to achieve the twin goals and challenges identified in the Update



Source: World Bank.



1.

GROWTH AND WELFARE IN THE LAST DECADE

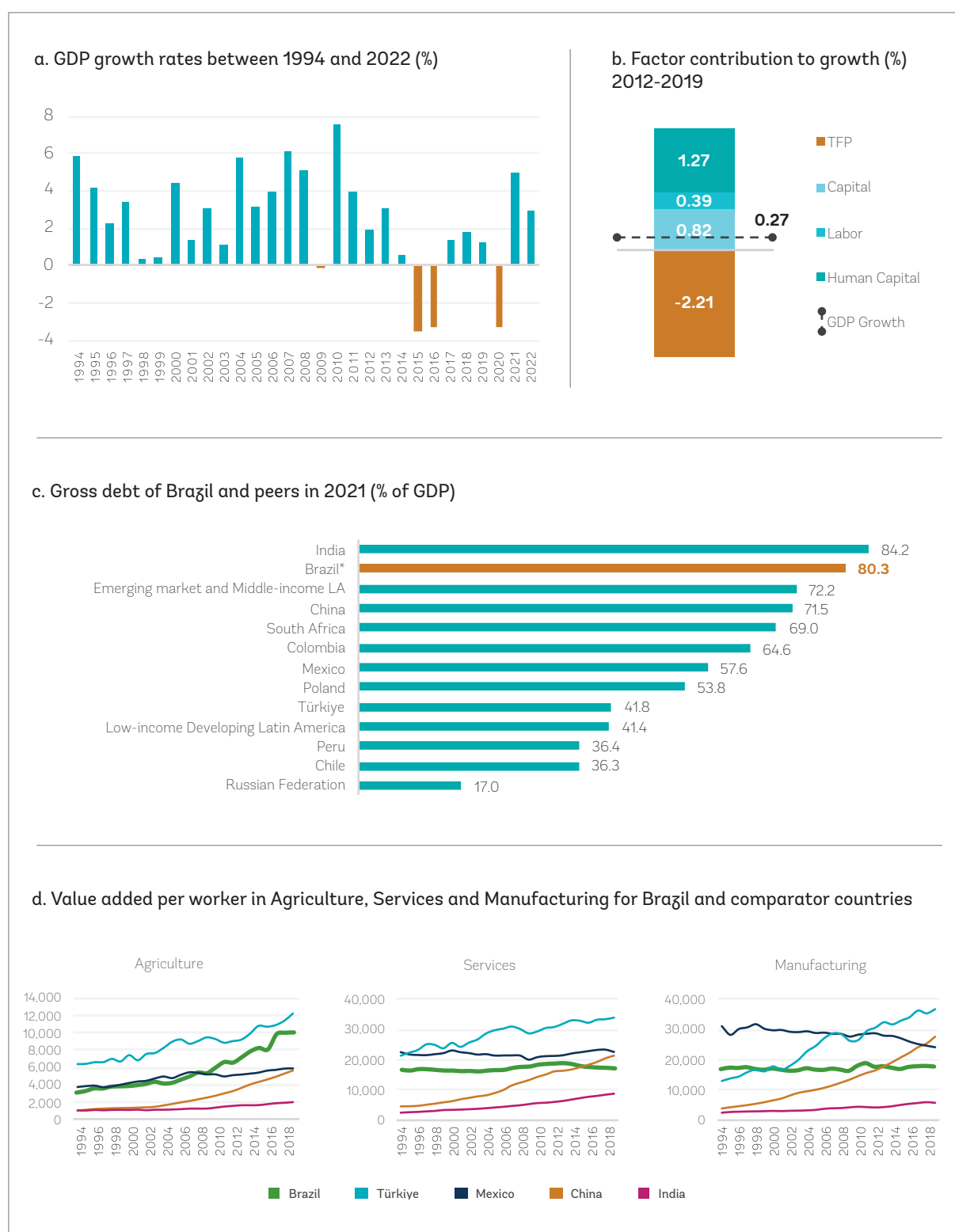


1.1 Growth and macroeconomic trends

Following a strong growth momentum in the decade prior to 2014, Brazil's growth turned negative between 2015-2019 due to negative productivity growth. Brazil's GDP grew on average by 3.3 percent annually in real terms between 2001 and 2014, powered by ambitious structural reforms in the 1990s, the global commodities super-cycle and strong external demand, coupled with a private consumption increase supported by the expansion of social programs, minimum wage policy, a lower unemployment rate (from 12.9 percent in the beginning of 2002 to 4.6 percent at the end of 2012) and increasing formal employment (growing 5 percent annually between 2003 and 2014).⁷ However, the combination of falling commodity prices, political instabilities, higher interest rates aimed at controlling inflation, and unaddressed structural challenges led the country to an economic recession in 2015. Brazil experienced negative 0.3 percent average growth in the 2014-2019 period, as the factor accumulation-based growth model was running into constraints, and negative productivity growth wiped out the gains from capital and labor (Figure 1).

Productivity growth has been concentrated in primary sectors; but was absent in manufacturing and services. Agriculture experienced strong growth in labor productivity between 1994 and 2019, performing as well or better than many peers (Figure 1). This contrasts with weak labor productivity growth in services and manufacturing where Brazil was majorly outperformed by peers in other regions, like China, Türkiye, and India. This uneven sectoral productivity performance constrains Brazil's development as commodities sectors contribute for a relatively small share of both GDP and employment while putting pressure on the country's natural wealth.

The economy rebounded quickly from the pandemic-induced recession, supported by a strong fiscal stimulus. Brazil's GDP was still recovering from the 2015-16 recession when it was hit by the COVID-19 crisis, contracting 3.3 percent y/y in 2020. The unemployment rate soared to 14.9 percent by March 2021, and Brazil experienced the world's fourth highest death per capita rate.⁸ Growth reached 5 percent in 2021 and 2.9 percent in 2022, propelled by a success-

Figure 1. Growth and macroeconomic trends

Source: a) World Development Indicators; b) World Bank (2022c); c) IMF Fiscal Monitor Data. Brazil's gross debt from Central Bank (BCB) using official methodology; d) WDI. Notes: LA = Latin America.

ful vaccination campaign, pent-up demand for services and fiscal stimulus.⁹ Moreover, labor market restoration after the COVID aftermath has been substantial, as the unemployment rate declined to 7.9 percent by December 2022, the lowest unemployment rate since February 2015 (7.5 percent). However, elevated food, fuel and energy prices partly due to booming international commodity prices, bottlenecks in global supply chains, and a depreciated exchange rate have pushed CPI inflation up to 10.1 percent in 2021 and 5.8 percent in 2022¹⁰. Banco Central do Brasil's (BCB) proactive stance in raising interest rates (reaching 13.75 percent in September 2022)¹¹ and other measures to reduce fuel taxes helped reduce inflation further in 2023.¹²

Despite the recent adoption of important reforms, steady growth in recurrent and rigid spending still crowds out critical public investment and poses challenges for long-term debt sustainability. In the post SCD1 period, large public sector pensions and wage bill payments continued to contribute to an elevated public debt level¹³ (from 51.5 percent in 2013 to 69.8 percent of GDP in 2016) and led the government to approve a ceiling on federal primary expenditures in 2016.¹⁴ Public debt kept raising to 75.3 percent of GDP in 2018 before starting to gradually decline in 2019. Payroll and pensions continued to increase, though at slower pace due to a freeze of public salaries and the approval of a pension reform in 2019. In 2020, when the country was hit by the pandemic, the spending cap rule was waived to allow for the COVID-19 response.¹⁵ However, the compliance with the ceiling fiscal rule, the rollback of COVID-related expenses,

and higher-than-expected revenue supported by inflation effects, the growth of the Brazilian economy and elevated commodity prices led to significant fiscal consolidation in 2021 and 2022. Brazil reached a primary surplus in both 2021 and 2022¹⁶, while the general government's gross debt decreased to 72.9 percent of GDP in 2022 – a share lower than the 74.4 percent of GDP from 2019.¹⁷ While important debt management reforms have significantly reduced the government's debt exposure to exchange rate and rollover risks,¹⁸ Brazil pays the highest interest bill – in terms of GDP and share of spending – of any country in LAC, given its relatively high public debt level (Figure 1).¹⁹

Since the last SCD, Brazil has implemented other key reforms. Brazil enjoys a sounder and more stable financial sector because of the recently approved financial sector reforms that helped boost competition in financial markets and promote financial inclusion and market access.²⁰ Other advancements include increased labor flexibility and reduced litigation costs introduced by the labor reform in 2017 and the openness to competition and private sector participation in key infrastructure sectors (water and sanitation, telecom, and energy). These reforms are already paying dividends. In the sanitation sector, for instance, investments committed for the following years after the new law passed are currently estimated at BRL 100 billion, above the level observed between 2016 and 2020 (BRL 86 billion). Most recently, the Central Bank independence law, approved in February 2021, reassures the conduct of monetary policy away from external interferences, allowing it to tame inflation in the medium term and reduce risk premiums.

1.2 Poverty, shared prosperity and welfare

The long-term decrease in poverty documented in SCD1 came to a halt with the 2014 crisis. Estimates relative to the first decade of the 2000s indicate a sizable reduction in poverty: between 1999 and 2012, about 27 million Brazilians escaped from poverty.²¹ Such a reduction is considered an achievement of regional significance, representing half of the reduction in poverty in the whole LAC region during the period. Poverty rates decreased only slightly after the 2014 crisis: from 28.2 percent in 2012 to 26.2 percent in 2019. Extreme poverty rate, in turn, rose from 4.5 to 5.4 percent between 2012 and 2019 (Figure 2.a).²² Combining the pre-crisis, crisis and recovery periods (i.e., 2012-2019), the real income of the average Brazilian grew by an average of 1 percent annually while that of the poorest 40 percent went up by only 0.6 percent. More worryingly, the poorest decile's income decreased by an average of 1.1 percent yearly.

The pandemic and post-pandemic years decoupled the evolution of GDP from that of poverty, as low-income

families became more dependent on public transfers. Despite the historical economic collapse of 2020, poverty rates in Brazil decreased from 26.2 percent in 2019 to 18.7 percent in 2020 thanks to the Auxílio Emergencial (AE) program that provided cash transfers amounting to 3.9 percent of the GDP. Brazil thus stood out as one of the few countries in which poverty did not increase at the onset of the COVID-19 pandemic. In the LAC region, poverty went up by 1.2 percentage points between 2020 and 2021²³. In 2021, the Brazilian economy bounced back, but the labor market was still struggling: the unemployment rate decreased by only 0.6 percentage points. Thus, the significant reduction in the coverage and benefits of AE led to an increase in poverty to 28.4 percent. Indeed, non-labor income is estimated to be the main factor driving poverty dynamics in 2020-2021 (Figure 2.b). The diminishing role of labor income in families' livelihoods was accompanied by income volatility²⁴ that also explains the rise of food insecurity in Brazil.²⁵ Projections of poverty rates for 2022 are estimated at 24.3 percent – a similar rate to that of 2014.

Brazil is still one of the most unequal countries in the world, with a Gini coefficient of 0.529 in 2021. Income inequality in 2021 was as high as in 2011. Income inequality consistently decreased in the first decade of the 2000s, from 0.584 in 2001 to 0.527 in 2012, but such gains were reverted in the period 2012-2019. After reaching its lowest level 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 since the 1990s. Income disparities are evident along a north-south divide. States in the Northern region have high levels of poverty as well as those in the Northeast. Alagoas, Amazonas, Pará, Amapá and Piauí have poverty rates of over 50 percent. The highest one is observed in the state of Maranhão (59.9 percent), and it is about five times that of Santa Catarina. Finally, income disparities translate into wealth disparities. It is estimated that 1 percent of the population owns almost half the country's household wealth in 2019, compared with 40.5 percent in 2010²⁶. This high concentration translates into a wealth Gini coefficient of 0.89 in 2019 up from 0.822 in 2010.

Brazilian families continue to suffer in non-monetary dimensions, with their place of residence playing a key role in their access to economic opportunities and basic infrastructure. Approximately one-fifth of Brazilians were identified as chronically poor in 2019 – a share only slightly lower than in 2012 (23 percent).²⁷

Poor access to essential services, substandard living conditions, and insufficient human capital accumulation are all indicators that can readily explain why households are unable to stay out of poverty over time. About 31 percent of households in the North and 27 percent in the Northeast do not have access to basic services such as water, sanitation or electricity (Figure 2.c). It is also noticeable in the relatively richer Southeast, where 32 percent of the household heads did not complete primary education, and this share reaches 51 percent in the Northeast. In the Southeast region, 38 percent of workers do not have paid-sick leave, and this share is 58 percent in the North region. Heterogeneity in access to infrastructure completes the picture. In 2021, access to electricity and water was estimated to be over 99 percent in urban areas and over 96 percent in rural areas. However, less than two thirds (62.9 percent) of rural areas have access to sanitation compared to the 94.1 percent coverage rates among urban dwellers. Relatedly, 20 percent of poor women and 26 percent of poor Afro-Brazilians, respectively, do not have improved sanitation.²⁸

Figure 2. Evidence on the poverty and welfare trends in the period 2012-2022

Source: World Bank (2022b) and Lara Ibarra et al. (2023). Notes: Income in panel B is in July 2019 prices. Extreme poverty based on \$2.15 (2017 PPP) line. Poverty based on the \$6.85 (2017 PPP) line.

Inequalities are mitigated only partially by the Brazilian fiscal system. Recent evidence shows that the Brazilian fiscal system in 2019 is both inequality- and poverty-reducing. Income inequality (measured by the Gini) is reduced by 6.4 percentage points and extreme poverty by 5.1 percentage points²⁹. Nonetheless, the most effective poverty-decreasing programs are those targeting the elderly (i.e., rural pensions and BPC). After considering fiscal policies, the elderly poverty rates go from 37.6 to 14.8 percent.

Meanwhile, poverty rates among children and adolescents go from 54.2 to 56.6 percent when comparing the pre- and post-fiscal incomes. Fiscal policies benefit all race groups in terms of their effects on poverty, but households headed by Afro-Brazilians (-6 p.p.) are more benefited than those headed by whites (-5.1 p.p.) and non-AfroBrazilians/non-whites (-3.9 p.p.). However, poverty remains high among households headed by Afro-Brazilians at 38 percent (compared to 18 percent among those headed by whites).

1.3 A sustainable path will require policies to become a greener and resilient economy

SCD1 highlighted how the prospects of the bottom 40 percent (B40) are intrinsically linked with the country's natural assets, but against a background of high and increasing risk from climate change, the whole country's development will need to address environmental challenges head on. Extreme weather events such as droughts, flash floods, and riverine floods are already causing and are expected to continue causing losses across the entire country. Between 1995 and 2019, reported nationwide losses from climate-related events cost an average of more than BRL 13.3 billion per year (USD 2.6 billion or 0.1 percent of 2022 GDP) per year.³⁰ Overall, drought is the costliest climate-related hazard in the country (BRL 199.8 billion between 1995 and 2019), followed by flash floods (BRL 55 billion) and riverine floods (BRL 32.2 billion). Extreme heat is more frequent and intense in urban areas due to the urban heat island effect. The states of Rio Grande do Sul, Minas Gerais, Bahia, Pernambuco, and Santa Catarina have reported the greatest losses, accounting for half of the total BRL 333.36 billion in reported losses between 1995 and 2019.³¹ Nearly every municipi-

pality reported some losses and damage during the period, and 85 percent of the 5,570 municipalities reported climate-related disaster losses. Although droughts affect far more people nationwide, floods caused 88 percent of deaths from disasters between 2000 and 2018—2,435 altogether, mainly in urban areas.³²

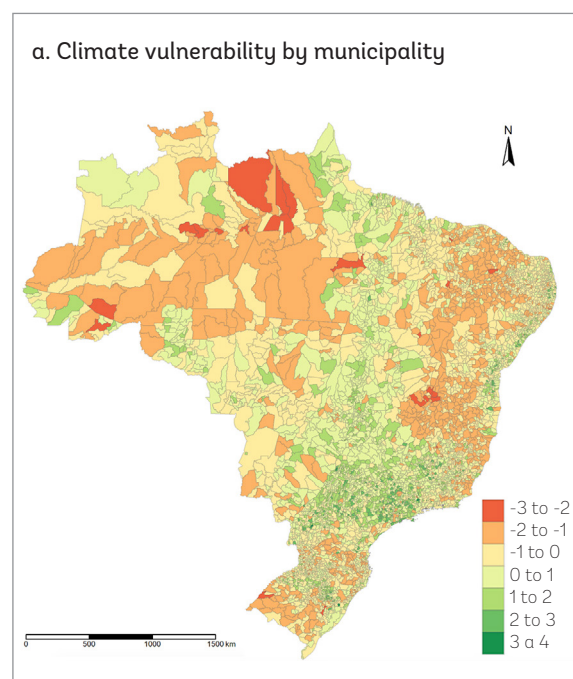
Among other direct consequences, natural hazards significantly disrupt infrastructure negatively impacting the competitiveness of Brazil's economy. Brazilian firms lose amounts equivalent to 0.2 percent of GDP every year due to infrastructure disruptions. The majority (55 percent) are caused by failures of transport infrastructure, followed by power (44 percent) and water (2 percent).³³ More than 5 percent (120,000 km) of Brazil's road and railway infrastructure is exposed to flood risks. The projected reduction in precipitation and changes in seasonal rainfall patterns are also likely to create risks for Brazil's hydropower-dominated electricity supply.³⁴ Notably, most of the natural hazards affect agricultural production, as private losses referring exclusively to agriculture are registered in 81.8 percent of damage

occurrences (World Bank, 2020b). The value of losses linked to agriculture represents 56.2 percent of the sum of public and private losses due to these events.

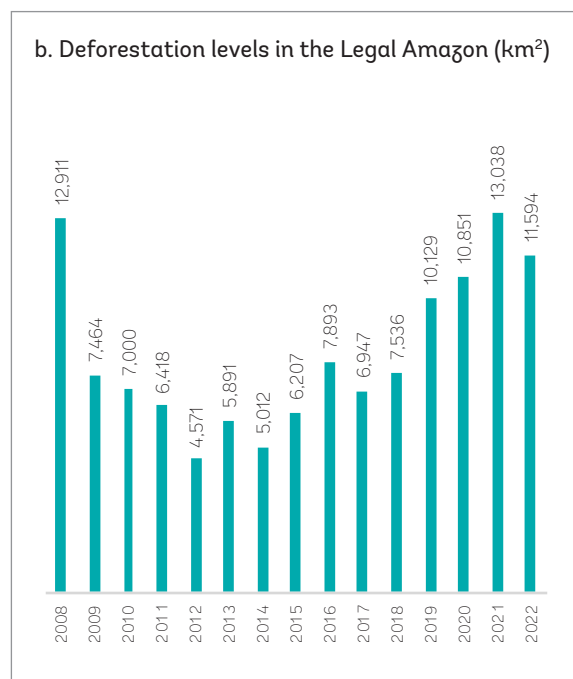
Impacts from climate change on households' welfare are expected to be broad and inequitable. About 3 out of 10 individuals live in either high socioeconomic vulnerability or high environmental vulnerability (Figure 3.a).³⁵ At the same time, 19 percent of the population reside in municipalities considered to be at high environmental risk, while about 8 percent are in municipalities considered to be in high socioeconomic vulnerability – though not at high environmental vulnerability. The urban poor in certain large metropolises are particularly vulnerable to disasters: low-income households typically reside in informal settlements that are often located on low-lying, flood-prone land, and consist of structures that are easily damaged during floods and landslides. Finally, water shortages may disproportionately impact smaller producer systems who do not have the financing for irrigation.

Despite progress in earlier years, deforestation rates have been increasing steadily since 2014. Under the 2004 Plan for the Prevention and Control of Deforestation in the Legal Amazon (PPCDAm) and other environmental protection policies, coupled with favorable economic forces taking pressure off frontier expansion, Brazil managed to effectively reduce deforestation in the Amazon by over 80 percent between 2004 and 2014 (Figure 3.b).³⁶ This decreased Brazil's emissions from land-use change by 65 percent. The trend has since reversed as interventions focused on command and control and a

Figure 3. Brazil's vulnerabilities to climate change



Source: Adapted from World Bank (2022b).



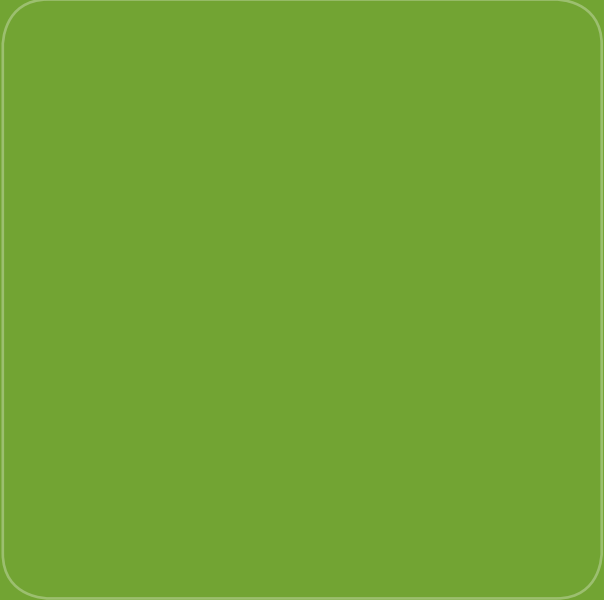
Source: PRODES / INPE.

deteriorating economic environment accelerated frontier expansion once again, intensifying pressures to hollow out environmental protection policies, including the PPCDAm and the Forest Code³⁷. Illegal logging and land grabbing practices³⁸ accelerated, expanding cattle ranching and agriculture into the Amazon and Cerrado biomes. Illegal mining, fishing and other natural resource exploration also increased as a result of the lack of law enforcement in remote areas. Damages to the forest landscape caused by these practices also increased the risk of large fire outbreaks from which tropical forests can hardly recover. Fiscal measures that can implicitly incentivize extensive cattle ranching also add deforestation pressures.³⁹

While Brazil is one of the top 10 GHG emitters in the world, its emissions profile differs from that of most upper-middle income and high-income countries.⁴⁰ Brazil's GHG emissions are primarily due to land use change (primarily deforestation) and agriculture. Land use change and agriculture accounted for 52 percent and 24 percent, respectively, of Brazil's total GHG emissions between 2000 and 2020. Electricity and transport accounted for 12.5 percent and 45 percent of GHG emissions from the energy sector in 2000. This is very different from global averages: energy use (for electricity, heating and cooling, transport, industry, and other uses) accounts for about three-quarters of global emissions, while agriculture, forestry, and land use combined contribute only with about 18 percent.⁴¹ In 2020, gross GHG emis-

sions in Brazil amounted to 2.16 billion tonnes of carbon dioxide equivalent (GtCO₂e). However, these were lowered by the approximately 600 million tonnes (Mt) of removals by Brazil's natural ecosystems, thus making net GHG emissions 1.52 GtCO₂e.⁴² Although Brazil does not generate a large amount of emissions from fossil fuels it is becoming a major exporter of fossil energy, increasingly supported by vast offshore ("Pre-Salt") deposits, unlocked by Brazil's highly productive and competitive extractives sector.

Brazil has important reforms and sectoral plans to address climate change. Various reforms in recent years have strengthened market flexibility (especially land, capital, and product markets), making the economy more adaptable to shocks and aiming to strengthen productivity growth.⁴³ Agricultural policy uses rural credit as its main policy tool, including the Low-Carbon Agriculture Plan (ABC plan) and the new Agro Law. To date, Brazil has applied 17.4 million hectares of different combinations of integrated crop-livestock-forest systems, surpassing by 21 percent the original nationally determined contributions (NDC) targets by 2020. The National Logistics Plan (PNL)⁴⁴ aims to tackle the inefficiency and, in some regions, the large environmental footprint of road-based transport infrastructure and low connectivity for a large portion of the national territory. The PNL projects investments in transportation infrastructure between BRL 730 billion and BRL 1.2 trillion by 2035.



2.

DEVELOPMENT CHALLENGES

Starting from the requirements for poverty reduction and priority constraints identified in SCD1 and considering new analytical findings, this SCD update identifies four development challenges. SCD1 identified three key requirements for Brazil to achieve the twin goals: i) creation of a sufficient number of productive and well-remunerated jobs to provide opportunities for all Brazilians; ii) smarter management of Brazil's natural resources and better mitigation of the risk of natural disasters and environmental pollution; and iii) more efficient and better targeted government spending. In this update, a rich collection of recently published reports was used as the main source of evidence for the changes, reforms, and extensions. The reports A Balancing Act for Brazil's Amazonian: An Economic Memorandum (2023), Brazil Poverty and Equity Assessment: Looking Ahead of Two Crises (2022), Alternative Futures for Brazil: Productivity, Inclusion, Sustainability (forthcoming), Opportunities for All (2022), Social Protection for the future: a 2042 outlook (2023), The Brazil Human Capital Review: Investing in People (2022), The Brazil Infrastructure Review (forthcoming), Agriculture Productivity Growth in Brazil: recent trends and future prospects (2017), A fair adjustment: efficiency and equity of public spending in Brazil : Volume I (2017), Jobs and growth: Brazil's productivity agenda (2018), Gestão de Pessoas e Folha de Pagamentos no Setor Público Brasileiro: o Que Os Dados Dizem (2019), and The Country Climate and Development Report for Brazil (2023)

provided a wealth of post-SCD1 information that informed a review of the SC1 challenges.⁴⁵ For this update, the first SCD1 requirement is complemented by the definition of an additional challenge so as to highlight not only the necessity of having productive jobs, but also the prerequisite of building the income-generating capacity (through human, natural, and financial capital) of all individuals to reduce poverty. The third requirement is also broadened to underscore Brazil's need to address increased exposure to climate change risks in a timely manner.

The first development challenge is to create opportunities for all Brazilians through a focus on productivity-led growth and a competitive economy. It is critical to raise productivity across all economic sectors. Reliance on agricultural productivity has been an enduring feature of the Brazilian economy. While opportunities exist to further develop the agricultural sector, a large potential remains untapped due to low productivity in other economic sectors. This challenge encompasses priorities that are still relevant for Brazil: further global integration and stronger links to trade, improving the business environment, promoting innovation, modernizing infrastructure and adopting a modern tax law. Higher productivity growth across Brazil would raise incomes and build wealth rather than consume it through debt accumulation or the destruction of natural wealth through frontier expansion, making growth more fiscally and environmentally sustainable.

The second development challenge is to develop a people-centric strategy that increases the income-generating capacity of the poor. Economic development and the population's ability to sustainably escape from poverty will require building all individuals' capacity to generate income. Inclusive policies that close the gaps in the accumulation of human, natural, and other types of capital are identified as priorities under this development challenge. Priorities include measures to boost high-quality educational attainment, improved access to digital services, and effective land tenure regulation.

The third development challenge is to unlock the country's potential as a green economy. Brazil's commitment to net-zero and its increased exposure to natural hazards require renewed and broader efforts to move towards a greener economy. Priorities to address this challenge include the promotion of cross-economy productivity, climate-smart agriculture, increasing the resilience of industries and cities, curbing illegal deforestation, and improving the management of natural resources.

The fourth development challenge is to finance the country's inclusive growth through a sustainable framework that relies on more efficient spending, better taxes and a sound fiscal framework. Creating fiscal space in a context of limited discretionary spending is

not novel for Brazil. However, a myriad of factors make financing the required investments a fundamental policy priority, including the rising fiscal needs caused by the COVID-19 crisis, the heightened climate change risks, and the slow progress in building a competitive economy. Increasing the efficiency of government spending, harmonizing taxes across income sources, eliminating regressive exemptions, and improving the credit market are all promising policy options to address this challenge.

Reforms to tackle these challenges must be accompanied by a complementary removal of institutional constraints. Despite Brazil's struggle with policy stability, key legislation has been adopted in recent years, including the state-owned enterprises statute (2016), aimed at aligning state ownership practices with international standards, the fiscal rule (2017), the labor legislation reform (2017), the political reform (2017), which gradually established more rigorous criteria for political parties to have access to electoral party funds, form coalitions and achieve a "performance clause", and the pension system reform (2019).⁴⁶ And while the state administration system is relatively efficient, particularly at the federal level,⁴⁷ government effectiveness is lower than expected. The country also ranks low on the World Economic Forum (WEF)'s Global Competitiveness Index regarding the future orientation of the government, including indicators like policy stability (130th), responsiveness to change (122nd), and long-term vision (129th).⁴⁸

2.1 Challenge 1: Creating opportunities for all Brazilians through a focus on productivity-led growth and a competitive economy

The most important obstacle to increasing the incomes of Brazilians is the lack of productivity growth in non-primary sectors which employ the majority of the workforce. Except for the enduring legacy of structural reforms of the 1990s and the commodity super-cycle of the 2000s, when productivity improved, TFP growth in Brazil has been negative on average, with growth driven mainly by factor accumulation. Between 2011-2019, economic output benefited from an expansion in the labor force, an increased supply of skills, and the accumulation of capital. However, negative productivity growth over the same period all but eliminated these gains. Productivity has been low in Brazil, even by Latin America's lackluster standards. In contrast, productivity has been the key driver of economic growth in countries like China, India, and Türkiye (Figure 1). More specifically, labor productivity decreased by 7.9 percent in

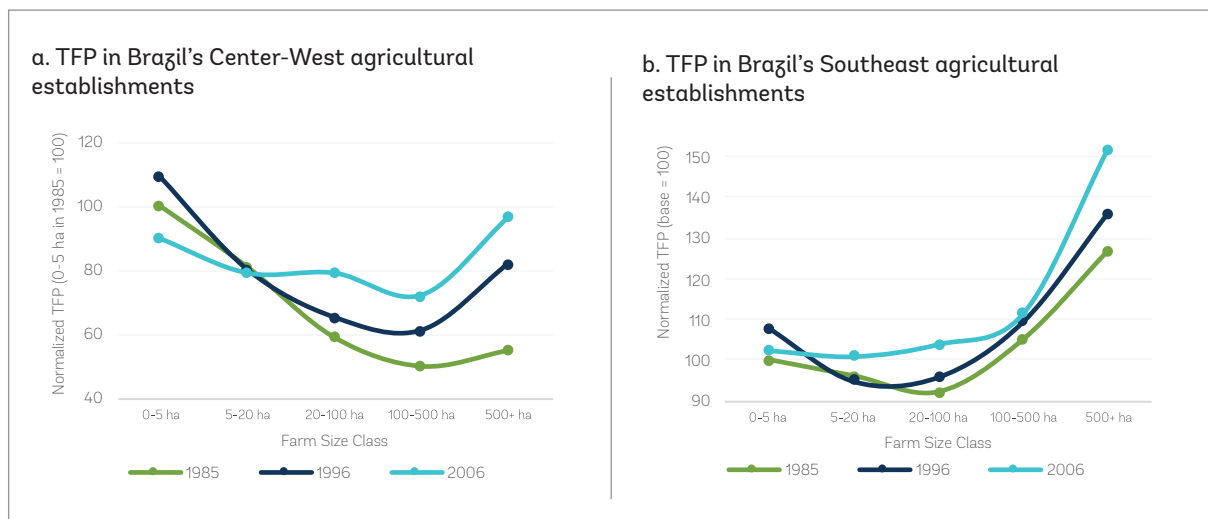
services, 3.7 percent in the manufacturing sector, but climbed by 53 percent in the agricultural sector.⁴⁹ However, services and manufacturing employ 90.8 percent of the workers, including 78.0 percent of the working poor, and 81.9 percent of those in the bottom 40 percent. In addition, higher growth in other sectors has the potential to lift lagging regions such as Amazonia by rising demand for Amazonian products and reducing pressures on natural forests.

Agriculture has been a key driver of productivity in Brazil, and there is still some potential for growth. Between 1996 and 2020, labor productivity in agriculture grew by 6 percent on average annually, though the sector's TFP growth has been mostly concentrated on large producers and with large gains observed in establishments in the Southeast region.⁵⁰ Brazil's productivity growth in the agricultural sectors has also buffered the

country against further economic contractions. Evidence from the last two decades demonstrates that the agriculture industry has consistently acted as a stabilizing force during periods of negative GDP growth.⁵¹ There are many reasons for the success of Brazilian agriculture, including the migration (notably of European farmers) to the South of Brazil⁵², the availability of credit⁵³ and the substantial investments in research and development by Brazilian uni-

versities, research institutes, and the Brazilian Agricultural Research Corporation (Embrapa)⁵⁴. Still, Brazil's agricultural production has room to grow further. For instance, Brazil's corn yield is about half that of the U.S. (5.8 vs. 11 metric tons per hectare). Growth could come from improving productivity of midsize farmers and regions, reforming agriculture policies towards agriculture financing, and further investments in irrigation systems and transport infrastructure.⁵⁵

Figure 4. Agricultural productivity in Brazil.



Source: Adapted from Helfand and Taylor (2021). Notes: ha = hectare.

The high cost of doing business, despite some recent progress, remains an important challenge in the country. The last 15 years have seen improvements in the Brazilian business environment, but it is estimated that doing business costs companies BRL 1.5 trillion (USD 283 billion, or 22 percent of GDP) more in Brazil than in OECD economies.⁵⁶ In 2019, Brazil ranked 71st out of 141 economies in the World Economic Forum's Global Competitiveness Index. These figures were even worse

in 2016, when Brazil was ranked 81st (out of 138 economies).⁵⁷ Such improvements may be reflecting Brazil's Economic Freedom Law (i.e., Ordinary Law No. 13,874 from 2019) aim to move towards a more business-friendly environment and the launch of online systems for company registration, licensing, and employment notifications⁵⁸. "Custo Brasil", a term that refers to the high cost of doing business in the country compared to many of its competitors, is particularly burdensome for small companies.

Brazil's tax system is an important contributor to the "Custo Brasil". In 2021, the tax burden in Brazil was around 33.9 percent of GDP, one of the highest among developing economies, though just below the average of OECD countries. With dozens of different taxes managed by different levels of government and a multitude of tax benefits and special regimes⁵⁹, the complexity of Brazil's tax system creates high compliance costs. High costs are also due to various obstacles that hinder business operations, such as inefficient financial markets, complicated administrative regulations, and a constantly changing regulatory environment. These costs make firms less competitive, reduce their motivation to innovate, and encourage rent-seeking behavior.⁶⁰ Moreover, the inefficiencies caused by the indirect taxation framework are of particular concern.⁶¹ The majority of indirect taxes are levied on turnover, following a cumulative regime that imposes higher effective rates on firms that are in the final stages of the production chain. This cumulative structure creates an artificial incentive for vertical integration and market segmentation, creating incentives against firms that produce complex products. The ICMS tax⁶² follows the origin principle, so revenues go to the state in which the product is produced. This puts ICMS at the core of a "fiscal war" among Brazilian states, as its structure creates a strong perverse incentive for firm location decisions to be based on tax benefits and not on production efficiency. Effective tax rates that vary greatly based on category of product, location and firm size create further distortions to efficient resource allocation.⁶³

While some progress has been made since SCD1 with regards to distortions in credit markets, Brazil still has a very segmented market for bank

credit. In Brazil, a very regulated market for bank credit (i.e., earmarked) coexists with a non-regulated market (i.e., non-earmarked). State-owned enterprises (SOEs) - in particular, Banco do Brasil, Caixa Econômica and BNDES - are responsible for the largest share of earmarked loans. As of April 2023, earmarked loans corresponded to 40.9 percent of the outstanding bank credit, higher than 2007's level (33.5 percent). The average cost of the earmarked credit portfolio (9.3 percent) is well below that of the non-earmarked portfolio (32.4 percent) and even lower than the average public debt cost (10.7 percent). Differential access to earmarked resources contributes to a non-leveled playing field, distorting market prices and leading to a misallocation of resources.⁶⁴

Access to financing is particularly binding for small and medium enterprises (SMEs) thus limiting potential innovation capacity and productivity growth. Information asymmetries and concentration in credit markets have hindered SMEs' access to financing. According to the country's small business support agency (SEBRAE), there are almost 9 million micro and small companies in Brazil, who represent 27 percent of the country's GDP and generate 52 percent of the formal employment.⁶⁵ Recent estimates point that almost 2 million of these companies are financially constrained, and the finance gap is estimated at USD 437 billion or 24.7 percent of GDP. The finance gap was deepened by the COVID-19 crisis. According to a poll made with micro, small and medium enterprises (MSMEs) during the crisis, only 14 percent of MSMEs that sought credit were granted loans.⁶⁶ Bank credit for MSMEs, as a percentage of GDP, was significantly smaller in April 2023 (9.6 percent) than it was in December 2022 (13.3 percent).⁶⁷

Despite the liberalization of the late 1980s and mid-1990s, Brazil's tariffs are still high, and the country is less open to trade than its peers. Barriers to trade in services and high non-tariff measures (NTM) set additional constraints on trade. Services account for only 13 percent of Brazil's gross exports, a low share when compared with 25 and 15 percent for the world and Latin American countries, respectively. This is reflected in its underperformance in the OECD Services Trade Restrictiveness Index, which shows a below-average score in 18 of 22 sectors in 2020.⁶⁸ Brazil also has high NTMs: the percentage of imports subject to at least one NTM is higher in Brazil than in other countries: 74 percent for technical barriers, 55 percent for sanitary and phytosanitary measures, and 23 percent for quantity controls, well above world averages. Simulations suggest that the actual negotiated European Union–Mercosul agreement, including liberalization of tariffs and NTMs, could increase GDP by 6.7 percent by 2040.⁶⁹

Although recent progress has been made, Brazil ranks below most peers when it comes to innovation. SCD1 identified that circa 2015 Brazil ranked in the middle of a group of OECD and middle-income peers in terms of capacity for innovation and 84th out of 140 countries in the Innovation Indicator. In 2016, for example, the average age of patents (15.3 years) in force in Brazil was the highest in a sample of twenty economies. While this average decreased to 11.9 years in 2022,⁷⁰ Brazil still exhibits substantial lags against comparator countries in the global innovation index and in terms of key inputs to innovation

such as the number of researchers and engineers as a proportion of the labor force. Brazil has implemented several innovation policies, mostly through fiscal incentives, but they have had limited impact on technological adoption and innovation.⁷¹ Although the incentives have induced some global information and communication technology (ICT) hardware firms to produce locally, the beneficiaries have not been able to produce internationally competitive ICT products. Similarly, evidence suggests that the Fiscal Incentives Law (Lei do Bem) had a positive but modest impact on innovation. Average realized research and development (R&D) intensity has been low. The law favors larger and older firms and does not reach most small or new companies: it excludes firms that file income tax returns based on their presumed profit, which includes most young firms. To the extent that it favors incumbent firms, it may have slowed the reallocation of resources from low-growth incumbents to high-growth young firms.³

Brazil's infrastructure financing gap is approaching USD 800 billion, the equivalent to 3.7 percent of GDP per year through 2030. Mobilizing private capital will be essential to closing this gap. Investment in infrastructure hit a near all-time low in 2020, when only 1.6 percent of GDP was invested in transportation, electricity, water and sanitation, and telecommunications combined. Notably, transportation accounts for more than half (53 percent) of the country's financing gap. Brazil also lags in terms of investing in multimodal logistics solutions to support the competitiveness of industrial and export value chains. Brazil ranked 56

out of 161 countries in the Logistics Performance Index (LPI) in 2018, lagging behind Mexico, India, China, Canada, and the United States. Brazil, which has dropped 15 places since 2010, is the only BRIC country whose performance has decreased. Improvements in logistical performance and mass transit services are essential for more productive industries and cities, and even a more resilient economy to climate-change. Indeed, addressing climate change impacts an additional 0.8 percent of GDP per year in investment needs between 2022 and 2030.⁷² Better connecting coastal towns (rather than expanding rural roads into the hinterland, including into the Amazon) could yield considerable welfare gains for Brazil. Recognizing fiscal constraints, Brazil must meet the challenge of effectively design strategies to complement public investments and boost the participation of the private sector (e.g., public-private partnerships, concessions) to mobilize capital towards infrastructure projects.

Finally, Brazil must address the limited adaptability of its current and future workforce to a more modern labor market. Over the last ten years, the educational attainment of workers has been a significant predictor of the time needed to recover from labor market shocks. Following massive layoffs, workers with lower education levels take up to eight years to reach their previous wage levels, whereas those with higher levels of education achieve this in less than two years.⁷³ At the same time, the gradual scarcity of routine jobs and the rise of occupations requiring more cognitive and abstract skills are worsening the mismatch between requirements of the modern labor market and the

skills of the workforce. In Brazil, about one third of individuals aged 20-39 have not completed secondary education, and about 78 percent of the workforce and close to 95 percent of the working poor work in occupations facing a relatively high risk of automation.⁷⁴ This means that skill-biased inequality in employment and wages and individuals' differential ability to overcome shocks are likely to widen in the future, negatively affecting upward mobility and Brazil's overall productivity. Finally, the quality of education in Brazil is a cause of concern for the ability of the future workforce to hold high-productivity jobs: in upper secondary education nearly all students in Brazil graduate without full proficiency in math.⁷⁵

IC1 Institutional constraints to boost productivity and a competitive economy

Strengthening Brazil's competition enforcement framework is critical.

A 2018 peer review on competition law and policy identified weaknesses in Brazil's competition enforcement system as part of the country's efforts to join the OECD. These weaknesses include issues with investigation and decision-making processes, the appointment system for the Administrative Council for Economic Defense (CADE) commissioners and the general superintendent, inadequate resources for competition enforcement, and the need for improvements in the methodology for calculating fines and substantive guidelines. Addressing these issues is crucial for fostering a more competitive economy.

Brazil improved enforcement of international intellectual property rules, although a patent backlog persists.

The lack of enforceable Intellectual Property Rights (IPR) policies and substantive rules on IPRs through preferential trade agreements (PTAs) hinders innovation and productivity growth in the domestic market. Reforms to lower tariffs for capital and intermediate goods, reduce trade costs, and attract foreign

direct investment in key service sectors are essential for encouraging technological transfers and fostering a more competitive economy. Brazil has made strides in patent and trademark protection.⁷⁶ However, patent processing remains slow, with an average approval time of eight years. In 2019, the federal government introduced a strategy to address the longstanding patent backlog problem.

Public investment faces several institutional challenges in Brazil.

The IMF's Public Investment Management Assessment (PIMA) 2018 found that Brazil's PIM institutions are stronger than that of other emerging market countries in the areas of national planning, budget comprehensiveness, company regulations and monitoring of assets. However, they perform poorly in the allocation and implementation phases, especially project appraisal and selection, protection of investments, funding availability and project management. In terms of effectiveness, most institutions were assessed as medium or low scoring. Strategic prioritization of investment and project selection and appraisal were found to be the most significant areas of weakness

in the country. Finally, the lack of coordination across levels of government and the low capacity at the subnational level were recognized as serious constraints.

Political institutions in Brazil, characterized by coalitional presidentialism, pose challenges for long-term, within-budget infrastructure spending. State governors depend on fiscal transfers from the central government to finance their public

infrastructure needs due to the rigidity of state budgets. Thus, infrastructure initiatives, assumed to originate within the executive branch, require significant efforts and political capital to get approved and funded via the national legislature. Furthermore, private infrastructure providers frequently operate as monopolies or oligopolies, creating challenges for infrastructure investment. Limited flexibility in Brazil's federal budget also makes it difficult for policymakers to allocate funds for infrastructure projects.

2.2 Challenge 2: Developing a people-centric strategy that increases the income generating capacity of the poor

The effects of the pandemic made bare the vulnerability of Brazilian households to cope with shocks. Long-term economic development can only be achieved if investments are made in their income-generating assets.⁷⁷ As individuals are able to accumulate their human capital, build other assets, securely own natural capital and usufruct

from it through reliable infrastructure, they will be able to sustainably get out of poverty.

A major driver of the recent rise in Brazil's stock of human capital was improved access to basic education.⁷⁸ Between 2000 and 2019, net enrollment rates jumped from 66 percent to 94 percent in pres-

school (5-6-year-olds) and more than doubled in upper secondary school. As a result, average years of schooling increased substantially in the last decades. Upper secondary school dropout rates decreased from 10.3 percent in 2010 to 4.8 percent in 2019, though increased somewhat to 5.7 percent in 2022 partly as a result of the pandemic.⁷⁹ The number of college entrants, in contrast, kept rising from around 1.9 million in 2010 to around 3.6 million in 2019, and 3.9 million in 2021.⁸⁰

The quality of education has increased more slowly than enrollment. Learning at the primary education level has risen steadily as demonstrated in the Índice de Desenvolvimento de Educação Básica (IDEB), which includes standardized test scores in Portuguese and math and school dropout rates.⁸¹ However, the quality of education remains below that of Brazil's regional peers. In the most recent Program for International Student Assessment (PISA) tests, almost half of 10-year-old in Brazil were unable to read or understand a simple text (the World Bank's definition of learning poverty). Results in language and science improved over time, but those in math stalled. In 2021, only 31 percent of students completing upper secondary education attained adequate proficiency in language and a staggeringly low 5 percent in math.⁸²

The COVID-19 pandemic significantly affected learning levels and inequality through long school closures and higher dropout rates and exacerbated existing deficiencies in the provision of education. About 50 million students lost the benefit of in-person instruction during closures. Such a prolonged period of school closures has multiple consequences including increased school dropout

rates and large learning losses. Indeed, nearly 1.4 million school-age students between 5 and 17 years old were out of school in 2021, half of whom were from the North and Northeast of Brazil. Moreover, the Human Capital Index dropped to 0.54 in 2021, compared to 0.601 in 2019 – setting back to levels of 10 years ago.

Another challenge includes equipping the youth with relevant skills for the labor market. In 2012, for example, Brazil had the lowest share of graduates in engineering and sciences among tertiary graduates in a sample of 11 countries. National statistics currently indicate that about 18 percent of college graduates in Brazil specialize in science, engineering, and technology subjects, below the OECD average (25 percent). Gender gaps are substantial: one woman for every seven men graduate in ICT fields in Brazil and less than 1 in 2 in engineering and related subjects. Technical and vocational education and training (TVET) remains a little-pursued path: only 10 percent of upper secondary students are enrolled in TVET, four times less than the OECD average, despite the estimated 9.7 percent wage premium when compared to students with only high school.⁸³

Access to higher education in Brazil has grown in recent decades, but enrollment continues to be highly dependent on family income. Higher education degrees are strongly associated with upper middle- or upper-class status in Brazil. Data from PNAD-C 2019 indicate that youth aged 18–24, almost 7 in 10 in the top income decile are enrolled in higher education, compared to 1 in 10 in the bottom 30 percent and less than 1 in 5 among the vulnerable middle class.⁸⁴ Importantly, the adoption of affirmative action in Brazilian federal universities

in the last decade has contributed to increase the enrollment of public high-school students and Blacks.⁸⁵ Enrollment rates have increased, but the pace of progress may be too slow to reverse today's stark income and class inequality. Projections suggest that after three generations, only 12 percent of the poor will have achieved tertiary education.

While Brazil has a comprehensive set of social protection programs and policies that succeed in achieving many desired outcomes, they tend to fall short in promoting economic inclusion for vulnerable workers. Even though Brazil's total spending on labor market policies is similar to that of high-income economies, the active labor market programs (ALMPs) designed to promote skill development, entrepreneurship and job intermediation services for vulnerable workers receive only a minimal share of this spending. Existing programs largely serve formal workers.⁸⁶ In addition, there is a lack of connection between Brazil's public employment services network (Sistema Nacional de Emprego, SINE) and ALMPs, as well as of linkages between income support programs and SINE.⁸⁷

Most Brazilians rely on the national public health system (Sistema Único de Saúde, SUS), but effective access remains unequal. In fact, 97 percent of low-income rural households use the SUS when sick, as do 88 percent of the low-income urban households.⁸⁸ While SUS is a universal system that has progressively expanded access to care, its true cost is reflected in long wait times to access health services⁸⁹. Access to health services is unequal across the country with rural areas having the lowest number of doc-

tors per capita.⁹⁰ As highlighted in SCD1, there are significant differences in terms of access to health care by race and ethnicity. Unfortunately, inequality in access to health care can start even before birth. At the time SCD1 was prepared, 74.9 percent of the white population had seven or more prenatal visits compared to 54.8 percent among Blacks and pardos, and 24.3 percent among indigenous people. More recent data indicates that about 82 percent of Brazilian white mothers do seven or more prenatal care visit, compared to only 68 percent of Afro-Brazilian mothers.⁹¹

Gaps in terms of basic access also relate to sanitation and internet services. Brazil has achieved near universal access to several key infrastructure services. Almost all Brazilians now have access to electricity and drinking water. However, there are still important racial, ethnical, urban-rural, and gender gaps in terms of access to water supply. About 13 percent of Brazilians poor households have no access to water supply and this share is 39 percent in rural areas, 3 percent in urban areas, 9 percent among female-headed households and 13 percent among those headed by Afro-Brazilians⁹². These figures are even worse among IP and quilombolas, as roughly 51 percent of IPs and 42 percent of quilombolas have no access to a water supply. The access to sanitation and internet services has also lagged behind, especially in the northern and northeastern regions: over 60 percent of the population in these regions do not have access to improved sanitation services, while 85 percent of those in the Southeast do so. Similarly, almost 30 percent of the Northeast's population do not have access to the internet. Limited access to these services represents an important constraint to connectivity, digitalization and the quality of life of underser-

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