

# Retaking the Path to Inclusion, Growth and Sustainability



## Brazil Systematic Country Diagnostic

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**Brazil**  
**Systematic Country Diagnostic**

**Retaking the Path to Inclusion, Growth and Sustainability**

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**May 6, 2016**

**Brazil Country Management Unit**  
**Latin America & the Caribbean Region**  
**International Finance Corporation**  
**Multilateral Investment Guarantee Agency**



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## ***ABBREVIATIONS AND ACRONYMS***

|         |   |   |
|---------|---|---|
| ABC     | Low Carbon Agriculture  | Agricultura de Baixo Carbono  |
| AEPS    | Annual Statistics for Social Security   | Anuário Estatístico da Previdência Social   |
| ALMP    | Active Labour Market Policies   | Políticas de Emprego  |
| ADTEN   | National Technological Development Support Program  | Apoio ao Desenvolvimento Tecnológico da Empresa Nacional  |
| ANVISA  | National Sanitary Control Agency  | Agência Nacional de Vigilância Sanitária  |
| ARM     | Agricultural Risk Management  | Gestão do Risco Agrícola  |
| ARPA    | Amazon Regional Protected Areas Program   | Programa Áreas Protegidas da Amazônia   |
| BNDES   | National Bank for Social and Economic Development   | Banco Nacional de Desenvolvimento Econômico e Social  |
| BPC     | Non-Contributory Pension  | Benefício de Prestação Continuada   |
| BSM     | Brazil without Poverty  | Brasil Sem Miséria  |
| BUI     | Single Ticket   | Bilhete Único Intermunicipal  |
| B40     | Bottom 40 Percent   |   |
| BRICS   | Brazil, Russia, India, China, South Africa  | Brasil, Rússia, Índia, China, África do Sul   |
| CADE    | Administrative Council for Economic Defense   | Conselho Administrativo de Defesa Econômica   |
| CAR     | Rural Environmental Registry  | Cadastro Ambiental Rural  |
| CGE     | Computable General Equilibrium  | Modelo de Equilíbrio Geral Computável   |
| CEDLAS  | Center for Distributive, Labor and Social Studies   | Centro de Estudos Distributivos Sociais e do Trabalho   |
| CMN     | National Monetary Council   | Conselho Monetário Nacional   |
| CNI     | National Council of Industry  | Confederação Nacional da Indústria  |
| CPF     | Country Partnership Framework   | Estratégia de Parceria de Países  |
| DIEESE  | Inter-Union Department of Statistics and Socioeconomic Studies                              | Departamento Intersindical de Estatística e Estudos Socioeconômicos                                     |
| DRM     | Disaster Risk Management  | Gestão do Risco de Desastres  |
| ECD     | Early Childhood Development   | Desenvolvimento Infantil  |
| ENCTI   | National Strategy on Science, Technology and Innovation                                     | Estratégia Nacional de Ciência, Tecnologia e Inovação   |
| EMBRAPA | Brazilian Agricultural Research Corporation   | Empresa Brasileira de Pesquisa Agropecuária   |
| ENP     | Effective Number of Parties   | Número Efetivo de Partidos  |
| FDI     | Foreign Direct Investment   | Investimento Estrangeiro Direto   |
| FGV     | Getúlio Vargas Foundation   | Fundação Getulio Vargas   |
| FIES    | Financing of Higher Education Students  | Fundo de Financiamento Estudantil   |
| FNDCT   | Scientific and Technological Development Fund   | Fundo para Desenvolvimento Científico e Tecnológico   |
| FPE     | State Participation Fund  | Fundo de Participação dos Estados   |
| FPM     | Municipal Participation Fund  | Fundo de Participação dos Municípios  |
| FUNDEB  | Fund for Maintenance, Development of Basic Education and Valuation of Educational Personnel | Fundo de Manutenção e Desenvolvimento da Educação Básica e de Valorização dos Profissionais da Educação |
| FUNDEF  | Fund for the Maintenance and Development of Elementary Schools                              | Fundo de Manutenção e Desenvolvimento do Ensino Fundamental   |
| GDP     | Gross Domestic Product  | Produto Interno Bruto   |
| GHG     | Greenhouses Gases   | Gases de Efeito Estufa  |
| GVC     | Global Value Chains   | Cadeias Globais de Valor  |
| HTA     | Health Technology Assessment  | Avaliação de Tecnologias de Saúde   |

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|--------|---|--|
| ICMS   | Tax on Goods Circulation, Communication and Inter-municipal and Inter-state Transportation Services | Imposto sobre Operações Relativas à Circulação de Mercadorias e Serviços de Transporte Intermunicipal e Interestadual e de Comunicação |
| ICT    | Information and Communications Technology   | Tecnologia da Informação e Comunicação   |
| ITU    | International Telecommunications Union  | Sindicato Internacional de Telecomunicações  |
| IHME   | Institute for Health Metrics and Evaluation   | Instituto de Métrica e Avaliação de Saúde  |
| INGTEC | Center for Research on Innovation, Technology Management and Competitiveness                        | Núcleo de Pesquisas em Inovação, Gestão Tecnológica e Competitividade  |
| INESC  | Institute for Socioeconomic Studies   | Instituto de Estudos Socioeconômicos   |
| IBGE   | Brazilian Institute of Geography and Statistics   | Instituto Brasileiro de Geografia e Estatística  |
| IDB    | Inter-American Development Bank   | Banco Interamericano de Desenvolvimento  |
| IDEB   | Basic Education Development Index   | Índice de Desenvolvimento da Educação Básica   |
| IMF    | International Monetary Fund   | Fundo Monetário Internacional  |
| INCRA  | National Institute of Colonization and Agrarian Reform  | Instituto Nacional de Colonização e Reforma Agrária  |
| INEP   | National Institute of Studies and Research  | Instituto Nacional de Estudos e Pesquisas  |
| INPE   | Instituto Nacional de Pesquisas Espaciais   | National Institute For Space Research  |
| IPCA   | National Consumer Price Index   | Índice Nacional de Preços ao Consumidor Amplo  |
| IPEA   | Institute of Applied Economic Research  | Instituto de Pesquisa Econômica Aplicada   |
| LAC    | Latin America and Caribbean   | América Latina e Caribe  |
| LCR    | Local Content Requirements  | Exigência de Conteúdo Local  |
| LDO    | Budget Guideline Law  | Lei de Diretrizes Orçamentárias  |
| LPI    | Logistics Performance Index   | Índice de Desempenho Logístico   |
| LpT    | Lights for All  | Luz para Todos   |
| LULUCF | Land Use, Land Use Change and Forests   | Uso da Terra, Mudanças de Uso da Terra e Florestas   |
| MAPA   | Ministry of Agriculture, Livestock and Food Supply  | Ministério da Agricultura, Pecuária e Abastecimento  |
| MDA    | Ministry of Agrarian Reform   | Ministério do Desenvolvimento Agrário  |
| MCMV   | My House, My Life   | Minha Casa Minha Vida  |
| MCTI   | Ministry of Science, Technology and Innovation  | Ministério da Ciência, Tecnologia e Inovação   |
| MDA    | Ministry of Agrarian Development  | Ministério do Desenvolvimento Agrário  |
| MDIC   | Ministries of Trade, Commerce and Industry  | Ministério do Desenvolvimento, Indústria e Comércio  |
| MDS    | Ministry of Social Development and Fight Against Hunger   | Ministério do Desenvolvimento Social e Combate à Fome  |
| MEC    | Ministry of Education   | Ministério da Educação   |
| MMA    | Ministry of Environment   | Ministério do Meio Ambiente  |
| M&E    | Monitoring and Evaluation   | Monitoramento e Avaliação  |
| MI     | Ministry of National Integration  | Ministério da Integração Nacional  |
| MPAS   | Ministry of Social Security   | Ministério da Previdência e Assistência Social   |
| O&M    | Operation and Maintenance   | Operação e Manutenção  |
| OECD   | Organization for Economic Cooperation and Development   | Organização para Cooperação Econômica e Desenvolvimento  |
| PAC    | Accelerated Growth Program  | Programa de Aceleração de Crescimento  |
| PADIN  | Child Development Program   | Programa de Desenvolvimento Infantil   |
| PBF    | Family Benefit Program  | Programa Bolsa Família   |
| PIM    | Better Infancy Program  | Primeira Infância Melhor   |
| PISA   | Program for International Student Assessment  | Programa para Avaliação Internacional de Alunos  |
| PINTEC | Technological Innovation Research   | Pesquisa de Inovação Tecnológica   |

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|----------|--|--|
| PMI      | Procedure of the Private Enterprise Expression of Interest         | Procedimento de Manifestação de Interesse da Iniciativa Privada      |
| PNAD     | National Household Sample Survey                                   | Pesquisa Nacional de Amostra de Domicílios                           |
| PNE      | National Plan for Exports  | Plano Nacional de Exportações  |
| PNE      | National Plan for Education  | Plano Nacional de Educação   |
| PPA      | Multi-Year Plan  | Plano Plurianual   |
| PPP      | Public Private Partnership   | Parceria Público-Privada   |
| PPV      | Pact for Life  | Pacto pela Vida  |
| PRONATEC | National Program for Access to Technical Education and Employment  | Programa Nacional de Acesso ao Ensino Técnico e Emprego              |
| PROUNI   | University for All Program   | Programa Universidade para Todos                                     |
| PSR      | Rural Social Security  | Previdência Social Rural   |
| RDC      | Special Procurement Regime   | Regime Diferenciado de Contratações                                  |
| RGPS     | Pension system for private sector workers                          | Regime Geral de Previdência Social                                   |
| RPPS     | Pension system for public sector workers                           | Regimes Próprios de Previdência Social                               |
| R&D      | Research And Development   | Pesquisa e Desenvolvimento   |
| SAE      | Secretariat for Strategic Affairs                                  | Secretaria de Assuntos Estratégicos                                  |
| SCD      | Systematic Country Diagnostic                                      | Diagnóstico Estratégico de País                                      |
| SELIC    | Benchmark Interest Rate  | Serviço Especial de Liquidação e Custódia                            |
| SISTEC   | National System of Vocational Education and Information Technology | Sistema Nacional de Educação Profissional e Tecnologia da Informação |
| SME      | Small and Medium Enterprise  | Pequenas e Médias Empresas   |
| STF      | Supreme Court  | Supremo Tribunal Federal   |
| SUS      | Unified Health System  | Sistema Único de Saúde   |
| TEC      | Technical Education  | Educação Técnica   |
| TCU      | Federal Court of Accounts  | Tribunal de Contas da União  |
| TFP      | Total Factor Productivity  | Produtividade Total dos Fatores                                      |
| TJLP     | Long-Term Interest Rate  | Taxa de Juros de Longo Prazo   |
| TVET     | Technical and Vocational Education and Training                    | Educação Técnica e Formação Profissional                             |
| UNESCO   | United Nations Educational, Scientific and Cultural Organization   | Organização das Nações Unidas para a Educação, a Ciência e a Cultura |
| UNIDO    | United Nations Industrial Development Organization                 | Organização das Nações Unidas para o Desenvolvimento Industrial      |
| UNODC    | United Nations Office on Drugs and Crime                           | Escritório das Nações Unidas sobre Drogas e Crime                    |
| UPP      | Police Pacification Units  | Unidades de Polícia Pacificadora                                     |
| WBG      | World Bank Group   | Grupo Banco Mundial  |
| WGI      | Worldwide Governance Indicators                                    | Indicadores Mundiais de Governança                                   |
| WHO      | World Health Organizations   | Organizações Mundial da Saúde  |
| WEF      | World Economic Forum   | Fórum Econômico Mundial  |
| WEO      | World Economic Outlook   | Panorama Econômico Mundial   |

## OVERVIEW

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- 1. Brazil is a vast country and its development prospects matter globally.** A continental power, Brazil is the fifth largest country on earth (in both land area and population). It covers a vast territory containing the world's largest rainforest (the Amazon) substantial freshwater resources, valuable agricultural land, and multiple minerals, metals and other natural capital. Its size gives it systemic importance from the environmental point of view as the lung of the earth and also has important consequences for the structure of the economy and political institutions. As with most large economies, it is relatively closed. This tendency has been strengthened by a historical focus on the domestic market as the driver of development. Another implication of Brazil's size is a relatively high degree of decentralization in a federative structure, which increased further with the return to democracy in the mid-1980s.
- 2. Brazil's prospects have attracted particular interest also because it historically was and remains today one of the world's most unequal societies.** Dating back to the original allocation of land during colonial times and more recently to the distribution of economic opportunities and access to basic social services, deep and persistent inequalities have characterized Brazil's development path. The country's size and historically high inequality have given debates about inclusive development paths particular resonance both in Brazil and well beyond the country's borders. A continuously rising state footprint following re-democratization and strong 'welfarist' tradition in public policy have been consequences of policy makers' efforts to address Brazil's legacy of sharp socioeconomic inequalities.
- 3. Until the late-1990s, little progress was made in reducing income inequalities in Brazil, but in the past decade Brazil's socioeconomic progress has been remarkable and internationally noted.** From 2003, the country has become recognized for its success in reducing poverty and inequality and its ability to create jobs. Innovative and effective policies to reduce poverty and ensure the inclusion of previously excluded groups have lifted millions of people out of poverty. Nevertheless, even today, in Brazil 5 percent of the population receives 30 percent of the income generated (together with Colombia the highest proportion for any country in Latin America).
- 4. Brazil has also been assuming global responsibilities.** It has been successful in pursuing economic prosperity while protecting its unique natural patrimony. Brazil has become one of the most important emerging new donors, with extensive engagements particularly in Sub-Saharan Africa, and a leading player in international climate negotiations. Brazil's development path over the past decade has shown that growth with shared prosperity, but balanced with respect for the environment, is possible. Brazilians are rightly proud of these internationally recognized achievements.
- 5. However, the mood in Brazil has recently turned pessimistic.** The shifts in the global economy following the world recession of 2008-2009, rising economic imbalances as the post-crisis stimulus was maintained too long, and in particular the end of the commodity super-cycle after 2011, have severely impacted Brazilian growth prospects, and, in 2015, the country entered recession. Falling government revenues accompanied by increasing expenditure pressures have led to a significant fiscal deficit, denting investor confidence. Administered price increases and one of the largest depreciations among emerging market currencies have driven up inflation, forcing the Central Bank to raise interest rates.

6. **The bleak short-term economic outlook raises the risk that social and environmental achievements may not be sustained.** Rising unemployment is likely to put pressure on lower-income households, rising inflation is eating into the real value of social transfers, while fiscal pressures accentuate spending trade-offs in the public sector. Economic difficulties also have the potential to sharpen conflicts over land and other natural resources, putting Brazil's environmental achievements at risk. They may provoke an increase in urban crime and violence with negative social as well as economic consequences.

7. **More fundamentally, the changed economic circumstances have exposed shortcomings in Brazil's development model, epitomized by the struggle to achieve a sustainable fiscal policy.** This report argues that the desire for a more inclusive state, after the return to democracy, led to a bias in favor of a large and increasing role for the public sector. Fiscal policy has been constrained by hardwired spending commitments and its sustainability risks being undermined by a burgeoning social security system, which provides substantial benefits to the non-poor. These commitments were affordable during a period of extraordinarily high commodity prices and relatively strong consumption-driven growth. They look unsustainable in the light of the recent shift in Brazil's terms of trade and the country's weak underlying growth potential, reflected in the poor track record of productivity growth and lagging performance on a range of indicators of external competitiveness.

8. **Against this background, some Brazilians are now asking whether the gains of the past decade might have been an illusion, created by the commodity boom, but unsustainable in today's less forgiving international environment.** The answer provided in this Systematic Country Diagnostic (SCD) is a qualified 'no'. There is no reason why the recent socioeconomic gains should be reversed; indeed, they might well be extended with the right policies. This will however require substantial shifts in Brazil's growth model and its fiscal policies, as well as reforms and adjustments in successful policy dimensions such as, for instance, environmental and agricultural policies or social assistance programs. Brazil's recent history contains several episodes of crises that gave rise to important economic and institutional reforms, which alleviated previously binding constraints to further economic and social progress. It also contains several examples of creative policy design overcoming implementation bottlenecks, often through the careful collection of evidence and rigorous monitoring and evaluation (M&E). Another reason to be optimistic is that Brazil's policy makers today operate in an environment of much stronger accountability because of the increasing role of independent control institutions, the growing strength of non-government actors and the rising aspirations and expectations of the new middle class.

9. **Brazil thus finds itself at an important juncture and, to a certain extent, the policy course set today will determine whether the country can sustain the gains of the past and return to a path of solid, inclusive and environmentally sustainable growth.** This SCD offers a contribution to the debate about Brazil's future development. It abstains from formulating specific policy recommendations and rather focuses on highlighting the way in which Brazil's development challenges and opportunities are closely interlinked. The causal chains identified by the analysis lead to a set of broad priorities, which can serve as background for discussion of concrete reform plans and policies, as well as their feasibility in a complex and fluid political environment. The remainder of this overview first presents the main causal chains traced in this SCD and explains the structure of the report, before providing a chapter-by-chapter summary of the main argument.

*The determinants of poverty reduction and shared prosperity—the narrative of this SCD*

10. **The basic argument of this SCD is that Brazil needs to adjust its fiscal policy and its growth model if the country is to sustain the socioeconomic gains made over the past decade.** The story of Brazil's recent achievements is fundamentally a story of buoyant labor markets, declining wage inequality and progressive social policies, all supported by the boom in commodity prices that began around the turn of the millennium. It coincided with the successful macroeconomic stabilization Brazil achieved in the late 1990s, thus allowing the country to take full advantage of high commodity prices and abundant international liquidity. The improvement in the terms of trade facilitated rapid consumption growth without jeopardizing external balances. This in turn swelled public coffers thanks to a tax system built largely around indirect, consumption-linked taxes, and financed a substantial expansion in social transfers and improvements in access to a range of public services. Consumption-based growth and real exchange rate appreciation favored the domestic services industry, which accounted for the bulk of new employment creation disproportionately benefiting less-skilled workers. Rising formalization, improved social safety nets, and large increases in the minimum wage combined to push up the relative earnings of the less skilled and thus contributed to falling earnings inequality. Abundant liquidity facilitated access to credit, including among households, thus further reinforcing the consumption-based growth dynamics.

11. **By late 2015, the factors that drove socioeconomic progress in the past decade had mostly gone into reverse.** International commodity prices have trended down since late 2012, with oil prices recently following suit, global liquidity conditions have tightened since May 2013 and December 2015 saw the first US Federal Funds Rate increase since 2006. Brazil, as most emerging markets, faces a much bleaker international outlook than at most times since the early 2000s. Strong fiscal and financial buffers allowed the country to react to the 2008-2009 global recession with countercyclical fiscal and monetary policies, but in the light of headwinds from the commodity and financial markets and weak underlying growth potential, such measures have failed to stem the gradual deceleration of Brazil's economy since 2012 to face outright recession in 2015. Indeed, the maintenance of countercyclical policies in the light of the declining growth potential created growing macroeconomic imbalances during 2013 and 2014. As a result, the authorities were forced to correct policy; monetary policy tightened in 2013 and a difficult fiscal adjustment is now under way.

12. **With the changed economic outlook, two fundamental weaknesses of Brazil's economy have come to the fore.** First, Brazil has struggled for several decades to generate strong and sustained productivity growth. This weakness is reflected, for instance, in the gradual decline of Brazil's manufacturing capacity, the small share of high technology products in its own export basket, the bias in employment creation toward relatively low productivity services such as catering and home care, and consequently in the low rate of aggregate growth in gross domestic product (GDP) per worker and in total factor productivity. It is also mirrored in the wide dispersion of productivity levels across firms within industries, suggestive of substantial allocative inefficiencies. The underlying causes of Brazil's productivity malaise are complex. They include a high cost of finance and doing business, the poor state of the country's physical infrastructure, limits to competition resulting from domestic regulation as well as relatively high tariff and non-tariff barriers against exports, and muted incentives for innovation, including technology adaptation, due to a myriad of distortive or ineffective government interventions. Another structural constraint to higher productivity growth may lie with the inadequate skills of the labor

force, despite the very substantial progress Brazil has made in providing greater access to education.

13. **Stronger productivity growth alone will not generate inclusive growth.** The hallmark of Brazil's progress in shared prosperity over the past decade was the extent to which economic growth was reflected in fast job creation and declining earnings inequality. While improvements in the business and regulatory environment and greater public and private investment will clearly be critical to relaunch economic growth, how this growth translates into the creation of a sufficient number of good jobs for Brazil's bottom 40 percent (B40) will be equally important. This SCD consequently pays significant attention to the dynamics of Brazil's labor markets and to the opportunities available to the B40 and the assets at their disposal to avail of such opportunities. Without a return to growth and the adoption of a more sustainable, less commodity and less consumption-dependent growth model, improvements in living standards for the B40 will remain elusive. However, while growth is a necessary condition for shared prosperity, it is not sufficient. Policies that enhance economic opportunities, build human capital and resilience, and recognize the assets of the poor (including their claim over natural resources and land rights) deserve particular attention.

14. **The second weakness in Brazil's economic model is related to the sustainability of public spending commitments in the light of the economy's underlying growth potential.** Brazil's public sector has continuously grown since the introduction of democracy in the mid-1980s. Fundamentally, this is related with spending commitments that were enshrined in Brazil's 1988 Constitution and with the nature of the country's fragmented politics, where access to government funds is a key incentive for building and sustaining political coalitions. The large claim of Brazil's public sector on the country's limited domestic savings has traditionally been a source of both macroeconomic instability, which Brazil finally overcame with the *Plano Real* and the fiscal adjustment of 1999, and a relatively high cost of capital, which remains a problem until today. In light of buoyant revenue performance, fiscal constraints lost some of their salience during the first decade of the 2000s but the substantial expansion of public spending after 2008 and the collapse in revenues since the sharp economic downturn in 2014–2015 have exposed Brazil's underlying budget rigidities. Without fiscal adjustment, it seems, the country may be stuck with weak investor confidence, high interest rates in the light of concerns over macroeconomic imbalances, and as a result little impetus for a return to investment-driven growth. At the same time, the necessary fiscal adjustment is fraught with important distributional consequences, which may affect Brazil's future prospects for continued inclusive economic development.

15. **Addressing fiscal trade-offs will be critical for the ability of the public sector to redistribute resources (income and services) to the poor, within a sustainable fiscal and macroeconomic framework.** The analysis in this SCD highlights that some of the largest public expenditure items in the social sphere benefit mostly the better-off, public pensions being an obvious example. In other areas, including health care or general education, there is ample scope for greater efficiency. Many budget subsidies to various economic sectors may even be harmful, by distorting competition, or may be wasted in poorly planned and executed investment projects. By reforming social security, reducing waste, abolishing inefficient subsidies, and reallocating resources to those services mostly benefiting the B40, the necessary fiscal adjustment can be made consistent with further social progress. In this regard, particular attention should be placed on safeguarding and even expanding programs and services that protect the most vulnerable, such as women, Afrodescendants, and indigenous peoples, many of whom still suffer discrimination and

are particularly subject to violence and insecurity, despite considerable government efforts in recent years, which have begun to bear fruit.

16. **Beyond the structural conditions for future job creation and the quality of Brazil's inevitable fiscal adjustment, the prospects of the B40 are also intrinsically linked with the country's vast natural assets and its leadership in the global environmental agenda.** Many of the poor and vulnerable depend on the natural environment for their livelihoods, such as small-scale agricultural producers, as indigenous communities whose lifestyles are dependent on the preservation of Brazil's natural habitats, as well as urban dwellers exposed to pollution, water scarcity or power shortages, and the risks of natural disasters. The high population density and large numbers of poor in urban areas characterize the vulnerability to natural hazards in the country, largely driven by the suboptimal land use and planning that characterizes Brazilian cities. With much fewer means to protect or insure themselves against environmental risks, the poor and B40 are particularly affected by the degree to which government policy and regulation manages to balance the needs of economic development with the objective of environmental sustainability. This SCD shows that there is significant scope to reduce the burden of existing regulation and improve their environmental impact, for instance in the management of land and water resources. Indeed, Brazil has the opportunity to position itself as a leader in exploring green growth paths for emerging markets through innovative policy design. This has the potential to create new economic opportunities for the B40 and greatly increase their resilience against climate-related and other natural shocks.

17. **The reforms required to preserve Brazil's socioeconomic achievements and return the country to a sustainable growth path are challenging.** Brazil rightly looks back at its recent progress in social inclusion with pride. Some in the country see a direct association with an expansive public sector and fear that regulatory reforms and spending cuts may unwind many of these gains. The analysis of this SCD points in a different direction. Brazil's political institutions have required compromises that have swelled government commitments even at the cost of significant inefficiencies. In times of tight fiscal constraints, it may be time to review some of these compromises and generate a new consensus in favor of a more efficient, while still inclusive, economic and social model. Brazil's own history suggests that a new policy consensus has emerged at times of crisis and allowed the country to overcome past institutional constraints to better public sector governance. In the late 1990s, repeated bouts of high inflation finally convinced the political class to establish a new set of institutions – the macroeconomic tripod and the fiscal responsibility law – that guaranteed macroeconomic stability for the next 15 years. Likewise today, poor macroeconomic prospects, the decreasing public tolerance of the 'old ways' of political deal making, as well as growing pressure for improvements in the quality of services may create incentives for policy makers to align behind a coherent economic strategy and overcome the vested interests that have blocked reform to date. Brazil's political establishment has already demonstrated leadership and vision in declaring ambitious climate objectives – a national consensus seems to be forming in favor of a future green growth model. All this is reason to be optimistic.

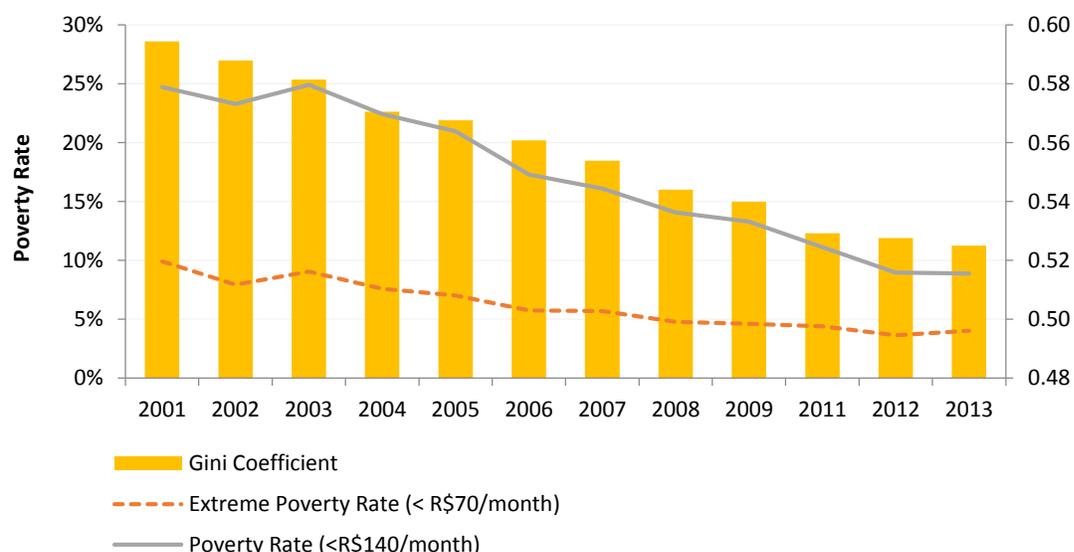
18. **The structure of the SCD follows the argument in the previous paragraphs.** Chapter 1 summarizes Brazil's achievements in reducing poverty and boosting incomes of the B40, drawing up a profile of the poor and vulnerable, their main assets, access to markets and public services and susceptibility to various economic risks, as well as the effectiveness of government transfers. Chapter 2 looks at Brazil's political institutions to get at the root of the country's fiscal challenges. Chapter 3 examines the consequences of these fiscal challenges for macroeconomic management

and traces the evolution of Brazil’s macroeconomic policy framework since the days of high inflation in the late 1980s. Chapter 4 deals with the structural reforms needed to raise the level and types of private investment required to increase productivity growth and competitiveness, with a particular focus on the role of infrastructure. Chapter 5 reviews the scope for efficiency enhancing and socially progressive reallocations of government expenditures. It also analyzes why some vertical government policies, such as the *Programa Bolsa Família* (PBF) conditional cash transfer (CCT) program, have been so successful, while others—in infrastructure, or in the area of education—have had a more mixed record. Chapter 6 looks at the challenges for improved environmental and natural resource management, and outlines the contours of a future green growth strategy for Brazil. Chapter 7 concludes the SCD and draws out the main constraints to Brazil’s development. In the remainder of this overview, we summarize the responses to the key questions in each chapter.

***Who are the poor and bottom 40 percent in Brazil and how did they fare?***

19. **Between 2001 and 2013, 24.6 million Brazilians have escaped poverty, although Brazil remains one of the most unequal countries in the world.** The reduction in poverty is an achievement of regional significance, representing almost 50 percent of the reduction in poverty in the whole Latin American and Caribbean (LAC) region (Figure 1). Brazil also experienced a rapid decline in inequality over the past decade, with the Gini coefficient of household incomes falling from 0.59 to 0.53. To a large extent, it was due to a policy of social inclusion in the context of a booming economy, fueled by favorable external conditions. Brazil’s achievements were also of historical significance, in that it was the first time in the history of Brazil that a sustained reduction in poverty and inequality had been achieved. Nevertheless, even after the reduction in poverty and inequality, Brazil remains one of the most unequal countries in the world, with a Gini coefficient higher than in most countries except Colombia and Honduras in Latin America and Caribbean and a few countries in sub-Saharan Africa.

**Figure 1: Progress in Poverty and Inequality Reduction in Brazil**

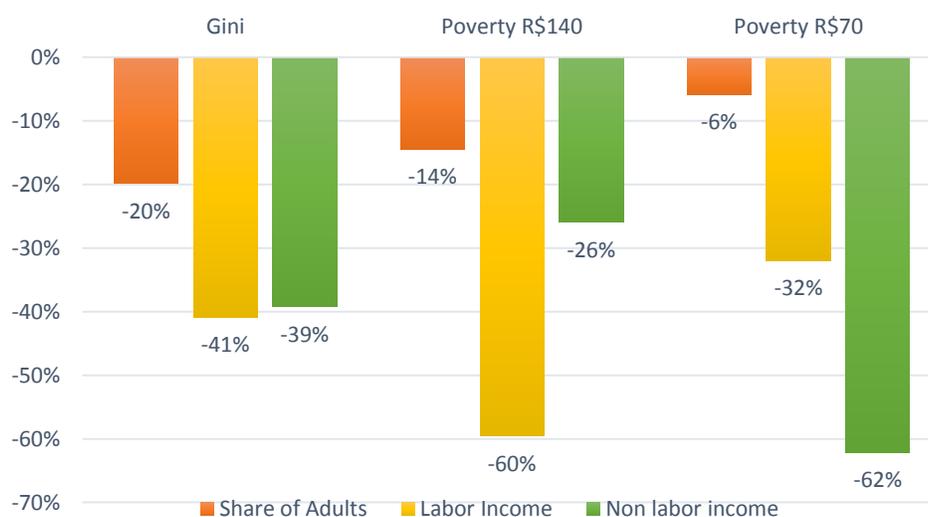


Source: Calculations based on the National Household Sample Survey (PNAD - *Pesquisa Nacional de Amostra de Domicílios*) 2001–13.

20. **While the incidence of poverty is significantly higher in rural areas, the majority of the Brazilian poor live in urban centers.** Using the administrative poverty lines of R\$140 and R\$70 per capita per month of the PBF and the *Brasil Sem Miséria* (BSM) plan, the incidence of poverty in rural areas is more than double that in urban areas, with levels of moderate and extreme poverty at 22.6 and 9.1 percent, respectively, in 2013, compared to 6.3 and 3.1 in urban centers. However, the gap between rural and urban poverty rates has declined from 30.3 percentage points in 2001 to 16.3 percentage points in 2013. Moreover, Brazil has experienced a high rate of urbanization, with 85.2 percent of the country’s population living in urban areas in 2013. As a result, in spite of the lower incidence of poverty in urban areas, in 2013 60 percent of the nation’s poor (almost 17 million) lived in cities.

21. **Labor markets drove shared prosperity, while transfers helped reduce extreme poverty.** The road to prosperity for the majority of poorer Brazilians has been through a formal sector job. In this regard, Brazil is similar to other middle-income countries, where labor earnings represent the largest share of income among the B40, and hence the performance of the labor market is a key determinant of poverty reduction and shared prosperity. For the poorest Brazilians, however, social transfers have been more important than labor markets in the past decade. Sixty two percent of the decline in extreme poverty in Brazil between 2004 and 2013 was due to changes in non-labor income (mainly transfers from the PBF CCT program) (see Figure 2).

**Figure 2: Sources of Reductions in Poverty, Extreme Poverty and Inequality, 2004-2013**



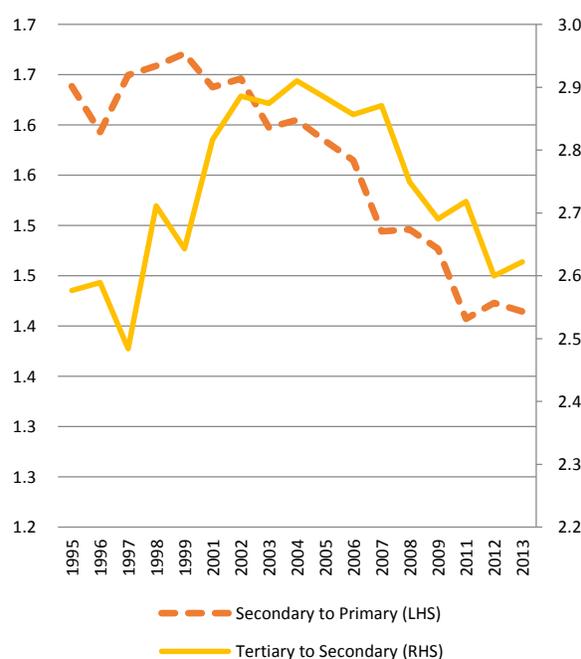
*Source:* Calculations using changes in poverty and changes in income by source between PNAD 2004 and 2013

22. **Brazil’s labor market over the past decade has combined rapid job creation and decreased informality with a considerable compression of the wage distribution.** In many emerging markets and in developed economies, policy makers have faced a dilemma: either accept increasing wage inequality as the price to pay for low unemployment, or protect the relative incomes of those in employment but at the cost of increased joblessness or informality among the low-skilled. Brazil was able to avoid this policy dilemma over the period 2003-2013. The result has been a net job creation rate of close to 2 percent per year, and reduced levels of informality.

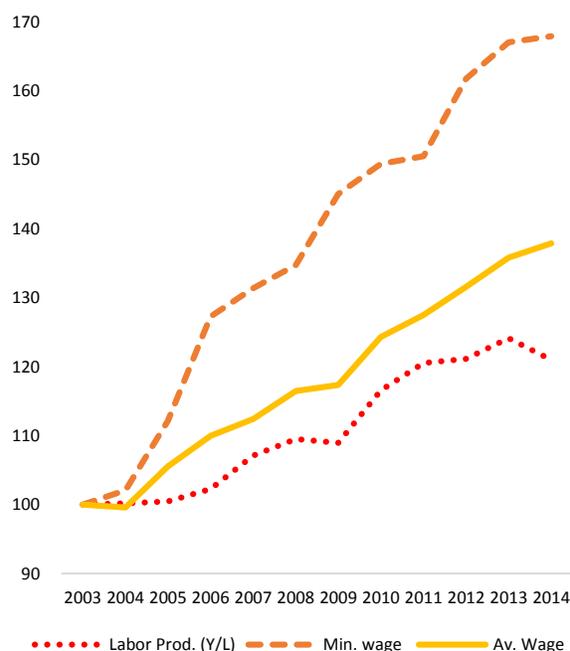
23. **Favorable external conditions have played a critical role in shaping labor market outcomes in Brazil.** The commodity price boom prompted significant real exchange rate appreciation and this in turn encouraged the growth of non-tradable domestic services. Rising job opportunities for low-skilled workers in these sectors led to rising incomes, which in turn fed back into growing demand for goods and services such as housing, durable goods, and retail or transportation. In the context of strong aggregate labor demand, the result was a remarkable reduction in the skills premium (Figure 3a).<sup>1</sup> However, policy played a role too: widening access to education increased the supply of skills and thus helped lower the premium, while aggressive increases in the minimum wage succeeded in shifting up the wage share in the economy as a whole. Rising unit labor costs, however, particularly in higher-skill intensive manufacturing, reduced competitiveness and precipitated a decline in profitability, further accentuating the shift towards lower-skill non-tradables (Figure 3b).

**Figure 3: Wage Inequality Fell After 2003, As the Minimum Wage increased Sharply**

**(3a) The Tertiary to Secondary and Secondary to Primary Education Level Skill Premium**



**(3b) Productivity and wages, Index, 2003=100**



*Source:* LAC Equity Lab - Socioeconomic Database for Latin America and Caribbean data (CEDLAS and World Bank) and Ipeadata.

*Note:* Skill premium is defined as the ratio of average wages by skill level.

*Sources:* International Monetary Fund (IMF), Brazilian Institute of Geography and Statistics (IBGE), Inter-Union Department of Statistics and Socioeconomic Studies (DIEESE), World Bank.

<sup>1</sup> A recent report *Jobs, Wages and the Latin American Slowdown* by de la Torre et al. (2015) notes a similar trend across Latin America. The reasons for declining skills premia are still not entirely understood but likely are not with differences in the skill intensities between tradable and non-tradeable sectors. Instead it seems patterns of demand during the boom were favorable to sectors employing less-skilled workers and the supply curve for less skilled workers seems to have become steeper. It is not clear that these trends are sustainable, raising concerns that the social gains of the past decade may be partially reversed in the coming years.

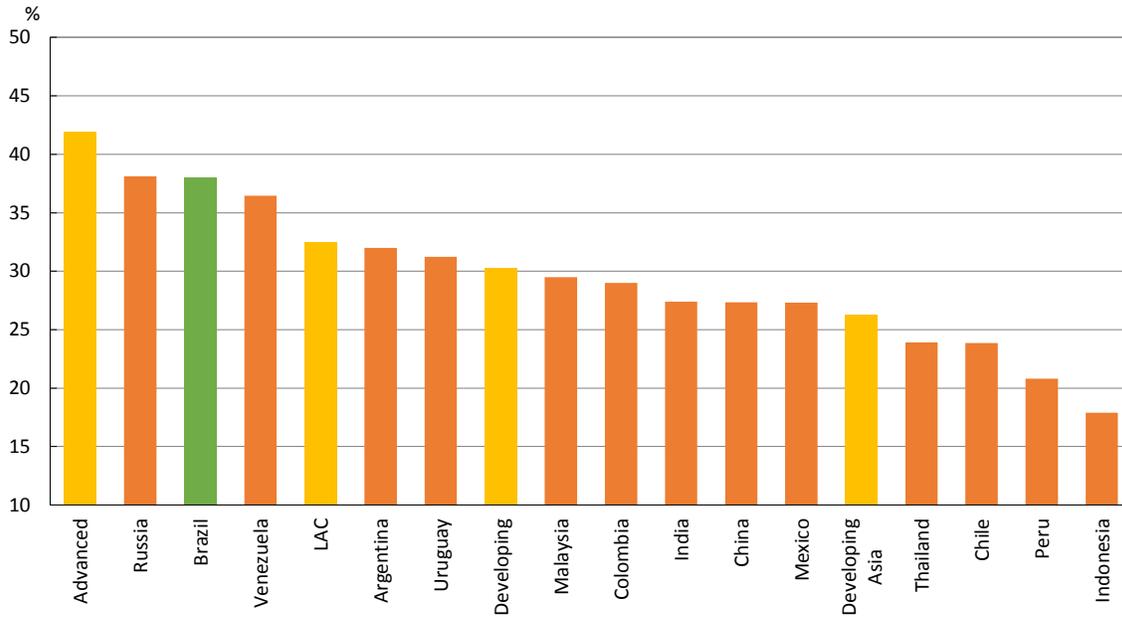
24. **As commodity prices have slumped, it has become clear that the labor market drivers of poverty reduction and shared prosperity cannot be sustained without increasing productivity and investment.** The real exchange rate has depreciated sharply, unemployment is increasing, and the decline in wage inequality may well start to go into reverse. Continued increases in the minimum wage are likely only to be compatible with macroeconomic stability in an environment of increasing productivity. In other words, Brazil will need a different growth model to sustain past gains. This will require a new political consensus to support the necessary fiscal and structural reforms. It is therefore important to understand the underlying institutional factors that have shaped the evolution of public policy in Brazil and how they may affect the hard choices Brazil faces today.

*How do Brazil's political institutions affect the design and implementation of public policy?*

25. **The reintroduction of democracy in Brazil in 1985 came with the recognition that the huge inequalities of the past were unacceptable and unsustainable and that an inclusive development path was required.** Brazil's socioeconomic history is marked by persistent and huge inequality, between land-owners and slaves, between educated elites and illiterate masses, between privileged and non-privileged business groups, and between the wealthy South and the less developed North and Northeast of the country. The 1988 Constitution sought to redress this legacy and repay the accumulated 'social debt'. Brazil's economic institutions in the past three decades have therefore assumed a distinctly 'welfarist' orientation, with significant social entitlements enshrined in basic legislation. At the same time, however, the Constitution did not ignore the interests of the still-powerful traditional elites, and the need to balance subnational and national interests in a continent-sized country. The result was a compromise whereby the traditional elites were convinced to share power through generous public sector handouts and a complex system of checks and balances. Thus the political settlement had an important role in setting the course of fiscal policy over the next three decades.

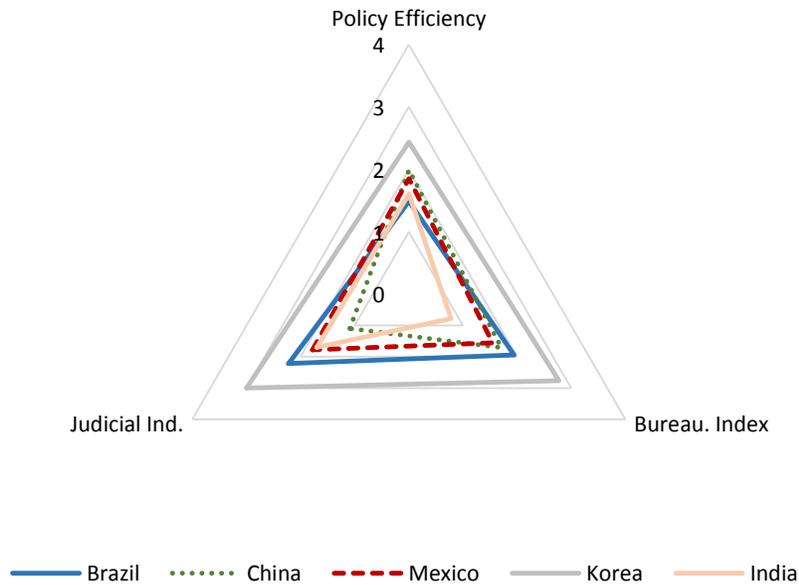
26. **Expenditure pressures and difficulties in formulating and implementing policy have been exacerbated by a highly fragmented political setup, and a decentralized federation.** Few other countries have more parties represented in parliament and more complex coalitions—the current government, for instance, relies on no less than 13 parties for support in Congress. To this must be added the considerable influence of subnational governments in both the Senate and the Chamber of Deputies, through their state-level political machines, which ensure that the loyalty of deputies to the governors and the states is often stronger than that to their parties. The result is a high degree of political fragmentation. Traditionally, political leaders have forged the necessary deals through the allocation of senior positions in the government (Brazil's cabinet is one of the largest in the world, with currently 31 ministers and 39 before October 2015) and through a large number of budget amendments in favor of specific regional interests. The consequence has been a large public footprint (Figure 4) and considerable inefficiencies in the formulation and implementation of policy priorities (Figure 5).

**Figure 4: Brazil's Public Sector is Large  
(Expenditure as a percentage of GDP)**



Source: World Development Indicators

**Figure 5: Brazil's Policy Effectiveness is Low Compared to Peers**



Source: Inter-American Development Bank, Public Policy Attributes, 2015

27. **Despite these institutional inefficiencies, Brazil has been capable of policy adjustments and far-reaching reforms at critical times.** Two important examples are the *Plano Real* (1994) and the Fiscal Responsibility Law (2000). The *Plano Real* was the first successful

program to reduce Brazil's chronically high inflation rate. The Constitution was amended to ensure that fiscal policy was aligned in support of monetary policy objectives. After the emerging market crises of the late 1990s, the exchange rate was allowed to float and an inflation-targeting regime was adopted. Combined with prudent fiscal policy, the floating exchange rate regime and the adoption of an inflation target formed the 'macroeconomic tripod'. In this context, the Fiscal Responsibility Law changed the framework for intergovernmental fiscal relations to make it consistent with the overall sustainability of public finances. The result was more than a decade of relative macroeconomic stability and significant economic and social progress.

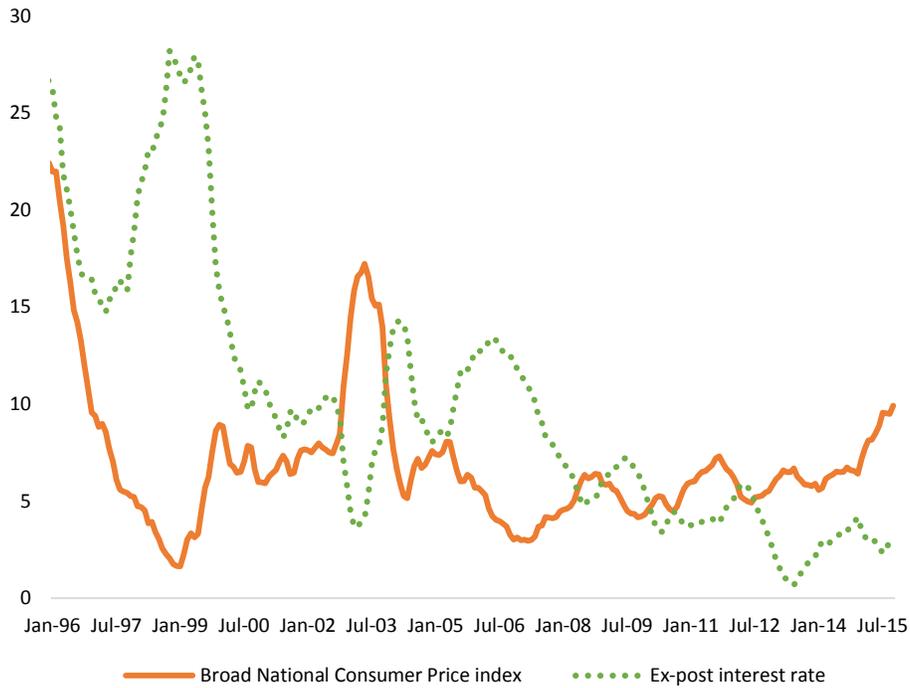
28. **Brazil's recent experience also shows that institutional deficiencies can be overcome with good policy design to achieve tremendous development results.** The best example of a well-designed policy is the *Bolsa Família* (PBF), a CCT program to poor families that has not only contributed in a major way to directly reduce poverty, but also improved the access of beneficiaries to basic services, such as public education and social security. Key elements of success of the PBF, which have now been extended into an integrated poverty reduction program – *Brasil Sem Miséria* – were: (a) a clear objective, (b) an evidence based design, and (c) rigorous Monitoring and Evaluation (M&E). This contains important lessons for other government flagship programs, such as for instance the accelerated growth program (PAC) aiming to encourage more investment in infrastructure. While the PAC clearly satisfies the first condition of success, its record on evidence-based design and M&E is mixed. Brazil will need once more to draw on its capacity to generate institutional innovations at critical times to support critical fiscal and structural reforms needed to put the country back on a sustainable and inclusive growth path.

*What adjustments are needed to Brazil's macroeconomic and fiscal framework to safeguard stability and lay the foundations for a return to sustained growth?*

29. **In the late 1980s and early 1990s, the macroeconomic landscape was dominated by an unsustainable fiscal deficit, instability, hyperinflation, an extraordinarily high cost of capital and low savings and investment rates.** High inflation reflected the fiscal consequences of unresolved distributional conflicts, while the high cost of capital was a consequence of measures to protect financial wealth in times of macroeconomic instability and prevent capital flight. Both public and private savings have historically been low. The *Plano Real* of 1994 and the subsequent fiscal reforms of the late 1990s managed to bring inflation under control and restore macroeconomic balance, but these reforms did not address the underlying structural problems of chronically low savings, high capital costs and an increasingly overextended and rigid public sector.

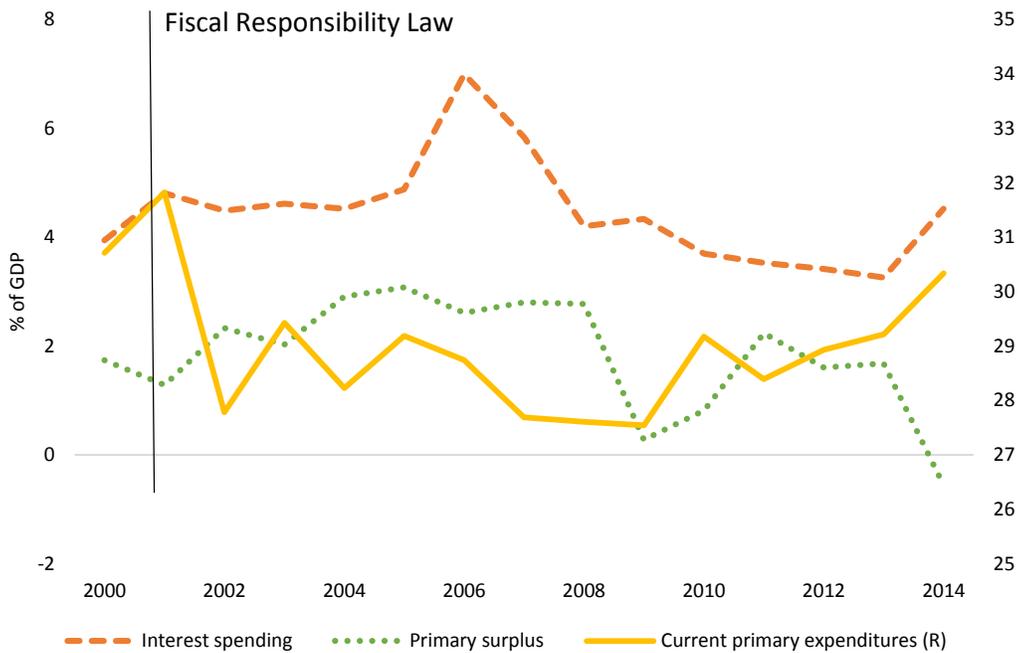
30. **The macroeconomic stability achieved since the late 1990s, however, facilitated economic growth in the decade to 2013.** Inflation was kept under control and the rise in monetary policy credibility allowed real interest rates to decline (Figure 6), although they remained among the highest in the world. This, together with increased revenues from commodity prices, facilitated fiscal adjustment, helping the government achieve primary surpluses of around 3 percent of GDP throughout much of the 2000s despite a significant increase in current spending (Figure 7). As a major commodity exporter, Brazil benefited from excellent terms of trade throughout the decade, which filled public coffers with revenues and helped fuel a domestic consumption boom (Figure 8). Public debt declined by around 10 percentage points of GDP to 60 percent at the eve of the global recession in 2008 and, owing to prudent supervision, the banking sector maintained solid capitalization and strong balance sheets despite a rapid expansion of domestic credit.

**Figure 6: Laying the Foundations – the *Plano Real***  
**Annual Inflation and Real Interest rates (ex-post), 1996-2015**



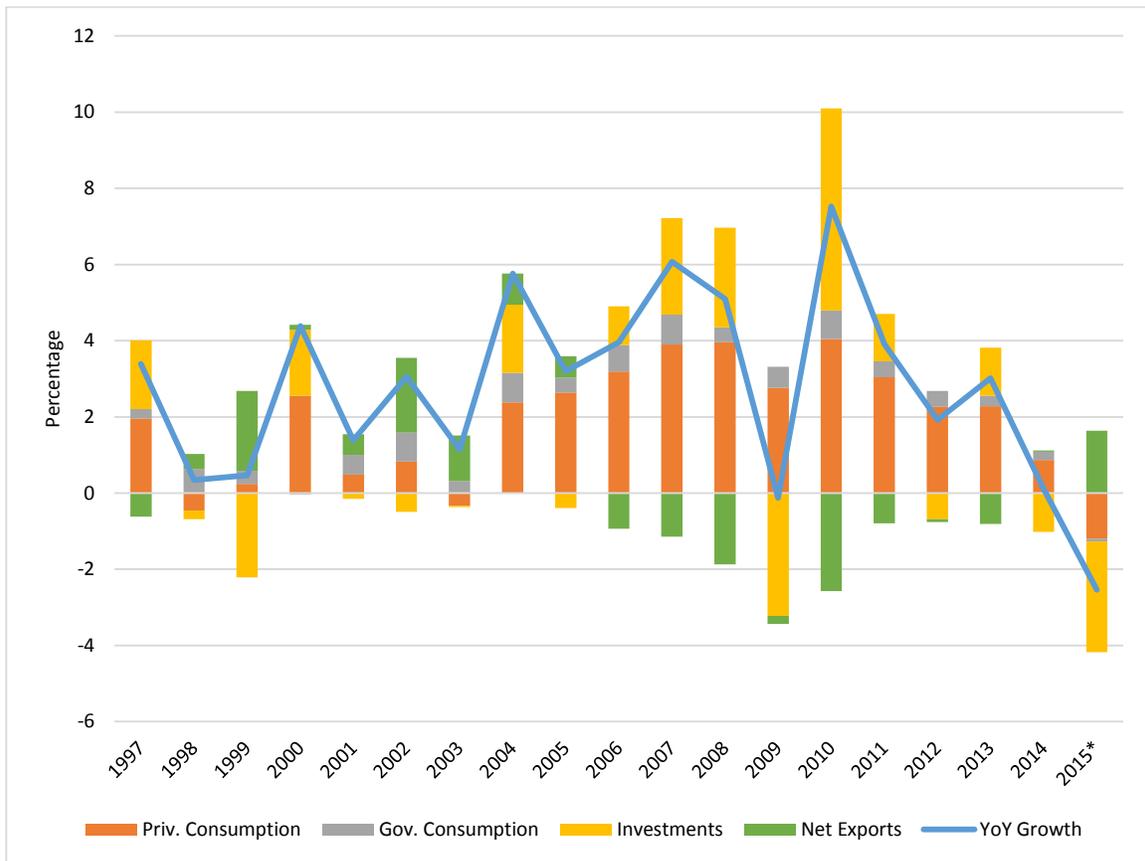
Source: Central Bank of Brazil, World Bank estimates.

**Figure 7: The benefits of fiscal stabilization through the Fiscal Responsibility Law**



Source: National Treasury Secretariat, Federal Revenues Service, IMF. World Bank estimates.

**Figure 8: Consumption driven growth**

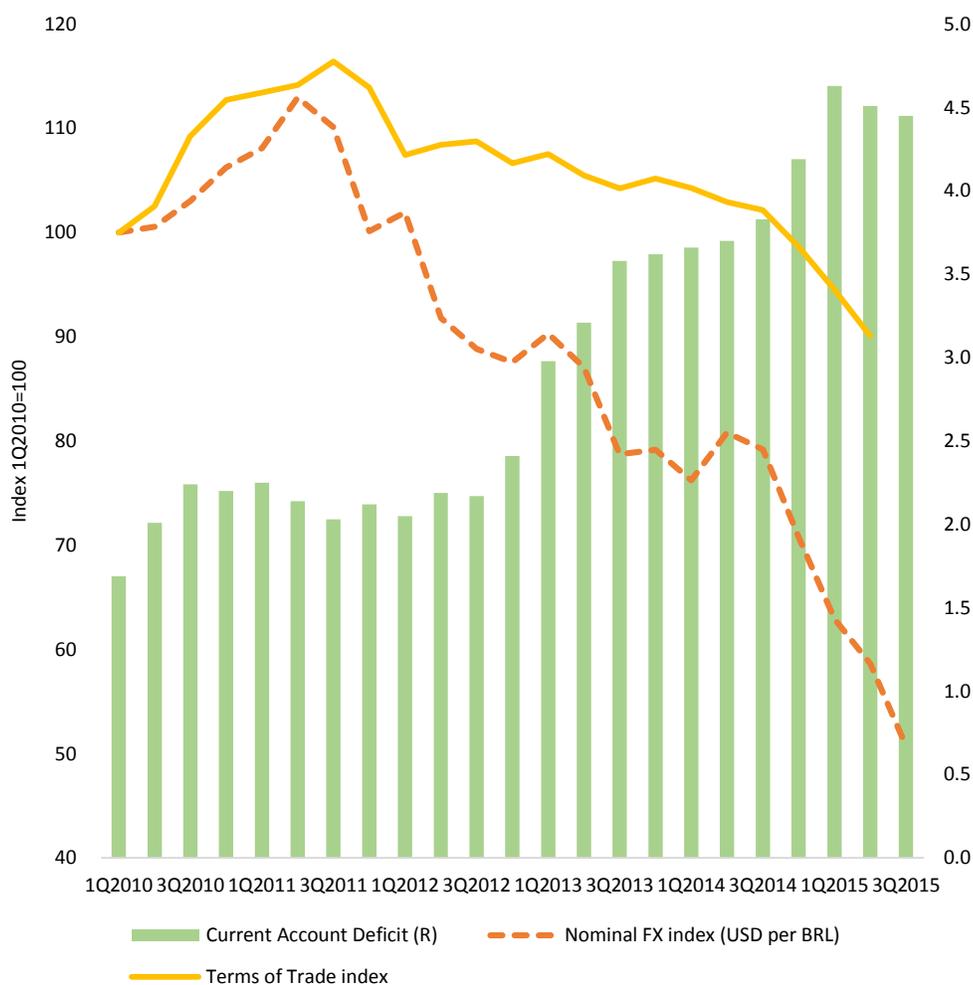


Sources: IBGE and World Bank calculations.

\* Four quarters to third quarter of 2015

31. **Solid fiscal and foreign exchange buffers thus gave Brazil the room to respond to the global recession and recover fast, but were unable to cushion a permanent reduction in the terms of trade, or deal with pre-existing structural constraints.** Fueled by a combination of tax breaks and a rapid increase of ‘directed’ credit through the public banks, growth in 2010 bounced back to 7.6 percent. External conditions helped as commodity prices stayed strong in the initial post-recession years and global monetary stimulus led to huge capital inflows into emerging markets, including Brazil. In addition, monetary policy was highly accommodative, with—between 2011 and mid-2013—record low interest rates. However, the fiscal and monetary stimulus could not deal with what was to be a permanent downturn in the terms of trade. Thus, inflationary pressures started to build while growth slowed in the face of the preexisting structural constraints, and the economy became increasingly unbalanced. When the commodity cycle turned and the US Federal Reserve announced the ‘tapering’ of extraordinary bond purchases, Brazil was left exposed to shifting investor sentiment (Figure 9). Consequently, the Real lost more than half of its value against the U.S. dollar between 2011 and the end of 2015, forcing interest rates back up to 14.25 percent. The economy came to a halt, while inflation rose rapidly.

**Figure 9: When the Cycle Turned, Imbalances Rose**



Source: Central Bank of Brazil, Funcex, World Bank estimates

32. **In 2016, Brazil finds itself requiring a painful macroeconomic and fiscal adjustment.** Budget revenues have fallen as the consumption boom faded. However, spending has proved far more difficult to adjust given the generous social security system and rigidities in expenditure commitments often enshrined in constitutional provisions. Monetary policy was tightened to bring inflation expectations down and the consumer price index back within the Central Bank’s target band of 4.5–6.5 percent. Major attempts were made to adjust fiscal policy, initially through cuts in discretionary spending on public infrastructure and on transfers to state-banks for directed lending operations. Payroll tax breaks for selected sectors introduced in 2012 to stimulate employment were unwound, some increases in taxes were legislated and tariffs for electricity and water were adjusted upwards. However, these measures have been insufficient to restore the fiscal balance of the previous decade, let alone to create fiscal space for public investment. Moreover, even these modest measures have faced considerable opposition in Congress.

33. **Ultimately, Brazil faces the choice of addressing inequities in public spending and reducing transfers to the better off, or contemplating the need to unwind social programs and thus see some of the social gains of the ‘golden decade’ reversed.** The underlying fiscal

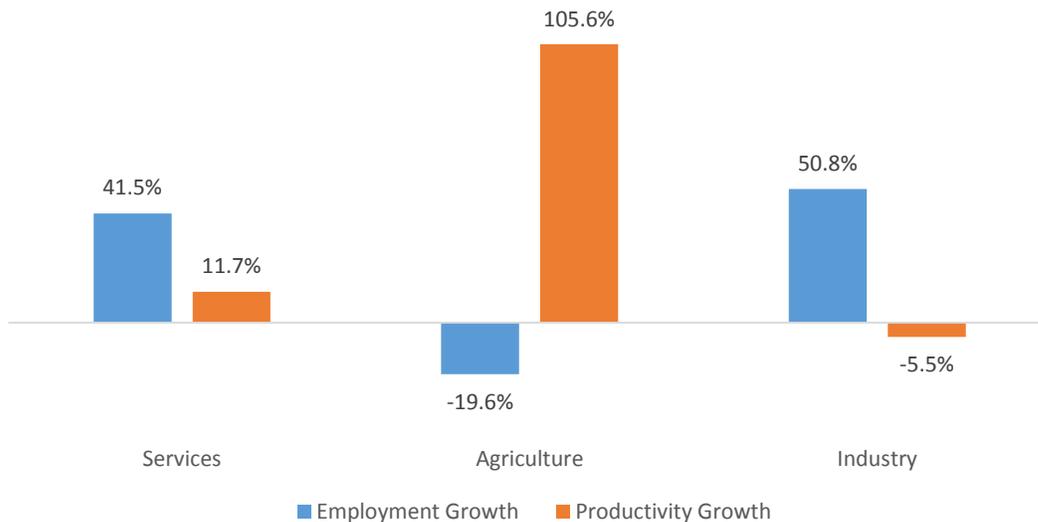
problem of gradually rising expenditure commitments, particularly to the non-poor, was not addressed during the period of rising revenues. With the turn of the terms of trade, the adjustment has become both more necessary and more difficult as the distributional trade-offs at the heart of Brazil's fiscal policy challenge can no longer be hidden behind a rising public sector footprint. Moreover, the fiscal stimulus intended to mitigate the crisis added to the expenditure commitments and the erosion of the revenue base, making fiscal adjustment even more difficult. Beyond fiscal adjustment, however, to relaunch sustainable economic growth, Brazil needs to address its structural problems, including low productive investment, lack of infrastructure, and the high cost of capital with segmented financial markets.

***What are the underlying structural constraints to higher productivity and sustained job creation?***

34. **Brazil's growth record over the past decade masks an underlying structural weakness.** Around two-thirds of the increase in GDP over the 2002-2010 period was due to increases in the quantity and quality of labor inputs, adding about 2.7 percentage points to annual growth on average, as Brazil went through an accelerated demographic transition and reaped the gains of widening access to education. Investment made a modest contribution, adding about 0.9 percentage points to growth annually, which accounts for just under 25 percent of growth over the period. On the other hand, productivity (TFP) growth added just 0.4 percentage points to growth, contributing only 11 percent to the rise in incomes. The demographic transition in Brazil will soon come to an end, and with it the previous motor of Brazil's expansion on the supply side. Without increases in investment and in TFP, future growth rates will fall well short of the recent past, and the scope for socially inclusive policies will be limited.

35. **A closer look at the structural sources of productivity growth sheds light on the nature of the underlying challenges.** There are three main sources of productivity growth related to the structure of an economy. First, productivity may increase as a result of structural transformation, as people shift from lower-productivity jobs, usually in agriculture, to higher productivity ones in services and industry. Second, productivity increases because of a shift of resources from lower productivity firms to higher, fast-growing ones. Third, productivity increases within existing firms as a result of the adoption of new technologies including better management processes. None of these structural dynamics has worked in Brazil's favor. The country was an early urbanizer in the 1950s and 1960s. Immigrants from rural areas clung to precarious informal employment opportunities and a lack of integrated urban planning pushed them into settling in *Favelas* that sprung up in all major Brazilian cities, where they remained cut-off from the provision of better quality public services. The pattern of consumption and non-tradable intensive growth over the past decade has brought many urban dwellers into formal sector jobs, but this has not led to major increases in aggregate productivity. Between 2000 and 2013, most jobs were created in services subsectors where productivity was flat, some in industry and construction where it declined, while jobs were lost in agriculture, which was the only sector experiencing increasing productivity (Figure 10). As a result, aggregate GDP per worker rose merely 1.3 percent per year from 2000 to 2013, and even during the boom years of 2003–2010, did not exceed 2 percent.

**Figure 10: Too few productivity gains from structural change, 2000-2013**



Source: IBGE, World Bank estimates.

36. **Brazil has a few outstanding and internationally recognized enterprises, but for every top performer (such as Embraer), there is a myriad of poorly performing companies that reduce overall productivity.** The variation in productivity levels in Brazil is higher than in most of its peers. Interestingly, this pattern is mirrored in the dispersion of management quality across Brazilian firms. Wide disparities in productivity levels and management performance across firms are an indication that competitive pressures do not work well: poor performers survive and good performers fail to attract additional resources. Also most firms are globally isolated and fail to learn from evolving global technologies.

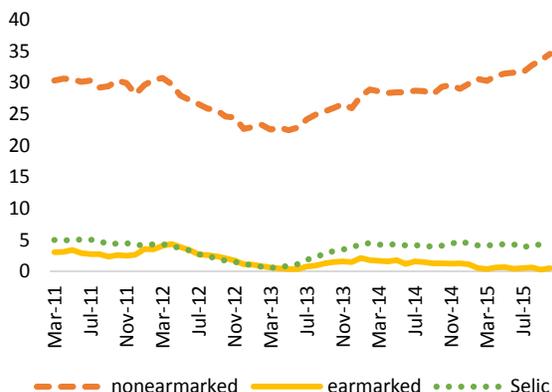
37. **Indeed, there is a host of obstacles to market integration and competition in Brazil, including a lack of infrastructure, a large economy relatively closed to external competition, a heavy bureaucratic burden, and a segmented financial market with very high interest rates.** First, competition suffers from the poor state of Brazil's infrastructure, in particular in the area of transport and logistics. This is particularly important given the continental size of Brazil. Not only does poor transport and logistic infrastructure reduce the competitiveness of Brazilian producers in global markets, it also reduces the level of economic integration across regions in Brazil, allowing wide differences in productivity and income levels to persist across states. Second, Brazil's business environment is burdened by heavy regulation. For instance, it takes 83.6 days to open a new business in Brazil, compared to 6.3 days in Mexico and 4 days in the Republic of Korea. Because the cost of entry and operation is high, entrepreneurship is stifled, and incumbents have an advantage over new competitors. Third, Brazil also limits competition and learning opportunities from abroad by maintaining one of the highest rates of effective protection among emerging markets and industrialized countries. High tariffs on imports of intermediates and capital goods mean that in some sectors the effective rate of protection of some domestic producers is in triple digits.

38. **A final critical barrier to competition and investment in Brazil is a segmented financial system characterized by significant policy discretion in the allocation of credit.** The

current arrangements are both a cause and a consequence of Brazil’s historically high cost of capital. Given high market interest rates, the government has attempted to stimulate private investment through directed credits at below-market rates, administered both through state-owned banks and through a series of earmarked credit schemes run by private commercial banks. This led to a sharp increase in the market share of public banks, from 30 to about 55 percent, during 2010–2014. Borrowers that do not have access to directed credits in turn pay high interest rates (real rates of over 15 percent for corporates and 50 percent for households, on average) if they are not priced out of the market altogether. Indeed, the credit market has bifurcated further since the crisis. Directed credit—either granted by state-owned banks or channeled through the large private banks—increased from 35 to 55 percent of total credit to the domestic private sector during 2008–2015 (see Figure 11). The final verdict is not out on the impact of Brazil’s financial sector policies on enterprise productivity, and as a result on their overall costs and benefits. However, they may have reduced the effectiveness of monetary policy by making a substantial share of credit allocation insensitive to changes in the policy rate and they carry significant fiscal costs, which may limit their scope in the future, in the light of the reduced fiscal space.

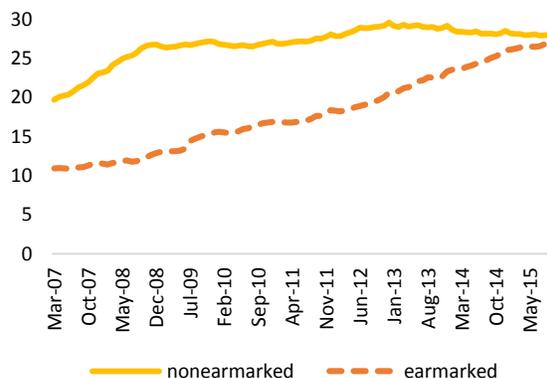
**Figure 11: Directed credits increased post-crisis but with limited impact on investment and productivity**

**(a): Real Interest Rates on New Earmarked and Non-Earmarked Credits, Percentages, 2011–15**



Source: Central Bank of Brazil

**(b): Stocks of Earmarked and Non-Earmarked Credit to the Private Sector, Percentages of GDP, 2007–15**

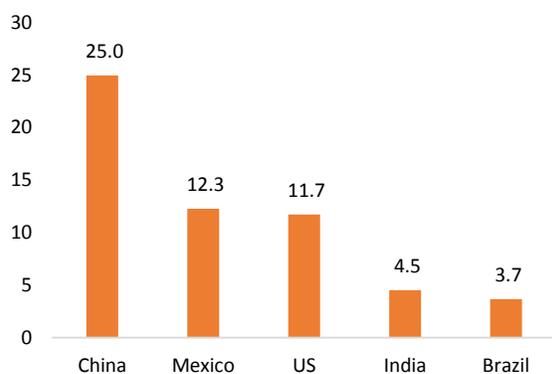


Source: Central Bank of Brazil

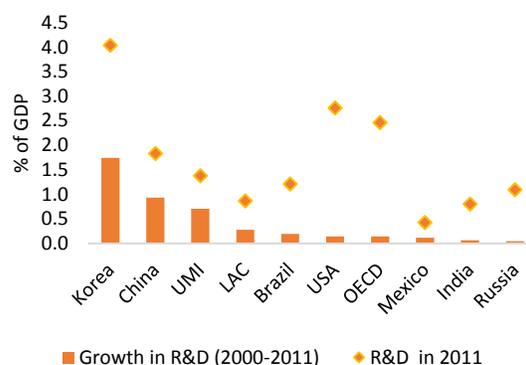
39. **Competitive pressures are one key determinant of innovation and productivity upgrading at the firm level.** In emerging markets such as Brazil, much innovation is ‘catch-up’ innovation, whereby firms adapt international technologies and processes to local conditions. In the absence of competition, particularly from abroad, however, the incentives for firms to remain connected to the international technological frontier are limited. A smaller share of Brazilian firms than in middle-income and Organization for Economic Cooperation and Development (OECD) peers regularly implement process or product innovations according to World Bank enterprise surveys. In addition, Brazil’s percentage of high technology exports is relatively low compared to peers (Figure 12a). Government efforts in recent years have yielded success in improving the supply of science and technology inputs—Brazil produces many more PhDs than a decade ago and government spends more than many other middle-income countries on research and development (R&D) (Figure 12b). However, these efforts have yet to translate into higher

innovation by Brazilian companies. The lack of competitive pressure may be one reason. A dearth of workers with the necessary skills to successfully operate new technologies may be another. Public policy thus may need to go beyond public funding of scientific research and state handouts to support firm-level innovation. Public policy will also need to support citizens to benefit from the opportunities generated by a dynamic and competitive market economy, and protect the poor against economic volatility, structural adjustment and natural risks.

**Figure 12: Despite Increasing Public Investments in R&D, Brazil Remains a Mid-tech Economy**  
 (a) High-technology Exports (% of Merchandise Exports)      (b) R&D Expenditures (% of GDP)



Source: World Bank WDI



Source: World Bank WDI

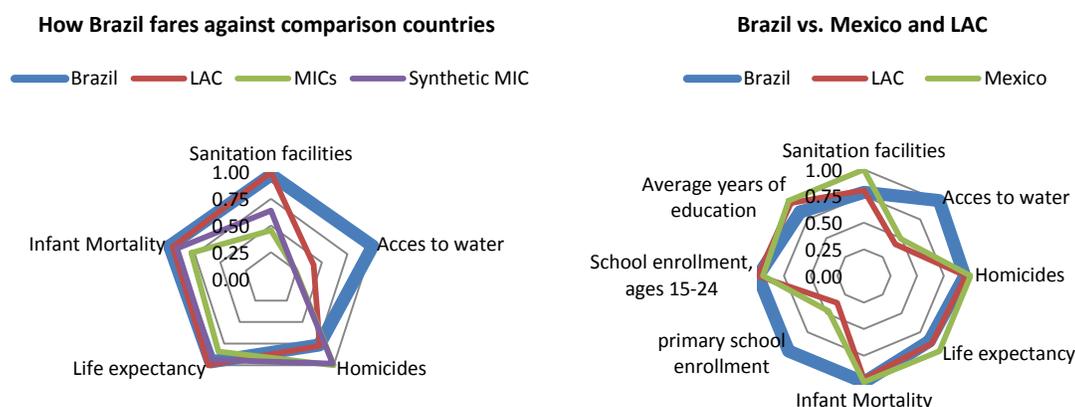
***How much fiscal space does Brazil have to continue its progressive social policies?***

40. **The increase in public expenditure financed by increased revenues reached its limit in 2014.** In that year, Brazil recorded a primary deficit for the first time in 15 years. Even during the height of the global economic crisis, a small primary surplus was maintained, as revenues remained relatively buoyant. This time is different. Revenues are closely tied to consumption because of the high reliance on indirect taxes and as consumption has slumped so has fiscal performance. The share of truly discretionary spending in Brazil’s budget is very low and consists mostly of infrastructure investments as well as subsidies and transfers to particular sectors of the economy. The bulk of spending is tied up in social commitments, including social security, health, education and social transfers (many of which do not go to the poor). The choice for Brazil will be whether to strengthen the fiscal foundations of the macroeconomic framework, by reducing transfers to the well-off, or to introduce spending cuts that fall disproportionately on the poor and undo some of the social progress of the past decade.

41. **The public sector in Brazil has a large footprint, and for many it has been a source of significant support in the past decade.** In addition to the targeted social transfer programs, now bundled under the umbrella of BSM, the state has been instrumental in widening access to public services for the poor and deprived. Brazil increased completion rates of basic (primary plus lower secondary) education by 20 percentage points to close to 70 percent since 2001. Infant mortality fell by 70 percent since the mid-1990s and maternal mortality rates by over 50 percent. Access to power supply, drinking water and sanitation also improved, although important gaps remain among the poor in the latter area. As a consequence of these important achievements, Brazil

compares very well with other middle-income country peers and countries in Latin America and the Caribbean (Figure 13), and these achievements need to be safeguarded.

**Figure 13: Significant Social Progress in Brazil, 2013**



*Source:* World Bank WDI (left figure) and LAC Equity Lab (right figure)

*Note:* School enrollment rates and average years of education for Brazil are not available in the WDI.

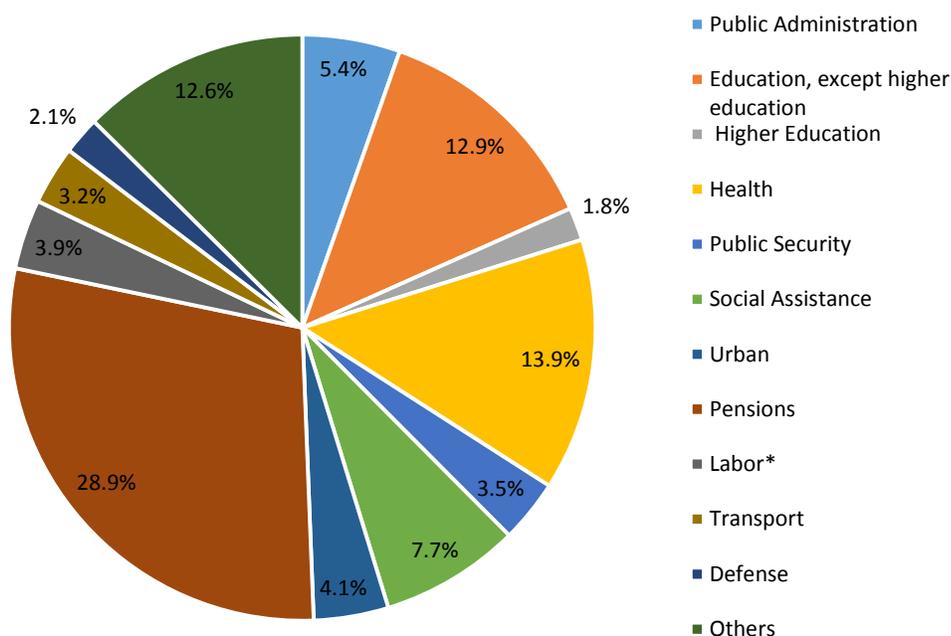
42. **There is a lot of scope for continuing progressive social policies if spending is reallocated from entitlement programs, which largely benefit the better-off. Fiscal adjustment and social progress are not contradictory.** In 2014, the share of social assistance transfers directly targeting the poor was just 7.7 percent of primary general government spending. Adding primary health, early childhood education and primary education spending, the share increased to 16.4 percent.<sup>2</sup> Public administration consumed 5.4 percent of spending, and with multiple overlapping responsibilities and generous civil servant pay packages there would appear to be scope for some savings there (Figure 14). Transfers to businesses, including implicit tax expenditures and transfers through the state banks, exceed 5 percent of GDP, or the equivalent of almost 14 percent of primary expenditure. The bulk of spending is on pensions (not including the semi-contributory rural pensions), an important part of which accrue to public servants and other better-off households. The public pension system has been running deficits, thus directly eating up fiscal space that could be used to protect the poor and vulnerable. Therefore, there are many opportunities to reduce spending without affecting the poor. Indeed, by creating fiscal space for public investment, and for increased transfers to the unemployed and vulnerable, such cuts would help safeguard the social gains of the past decade.

43. **In addition to the reallocation of spending across budget lines, the poor and vulnerable could also benefit from efficiency gains in spending in various areas.** Despite significant gains in educational achievements over the past decade, the B40 continue to be disadvantaged by the low quality of publicly provided basic education. Richer households can afford to send their children to better, private schools, thus increasing the chance of acceptance in one of the publicly funded state universities. The poor do not have this option and are thus

<sup>2</sup> Data for primary health, early childhood education, and primary education were estimated based on the proportions (relative to overall health and education expenditures) observed in 2012.

particularly reliant on government efforts to improve educational quality. The variance in educational outcomes across states with similar socioeconomic conditions suggests there is ample room for policy and good management to make a difference, and for subnational governments to learn from each other. Similar arguments can be made for other public services, such as urban transport, water and sanitation, housing and, importantly, protection from crime and violence. In the case of health care, long waiting lines and poor quality have prompted public dissatisfaction despite considerable improvements in access and the introduction of a tax funded, free system of universal care. Once again, the better-off compensate through additional private health plans; the poor have to stand in the queue. Despite average housing investments<sup>3</sup> being around 10 percent of GDP for the last three decades, capacity constraints at the local level, lack of fiscal space, and land acquisition and resettlement issues have bedeviled the implementation of social housing programs like *Minha Casa Minha Vida* (MCMV). Out of an estimated housing deficit of 27 million units by 2023, 7 million units are for higher-income families. In each of these areas, well-designed policy interventions could help improve the quality of services for all beneficiaries, benefiting in particular poor households that have few opportunities to substitute private provision for poor public services. The poor also stand to benefit from policies that make economic growth compatible with the preservation and enhancement of Brazil’s natural assets and that increase resilience against increasing climate risks.

**Figure 14: Expenditure by Function – 2014**  
(% of Primary Expenditure)



Source: National Treasury Secretariat, Federal Revenues Service, IMF. World Bank estimates.

Note: ‘Labor’ includes unemployment benefits and Urban includes sanitation and housing. Social Assistance includes CCT, other SSN, school feeding programs, Benefício de Prestação Continuada (BPC) and RMV (elderly and disabled) and rural pensions.

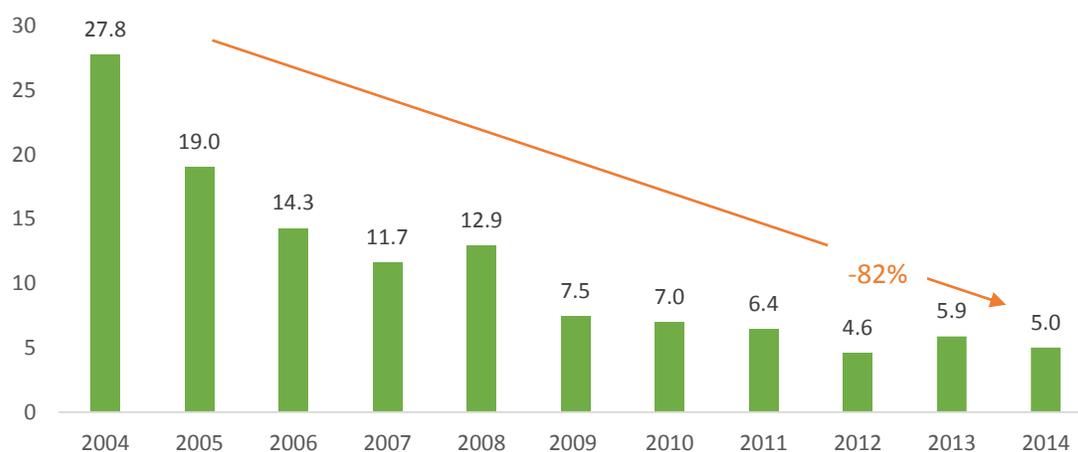
<sup>3</sup> Including government, private, and household investment. Estimates based on ‘ownership of dwelling value added’ variable from National Accounts.

*Can socioeconomic development and the protection of Brazil's huge natural capital be reconciled?*

44. **Brazil stands out for its contribution to climate change mitigation due to its dramatic success in reducing deforestation, making the country a leader in global climate negotiations.** This achievement (see Figure 15) would be welcome in any country; given Brazil's size, it is of global significance. This success is symbolic of a broader effort in Brazil's development policy towards protection of its natural assets and recognition of the ways in which they affect the livelihoods and welfare particularly of many poorer people. Since the 1990s, Brazil has emerged as a leader in new agricultural technologies, including low-tillage farming and the recent expansion of climate-smart agricultural practices. Land regeneration and reforestation programs have been successfully implemented in several regions of the country. Brazil has the ambition to show that social and environmental sustainability are complementary.

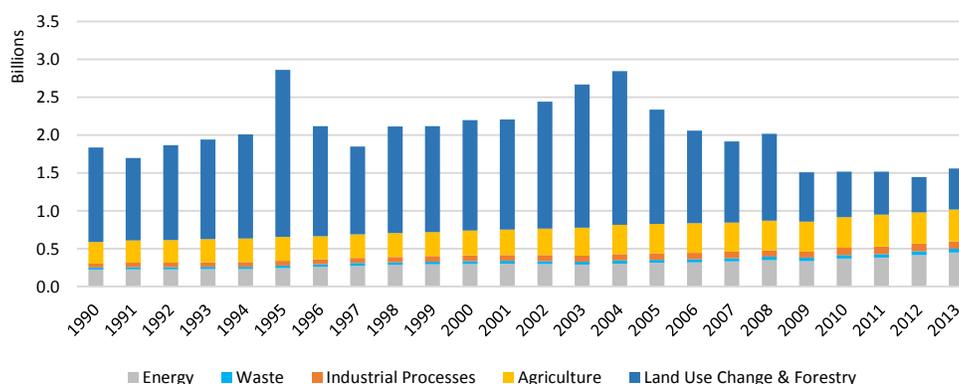
**Figure 15: Brazil is a Leader in Climate Change Mitigation Effort**

**(a) Deforestation in Amazônia Legal between 2004 and 2014, Thousands of square kilometers**



Source: Instituto Nacional de Pesquisas Espaciais (INPE) 2015

**(b) GHG Emissions– Brazil – 1990-2013 (CO<sub>2</sub> eq)**

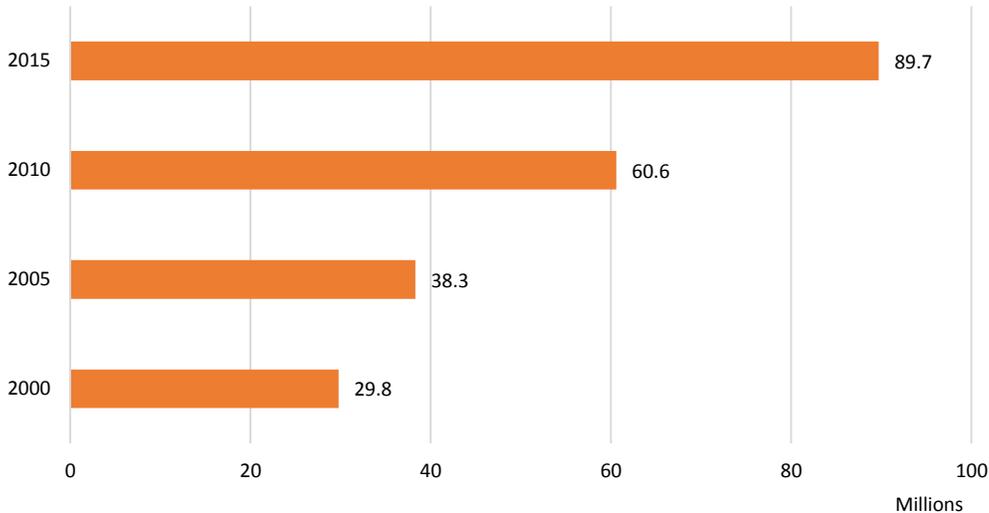


Source: Annual estimates of greenhouse gas emissions in Brazil, Ministry of Science, Technology, and Innovation (2014).

45. **However, many challenges still remain for Brazil.** The management of natural resources such as land and water is inefficient with negative consequences for economic opportunities and sustainability. Despite the increase in agricultural productivity, the variation of productivity across farms remains huge, as a result of which more land needs to be brought under cultivation to compensate for poor yields. Speculative land grabs continue to lead to illegal deforestation and sometimes violent clashes between indigenous people and illegal loggers, despite significant improvements in surveillance and enforcement. Similarly, in water, wide variance exists in the quality of water management across locations, while in addition there is a serious North-South imbalance between water intake and use.

46. **Rapid urbanization and the effects of climate change are creating additional risks to sustainable livelihoods.** Urban sprawl increases the environment footprint of cities and the spread of precarious housing makes people vulnerable to natural disasters, climate-related or not. Many informal urban settlements are at risk from flooding or have been erected on contaminated land. In Brazil, the vehicle fleet trebled between 2000 and 2015 (Figure 16). The situation is particularly bad in Brazil’s megacities such as São Paulo or Rio de Janeiro, and several medium-sized cities, where transport-related air pollution is becoming a significant health hazard.

**Figure 16: With Prosperity Comes Congestion  
(Car Ownership Trebled in Brazil in 15 years)**



Source: Sistema de Registro Nacional de Veículos Automotores – RENAVAL/DENATRAN

47. **A green growth path is possible for Brazil.** Brazil’s land, forest and water resources are assets that if well managed can yield ample economic returns, provide livelihoods, render environmental services and buttress Brazil’s global reputation. Brazil’s cities can become more livable and attractive to global talent and investment alike, if pollution and congestion are reduced, and if weather-related and other disaster risks are mitigated. Public investment will be needed to realize these opportunities, but the private sector can play an important role too, if the right policies are in place. Brazil’s national and subnational governments can already draw on a rich set of experiences. However, in the country’s management of natural resource and environmental protection as in so many other policy fields, the fragmentation of policy making across tiers of

government has added to the complexity and reduced the effectiveness of individual programs and initiatives. Dealing with these issues will allow Brazil to realize its ambition to be a leader in green growth among emerging markets.

*What are the priority constraints that can be derived from the analysis of this SCD?*

48. **The priority constraints in Brazil suggested by this SCD follow from the narrative introduced at the beginning of this overview.** Three requirements can be derived for sustaining poverty reduction and shared prosperity in Brazil into the future.

49. **The first requirement is the creation of sufficient productive and well-remunerated jobs to provide employment opportunities for all Brazilians of working age.** This in turn depends on increasing productivity, stimulating investment and innovation, and ensuring that the labor force is sufficiently skilled to meet the demands of the labor market in an upper-middle-income country. Increased investment and innovation are a function of a stable and sustainable fiscal and macroeconomic framework, improvements in the business environment, access to capital at reasonable prices and, above all, increased competition, together providing the conditions for improving productivity.

50. **A second basic requirement for continued poverty reduction and shared prosperity is more efficient and better-targeted government spending.** This is fundamental to improve access to and the quality of public services and to regain the fiscal space necessary for greater public investment while continuing (and possibly increasing) transfers to the poor and vulnerable. The time has now come to question who receives public resources and for what public purpose. The further reduction of inequality will depend significantly on the state redistributing the resources it allocates away from the non-poor to the poor.

51. **The third requirement for improved livelihoods and economic opportunities is the smarter management of Brazil's natural resources and the better mitigation of environmental pollution and the risk of natural disasters.** Three principal issues in natural resource management stand out and affect the B40 directly and indirectly through their effects on growth and incomes. These are the questions of access to land and insecure property rights, water management and, more broadly, the management of the natural environment. All of these issues are ones of governance in which the state acts as a mediator between competing private interests, and to support those (the poor and vulnerable) who are least able to protect their interests.

52. **Three criteria were used to identify priority constraints on sustained poverty reduction and shared prosperity.** These were: (a) the constraints should have a critical medium and long term impact on the welfare of the B40, including generating synergies and complementarities with relieving other constraints; (b) that any proposed measures should fit into the available resource envelope and be consistent with long-term fiscal and environmental sustainability; and (c) there should be some evidence of impact from other countries or Brazil's own development experience.

53. **By applying these criteria to the three requirements it is possible to identify five priority constraints:** (a) Inefficient and not-well targeted spending commitments that consume fiscal space needed for pro-poor spending priorities generate a relatively high tax burden, and—in an unfavorable global context—have become a cause of serious fiscal imbalances. (b) Public sector governance weaknesses and institutional arrangements that complicate the necessary fiscal adjustment and exacerbate inefficiencies in the choice, design and implementation of public

programs (including those with private participation). (c) Segmentation of financial markets, lack of long-term credit and high interest rates, which reduces the efficiency of the allocation of capital and negatively affects private investment. (d) A poor business environment, characterized by a complex regulatory framework, an uneven playing field, a very complex tax regime, and an economy relatively closed to trade and competition. (e) Inadequacies in the policy framework for the use and protection of Brazil’s natural resources to maximize the impact of this asset base on the sustainable improvement in the livelihoods of the poor. These priorities are the principal constraints for sustainable and inclusive development. Dealing with these constraints would liberate resources to be allocated to priorities that would support continued inclusive development, such as early childhood development, improved quality of education at all levels, public investments in connectivity, and improved market access for the B40, as well as the expansion of well-targeted social transfers to the most vulnerable, whose livelihoods are threatened by the current economic recession.

| Priority Constraints   | Potential Opportunities  |
|--|--|
| <p><b>Lack of fiscal space and large transfer of resources to the non-poor:</b></p> <p>Resolution of the constraint would allow more investment, provide resources for the B40, reduce levels of taxation and promote macro stability and thereby enable job creation, shared prosperity and poverty reduction.</p>  | <p>Zero based review of all expenditure for efficiency, effectiveness and incidence on the poor and non-poor. Possible areas for savings: pension reform; reducing earmarking in the budget; and rationalizing expenditures. Improvements in the framework for fiscal management (including fiscal rules and institutions, the budget preparation and execution, public investment management), will also contribute to create fiscal space and maintain macro-fiscal sustainability. Simplifying the tax system, rationalizing tax expenditures, reducing the use of tax amnesties and improving capital-wealth taxation.</p> <p>To protect the vulnerable through enhancing the responsiveness of non-contributory safety net programs (for example, PBF) to benefit newly eligible groups, targeting specific groups, such as indigenous populations in remote/isolated areas (Amazon), Afrodescendants and other minorities, and women, reducing crime and violence through cross sectoral programs, increasing support for programs against gender based violence and providing economic opportunities for women.</p> |
| <p><b>Public sector governance weaknesses and institutional fragmentation hamper effective long-term policy design, planning and implementation:</b></p> <p>Dealing with the constraint in the medium term would increase the quality of services and ensure their focus on the B40 in the context of a sustainable and flexible overall policy framework.</p> | <p>Development of institutions and processes focusing on quality of public service delivery, as well as encouraging private sector service delivery (for example, through PPPs, direct local and foreign investment), accompanied by a more systematic implementation of results-based management and evidence-based policy formulation. Through increasing the efficiency, and reducing unequal access to education and health, attracting private resources within a strong quality assurance framework).</p> <p>Increasing the quality of spending in infrastructure, housing and in science, technology and innovation (including skills upgrading) programs to boost firms’ productivity and thereby generate more and better jobs, through strengthening of public accountability while removing obstacles related to overlapping mandates and poor policy coordination.</p>   |
| <p><b>Segmentation of financial markets, lack of long term credit, and high interest rates:</b></p> <p>Resolving the constraint would increase the efficiency of the allocation of capital and raise private investment.</p>   | <p>By reducing the direction of credit, and gradually moving away from below market interest rates to ensure all lending takes place at positive real interest rates; establishing long-term financial markets; and reducing subsidies to profitable enterprises with market access.</p>   |
| <p><b>Insufficient competition and poor business environment:</b></p> <p>Improving the business environment and increasing competition is critical to increasing productivity growth in a sustained way to allow for higher wages and higher levels of private investment.</p>   | <p>Greater openness to trade and investment and greater participation of businesses in global value chains. Investments in skills, tax reform (to simplify and increase the transparency of the tax system), and regulatory simplification to improve the business environment. Reducing existing rents and subsidies to privileged businesses and creating a more level playing field where business is rewarded for innovating and upgrading</p>   |

|   |  |
|---|--|
|   | <p>productivity and low performing companies are either forced to adjust or exit the market.</p> <p>To invest in infrastructure and logistics to reduce distance, urban travel times, cost and time of the use of main economic arteries (road, rail, air, transport and ports) and competition-friendly regulation of the communications sector. Integrated land use planning with housing, transport and service provision so that the poor do not have to sacrifice livability for access to jobs. Better access for small farmers to markets to provide income opportunities and hence resources for investment in improved land yields.</p> |
| <p><b>Weaknesses in the management of Brazil’s natural assets/resources and insufficient resilience against climate risks:</b></p> <p>Improving management of Brazil’s natural resources is essential for their conservation, and ensuring sustainable livelihoods for those dependent on them.</p> | <p>Continuing along the path to green growth, and making the best use of Brazil’s natural resources, through better water basin management, energy management, forest management, agricultural practices, reforming environmental licensing structures and processes, strengthening of land rights, and creating a national land registry system. Continue climate change mitigation efforts and invest in adaptation measures. Improved implementation of environmental safeguards and licensing to reduce costs of operation and investment for business, while tightening control and risk management upstream during planning stages.</p>    |

54. **The priority constraints derived from the analysis are broad and the policy and institutional measures to tackle them will require work to define both details and sequencing.** One of the principal themes of the priorities is the need to identify and confront policy trade-offs. However, even within the priorities there will be issues of sequencing and speed of reforms. Both structural and fiscal reforms will be difficult, and may not yield benefits immediately. It might be necessary to put more emphasis on one block rather than the other. Even within the fiscal adjustment, the issue will be how quickly it can and should be carried out. The potential benefits of a large rapid fiscal adjustment are that it could reestablish confidence quickly. The risks would be that too rapid a fiscal adjustment could exacerbate an already intense recession and prove unsustainable. Equally, a slower fiscal adjustment could prove ineffective, if it was believed that it would not be sustained. In essence, one of the key issues in any process of reform will be its sustainability and credibility. For this reason, just as important as any specific measures taken to strengthen Brazil’s development prospects will be the generation of the political consensus to support a reform program and the establishment of institutional mechanisms to ensure that future policy choices and expenditure decisions are subject to scrutiny for effectiveness and consistency with resources.

## Chapter One: Brazil's Achievements in Poverty Reduction and the Profile of the Poor and Vulnerable

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### *Introduction*

55. **Brazil's history is characterized by a continuous effort to realize the enormous potential inherent in its human and natural resources.** Between 1930 and 1980, Brazil was amongst the fastest-growing economies in the world. Growth was both the result of the movement of labor from rural to urban areas and a process of import substitution industrialization, in a relatively closed and isolated economy. While associated with high growth rates, this development model foundered on its gross social inequity and the lack of sustainable macroeconomic foundations, with repeated fiscal and foreign exchange crises punctuating episodes of high growth. Economic development often consisted of granting privileges and protection (including from international trade) to sections of the political and business elite. Brazil's rapid industrialization and urbanization was built upon regional and socioeconomic inequalities, which glaringly exposed the extent to which the country's promise remained unfulfilled.

56. **The restoration of democracy in 1985 came with the recognition that a development model based on exclusion and inequality was not sustainable.** The 1988 Constitution recognized social and economic rights, and in particular rights to health, education, pensions and labor rights, as well as establishing a web of accountability institutions with the formal intention of improving governance and reducing corruption. However, as well as representing the general aspiration to repay an accumulated 'social debt' the Constitution also ensured privileges and benefits for many who were not poor. Additional institutional innovations included the inflation targeting regime of the Central Bank in 1999, the Fiscal Responsibility Law of 2000 and the settlement of the framework for intergovernmental borrowing at the state and municipal levels, as well as the Access to Information Law and the creation of a Transparency Portal (*Portal da Transparência e da Controladoria Geral da União*). The macroeconomic and fiscal stabilization that ensued set the stage for the Lula administration from 2003 to 2010 to build on the improvements in economic management, take advantage of favorable external economic conditions, and pursue an expanded policy agenda ranging from 'a new developmentalist industrial policy' to social policy innovations like the *Programa Bolsa Família* (PBF).

57. **Indeed, between 2003 and 2010, Brazil experienced a 'golden decade' with important reductions in poverty, inequality, as well as deforestation.** With GDP growing at 4.0 percent on average between 2003 and 2010 and 2.8 percent over 2011 to 2013, the share of Brazilians living below the national poverty line of R\$140 a month decreased from 24.9 percent in 2003 to 8.9 percent in 2013. The country is now close to eliminating extreme poverty<sup>4</sup>. Over the same period, inequality, as measured by the Gini coefficient, declined from 0.58 in 2003 to 0.53 in 2013. Similar positive developments took place with regard to increased access by the poorer segments of the population to education, health, water and sanitation, and electricity, as well as with regard to Brazil managing to reduce the rate of deforestation in the Amazon.

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<sup>4</sup> Brazil does not have an official poverty line. The analysis uses administrative poverty lines defined for the *Bolsa Família* program and the *Brasil Sem Miséria* plan of R\$70 (extreme poverty) and R\$140 (moderate poverty) per capita per month. All references to poverty in the SCD will use these national lines unless otherwise stated.

58. **However, the recent changes in the external environment have revealed that underlying structural constraints to sustained growth and shared prosperity have remained unaddressed and now put Brazil's tremendous achievements at risk.** The end of the commodity boom has led to a steady reduction in the number of formal jobs created in the Brazilian economy since the second half of 2010. These changes have exposed the underlying weaknesses and constraints in the consumption-driven growth model of Brazil. Brazil is one of the countries with the weakest performance in productivity, accompanied by major deficiencies in infrastructure, a distorted trade and investment climate, a lack of incentives and capacity for innovation, and insufficient individual skills. The change in external conditions has also revealed the fragility of the progress made so far, with a growing middle class still vulnerable to falling back into poverty, if growth of output and employment continue to stagnate as in the last three years. Yet the rising aspirations of Brazil's 'new middle class' imply that policies that fail to address expectations of further social progress are unlikely to be politically sustainable. As a result, structural reforms and social inclusion are no longer alternative strategies; they have become necessary conditions for one another.

### *1.1 The Determinants of Poverty Reduction and Shared Prosperity - the Analytical Framework of the Systematic Country Diagnostic*

59. **The Brazil SCD is being carried out to inform the development of the World Bank's new Country Partnership Framework (CPF) with the government of Brazil.** The main objective of the Brazil SCD is to identify the key challenges and opportunities for achieving poverty reduction and shared prosperity in Brazil in a sustainable manner.

60. **At the heart of the analysis are the determinants of the welfare of the poor and economically vulnerable.**<sup>5</sup> The Bank Group has established the B40 of the income distribution as its measure of economic vulnerability and aims to help countries develop in ways that recognize and address the particular interests and demands of this group. As the analysis in this SCD shows, there are two key determinants of the welfare of the poor and the B40 in Brazil (Figure 1.1).

61. **The first determinant is outcomes in the labor market.** Employment-related earnings are by far the most important source of income for the B40 and represent one-third of the incomes of the poor. In addition, the welfare of both groups is impacted by the share of household members that are economically active. Levels of activity and labor earnings are jointly determined by labor market outcomes, specifically the development and distribution of wages and the creation of jobs.

62. **The second determinant of welfare among the poor and the B40 is access to public services and social transfers.** Access to services such as health, education, sanitation, social housing, security, and others are key determinants of non-monetary dimensions of poverty and affect all lower-income groups. Social transfers in Brazil account for over 60 percent of incomes among the extreme poor and hence have been a powerful tool for poverty reduction. Figure 1.1 presents stylized 'pathways' towards the elimination of poverty and sustaining shared prosperity. The schematic does not attempt to depict a complete framework of the many interactions in an

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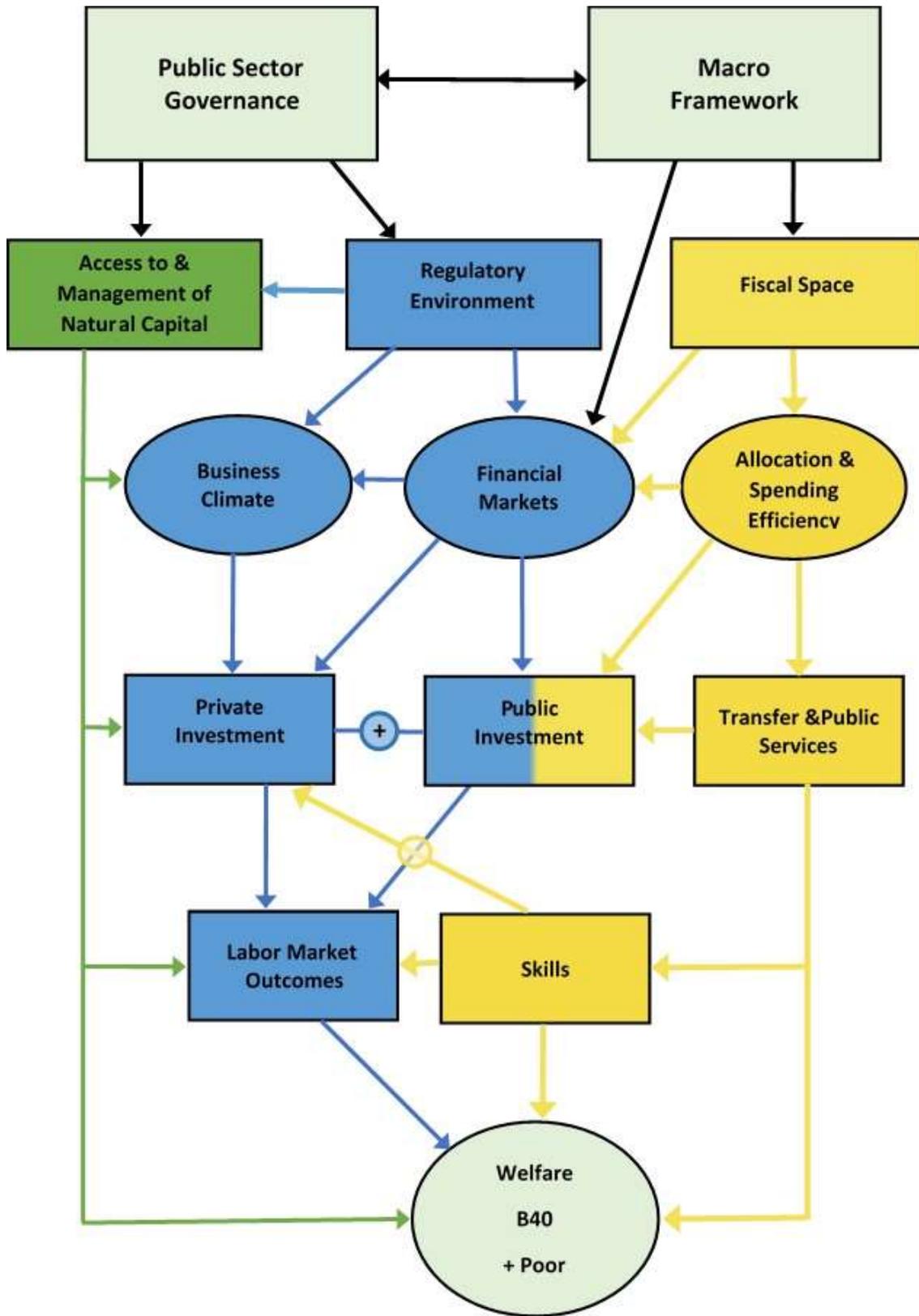
<sup>5</sup> This SCD uses R\$140 per month as the cut-off point below which Brazilians are considered poor, and half that level as the line for extreme poverty. For the purposes of international comparisons, the extreme poor are those with less than US\$1.25 per day (in 2005 Purchasing Power Parity rates).

economy, but rather aims to highlight the key chains of causality that are helpful to determine policy priorities.

63. **Labor market outcomes are determined primarily by investment and job creation in the private sector, although government policies (such as minimum-wage regulation) can play an important role.** The past decade has seen rapid job creation in Brazil, with most new employment in lower-productivity services activities. Significant real exchange rate appreciation and booming commodity prices encouraged the move towards less skill-intensive non-tradables, while sharp increases in minimum wages supported the reduction of wage inequality across the skill distribution as well as across regions in Brazil. These dynamics are unlikely to be repeated in the coming decade. The commodity boom is over, the exchange rate has sharply adjusted and rising unemployment among the less skilled provides much less scope for minimum-wage regulation to drive a continued compression in the wage distribution. In addition, minimum wages anchor a number of social transfers, which limits the scope for continued increases in the light of tight budget constraints.

64. **To sustain job creation and rising earnings for the B40 will thus depend on generating sustainable growth through boosting private sector investment and upgrading skills.** The resulting chain of causality is depicted by the blue arrows in Figure 1.1. Brazil's total investment rate has been below the middle-income country average, with both private and public investment underperforming. Indeed, the two are closely linked. Low public savings directly hamper public investment and crowd out private investment through their impact on interest rates. More generally, the macroeconomic framework affects business prospects through financial markets, the predictability of the business climate and through its effect on investor confidence. Low public investment also increases the cost of doing business due to poor transport, energy and municipal infrastructure, negatively affecting the competitive position of domestic enterprises. In addition, private investment is discouraged by bureaucratic and regulatory obstacles. This is compounded by a myriad of public support schemes, such as tax breaks or subsidized loans, which further distort domestic competition and give room to influence peddling and patronage. While Brazil's labor force today is far better educated than a couple of decades ago, the legacy of underinvestment in basic and vocational and technical education for the B40 will take time to overcome. The combination of these factors is reflected in Brazil's poor productivity performance, with Total Factor Productivity (TFP) (a measure of increases in an economy's overall efficiency) contributing just 0.3 percent per year to economic growth over the period 2002–2014, and increased labor inputs accounting for close to 40 percent of aggregate economic growth. Without addressing the structural constraints to business investment, future improvements are likely to be modest.

Figure 1.1: Analytical Framework of the SCD



65. **The prospects of the poor and B40 will also depend to a significant extent on the sustainability of macro-fiscal trends and government spending priorities.** The chain of causality from the macro framework to fiscal space to budget priorities and public services is shown in yellow in Figure 1.1. The commodity boom, an associated consumption-driven pattern of economic growth, a sharp fall in informality as lower-skilled workers joined the formal labor market, and a structure of taxation heavily reliant on indirect taxes led to buoyant fiscal revenues during the last decade. With the change in the international environment and deterioration in the domestic economy, several of these factors have now gone into reverse, prompting a sharp fall in revenues and opening a substantial fiscal gap. Fiscal space is further constrained by a number of factors, including the rising burden of interest rate subsidies and generous tax expenditures in the context of tightening macroeconomic conditions, and the still substantial size and cost of Brazil's public debt. The largest fiscal burden is related to spending commitments in areas such as education, health and social security (public pensions), several of which are hardwired in legislation and thus not easy to unwind. The room for increased spending on public services and redistributive transfers is thus limited.

66. **However, as the analysis in this SCD highlights, some of the largest expenditure items in the social sphere benefit mostly the better-off; public pensions being an obvious example.** In other areas, including health care or general education, there is ample scope for greater efficiency. Moreover, many budget subsidies to various economic sectors may even be harmful by distorting competition or may be wasted in poorly planned and executed investment projects. By reforming social security, reducing waste, abolishing inefficient subsidies, and reallocating resources to those services mostly benefiting the B40, the necessary fiscal adjustment can be made consistent with further social progress. In this regard, particular attention should be placed on safeguarding and even expanding programs and services that protect the most vulnerable, such as women, Afrodescendants and indigenous peoples, many of whom still suffer discrimination and are particularly subject to violence and insecurity, despite considerable government efforts in recent years, which have begun to bear fruit.

67. **The management of natural resources, the protection of the environment, and the mitigation of and adaptation to climate-related and other natural risks also affects the welfare of the B40 in important ways.** This is illustrated by the green arrows in Figure 1.1. Many of the poor and vulnerable depend on the natural environment for their livelihoods, as small-scale agricultural producers, as indigenous communities whose lifestyles are intrinsically linked with the preservation of Brazil's natural habitats, but also as urban dwellers exposed to pollution, water scarcity, or power shortages, and the risks of natural disasters. With much fewer means to protect or insure themselves against environmental risks, the poor and B40 are particularly affected by the degree to which government policy and regulation manages to balance the needs of economic development with the objective of environmental sustainability. Most of the required policies should not impose large economic costs; indeed the analysis shows there is significant scope to reduce the burden of existing regulation and improve their environmental impact, for instance in the management of land and water resources. Brazil has the opportunity to position itself as a leader in exploring green growth paths for emerging markets through innovative policy design, which could emulate the success the country has had in poverty reduction over the past decade.

68. **The three causal chains exhibited in Figure 1.1 thus reveal the main pathways toward continued poverty reduction and greater shared prosperity.** The required policies, however, are fundamentally dependent on two enabling conditions, which at this point are at the center of Brazil's policy debate. On the one hand, a sustainable macroeconomic framework is a precondition

for the successful reorientation of public spending priorities and the creation of an enabling business environment. Without the confidence of international markets and domestic savers, interest rates would need to rise further, undermining both the fiscal adjustment and the recovery of private investment. On the other hand, the implementation of challenging structural reforms as well as reductions in costly and not well-targeted social entitlements will require a new political consensus. Brazil's own history suggests that such a consensus has emerged at times of crisis and allowed the country to overcome past institutional constraints to better public sector governance. In the late 1990s, repeated bouts of high inflation finally convinced the political class to establish a new set of institutions—the macroeconomic tripod and the fiscal responsibility law—that guaranteed macroeconomic stability for the next 15 years. Likewise today, poor macroeconomic prospects, the decreasing public tolerance of the 'old ways' of political deal making, as well as growing pressure for improvements in the quality of services may create incentives for policy makers to align behind a coherent economic strategy and overcome the vested interests that have blocked reform to date.

**69. The next section of this chapter presents the accomplishments in the reduction of poverty and during the golden decade of Brazil for the purpose of getting a better understanding of the main factors behind these remarkable achievements.** This is followed by a detailed profile of the poor and the B40 percent of the population in Brazil, which provides the reference point for the analysis of the constraints to and opportunities for sustainable poverty reduction and shared prosperity in Brazil carried out in the remaining chapters.

## ***1.2 Brazil's Accomplishments in Poverty Reduction and Shared Prosperity***

**70. In the 1980s and 1990s Brazil experienced slow growth and economic crises.** This pattern was broken by external factors in the 2000s: global growth from advanced economies and China fueled the external demand for commodities and natural resource-intensive goods and Brazil experienced improving terms of trade as well as significant real exchange rate appreciation. As a consequence, production and employment increases were concentrated in non-tradable sectors such as construction, services, and retail. These sectors offered a wider range of lower-skill job opportunities to the poorer segment of the population with less education and lower overall skills, and thus facilitated an inclusive growth pattern.<sup>6</sup>

**71. In parallel, in the 1990s and 2000s, Brazil carried out significant reforms to social security and government transfers, to make them more focused on the poor.** The reforms included non-contributory unconditional and conditional cash transfer programs targeted to low income families and older or disabled people. These transfer programs are the *Benefício de Prestação Continuada* (BPC), the CCT program *Programa Bolsa Família* (PBF) and the semi-contributory Rural Pension Program (*Previdência Social Rural* - PSR). Along with higher economic growth, this ambitious redistribution policy helped shape the progress in poverty reduction and the promotion of shared prosperity in Brazil. The poverty decomposition analysis shows that a more equitable income distribution is associated with about a third of the fall in moderate poverty in the past decade, while two-thirds of the fall are associated with gains from economic growth.

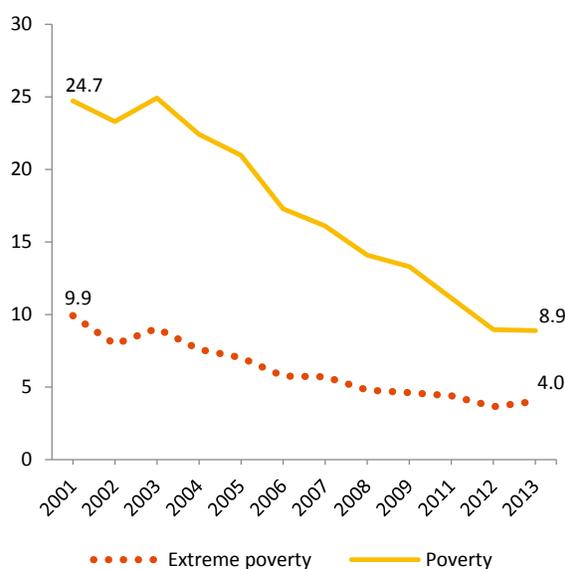
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<sup>6</sup> A deeper analysis of the commodity boom in Latin America and Caribbean is contained in de la Torre, et al. (2013)

72. **Brazil made considerable progress in reducing poverty over the past decade.** Moderate poverty fell from 24.7 percent in 2001 to 8.9 percent in 2013. Extreme poverty also declined sharply during the same period, from 9.9 percent to 3.9 percent in 2012; however, this figure saw a marginal increase in 2013, to 4.0 percent (Figure 1.2a). By 2013, 16.9 million and 7.6 million people were deemed moderately and extremely poor, respectively, a reduction by 24.6 million people from corresponding figures in 2001. To a large extent, that progress was due to a policy of social inclusion in the context of a booming economy, fueled by favorable external conditions. These conditions held also in other parts of the Latin America and Caribbean region, where using the international poverty line of US\$1.25, the reduction in extreme poverty was comparable to that of Brazil (Figure 1.2b).<sup>7</sup>

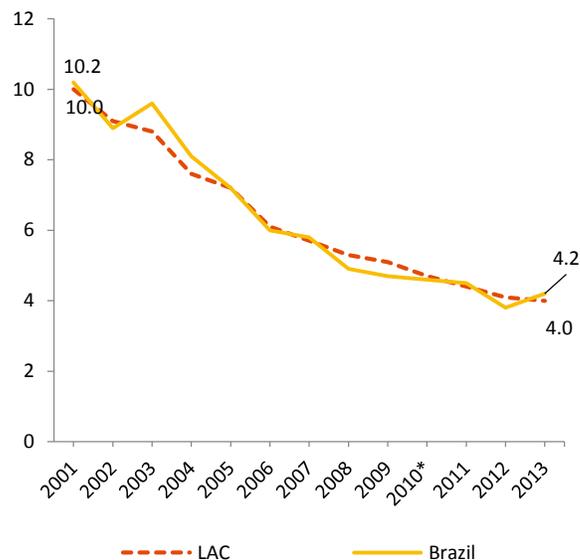
**Figure 1.2: Progress in Poverty Reduction in Brazil**

**(a) Poverty Headcounts (percent) National Poverty Lines**



Source: Calculations based on PNAD (2001-2013)

**(b) Poverty Headcounts (percent) with the US\$1.25 International Poverty Line**



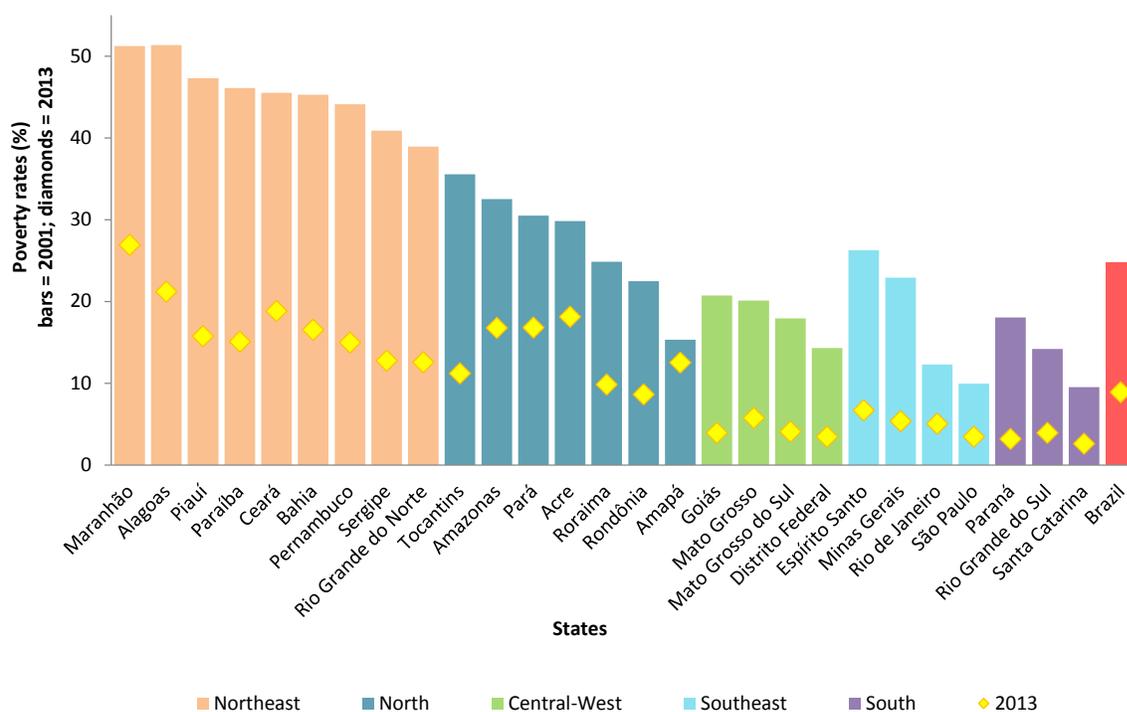
Source: LAC Equity Lab - SEDLAC data (CEDLAS and World Bank)

\* No survey available for Brazil in 2010 (estimates are calculated adjusting by consumption growth)

73. **The reduction in poverty in Brazil has been higher in the Northeast and the North, the two regions of Brazil that have been traditionally poorer.** As of 2013, moderate poverty in the South and Southeast regions was 3.3 and 4.4 percent, respectively, while in the North and Northeast regions the same figures were 15.1 and 17.6 percent (Figure 1.3). Despite remaining regional inequalities, there has been a systematic process of convergence of poverty in Brazil. Poverty has tended to fall more rapidly in the states that had higher poverty rates by the turn of the century. The average absolute fall in the moderate poverty headcount in Northeastern states was 28.5 percentage points during the period studied, while for Southeastern states this figure was 12.7 percentage points.

<sup>7</sup> The decline in poverty in Brazil was steeper than the decline in poverty in the Latin America and Caribbean region using the US\$2.5 and US\$4.0 regional poverty lines of the Bank.

**Figure 1.3: Reduction of Moderate Poverty by State From 2001 to 2013**



Source: Calculations based on PNAD (2001, 2013)

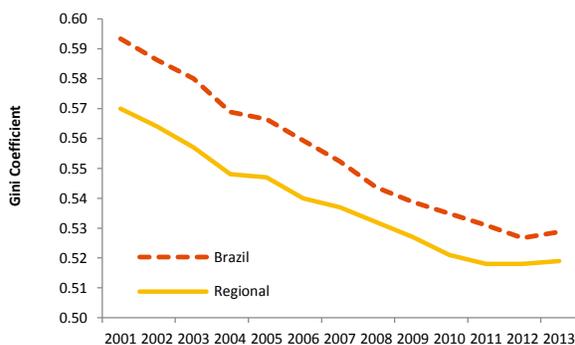
74. **While the incidence of poverty is significantly higher in rural areas, the majority of the Brazilian poor live in urban centers.** Using the PBF/BSM poverty lines, the incidence of poverty in rural areas is more than double that in urban areas, with levels of moderate and extreme poverty at 22.6 and 9.1 percent, respectively, in 2013, compared to 6.3 and 3.1 in urban centers. However, the gap between rural and urban poverty rates has declined from 30.3 percentage points in 2001 to 16.3 percentage points in 2013. Moreover, Brazil has experienced a high rate of urbanization, with 85.2 percent of the country’s population living in urban areas in 2013. As a result, in spite of the lower incidence of poverty in urban areas, in 2013 60 percent of the nation’s poor (almost 17 million) lived in cities.

75. **Poverty reduction has been coupled with significant progress in shared prosperity.** Incomes of the B40 percent grew at an average annualized rate of 7 percent from 2003 to 2013. This rate of growth is well above the growth of the mean income for the country, which was 4.5 percent for the same period. The relatively larger gains in income among the poor and vulnerable compared to the average are common to almost all states in Brazil.

76. **Along with the progress on shared prosperity, Brazil has also made substantial progress in reducing overall inequality.** The trend for the Gini coefficient shows a significant and sustained reduction from 0.59 in 2001 to 0.53 by 2013. This reduction in inequality is comparable to the decline of five Gini points seen across the Latin America and Caribbean region, which had a Gini coefficient of 0.52 in 2013. As seen in Figure 1.4a, both Latin America and Caribbean and Brazil have started to experience a slight rise in inequality during the past year. During the past decade, inequality in both urban and rural settings has been consistently declining and seems to be converging (see Figure 1.4b).

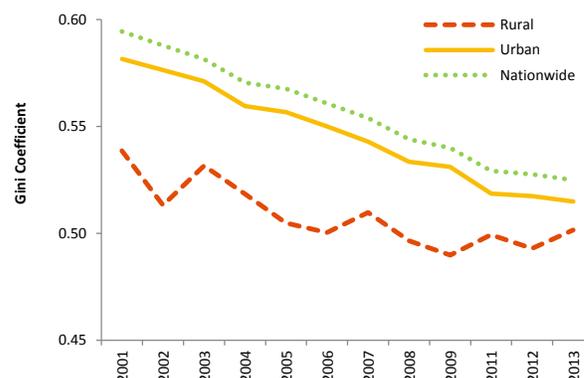
**Figure 1.4: The Remarkable Progress in Inequality Reduction in Brazil**

**(a) Evolution of Inequality Brazil vs. LAC**



Source: LAC Equity Lab - SEDLAC data (CEDLAS and World Bank)

**(b) Evolution of Inequality Brazil (Rural vs. Urban)**

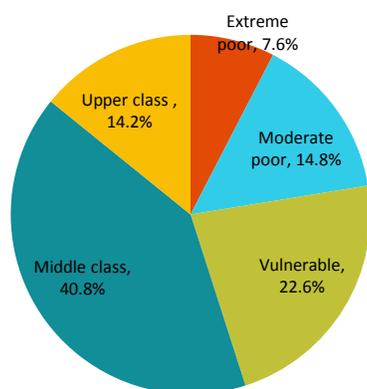


Source: Calculations based on PNAD (2001-2013)

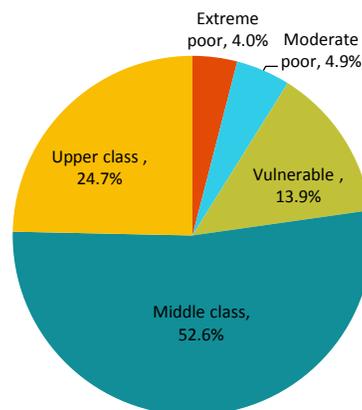
77. **The golden decade was associated with the rise of a ‘new middle class’.** In 2004, 23 percent of Brazil’s population was vulnerable to poverty, and just under 41 percent of the population belonged to the middle class, according to the per capita income ranges (see Figure 1.5)<sup>8</sup> from the Ministry of Social Development (*Ministério do Desenvolvimento Social e Combate à Fome - MDS*). By 2013, and with real per capita income rising in the aggregate, the size of the pie was larger and the fraction of the total population classified as vulnerable went down to just under 14 percent, while the size of the middle class increased to 52.6 percent. This shift in the composition of the population across income groups reflects the strong upward mobility out of poverty experienced during this period of growth.

**Figure 1.5: Brazil’s Income Class Composition in 2004 and 2013**

**(a) Brazil in 2004**



**(b) Brazil in 2013**



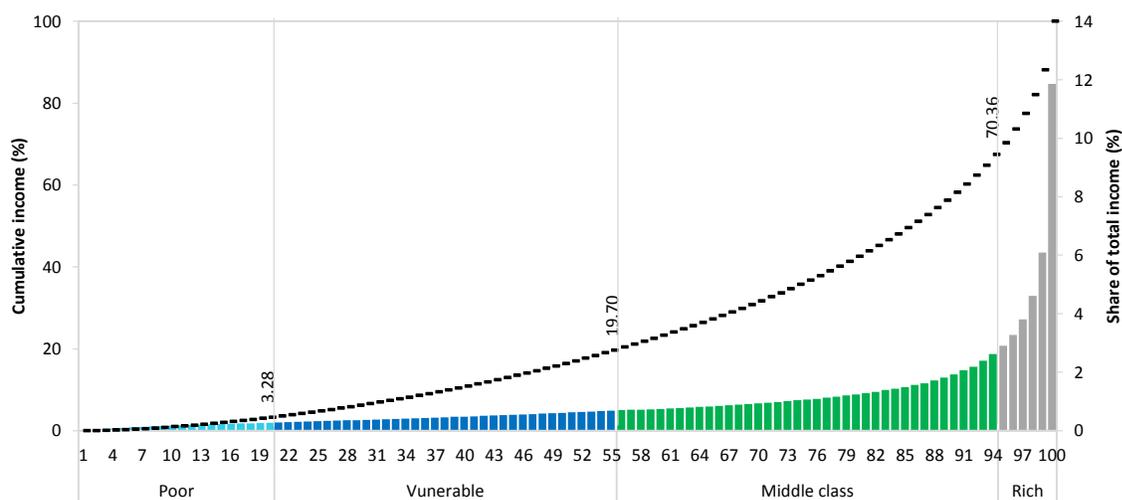
Source: Calculations based on PNAD 2004, and 2013.

<sup>8</sup> Extreme poor are the individuals living on less than R\$70 per capita per month. Moderate poor are those with incomes between R\$70 - R\$140, and Vulnerable those with incomes between R\$140 and R\$290. Based on the *Secretaria de Assuntos Estratégicos (SAE)* the middle class consists of individuals with incomes above R\$291 and the upper class above R\$1,019. <http://www.sae.gov.br/imprensa/sae-na-midia/governo-define-que-a-classe-media-tem-renda-entre-r-291-e-r-1-019-cidade-verde-em-24-07-2013/#ixzz35UobUtKL>

78. **The increased size of the new middle class has been accompanied by increased expectations regarding the quality of public services delivered.** In spite of improved and more equitable access to a range of services in the last decade, quality remains low and uneven across regions and the population, with low-quality services and infrastructure affecting low-income and vulnerable and lower-middle-class households disproportionately. The large demonstrations in June 2013 in many cities exposed the high degree of dissatisfaction of the population over the poor delivery of public services, particularly in the major urban centers of the country.

79. **Despite these impressive advances, severe socio economic inequalities remain, and many households are at risk of falling back into poverty.** Brazil's inequality is above the Latin America and Caribbean average, and is one of the highest in the world. As of 2012, for which comparable data exist for a large number of countries in the region, Brazil was the third most unequal country in Latin America and Caribbean after Honduras and Colombia, followed by Panama in 4<sup>th</sup> place. Benchmarked against the BRICS countries (Brazil, Russia, India, China, South Africa), inequality in Brazil (0.529 by 2013) is also higher than in Russia (0.397 by 2009), India (0.336 by 2011) and China (0.370 by 2011).<sup>9</sup> The very top of the social pyramid, approximately 71,000 people (or 0.05 percent of Brazil's economically active population), concentrates 14 percent of the total income and 23 percent of all wealth declared in property and financial assets (Gobetti and Orair, 2015).<sup>10</sup> If we add the income and assets of the top 5 percent of the working population we arrive at 30 percent of the total income and 43 percent of the total wealth (Figure 1.6). Deep inequalities continue to persist in Brazil between the rich and the poor, and across space (between urban and rural areas within and among regions), with the Northeast of the country performing worse on most socioeconomic indicators. The rapid urbanization process resulted in high degrees of concentrated poverty in urban areas, especially in slums on fragile lands exposed to natural hazards. At the same time, poverty and social exclusion continue to be strongly related to gender, ethnicity and 'race'.

**Figure 1.6: Income Distribution in Brazil (2013)**



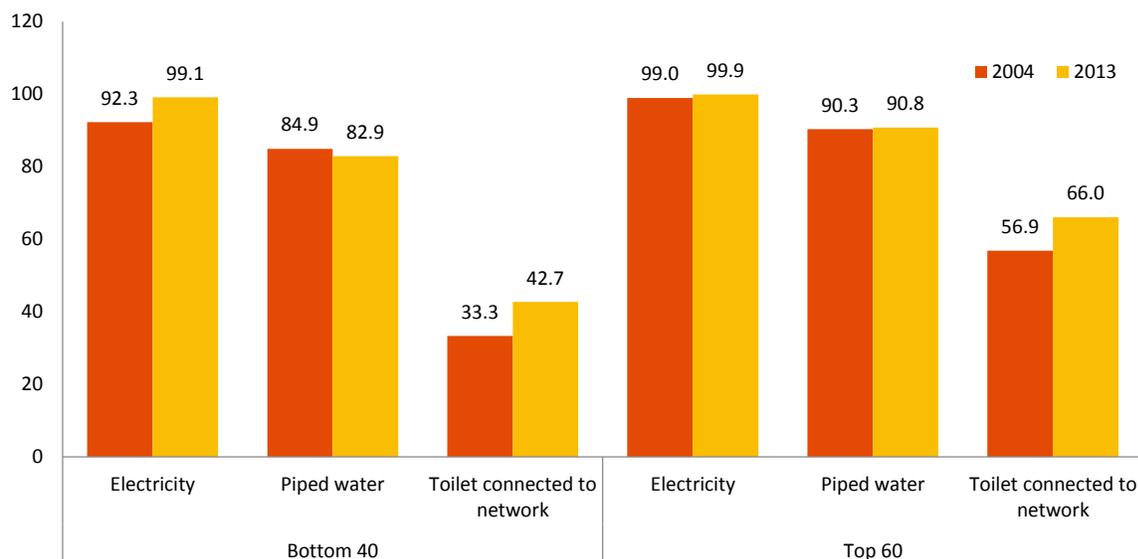
Source: Author's calculations using SEDLAC data (CEDLAS and World Bank) 2013.

<sup>9</sup> World Development Indicators, World Bank.

<sup>10</sup> This tiny elite has a monthly income above 160 minimum wages (R\$1.3 million monthly, approximately US\$325,000) corresponding to annual individual income of approximately R\$4.2 million (or US\$1.1 million) and an average wealth of R\$17 million (US\$4.3 million).

80. **Inequalities also persist in access to basic services (Figure 1.7).** Access to electricity services increased among the B40 from 92 percent in 2004 to 99 percent in 2013, in large part because of the program *Luz para Todos* (LpT). Similarly, the fraction of households among the B40 with a toilet connected to sewage network increased from 33 percent in 2004 to 43 percent in 2013. However, access to piped water and to toilets connected to the network is still lower among the B40 percent compared to access among the top 60.

**Figure 1.7: The Evolution of Access to Basic Services in Brazil: 2004 vs. 2013**



Source: Author's calculations based on PNAD 2004, 2013

### 1.3 The Performance of Labor Markets in Brazil

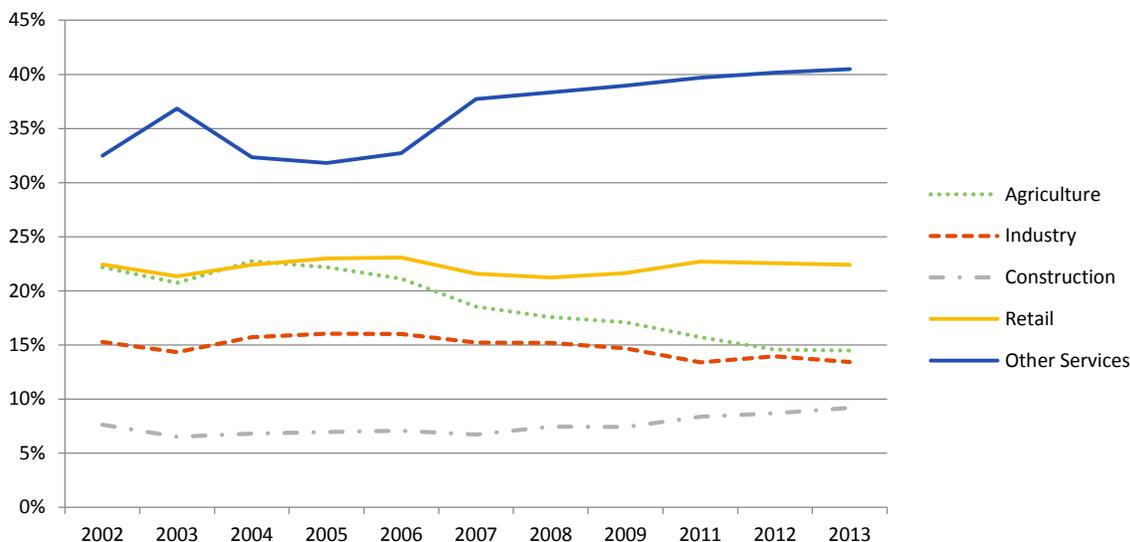
81. **Labor markets are the main channels through which the benefits of growth are distributed to the population.** This section investigates the performance of labor markets in Brazil during the golden decade. In sum, this was characterized by rapid job creation, low unemployment and rising wage incomes. A large part of job creation was fueled by increased demand for services (particularly of non-tradables) mainly benefiting unskilled workers, and consequently raising their relative labor earnings. A substantial increase in the minimum wage also contributed to raising the incomes of the poorer and less skilled disproportionately. At the same time, substantial improvements in access to education and in the skill profile of the labor force also contributed to rising earnings. The overall result was that two-thirds of the reduction in poverty in Brazil over the past decade was due to economic growth and increased labor earnings, whereas one-third was due to redistribution.

82. **Brazilian labor markets performed remarkably well during the golden decade with regard to employment creation.** Over the past decade, Brazil has seen strong job creation. Nearly 20 million new Brazilians joined the labor force between 2000 and 2011, representing an increase of 23 percent. Unemployment fell from 9.7 percent in 2003 to 6.5 percent in 2013.<sup>11</sup> Employment

<sup>11</sup> Calculations based on PNAD (2003-2013) on individuals aged 15 years and older.

gains since 2002 were concentrated in lower-skill-intensive services and construction, at the expense of agriculture and to some extent manufacturing, reflecting economy-wide structural shifts (Figure 1.8).

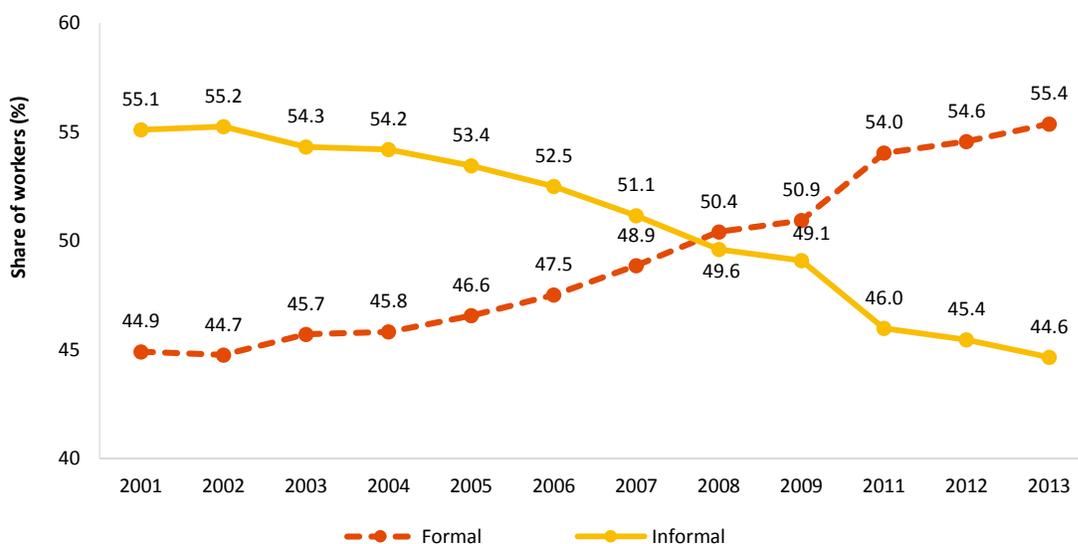
**Figure 1.8: Employment Trends in Brazil, by Sector, 2002–2013**



Source: World Bank calculations based on PNAD/ IBGE.

83. **The generation of new jobs also translated into more formal jobs.** After 2007, the proportion of jobs in the formal sector began to exceed the share of informal employment for the first time in recent years (see Figure 1.9). Along with decreased unemployment and increased rates of formality, real wages grew substantially, on average by 26 percent between 2002 and 2011.

**Figure 1.9: Share of formal and informal jobs, 2001-2013**



Source: Calculations based on PNAD (2001-2013)

Note: Formal workers are those employees with a contract (*carteira assinada*).

84. **A significant increase in the minimum wage complemented strong labor demand in raising wage earnings across the distribution.** The 68 percent real increase in the minimum wage (Figure 1.10) not only directly benefited the more than 10 million workers and 900,000 retirees paid at minimum wage levels (SAE, 2013), but also served as a reference point for compensation for informal work and for many of the self-employed. In the context of tight labor markets, the change in the minimum wage raised the share of wages in GDP from 46 percent to 58 percent between 2003 and 2012. One consequence of this dramatic increase in the labor share, however, is the rising cost of public payrolls and the fiscal burden of social security payments indexed to the minimum wage.<sup>12</sup> This is taken up again in Chapter 3.

**Figure 1.10: The Real Minimum Salary Increased Substantially Between April 2003 and 2014**

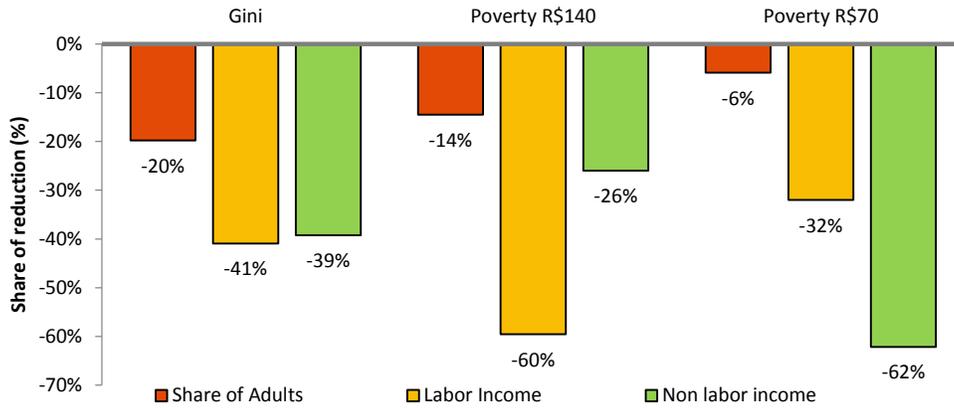


Source: World Bank calculations using Ipeadata

85. **Improvements in labor earnings were the main driver of reductions in poverty and inequality in the past decade.** Three fifths of the decline in total poverty in Brazil between 2004 and 2013 was due to labor income. However, only 32 percent of the reduction in extreme poverty is accounted by labor income, whereas changes in non-labor income (mainly transfers from the PBF) account for 63 percent of the change in extreme poverty (Figure 1.11). In contrast to poverty, increases in labor and non-labor income account for about the same proportion of the reduction in overall inequality, as measured by the change in the Gini coefficient.

<sup>12</sup> The substantial increase of the minimum wage in Brazil also has had sizeable fiscal consequences through its impact on a number of other government expenditures. It sets the minimum value for social security and unemployment benefit as well as other social protection programs such as the ‘abono salarial’ and BPC. Recent government estimates show that for every R\$1 increase in the minimum wage, the GoB expenditures are increased by R\$350 million on a yearly basis (see Carneiro, F. G 2006, 111).

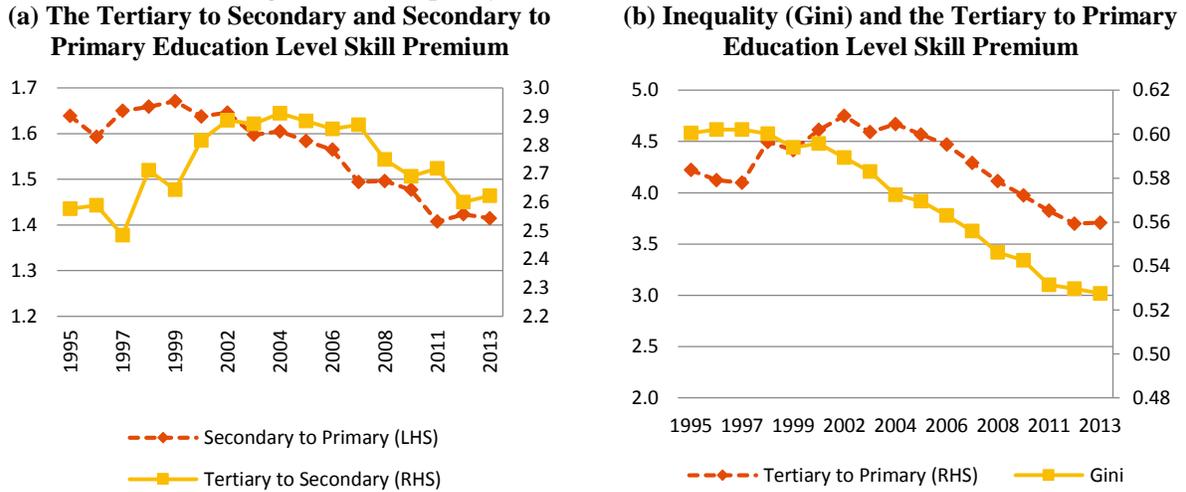
**Figure 1.11: Decomposition of Changes in Poverty and Inequality in Brazil, 2004-2013**



Source: Calculations using changes in poverty and changes in income by source between PNAD 2004 and 2013

86. **The decline in inequality in labor and overall income in Brazil was also supported by the decline in the skills premium.** The appreciation of the real exchange rate (or the decline in price of tradables relative to that of non-tradables) associated with the increase in aggregate demand during the commodity price boom, promoted growth of the non-tradable sector (such as construction and services) and a decreased skilled to unskilled wage ratio (see Figure 1.12).<sup>13</sup> The decline in the skills premium seems to have been both the result of the relative impact of booming domestic consumption on activities relatively less intensive in skills, and the impact of improved social safety nets on the relative supply elasticity of non-skilled workers, which permitted a large increase in the minimum wage with concomitant reductions in informality.<sup>14</sup>

**Figure 1.12: Inequality and Skills Premia in Brazil, 1995-2013**



Source: LAC Equity Lab - SEDLAC data (CEDLAS and World Bank) and Ipeadata.

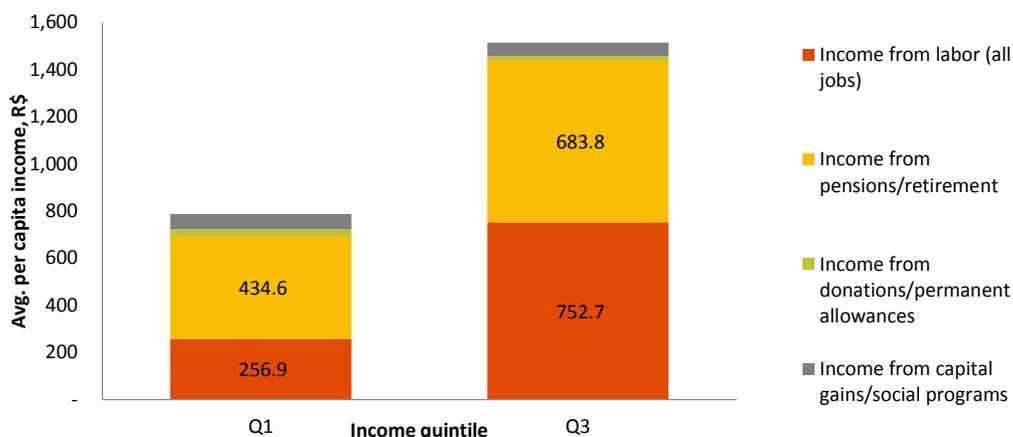
Note: Skills premium is defined as the ratio of average wages by skill level.

<sup>13</sup> See also Ferreira, Firpo, and Messina (2014).

<sup>14</sup> For more detailed analysis of the channels of impact on labor income inequality is contained in the recent report *Jobs, Wages and the Latin American Slowdown*, by de la Torre et al. (2015).

87. **Despite the convergence of wages across the skill distribution, large income gaps continue to persist between the poor and the middle class due mainly to differences in labor income.** In 2013, the average hourly wage of those in the bottom income quintile was only 15 percent of that of the top quintile, and their average earnings were 4 percent of those of the top quintile. Figure 1.13 shows that average per capita income of those in the third quintile of the income distribution (roughly ‘middle class’) is almost double the income of those in the poorest quintile and differences in labor income account for most of this gap.

**Figure 1.13: Decomposition of Monthly income of the Poor and Middle Class in Brazil, 2013**

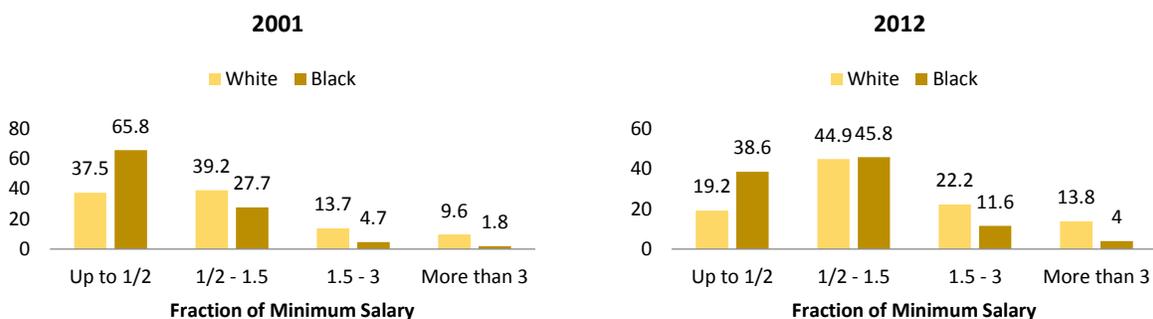


*Source:* Based on the National Household Survey (PNAD), IBGE.

*Note:* Q1 = bottom income quintile. Q3 = middle income quintile.

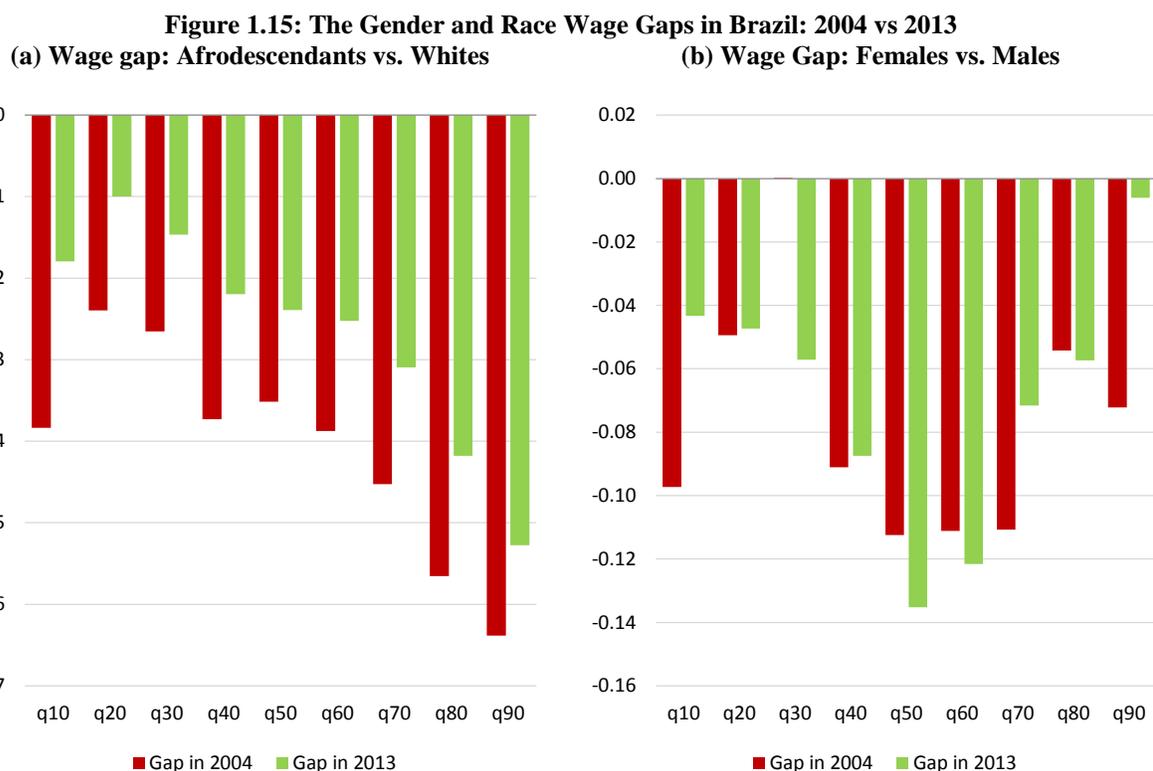
88. **A decomposition of labor earnings by race and gender reveals some progress but significant gaps remain.** Figure 1.14 shows that the fraction of whites earning less than half of the minimum wage (which is essentially the poverty line of R\$140 per capita per month) decreased from 37.6 percent in 2001 to 19.2 percent in 2012. For Afrodescendants the proportion below half of the minimum wage declined from 65.8 to 38.6 percent. However, the fraction of the Afrodescendants with per capita family income between half and one-and-a-half times the minimum wage (which is equivalent to the vulnerable group defined by MDS), by 2012 was approximately equal to the proportion of whites in that category of income. Race gaps in earnings more generally have been declining between 2004 and 2013, while gender gaps show no consistent pattern across the earnings distribution (Figure 1.15).

**Figure 1.14: Income Distribution: Whites vs Afrodescendants**



*Source:* *Situação Social da População Negra por Estado*, IPEA 2014. Households included in the categories up to half minimum salary fall under the poverty line. Those between half to one-and-a-half minimum salaries are considered vulnerable

89. **These challenges explain the priority placed on reducing gender and race gaps in national policies**, such as the 2012–2015 National Plan for Women (*Plano Nacional de Políticas para as Mulheres*) and the recent 2014 law establishing a race-based affirmative action program for federal civil servant positions countrywide.<sup>15</sup> Moreover, race and gender inequalities appear to be mutually reinforcing. Afrodescendants are overrepresented among the poor, and Afro-Brazilian women face discrimination both as Afro-Brazilians and as women, resulting in a lack of access to education, healthcare, and asset ownership.



Source: World Bank Staff estimates based on 2004 and 2013 PNAD

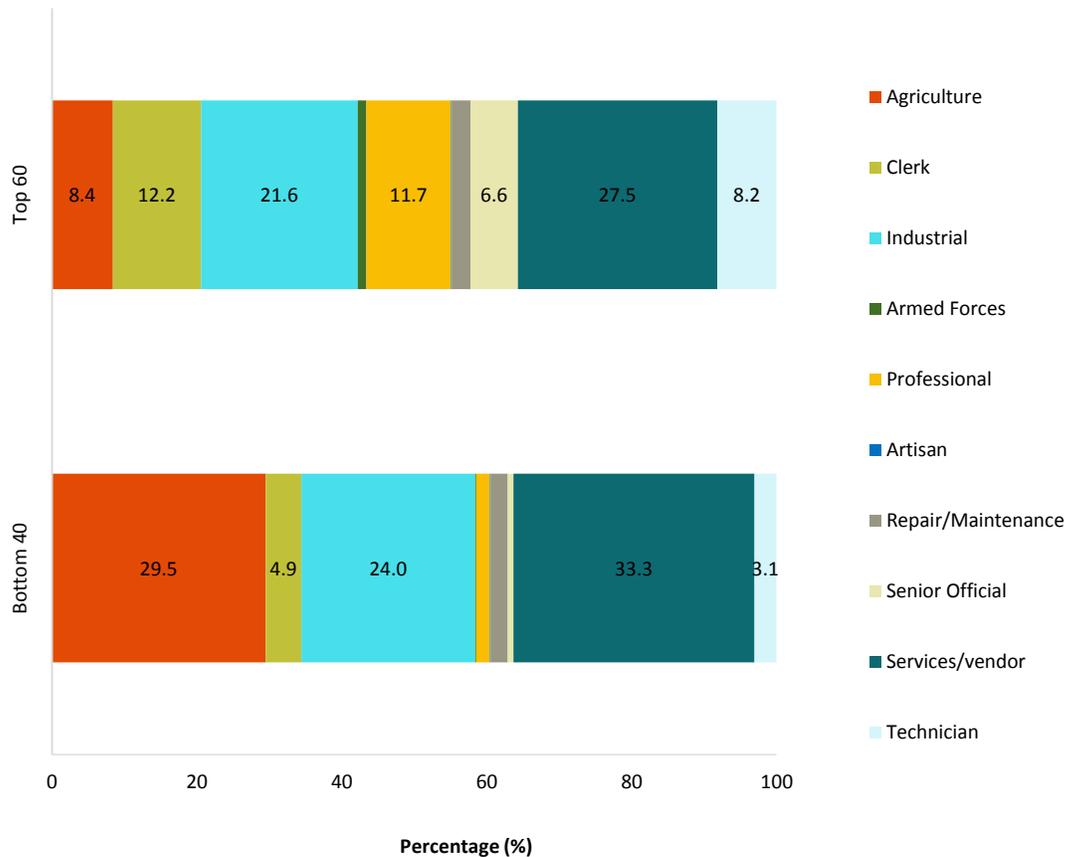
Notes: (a) Wages are the monetary labor income from primary job per hour worked in 2012 Reals. (b) The gaps reported are the coefficient estimates controlling for age, years of education, working in the informal sector, region of residence and urban and metropolitan areas.

#### 1.4 The Profile of the Bottom 40 and the Poor

90. **Important differences in the sector of employment prevail across Brazil’s B40 and top 60.** While the majority of the population works in the service sector, the share is higher for the B40 than for the top 60 (33 vs. 27.5 percent). Most importantly, the share of workers employed in agriculture is significantly higher in the B40 than the top 60 (29.5 vs 8.4 percent). Moreover, while 12 percent of the top 60 work in professional related activities, the share is just 2.7 percent for the B40 (see Figure 1.16). Overall, workers in the top 60 perform more technical/professional activities while the B40 tend to concentrate in more labor intensive ones.

<sup>15</sup> The June 2014 law reserves 20 percent of these positions for Brazilian ‘negros’ (blacks and pardos (mixed race individuals)). It also applies to public companies controlled by Brazil’s federal government.

**Figure 1.16: Sector of Employment: B40 vs. Top 60 percent, Brazil (2013)**



*Source:* Calculations based on PNAD, 2013

*Note:* Shares of employment are calculated based on individuals aged 15 years and above that are working

91. **Almost 17 million Brazilians remain poor, and many still lack the assets and skills to escape poverty.** Over half of the 7.6 million Brazilians living in extreme poverty are located in the Northeast region. The average years of education attained by the heads of poor households are 5 years, in comparison to 8.1 years for those in the top 60 percent (see appendix 1). Moreover, less than one-third of poor individuals live in dwellings with toilets connected to sewage networks, and less than 80 percent have piped water in their dwelling. These figures for households in the top 60 percent are 66 percent and 90.8 percent, respectively. Afrodescendants (50.6 percent of the Brazilian population based on the 2010 census) are the majority of the poor and the extreme poor. Participation in the labor force by the poor is significantly lower than that in the top 60 percent (53.5 vs. 68.9 percent) which is consistent with the interpretation that many of the poor (and especially females) get discouraged about their prospects of getting a job and drop out of the labor force (see appendix 1). Even if the poor do not drop out of the labor force, they face the likelihood of higher unemployment than those at the top (24 percent vs. 3.5 percent) and if they are employed, a significant proportion work as unpaid workers (38.3 percent). Moreover, the vast majority (83.8 percent) of the poor working as employees, work as informal workers (*sem carteira*). In contrast, only 22.3 percent of the better off individuals (top 60 percent) work informally. Indigenous peoples are also overrepresented among the extremely poor population (see Box 1.1).

### Box 1.1: The indigenous peoples in Brazil

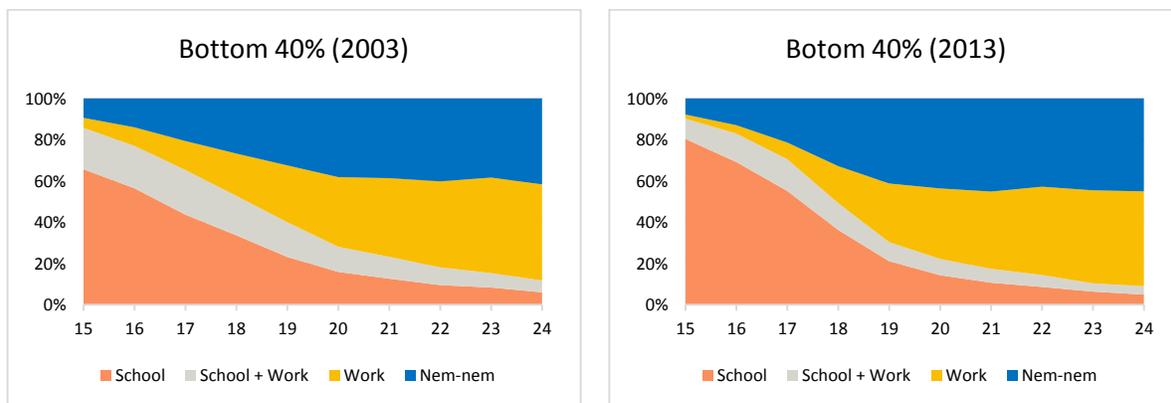
There are at least 240 indigenous peoples, speaking about 150 native tongues that belong to 18 different linguistic families. They count for 0.47 percent of the Brazilian population (about 898,000 people) and, in the last two decades, the indigenous population in Brazil has increased 178 percent. Approximately 39 percent of the indigenous peoples live in cities and 61 percent, in rural areas. About 60 percent of them live in the Amazon. There also are 689 indigenous lands in the country; they comprise almost 13 percent of the Brazilian territory (1,087,213 km<sup>2</sup>) and are highly concentrated at the Brazilian Amazon Rain Forest (21 percent of the territory).

Data from the last demographic Census show that 11.6 percent of the indigenous population lives with a monthly *per capita* income up to half a minimum wage. This proportion is higher among those living inside than outside indigenous lands (13.4 and 9.5 percent, respectively). Illiteracy also runs high among Indigenous Peoples; 22.5 percent of the population aged 10 years and older are illiterate. This rate is also higher among those living inside than outside indigenous lands (30.3 and 13.8 percent, respectively).

Two widespread features of the traditional economic organization of indigenous peoples are (a) heavy reliance on the provisioning of services provided by the ecosystem, and (b) the combination of a range of productive activities, including farming, pastoralism, hunting, fishing and gathering, which are better adapted to the marked dry and rainy seasons. Adaptation strategies based on multiple and seasonal activities are often developed for nomadic and/or semi-nomadic life, because people who live on hunting and gathering need comparably large forest areas. These people need to be mobile because resources become depleted after being hunted and gathered in the same area for some time. In general, farming activities are based on slash-and-burn techniques, shifting cultivation, or slash-and-burn agriculture. Consequently, they require annual clearings of forest areas to establish new garden sites, and free access to large areas of suitable agricultural land within a reasonable distance from the villages because land fertility and productivity decline when the same garden sites (a) are planted for successive years, or (b) have been fallow for only a few years.

92. **The share of 15–24-year-olds who are neither working, nor studying (*nem-nems*)<sup>16</sup> in the B40 was 30 per cent in 2013, an increase from 28 percent in 2003 (Figure 1.17).** In Brazil women account for two out of three of the *nem-nems*. Moreover, in 2013 approximately one-third of female *nem-nems* between 15 and 19 years of age were already mothers (PNAD/IBGE, 2013). Contrary to what has happened in the Latin America and Caribbean region as a whole, the share of *nem-nems* in the overall population (not just the B40) of Brazil increased constantly between 2008 and 2013 and the number of male *nem-nems* increased by almost one million in the last 20 years (from 1.5 million in 1992 to 2.4 million in 2013). This is an important distinction, since male *nem-nems*—and not females ones—are often associated with violence and crime in social circumstances characterized by lack of security (de Hoyos, Gutiérrez and Vargas, 2014).

**Figure 1.17: Education and Labor Market Status of ‘*nem-nems*’ in B40**



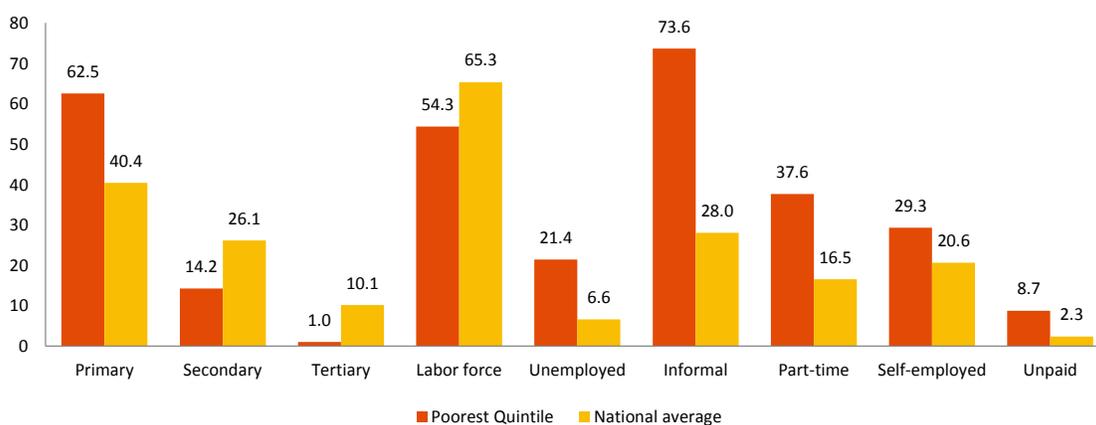
Note: Calculations based on PNAD 2003 and 2013

<sup>16</sup> In Brazil young people (15-24 year olds) who are neither working, nor studying, are known as *nem-nems*.

93. **Formal labor market insertion and job retention of the poor remain limited, particularly among older, poorly educated individuals who might not be able to return to formal education.**<sup>17</sup> Only 20 percent of the poor hold formal jobs versus 50.6 percent among the non-poor in 2011. Among the poor, those who are formally employed are less educated, with 23.8 percent having completed only elementary school and only 3.4 percent having completed university, against 20.7 percent of the non-poor having a university degree (Leichsenring, Silva, and Proença, 2015). When they do obtain formal jobs, they are lower-quality formal jobs: the poor tend to participate more in sectors that demand less qualification, in smaller firms, and in jobs of shorter duration that pay less. Formal job retention and re-entry also present challenges for the poor: fewer than half of the poor stay in a formal job for more than 20 months. Also, after losing a formal job, the poor take much longer to find another one: only 25 percent re-enter a formal job within the next two years (Leichsenring, Silva, and Proença, 2015). Moving to formal employment is the labor market transition associated with the highest wage increase (a median earnings increase of 17 percentage points for the self-employed and 16 percentage points for informal workers in 2013). However, the poor are still much more likely to leave the labor force and much less likely to transition from informal to formal jobs or remain in the formal sector (Silva, Almeida, and Strokova, 2015).

94. **The skills and education level of the poor are lower than the national average and these gaps are hard to revert.** This implies that job mobility and insertion in high-productivity jobs is likely to be harder, particularly if labor markets start to experience more slack. There are striking differences between the educational attainment of the poor (bottom income quintile) and that of the non-poor. The overwhelming majority of adults (18 years and older) in the bottom quintile have below-primary education (62.5 percent) compared with 40.4 percent nationally, as shown in Figure 1.18. Only 14.2 percent in the bottom quintile have completed secondary education, compared with 26.1 percent nationally. Finally, only 1.0 percent of those in the bottom quintile have completed tertiary education, compared with 10.1 percent nationally. These educational disadvantages are hard to revert although CCT programs have made important strides in this area.

**Figure 1.18: Educational Attainment and Labor Market Status of the Poor in Brazil, 2013**



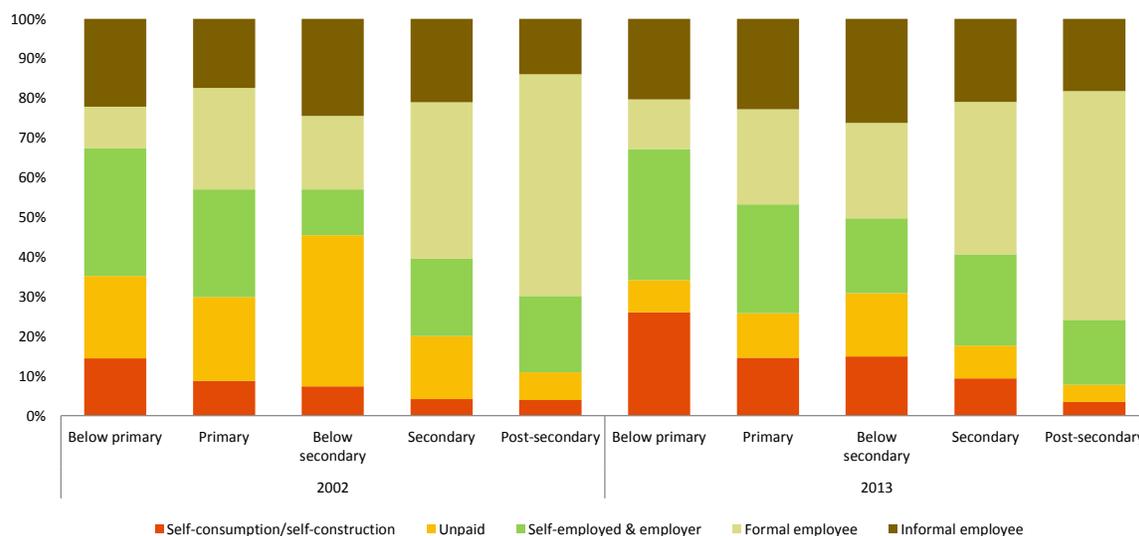
Sources: Based on the PNAD, IBGE.

Note: 'Part-time' = those working fewer than 30 hours per week in the primary job.

<sup>17</sup> From 2011 to 2014, the federal government enrolled 1.7 million youth in technical/professional training through its flagship PRONATEC program. PRONATEC has benefited many poorly educated individuals.

95. **The rural poor have lower upward labor mobility than the urban poor.** The share of the rural poor working either without pay or for self-consumption increased by almost 9 percentage points between 2002 and 2013, as shown in Figure 1.19. The share below the poverty line decreased over the same period but only by 4 percentage points. By contrast, only a small share of urban workers are unpaid, and the share of those below the poverty line decreased dramatically. Education appears to be a strong predictor of labor market outcomes. Among the overall rural population, despite a general improvement in education, the types of employment based on educational attainment were more polarized in 2013 than in 2002: those with primary education or less were much more likely to work either for own consumption or in unpaid jobs in 2013 than in 2002. Moreover, the poor represent more than half of loan defaulters, making their businesses' prospects bleaker.

**Figure 1.19: Job Status of the Rural Population in Brazil, by Educational Level, 2002 and 2013**



Sources: Based on PNAD, IBGE.

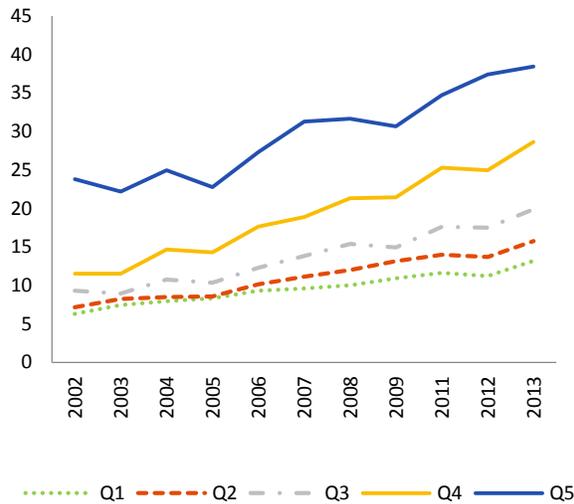
Note: 'Working-age' is 15 years and older. 'Informal employees' are workers without signed employment cards.

96. **Converting higher skills into 'sustainable' incomes is more difficult for the poor because they face a number of mutually reinforcing barriers to employability beyond technical skills.** Employability constraints include ineffective job search mechanisms (mostly informal networks) and limited access to child care. Most Brazilians rely on informal networks to find a job, and the poor are less likely than the rich to have well-connected, high-earning people in their networks. Importantly, access to child care is significantly lower among the worse-off, potentially limiting labor force participation as shown in Figure 1.20. In recent years, the government has been making efforts to address these barriers, through training programs such as PRONATEC, and increasing the coverage of child care for beneficiaries of PBF with children 0-48 months of age.<sup>18</sup>

<sup>18</sup> The National Plan for Education (NPE) adopted by Congress in 2014 called for reaching universal enrollment in preschools for children aged 4 and 5 years and increasing access to *creches* to enroll at least 50 percent of children up to 3 years of age by 2021. Between 2011 and 2014, the percentage of children enrolled in ECD whose families are beneficiaries of PBF increased to 19.6 percent from 13.9 percent. This represented 707,700 children aged between 0 and 48 months.

**Figure 1.20: Employability Constraints of the Poor beyond Skills and Education**

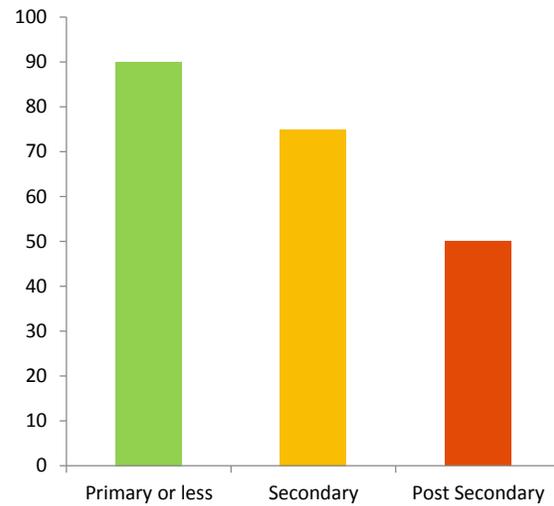
**(a) Households with Children in Day Care, by Income Quintile**



Source: Based on PNAD, IBGE.

Note: The figure omits 2010 data because the PNAD did not collect data for 2010. Q1 = bottom quintile.

**(b) Use of Informal Networks for Finding Salaried Jobs in Metropolitan Areas, by Educational Level, 2009**



Source: Mazza 2011.

97. **The poor are most likely to work in sectors with bleaker prospects such as small-scale agriculture (family farming) and construction.** Overall, 14 million Brazilians aged 15 years or older are working in rural areas. Out of all rural jobs, 65 percent are in small-scale agriculture, and this share is even higher among the poor (82.4 percent). Job prospects in agriculture are negatively affected by the end of the commodity super-cycle, entailing a shift in the sector’s terms of trade. Moreover, between 2008 and 2011, there was an increased insertion of the poor into formal employment mostly in manufacturing and construction, but these sectors are also declining.

### Concluding Remarks

98. **Brazil’s achievements in poverty reduction and shared prosperity during the golden decade were supported by a confluence of favorable factors.** The reforms of the 1990s first conquered inflation and subsequently put public finances on a sounder footing through the Fiscal Responsibility Law (adopted in 2000). The increase in exports and in government revenues associated with the external commodity boom then provided the fiscal space for progressive social policies. With consumption-led growth, the employment gains during the golden decade were concentrated in the lower-skill construction and retail sectors, and resulted in a reduction in informality. In the context of a tightening labor market, sharp increases in the minimum wage successfully increased both relative earnings of the less skilled and generally led to a rise in the wage share in the economy. Increases in labor earnings were the main driver of reductions in poverty and inequality in the past decade, while social transfers played the dominant role in the reduction of extreme poverty.

99. **With the end of the commodity boom, Brazil finds its social achievements challenged from two angles.** On the one hand, to sustain the rise in incomes and job creation, Brazil needs to find new sources of growth. Although the consumption-based growth model of Brazil has been

associated with major progress toward social inclusion, it is no longer sustainable in the face of rising external imbalances, declining productivity in manufacturing, and rising household indebtedness. On the other hand, without the revenues associated with consumption growth and high commodity prices, fiscal space has eroded rapidly, putting Brazil's macroeconomic achievements at risk and raising concerns that progressive social policies may no longer be affordable. Brazil's natural resources are also likely to come under greater pressure again, as people struggle to maintain livelihoods, while underlying challenges in the management of energy and water resources in particular have come to the fore as Brazil's economy expanded.

100. **This SCD examines these challenges and aims to contribute to a discussion on how to address them so that Brazil can continue to flourish and inspire other emerging markets as it has done during the golden decade.** The required shift in policy needs to target improvements in Brazil's competitiveness, the attraction of greater private investment, and the resolution of persistent bottlenecks to growth such as in infrastructure or in the quality of the labor force. It also needs to address inefficiencies in public spending to create fiscal space for a greater focus on the quality of public services, and for continuing and expanding support to the poor and vulnerable to help them create sustainable livelihoods. This shift in policy is fraught with political as well as implementation challenges. Brazil's constitution enshrines a number of social rights that contribute to the rigidity of public spending without necessarily making it more progressive. An effective government in Brazil requires complex deals to be made with a fragmented set of political parties as well as strong local interests. Overlapping jurisdictions and complex bureaucratic rules present significant implementation challenges for any national policy initiative. However, Brazil's decentralized system of governance is also a source of innovation at the local level, from which much can be learned. The next chapter of the SCD thus examines the institutional foundations for policy making in Brazil and explores opportunities for a new policy deal.

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## APPENDIX I

**Table 1: Profile of Brazil's Poor (Extreme and Moderate), B40 and Top 60 percent (2013)**

| Indicators  | Extreme Poor | Moderate Poor | B40  | Top 60 percent |
|---|--------------|---------------|------|----------------|
| Share of the population                           | 4.0          | 8.9           | 40   | 60             |
| Ethnicity/Race                                    |              |               |      |                |
| Afro-descendants                                  | 70.4         | 72.7          | 67.4 | 44.0           |
| Indigenous  | 1.4          | 1.1           | 0.5  | 0.2            |
| Other (white etc.)                                | 28.2         | 26.2          | 32.1 | 55.7           |
| Regional location                                 |              |               |      |                |
| North   | 12.2         | 14.7          | 12.6 | 6.0            |
| Northeast   | 53.2         | 55.9          | 43.3 | 18.1           |
| Southeast   | 24.1         | 20.4          | 29.9 | 48.9           |
| South   | 6.2          | 5.4           | 8.6  | 18.3           |
| Central-West                                      | 4.3          | 3.6           | 5.7  | 8.6            |
| Access to Services                                |              |               |      |                |
| Piped water in the house                          | 82.8         | 78.9          | 82.9 | 90.8           |
| Toilet connected to sewage network                | 38.3         | 32.3          | 42.7 | 66.0           |
| Labor force                                       |              |               |      |                |
| Years of school attained head of household        | 5.5          | 5.0           | 5.6  | 8.1            |
| Labor force participation *                       | 45.6         | 53.5          | 58.4 | 68.9           |
| Female Labor force participation *                | 34.8         | 40.8          | 45.3 | 59.4           |
| Unemployed (proportion of labor force)*           | 39.8         | 24.0          | 13.5 | 3.5            |
| Unpaid / no salary (proportion of employed)       | 64.6         | 38.3          | 14.9 | 3.6            |
| Self-employed (proportion of employed)*           | 20.1         | 29.8          | 23.7 | 19.4           |
| Employee (proportion of employed)*                | 14.9         | 31.6          | 60.7 | 72.2           |
| Informal (proportion of employees) <sup>Ω</sup> * | 97.8         | 83.8          | 46.2 | 22.0           |
| Share of occupied working in Agriculture*         | 77.8         | 61.1          | 29.5 | 8.4            |

Source: Authors' calculations based on PNAD 2013

Note: \* Aged 15 years and above. <sup>Ω</sup> Informality is the proportion of salaried workers (employees), except persons in the military and public workers, without a contract (carteira).

Following the PBF/BSM poverty lines, the 'extreme poor' are defined as living with less than R\$70 a month per capita, the 'moderate poor' as living with less than R\$140 a month per capita. The values in column 'Moderate Poor' combine figures for both moderate and extreme poor whereas the values in column "B40" include the extreme and moderate poor as well as all those above the poverty line of R\$140 a month per capita. The highest income in the B40 of the population in 2013 is R\$437 a month per capita (in 2012 R\$ prices).

### *Introduction*

101. **Brazil's political institutions and the resulting system of governance have shaped the country's development policy and social and economic outcomes in important ways.** This chapter describes the evolution of Brazil's political institutions since the reintroduction of democracy, in the late 1980s and shows how this has affected development results.

102. **Brazil's institutional equilibrium attained after the introduction of democracy has been showing its limits.** The equilibrium was characterized by increased social commitments to redress inequalities and injustices of the past, but at the same time involved a careful balance of political interests to ensure support from the political establishment. Persistent problems with the quality of public services and the rising aspirations of Brazil's new middle class mean that increased social spending and the distribution of rents through networks of patronage alone are no longer sufficient to satisfy voter demands. At the same time, the rise in the independence and effectiveness of control institutions, coupled with the growing fiscal burden of a large state in a context of an economic slowdown, is exposing the inefficiencies embedded in Brazil's traditional way of political coalition building.

103. **Brazil's recent history suggests that the country has produced important institutional innovations at critical junctures.** Some important factors that would enable another qualitative jump in institutions are already in place, including: (a) a substantial improvement in government capacity and the quality of the civil service (especially at the federal level); (b) an active and increasingly organized civil society that imposes accountability on the state; and (c) the rise of programmatic parties and the electoral appeal of well-designed national policies that limit opportunities for patronage and clientelism, such as the *Plano Real* or *Programa Bolsa Família* (PBF). However, institutional constraints still weigh heavily on attempts to improve public sector governance and effectiveness.

### *2.1 Reestablishment of Democracy and the Architecture of Government*

104. **The return to democracy in 1985 took place in an environment of social mobilization in which there was a recognition that development could no longer be based upon the exclusion of the majority.** Popular demands to address the widespread poverty, inequality and lack of basic services together with a rejection of authoritarian government and corruption were fundamental to the development of the Constitution and institutions of the New Republic.

105. **The result of social mobilization was that the 1988 Constitution expanded and guaranteed many social rights, and the obligation of the state to realize them.** These rights included access to universal free health care, pensions funded from general taxation, education, and social assistance. In addition, the Constitution and its amendments granted public sector workers protection against dismissal, and established the rules for salaries and benefits, which are often higher than those of the private sector, particularly for employees in the judiciary and legislatures. The Constitution reflects conflicting demands of the poor (newly empowered with a voice) for income redistribution and poverty relief against pressures from high-income groups to preserve historic privileges (Mendes 2014). The extensive and detailed provisions of the Constitution sought to ensure that the ideals of the new democracy would be upheld by future

governments. However these provisions created implicit commitments to expenditure of resources which gradually became more difficult to satisfy through annual budgetary processes.

106. **The reaction against authoritarian government also led to the introduction of a high degree of decentralization.** The Constitution made the 27 states, including the Federal District, and over 5,500 municipalities equal members of the Union with relative financial independence and significant service delivery responsibilities.<sup>19</sup> In addition, the Constitution provides for executive, legislative and judicial branches of government. The President and Vice-president are popularly elected to no more than two consecutive four-year terms. The President presides over a cabinet of ministers, which is one of the largest in the world (until 2<sup>nd</sup> October 2015 it consisted of 39 members including 24 ministers and 15 Secretariats with the status of ministries, after that date the number was reduced<sup>20</sup> to 31, including 23 ministers and 8 secretariats)<sup>21</sup>. Additionally, the ministries and secretariats have subordinated government bureaus, autarchies, foundations, public companies and other directly and indirectly controlled bodies. The power of the President is balanced against a National Congress consisting of a Senate and the Chamber of Deputies. The Senate includes 81 popularly elected senators (three for each state), and the Chamber of Deputies 513 members popularly elected through a system of proportional representation in which each state serves as an electoral district, and smaller states are over-represented.<sup>22</sup> Finally, the judicial branch is composed of federal and state courts, headed by a Supreme Court. The Federal Supreme Court is the highest judicial authority with jurisdiction over constitutional matters. It is also responsible for judging federal politicians<sup>23</sup> accused of crimes.

107. **Moreover, the Constitution established a powerful set of control institutions to maintain accountability and legality.** These included particularly an independent prosecutor's office (*Ministério Público da União*), headed by the Prosecutor General of the Republic (*Procurador-Geral da República*) and the Federal Court of Accounts (*Tribunal de Contas da União* - TCU), and an independent judiciary.

108. **The establishment and strengthening of democracy in Brazil have been accompanied by the growing presence of an active civil society and free press.** The transition to democracy was the result of a widespread mobilization of civil society through the Direct Elections Now Movement (*Movimento Diretas Já*). The Sanitary Movement (*Movimento Sanitarista*), involving middle-class health professionals, lobbied for the provision of health care to underserved groups and regions in the 1970s and 1980s, and led eventually to the constitutional mandate of providing free health care for all. The Painted Faces Movement (*Movimento dos Caras Pintadas*) promoted the impeachment of President Collor in 1992, following allegations of his extensive involvement

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<sup>19</sup> See Araujo and Barroso (2014) for a detailed description of intergovernmental finance arrangements.

<sup>20</sup> See Medida Provisoria No. 696 of 2 October 2015 ([http://www.planalto.gov.br/CCIVIL\\_03/\\_Ato2015-2018/2015/Mpv/mpv696.htm](http://www.planalto.gov.br/CCIVIL_03/_Ato2015-2018/2015/Mpv/mpv696.htm))

<sup>21</sup> See Wehner (2010) for a study of comparative cabinet structures.

<sup>22</sup> Brazil has one of the highest levels of divergent ratios of voters to representatives in the world. Although representatives are allocated proportional to population, the constitution gives a minimum of 8 deputies to each state and limits the total number of deputies from any state to seventy. The current rules over represent the sparsely populated and less developed Northern region and underrepresent populous and affluent states in the Southeast. As a result, the North controls 15 percent of seats with 8 percent of the population, while the Southeast has 43 percent of the population but only a third of seats. A representative of the more-developed states need sixteen times the votes to be elected than a less developed one (Samuels 2004). In addition, each state has 3 senators in the Upper House.

<sup>23</sup> These include the President, Vice-President, members of Congress, ministers and the attorney general. State governors, however, are subject to the State Supreme Court.

in corruption. Since the 1990s, civil society organizations have been growing rapidly in Brazil and associations, foundations, and other non-government groups have become more organized. Moreover, civil society organizations have been an important factor behind Brazil's successful prevention of deforestation program (Montero, 2006). Since 2013, social movements have been active in protesting against corruption and, more broadly, poor service delivery. In addition, Brazil boasts a dynamic and diverse media that present an array of opinions on social and political issues, as well as criticism of the government and its policies, and that plays an active role in denouncing corruption.

## 2.2 Political Fragmentation and the Dynamics of Resource Allocation

109. **The vibrant democracy and the political institutions created after the dictatorship were established upon a fragmented base.** This has a number of important and interconnected elements. The principal elements include a highly fragmented and personalized party system, sharp social and economic differences across states and regions, and finally the fragmentation across levels of government, with each municipality, state and the federal government exercising their autonomy while being locked together in a complex rule-based fiscal framework and intergovernmental financial system. The following sections describe how fragmentation across multiple parties at the national and subnational levels may help explain some of the problems of resource allocation and weak implementation of government programs.

### 2.2.1 Party Fragmentation

110. **At the legislative level, the Brazilian party system is among the most fragmented, both in the region and in the world.** When compared with the rest of Latin America, the Brazilian party system has the highest number of parties with weight in decision making (see Table 2.1). The contingent of the President's party in the Lower Chamber is also the lowest in the region by a significant amount. These features affect the establishment of government coalitions leading to complex deal-making by the Executive to get their policies adopted by Congress. This often results in inconsistencies or weakening the original policy intent.

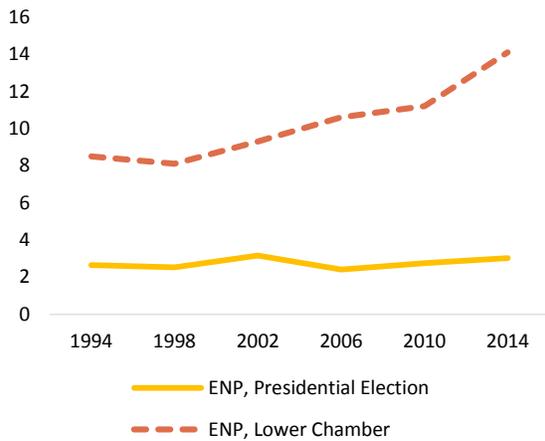
**Table 2.1: Party Systems Indicators**

| Country     | Effective Number of Parties | Percentage of Deputies from Presidential Party in Lower Chamber. |
|-------------|-----------------------------|--|
| Argentina   | 3.2                         | 48   |
| Bolivia     | 5.2                         | 27   |
| Brazil      | 13.2                        | 13   |
| Chile       | 2.0                         | 55   |
| Colombia    | 5.0                         | 20   |
| Costa Rica  | 3.1                         | 40   |
| El Salvador | 3.5                         | 34   |
| Mexico      | 2.8                         | 37   |
| Nicaragua   | 2.4                         | 54   |
| Paraguay    | 2.7                         | 51   |
| Uruguay     | 2.7                         | 43   |

Source: IDB DataGob (2012), Limongi 2015.

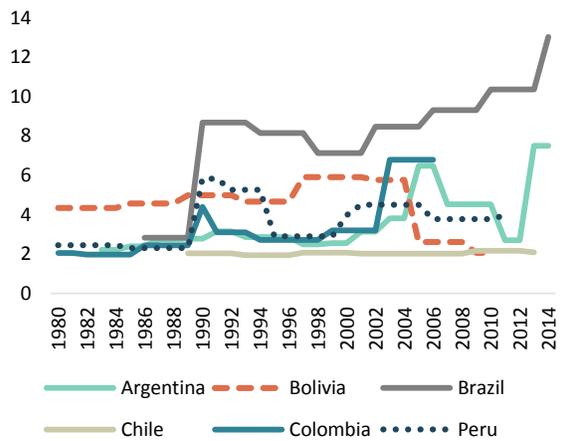
Note: Effective number of Parties ( $E$ ) is calculated by the standard formula:  $E = \frac{1}{\sum_{i=1}^n P_i^2}$ , where  $P$  is the proportion of seats held in the legislature for each party and  $n$  is the number of parties represented (see Laakso and Taagapera 1979).

**Figure 2.1: Effective Number of Parties (ENP) in Presidential and Legislative Elections**



Source: Mainwaring 2015.

**Figure 2.2: Effective Number of Parties (seats) in Legislative Elections (Lower House)**



Source: Based on Mainwaring 2015.

**111. Brazil’s electoral institutions and party financing favor the representation and inclusion of a variety of political and regional interests.** The open-list proportional electoral system combined with large districts (each state is one district) allows political parties with relatively few national votes to gain seats in the national legislature. Parties specialize in specific regions or states and make alliances to compete strategically in local elections. In some cases, electoral alliances at the subnational level differ from national ones. Party financing rules disproportionately benefit small parties. In 2014, over 26 percent of government funds for parties went to small parties (Limongi 2015). Small parties also receive television time, which is one of the most valued resources they receive from the government. In a sense, larger parties ‘subsidize’ smaller parties that once elected form coalitions with them. Party financing is poorly regulated, and campaigns are extremely costly—the 2014 Presidential campaign cost R\$74 billion—making political parties dependent on financial contributions.

**112. The power of the Brazilian President, particularly to pass major reforms, depends on his or her ability to build coalitions of support in Congress.** Coalition building is remarkably flexible, fluid, and not necessarily ideological. Securing congressional support to initiate reforms is often time consuming and costly, as keeping coalitions together requires trading cabinet positions and access to patronage resources to secure votes in Congress. Since the transition to democracy, Presidents regularly traded ministerial and other high-level appointments in exchange for legislative support.<sup>24</sup> However, since 2003, the executive has shared on average fewer critical cabinet positions while at the same time having larger and more diverse coalitions. In this context, gaining the support of smaller parties, and often individual deputies, requires channeling resources to deputies (through the release of funds for budget amendments) or supporting measures that directly or indirectly benefit the parties involved and their constituencies.

**113. Party fragmentation negatively affects the stability of coalitions and executive-legislative relations.** As fragmentation increases, it forces presidents to form wider coalitions and

<sup>24</sup> See for example interview with Eliseu Padilha (July 29, 2015) “Dilma vai distribuir 200 cargos nos Estados em agosto, diz Eliseu Padilha” Poder e Política, UOL

reduces their ability to advance their legislative agendas. It also puts pressure on the proliferation of agencies and political positions in the public sector (which explains why the Brazilian cabinet is one of the largest in the world). High fragmentation has been associated with costly delays in adjusting policies to changes in circumstances as well.

### *2.2.2 Intergovernmental Fragmentation*

114. **Federalism adds to the challenges of striking and sustaining credible commitments regarding government policy.** There are significant divergences of interest between the more populated, industrialized and developed South and Southeast regions and the Center, North and Northeast that rely more heavily on commodity production and depend on transfers from the federal government to finance their public sectors. The multiplicity of entry points increases the success chances of particular demands and reduces incentives for countrywide collective action and comprehensive policy reform. This dynamic, for example, has led to a highly complex tax system, which favors some of the poorer Northern and Northeastern states. It is also reflected in the allocation of investment projects, discussed below.

115. **Brazil has undergone several cycles of centralization and decentralization.** The federal design can be traced to the need to mitigate centrifugal forces and threats to the country's territorial integrity present throughout its history. Successive autocratic regimes strengthened the federal government's authority over market regulation and taxation. They often favored lagging regions as a way of balancing the liberal opposition in the Southern and Southeastern regions. The most recent cycle of decentralization began in the course of the extended transition to democracy, during which there was a steady increase in the percentage of federal revenue transferred to lower tiers of government. Fiscal decentralization reached its highest point in the 1990s with the full implementation of revenue and expenditure assignment changes introduced by the 1988 Constitution. By 1995, states and municipalities accounted for 45 percent of public spending and 42 percent of revenue. This implied a 30 percent increase from the level observed a decade before.

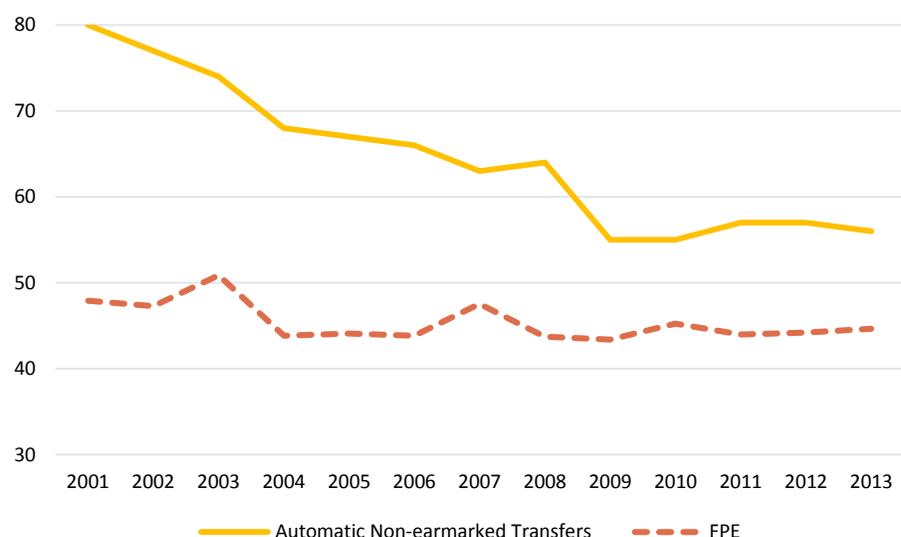
116. **Governors have a powerful influence in the Senate, but, in addition, more than in most federations around the world, they also have a strong sway over representatives of the Lower House.** This influence introduces additional complexity to policymaking. Through their ability to allocate resources and posts, state governors have considerable power to determine the future of deputies, who are expected to support the incumbent governor and the state (Abrucio 1994; Hagopian 1996; Samuels and Abrucio 2000; Samuels 2003). Thus state-level factors (in particular, control of public jobs and campaign financing) drive congressional elections to a greater extent than the presidential race does. Rather than seek reelection, many legislators aspire to positions in their state or municipal governments. Decentralization has increased the attractiveness of subnational posts. Because of the importance of governors in determining the future of representatives, presidents need to negotiate regularly with them.

117. **A considerable mismatch remains between responsibilities and revenues across tiers of government.** There is still a large degree of heterogeneity across subnationals with regard to fiscal capacity. The allocation of responsibilities for public service provision to lower tiers of government has not been matched with adequate sources of own managed revenues (see Araújo and Barroso, 2014). At the same time, revenue sharing arrangements between the Federal and State level have greatly constrained fiscal autonomy of the Federal Government, which must fulfill constitutional commitments for social spending and inter-governmental transfers before it can

consider spending on new policy initiatives (such as infrastructure). At the subnational level, in turn, a lack of hard budget constraints and fiscal discipline led to repeated subnational fiscal crises.

118. **Fiscal constraints have led to a tendency to reduce non-earmarked transfers to states and municipalities, increasing inefficiency and fragmentation of spending.** Automatic, non-assigned transfers fell from 80 percent of total transfers in 2001 to 56 percent in 2013. The proportion of shared revenues from tax sharing pools (*Fundo de Participação dos Estados* and *Fundo de Participação dos Municípios* FPE and FPM respectively) accounted for more than two thirds of that share by 2013 (Figure 2.3). Increasingly, the federal government has been relying on discretionary transfers or ‘*convênios*’ to finance specific activities. These transfers tend to be very fragmented across relatively small programs and impose very detailed conditions (that is, specific building blueprints) and special reporting mechanisms. States dedicate teams to raise these funds and to monitor them, given their large number and complexity. As a result, states that have greater absorptive and management capacity tend to benefit more from these resources. However, in many states and municipalities, it is not uncommon for these funds to be returned to the Federal Government as they fail to comply with the conditions or to report on time the information required after one or two years.

**Figure 2.3: Automatic Non-earmarked Transfers and FPE as a Share of Total Transfers to State and Municipalities (percentage), 2001-2013**



Source: Secretaria do Tesouro Nacional – STN.

119. **Fragmentation across levels of government and parties has meant that it is sometimes difficult to agree on fundamental reforms.** Deputies in Congress need to focus on building support for future campaigns, and as such, their focus is mainly on representing local interests and ensuring that projects benefit campaign contributors.<sup>25</sup> The resulting complex web of conflicting interests complicates the implementation of coherent policies at all levels. Moreover, coherent national policies require all levels of government to cooperate in their implementation given the decentralization of responsibilities and resources.

<sup>25</sup> For a good summary of the issues and evidence see: Alston and Mueller (2006) and also Samuels (2002).

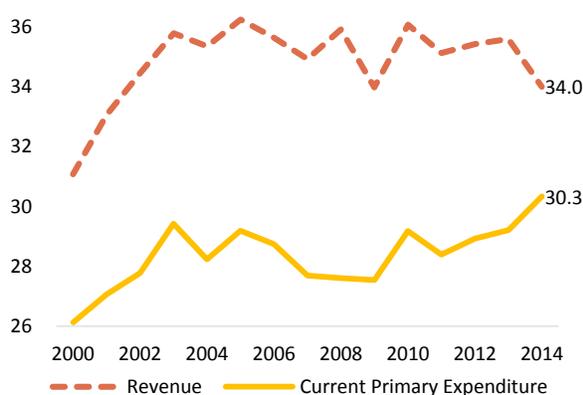
### 2.3 Brazil's Public Sector Governance

120. **Brazil's political institutions have influenced the size and effectiveness of the public sector.** The following paragraphs briefly draw the linkages between Brazil's political institutions and the size and effectiveness of the public sector. The discussion also shows that government capacity is often high, potentially providing a strong foundation for improved policy-making and implementation. In Section 2.4, the analysis turns to Brazil's recent history to highlight examples where the executive was able to draw on this considerable capacity to forge successful policy or institutional innovations, from which potential lessons can be drawn going forward.

#### 2.3.1 Size of the Public Sector

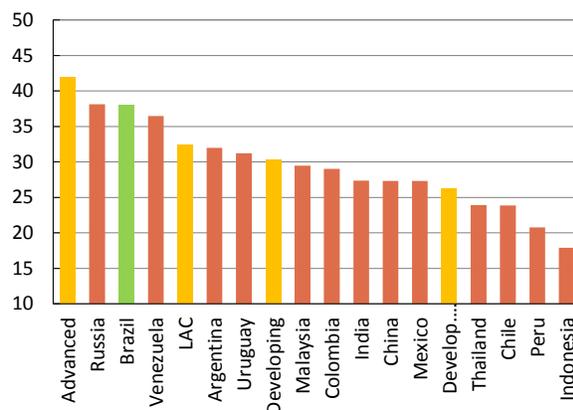
121. **The combination of constitutional spending commitments, ongoing social pressures, and the dynamics of the political system, led to a significant increase in the size of the Brazilian government.** In the 2009–2013 period, government expenditure in Brazil averaged 37.4 percent of GDP, well above the 28.8 percent average for other Latin American and Caribbean countries, and much closer to levels of spending in advanced economies (41.9 percent of GDP)<sup>26</sup> (Figure 2.4). In 2013, social benefits (including pensions) represented about 40 percent of primary expenditure while compensation of employees about 36 percent<sup>27</sup>. Capital spending represented less than 9 percent of the total. The large share of social benefits and compensation in aggregate spending reflects a sharp increase in current primary budget spending over the past decade, fueled in part by increased revenues due to the commodity boom and declines in interest spending due to the effects of macroeconomic stabilization. Indeed, current primary spending increased by over 7 percentage points of GDP during 2000–2014.

**Figure 2.4: Current Primary Expenditure and Revenue, Brazil, 2000–2014 (percent GDP)**



Source: Elaborated from data of Ministerio da Fazenda

**Figure 2.5: General Government Expenditure, Selected Countries average 2009–2013, (percent GDP)**



Source: World Economic Outlook (WEO) database April 2015, IMF Article IV review, 2015

122. **Total government employment (federal, state and municipality) is below the average for developed countries (although increasing rapidly), but the wage bill is larger.** In 2013,

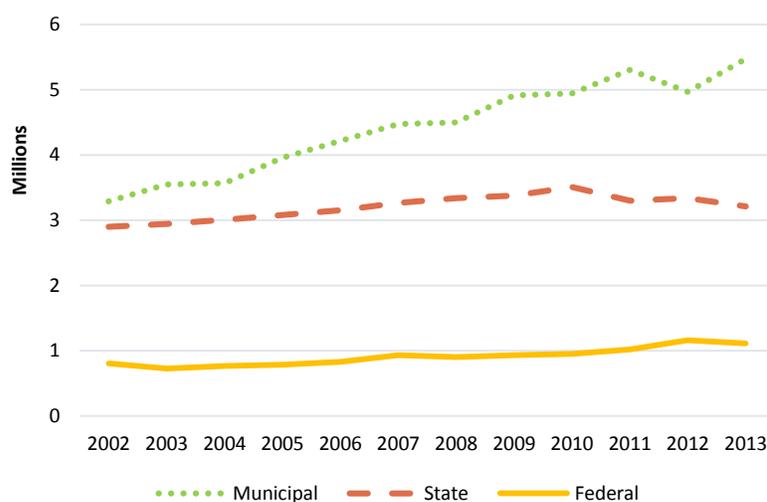
<sup>26</sup> IMF definition of advanced economies includes 37 high-income developed economies.

<sup>27</sup> Includes pension payments of retired (inactive) public sector employees.

public employees made up 10.6 percent of the working population, compared with 15.6 percent in the OECD and 9 percent in Mexico. Although the government workforce (including the federal government, states, and municipalities) is not large in relative terms, it is expensive. The public wage bill at 13.8 percent of GDP (excluding employees of state-owned enterprises), was above the OECD average, and represented almost a third of the total economy wide compensation. The Federal government alone spent 4.3 percent of GDP on wages in 2013, contrasting with Mexico's 1.6 percent, Colombia's 2.3 percent and Argentina's 2.5 percent. In Latin America, only Chile and Uruguay spend as much or more on public wages. The relative importance of the public sector varies considerably at the subnational level. The national average of employees per 100 inhabitants was 1.3 in 2013 but ranged from 3.3 in states like Acre, Amapá, Roraima and Tocantins to 0.8 in Rio de Janeiro (IBGE 2013).

**123. Public employment and real wages (excluding state-owned enterprises) have been increasing steadily, mainly at the municipal level.** While public employment grew by more than 12 percent in the 1990s, and by more than 15 percent between 1999 and 2003, the increase from 2003 to 2013 was 40 percent, largely due to the growth of municipal employment by 66 percent (see Figure 2.6). At the federal level, total public sector employment increased by more than 38 percent over the same period. Average wages for federal, state and municipal civil servants increased in real terms by 33, 69 and 59 percent respectively implying some convergence of compensation across levels of government. In 2013, state civil service wages were on average 64 percent of federal wages and Municipal wages 37 percent of federal wages. Moreover, average wages in the Federal Government were almost three times those of formal employees in private enterprises (Source *Relação Anual de Informações Sociais*, database).

**Figure 2.6: Public employment in Brazil, 2002-2013**



Source: *Relação Anual de Informações Sociais*, database, various years

### 2.3.2 Effectiveness of the public sector

**124. Brazil's government capacity has improved considerably since redemocratization and its public sector is among the better-endowed in the region, both with regard to staff and**

**resources.** Brazil has a relatively strong state administrative apparatus, particularly at the national level, although government capacity has not been uniform across federal agencies<sup>28</sup>. Similarly, both the capacity and the profiles of state and municipal bureaucracies, which are responsible for most of service delivery<sup>29</sup> and provision of infrastructure, vary widely. Merit-based selection is the norm and most public service positions are filled through public competitive examinations. As a result of this policy, which was introduced by the 1988 Constitution and expanded through successive reforms in the 1990s, the academic and professional profile of public servants, and in particular middle and senior management positions, is strong (Abrucio, 2007; Majeed, 2012). Legal and constitutional provisions relating to employment in the public service, such as implicit tenure, reinforce the independence, political neutrality and continuity of the public service. In addition, the number of politically appointed advisory positions (*cargos comissionados*) is relatively limited, representing approximately 2 percent of the total positions. Provisions such as permanent tenure can lead to entrenched bureaucratic interests, and thus reduce the responsiveness of the state apparatus to changes in policy priorities. The resulting friction can negatively impact performance and government efficiency.

125. **Government effectiveness is below what might be expected given the strong administrative capacity.** Using the data from the Inter-American Development Bank’s (IDB) Public Policy Attributes database and the Worldwide Governance Indicators (WGI), it is possible to compare the quality of governance in Brazil across dimensions and benchmark it against other countries (Table 2.2). According to the WGI, Brazil scores relatively better on voice and accountability and the control of corruption than on regulatory quality, the rule of law, and government effectiveness. The percentile rank achieved across all WGI indicators is in line with other middle-income peers, although the smaller variance across dimensions of governance in Brazil is noteworthy (Figure 2.7). The IDB data confirm Brazil’s high level of judicial independence and relatively strong bureaucratic capacity but show considerably worse scores than almost all peers on policy efficiency.

**Table 2.2: Comparative Governance Indicators 2013**

|             | Voice | Effective | Regulatory Quality | Rule of Law | Control of Corruption | Policy Efficiency | Bureau. Index | Judicial Ind. |
|-------------|-------|-----------|--------------------|-------------|-----------------------|-------------------|---------------|---------------|
| Argentina   | 56.4  | 44.5      | 17.7               | 28.4        | 40.7                  | 1.31              | 1.40          | 1.40          |
| Brazil      | 58.8  | 51.2      | 54.6               | 52.1        | 55.0                  | 1.49              | 1.94          | 2.22          |
| Chile       | 84.4  | 86.1      | 91.9               | 87.7        | 90.4                  | 2.98              | 2.63          | 3.21          |
| China       | 5.2   | 54.1      | 42.6               | 39.8        | 46.9                  | 1.99              | 1.71          | 1.09          |
| Colombia    | 44.1  | 56.5      | 63.2               | 40.8        | 42.6                  | 1.57              | 1.83          | 1.89          |
| India       | 61.1  | 47.4      | 34.0               | 52.6        | 35.9                  | 1.61              | 0.78          | 1.70          |
| Indonesia   | 48.8  | 45.5      | 46.4               | 36.5        | 31.6                  | 1.70              | 2.36          | 3.14          |
| Korea, Rep. | 68.3  | 82.3      | 79.9               | 78.7        | 70.3                  | 2.44              | 2.77          | 3.00          |
| Malaysia    | 37.4  | 81.8      | 72.3               | 64.5        | 68.4                  | 2.86              | 1.57          | 2.24          |
| Mexico      | 53.6  | 63.2      | 67.0               | 35.1        | 39.2                  | 1.85              | 1.55          | 1.78          |
| Thailand    | 34.1  | 61.2      | 57.9               | 51.7        | 49.3                  | 2.15              | 2.63          | 2.39          |

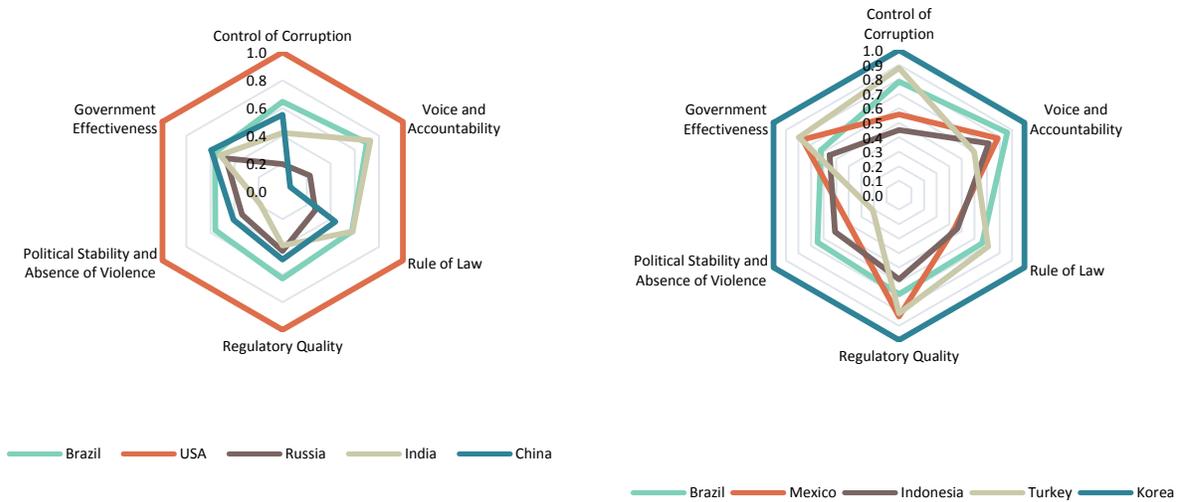
Source: WGI and IDB Public Policy Attributes, 2015

Notes: Indicators from WGI are Voice - Voice and Accountability; Effective - Government effectiveness. All indicators are on a percentile scale (100 = best). Indicators from IDB are on a scale from 0 to 4 (4 = best).

<sup>28</sup> See for example: Bersch, Praça, and Taylor (2013) and Souza (2015).

<sup>29</sup> See for example the discussion of how management reforms in some states have led to improvements in the quality of service delivery in some states in Viñuela and Zoratto (2015).

**Figure 2.7: Benchmark comparisons, Worldwide Governance Indicators, 2013**



Source: Worldwide Governance Indicators, World Bank

### 2.3.3 Allocation of Resources and Budgetary Process

126. **One of the consequences of the constitutional spending commitments and subsequent developments of the fiscal architecture is that the Brazilian budget is one of the most rigid in the world.** There are essentially three broad sources of budget rigidity in Brazil: (a) earmarking of tax revenues, and constitutionally mandated levels of spending on social protection, education and health, and transfers to states and municipalities; (b) social security contributions; and (c) other non-discretionary expenditures that include legal or constitutional obligations, specifically interest payments, wages and salaries, entitlements (such as social security), and social assistance benefits. There are overlaps between revenue and expenditure rigidities, and the actual degree of budget flexibility is less than the ‘free’ portion of either the expenditure (around 10 percent) or revenue (around 20 percent). The effect is that a very large proportion of the budget is insulated from scrutiny (Alston et al. 2009; Brumby, Mendes, and Velloso 2012; World Bank, 2009). The rigidity also introduces dysfunctional budget execution, as earmark targets are legally binding and failure to meet them are subject to sanctions by the Court of Accounts.

127. **The actual budget incorporates thousands of individual amendments by legislators.** The Joint Committee on Planning, Public Budget, and Audit reviews the proposal from the executive. During this review, and later when the proposal is submitted to both chambers, a large number of amendments are approved. These amendments are almost exclusively for projects to benefit the constituents of individual legislators (Alston and Mueller 2006; Samuels, 2002). On average about 9,000 of these amendments are approved annually (Tollini, 2009). They constitute one of the key mechanisms by which legislators obtain political support, and by which the President can use the release of funds during budget execution to reward legislators for their support for the President’s agenda or discipline those that do not follow through. The presence of individual amendments to the budget both distracts debate from more strategic issues and adds to its fragmentation. Discussion and approval of individual amendments consume most of the budget

discussion. Moreover, these amendments do not reflect national priorities, but rather the interests of individuals who seek to build local support (for a detailed discussion, see Tollini, 2009).

**128. The Annual Budget Law (*Lei Orçamentária Anual* - LOA) is authoritative, as it establishes the ceilings for expenditure, but the executive has considerable discretion on what part of the non-mandatory budget to execute.** The executive may curtail spending if programs are not deemed a priority or to meet the fiscal targets (indeed it is required to do this by the Fiscal Responsibility Law). The President has discretion<sup>30</sup> over the appropriation of budget amendments and voluntary transfers to states and municipalities. The President uses decrees to safeguard funds (or *decretos de contingenciamento*) to suspend provisions of the Budget Law, includes amendments passed by legislators to fund ‘pork-barrel’ projects, and can release funds as resources become available in the treasury.<sup>31</sup>

**129. The earmarking, *contingenciamento* and the multiple amendments reduce budget credibility and the incentives to elaborate an effective budget.** Given that budget makers know that there is no guarantee that authorized budget allocations will be executed, or that all the funds will be made available, the incentive is often to secure an allocation to begin an activity, and use this as an argument for seeking future funding. Uncertainty over execution also reduces the incentive for proper planning of activities, which further increases uncertainty during execution in a vicious circle. The budget execution process then becomes as politicized as the preparation process and is used as a bargaining device within the political process rather than as a means of allocating resources. In the areas of the budget that are protected (or mandatory), planning and preparation is also weak, as the mandatory nature of expenditures implies that resources are allocated to and spent in the sector regardless of their efficiency. The processes of budget preparation and execution at the state and municipal levels follows similar patterns, but with the additional problem that capacity is often lower and many expenditures have to be coordinated with or co-financed with other levels of government<sup>32</sup>.

#### ***2.4 Quality of Policymaking and Implementation***

**130. Despite the institutional constraints described earlier, Brazil was able to make remarkable progress in several policy areas.** Three examples of policy breakthroughs at the national level are the *Plano Real* and the stabilization of inflation, the introduction of anti-poverty programs (including the PBF), and the reduction of deforestation of the Amazon. In the case of the *Plano Real*, its success after the failure of half a dozen previous anti-inflation plans, was due to

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<sup>30</sup> This discretion over the execution of individual amendments of legislators has recently been diminished by Constitutional Amendment No. 86 of March 7, 2015, which establishes a minimum of 1.2 percent of current receipts (*receita corrente líquida*) that must be executed, with at least half of this being allocated to the health sector.

<sup>31</sup> Several studies have empirically demonstrated that that Presidents make strategic use of the appropriation of individual budgetary amendments to ensure support on critical votes<sup>31</sup> (Alston et al., 2006; Alston and Mueller, 2006; Pereira and Mueller, 2004; Melo and Pereira, 2013). For a recent example, during the approval of the fiscal adjustment in 2015 see Damé, Luiza (2015), ‘Governo vai liberar emendas parlamentares para garantir aumento de tributação a empresas,’ *O Globo*, June 23.

<sup>32</sup> See Wetzel, Deborah L. 2013. ‘Metropolitan Governance and Finance in São Paulo.’ in *Financing Metropolitan Governments in Developing Countries*, for a detailed description of the process in the municipality of São Paulo, which is probably one of the highest capacity municipalities in the country, but which nevertheless suffers from major changes in the resources allocated to different budget items during the year as a result of the budget process dynamics described in this chapter.

detailed technical planning, its simplicity, and transparency. The policy was well designed and, more importantly, not subject to the traditional political bargaining, as there was nothing significant to be traded nor contracts to be entered into. The *Plano Real* garnered substantial popular support and, because of this, it commanded widespread political support overcoming the initial skepticism on its prospects of success.

131. **In the cases of social and environmental policy, success can also be attributed to designs that minimized political involvement in policy implementation.** As with the *Plano Real*, in both these cases, the factors for success included the existence of a capable technical team within the public administration and the avoidance of large public procurement contracts or other mechanisms through which interest groups could seek political and financial returns. The absence of major contracts is important because it avoids two common problems in implementation. The first is the lack of time for necessary technical preparation, because the political pressure to sign the contract and launch the project dominates and the second is the degree to which distortions and exceptions are introduced into policies to accommodate special interests. In both cases, in addition, the policies were informed by detailed prior technical preparation, which included the design of M&E mechanisms, to fine-tune their implementation (see Chapters 5 and 6 respectively for details).

132. **These successful policies demonstrate that the Brazilian state has the capacity to design and implement effective programs, which are recognized worldwide as flagship policies.** Understanding the conditions under which Brazil can leverage this policymaking capacity to achieve social and economic progress is critical to assess the feasibility of any reform agenda. One common factor for success across all three cases is careful technical preparation. Another factor that may improve the chances of reform going forward is the increasing independence and strength of Brazil's control institutions. This is raising the cost of the traditional way of doing political business, at the same time as rising aspirations for better-quality public services increase the potential political return from well executed initiatives such as the widely popular PBF.

#### *2.4.1 Evolution of Accountability Institutions and the Control of Corruption*

133. **In the early years of the return to democracy corruption appeared to be endemic and even when encountered, there appeared to be general impunity.** Many corruption cases never reached the judiciary. A 2010 study assessing the efficacy of judicial action in Brazil suggested that from a list of public officials dismissed for bureaucratic corruption in major ministries (including the Federal Ministries of Finance; Planning, Budget and Management; Industry; Agriculture; and Foreign Affairs) between 1993 and 2005, only 34 percent faced criminal charges<sup>33</sup>. Of these, far fewer were actually convicted and punished. Among politicians even fewer faced consequences; only a handful of the high-profile corruption cases in the 1990s ended in criminal prosecution of politicians. However, in the last decade, over 14,000 individuals have been found guilty of corruption crimes due to the work of accountability institutions. The imprisonment of some powerful individuals, in particular from the private sector, has also sent a resounding message about the reduction in impunity.<sup>34</sup> An increasing willingness by politicians and firms to collaborate with investigations has been observed as well.

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<sup>33</sup> See de Alencar, Ribeiro and Gico Jr. (2011).

<sup>34</sup> The arrest of two presidents of the biggest construction companies in June 2015 was reported as implying the end of "too big to be arrested". See for Leitão (2015).

134. **Additionally, the control institutions are changing their focus from formal compliance to the efficacy of public policy.** The focus of the TCU has progressively expanded over time, from legality to legitimacy and efficiency. External control is therefore not only limited to the conformity of budget execution with applicable laws and regulations but also encompasses an assessment of the operational aspects of governmental action. Many of its reports are now concerned with how well government policies are working, and whether expenditure and government processes are effective and efficient. Moreover, the TCU's enforcement function allows it to impose sanctions, which may include fines and declarations of ineligibility to hold public office for a given period, as well as the temporary debarment of suppliers who have engaged in irregular activities in the context of public procurement. It can (and does) also stop works that are being carried out without adequate planning, procurement processes or licenses (such as environmental licenses).<sup>35</sup> This is not to say that the control institutions are immune from political pressures. While having a professional staff, two-thirds of the ministers of the TCU are politicians appointed by Congress<sup>36</sup> and may play an implicit political role both in deciding on matters to be investigated and in the judgments entered into.

135. **The recent corruption investigations have exposed the inner workings of political bargaining in Brazil, and some of the reasons for poor service delivery and inefficient investment decisions.** The first high profile scandal was the '*Mensalão*', which involved large payments to congressional deputies, who were part of the government coalition, in order to ensure their continuing support (and that of their parties). The investigation ended with the conviction and jailing of a number of senior politicians, including the President's former Chief of Staff. The second scandal is the so-called car-wash or '*Lava-Jato*' investigation into illegal payments being made to secure construction contracts with state-owned oil and gas producer Petrobras, which were allegedly used to pay off individual politicians and finance party campaigns.

136. **Both the '*Mensalão*' and the '*Lava-Jato*' investigations revealed mechanisms that have likely been operating in the shadows for many decades.** They came to light because of the increased independence and efficiency of the control institutions, and, in the case of '*Lava-Jato*' the newly introduced plea-bargaining system ('*delação premiada*'). They also illustrated a basic dilemma. The political system is based on building coalitions of support through the allocation of posts, of contracts for works, execution of individual budget amendments, and financing for election campaigns. Achieving policy coherence in this context requires political deal making in a context in which resources for doing so are limited, even more so as fiscal space is constrained by constitutionally enshrined spending commitments. The increasing independence and authority of the control institutions has complicated the traditional bargaining at the heart of Brazilian politics, and may be opening the way to more programmatic politics to gain electoral appeal and retain political power.

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<sup>35</sup> It is common to suggest that the action of courts and control institutions in stopping work on major projects are one of the reasons for implementation difficulties, particularly of public investment projects. While it may be the case that the actions of Courts or the TCU delay implementation, the question should be whether the interventions are legitimate from a public policy point of view (for example projects started with insufficient technical preparation) or whether the interventions are the result of a formal application of rules without positive public policy implications, or indeed whether the interventions may be designed to favor specific interests. In the first case, the issue is in fact weak institutions for evaluating and preparing investment projects.

<sup>36</sup> One third are selected by the President, mainly from the professional staff of the TCU.

137. **A new political deal may thus be needed to unlock Brazil's key structural reforms.** The public's tolerance for traditional politics has diminished as more details on their mechanisms have been documented. The aspirations of Brazil's voters and demands for better governance are no longer consistent with the existing low-level institutional equilibrium. Moreover, the new middle class has become increasingly more vocal in demanding efficient public services. The examples cited previously indicate that the Brazilian state has the capacity to deliver more efficient services, but for it to be generalized it requires profound changes in the workings of the political system. Reflecting public pressure for political reform after large-scale demonstrations in the summer of 2013, Congress established a special commission to address some of the issues related to the costs of political campaigns, party fragmentation, electoral system, coalition, and loyalty rules. The final proposal approved by the Chamber of Deputies in June 2015 does not imply significant changes in the Brazilian political system, except for the end of reelection for the executive (federal, state, municipal) and limiting access to public financing for election campaigns for the smallest parties. Despite the lack of progress in the legislative branch, in September 2015 the Supreme Court ruled out private financing by businesses for political campaigns<sup>37</sup>. The debate on these issues continues and the current political crisis may yet result in bigger changes that would facilitate the structural reforms necessary to ensure Brazil's continued inclusive and sustainable development.

138. **As explained in the next section, efforts to raise public investment, even when resources are available have been less successful than expected.** They have faced significant implementation problems, many of which can be traced back to the fragmentation of Brazil's political institutions. However, to some extent, they may also reflect poor design—an issue that is taken up in more detail in Chapter 4, where possible avenues for improvement are also discussed.

#### *2.4.2 Increasing Capital Spending and Investment Capacity*

139. **The government attempted to raise investment by launching the Growth Acceleration Program (PAC).** The PAC envisaged actions in a host of sectors: highways, railways, energy, airports, urban transportation, telecommunications, and urban development (sanitation and housing). It began from the premise that poor implementation in the past had been responsible for low investment, and that by concentrating administrative resources on a few major projects and solving the implementation and coordination problems, the pace, volume, and quality of public investment could be increased. In its first phase—called PAC1, initiated in 2007—it involved US\$270 billion, while in its second phase (PAC2, initiated in 2011) it called for investments of US\$485 billion over four years (2010–2014) equivalent to about 4 percent of GDP annually, about half of which was funneled to transport infrastructure. The PAC stands out because of the sheer magnitude of resources involved. While it was successful in raising the levels of public investment somewhat, as execution progressed it became clear that the problem for public investment was not just one of resources, but also of government capacity, poor design, and misaligned incentives resulting from Brazil's political institutions and their impact on budget planning and execution.

140. **The most common problems with investment projects were cost overruns, delays, and poor designs.** Many reports analyzing the Federal Government accounts prepared by the Federal Audit Court (TCU) highlight these problems. In its evaluation of PAC, the 2011 edition of the TCU annual report notes, for example, that the conclusion of the Belo Monte hydroelectric power

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<sup>37</sup> Ação Direta de Inconstitucionalidade 4650, 17 de setembro de 2015.

plant was delayed by three years. The thermonuclear power plant Angra III was delayed two years. In the transportation sector, the average delay was 1.2 years. The execution of seventeen projects of Petrobras and Eletrobras had a budget overrun of more than 100 percent<sup>38</sup>. In the 2012 edition, the report highlights delays in the water diversion works in the São Francisco River. This is a massive project intended to provide water for dry areas of the poor Northeast region. The first stage of the project, expected for 2010, was completed only in 2014, and the second stage in 2015 with a three-year delay.<sup>39</sup> The total cost rose from R\$4.8 billion (estimated in 2007) to R\$8.2 billion in 2012.<sup>40</sup>

**141. Because the implementation arrangements of the PAC are complex, and the program requires actions by different levels of government, it is subject to issues of intergovernmental coordination.** Only 28 percent of the budget was allocated to projects of national scope (and thus implemented by the federal government alone) whereas 61.5 percent of the funds were to be executed by states and municipalities. The municipalities are the most important implementation agent under PAC2—33,704 projects were directly under their responsibility, while 5,171 projects were under the responsibility of the states, and 262 were implemented directly by the federal government (the residual was the responsibility of an array of independent government agencies and state enterprises). Although only a small minority of actions under the PAC were thus the direct responsibility of the federal government, 71 percent of all measures fully implemented were at the Federal level, revealing a huge implementation gap at the subnational level.

**142. The implementation problems of the PAC present a contrast to the success that Governments have achieved in implementing programs such as PBF.** As was discussed previously, among the characteristics of successful national programs including PBF were the strong technical preparation before implementation and the relative absence of contracts that could easily be the subject of political bargaining. These conditions did not hold for public investment.

**143. The capacity for planning and evaluation of investments diminished significantly during the two decades after the return to democracy.** Mendes (2014) for example notes that previously public investment in transportation was managed by GEIPOT (Grupo Executivo de Integração da Política de Transportes), a public enterprise where a team of highly skilled engineers were in charge of defining the main guidelines of the transportation network. The agency and other similar ones were dissolved in the 1990s. The disbandment of such agencies reflected both the reaction against centralizing agencies of the dictatorship and the practical reality that public investment levels had fallen so low that there was little that such agencies could contribute, particularly given the decentralization of investment decisions. Moreover, all major investment contracts are potentially the subject of rent seeking and exchanges of favors, as the *Lava-Jato* investigation has clearly revealed. In this context, increases in the volume of investment will not translate automatically to a greater quantity and quality of infrastructure services. Improvements in both project design – including improved regulatory and financing arrangements for Public

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<sup>38</sup> TCU (2012, p. 178-186).

<sup>39</sup> In response to the delays in implementation, the Government has introduced measures such as a special contracting regime (Regime Diferenciado de Contratações – RDC) to accelerate the procurement processes for priority infrastructure under the PAC, which may have helped speed up the procurement processes, but could not address problems of design.

<sup>40</sup> TCU (2013, p. 466-67)

Private Partnerships (PPPs) (Chapter 4) —will be needed to ensure additional public money can be spent effectively.

144. **Many mechanisms already exist that could strengthen the institutional framework for budgeting and public investment management.** In particular, the formal planning processes of the PPA, the LDO,<sup>41</sup> and the Fiscal Responsibility Law constitute elements that could function as a medium-term budgetary framework.<sup>42</sup> These mechanisms have been successful most of the time in ensuring compliance with fiscal targets compatible with macroeconomic stability, although this has been achieved at the expense of investment and quality of expenditure. The issues that need to be addressed to improve implementation are not simple. They involve mechanisms of coordination and commitment across levels of government, a re-examination of the degree and nature of earmarking, and the tools for formulation and implementation of the budget, particularly the screening and preparation of investment proposals.

### *Concluding Remarks*

145. **Despite the constraints imposed by the Constitution and Brazil's fragmented political institutions, there has been progress in the quality of public sector governance over the past two decades.** Progress has been incremental and depended much more upon small changes and the establishment of precedents (see Praça and Taylor, 2014; and Power and Taylor, 2011). Over time, however, the results have been significant, and the rule of law has been strengthened. Independent institutions are providing a check on the executive, and indeed the legislature. Impunity is less widespread, and there is less public tolerance for corruption or poor service delivery. At the same time, successive Brazilian governments have been able to introduce important policy reforms through careful design, transparent explanation and the active use of performance targets and M&E. These changes provide the foundation to move the political discourse in a more programmatic direction and thus create a political platform for the required structural reforms to sustain social and economic progress.

146. **The core institutional dilemma relates to improving the allocation of public resources in a fair and consistent manner.** The 1988 Constitution rightly focused on the social rights of those who had been previously excluded. However, it also enshrined privileges for many other groups, for example, public sector workers or recipients of higher education, which may benefit significant non-poor groups. This provides opportunities for reallocations of public spending that can help improve social outcomes without further increasing the already large public sector footprint in the economy.

147. **The experience with successful policy implementation in the area of social assistance, environmental management, and inflation stabilization suggests that the complex issues related to the allocation of resources are not intractable.** As accountability and the rule of law strengthen, it becomes more feasible to look at the budget preparation and implementation processes and limit the influence of vested interests on resource allocation. Just as the stabilization

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<sup>41</sup> The PPA is the Multi-Year Plan (Plano Pluri-Anual), which is a four year plan developed in the first year of every Government at Federal State and Municipal levels. The LDO is the budget guideline law (Lei de Diretrizes Orçamentarias) which sets the main fiscal parameters for the next three years.

<sup>42</sup> See for example the case study of Brazil in World Bank. (2012). and also the PEFA analysis (World Bank, 2009) as well as Brumby, Mendes and Velloso (2012).

of inflation and the Fiscal Responsibility Law were established despite a very difficult political environment and created precedents that politicians have since been bound by, so it may be possible to establish processes to ensure efficiency and quality in other areas of public expenditure. This will become more and more necessary as fiscal space narrows, given the worsening macroeconomic outlook. It is to this outlook that the report now turns.

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### *Introduction*

148. **The unique history and geography of Brazil have an important role in explaining current macroeconomic and development dilemmas.** As discussed in Chapter 1, the continental size of the country, the abundance of natural resources, and geographical isolation, tended to favor inward-looking development models, with growth driven by state-directed investment and domestic consumption. Its decentralized federal nature and history of extreme inequality have combined to generate tendencies in favor of a large state. Unresolved conflicts over resources led eventually to the hyperinflation of the 1980s and early 1990s. Hyperinflation, and the resulting distortions and policy responses induced in the financial system, have left a legacy of a segmented short-term financial system, with one of the highest costs of capital in the world.

149. **The conquest of hyperinflation in 1994 laid the basis for the establishment of a coherent framework that permitted considerable macroeconomic stability by the end of the 1990s.** This in turn was fundamental to Brazil's advances in poverty reduction and social inclusion in the subsequent decade and a half. The introduction of the *Plano Real* in 1994 together with the adoption of the Fiscal Responsibility Law in 2000 led to the achievement of macro-fiscal stabilization. The combination of macroeconomic stability and external windfalls from the global commodity boom during the 2000s then resulted in a 'golden decade' for Brazil. The golden decade was characterized by consumption-led growth, fueled by a rapid expansion in labor income, household credit, and government transfers.

150. **The economic slowdown in recent years has exposed the shortcomings of Brazil's consumption-led growth.** Brazil responded to the global financial crisis by adopting a macroeconomic stimulus, and initially emerged quickly from the crisis, but at the cost of growing economic imbalances, with rising fiscal deficits, increasing inflation, growing current account deficits and a sharp increase in credit growth, especially from the state-owned banks. These imbalances ultimately undermined investor and consumer confidence, and the economy slowed down sharply. After growing around 4 percent between 2003 and 2010, the economy gradually lost steam in 2012—13, was stagnant in 2014 and went into recession in 2015. Consensus forecasts for the next few years are equally weak.<sup>43</sup> In parallel, the deterioration in the fiscal stance resulted in an increase in gross public debt from 61.2 percent of GDP in 2011 to a projected 66.2 percent in 2015.

151. **While current macroeconomic conditions partly reflect the policy choices of the recent past, they largely result from several long-standing structural problems.** This chapter highlights that fiscal pressures are at the root of many of the economic challenges facing Brazil. These fiscal pressures result from a combination of loosening fiscal policy in the aftermath of the global recession, as well as long-standing structural issues and hardwired expenditure commitments, which are politically difficult to change due to the institutional context described in the previous chapter. It is important to note (as Chapter 5 elaborates in more detail) that while

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<sup>43</sup> In parallel, inflation has been rising to above 10 percent, despite the recession, forcing the Central Bank to increase interest rates to above 14 percent (in nominal terms), while a widening current account deficit, combined with bleak growth prospects and rising political uncertainty, has contributed to make the Brazilian Real one of the worst performing emerging market currencies in 2015.

spending did increase on socially inclusive policies, much of the increase in expenditure over the past decade took place in entitlements such as generous social security arrangements, many of which are not directed to the poor. Addressing these challenges is necessary to maintain macroeconomic stability and continue the social gains made during the past decade.

152. **The chapter is organized as follows.** Section 3.1 presents an overview of the conditions that paved the way for Brazil's recent exceptional growth from 2003-2010. This so-called 'golden decade' is further analyzed in Section 3.2, pointing to some underlying structural weaknesses that were largely masked by the external windfall. Section 3.3 discusses how recent policy choices may have exacerbated existing structural challenges, while Section 3.4 lays out the policy dilemmas Brazil needs to address. The chapter closes with concluding remarks.

### ***3.1 Setting the Stage: The Origins of the 'Tripod'***

153. **After decades of grappling with extremely high inflation, and many failed attempts to tame it, Brazil introduced the *Plano Real* in 1994.** The main contribution of the *Plano Real* was the unwinding of indexation mechanisms, together with an initial fiscal adjustment.<sup>44</sup> As with most stabilizations, the real exchange rate appreciated immediately and real wages rose. The stabilization was accompanied by real (ex post) interest rates of 30—40 percent and fiscal adjustment was carried out (in particular with further reductions of public investment). Stabilization brought about an improvement in income distribution as reflected by a modest fall in the Gini coefficient from 60.1 in 1993 to 59.0 in 1999. As discussed in the previous chapter, permanent stabilization required fiscal control, which, given the hardwired current expenditure commitments could only be achieved by reducing investment and/or increasing the tax burden.

154. **The macroeconomic framework of the *Plano Real* was augmented following external shocks and the subnational debt crisis in the late 1990s.** During the initial stabilization period following the introduction of the *Plano Real* in 1994, the exchange rate served as a nominal anchor. However, an increasing current account and fiscal deficit, combined with a debt crisis at the subnational level,<sup>45</sup> and the emerging market financial turmoil of the 1990s undermined this strategy. The government was thus forced to make substantial changes to the macroeconomic framework through the adoption of an inflation-targeting regime, floating exchange rates, and a commitment to fiscal soundness enshrined in the Fiscal Responsibility Law, which was approved in 2000. This combination came to be known as Brazil's macroeconomic tripod. The target for the general government primary fiscal surplus was initially set at 2.7 percent of GDP in 2000<sup>46</sup> (later

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<sup>44</sup> As part of the preparation for the *Plano Real*, a constitutional amendment was approved in March 1994 to de-earmark 20 percent of earmarked revenues to carry out some fiscal adjustment.

<sup>45</sup> Fiscal pressures on subnational governments increased further in the absence of inflation. Previously, inflation had allowed states to reduce real expenditures, and was a source of revenue through financial operations of state banks. With the elimination of inflation, many of these banks were revealed to be insolvent because they were carrying non-performing loans. The result was that states and municipalities had to resort to a bail-out package, which was provided by the federal government to restore subnational debt sustainability. This bail-out was conditioned upon states' and municipalities' compliance with medium-term fiscal adjustment, and the adoption of structural reforms. It resulted in a dramatic improvement in subnational finances until recently, which is of critical importance for debt sustainability as the federal government was (and is) the main holder of subnational debt.

<sup>46</sup> According to Article 18 of the 2000 LDO ([http://www.planalto.gov.br/CCivil\\_03/Leis/L9811.htm](http://www.planalto.gov.br/CCivil_03/Leis/L9811.htm)).

changed to a quantitative target of R\$30.5 billion, approximately 3 percent of GDP),<sup>47</sup> consistent with a gradual reduction of gross public debt<sup>48</sup>, which in 2000 stood at 65.4 percent of GDP.

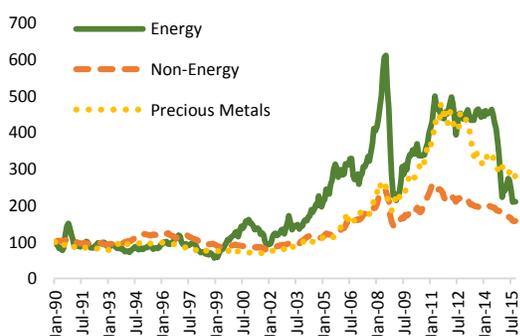
155. **The new framework laid the foundation for macroeconomic stability over the subsequent decade and allowed Brazil to reap the gains of an extremely favorable external environment.** The commodity price boom and abundance of global liquidity boosted Brazil’s economic growth, allowing the government to pursue a strategy of channeling greater public resources to the poor and B40, while the increase in employment stimulated demand for credit and consumption among all income groups. The impact of high domestic demand on inflation was contained as substantial capital inflows and the windfall gains from the commodity boom led to significant nominal currency appreciation and a large increase in foreign exchange reserves at the Central Bank). The stabilization did not, however, deal with the structural problems of the cost of capital, low savings and investment, and a relatively uncompetitive business environment with the resulting slow growth of productivity.

### 3.2 Reaping the Gains—The ‘Golden Decade’

#### 3.2.1 The Foundations—Strong Commodity Prices and Sound Macro Management

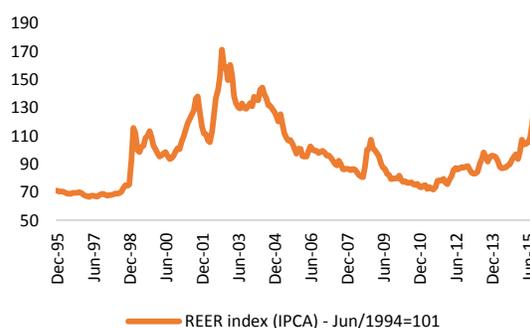
156. **Brazil’s golden decade was made sustainable by a long commodity price boom.** Partly in response to the commodity-intensive rise of other emerging markets, including China, international commodity prices grew at unprecedented rates during the first decade of the 2000s (Figure 3.1). As Brazil is a major commodity producer, the value of Brazil’s exports grew rapidly over the past decade. Between 2000 and 2011, export and import values of goods more than quadrupled, representing an annual growth rate of 15 percent in nominal U.S. dollar terms. As a result of buoyant export revenues and strengthening terms of trade, the real exchange rate appreciated significantly (Figure 3.2); a trend that was later reinforced by the extraordinary monetary stimulus in the advanced economies and the resulting interest rate differentials that favored capital flows to emerging markets.

Figure 3.1: Commodity Prices



Source: World Bank Prospects Group

Figure 3.2: Real Exchange Rate, 1994-2015, 1994=100



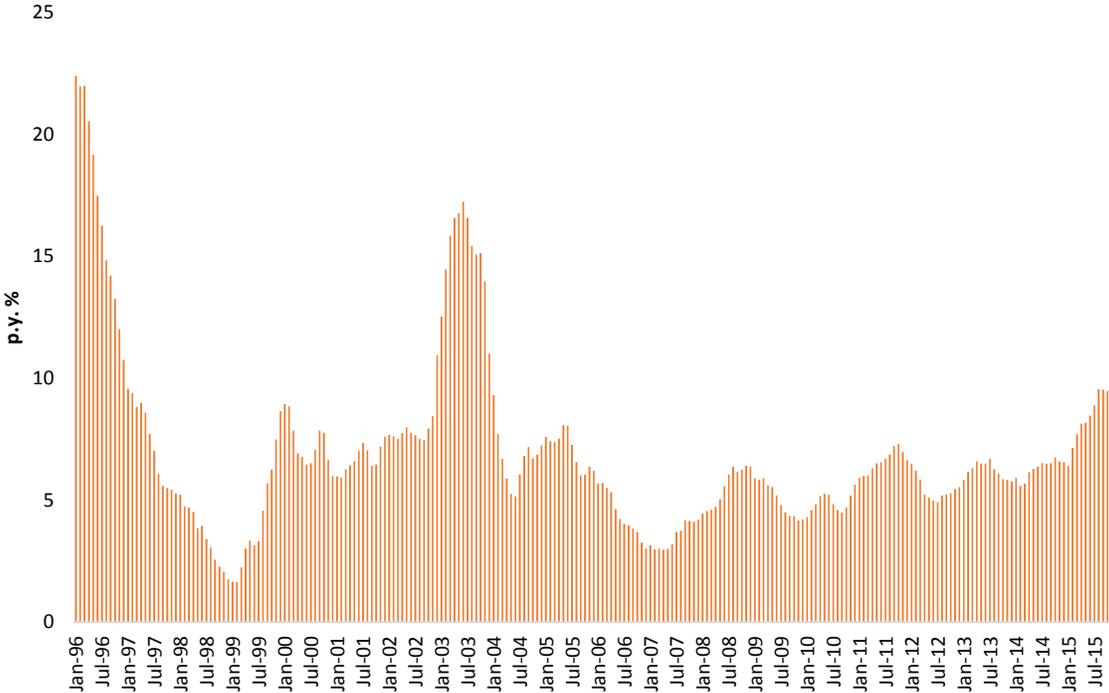
Source: Central Bank of Brazil

<sup>47</sup> A technical memorandum signed with the IMF (<http://www.imf.org/external/np/loi/2000/bra/02/index.htm>) in November of 2000 indicated a target of 3.4% for the Public Sector (R\$36.7 billion).

<sup>48</sup> General government gross debt refers to the IMF concept, which is different from the one provided by the Central Bank of Brazil official data (<http://www.bcb.gov.br/?NPDEBTN>).

157. **Domestically, the 2000s were notable for relatively low inflation, after decades of macroeconomic instability.** Monetary policy remained neutral during the decade, mostly focused on keeping inflation under control while enabling a controlled expansion in credit to the economy. Decades of runaway inflation were finally tamed by the implementation of the *Plano Real* in 1994 and the introduction of inflation targeting in 1999. Inflation continued to drop steadily in the early part of the decade, and was kept in check by the exchange rate appreciation. Although the inflation target of 4.5 percent was not strictly adhered to, price increases remained in the neighborhood of 5 to 6 percent without any discernible impact on longer-run inflation expectations (Table 3.1 and Figure 3.3).

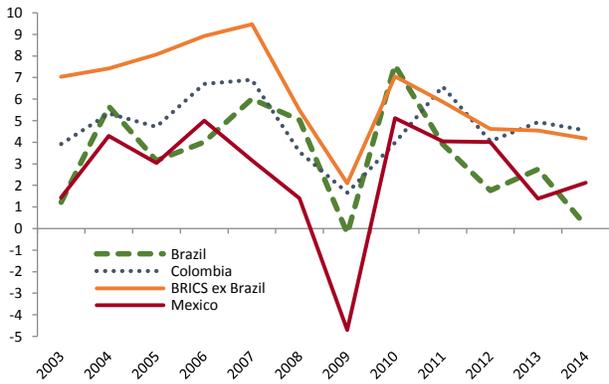
**Figure 3.3: National Consumer Price Index (IPCA) - 12 month variation**



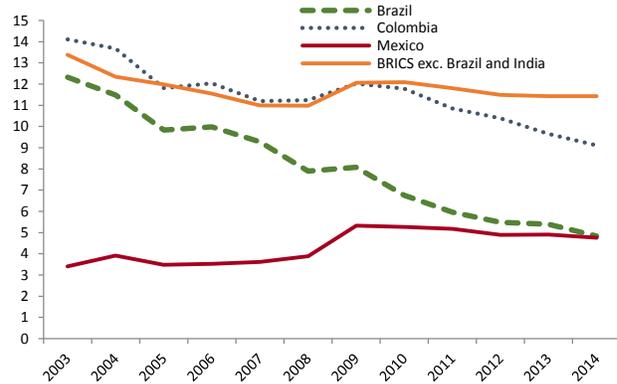
Source: Central Bank of Brazil

158. **The combination of macroeconomic stability and external windfalls resulted in a ‘golden decade’ of growth-with-jobs in Brazil.** While the rate of GDP growth during the period was not extraordinary compared to peer countries, it was accompanied by a very strong performance in creation of formal jobs. Brazil’s growth rate during 2003–2010 remained below that of other BRICS countries, and not much different from Mexico and Colombia (Figure 3.4). When comparing labor market performance to its peers, however, Brazil’s experience appears remarkable (Figure 3.5). However, as will be seen in Chapter 4, much of the employment was created in low-productivity service activities. The unemployment rate dropped from double digits (around 11 percent) in the early part of the decade to about 5 percent in 2010, the global financial crisis and the 2009 recession notwithstanding. As discussed in Chapter 1, the middle class expanded as incomes rose and labor markets offered greater opportunities to transition from informal to formal employment.

**Figure 3.4: Real GDP Growth (2003-2014, percent)**



**Figure 3.5: Unemployment (2003-2014, percent)**



Sources: Ministry of Finance, Central Bank, IMF, WDI, and World Bank calculation

### 3.2.2 The Consequences – Fiscal Windfall, Credit Expansion and Consumption-based Growth

159. **The macroeconomic configuration of strong external revenues, exchange rate appreciation, and rapid employment growth supported consumption-based growth.** Three channels in particular were important in translating these factors into consumption-based growth. First, the commodity boom led to a fiscal windfall, which in turn provided the government with resources to pursue its mandate for inclusion of the less well-off without reducing benefits to the rest of society. The increase in income for the B40 increased the bias towards consumption. Second, capital inflows, a loosening of monetary policy, and targeted expansion of credit by government-owned banks led to a decline in real interest rates and an (albeit modest) increase in domestic investment. Prudent supervision ensured, however, that capital and liquidity buffers were kept strong. Third, the external financing constraint was relaxed, so that an increase in investment demand, without corresponding domestic savings, contributed to a substantial increase in foreign currency indebtedness of the private sector. Each channel is briefly discussed below.

160. **The economic expansion led to increasing revenues that provided a substantial fiscal windfall.** Increased formal employment, rising consumption, and high profits of commodity exporters boosted social security contributions, corporate income taxes and indirect tax revenues (which account for the largest proportion of taxes in Brazil). Between 2000 and 2008, revenues increased by 4.8 percentage points of GDP (Figure 3.6). This allowed for an annual average 7.2 percent real increase in primary expenditure between 2003 and 2010 without compromising the primary surplus target.<sup>49</sup> Primary fiscal surpluses of between 2 and 3 percent of GDP over most of the decade led to a decline in the gross-debt to GDP ratio, from about 70 percent of GDP in the early part of the decade to 63 percent of GDP by 2010. Brazil was rewarded for this fiscal performance when it attained investment-grade rating on its sovereign debt in May 2008 (Table 3.1, and Figure 3.7)<sup>50</sup>.

<sup>49</sup> In parallel, the debt interest bill decreased from around 4.5 percent in the first half of the decade to 3.7 percent by 2010, providing additional fiscal space.

<sup>50</sup> This is using the Brazilian Central Bank’s methodology. Debt levels under the IMF’s methodology are somewhat higher though the trajectory is broadly the same. This level of public debt appears manageable, especially when considering that it is largely (approximately 95 percent) in domestic currency and that net public debt (that is, excluding government credits, mainly forex reserves) is below 40 percent of GDP (Table 3.1 and Figure 3.6).

**Table 3.1: Key Macroeconomic Indicators**

| Key Macroeconomic Indicators                |                              |        |        |        |        |        |        |         |         |         |         |         |         |         |         |
|---|------------------------------|--------|--------|--------|--------|--------|--------|---------|---------|---------|---------|---------|---------|---------|---------|
| Indicator                                   | 2000                         | 2001   | 2002   | 2003   | 2004   | 2005   | 2006   | 2007    | 2008    | 2009    | 2010    | 2011    | 2012    | 2013    | 2014    |
|   | (annual real percent change) |        |        |        |        |        |        |         |         |         |         |         |         |         |         |
| <b>National Accounts</b>                    |                              |        |        |        |        |        |        |         |         |         |         |         |         |         |         |
| Gross domestic product, constant prices     | 4.4                          | 1.4    | 3.1    | 1.1    | 5.8    | 3.2    | 4.0    | 6.1     | 5.1     | (0.1)   | 7.5     | 3.9     | 1.9     | 3.0     | 0.1     |
|   | (in percent of GDP)          |        |        |        |        |        |        |         |         |         |         |         |         |         |         |
| Total investment (1)                        | 18.3                         | 18.4   | 17.9   | 16.6   | 17.3   | 17.1   | 17.2   | 18.0    | 19.4    | 19.1    | 20.5    | 20.6    | 20.7    | 20.9    | 20.2    |
| Gross national savings (2)                  | 15.1                         | 14.6   | 15.9   | 17.6   | 19.7   | 18.8   | 19.1   | 19.9    | 19.9    | 17.3    | 19.6    | 19.7    | 19.0    | 18.1    | 16.7    |
|   | (in current USD bn)          |        |        |        |        |        |        |         |         |         |         |         |         |         |         |
| <b>External Sector (3)</b>                  |                              |        |        |        |        |        |        |         |         |         |         |         |         |         |         |
| Current account balance (in percent of GDP) | (3.8)                        | (4.2)  | (1.5)  | 0.8    | 1.8    | 1.6    | 1.3    | 0.1     | (1.7)   | (1.5)   | (2.2)   | (2.1)   | (2.4)   | (3.6)   | (4.4)   |
| Current Account                             | (24.2)                       | (23.2) | (7.6)  | 4.2    | 11.7   | 14.0   | 13.6   | 1.6     | (28.2)  | (24.3)  | (47.3)  | (52.5)  | (54.2)  | (81.2)  | (103.6) |
| Merchandise trade balance                   | (0.7)                        | 2.7    | 13.1   | 24.8   | 33.6   | 44.7   | 46.5   | 40.0    | 24.8    | 25.3    | 20.1    | 29.8    | 19.4    | 2.3     | (6.1)   |
| Exports (fob)                               | 55.1                         | 58.2   | 60.4   | 73.1   | 96.5   | 118.3  | 137.8  | 160.6   | 197.9   | 153.0   | 201.9   | 256.0   | 242.6   | 242.0   | 224.6   |
| Imports (fob)                               | (55.8)                       | (55.6) | (47.2) | (48.3) | (62.8) | (73.6) | (91.4) | (120.6) | (173.1) | (127.7) | (181.8) | (226.2) | (223.2) | (239.7) | (230.6) |
| Nonfactor services, net                     | (7.2)                        | (7.8)  | (5.0)  | (4.9)  | (4.7)  | (8.3)  | (9.6)  | (13.2)  | (16.7)  | (19.2)  | (30.8)  | (37.9)  | (41.0)  | (47.1)  | (48.1)  |
| Income and current transfers, net           | (16.4)                       | (18.1) | (15.8) | (15.7) | (17.3) | (22.4) | (23.2) | (25.3)  | (36.3)  | (30.3)  | (36.6)  | (44.3)  | (32.6)  | (36.4)  | (49.4)  |
| Direct investment, net                      | 30.5                         | 24.7   | 14.1   | 9.9    | 8.3    | 12.5   | (9.4)  | 27.5    | 24.6    | 36.0    | 36.9    | 67.7    | 68.1    | 67.5    | 70.9    |
| Portfolio equity, net (4)                   | 1.1                          | 1.4    | 1.6    | 2.7    | 2.0    | 5.6    | 6.8    | 24.8    | (7.3)   | 39.7    | 43.9    | 16.0    | 3.3     | 10.2    | 9.6     |
| Gross international reserves                | 33.0                         | 35.9   | 37.8   | 49.3   | 52.9   | 53.8   | 85.8   | 180.3   | 193.8   | 238.5   | 288.6   | 352.0   | 373.1   | 358.8   | 363.6   |
| REER index (IPCA) - Jun 1994 = 101          | 97.0                         | 120.1  | 132.7  | 137.4  | 135.0  | 110.3  | 98.5   | 91.4    | 88.9    | 88.4    | 77.1    | 75.0    | 84.1    | 89.9    | 91.2    |
|   | (in percent of GDP)          |        |        |        |        |        |        |         |         |         |         |         |         |         |         |
| <b>General Government</b>                   |                              |        |        |        |        |        |        |         |         |         |         |         |         |         |         |
| Revenue                                     | 31.1                         | 33.0   | 34.4   | 35.8   | 35.3   | 36.2   | 35.6   | 34.9    | 35.9    | 34.0    | 36.1    | 35.1    | 35.4    | 35.6    | 34.0    |
| Expenditure                                 | 34.4                         | 36.2   | 38.9   | 40.9   | 38.2   | 39.8   | 39.2   | 37.7    | 37.4    | 37.2    | 38.8    | 37.6    | 38.0    | 38.6    | 40.2    |
| Primary Expenditure                         | N.A.                         | N.A.   | 31.9   | 32.7   | 31.5   | 32.6   | 32.5   | 31.8    | 32.2    | 32.1    | 33.8    | 32.3    | 33.5    | 33.8    | 34.6    |
| Net interest payments                       | N.A.                         | N.A.   | 7.0    | 8.2    | 6.7    | 7.2    | 6.7    | 5.9     | 5.2     | 5.1     | 5.0     | 5.3     | 4.5     | 4.8     | 5.6     |
| Investments                                 | 2.3                          | 2.5    | 2.3    | 1.7    | 1.9    | 2.1    | 2.4    | 2.7     | 3.0     | 3.2     | 3.5     | 2.8     | 3.2     | 3.1     | 2.8     |
| Primary Balance                             | N.A.                         | N.A.   | 2.9    | 3.1    | 3.6    | 3.5    | 2.9    | 3.3     | 3.3     | 1.9     | 2.6     | 2.9     | 2.3     | 1.8     | (0.5)   |
| General government gross debt (IMF WEO)     | 65.4                         | 70.0   | 78.7   | 73.7   | 70.0   | 68.5   | 65.8   | 63.8    | 61.9    | 65.0    | 63.0    | 61.2    | 63.5    | 62.2    | 65.2    |
| General government gross debt (BCB) (5)     |                              | 67.3   | 76.0   | 71.4   | 68.0   | 66.9   | 55.5   | 56.8    | 56.0    | 59.3    | 51.8    | 51.3    | 54.8    | 53.3    | 58.9    |
|   | (annual real percent change) |        |        |        |        |        |        |         |         |         |         |         |         |         |         |
| <b>Prices</b>                               |                              |        |        |        |        |        |        |         |         |         |         |         |         |         |         |
| GDP Deflator                                | 5.5                          | 8.1    | 9.9    | 14.0   | 7.8    | 7.5    | 6.7    | 6.4     | 8.9     | 7.4     | 8.6     | 8.3     | 5.9     | 6.5     | 6.9     |
| Inflation, end of period consumer prices    | 6.0                          | 7.7    | 12.5   | 9.3    | 7.6    | 5.7    | 3.1    | 4.5     | 5.9     | 4.3     | 5.9     | 6.5     | 5.8     | 5.9     | 6.4     |
| Selic, average                              | 17.6                         | 17.5   | 19.1   | 23.3   | 16.2   | 19.1   | 15.3   | 12.0    | 12.4    | 10.0    | 9.8     | 11.7    | 8.5     | 8.2     | 10.9    |
| Real interest rate (ex-post)                | 11.0                         | 9.1    | 5.8    | 12.8   | 8.0    | 12.7   | 11.8   | 7.2     | 6.1     | 5.5     | 3.7     | 4.9     | 2.6     | 2.2     | 4.2     |
| Memorandum items:                           |                              |        |        |        |        |        |        |         |         |         |         |         |         |         |         |
| Nominal GDP (in R\$ billions)               | 1,202                        | 1,316  | 1,491  | 1,720  | 1,959  | 2,172  | 2,410  | 2,718   | 3,108   | 3,328   | 3,887   | 4,375   | 4,713   | 5,158   | 5,521   |
| Total external debt (% of GDP)              | 36.6                         | 37.9   | 41.8   | 38.8   | 30.3   | 19.2   | 15.9   | 14.1    | 12.0    | 12.2    | 12.0    | 12.0    | 13.9    | 13.8    | 16.0    |

(1) Gross Fixed Capital Formation

(2) Gross savings is estimated from investments plus stocks variation plus the current account deficit.

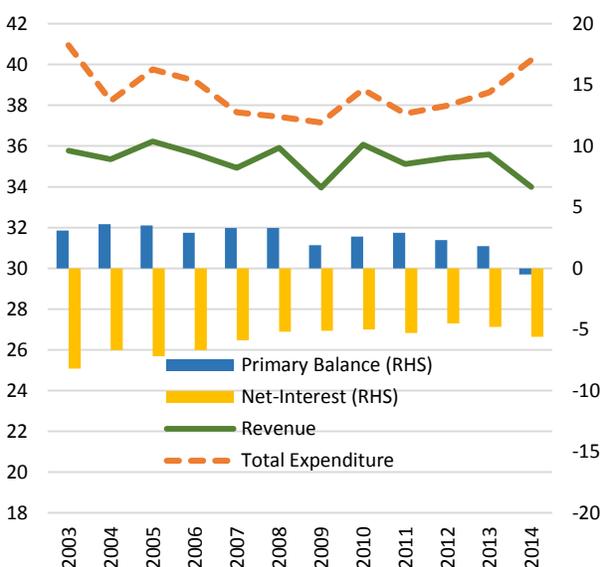
(3) The Central Bank, since April 2015, has published the data of the external sector following the sixth edition of the Balance of Payments Manual. Data for 2014 is under the new methodology.

(4) Portfolio equity does not include debt securities

(5) The Central Bank started publishing GGGD under a new methodology in 2007. Data for December 2006 already refers to the new methodology.

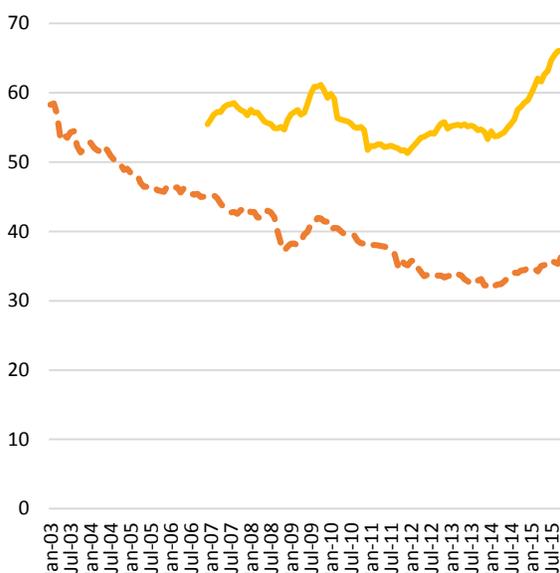
Source: Central Bank of Brazil, IBGE, National Treasury Secretariat, Federal Revenues Service, IMF. WB Staff consolidation and estimates.

**Figure 3.6: General Government Expenditure, Revenue, Primary Balance and Interest Payments**



Sources: Ministry of Finance, Central Bank, and World Bank calculation.

**Figure 3.7: Gross and Net Public Debt (January 2003–June 2015, percent of GDP)**



Sources: Ministry of Finance, Central Bank, and World Bank calculation.

161. **The Government used the substantial fiscal space that opened up during the golden decade to expand social programs.** Education, health and pension spending all increased by between 1.1 and 1.4 percent of GDP between 2002 and 2014 (Table 3.2, Figure 3.8 and Figure 3.9).<sup>51</sup> Social transfers, such as the PBF, or the introduction of semi-contributory rural pensions also expanded rapidly, although in absolute terms these were only a small fraction of social programs. Improved access to health and education and rising social transfers contributed to reducing poverty and lowering inequality in Brazil over the decade. However, the bulk of the spending increase resulted from the impact of rising minimum wages on social security commitments. Brazil's expenditure on pensions increased from 9.8 percent of GDP in 2002 to 11.2 percent in 2014, reflecting unusually generous retirement benefits particularly for civil servants.<sup>52</sup> By contrast, public investment increased only from 2.3 percent of GDP in 2000 to 3.5 percent of GDP in 2010, and then declined to 2.8 percent in 2014.

<sup>51</sup> Data for social security is not available for 2000-2001.

<sup>52</sup> Some features in the design of the pension system lead to high costs, such as allowing early retirement with full benefits, large expenditures on survival benefits, excessively high replacement ratios, and multiple receipts of benefits by the same individual (see the detailed discussion in Chapter 5). Pension benefits are especially generous for those earning high salaries, notably in the public sector. The pension system includes two major schemes: the system for public sector workers - *Regimes Próprios de Previdência Social* (RPPS) and the compulsory public scheme for private sector workers - *Regime Geral de Previdência Social* (RGPS). The RPPS accounts for 20 percent of all pension expenditure and 55 percent of the deficit in the pension system, while covering only about 10 percent of all pensioners. For the RPPS and RGPS combined, approximately 10.1 percent of total beneficiaries account for 34.8 percent of total pension expenditures, and 57 percent of the total pension deficit. In 2012, new entrants into the RPPS at the federal level started paying into a funded pillar but fiscal effects will be felt only several decades later. It should also be noted that in September 2015 the Government and Congress approved some modifications to unemployment insurance and survivors' pensions as initial steps towards sustainability.

**Table 3.2: General Government – Selected Fiscal Indicators: 2000-2014 (Percentage of GDP)**

|   | 2000        | 2001        | 2002        | 2003        | 2004        | 2005        | 2006        | 2007        | 2008        | 2009        | 2010        | 2011        | 2012        | 2013e       | 2014e       |
|---|-------------|-------------|-------------|-------------|-------------|-------------|-------------|-------------|-------------|-------------|-------------|-------------|-------------|-------------|-------------|
| <b>Revenue</b>                                | <b>31.1</b> | <b>33.0</b> | <b>34.4</b> | <b>35.8</b> | <b>35.3</b> | <b>36.2</b> | <b>35.6</b> | <b>34.9</b> | <b>35.9</b> | <b>34.0</b> | <b>36.1</b> | <b>35.1</b> | <b>35.4</b> | <b>35.6</b> | <b>34.0</b> |
| Taxes   | 15.4        | 16.2        | 16.4        | 15.9        | 15.9        | 16.4        | 16.4        | 16.7        | 17.8        | 16.7        | 16.8        | 17.2        | 17.1        | 17.3        | 17.2        |
| Contributions                                 | 11.7        | 12.9        | 13.7        | 14.0        | 15.0        | 15.1        | 14.2        | 14.3        | 13.0        | 12.7        | 12.9        | 13.1        | 13.2        | 13.4        | 12.9        |
| Others  | 4.0         | 3.9         | 4.3         | 5.9         | 4.5         | 4.7         | 5.1         | 3.9         | 5.1         | 4.5         | 6.3         | 4.8         | 5.1         | 4.9         | 3.9         |
| <b>Expenditure</b>                            | <b>34.4</b> | <b>36.2</b> | <b>38.9</b> | <b>40.9</b> | <b>38.2</b> | <b>39.8</b> | <b>39.2</b> | <b>37.7</b> | <b>37.4</b> | <b>37.2</b> | <b>38.8</b> | <b>37.6</b> | <b>38.0</b> | <b>38.6</b> | <b>40.2</b> |
| Current Expenditure                           | 30.7        | 31.8        | 34.8        | 37.6        | 34.9        | 36.4        | 35.4        | 33.6        | 32.8        | 32.6        | 34.2        | 33.7        | 33.4        | 34.0        | 35.9        |
| Payroll                                       | 12.8        | 12.8        | 13.4        | 13.3        | 12.8        | 12.4        | 12.8        | 12.7        | 12.6        | 13.4        | 12.9        | 12.5        | 12.6        | 12.3        | 12.2        |
| <i>of which pension and survival benefits</i> | 4.2         | 4.2         | 4.4         | 4.2         | 4.1         | 4.0         | 4.1         | 4.0         | 3.9         | 4.1         | 3.9         | 3.8         | 3.9         | 3.6         | 3.6         |
| Interest payments                             | N.A.        | N.A.        | 7.0         | 8.2         | 6.7         | 7.2         | 6.7         | 5.9         | 5.2         | 5.1         | 5.0         | 5.3         | 4.5         | 4.8         | 5.6         |
| Other Current Expenditure*                    | 12.5        | 13.3        | 9.1         | 10.7        | 9.9         | 11.0        | 10.0        | 9.1         | 9.3         | 8.1         | 10.4        | 10.2        | 9.7         | 10.1        | 11.1        |
| Pension Payments (Private Sector - RGPS)      | 5.4         | 5.7         | 5.2         | 5.5         | 5.6         | 5.8         | 6.0         | 5.8         | 5.7         | 6.0         | 5.8         | 5.8         | 6.6         | 6.8         | 7.1         |
| Capital Expenditure                           | 3.7         | 4.4         | 4.1         | 3.3         | 3.3         | 3.4         | 3.8         | 4.1         | 4.6         | 4.5         | 4.6         | 3.9         | 4.6         | 4.6         | 4.3         |
| Financial Transfers                           | 1.4         | 1.9         | 1.8         | 1.6         | 1.4         | 1.3         | 1.4         | 1.4         | 1.6         | 1.3         | 1.1         | 1.1         | 1.4         | 1.5         | 1.5         |
| Investment                                    | 2.3         | 2.5         | 2.3         | 1.7         | 1.9         | 2.1         | 2.4         | 2.7         | 3.0         | 3.2         | 3.5         | 2.8         | 3.2         | 3.1         | 2.8         |
| Primary Expenditure                           | N.A.        | N.A.        | 31.9        | 32.7        | 31.5        | 32.6        | 32.5        | 31.8        | 32.2        | 32.1        | 33.8        | 32.3        | 33.5        | 33.8        | 34.6        |
| Primary Balance                               | N.A.        | N.A.        | 2.9         | 3.1         | 3.6         | 3.5         | 2.9         | 3.3         | 3.3         | 1.9         | 2.6         | 2.9         | 2.3         | 1.8         | -0.5        |
| Fiscal Balance                                | -3.3        | -3.2        | -4.4        | -5.2        | -2.9        | -3.5        | -3.6        | -2.7        | -1.5        | -3.2        | -2.7        | -2.5        | -2.6        | -3.1        | -6.2        |
| <b>Expenditures by Government Functions</b>   |             |             |             |             |             |             |             |             |             |             |             |             |             |             |             |
| Public Administration                         | 0.5         | 0.6         | 2.1         | 2.0         | 2.1         | 1.9         | 2.0         | 2.2         | 2.1         | 2.2         | 2.0         | 1.8         | 1.8         | 1.9         | 1.9         |
| Education                                     | 4.7         | 4.8         | 3.8         | 4.7         | 4.1         | 4.1         | 4.2         | 4.5         | 4.7         | 5.1         | 5.0         | 5.0         | 4.9         | 5.3         | 5.1         |
| <i>of which Higher Education</i>              | N.A.        | N.A.        | N.A.        | N.A.        | 0.5         | 0.5         | 0.5         | 0.6         | 0.6         | 0.7         | 0.6         | 0.6         | 0.6         | 0.6         | 0.6         |
| Health  | 3.8         | 4.2         | 3.7         | 4.1         | 4.3         | 4.3         | 4.4         | 4.6         | 4.6         | 5.0         | 4.7         | 4.5         | 4.7         | 4.9         | 4.8         |
| Public Security                               | 1.2         | 1.3         | 1.1         | 1.3         | 1.2         | 1.2         | 1.3         | 1.3         | 1.3         | 1.4         | 1.3         | 1.2         | 1.1         | 1.1         | 1.2         |
| Social Assistance                             | N.A.        | N.A.        | 0.9         | 0.8         | 1.0         | 1.0         | 1.2         | 1.2         | 1.2         | 1.3         | 1.3         | 1.4         | 1.5         | 1.6         | 1.5         |
| Urban   | 1.0         | 0.8         | 1.3         | 1.3         | 1.3         | 1.1         | 1.4         | 1.5         | 1.7         | 1.6         | 1.6         | 1.4         | 1.5         | 1.5         | 1.4         |
| Pensions                                      | N.A.        | N.A.        | 9.8         | 9.8         | 10.0        | 10.2        | 10.4        | 10.2        | 10.2        | 10.9        | 10.4        | 10.2        | 10.7        | 10.7        | 11.2        |
| Labor (include unemployment benefits)         | 0.6         | 0.6         | 1.4         | 0.6         | 0.6         | 0.6         | 0.7         | 0.8         | 0.8         | 0.9         | 0.9         | 0.9         | 0.9         | 1.3         | 1.3         |
| Transport                                     | 1.2         | 1.2         | 1.9         | 0.8         | 0.9         | 1.1         | 1.0         | 1.2         | 1.3         | 1.5         | 1.5         | 1.2         | 1.1         | 1.2         | 1.1         |
| Defense                                       | 0.9         | 0.9         | 1.2         | 0.7         | 0.7         | 0.8         | 0.7         | 0.7         | 0.7         | 0.8         | 0.8         | 0.7         | 0.8         | 0.7         | 0.7         |
| Others  | 20.6        | 21.9        | 11.8        | 14.8        | 12.1        | 13.5        | 11.9        | 9.4         | 8.9         | 6.5         | 9.4         | 9.3         | 8.8         | 8.4         | 10.0        |
| <b>Memo:</b>                                  |             |             |             |             |             |             |             |             |             |             |             |             |             |             |             |
| GDP (Billion of R\$)                          | 1,202.4     | 1,316.3     | 1,491.2     | 1,720.1     | 1,958.7     | 2,171.7     | 2,409.8     | 2,718.0     | 3,107.5     | 3,328.2     | 3,886.8     | 4,374.8     | 4,713.1     | 5,157.6     | 5,521.3     |
| Indirect Taxes (% of tax burden)              | N.A.        | N.A.        | N.A.        | 78.1        | 79.5        | 78.3        | 78.2        | 77.3        | 76.2        | 76.6        | 78.1        | 77.3        | 78.2        | 78.0        |             |
| Gross Debt (% of GDP) (IMF WEO)               | 65.4        | 70.0        | 78.7        | 73.7        | 70.0        | 68.5        | 65.8        | 63.8        | 61.9        | 65.0        | 63.0        | 61.2        | 63.5        | 62.2        | 65.2        |
| Gross Debt (% of GDP) (BCB)                   |             | 67.3        | 76.0        | 71.4        | 68.0        | 66.9        | 55.5        | 56.8        | 56.0        | 59.3        | 51.8        | 51.3        | 54.8        | 53.3        | 58.9        |

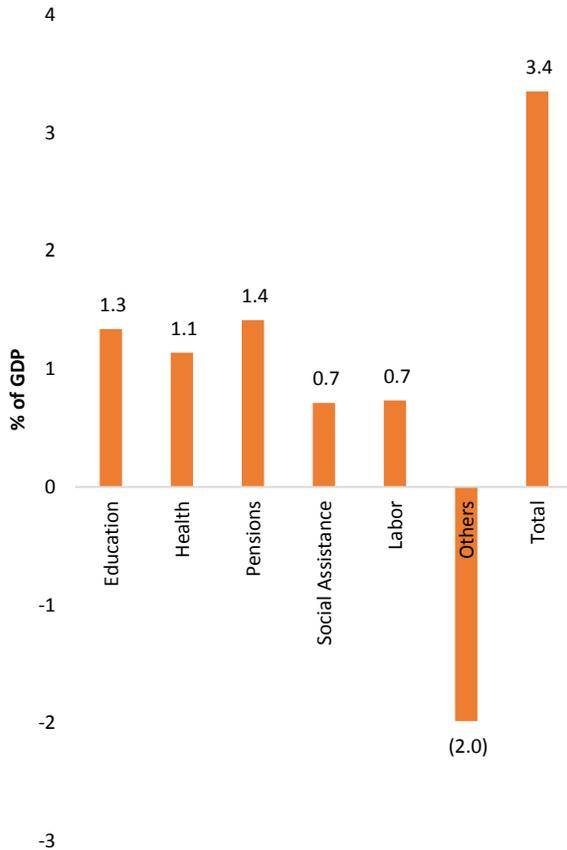
Sources: National Treasury Secretariat, Federal Revenues Service, IMF, WB Staff consolidation and estimates.

\* other current expenditure is net of inter-governmental transfers (from federal and state to lower levels)

Footnotes:

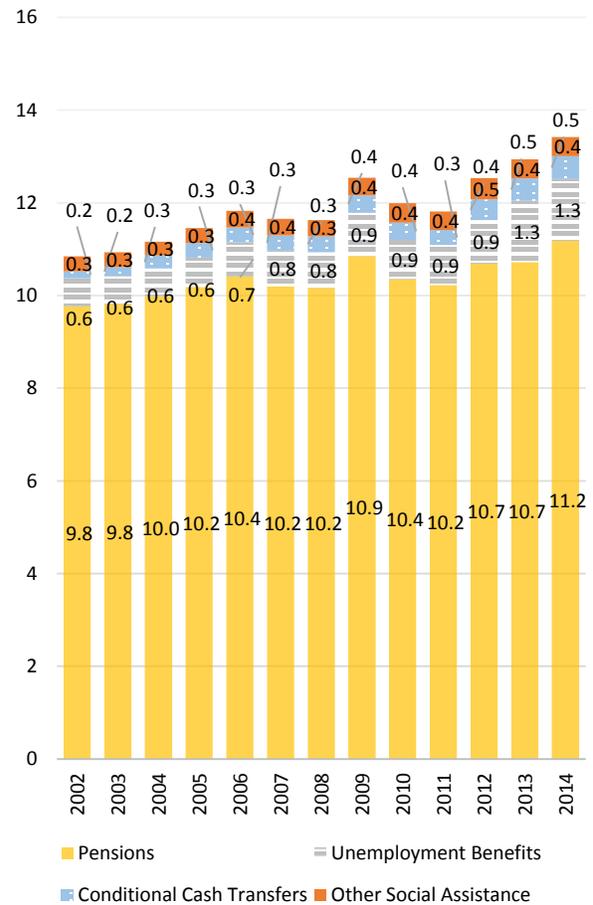
- 1) Education expenditures include expenditures on government function "culture" from 2000 to 2003.
- 2) Health expenditures include expenditures on government function "sewage" from 2000 to 2001
- 3) Public Safety includes some expenditures on national defense from 2000 to 2001
- 4) Indirect taxes encompass the taxes on payroll, goods and services, financial transactions and others
- 5) Municipal data was estimated for 2013 and 2014 and state data was estimated for 2014
- 6) Primary balance data differs from the Central Bank ones which is calculated from changes in debt stocks.
- 7) Social Assistance includes (Bolsa Familia, school feeding and other food programs and Social Safety Nets; see Chap 5 for more details).
- 8) Urban includes sanitation and housing
- 9) Pensions include RGPS (old age, and rural pensions) and Federal, State and Municipal RPPS (see chap 5 for more details).

**Figure 3.8: Main Areas of Growth in Public Expenditure, 2002-2014**



Sources: National Treasury Secretariat, Federal Revenues Service, IMF. WB estimates.

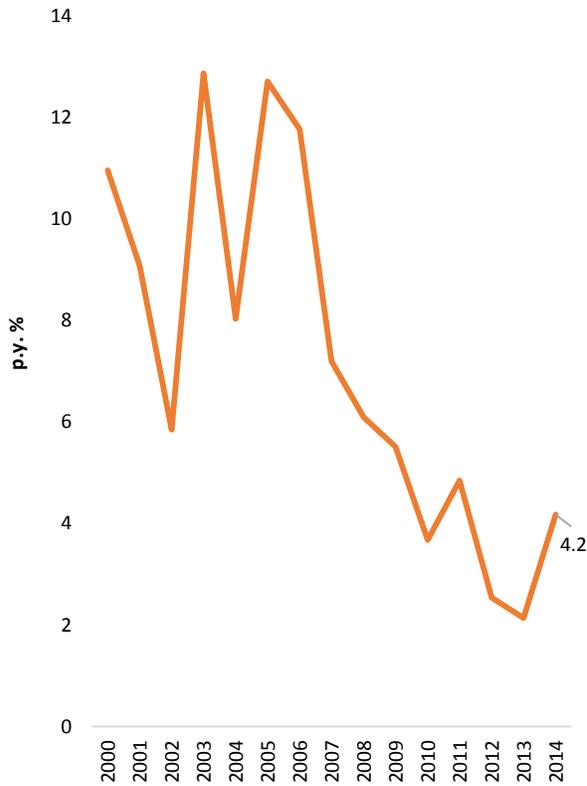
**Figure 3.9: Composition of Social Transfers 2002-2013 (as a percent of GDP)**



Source: National Treasury Secretariat, World Bank

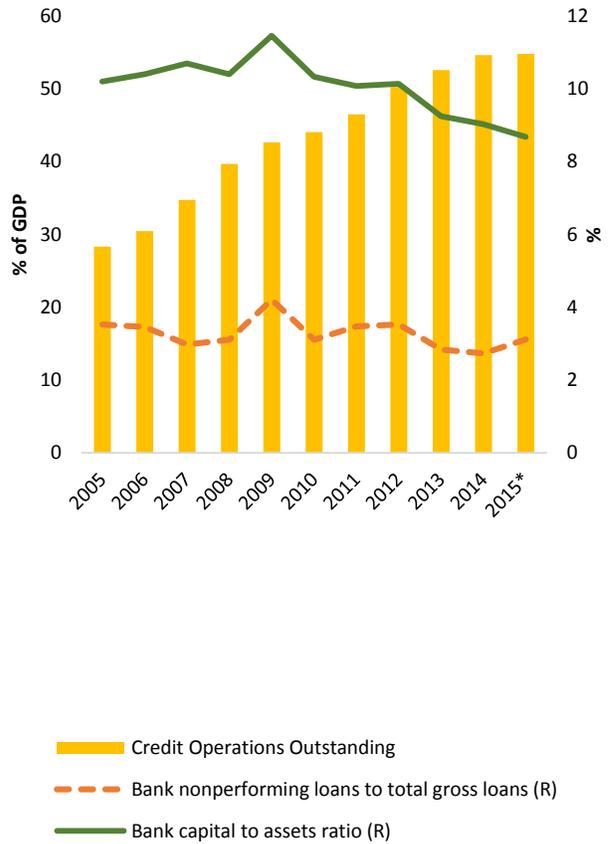
162. **With inflation firmly on a downward trend, monetary policy was loosened, real interest rates declined sharply, and lending by government owned banks was ramped up.** Ex post real interest rates decreased from a peak of almost 13 percent in 2005 to 5.5 percent by 2009 and further to 2.2 percent in 2013 (Table 3.1 and Figure 3.10). This and the rapid expansion of credit by public banks led to increased financial intermediation, with credit to GDP increasing from 22 percent in 2002 to 40 percent in 2008 and to about 55 percent in 2014. Bank profitability remained high and the average capital asset ratio of the banking sector has stayed at 9 percent (comfortably above the OECD average and Basel norms) while reported non-performing loans were kept below 4 percent of gross loans (Figure 3.11). However, the deteriorating economic situation and the impact of the ongoing scandals on the corporate sector may adversely affect asset quality going forward.

**Figure 3.10: Real Interest Rate (ex-post)**



Source: IBGE, Central Bank of Brazil, World bank estimates

**Figure 3.11: Credit Expansion and Financial Sustainability Indicators**



Source: Central Bank of Brazil, World Bank  
\* refers to May 2015

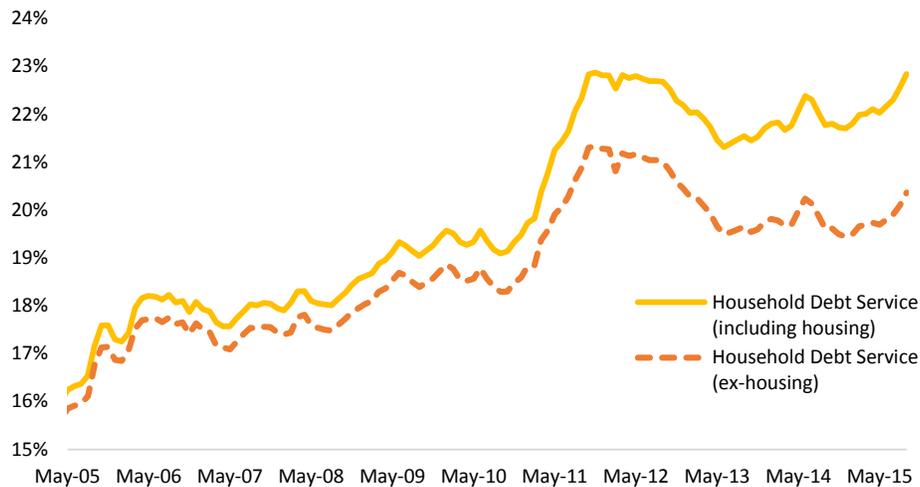
163. **Brazilian households benefited from the expansion in credit.** The growth of formal employment and real wages improved household creditworthiness, while lower real interest rates made borrowing more attractive. The expansion of social security particularly for low-income groups also reduced the need for precautionary savings, encouraging household indebtedness. There are some indications that the rapid credit growth in recent years, particularly in the household sector, may have created some vulnerability (Box 3.1). Consumer indebtedness (as a percentage of disposable income) amounted to 46 percent of income as of end-2014, which is in line with regional and international comparators. However, the consumer debt service ratio at around 22 percent of disposable income is significantly larger than in other countries in the region, reflecting higher interest rates and shorter loan tenors.<sup>53</sup>

<sup>53</sup> The interest rates levied on unsubsidized consumer loans in Brazil currently average around 50 percent, ranging from 30 percent for loans on durables to 175 percent for overdrafts; rates on housing credit—the bulk of which is subsidized—on the other hand, range between 4 and 12 percent). Mortgages are a small share of the consumer portfolio (about 20 percent), compared to more than 60 percent in regional peers.

### Box 3.1: High Interest Rates and Household Debt in Brazil

**High interest rates have direct implications for poverty and household vulnerability.** Household debt service ratios in Brazil are very high. High lending rates are reflected in debt service costs, as shown in the figure below. Before 2010, household debt service obligations had remained in the neighborhood of 18 percent of overall income (or income from wages and benefits before taxes). Policies to improve household access to credit were significantly expanded in 2010, leading to an increase in overall debt and debt service obligations. These policies continued over the following two years, generating an overall increase in debt service to just over 23 percent of income in mid-2012. After reaching a peak in mid-2012, household deleveraging began in earnest, and debt service obligations fell to around 22 percent of total income in 2013 and debt-service-to-income ratios have since been stable at this level. However, this is still quite high, even by historical standards.

**Household Debt Service as a Share of Household Income (Wages and Benefits before Taxes)**



Source: Central Bank of Brazil.

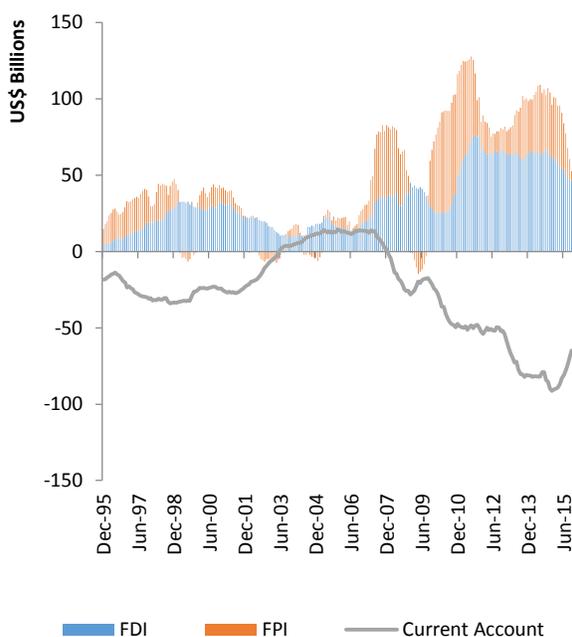
**Importantly, the rise in debt service obligations reflects increased borrowing for housing (mortgage borrowing).** In the past few years, the authorities have made use of macroprudential instruments, such as hiking the capital requirements on consumer loans and the minimum payments on credit card loans, which were successful in reducing the speed of household credit growth and in fostering a more prudential handling of credit card debts by Brazilian households. Credit facilitation for the acquisition of homes, either through social housing programs such as *‘Minha Casa, Minha Vida’* or other private home purchase schemes, explain a significant part of the rise in household indebtedness, as well as the rise in debt service obligations. The increase in total household debt-to-income and debt-service-to-income ratios is largely due to higher levels of borrowing for the acquisition of homes. Although households have seen a substantial rise in liabilities, this was largely the result of purchasing a long-term asset, with important implications for the robustness of household balance sheets. Household debt rose as a result of greater homeownership rather than the use of credit for consumption. Thus, the current cycle of indebtedness implies lower risk for the financial system than in the past as banks and other financial institutions have real estate collateral to back their loans.

**Over the last several years, average debt maturity has increased considerably, an additional factor that may contribute to the overall sustainability of household indebtedness.** Average debt maturity currently stands at about five years, from only ten months in 2005. This allows the deleveraging process to be much smoother and less crisis-prone than in the past, when household cash flow difficulties associated with a rise in unemployment or a drop in real wages led to disruptive bust cycles.

**Nevertheless, there are indicators of financial distress in at least some segments of the household sector.** Data on delinquency rates suggest that at least some households may be above their debt-carrying capacity. The current adverse economic outlook and the resulting rapid increase in unemployment, could tip a significant number of households into bankruptcy.

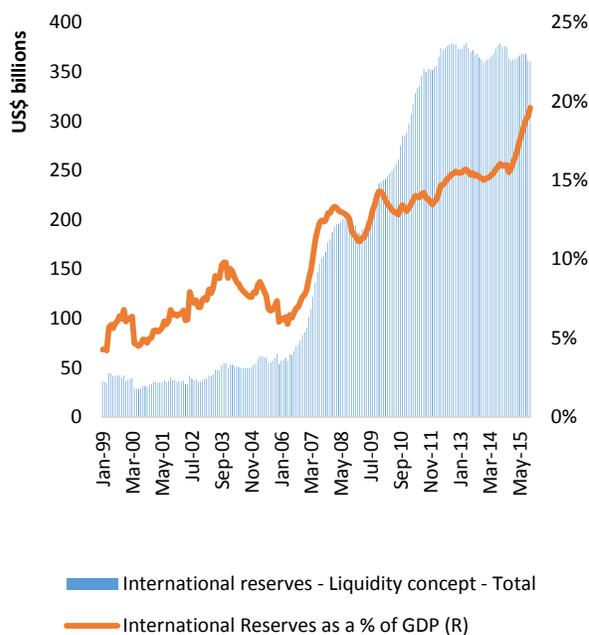
164. **Improved external terms of trade and increased capital inflows relaxed the external financing constraint and allowed a large accumulation of Central Bank reserves.** As a result of strong export earnings, the current account deficit averaged only 0.7 percent throughout the decade, despite the increase in domestic demand, and was comfortably financed by foreign direct investment (FDI) and portfolio flows (Table 3.1 and Figure 3.12). The abundance of resources coming into the country not only led to a systematic strengthening of the currency (Figure 3.2) but also to a substantial increase in the country’s international reserves. By 2010, reserves had risen from about US\$50 billion in the decade up to 2006 to some US\$288 billion (13 percent of GDP), and would continue on an upward trajectory thereafter (Table 3.1 and Figure 3.13). The relaxation of the traditional foreign financing constraint, and the increase in savings from the improvement in the terms of trade, did allow investment rates to increase somewhat—from 16.7 percent of GDP in 2003 to around 20 percent in recent years. However, investment has continued to fall well short of what would be required to sustain rapid convergence to high income levels. The reasons for this are discussed further below.

**Figure 3.12: Balance of Payments Financing**



Source: Central Bank of Brazil

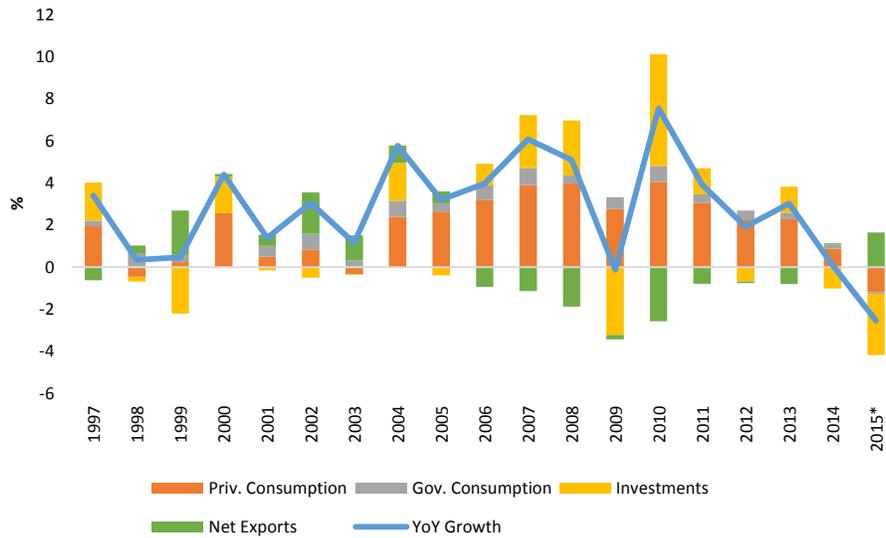
**Figure 3.13: Accumulation of Reserves (percent GDP, on right-hand side)**



Source: Central Bank of Brazil

165. **Strong terms of trade, rising fiscal transfers, abundant credit, and the accumulation of capital and foreign exchange buffers thus combined to allow consumption based growth, while maintaining macroeconomic stability.** In the ‘good years’ from 2004 to 2010, when GDP growth averaged 4.5 percent, private consumption growth accounted for almost three-quarters of growth (3.2 percentage points) while investment contributed about a third (1.5 percentage points) and net exports had a negative contribution (-0.9 percentage points) (Figure 3.14). Government consumption had a minor contribution to growth in the period (0.6 percentage points) as growth in public expenditures was oriented toward government transfers (pensions, social programs) rather than direct government consumption.

**Figure 3.14: Contributions to GDP growth, 2001-2014**



Sources: IBGE and World Bank calculation. \* Four quarters to third quarter 2015

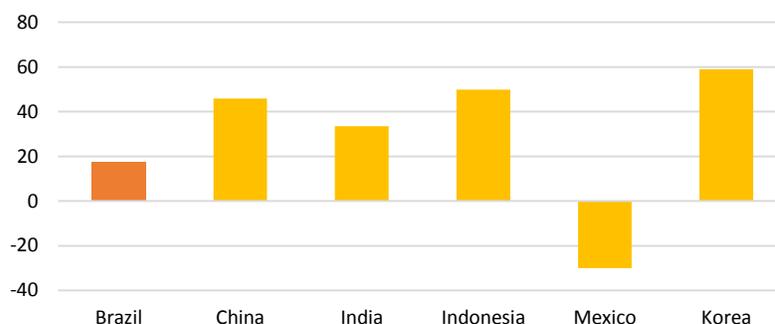
### 3.2.3 The limits to Brazil’s growth model even during the Golden Decade

166. **As Brazil’s economy slowed, questions began to be raised about the sustainability of the country’s growth model despite the good years.** This is of course easy to do in hindsight, but even at the time, a few warning signs were apparent. Three main concerns can be highlighted. First, the rapid rise in government current spending, partly a result of fiscal rigidities discussed in Chapter 2 and further below, required a buoyant tax base to be sustainable. With indirect taxes representing a large share of the tax base, revenues were bound to be highly cyclical and fiscal performance thus vulnerable to any slowdown in growth or a fall in the terms of trade. Moreover, the heavy tax burden on the private sector may have contributed to Brazil’s low investment rate. Second, despite healthy credit growth and declining real interest rates, credit markets in Brazil remained highly segmented. Distortions in credit allocation may have kept the cost of financing higher than necessary for firms not provided with below-market rate credit, thus weakening competition. This concern was to be exacerbated by the government’s anti-crisis response with a heavy dose of directed lending through the state banks. Third, the rapid rise in real wages and the appreciation of the real exchange rate, which were instrumental in facilitating the consumption boom, eroded Brazil’s competitiveness over time.

167. **Low productivity growth was one important symptom of Brazil’s faltering growth.** Between 2003 and 2010, when growth averaged 4 percent, almost half of this rise was accounted for by increases in the labor force and in labor force participation. Improvements in education accounted for a further 0.7 percentage points, and capital deepening accounted for around 0.9 percentage points, with less than 0.5 percentage points coming from improvements in TFP. When looking at the longer period 2002—2014, the contribution of TFP was even smaller, with 0.3 percentage points (Bolle and Simões, forthcoming). In fact, TFP growth in Brazil over the period

lagged significantly behind that of most other emerging markets (Figure 3.15; Jorgensen 2011).<sup>54</sup> The reasons for low productivity growth in Brazil are analyzed in more detail in Chapter 4.

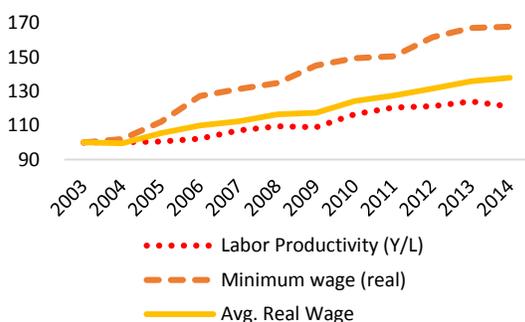
**Figure 3.15: Contribution of TFP to GDP growth in selected countries 2000-2008 (percent)**



Source: Jorgensen, 2011

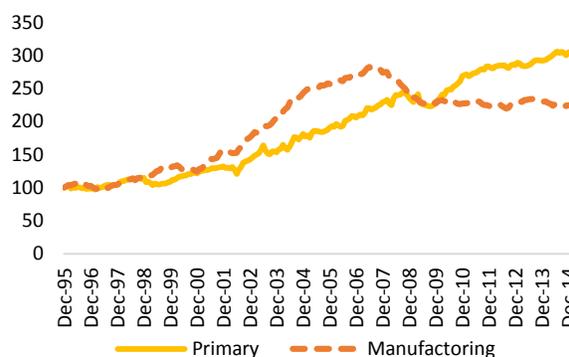
168. **Low productivity growth entailed a rapid rise in unit labor costs and an erosion of Brazil’s export competitiveness.** Since 2003, average wage growth has outpaced labor productivity growth (Figure 3.16). The wage-productivity gap was partly the result of overall wage increases driven by minimum-wage indexation. Because the minimum wage is indexed to the product of real GDP growth two years before and the previous year’s inflation, to the extent that there is labor force growth, the minimum wage will tend to outpace productivity.<sup>55</sup> Wage growth above productivity growth may have contributed to erode the competitiveness of the tradable sector (Figure 3.17). While manufacturing exports increased rapidly until 2008, they fell during the crisis and have since failed to recover.

**Figure 3.16: Productivity and Wages, 2013-2014 (Index, 2003=100)**



Source: DIEESE, IBGE, World Bank Calculations

**Figure 3.17: Primary and Manufactured exports January 2006 to July 2014 (Volumes; 1995=100)**



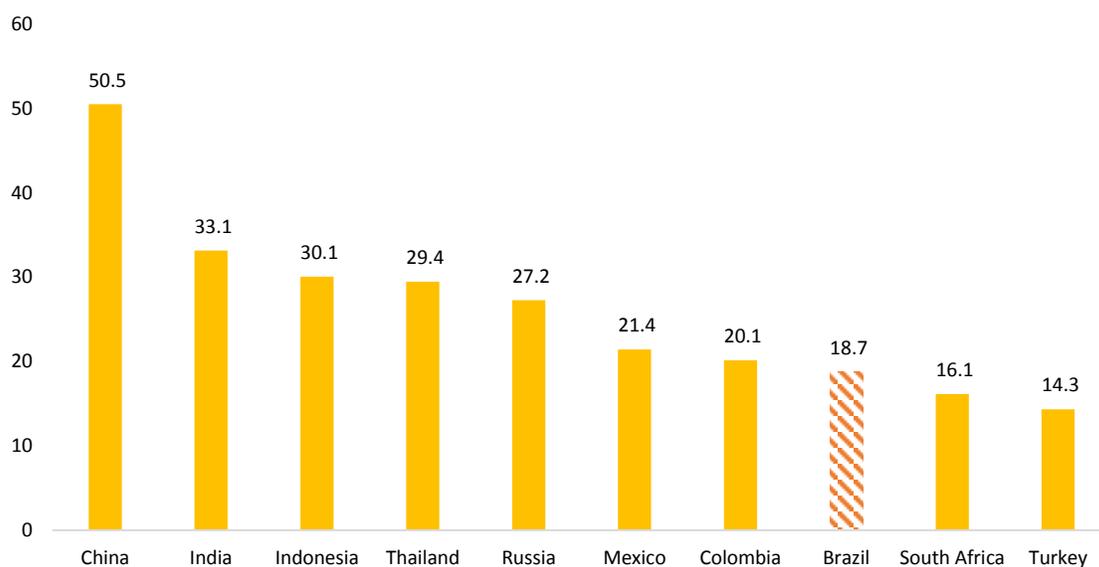
Source: Central Bank of Brazil

<sup>54</sup> According to the World Bank (2014), “Selected issues in understanding and improving productivity in Brazil”, past estimates may have underestimated TFP growth in Brazil due to miss-measurement of price effects on the capital stock. However, even with the higher estimates, TFP growth in Brazil clearly lagged behind that of other emerging markets.

<sup>55</sup> It is also the case that growth due to capital accumulation will result in minimum wages increasing faster than productivity. Whether this is sustainable depends on the extent to which the minimum wage is above the marginal product of unskilled labor or is simply offsetting the bargaining power of employers compared to unskilled workers (IMF 2015). In the former case it may lead to reductions in employment but in the latter be a mechanism for reducing inequality.

169. **Another symptom of potential trouble was the low savings rate.** Although Brazil's domestic savings rose modestly during the boom, they remained low even compared with other countries in Latin America, which themselves have relatively low levels of savings (Figure 3.18). Total savings increased from 16.0 percent of GDP in 2002 to 20.1 in 2008 but subsequently decreased to just 15.9 percent of GDP<sup>56</sup> by 2014. The reasons for such fluctuations, notably the decline in savings by 4.2 percent of GDP between 2008 and 2014, remain to be better understood, but they correlate closely with the pattern of commodity prices on the one hand and the stance of fiscal policy on the other.<sup>57</sup> With savings in the range of 15 percent of GDP, Brazil remained highly vulnerable to a shift in its terms of trade and in global investor sentiment.

**Figure 3.18: Savings International Comparisons, 2005—2014**  
percent of GDP



Source: IMF WEO

170. **The ultimate causes of the growth slowdown were thus present long before the crisis of 2014—15.** 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 all building up problems for the future. Brazil's resilience when faced with the global financial crisis in 2008 initially suggested otherwise, but government policies adopted in response to the crisis in many ways accentuated underlying vulnerabilities, which became binding once the commodity cycle turned after 2011.

<sup>56</sup> Savings are calculated from IBGE data on Gross Fixed Capital Formation plus Stock Variation plus the deficit on current account, in order to have a consistent data series. Savings data estimated directly by the IBGE consists of three series (2000—2009, 2010—2013 and 2014). The IBGE series are not mutually compatible and therefore not comparable over time.

<sup>57</sup> During the boom years, corporate profits of commodity producers and providers of non-tradable services were high, boosting corporate savings. Public savings also improved due to strong fiscal performance. As the cycle shifted, countercyclical fiscal expansion reduced public savings and corporate profits suffered. There is little empirical evidence on the relative importance of these factors, but structurally low savings may be a constraint on investment and thus growth going forward.

### ***3.3 Responding to the Global Financial Crisis - Initial Success but at the Cost of Rising Imbalances***

171. **The significant buffers built during Brazil's boom years allowed the country to weather the financial crisis well.** Public debt had been reduced to about 62 percent of GDP in 2008 from 70 percent earlier in the decade. International reserves had risen, and the banking system was well capitalized. Liquidity buffers, built through high reserve requirements, served as an important backstop to the crisis while allowing the authorities to pursue countercyclical policies. Responses to the financial shock included fiscal and monetary stimulus, an acceleration of the public investment program, tax exemptions and subsidies to boost growth, and a huge increase in lending by public banks. The policy response initially worked well as the economy posted an exceptional growth rebound in 2010—an expansion of 7.6 percent.

172. **Starting in 2011, however, as the commodity super-cycle subsided, Brazil experienced a persistent and significant slowdown that clearly revealed the existence of structural problems.** While Brazil still posted reasonable growth of 3.9 percent in 2011, growth dropped to an average of 2.3 percent in 2012—2013, and to only 0.1 percent in 2014, and Brazil went into a deep recession in 2015.

173. **In response to the crisis, the government adopted a new development policy framework to promote growth to preserve the social gains achieved in previous years.** Although never formally articulated, the so-called 'New Economic Matrix' envisaged continued fiscal expansion while maintaining interest rates as low as possible in order to spur credit and household consumption. Part of the expansion would be achieved by a number of tax exemptions and other tax incentives meant to lower prices and boost private consumption. Tax breaks were also to be an instrument for boosting private investment through a reduction in the tax burden, especially for the manufacturing sectors.<sup>58</sup> Targeted public credit would also contribute to increase investment and foster the development of 'national champions' in high-potential industries. By boosting consumption and unlocking investment, it was assumed that targeted credit, tax exemptions and other incentives would set the economy on a virtuous path of increasing productive capacity and reducing inflationary pressures. In line with this strategy, federal tax expenditures increased by 1 percent of GDP from 2010 to 2014 (to reach 4.6 percent of GDP), while the volume of lending from the National Development Bank (*Banco Nacional de Desenvolvimento Econômico e Social* – BNDES) more than doubled in 2010 and 2011 to reach over 20 percent of GDP. The vast majority of this was financed by direct transfers from the Treasury to BNDES, equivalent to R\$400 billion (approximately US\$200 billion or almost 10 percent of GDP) over the period 2010—2014.

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<sup>58</sup> The largest tax expenditures relate to the SMEs simplified tax regime (SIMPLES) and to the Manaus Free Trade Zone. Tax expenditures are included as an annex to the budget framework law, but neither their size nor their precise allocation is voted by Congress. Furthermore, many tax expenditures are given without a time limit and some of them are even granted in the Constitution. As with any public expenditure, tax expenditures have created interest groups that lobby for continuation. Although evaluations of tax expenditures are mandated by legislation, no evaluations have actually been carried out, nor have there been assessments of incidence or equity despite the fact that some tax expenditures are clearly regressive, such as income tax deductions for expenditures on private health care and education. An audit report by the TCU recommended the institution of sunset clauses and periodic evaluations in all new tax expenditure measures and the creation of mechanisms to monitor and evaluate existing tax expenditures (Acórdão No. 1205/2014 - TCU - Plenário).

### **Box 3.2: Credit Market Segmentation, the Role of State Banks and High Real Interest Rates**

**Brazil's credit market is characterized by a relatively high degree of segmentation.** The market-share of government-owned banks increased sharply during 2010—2015 from 30 to about 55 percent, while the portfolio of private banks is focused on short-term liquid government securities holdings and other high-yield, low-duration assets. At the same time, earmarked loans—which are either directly granted by government-owned banks or channeled through the large private banks—increased from 30 to 48 percent during 2008—2015.

A subset of firms and households receive earmarked loans at below-market rates through various programs (for investment, exports, agriculture, mortgages and consumer goods). Most of directed agricultural and mortgage credits are granted by the two government-owned banks (Banco do Brasil and Caixa Econômica Federal) but the two largest private banks also grant such credits. Loans for investment and exports are either granted directly by BNDES or indirectly by BNDES on-lending to private banks. Interest rates charged on these earmarked credits are regulated and most of them are substantially lower than market rates.

An important part of banks' liabilities is regulated as well—various regulated deposit and compulsory savings schemes at low interest rates (some subject to tax exemptions) are the main source of financing for earmarked credits. For example, 65 percent of all deposits (in weighted average terms) have to be lent to agriculture or for house purchases. This allows public banks to operate with low loan spreads. At the same time, the rates charged on discretionary (free) credits are much higher, reflecting the limited supply of funds given the earmarking of deposits.

The increase in government-driven credits has important implications for the allocation and pricing of credit across sectors and firms, on monetary policy and fiscal costs. The interest rates on most earmarked credits are pre-determined, narrowing the monetary policy transmission mechanism, as monetary policy effectively applies to only half of total credits. The public banks' role as chief providers of long-term financing is one of the principal policy responses to the short-term nature of the Brazilian credit market. When such funding is provided at below market rates, there are fiscal costs to the expansion of directed credits through the public banks. The direct fiscal cost to the Treasury is the spread between the short-term Selic rate and the TJLP—the long term interest rate set on a quarterly basis by the National Monetary Council (CMN), often below inflation and well below the SELIC rate. A comprehensive cost benefit analysis requires an assessment of the impact of the directed credits on tax gains and on economic outcomes (such as productivity, investment, employment and growth). For 2009—2010, Pereira, Simões and Carvalho (2011) show that there is a net tax gain resulting from the Treasury loans for BNDES operations. Whether this result holds for periods of low economic growth is not clear.

**Larger, older and less risky firms benefited most from the expansion of earmarked loans after 2008.** These are likely to be firms that have access to alternative sources of private funding. In a paper published by the Central Bank of Brazil, Bonomo et al. (2014) show that for the subset of firms that are publicly listed, higher access to earmarked credit leads to higher leverage, lower costs of financial expenditure and higher profits yet the effect on investment is insignificant. The study shows that these firms substituted more expensive credit with subsidized loans and further expanded indebtedness—and questions whether this leveraged expansion was partly motivated by arbitrage into low risk financial instruments. In another paper published by the Central Bank of Brazil, de Oliveira (2014) shows that non-financially restricted firms in Brazil, which are more likely to obtain loans from public sector banks, respond to an unanticipated decline in cash flows in a different manner from small firms. The larger firms are able to maintain their levels of production and employment in the face of higher interest costs and declining revenues through other sources of short-term and long-term financing. However, small firms, which have more limited access to the financial markets, tend to lose inventories and revenues and to cut work hours and production.

**Brazil's largest public bank, BNDES, has been increasing its efforts towards financial inclusion and can further promote lending to SMEs.** For example, Cartão BNDES provided access to 485,000 new clients between 2009 and 2014. However, lending to SMEs accounts for about 30 percent of BNDES disbursements, compared to 40 percent for the ten largest and best-rated corporates (directly and through BNDES onlending to other banks), the group least likely to be liquidity constrained. It is important to promote lending to SMEs further to achieve social goals such as employment creation and income generation (see Chapter 4).

**In April 2015, the Brazilian government decided to adjust the focus of BNDES towards supporting capital market development.** Following consultation with private sector financial institutions, BNDES and Anbima (the capital markets association) announced that future lending by public banks to large companies will only be possible if the loan beneficiary issues corporate bonds simultaneously. This is a way to both reduce large companies' absorption of BNDES lending—thereby leaving more room for SMEs to tap into these lines—as well as to create favorable conditions for the emergence of a longer-term corporate bond market. BNDES can support market-based financing by crowding-in private sector intermediation—by co-financing projects and placing securitized proceeds with institutional investors.

174. **The Central Bank also attempted to reset interest rates at a much lower level in 2011.** At the time, it was believed that low external demand and extraordinarily low global interest rates, coupled with slowing domestic activity would allow the Central Bank to set interest rates at a much lower level without sparking undue inflationary pressures—this was the essence of the so-called ‘multiple-equilibria hypothesis’ (see Arida, Bacha, and Lara-Resende, 2005). Implicit in this judgment was the conviction that high interest rates had become entrenched in financial markets, and that it was the government’s role to show markets and other economic agents that the economy could still function under lower rates without igniting undue inflationary pressures. In August 2011, the Central Bank started lowering the SELIC policy rate to reach 7.5 percent in 2012 although inflation was close to the target ceiling of 6.5 percent. The announcement that the Federal Reserve of the United States would begin unwinding its extraordinary monetary stimulus in May 2013, however, led to a general shift in sentiment against emerging markets, and confidence in the Central Bank’s low-interest policy quickly eroded as the currency came under pressure. Combined with expansionary fiscal and quasi-fiscal policies, the decline in the Real fueled inflationary pressures pushing inflation well above the target ceiling. As a result, the Central Bank was forced to tighten policy and the SELIC reached 14.25 percent by mid-2015.

175. **An acceleration in the provision of credit by public banks at below market interest rates was a key element of the government’s efforts to stem the impact of the global financial crisis.** While public banks and directed credits played an important role in Brazil’s economic development for several decades, this increased notably in response to the global recession of 2008. Brazil’s three large public financial institutions—Banco do Brasil, Caixa Econômica Federal, and BNDES—were deployed to extend credit and avoid the crippling crunch seen in other parts of the world. Indeed, the market share of government-owned banks increased sharply during 2010–2015 from 30 to about 55 percent. Similarly, directed credits, either granted by state-owned banks or channeled through the large private banks, increased from 35 to 55 percent during 2008–2015. A significant part of this increase was due to new mortgage credits.

176. **The expansion of directed credit may have played an important counter-cyclical role in the immediate aftermath of the global recession but did little to resolve the challenge of a segmented financial system.** One of the historic problems of the public banks has been the existence of a vicious circle: high real interest rates created the need for subsidized financing, which in turn resulted in credit market segmentation (Box 3.2). Market segmentation and subsidized lending in turn diminished the effects of monetary policy transmission, thereby forcing the Central Bank to raise nominal rates further than it would otherwise have needed to do to fulfill its mandate of price stability. While access to financing improved for specific sectors and firms covered by public programs, it has remained almost prohibitively expensive and largely short term for everyone else. The efficiency and net fiscal costs of the resulting credit allocation mechanism has therefore been a matter of considerable debate.

177. **Moreover, it soon became evident that stimulating growth by boosting domestic demand through expansionary policies was ineffective, given the already tight labor market and underlying constraints to investment and improvements in productivity.** Symptomatic of this was the rise in inflation starting in 2011, which prompted inflation expectations to increase above the central target. The massive injection of liquidity by global reserve banks initially added fuel to the domestic economy, exacerbating the rising imbalances that were reflected in a sharp increase in the current account deficit. However, although it became increasingly clear that the government’s countercyclical policies had run their course, the authorities persisted with

interventionist policies, thereby gradually eroding the primary fiscal surplus and market confidence.

178. **As inflationary pressures increased, the government resorted to price controls.** While the government recognized the need to formulate a long-term structural agenda, including concessions for infrastructure investment, it continued to grapple with the impact of high inflation. Following the widespread demonstrations of mid-2013, the authorities decided to tackle inflation by direct controls over regulated prices comprising 25 percent of the country's CPI. These prices included electricity tariffs, transport tariffs (regional and municipal bus fares), and fuel prices. Price controls entailed significant fiscal costs<sup>59</sup> and adversely affected key sectors of the economy, notably the electricity sector. Further, they undermined policy credibility as they eventually required steep adjustment in regulated prices in 2014–2015, which has contributed to lift inflation well above the target band in 2015.

179. **Unemployment continued falling to historic lows even as the slowdown progressed.** While annual net formal sector job creation slowed from an average of 1.8 million a year from 2003 to 2008 to about 0.5 million by 2014 there was a parallel decline in the growth of the labor force, which kept unemployment low. Real wages continued to grow even though the increase moderated to 2.6 percent in 2014 due to slower growth and rising inflation. The slowdown of labor supply growth can be explained in part by demographics but mostly by a sudden reduction in labor force participation, which may reflect policies aimed at furthering education and training. Expansionary policies therefore contributed to sustained wage growth, which put upward pressure on inflation and interest rates.

180. **Fiscal discipline was gradually lost as the government increasingly resorted to tax breaks and other tax incentives aimed at boosting activity.** The deterioration of the fiscal position accelerated between 2013 and 2014, as expenditures increased substantially and total revenues declined as a share of GDP. Tax exemptions and subsidized lending by public banks imposed significant pressure on public finances. The greatest decline in revenues was the result of the temporary and permanent tax breaks instituted and expanded from 2012. This was accompanied by a series of measures that further undermined fiscal soundness, such as rolling over of payment arrears and the use of state-owned companies' dividends to boost fiscal targets. On the expenditure side, the largest increases came from pension expenditures, which increased from 10.4 percent of GDP in 2010 to 11.2 percent in 2014, mainly because of a rapid increase in the value of the benefits.<sup>60</sup>

181. **The deterioration in fiscal accounts made the financing of public investment even more difficult.** The federal government's primary balance deteriorated by 2.3 percent of GDP between 2013 and 2014,<sup>61</sup> recording its first primary deficit since 1997. The reduction in the primary surplus forced further reduction in public investment. Moreover, the deterioration in the

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<sup>59</sup> As a result of these policies, Brazil's recurrent primary deficit reached 1.6 percent of GDP in 2014 (excluding extraordinary revenues such as dividends from state-owned enterprises and revenues from pre-salt projects).

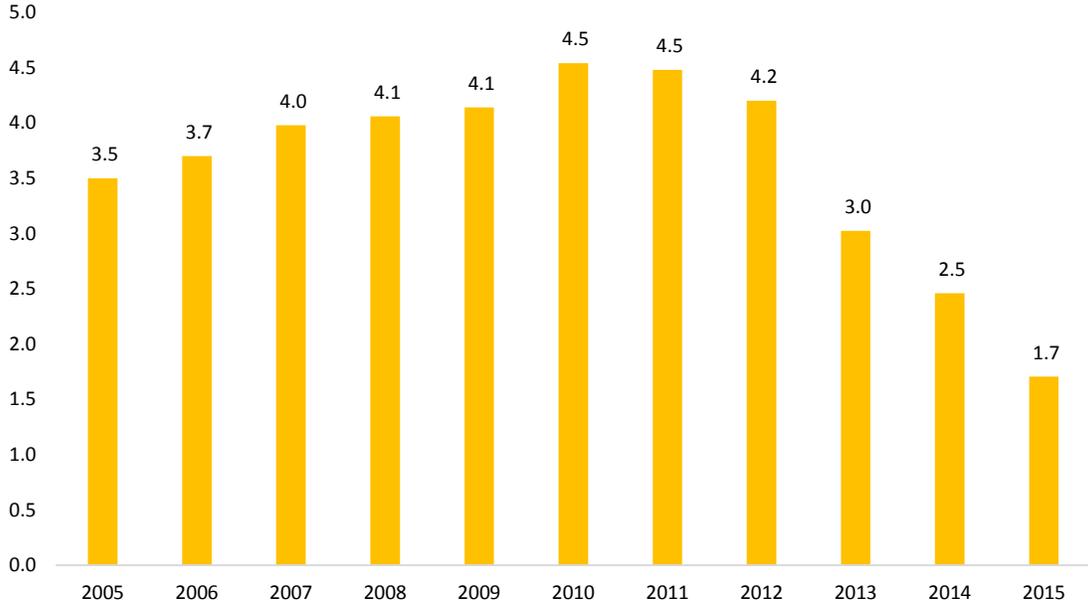
<sup>60</sup> In fact, the number of beneficiaries has grown steadily by around 3.5 percent per year over the past 15 years, while the benefits have risen especially rapidly in recent years as a result of the lagged minimum-wage indexation to GDP.

<sup>61</sup> According to the Fiscal Responsibility Law, the annual Budget Guideline Law should fix a target for the primary surplus for the upcoming year and a reference for the next two years. Hence, the target is voted annually. In addition, the government can return to Congress to propose changes in the target during the course of the year, as it did in summer 2014.

fiscal deficit, combined with continued quasi-fiscal lending to public banks, forced the federal government to increase its borrowing, thereby resulting in a sharp increase in the gross public debt. As the fiscal accounts weakened and the broad economic outlook deteriorated, savings and investment rates decreased.

182. **In sum, the new macroeconomic framework did not revive growth but rather exposed Brazil’s long-standing structural problems.** Without adequate infrastructure, a skilled labor force, and a conducive business environment, private investment and productivity growth remained feeble. With the end of consumption-led growth, future growth expectations decreased to around 2 percent per year (Figure 3.19). Following stagnation in 2014, GDP is estimated to have fallen by more than 3 percent in 2015, and prospects for 2016 show a further decline. The recession has been exacerbated by the expected impact of the *Lava-Jato* investigations on investment (by Petrobras and large construction companies) but also reflects weak consumer and business sentiments more generally.

**Figure 3.19: Median Forecast for GDP Growth 2 Years Ahead (2005–2015, percent)**



Source: Central Bank of Brazil.

183. **The combination of a recessionary environment with rising unemployment and falling wages is putting at risk some of the social gains achieved over the last decade.** The economic slump is already starting to take its toll on the labor market, as the unemployment rate is gradually rising, payroll indicators point to job destruction, and real wages have been posting declines since early 2015. Furthermore, low-income households and the vulnerable middle class are also suffering from income erosion stemming from rising inflation and higher debt bills. The gains of the past decade thus appear at risk.

184. **To avoid such an outcome, the government is pursuing a challenging macroeconomic adjustment and is preparing the ground for comprehensive structural reforms.** In early 2015,

the government started a macroeconomic adjustment centered around an ambitious fiscal consolidation plan. Monetary policy and exchange rate policy were adjusted to drive down inflationary expectations and allow the real exchange rate to fall. The policy agenda also includes actions to boost competitiveness, investment, and productivity. In June 2015, the government announced plans for private sector involvement in a large number of infrastructure projects amounting to investments of almost R\$200 billion (US\$65 billion). The government also set out to reformulate the role of the public banks, particularly BNDES, with a view to reduce credit market segmentation and enable a sustainable reduction in interest rates. A competitiveness agenda that improves prospects for Brazil's exporters was announced. These are important steps, but how quickly they allow Brazil to return to growth will depend on whether the country also starts tackling some of the sources of fiscal pressure, including particularly transfers to the non-poor, which are at the heart of budget rigidities and the role of the state in the economy more generally.

### ***3.4 Looking Ahead - The Structural Sources of Brazil's Macroeconomic Policy Dilemmas***

185. **The boom period in the 2000s created a sense that historic structural issues were no longer a barrier to growth.** The swift recovery after the global recession in 2010 suggested that the existing policy framework was sufficient to maintain growth and allow socially inclusive policies to function without macroeconomic imbalance or making fiscal choices. Hence, the crisis response was focused on fiscal and monetary expansion and largely ignored underlying structural constraints.<sup>62</sup> The remainder of this chapter examines three interrelated macro-fiscal challenges: (a) the erosion of fiscal space resulting from spending rigidities; (b) the trade-off between public investment and current expenditure commitments; and (c) the consequences of the spending rigidities for public savings and high interest rates. Constraints to productivity resulting from distortions of market competition and high regulatory barriers are examined in Chapter 4.

#### *3.4.1 Eroding Fiscal Space because of Budget Rigidities*

186. **The significant fiscal space created by the economic boom masked the latent structural fiscal pressures from increasing current expenditures.** It is estimated that less than 15 percent of expenditure is discretionary in Brazil (see, among others, World Bank 2009; Brumby, Mendes, and Velloso 2012). Large parts of public expenditures are mandated (in the Constitution or other legislation) to grow in line with revenues, nominal GDP growth, or other prespecified rules.<sup>63</sup> Further, a large share of the revenues are earmarked, notably toward education and health. Rapid increases in minimum wages ensured that the benefits of growth were automatically shared.<sup>64</sup> Increases in minimum wages in Brazil also result in automatic increases in social

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<sup>62</sup> By contrast, the successful adjustments in 1994, 2000, and 2002–2003 all focused on tackling such constraints to growth, and all gave rise to sustained periods of economic improvement. Apart from the *Plano Real*, the Fiscal Responsibility Law, and the adoption of the tripod, in the early 1990s Brazil underwent a period of trade liberalization as well as a privatization program aimed at reducing the government's stake in key sectors such as telecommunications and finance. The early 2000s saw a (modest) pension reform and a few other microeconomic reforms, notably that of the bankruptcy law and improvements in the legal framework governing the credit market.

<sup>63</sup> Federal education expenditures must equal at least 18 percent of tax revenues. Federal health spending is mandated to increase at least as much as GDP while states and municipalities are required to dedicate 12 and 15 percent, respectively, of their tax revenues to health. Pensions and disability payments are also guaranteed in the Constitution.

<sup>64</sup> In 2011, the Congress approved a rule whereby minimum wages in Brazil are currently adjusted each year to reflect the sum of GDP growth recorded two years before and inflation observed in the previous year.

security, unemployment benefits, and other social benefits as these are all directly indexed to the minimum wage (Carneiro 2006; Foguel, Ramos, and Carneiro 2001).<sup>65</sup> Another source of expenditure rigidity is the civil service payroll since civil servants enjoy job security and by law, their wages cannot be reduced in nominal terms. Intergovernmental transfers are rule based in their majority and therefore also do not lend themselves to structural cuts. As a result of all these automatic mechanisms, the fiscal space created by the economic boom was almost entirely spent on social benefits and higher allocations to public services, which were essentially locked in and almost impossible to adjust once the downturn occurred.

**187. Forward-looking projections suggest that unless these rigidities are relaxed, the underlying dynamics of fiscal expenditure will increasingly put at risk the sustainability of public finances.** Almeida, Lisboa, and Pessoa (2015) highlight the long-standing nature of the structural fiscal challenges facing Brazil and the political economy that prevents meaningful reform. Their calculations suggest that, driven by the costs of social security costs, the federal government expenditures on social sectors and programs has been steadily increasing by around 0.39 percent of GDP annually during 1991 to 2014. They add that based on government pensions projections and other existing hardwired expenditure commitments in health and education, it is reasonable to expect this rate to continue by at least 0.38 percent per year until the year 2030. In fact, the demographic changes may entail a net acceleration in expenditures for social programs (World Bank 2012). With much lower revenue growth than during the boom years, the sustainability of public finances appears at risk. An adjustment to the automatic increases in social expenditures may become unavoidable to safeguard fiscal sustainability.

**Table 3.3: Evolution of Federal Government Primary Expenditures, 1991–2014  
Excluding Transfers to States and Municipalities (Percentage Points of GDP)**

|  |                 | Total change<br>(as % of GDP) | Annual change<br>(as % of GDP) |
|--|-----------------|-------------------------------|--------------------------------|
| Wage bill  | A               | 0.48                          | 0.02                           |
| Pensions ( <i>Instituto Nacional do Seguro Social</i> - INSS)        | B               | 4.28                          | 0.19                           |
| Current expenditures (administration)                                | C               | 0.58                          | 0.03                           |
| Subsidies  | D               | 0.74                          | 0.03                           |
| BPC  | E               | 0.75                          | 0.03                           |
| Unemployment insurance and Salary premiums ( <i>Abono salarial</i> ) | F               | 0.54                          | 0.02                           |
| Social programs (Bolsa Escola, Vale Gas, PBF)                        | G               | 0.59                          | 0.03                           |
| Current expenditures for administration (health and education)       | H               | 0.67                          | 0.03                           |
| Public investment  | I               | 0.46                          | 0.02                           |
| Total social expenditures and pensions (INSS)                        | (B+D+E+F+<br>G) | 6.82                          | 0.30                           |
| <b>TOTAL</b>   |                 | <b>9.08</b>                   | <b>0.39</b>                    |

Source: Almeida et al. (2015), based on data from Ministry of Finance.

### 3.4.2 The Trade-off between Public Investment and Social Entitlements

**188. The rigidities in the budget have progressively squeezed out the room for public investment and complicated efforts to reduce Brazil's relatively high tax burden.** The

<sup>65</sup> Recent government estimates indicate that an increase of R\$100 in the monthly minimum wage generated additional expenditures of R\$35 billion (0.6 percent of GDP), assuming that the level of unemployment remained constant. For comparison, the monthly minimum wage increased from R\$230 to R\$510 during 2003 to 2010, a real increase of 55 percent.

consequences of rising social entitlements for public investment are analyzed in Chapter 2. At the same time, large spending commitments have been a justification to maintain Brazil's complex and costly tax system (Box 3.3). Fiscal pressures contribute to Brazil's persistently high interest rates (Box 3.4). Poor infrastructure, a high tax burden, and prohibitive interest rates, are three of the main factors holding back Brazil's private investment and growth prospects, on which further progressive social policies will depend.<sup>66</sup> At the heart of the macro-fiscal challenges facing Brazil, therefore, lies a trade-off between short-term transfers and longer-term growth. As Chapter 5 further elaborates, however, this need not come at the expense of increases in inequality. The bulk of payments for social entitlements benefits the better-off more than the poor. A reallocation of spending priorities would create ample fiscal space to continue or even expand transfers to the most vulnerable and mitigate the impact of the current slowdown on their livelihoods.

### **Box 3.3: Inequitable Taxes with High Compliance Costs**

**The current social expenditure commitments combined with poverty-reducing transfers meant that the public sector had to raise revenue through additional taxation.** The complexity of Brazil's tax system is compounded by a large number of government entities authorized to levy taxes. These include the federal government, the 26 states, and the Federal District, as well as over 5000 municipalities. At the same time, powerful organized interest groups successfully lobbied for special treatments. This combination has resulted in an increasingly burdensome and complex tax system. Brazil has one of the highest tax burdens among its income peers with general government revenues accounting for 35.4 percent of GDP in 2014. In 2013, the largest share of revenues came from taxing goods and services, followed by payroll taxes, respectively 51 percent and 25 percent of revenues. The single most important tax with regard to revenues is the state VAT (*Imposto sobre Operações Relativas à Circulação de Mercadorias e Serviços de Transporte Intermunicipal e Interestadual e de Comunicação - ICMS*), which collects roughly 7 percent of GDP. A comparison of statutory rates with OECD countries reveals that Brazil's statutory corporate tax rate of 34 percent is significantly above the OECD average of 25 percent and among the twenty highest in the world. In contrast, the top statutory personal income tax rate of 27.5 percent is low compared to top rates in the OECD (average 43 percent) but is closer to the Latin American average of 29 percent. Comparative statistics from the OECD also show that Brazil's average tax wedge on labor of 33 percent is similar to that of many developed countries but is high compared to other emerging countries like Mexico (19.5), India (26.1), Indonesia (8.2), and South Africa (13.7).

**In addition to being complex, the tax system is regressive and inequitable.** With its focus on indirect taxation and given the numerous exemptions in the system, the poor have the highest tax burden, and indirect taxes paid by the poor often surpass the direct transfer and indirect subsidy benefits they receive (Higgins and Pereira 2014).

**In recent years, the system has become even more complex:** relatively high statutory tax rates are accompanied by complex special regimes and a large amount of tax expenditures. Frequent changes in legislation affect not only calculation and payment of taxes but also rules for preparing mandatory tax records. As a result, the time to comply with taxes in Brazil amounts to 2,600 hours, which is the highest in the world (see Chapter 4). In line with the evidence from other countries, taxes and social contributions present particular obstacles to firms in Brazil, underscoring their lack of competitiveness (note that although a majority of Brazilian businesses subscribe to the simplified tax treatment—SIMPLES—tax compliance remains exceedingly difficult). The complexity of the system also entails substantial distortions leading to significant hidden efficiency costs. Reforms of the tax system have proved difficult as the system has created entrenched interests among states that would be likely to lose in relative terms from any reform. Further, the numerous special regimes and widespread use of tax expenditures have entrenched privileges and empowered organized interest groups that lobbied for special treatments.

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<sup>66</sup> Lisboa and Latif (2013) make the case that the societal preference for (a) increased social expenditure and (b) macro stability, results in low public investment, reducing potential growth. [http://www.insper.edu.br/wp-content/uploads/2013/07/Democracy\\_and\\_Growth\\_in\\_Brazil.pdf](http://www.insper.edu.br/wp-content/uploads/2013/07/Democracy_and_Growth_in_Brazil.pdf).

### 3.4.3 Spending Rigidities, Public Savings, and High Interest Rates

189. **The implications of fiscal dynamics for savings and investment raise a further dilemma.** As commodity prices have fallen, private (particularly corporate) savings have declined. However, public current expenditure pressures, and in particular the significant increase in spending on social security, has also led to the erosion of public savings. The result is higher interest rates, leaving the economy in a low-savings, low-investment, and high-interest-rate equilibrium. High interest rates have also induced the government to intervene in credit markets through subsidized lending by public banks (Box 3.4). However, this may be counterproductive as the prevalence of directed and subsidized public credit renders investment insensitive to changes in the interest rate, which reduces the effectiveness of the monetary transmission mechanism. As a result, the Central Bank needs to set a higher interest rate to meet its inflation target thus creating a vicious circle. It is important to note that reforms to overcome this dilemma are not trivial and sequencing needs to be thought through carefully. The gradual reduction in fiscal transfers to state owned banks and the introduction of explicit incentives to encourage a stronger blend of public and market-based financing—as recently introduced by the authorities—may be the way to go.

#### Box 3.4: Possible Explanations for High Interest Rates in Brazil

**Brazil for a long time has had some of the highest interest rates in the world.** There is a vast body of literature seeking to understand the reasons for such high interest rates. Beyond the low savings rate and the existence of a highly segmented credit market, possible explanations also include the heritage of risks associated with the history of hyperinflation and volatility, fiscal considerations, and jurisdictional uncertainty (World Bank 2006; Segura-Ubiergo 2012). Segura-Ubiergo (2012) lists five types of explanation frequently cited in the literature:

**Low domestic savings:** According to the classical macroeconomic view, if investment demand exceeds the supply of domestic savings, real interest rates must increase. Thus, if savings are too low relative to investment, real interest rates will rise and may remain high.

**Segmented credit markets:** Large volumes of public lending at subsidized rates imply that the policy rate will have to rise by more to keep credit demand in check at a level consistent with the inflation target. Put differently, subsidized lending by public banks chokes off the credit channel of the monetary transmission mechanism.

**Brazil's history of high inflation and inflation volatility:** High inflation and excessive price volatility induce the proliferation of mechanisms to safeguard contracts and protect the real value of financial assets. These mechanisms are at the root of high inflationary inertia, which requires higher interest rates to both anchor expectations and reduce stubborn price pressures.

**Fiscal considerations:** These explanations focus on fiscal dominance and risk of default as key motivations for high interest rates. The idea is that monetary policy needs to systematically countervail inflationary pressures stemming from overly expansionary fiscal policy. Default risk refers to the notion that high levels of government debt require high interest rates since they embed the higher default probabilities associated with an excessive debt burden.

**Institutional factors:** Weaknesses in contract enforcement form the basis for the 'jurisdictional uncertainty' thesis proposed by Arida et al. (2005). According to this thesis, lack of proper contract enforcement mechanisms would explain the inexistence of local long-term credit markets in Brazil. Policymakers have responded to this apparent market failure by introducing a series of measures that contribute to high interest rates such as restrictions to currency convertibility, artificial lengthening of public debt maturities, compulsory savings funds, and distorting taxation.

**In addition, from 2012, the reduced credibility of monetary policy may also have contributed to high rates.** Failure to achieve the inflation target over the last several years and a failed attempt to reset interest rates based on an assumption that the economy and financial markets more generally had become accustomed to functioning in a high interest rate environment led to a loss of market confidence. Lack of policy credibility may imply that the Central Bank now needs to raise interest rates higher and for longer than it would have otherwise have needed to bring inflationary expectations back down.

## ***Concluding Remarks***

190. **Following a decade of robust growth with social inclusion, Brazil faces considerable short- and medium-term challenges.** The adoption of the *Plano Real* and the Fiscal Responsibility Law laid the foundation for macroeconomic discipline by establishing the ‘tripod’. This, together with the windfall of a favorable external environment led to a golden decade of consumption-led growth. As this chapter has underscored, however, the external windfall during much of the 2000s may have masked underlying structural problems related to low investment, low productivity, and limited fiscal space. The aftermath of the global financial crisis and the end of the commodity super-cycle substantially increased the policy trade-offs facing Brazil, leading to a weakening of the macroeconomic framework. Fiscal expansion through new expenditures, tax exemptions, and quasi-fiscal lending through public banks was unable to offset the structural weaknesses in the economy and resulted instead in growing economic imbalances. These finally had to be addressed to regain macroeconomic credibility, exposing the underlying structural constraints to growth, but also forcing some clear policy choices in the context of increasing fiscal pressure due to hardwired expenditure commitments.

191. **Looking ahead, a fundamental challenge for Brazil will be to tackle the underlying sources of fiscal pressure to rebalance growth from consumption to investment without negatively affecting the poor and vulnerable.** As this and the previous chapter have shown, at the core of this challenge are economic policies that have increased expenditure commitments for social security, health, and education, many of which benefit the better-off more than the poor. There also is ample scope to reduce the fiscal costs of substantial tax exemptions, subsidies, and directed lending through state banks to free up space for greater public investment and targeted transfers to the poor and vulnerable. Tackling the required reallocation of spending will be hugely challenging politically, given the strong sense of entitlement that is associated with Brazil’s expansive social policies and the strength of vested interests lobbying to keep their favors in the country’s fragmented political system. Nevertheless, as this chapter has shown, the trade-offs are increasingly stark. The prospect of a decade of low growth and eroding social gains may prompt the required policy shift.

192. **A shift in fiscal policy alone will not suffice to restart Brazil’s growth.** While macro-fiscal sustainability is a necessary pre-condition for private investment, Brazil’s business environment faces a number of additional constraints related to market distortions, regulatory barriers, and limited competitive pressures. These are examined in the following chapter.

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### *Introduction*

193. **Brazil's recent socioeconomic progress was achieved against the background of weak productivity growth.** From 2002 to 2014, TFP increased by only 0.3 percent annually. Even in the high-growth years from 2002 to 2010, TFP increased by only 0.4 percent annually.<sup>67</sup> Indeed, roughly two-thirds of Brazil's recent growth was driven by increases in the quantity and quality of the labor force, while only about 10 percent was due to gains in productivity. In contrast, improvements in productivity accounted for more than half of GDP growth in many other emerging economies such as China, India, and Russia (McKinsey Global Institute 2014).

194. **In the long run, sustained and inclusive growth is not possible without increases in productivity.** Higher productivity growth would have several important benefits. It would allow (a) lasting increases in labor earnings without undermining Brazil's global competitiveness, (b) better and lower cost goods and services for all Brazilian households, (c) more revenues for government to use for infrastructure investment and social policy, and (d) higher returns to both private savings and investment. This chapter examines four broad constraints to higher productivity in Brazil: infrastructure deficiencies, a distorted and costly trade and investment climate, lack of incentives and capacity for innovation, and finally insufficient individual skills.

195. **The poor state of Brazil's infrastructure is a symptom of a broader public and private investment malaise, closely linked to its macroeconomic and institutional conditions.** As discussed in the previous two chapters, social policy expenditure commitments hardwired in the 1988 Constitution have left little fiscal space for discretionary budget investment in public infrastructure (Alston et al. 2010).<sup>68</sup> In addition, the fragmentation of the political system distorted the allocation of the increased but still limited public investment that did take place. Limited public investment in infrastructure, in turn, exacerbated limits on competition by impeding a more vigorous supply response in specific industries, thereby discouraging productive private investment throughout the economy.

196. **Brazil's business environment remains an uneven and globally isolated playing field, considerably reducing the pressure and ability to innovate through the generation and adoption of new technologies.** In well-functioning markets, competition drives firm-level and sector-level productivity through intra-firm, inter-firm, and inter-sector efficiency-enhancing resource allocation, boosted by the market selection pressure of more-productive growing firms forcing less-productive firms to either upgrade or exit. Import tariffs and non-tariff measures such as local content requirements, industry- and firm-specific exemptions and special rates for domestic taxes, subsidized loans and grants, which all purport to promote innovation, have often been used both at the federal and local levels to protect less productive firms, with the effect that

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<sup>67</sup> There are diverse estimates for TFP growth in Brazil, each of which depends on the methodology for measuring the contribution of capital to growth. See World Bank (2014a). The estimates used here are taken from Bolle and Simões (forthcoming). While conceptually TFP is the best indicator of productivity, labor productivity (output per person) is more easily measurable and will generally be correlated with TFP and increases in the stock of capital.

<sup>68</sup> As was discussed in the previous chapters, while both public and total investment did increase as a proportion of GDP during the growth years of 2003 to 2010, the levels of infrastructure investment had fallen systematically in previous decades, so that the recovery was insufficient to remedy the infrastructure deficit. Moreover, with the downturn in the economy from 2014, the pressures on public investment have reasserted themselves.

competitive pressures have been muted. For new entrepreneurial start-ups and smaller firms, the result is that regulatory obstacles and red tape, importantly including extremely high tax compliance costs, have discouraged them from investing and expanding. Instead, many have gravitated toward lower productivity, less capital-intensive services. For larger firms, there have been few pressures to innovate, including both upgrading the quality and technological content of existing products and pushing out the global technological frontier. Multiple government interventions in factor and product markets have failed to effectively substitute for the lack of competitive stimuli. Importantly, all Brazilian firms are less able to improve productivity given how isolated they are from the learning opportunities that come from greater exposure to foreign know-how and technologies through linkages with efficiency seeking FDI and global trade in goods and services, financial and knowledge capital, and talent.

**197. An additional constraint to increased productivity is the low skill level of the labor force.** Lack of skills and lack of private sector investment can be mutually reinforcing. Individuals do not invest in skills because firms offer few skilled jobs. Firms in turn do not invest in production requiring skilled workers because they do not think they can find them in the labor market and because they are not pressured to do so by more market competition, including lower-cost entry and exit of firms and easier labor mobility. Information and search costs and skills mismatches further impede the movement to a higher-skill, higher-productivity equilibrium (Schneider 2013). Although there has been increased public spending on education and skills upgrading, more can be done to ensure that imparted skills are relevant to the current and future needs of businesses and that labor market policies support higher productivity and growth, thereby resulting in more and better jobs.

**198. This chapter first presents evidence on Brazil's low productivity growth path.** It then looks at some of the main constraints to productivity in the overall business environment (infrastructure and the trade and investment climate); at the firm level (adoption of new-to-the-firm management practices and other types of innovation); and finally at the individual level (business relevant skills and better matching to jobs).

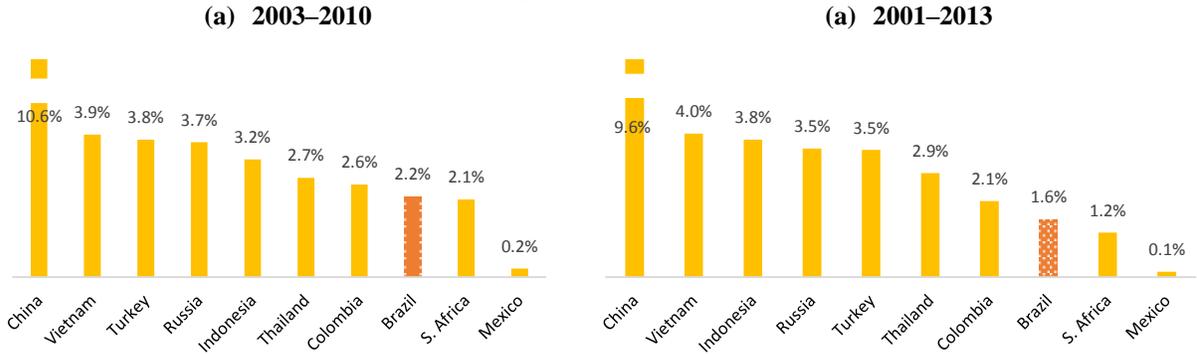
#### ***4.1 Growth, productivity, and structural change in Brazil in the 2000s***

**199. The key contributors to strong growth between 2002 and 2010 were demographics, labor market trends, and an increasing capital stock.** Growth decomposition exercises show that labor force growth contributed 1.1 percentage points to annual growth during this period, as the working-age population expanded rapidly. Increases in the labor force participation rate contributed about 0.6 percentage points, while growth in the capital stock (adjusted for its effective utilization) accounted for about 0.9 percentage points of average growth during this period.<sup>69</sup> Improvements in education, particularly increased access, were responsible for about 0.7 percentage points of average growth. Comparisons with other countries show that Brazil lagged behind many of its peers in labor productivity improvements (Figure 4.1).

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<sup>69</sup>These calculations are from Bolle and Simões, forthcoming.

**Figure 4.1: Labor Productivity Growth in Selected Countries**  
Average Annual Growth

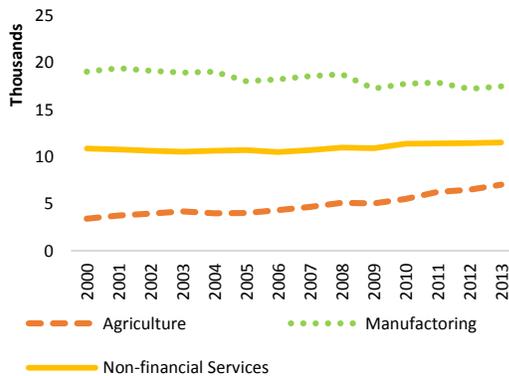


Source: World Bank WDI indicators.

Note: Employment data based on the standard International Labour Organization definition to allow for international comparisons. For this reason, the estimates for Brazil will differ slightly from those referred to in the growth decomposition in the text.

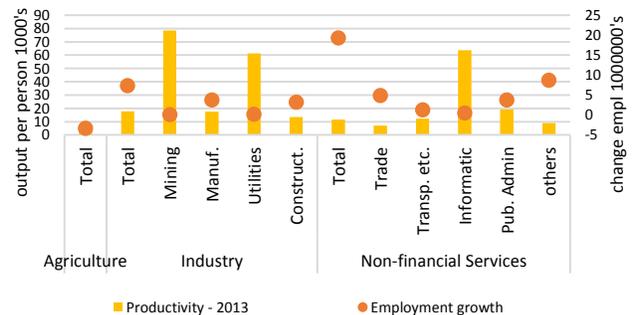
200. **Existing patterns of resource allocation across enterprises, between and within industries, are one important symptom of low productivity growth.** Over the past decade, labor productivity in manufacturing declined, was stagnant in services, and only increased notably in agriculture (Figure 4.2). At the same time, most employment growth took place in relatively low-productivity services, and even within manufacturing, relatively low-productivity activities created more jobs than higher-productivity ones (Figure 4.3). Hence, structural change across industries did not aid productivity growth in contrast to patterns in fast-growing emerging markets in Asia or Eastern Europe (Raiser and Wes 2014).<sup>70</sup> Similarly, employment grew more in small firms so that labor was reallocated from large to small firms within industries. Given that large firms in any country are typically more productive than small firms, these structural labor reallocations resulted in lower productivity growth than would have happened if labor had instead remained in large firms or had been employed in rapidly growing start-ups that became large over time.

**Figure 4.2: Evolution of Productivity by Sector, 2000–2013**



Source: IBGE.

**Figure 4.3: Employment Creation and Productivity, 2000–2013**

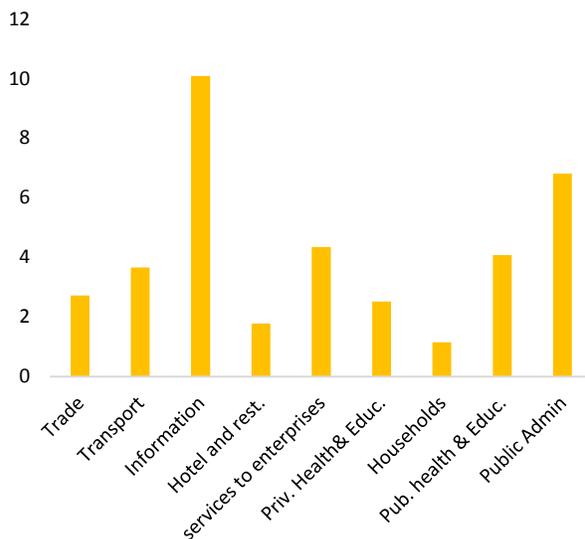


Source: IBGE.

<sup>70</sup> For comparisons of patterns of structural change and productivity growth in Latin America, see Araújo, Schiffbauer, and Sahnoun (2014).

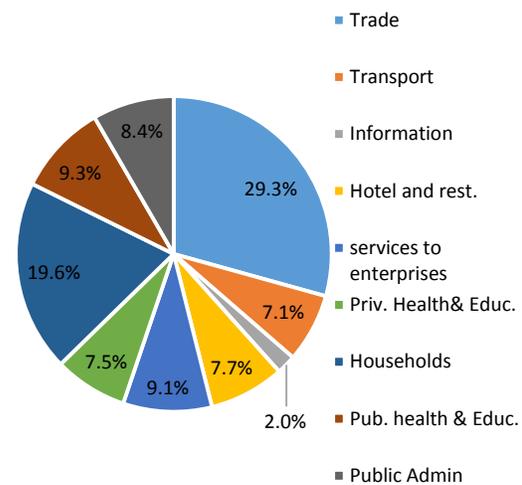
201. **Of the approximately 23 million jobs created between 2000 and 2013, more than 80 percent were created in services.** As of 2013, 65 percent of employment was in services, up from 60.2 percent in 2000. The vast majority of jobs was in trade and household services (cleaning and childcare), which had among the lowest productivity levels (Figures 4.4 and 4.5). The services sector attracted employment mainly owing to improvements in its terms of trade, with services inflation running considerably above the rate of overall inflation. This allowed wage increases despite stagnant overall productivity.

**Figure 4.4: Monthly Value-Added per Worker in the Service Sector, 2013 (R\$, thousands)**



Source: IBGE.

**Figure 4.5: Employment Distribution in the Services Sector, 2013 (Percent)**



Source: IBGE.

202. **The decline of productivity in manufacturing is an indicator of Brazil's eroding competitiveness in tradable goods over the past decade.** Manufacturing and construction accounted for 16 percent and 11.7 percent of employment creation, respectively, from 2000 to 2011. In manufacturing, output per worker actually declined by 6.3 percent from 2000 to 2011, while in construction, output per worker increased by only 4.8 percent from 2000 to 2011. These are extremely poor figures in international comparison, closer to outcomes in Southern Europe than in other emerging markets (Gill and Raiser 2012).

203. **Compared to other emerging markets, Brazil has a wider dispersion of productivity levels across firms and a larger number of low-productivity firms.** The standard deviation from the mean of sales per worker is 0.24 in Brazil, while it ranges between 0.03 and 0.18 in Chile, China, Colombia, Mexico, Peru, and India (World Bank Enterprise Surveys). Dispersion is particularly high in the textile and garment sectors and in retail industries. A high dispersion indicates a large number of firms far below the mean. Large gains could be made in aggregate TFP if physical and human capital were reallocated in a way that allowed more-productive firms to

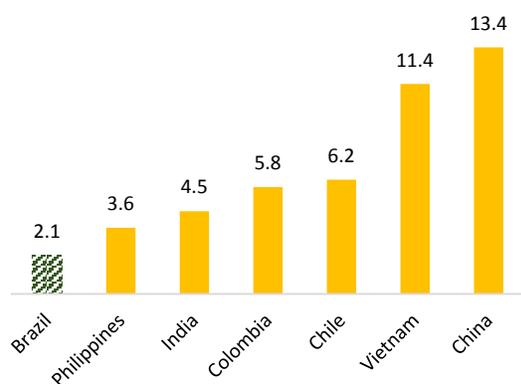
grow and the least-productive ones to shrink or exit.<sup>71</sup> High firm dispersion in Brazil suggests market and policy failures that create an uneven playing field for firms, negatively affecting the entry and expansion of more-efficient firms and the exit of less-efficient ones. Probably, the main reason for the persistent misallocation of resources evident in these numbers is the poor business environment—often summarized as the ‘Custo Brasil’.

## 4.2 Decomposing the infrastructure part of the ‘Custo Brasil’

### 4.2.1 Physical Infrastructure, Competition, and Economy-wide Productivity

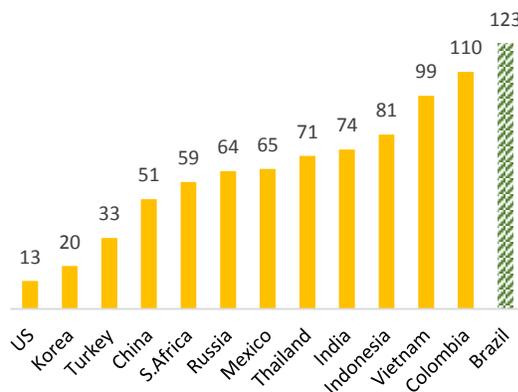
204. **For at least the past two decades, investment in infrastructure in Brazil has been below the rate of natural depreciation.** The rate of infrastructure investment needed simply to offset depreciation has been estimated to be of the order of 3 percent of GDP (World Bank 2007). In Brazil, total investment in infrastructure has been less than 2.5 percent of GDP annually at least since 2000 (Frischtak and Castelar 2014).

**Figure 4.6: Investment in Infrastructure, 2011  
(Percent of GDP)**



Source: World Economic Forum (WEF), Credit Suisse, 2013.

**Figure 4.7: Quality of Overall Infrastructure  
Rank, 2015**



Source: WEF, Global Competitiveness 2015–2016.

205. **A World Bank study from 2007 estimated that infrastructure investments would probably need to reach 5 percent of GDP to allow Brazil to reach full economic potential.** Since that study, infrastructure investment in Brazil has increased from 1.73 to 2.37 percent of GDP from 2007 to 2014. In 2011, Brazil invested 2.1 percent of GDP in infrastructure, comparing unfavorably to China (13.4 percent), Chile (6.2 percent), Colombia (5.8 percent), and India (4.5 percent) (Figure 4.6). This infrastructure deficit, especially for ports, transport, and information and communications technologies (ICT), has a direct impact on the ability of businesses to source inputs and to produce and deliver outputs to local and international markets in an internationally cost-competitive manner. In the rankings of the WEF for 2015–16, out of 140 countries, Brazil was ranked at 123 for the overall quality of transport infrastructure and 122 for the quality of both roads and ports (Figure 4.7). As can be seen in Table 4.1, investment in infrastructure in all areas is now less than half of its value in the 1970s.

<sup>71</sup> For instance, in the retail sector, labor productivity could increase from 15 to 54 percent of U.S. levels if capital and labor were reallocated from less- to more-productive firms (Lora and Pagés 2011).

**Table 4.1: Infrastructure Investment in Brazil, Public and Private, 1971–2014**  
Percent GDP

|                  | 71-80 | 81-89 | 90-00 | 01-12 | 2007 | 2008 | 2009 | 2010 | 2011 | 2012 | 2013 | 2014 |
|------------------|-------|-------|-------|-------|------|------|------|------|------|------|------|------|
| Energy           | 2.13  | 1.47  | 0.76  | 0.63  | 0.51 | 0.59 | 0.58 | 0.62 | 0.72 | 0.70 | 0.72 | 0.68 |
| Telecom          | 0.80  | 0.43  | 0.73  | 0.61  | 0.46 | 0.78 | 0.55 | 0.40 | 0.49 | 0.51 | 0.43 | 0.53 |
| Water and Sewage | 0.46  | 0.24  | 0.15  | 0.19  | 0.13 | 0.21 | 0.23 | 0.20 | 0.17 | 0.20 | 0.21 | 0.20 |
| Transportation   | 2.03  | 1.48  | 0.63  | 0.73  | 0.63 | 0.74 | 0.88 | 0.95 | 0.80 | 0.80 | 1.01 | 0.96 |
| Total            | 5.42  | 3.62  | 2.27  | 2.16  | 1.73 | 2.32 | 2.24 | 2.18 | 2.18 | 2.27 | 2.37 | 2.37 |

Source: Frischtak and Castelar 2014.

206. **Brazil’s infrastructure deficit has been widely recognized but repeated government efforts to close it have yielded modest results.** In 2007, the government introduced the Program to Accelerate Growth (PAC), targeting a substantial increase in funding for public infrastructure, but its impact on aggregate investment numbers has not been significant. Pro-competition principles in infrastructure regulation are required to promote competition in market segments where competition is viable, drive more high-quality services at competitive prices, and at the same time preserve the incentives to invest in the networks. This increases competitiveness of downstream businesses.

207. **Brazil has promoted PPPs or concessions as a means to overcome limited public funding, project preparation, and implementation capacity.**<sup>72</sup> The intention was to respond to critical bottlenecks in infrastructure development mainly related to ensuring full life-cycle asset management planning including operation and maintenance (O&M), as well as to address capacity constraints in project preparation. In situations where the private sector can provide the much-needed technical skills and financing, the government has developed a strategy to share risks with the public authority to achieve an efficient use of public resources. This is implemented through two laws to encourage private sector partnerships in infrastructure investment: the 1995 Concession Law and the 2004 PPP Law. The Concession Law allows private sector provision of public infrastructure, where a private entity finances infrastructure assets, and is paid by users during the concession period. The PPP Law allows the public sector to pay (either partially or fully) for the capital and operational costs with the private entity. In addition to the law, the government has made available low-cost long-term capital from public financiers like BNDES and Caixa; tax incentives such as Law 12431/11, which provides a tax break for issuers of infrastructure debentures; and the setting up of a public project risk guarantor—the *Agência Brasileira Gestora de Fundos Garantidores e Garantias* (ABGF).<sup>73</sup>

208. **Nevertheless, implementation problems have persisted.** While there is a Federal PPP Law, most PPPs are implemented at the subnational level. Each state has developed policies and processes on how to prioritize, prepare, structure, and conduct bidding. As a result, there is no unifying national framework for the preparation of public investment projects (including PPPs and concessions) and municipal, state, and federal plans are not integrated. The resulting lack of coordination can be a constraint particularly when the infrastructure in question crosses administrative boundaries. This lack of cohesiveness is also not conducive to developing an integrated and common approach to concessions and PPP financing. Standardization of common

<sup>72</sup> See World Bank (2013).

<sup>73</sup> The company was formally created on April 1, 2013 and the process for incorporating ABGF is still underway.

terms such as termination payments, step-in rights, and lender direct agreements may help catalyze private sector financing and address differing perceptions and expectations regarding risks and the attractiveness of specific assets.

209. **Regulatory uncertainty, in particular with respect to the setting of tariffs, either from users directly (demand risk) or availability payments (public payment risk), is a key concern for many potential investors.** Most concessions and PPP agreements contain some form of clause that allows for rebalancing intended to protect private sector players in the event of material and/or unforeseen conditions. Such rebalancing clauses provide for compensation, which usually comes in the form of non-monetized benefits, such as contract period extension or reduced investment requirements. This compensation regime may discourage potential investors from bidding for certain projects.

210. **Taking credible and bankable projects to market requires concerted effort.** Public capacity for project structuring and development, adequate budget for project preparation, and the fact that PPP projects typically take more time to complete than traditional procurement need to be addressed. Public entities often lack the technical skills and adequate funds to develop suitable technical, engineering, economic, financial, and commercial solutions that can be brought to the market. In response, many subnational entities have developed procedures to bring projects to the market sooner (called *Procedimento de Manifestação de Interesse da Iniciativa Privada* or PMI). Irrespective of the type of procurement process, the public sector must ensure it has the capacity to review designs and specifications to ensure that project solutions are aligned with the public interest and that financial closure is achieved as expeditiously as possible.

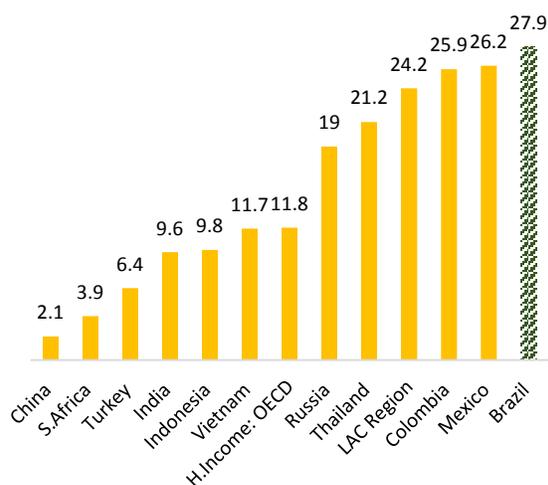
211. **Poor design and project preparation often imply that the authorities are launching projects that have not been comprehensively tested against market conditions to ensure bankability.** Midway during the tendering process, the responsible tier of government sometimes realizes that the project conditions are not attractive to the market. When governments then decide to change project conditions, this causes substantial delays as part of the work already done must be reviewed. This happened in 2011 when the federal government first tried to tender the High Speed Train project. Market reaction was similar in the recent concession of one stretch of the federal road BR-262, where no bids were received. In the case of water and sanitation, most of the several state and municipal PPP tenders attracted very few competitors, with an average of two qualified bidders per tender.

212. **Local capital markets have played a limited role as a source of infrastructure financing.** Aiming at reducing the cost of financing through capital markets and attracting a large pool of investors, the government introduced tax exemptions for investments in infrastructure bonds in 2011. The tax benefit stimulated the issuance of about R\$14 billion, but it brought unintended consequences: tax exemptions benefitted mainly individual (retail) investors who hold approximately 90 percent of the bonds issued so far. High demand by individuals distorted yields, excessively narrowing spreads over government bonds of similar maturities. Low premiums over government bonds have kept foreign investors and domestic pension funds out of the infrastructure bond market (these two segments of investors are tax exempt from investment in government bonds). Therefore, the market is perceived to be shallow, with little liquidity and unable to support the large volume of infrastructure financing that is needed in the next few years.

#### 4.2.2 Connectivity: Transport, Logistics, and ICT

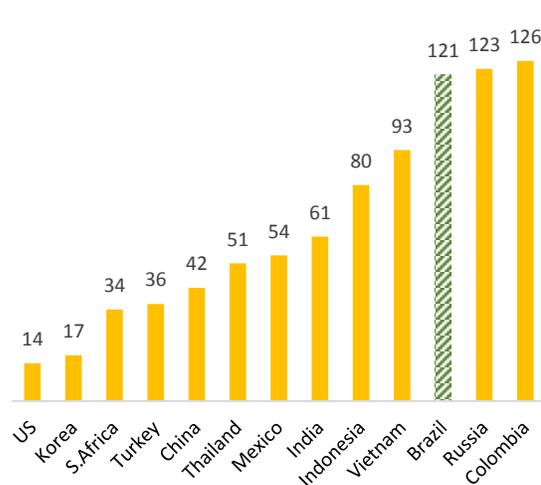
213. **The impact of the lack of investment in infrastructure can be seen most clearly in transport and logistics.** In investment climate surveys, more Brazilian firms identified transport infrastructure as a major constraint than in any other comparator country (Figure 4.8). For some local producers, this means that they may not be able to access export markets at all and thus fail to produce at sufficient scale and are not subject to the necessary higher quality standards in international markets to warrant the introduction of new technologies. Moreover, in the rankings of the WEF for 2015–16, out of 140 countries, Brazil was ranked at 121 for the quality of roads and 120 for the quality of ports (see figures 4.9 and 4.11).

**Figure 4.8: Percent of Firms Identifying Transportation as a Major Constraint**



Source: World Bank Enterprise Surveys (Data from most recent surveys, Brazil 2009).

**Figure 4.9: Quality of Roads Rank, 2015**



Source: WEF, Global Competitiveness 2015–2016.

214. **Only 13.5 percent of the total road network in Brazil is paved and just 8 percent are dual-carriageway highways.** Despite a 14 percent increase in paved road length in the past 10 years, the stock of federal and state road infrastructure is low at 38 km per 1,000 km<sup>2</sup> (Argentina and China are, respectively, at 83 km and 360 km). The overall condition of the paved network has improved over the past 10 years with greater priority given to maintenance in road management policies and an increased use of private sector financing and management.<sup>74</sup> However, only 38 percent of the paved federal and state highways are in good or very good condition. These poor conditions notwithstanding, road-based transport represents almost two-thirds of all cargo transported in Brazil in spite of efforts to better balance the transport matrix in recent years. As a benchmark, the road modal share in China and the United States, countries of similar dimensions, is, respectively, percent and 31 percent.

215. **The poor road network has a direct impact on economic performance.** For example, in exporting soy to China, transport costs from Brazil are approximately US\$190 per ton compared with US\$71 from the United States. The difference is entirely accounted for by the cost of transport

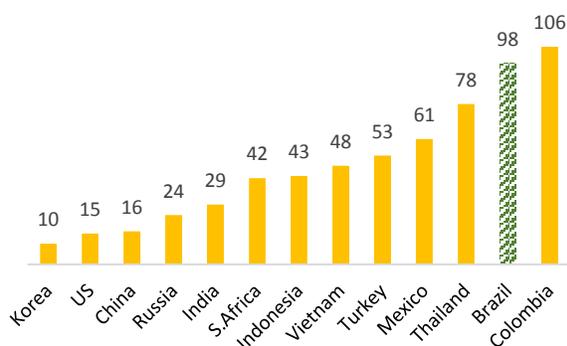
<sup>74</sup> Almost 16,000 km of roads are under concession, the second largest conceded road network in the world after China. Nearly 30,000 km of roads are managed through performance based contracts (CREMA).

from the interior to the ports in the two countries, which is US\$145 in Brazil and US\$25 in the United States (for similar geographical distances).

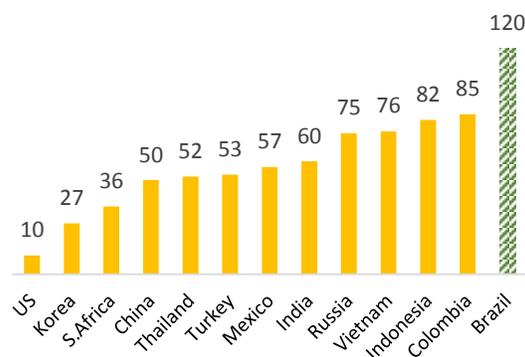
216. **Another cause of high transportation costs is the poor development of Brazil’s rail network.** The total network is about 30,000 km, out of which close to 28,400 km are operated by 14 private vertically integrated concessionaires. Interurban railway transport, almost exclusively dedicated to cargo, is characterized by a relative short extension (and has not increased since the mid-1950s), with a lack of integration (the network is composed of railroads with different gauges with limited operation services across concessionaires) and constrained capacity (most railways are single lane and are already at 80–90 percent of their capacity). In 2015, the WEF ranked Brazil 98th on quality of its rail infrastructure, well below large developing countries such as China (16th) or Mexico (61st) (Figure 4.10). The result is that in Brazil, for example, less than 20 percent of the volume of soybeans is transported by rail, compared with approximately 75 percent in the United States.

217. **Development of railway transport has been limited by legal conditions, which restrict the number of operators.** Entry into rail transport services (for both passenger and freight) is franchised to several firms, each with local exclusive rights to a geographic area. Especially for freight transport, most OECD economies have implemented less restrictive frameworks that include free entry (upon paying access fees) and often several firms compete in the same geographic area.

**Figure 4.10: Quality of Railroad Infrastructure Rank, 2015**



**Figure 4.11: Quality of Port Infrastructure Rank, 2015**



Source: WEF, Global Competitiveness 2015–2016.

218. **After land transport, ports are probably the most important infrastructure bottleneck to productivity.** Brazil has 37 main ports on both sea and rivers, through which 95 percent of the country’s exports transited in 2013.<sup>75</sup> The WEF ranks Brazil’s quality of port infrastructure 120th, while China and Mexico, respectively, ranked 50th and 57th (Figure 4.11). Dredging is not done regularly and operations are characterized by high costs and low efficacy by international standards.<sup>76</sup> Customs clearance processes involve the work of several government agencies and take an average of two weeks. The result is that a significant amount of space in the ports needs to be used for storage areas. This also leads to another distortion. Storage fees have

<sup>75</sup> 338 million tons through public ports and 593 million tons through private ports.

<sup>76</sup> Maersk states that it takes 21 days to clear the Brazil port of Santos compared to 2 days in Rotterdam. Only between 2009 and 2012, port logistics costs increased by more than 25 percent.

become an important and increasing source of revenues for the ports. They thus generate disincentives to greater efficiency. While the government has attracted some private investment, this is mostly in the form of concessions for existing operations and not for the expansion of port capacity, which is thus becoming an increasing constraint.

**219. In June 2013, a new ports law was approved to try and address some of the issues above and to facilitate private investment in ports.** Among the most important provisions of the law was to allow private ports to handle third-party cargos, re-auction concessions signed in 1993 and lift labor restrictions in the private ports. The law was strongly resisted in Congress due to lobbying from those operating concessions in public ports.

**220. As a result of years of under-investments in airport terminals, 13 out of the 20 major domestic airports show serious capacity bottlenecks. The most critical case is São Paulo, Brazil's main hub, with about one-quarter of the country's total air traffic.** The WEF Global Competitiveness Report 2015–2016 ranks Brazil's quality of airport infrastructure 95th, while China, Mexico, and Colombia are ranked 51, 55, and 74, respectively. While air traffic doubled between 2009 and 2013 and average airfares halved from 2000 to 2013, airport infrastructure development has not kept up with the increase in traffic. The main airport operator is the publicly owned Infraero. At present, Infraero operates 67 airports in Brazil. However, state control over airport operations should gradually decrease as the Brazilian government has decided to auction major airport concessions to attract private investment and management expertise. So far, five of the most important Brazilian airports have been auctioned (Guarulhos, Brasília, Viracopos, Galeão, and Confins), as well as the concession for the airport of Natal (in São Gonçalo do Amarante) built by a private operator. Initial results are promising.

**221. Private investment in air transport is restricted through very high limits to foreign ownership.** Legislation requires that at least 80 percent of each airline belong to Brazilian citizens. Even other countries in the region with ownership restrictions only require 51 percent to be locally owned. Restrictions on foreign ownership have led big regional airlines to constitute companies in Brazil as a mechanism to access the domestic markets. When this has occurred through merger, the new firm has typically replaced an existing Brazilian firm, with no available analyses establishing the impact on market concentration and market conduct.

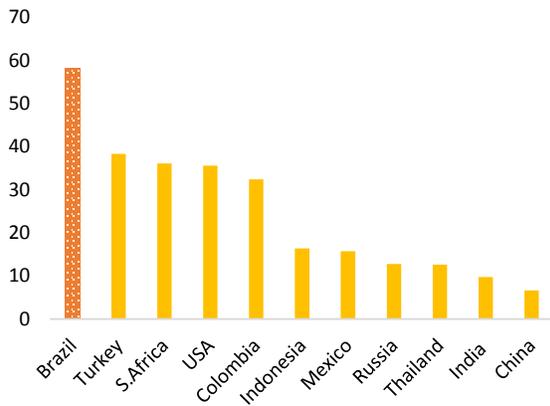
**222. Brazil has not fully reaped ICT benefits as reflected in low ICT adoption by firms.** Despite the fact that end-use consumers in Brazil are intensive ICT users relative to almost all countries—Brazilian consumers rank third worldwide on Facebook usage, with 70.5 million users in 2014—Brazilian firms are less-intensive ICT users.

**223. Brazil's fixed broadband Internet coverage is relatively poorer, in comparison to other developing economies, and prices are much higher for mobile services.** Underinvestment in telecommunications infrastructure affects the ability of the current network to offer quality services for a rapidly increasing demand. ICT connectivity in Brazil is also expensive relative to its comparators. There is a large gap with comparator countries for the price of mobile cellular services: Brazilian users on average paid US\$58.1 per month in 2013, 63 percent more than the cost of United States users, and 6 to almost 9 times the cost of Indian and Chinese users (see figures 4.12 and 4.13).<sup>77</sup>

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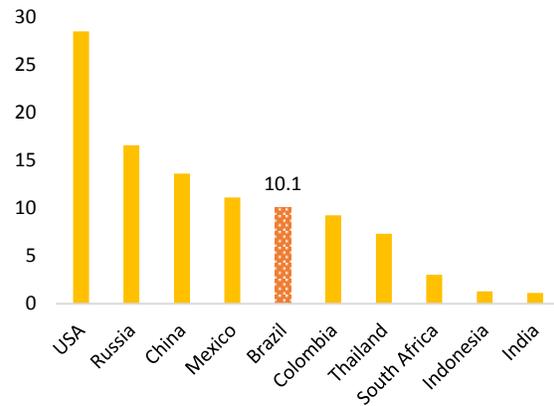
<sup>77</sup> Brazil is the most expensive country in the world based on the OECD mobile low-user basket based on 2013 data. The methodology takes into account both on-net and off-net calls, peak and off-peak, and has been successively

**Figure 4.12: Mobile Cellular Basket, 2013  
(PPP, US\$ per month)**



Source: World Bank and ITU (2014b).

**Figure 4.13: Fixed Broadband Internet Subscribers, 2013  
(per 100 people)**



Source: World Bank, WDI.

#### 4.2.3 Energy: Electricity, Oil, and Gas

**224. The Brazilian energy sector is one of the largest and most sophisticated in the world.** The sector comprises a large number of private, national, and international companies, with publicly owned Petrobras and Eletrobras dominating the oil, gas, and power sectors, respectively. After a successful reform implemented in 2004, the power sector has changed towards a lower risk environment for investors, leading to lower tariffs for consumers. Nevertheless, recent adverse climatic conditions have been responsible for a short term increase in tariffs. As a result, coping with the rapid growth of energy demand while also addressing environmental concerns will require effective management and planning for the future as well as the capacity to attract more sophisticated financing.

**225. Brazil's power sector is dominated by hydropower, which accounts for two-thirds of the total installed capacity.** Thermoelectric power plants are the second most important power generation source, with 30 percent of the total installed capacity, of which 9.2 percent is based on sugarcane bagasse combustion, while wind power comprises 4 percent of the total installed capacity. Brazil also contracts the use of 5.85 GW from the Paraguayan side of the binational Itaipu hydroelectric power plant. In 2014, private companies held control of almost 50 percent of the country's power generation capacity. Heavy dependence on hydropower makes Brazil vulnerable to power-supply shortages in the case of long periods of drought. However, this dependence is expected to reduce due to the deployment of wind and solar projects that have been contracted in recent years.

**226. Lack of investment in the electricity sector contributed to an electricity crisis in 2001, but since then electricity supply has kept up with demand and access is close to 100 percent.** In 2001, a long period of below average rainfall affected Brazil's hydroelectric generation and precipitated rationing of 20 percent of the county's power demand. The event had a significant

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refined and improved at different expert workshops over the years, so it is as close as possible to a neutral methodology. A tariff comparison based on just the calling pattern of Brazil (for example, commercial plans offered by mobile operators in Brazil typically including unlimited on-net calls) could make Brazil look cheaper, as would actual values based on current exchange rates.

impact on GDP and served as a warning for the future. In the aftermath of the crisis, in 2004, a new model of regulation was implemented to attract long-term private investment to the sector and promote competition in power generation. Local distribution companies were allowed to acquire long-term energy contracts from generators through competitive auctions, reducing the cost of supply and encouraging investment.

227. **The vast majority of electricity is used for production.** Industry is the largest consumer (40.7 percent of the total) followed by commercial and public services (24.3 percent), households (24.2 percent), the energy sector (5.7 percent), agriculture (4.7 percent), and transportation (0.4 percent). Commercial electricity consumption grew by 4.2 percent per year in the 2003–2013 period. Household consumption grew at an annual rate of 5.1 percent as a result of the acquisition of household appliances by the new middle class. Although industrial consumption grew by only 2.7 percent per year over the same period, official projections to 2023 predict a growth of 4.3 percent per year,<sup>78</sup> assuming economic growth recovers to levels seen in the past decade.

228. **As a result of the low rainfall, Brazil faced the renewed risk of a power supply crisis in 2015.** In 2012, the reservoirs of the hydroelectric plants were being depleted too fast and reached one of the lowest levels since 2001. Therefore, it was necessary to considerably increase the use of the thermoelectric power plants, running them continuously as baseload instead of the short operation times for which they were designed. However, instead of passing on the resulting higher production costs to consumers to control demand, the government announced an average reduction of 20 percent in electricity tariffs, aiming to reduce inflationary pressures. In exchange for accepting lower regulated wholesale tariffs, the government offered to bring forward the renewal of the concessions of hydropower plants that were due to expire in 2015–2017. With lower prices, national consumption soared: in January 2014 peak demand reached an all-time record of 86 GWs.

229. **This power supply episode illustrated a potential risk to future growth.** Future supply security depends on the completion of the construction of several power generation plants and transmission lines that are currently behind schedule. Thus in March 2015, only 64 percent of the 39.3 GW power generation capacity under construction was on schedule. There are also a few power plants that are ready to operate but remain idle because the construction of the transmission lines required to connect them is behind schedule. One example is the delay in the construction of the transmission lines to connect wind farms (which have already been built) in the Northeast. Thus although electricity has not been a constraint on growth and shared prosperity until now, delays in project completion and poor regulatory decisions in recent years have created risks to energy security which, if unaddressed, could hamper growth in the future.

230. **Brazil has recently experienced a severe water shortfall in the Northeast, Southeast, and Midwest regions.** In 2015, these regions faced the most severe drought since monitoring began. It affected not only energy supply but also urban, industrial, and agriculture uses. Lower rainfall resulted in significant reductions of water inflows to major storage reservoirs. The current water challenges affect the country's productivity in several profound ways, as the availability of water is critical in the water, energy, industry, and agricultural sectors. Conflicts among uses are increasing, as economic uses are either being restricted or banned to prioritize human consumption. The situation raises profound questions about the need for considering the water-energy-food nexus and for more integrated water-energy-food production planning. Insufficient investment in improving water security, including multipurpose reservoirs and water transfers, and poor

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<sup>78</sup> Decennial Plan for Energy Expansion in Brazil 2023 of the Ministry of Mines and Energy.

management of water allocation among users, increases risks to water security and thus to all economic sectors for which water is an important input.

231. **The Brazilian oil and gas sector is dominated by Petrobras.** Petrobras is a publicly traded corporation, the majority stockholder of which is the federal government (represented by the National Treasury). It is an integrated energy company in exploration and production, refining, marketing, transportation, petrochemicals, oil product distribution, natural gas, electricity, chemical gas, and biofuels.

232. **While Petrobras is dominant in the industry, its degree of dominance has varied over time.** Until 1997, Petrobras held a monopoly on exploration, production, and distribution. In 1997, Brazil revoked Petrobras' monopoly on exploration and production, and the National Petroleum Agency (*Agência Nacional de Petróleo, Gás Natural e Biocombustíveis*, ANP), Brazil's regulatory agency, was created to define and implement a modern process for granting concessions and to monitor industry performance. As a result of this industry shift, Petrobras became a more competitive company, enhancing its technological development capabilities, in particular in the area of deep-sea, offshore exploration, and production. Oil production increased to more than 2 million barrels per day, as Brazil plans to become fully self-sufficient by 2020. In addition, in 2007, Petrobras (as part of a consortium) discovered major oil deposits in the pre-salt basin. Initially, it was projected that oil production could rise from 2.25 million barrels per day in 2013 to more than 4 million barrels per day in 2018, creating a large surplus of around 2.5 barrels per day for exports. However, as a result of the deterioration of the financial context, partly related to the recent drop in international oil prices and the effect of the *Lava-Jato* investigation, Petrobras has drastically reduced its investment program.

233. **Petrobras is one of Brazil's major investors in infrastructure, but there are some questions regarding the efficiency of its investments, in particular in the downstream segments.** Two of the major recent investment projects, the refineries of Abreu e Lima in the state of Pernambuco and the petrochemical complex of Comperj in the state of Rio de Janeiro, illustrate that concern. The Abreu e Lima refinery, which will have a processing capacity of 0.23 million barrels per day, was opened in December 2014, three years behind schedule and with costs that ballooned to more than US\$18 billion from an original budget of US\$2.5 billion (OIES 2014; TCU 2015). The International Energy Agency stated that the cost of Abreu e Lima was 'two to three times higher than similar refining capacity costs being built in any other part of the world.' In addition to that, in August 2015, Brazil's Federal Audit Court (TCU) issued a document<sup>79</sup> in which it reports an over-invoicing of at least US\$200 million for that project. Meanwhile, the 0.15 million barrels per day Comperj refinery has so far cost US\$21.6 billion and is expected to start gas processing activities in 2017 and refining in 2021, several years later than originally planned and at over three times the original budget of US\$6.5 billion. Moreover, the planned petrochemical plant was dropped, reducing the complex to an oil refinery only. The TCU reported that US\$14 billion was wasted in purchasing equipment for petrochemical units, including Comperj, that were never built. These examples reflect the problems of investments by the public sector as a whole. In both cases, while the economic case for expanding Brazil's refining capacity was clear, planning was poor and the choice of locations and allocated investment amounts were politically driven.

234. **Not only does Petrobras dominate the oil and gas industry, but it is also an important source of demand for sophisticated industrial goods.** Before 2015, the company's investments

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<sup>79</sup> See TCU (2015). *Relatório de auditoria*. No. TC 002.922/2015-0. Tribunal de Contas da União

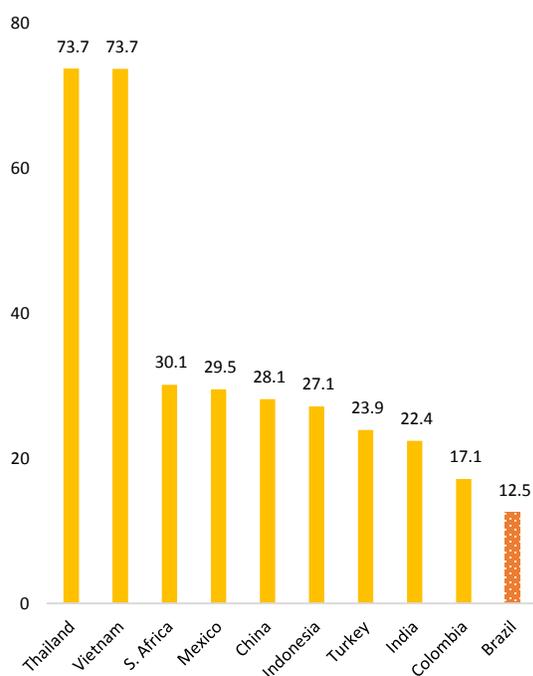
were equal to about 2 percent of total GDP and they were responsible for about 10 percent of total industrial equipment purchases. However, in 2015 the combination of corruption investigations and the decline in oil prices have led to a major cutback in Petrobras investments and contributed to the overall decline in domestic demand. Previously, Petrobras’ huge demand for oil platforms and drilling equipment had turned it into a catalyzer for Brazil’s revision of its industrial policy, particularly the policy on local content requirements. The impact of such interventions on product and factor markets and more generally of barriers to trade and competition will be examined next.

### 4.3 More ‘Custo Brasil’: Trade and Investment Climate Issues

#### 4.3.1 International Trade Policies and Competition

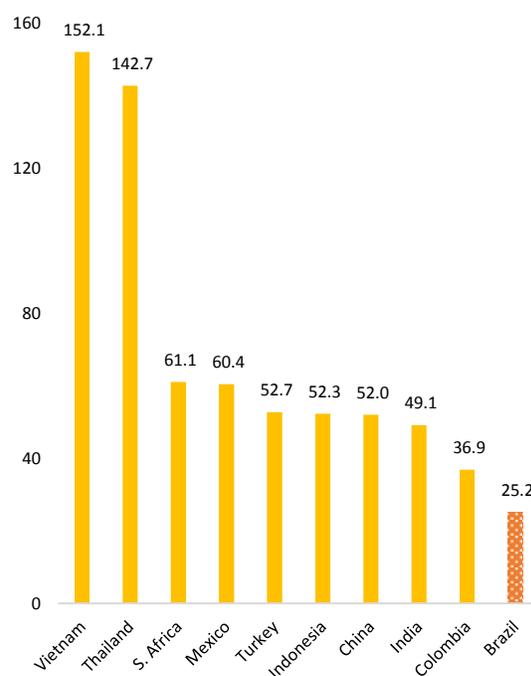
235. **Despite significant growth in the value of Brazil’s trade in goods and services over the past decade, trade openness in Brazil is among the lowest in the world and international trade integration remains limited.** Among middle-income peers, Brazil has the lowest ratio of both exports and total trade to GDP, even when taking into account the tendency of larger countries to have lower trade ratios (figures 4.14 and 4.15).<sup>80</sup>

**Figure 4.14: Exports of Goods and Services, Average 2005–2014 (percent GDP)**



Source: WDI.

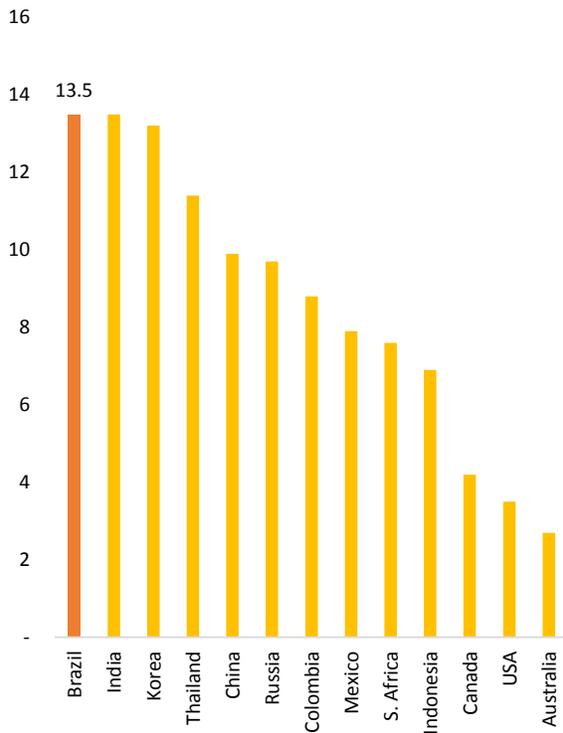
**Figure 4.15: Trade (Exports + Imports), Average 2005–2014 (percent GDP)**



Source: WDI.

<sup>80</sup> Based on benchmarks predicted by a gravity model of openness (regressions that include as explanatory variables each country’s geographical area, the area of trading partners, and the geographical distance to partners—thereby taking into account that larger economies tend to be more dependent on their domestic markets and that economies farther away from large foreign markets will tend to have lower trade shares in GDP), Brazil’s trade share is about 3–5 percentage points of GDP below that of other economies with similar characteristics (Lederman et al. 2013).

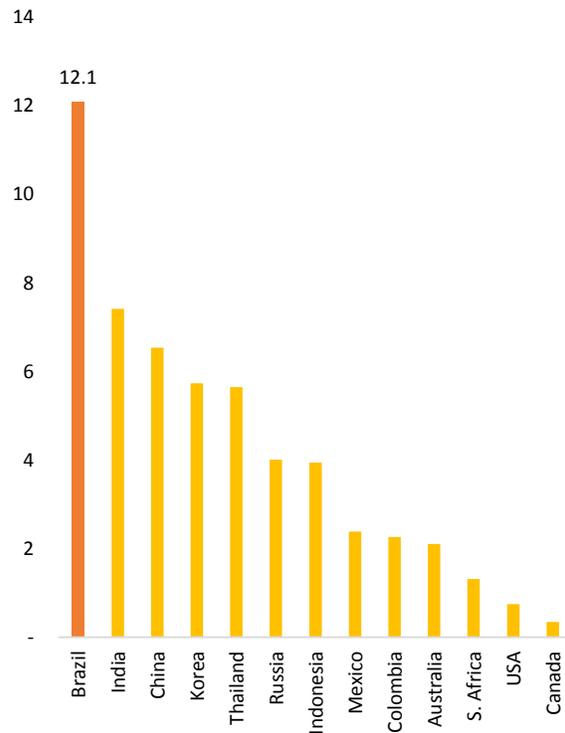
**Figure 4.16: Simple Average MFN Tariff, 2013 (percent)**



Source: World Bank, World Integrated Trade Solutions (WITS).

Note: Years vary based on data availability.

**Figure 4.17: Average Tariff, Capital Goods, (percent)**



Source: World Bank, WITS.

Note: Years vary based on data availability.

236. **Brazilian trade policy has tended to emphasize domestic as opposed to external markets.** Brazil’s MFN (Most Favored Nation) applied tariff rate averaged 13.5 percent in 2013, the highest rate in comparison to other emerging and advanced economies (Figure 4.16). There are wide variations in the tariff levels applied across different industries. The degree of protection seems to be negatively correlated with productivity improvements across industries. For instance, while the heavily protected automotive industry is the world’s seventh-largest producer of automobiles, it only ranks 21st in automotive exports. Brazil’s automotive industry now lags behind the productivity of peers such as Mexico, where auto plants produce twice as many vehicles per worker as Brazilian plants. In contrast, the aerospace industry, which is much more open and exposed to global competition, has performed much better. Brazil’s flagship maker of medium-size passenger aircraft, Embraer, was created in 1969 as a state-owned company, but the government gradually reduced its direct involvement, and in 1994, the company was privatized. Brazil also lifted import tariffs on aircraft components, allowing Embraer to source from global suppliers. Since then, Embraer has gone head-to-head with global competitors for international contracts—and has thrived as a result.<sup>81</sup>

<sup>81</sup> See McKinsey Global Institute (2014) and Crespi, Fernández-Arias, and Stein (2014) on the contrast between the success of Embraer and the poor performance of the automotive and computer industries.

237. **Average tariffs on capital and intermediate goods are among the highest in the world.** Brazil's tariffs on capital goods averaged 12.1 percent in 2012, much higher than in India (7.4 percent), Colombia (2.3 percent), and the United States (0.8 percent) (Figure 4.17). In Brazil, average tariff rate on intermediate goods in 2012 was 11 percent, in comparison to 4.6 percent in Indonesia, 3.4 percent in South Africa, and 2.2 percent in Australia.<sup>82</sup>

238. **Brazil has also made frequent use of Non-Tariff Measures (NTMs), which in most cases contribute to restrict trade openness.** NTMs, which include sanitary and technical regulations, are increasingly used by regulatory systems around the world to minimize exposure to various hazards. However, they are complex instruments and are often poorly designed, with ministries taking narrow views of their mandates and no mechanism existing to internalize spillovers between regulatory areas (for example, food safety vs. competitiveness). As a result, NTMs often create disproportionate compliance costs for companies, in particular smaller ones, and end up hurting domestic competitiveness. Because of their opacity, they also are easily hijacked by special interests to stifle competition. In countries where manufacturing jobs are strategic policy issues, there is a real risk of NTMs being used as surrogates for traditional protectionist measures, leading to tit-for-tat retaliation and overall efficiency losses (Cadot, Malouche, and Saez 2012). Brazil ranks 3rd in LAC on the frequency of use and coverage of NTMs (UNCTAD 2013).

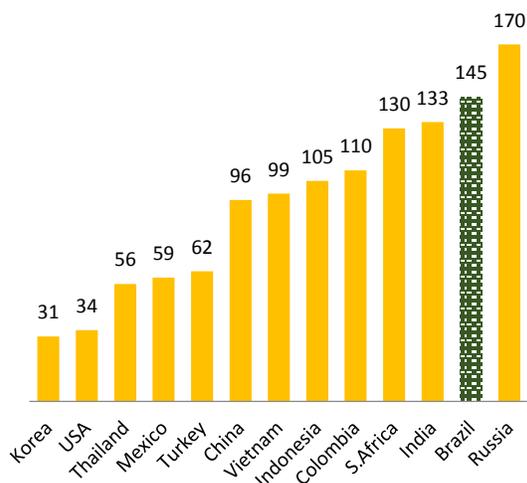
239. **Among the most important NTMs in Brazil are local content requirements (LCRs), which may have adverse effects on productivity.** The main appeal of these policies is the expectation that they create jobs at home rather than abroad and allow profits to be generated by home firms rather than foreign firms. In practice, however, LCRs have many drawbacks. LCRs typically prevent learning from rapidly evolving technologies at the global frontier and more jobs from exports to the world market, and increase costs for downstream producers, further harming jobs. In addition, as with most NTMs, LCRs usually lack transparency and are subject to risks of political capture. Once in place, these market distortions create narrow beneficiary constituencies who are typically willing to spend a significant share of the associated rents in preserving these benefits, making their removal politically very difficult. Estimates suggest that at least US\$93 billion in global trade has been lost on account of LCRs, without counting the likely even more sizable dynamic losses due to foregone learning opportunities (Hufbauer et al. 2013).

240. **In addition to restrictive tariffs and NTMs, Brazilian businesses that trade (or would like to trade) suffer from burdensome procedures associated with the export and import of goods.** The 2016 Doing Business report ranks Brazil 145th out of 189 economies on the ease of trading across borders (see Figure 4.18). Brazil compares poorly to most developed and developing benchmark countries, with the notable exception of Russia. The high cost of trade in Brazil is also reflected in the Logistics Performance Index (LPI) (Figure 4.19). Among the different dimensions of the LPI, the efficiency of the clearance process (that is, speed, simplicity and predictability of formalities) by border control agencies is the most important bottleneck in Brazil.

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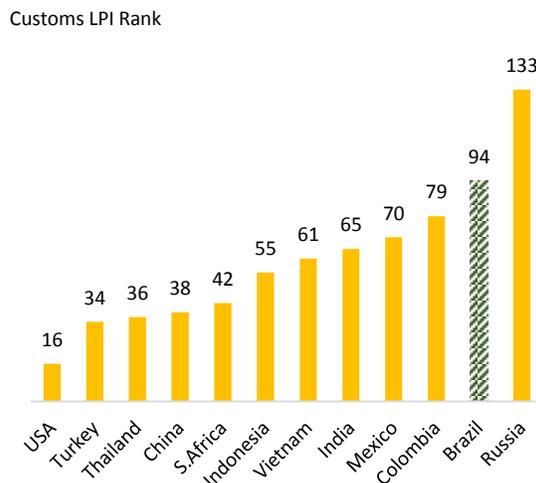
<sup>82</sup> In recent years, the import taxes on an extensive list of capital goods, information technology, and telecommunications products without national equivalents have benefited from temporary exemptions through their inclusion in the list of ex-tariffs to the CET (Common External Tariff), with tariff rates of close to 2 percent. However, such selective reductions of tariffs from a high average level may be costly both for government (including high micromanagement costs) and for businesses (including distorted technology choice and investment decisions, including the selection of equipment without national equivalents). See Rios and Veiga (2014).

**Figure 4.18: Doing Business 2016 ranking, Trading across Borders (1=best)**



Source: Doing Business 2016.

**Figure 4.19: Logistics Performance Index Customs Rank (1=best)**



Source: LPI Database 2014.

241. **The success of Brazil in the area of agriculture and agribusiness provides a strong argument in favor of the importance of trade and competition.** In the late 1980s, Brazil started to adopt market-oriented policies in the area of agriculture, which allowed the transformation from being a net food importer to a net food exporter. The agrifood sector is now among the most dynamic in the Brazilian economy and has made the country the world’s third agrifood exporter—after the European Union and the United States. It has in addition surpassed the United States as the country with the largest surplus in agricultural trade. Grain production more than doubled and meat production more than tripled between 1990 and 2010. The agrifood economy generates about 8 percent of the country’s GDP at present, representing 17 percent of total employment and about 40 percent of total exports. As seen in Box 4.1, this success was also supported by an effective institution (Embrapa) to stimulate technological innovation in a competitive environment.

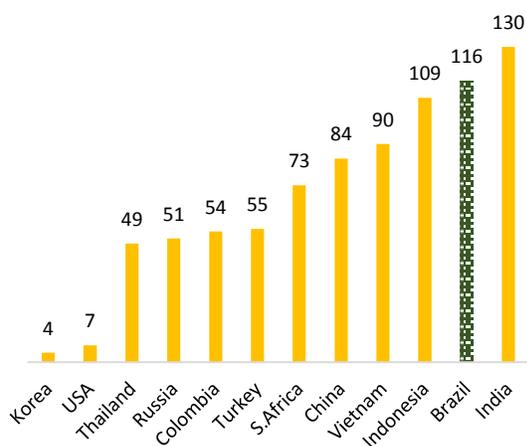
#### 4.3.2 Domestic Regulations and Competition

242. **Brazil’s investment climate faces important domestic regulatory challenges that hinder productivity and may deter firms from formalizing their activities.** Surveys and international comparisons suggest that bureaucracy and regulation of the business environment is a significant constraint to engaging in business and indeed to investment. Brazil ranks 116 out of 189 countries for the ease of doing business, with only India, of the major comparators, ranking lower (figure 4.20). The greatest burden is related to starting a business,<sup>83</sup> which takes an average

<sup>83</sup> While burdensome tax administration and business registration procedures have often been thought of as important barriers to formality (Fajnzylber, Maloney, and Montes-Rojas 2011), a growing body of evidence from randomized control trials in Brazil and elsewhere suggests that reducing their costs is not sufficient to induce formalization among micro-enterprises, as they perceive little benefit from formalizing (Rocha, Rachter, and Ulyseia 2014).

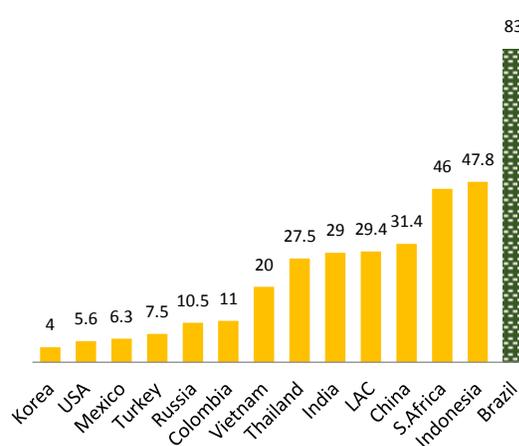
of 83 days (more than three times most comparators, see figure 4.21),<sup>84</sup> and to paying taxes, for which Brazil is ranked 178 (figure 4.22).

**Figure 4.20: Ease of Doing Business Rank, 2016**



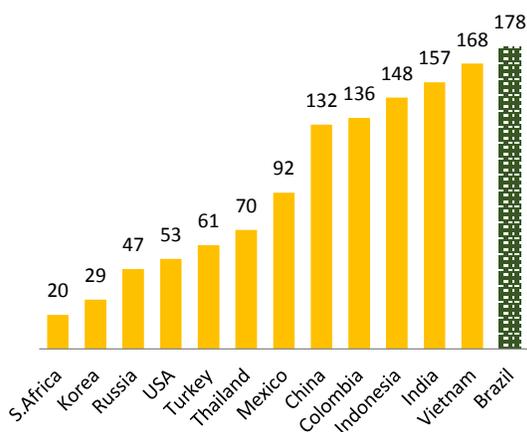
Source: Doing Business 2016

**Figure 4.21: Starting a Business, Time (days) 2016**



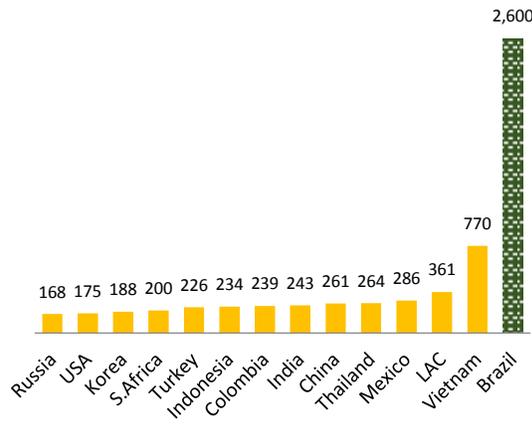
Source: Doing Business 2016

**Figure 4.22: Paying Taxes, Rank 2016**



Source: Doing Business, 2016.

**Figure 4.23: Paying Taxes, Hours per Year, 2016**



Source: Doing Business, 2016.

**243. The administrative burden on firms to comply with tax obligations in Brazil is the highest in the world.** The annual administrative burden of paying taxes for a medium-size business is an average of 2,600 hours versus 176 hours in the OECD high-income economies (Figure 4.23). No other developing country has a similar burden. In Indonesia, India, and China, which have relatively low ranks on the taxation indicator, the corresponding times are 234, 243, and 261, or less than a tenth of the time in Brazil. The time burden is an indication of the complexity of the tax system. In the case of Brazil, this complexity arises in part from the

<sup>84</sup> This and related rankings should be used with caution as they are based only on two cities, São Paulo and Rio de Janeiro, and therefore may not be representative of Brazil as a whole. The IFC's 2007 Municipal Scorecard assessment, for example, found that while São Paulo ranked 59th out of 65 Latin American municipalities on the difficulty of obtaining an operating license, there were other Brazilian cities that performed much better—such as Vitória (ranked 9th), Londrina (13th), and Florianópolis (17th).

decentralization of the federation, with states and municipalities collecting their own taxes, and frequently changing rules. For the most important tax, ICMS,<sup>85</sup> there are complex offsets and rules depending on the origin and destination of products within the federation. The complexity is also linked to the need to comply with ancillary obligations, which consist of the provision of detailed records in multiple formats to different tax authorities. These in turn have accumulated over time as a means to try and reduce tax evasion in a complex system with high rates and multiple exemptions. Business managers often complain of not understanding tax regulations despite their investments in large tax and accounting departments. A representative cross-section of businesses identifies tax rates as the most important investment climate constraint. In 2014, the total tax rate faced by a medium-size business in Brazil was 69 percent of profits, compared to 41 percent in the OECD high-income economies (World Bank and PwC 2015).

**244. Despite an internationally recognized competition authority, the degree of de facto competition in Brazil's domestic market remains quite limited.** Competition policy in domestic markets increases the benefits of trade policy as it increases business competitiveness and ensures that foreign firms that have been able to enter can compete on a level playing field with domestic firms. The Global Competition Review, an entity that evaluates the performance of competition authorities, increased Brazil's rating from 'good' to 'very good' in 2013 and maintained the rating in 2014. Among the highlighted improvements is the positive outcome of the merger review system and leniency agreements. The new competition law reduced the threshold for merger notifications and created a fast-track procedure that allows for decisions on simple merger cases within 30 days. As a result, merger review periods have dropped from 252 to 24 days. The competition authority (*Conselho Administrativo de Defesa Econômica - CADE*) also has strengthened its efforts to uncover and dismantle cartels. In March 2014, CADE announced an investigation into allegations that transport providers, including several large international firms, had operated a price-rigging cartel for 15 years in major cities. Nevertheless, in international comparison Brazil ranks only 41st out of 144 countries regarding the intensity of local competition and 73rd in relation to the effectiveness of its anti-monopoly policy (Global Competitiveness Report 2015–2016).

**245. Barriers to entry and contestability of markets remain the main source of restrictiveness in the Brazilian regulatory framework.** According to OECD's Product Market Regulation index, barriers to entry and competition increased from 2008 to 2013.<sup>86</sup> Brazil was the only country among the comparator group in which barriers to trade and investment increased between 2008 and 2013 (see Figure 4.24). In particular, the license and permits system remains highly restrictive, and restrictions to competition in professional services have risen over the past five years. In four professions (accountancy, legal, engineering, architecture), membership in a professional organization is compulsory for exercising the profession. Additionally, licensing of professionals is managed directly by the professional bodies rather than a government agency. Although this is also the case for most OECD economies, government regulation of professional

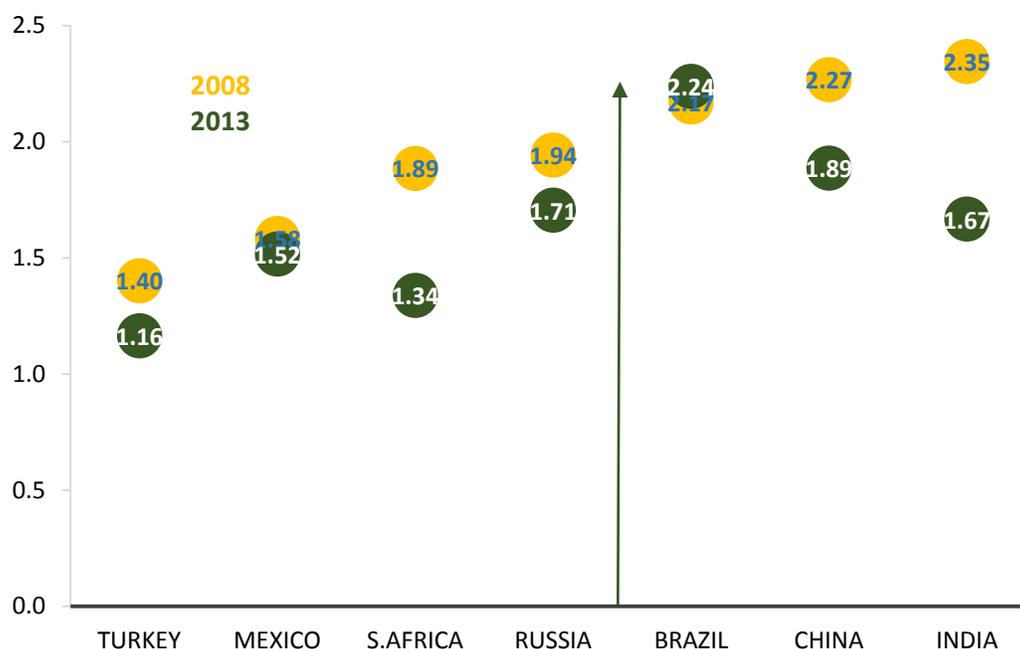
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<sup>85</sup> ICMS is a VAT type tax levied at the state level, which is the single most important tax in terms of revenues, with an annual collection of about 7 percent of GDP. Rates are determined at the state level and there is a complex system of sharing between point of production and point of sale.

<sup>86</sup> The Product Market Regulation indicators assess the extent to which public policies promote or inhibit market forces in several areas of product markets. They address specific restrictions of each country's regulatory framework both economy-wide and in key sectors of the economy. They are policy focused and reflect restrictive elements that affect the incentive or ability of firms to compete and that are embedded in formal laws and regulations instead of opinion surveys that would reflect subjective assessments of market participants.

bodies can encourage a more objective admissions process. Furthermore, advertising and marketing are severely restricted in the accountancy and legal professions.

**Figure 4.24: Barriers to Trade and Investment**



Source: OECD Product Market Regulation database, 2013.

246. **Finally, the governance of state-owned enterprises (SOEs) does not ensure a level playing field between public and private enterprises.**<sup>87</sup> It is generally accepted good practice that SOEs act under competitive neutrality principles, beyond typical corporate governance issues. In Brazil, publicly controlled firms can receive financing which is not available to private companies. While Article 173 of the Constitution stipulates that public enterprises may not receive any tax benefits that are not available to private enterprises, this does not extend to other forms of financial transfers (such as loans) and the article does not apply to any enterprise that provides a public service. This creates a non-level playing field in which more efficient private enterprises are put at a disadvantage with respect to public competitors. It should be noted, however, that the majority of SOEs operate in regulated markets where the nature of the playing fields is in large measure a function of the quality of sector regulation.

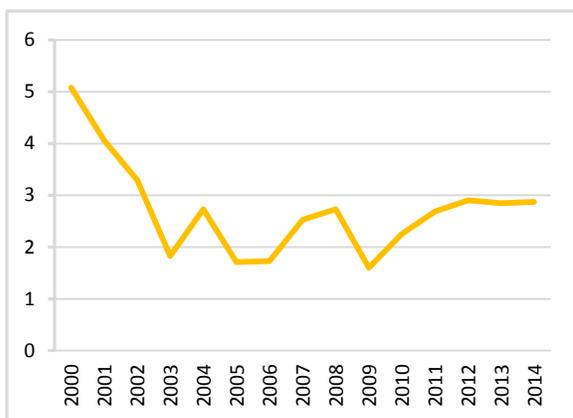
#### 4.3.3 Attracting Efficiency-seeking Investments

247. **Brazil's large internal market has attracted substantial FDI**, historically in manufacturing, and recently in services, spurred by one of the largest privatization programs in the world. The country receives large inflows into many different industrial activities. Although FDI inflows began to decline slightly in 2015, inflows are still much higher than 15–20 years ago. Inflows to manufacturing and the primary sector in particular have been resilient despite the global

<sup>87</sup> On the other hand, there are cases of success among the public or mixed capital companies, like EMBRAPA, which supports private companies that are part of the same production chain through technological spillovers.

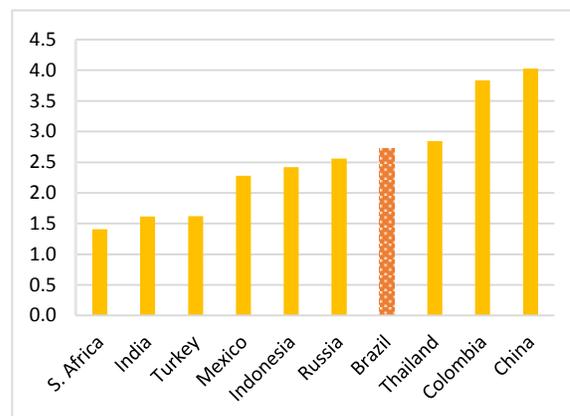
downturn. Figure 4.25 shows that FDI flows have been maintained between 1.5 and 3 percent of GDP from 2003 to 2014, reaching US\$63 billion in 2014.

**Figure 4.25: Brazil - FDI to GDP**



Source: IMF WEO

**Figure 4.26: Average FDI, 2010–2014 Percentage of GDP**



Source: IMF WEO

248. **The challenge for Brazil is to attract efficiency-seeking rather than market-seeking<sup>88</sup> investment.** Global experience suggests that efficiency-seeking FDI can play a crucial role in increasing export competitiveness. Foreign firms can bring in the technology, management know-how, and access to global markets as well as international experience and exposure needed for export success. At present, FDI remains largely oriented toward the domestic market and has not contributed to export competitiveness or to shift production and exports toward more technology intensive and more value-added products. The majority of FDI that Brazil attracts is market-seeking investment, that is, investment motivated by the size and characteristics of the domestic market, in part to obtain access to an otherwise closed market in some sectors, and to earn and maintain high rents by lobbying for trade protection and other forms of preferential policies.<sup>89</sup>

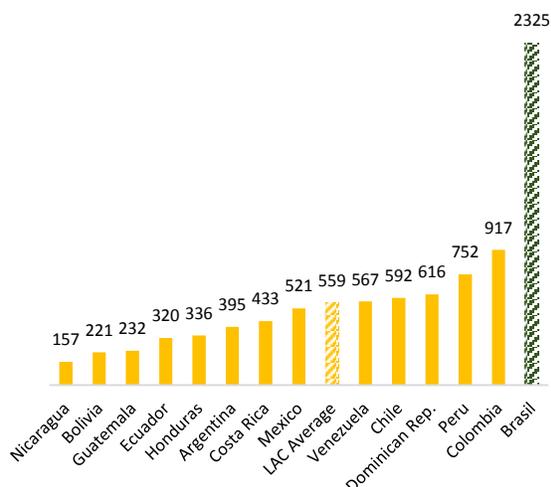
249. **One particular constraint to the attraction of efficiency-seeking FDI, aside from the regulatory barriers to competition that drive up the *Custo Brasil*, is the uncertainty regarding litigation of investment disputes.** The Brazilian court system, in general, is overburdened, and investor disputes can be lengthy and complex. On average, it takes 44 procedures and 731 days to litigate a contract breach at an average cost of 16.5 percent of the claim (Doing Business 2016), which is longer than other comparators except Colombia and India. The enforcement of foreign arbitral awards takes even longer in Brazil at 2,325 days, more than double that of Colombia or any other country in Latin America (see Figures 4.27 and 4.28). Under the Brazilian Arbitration Act, foreign arbitration is recognized as requiring the Federal Court to ratify foreign arbitration awards. However, Brazil is not a member of the International Center for the

<sup>88</sup> *Efficiency-seeking investment* typically has an important export orientation based on productivity advantages and upgrading and is motivated by investors seeking to increase cost efficiency of production by taking advantage of factors that improve the competitiveness of the enterprise. *Market-seeking investment* is motivated by the size and characteristics of the domestic market of the host country and the potential to deliver goods and services to local individuals and businesses and earn and maintain high rents from these investments.

<sup>89</sup> In recent years, the level of FDI inflows to the protected automotive, chemical, and telecommunications industries has been impressive.

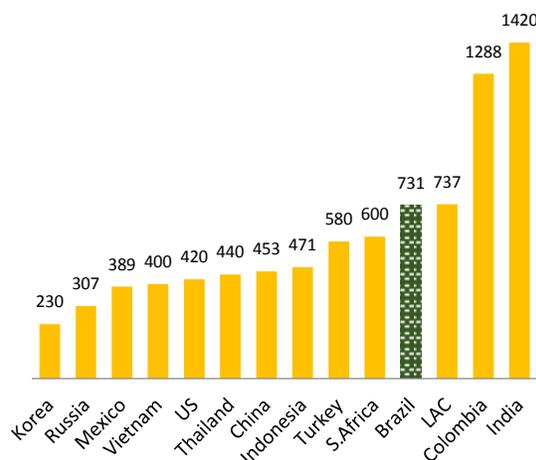
Settlement of Investment Disputes. The lack of access to international arbitration for investor-state disputes significantly increases the political risk of investors.

**Figure 4.27: Length of Proceedings for the Enforcement of Foreign Arbitral Awards (days)**



Sources: World Bank and CAF (2013).

**Figure 4.28: Time to Litigate a Contract Dispute (days)**

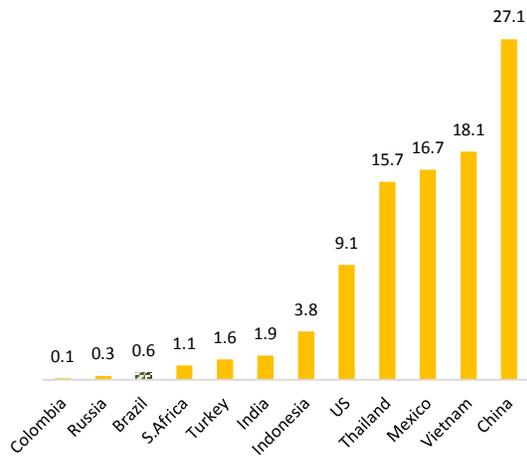


Source: Doing Business Report 2016.

250. **One of the objectives of attracting greater efficiency-seeking FDI is that it may help a country move up along Global Value Chains (GVCs).** It is increasingly recognized that how a country produces a good or service and where it is situated along a GVC matters as much, if not more, for export competitiveness than what it produces (on the increasing importance of trade-in-tasks relative to trade-in-products; see, for example, Lederman and Maloney 2012). In contrast to GVC firms in East Asia, which tend to participate in the intermediate stages of production where exposure to foreign technologies and know-how is highest through learning and knowledge transfer interactions with both suppliers and buyers, GVC firms in Brazil participate mainly in the early stages of production through the supply of raw materials.<sup>90</sup> Moreover, the country's producers seem to be concentrated in relatively lower value-added segments. Although Brazil has been successful in many areas of agribusiness and has become one of the most important agricultural exporters in the world, only a limited number of Brazilian firms have been able to compete in exports of high-technology products. There are virtually no ICT exports, and high technology exports (for example, from Embraer) only make up 10 percent of total manufactures, which are themselves only one-third of exports of goods (see Figures 4.29 and 4.30 on the technological content of Brazilian exports). Brazil has not been able to move sufficiently into skill-intensive, high-capability, and technology-based industries.

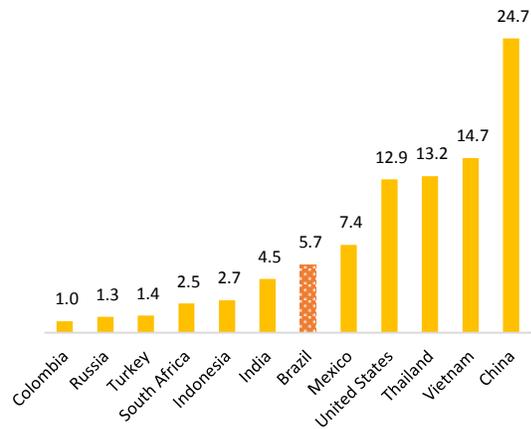
<sup>90</sup> East Asian countries are characterized by roughly equal participation in the forward and backward segments of GVCs, implying that about half of their GVC-related trade is from imports of intermediate goods and half from exports of final goods. De la Torre et al. (2015) claim that "this benchmark of 50 percent may be relevant for growth, as it could be a sweet spot for the maximization of certain learning spillovers, as, for instance, producers of tradables can learn as much from their suppliers of imported goods as from the buyers of their exports." Brazil, by contrast, being a net commodity exporter, is inserted mainly in the forward-linkage segments of GVCs. For a comparison of Brazil's backward and forward participation in GVCs relative to other Latin American countries and other regions of the world, see their Figure 0.17, p. 21.

**Figure 4.29: ICT Goods Exports 2011–2013**  
(percent of total goods exports)



Source: World Bank WDI.

**Figure 4.30: High-Technology Exports 2011–2013**  
(percent of total goods exports)



Source: World Bank WDI.

251. **There are currently insufficient incentives to encourage greater participation in GVCs.** In 2012, the government introduced the *Plano Brasil Maior* (PBM) as a new flagship industrial and trade policy, with one of its stated aims to enhance technological upgrading within value chains. However, the plan did little to identify and encourage growth in specific product niches, where Brazil may have a competitive advantage, or to advance required deeper structural reforms in the areas of market competition, global openness, connectivity, and skills. All these would be essential for broader participation by Brazilian firms in GVCs, which could boost domestic productivity by deepening specialization, learning, and catch-up innovation.

252. **ApexBrasil has supported exporters in targeted industries find buyers abroad, and BNDES has provided export finance.** While the steps required to receive export finance appear to be transparent, the strategy behind the products selected is less than clear; product groupings within ‘target industries’ seem haphazard. For example, tin and tin by-products are grouped with electric typewriters and antibiotics. This is an area in which efforts to better align trade and investment policies with innovation policies would help promote greater Brazilian presence in GVCs.

253. **The National Plan for Exports (PNE), launched in June 2015, focuses on market access, commercial promotion, trade facilitation, financing and guarantees for exports, and improvement of the fiscal regime for export support.** It has specific annual goals in each area and monitoring tools to assess progress. Two pillars of the PNE, market access (including the development of trade agreements with countries exposed to frontier ideas and technologies) and trade facilitation (including addressing bottlenecks to lower-cost and faster trade logistics) may help Brazil participate in those GVCs that have the greatest potential of beneficial technological diffusion and learning spillovers.

#### 4.3.4 Access to Finance

254. **Brazil’s financial sector has expanded rapidly, but access remains limited for long-term sources of finance and for SMEs.** SMEs contribute up to 20 percent of Brazil’s GDP,

represent 99.4 percent of total firms, contribute 54 percent of total formal employment, and account for nearly half (43 percent) of total wages. As discussed previously, the smallest SMEs tend to be the least productive firms in the economy. Access to credit for those able and willing to expand may be critical to increasing their productivity. The ratio of credit to SMEs as a percentage of total credit (12.2 percent) is lower than their contribution to the country's GDP and half the OECD average (25 percent). Moreover, credit to SMEs has gradually been declining in relative importance as more credit has been directed to larger enterprises.<sup>91</sup> According to Enterprise Survey data from 2009, about half of Brazilian SMEs report that access to finance is a major constraint—the highest share among peer countries—compared with about 30 percent in LAC countries, less than 20 percent in India, and about 2 percent in China.<sup>92</sup>

**255. A range of factors has affected access to finance for SMEs, including an outdated legal framework for secured transactions and the absence of a unique asset registry.** Interest rates for smaller businesses are even higher than already high average loan rates. Incomplete and asymmetric information has hindered SMEs' access to financing. Brazil ranks 97th in the Doing Business Getting Credit Indicator for 2016. Brazil has traditionally had a strong credit information culture with regard to *negative* data but only recently has been undertaking the fundamental reform of including positive data in credit reports. The legal framework for secured transactions has not been modernized, and there is no unified electronic movable collateral registry. Issues with regard to collateral execution contribute to raising the cost of credit. In addition, factors such as informality and the relatively poor management of many SMEs have increased credit risk for banks.

**256. Some firms in Brazil report that scarcity of finance is one of the main obstacles to investing in new technology, but the key problems may be more related to the allocation and pricing of credit.** Financial constraints are particularly important for young start-ups and small firms that would be growing much more rapidly but for the availability and cost of finance. Evidence indicates that the intensity of financial constraints varies across industries, especially in service industries, where tangible collateral is often absent.<sup>93</sup> It appears that larger, older, and less-risky firms benefited most from the expansion of earmarked public loans at below-market interest rates (directed credit) after 2008. More empirical work is needed to understand to what extent the allocation of credit (both with regard to its maturity and sector/use) and its pricing are key constraints to investment and productivity upgrading. It will also be important to understand to what extent and through which channels the structure and the functioning of the banking sector aggravates the economic imbalances of Brazil, including by provision of credit for consumption and distortion of credit allocation to companies by the state banks. It will be important to achieve consensus on what actions are needed to facilitate a financial sector that can serve the needs of growing firms across agriculture, manufacturing, and services. In addition to these more systemic issues, the difficulties in accessing finance for innovation also include its high uncertainty and the partial private appropriability of the returns of investments in knowledge (exacerbated by weak

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<sup>91</sup> At end-2014, credit to SMEs was 43 percent of total credit to enterprises, lower than in 2013 (46.8 percent) and 2012 (48.9 percent).

<sup>92</sup> Some more encouraging figures are reported in Lederman, Messina, Pienknagura, and Rigolini, (2013, page 143), which suggest that about 90 percent of new firms (most of which are likely to be SMEs) have access to credit, while given Brazil's level of development the expected value would be less than 45 percent.

<sup>93</sup> Crisóstomo et al (2011) provide evidence of the importance of financial constraints for innovation investment in Brazilian companies.

intellectual property protection). These and other constraints to innovation at the firm level, and the effectiveness of various government support schemes to stimulate research and development, are reviewed next.

#### 4.4 Productivity Constraints at the Firm Level: The Need for More Business Learning and Innovation

257. **Growth is driven not only by physical and human capital accumulation but also by business innovation, including catch-up as well as frontier innovation.** ‘Catch-up’ innovation refers to the commercialization by businesses of new-to-the-firm technologies, organization, and processes that allow firms to narrow their gap in productivity relative to top national and global businesses. Catch-up innovation means improving productivity within each firm by engaging in learning processes related to identifying better-existing technologies and adapting them to the firm’s local context. ‘Frontier’ innovation refers to the generation and commercialization of new-to-the-world technologies. Both types of innovation require investments by firms in different types of ‘soft’, intangible knowledge capital assets (Dutz et al. 2012). Importantly, these investments go significantly beyond traditionally measured R&D expenditure.<sup>94</sup> The WEF has also developed measures of a country’s degree of innovative activity and its capacity to innovate. Brazil ranks in the middle of a group of OECD and middle-income peers for capacity for innovation and 84th out of 140 countries in the Innovation Indicator (Figures 4.31 and 4.32). The various dimensions of Brazil’s innovation performance are reviewed below.

Figure 4.31: Innovation Rank

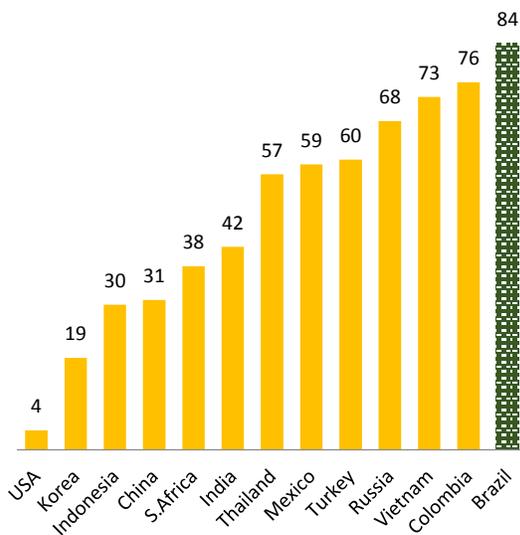
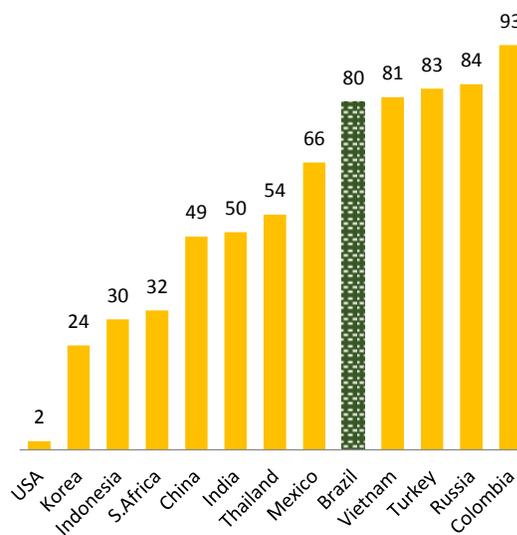


Figure 4.32: Capacity for innovation Rank



Source: WEF, Global Competitiveness 2015–2016.

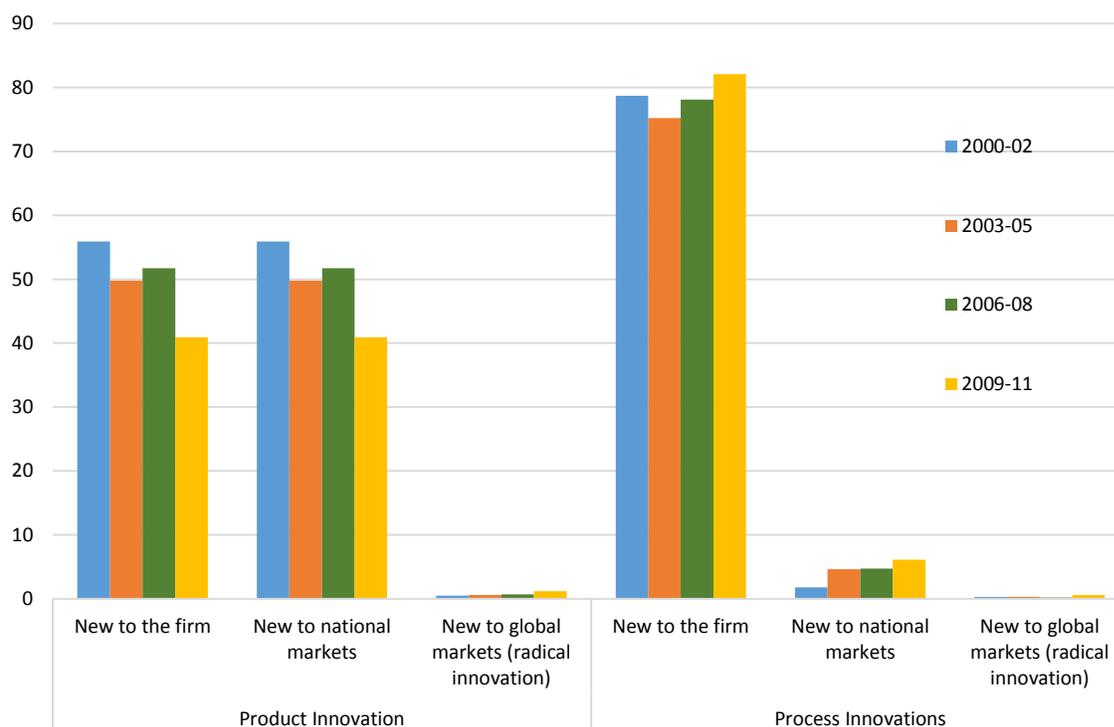
Note: Rankings are composite indices including quality of scientific research institutions, company spending on R&D, university-industry collaboration in R&D, government procurement of advanced technology products, availability of scientists and engineers, and PCT (the Patent Cooperation Treaty) patent applications.

<sup>94</sup> Corrado, Hulten, and Sichel (2005; 2009) introduced and measured this concept and found that intangible knowledge capital assets comprise a substantial share of TFP.

#### 4.4.1 Catch-up Innovation

258. **The nature of innovation by Brazilian firms is mostly catch-up rather than frontier innovation.** Most of the innovations introduced by Brazilian businesses consist of adapting existing technologies for the local market and, hence, are classified as catch-up rather than frontier (or ‘radical’) innovations<sup>95</sup> (Figure 4.33). Accordingly, process innovation is more frequent than product innovation. More than 80 percent of companies that reported having innovated have introduced process innovations where the novelty is specific to their firm, while 50 percent of companies that have innovated have also introduced a new product, which typically represents a novelty not only for the firm but also for the national market. The main reported obstacles to more investment in innovation activities by these firms are a scarcity of sources of finance, high costs of innovation, and a lack of qualified personnel to undertake innovation activities (Figure 4.34). These three factors rank the highest across all industries, both in manufacturing and services. In extractive industries, a lack of technological information is also named among the top constraints.<sup>96</sup>

**Figure 4.33: The Nature of Technological Innovation in Brazilian Firms**

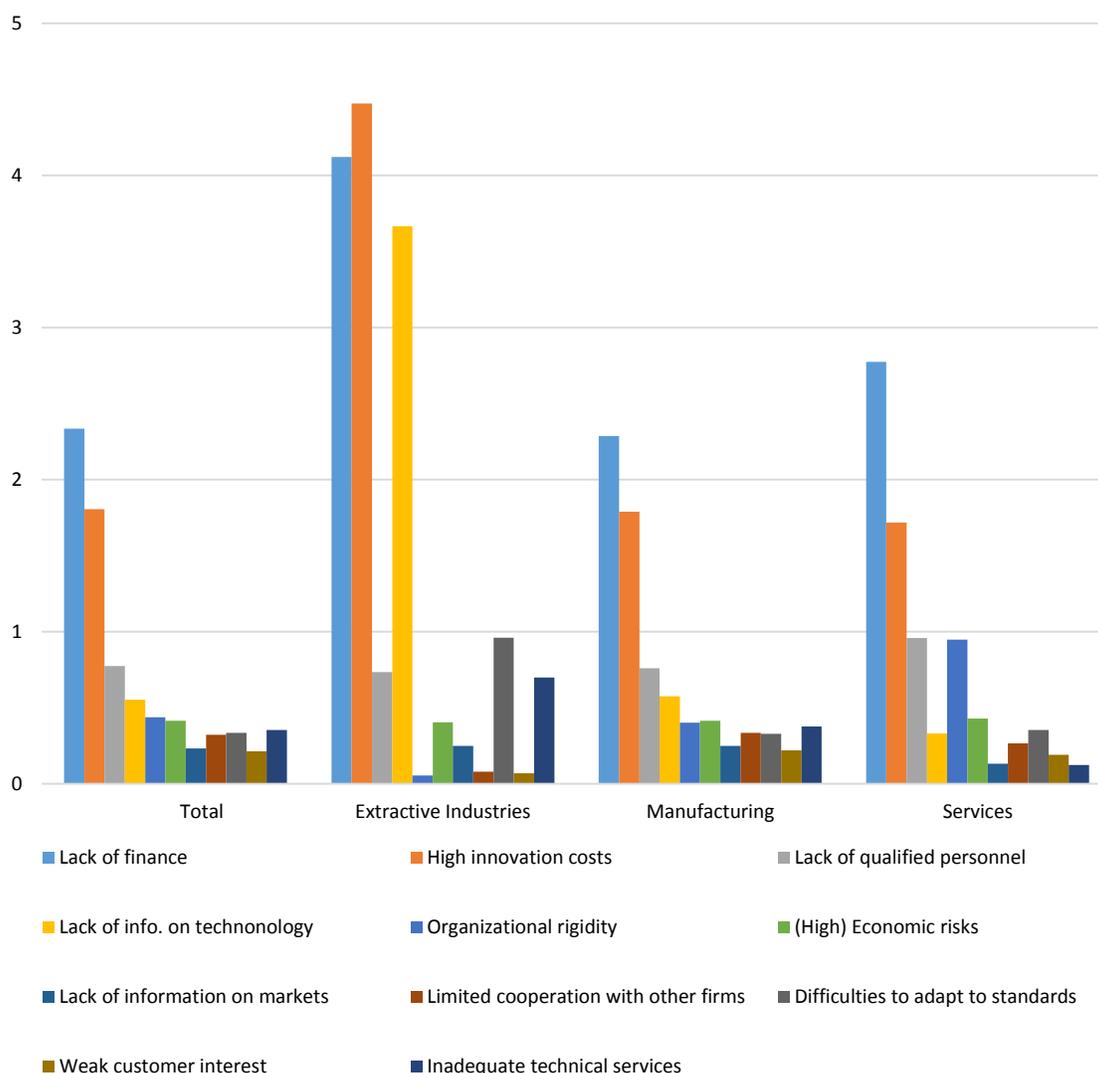


Source: PINTEC, various years (IBGE).

<sup>95</sup> The data in this paragraph are from the Survey of Technological Innovation (*Pesquisa de Inovação Tecnológica*, PINTEC) from IBGE. For an in-depth complementary analysis see Zuniga et al. (2016).

<sup>96</sup> When interpreting such self-reported constraints, it is important to realize that there is a propensity for respondents to report on easily identifiable external-to-the-firm obstacles rather than problems such as ‘I’m not a good manager’ or ‘I would be pressured to more actively seek new markets and customers under a tougher market competition threat,’ with the latter typically not asked and not likely to be top answers even if asked.

**Figure 4.34: Finance As Most Important Reported Obstacle to Innovate, 2011**



Source: PINTEC 2011 (IBGE).

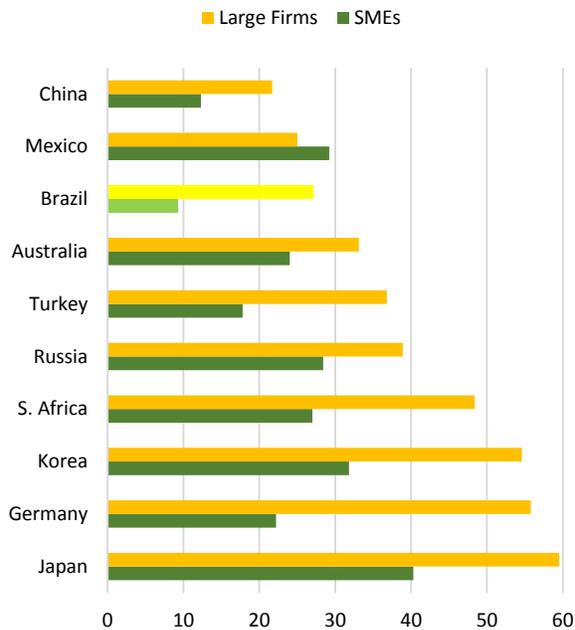
Note: Percentage of firms declaring obstacle as very important as a share of the total number of innovating firms.

259. **In spite of valuing external sources of knowledge for innovation, Brazilian businesses appear handicapped by a low level of collaboration with other firms and institutions.** Networks of external collaboration across innovators, apart from the exceptional cases of well-known strategic sectors (oil, aerospace, and agro-industry) are not well developed in Brazil (Figures 4.35 and 4.36). This weak cooperative culture represents missed opportunities to jointly learn and innovate. Cooperation activities in principle can help businesses access complementary technological resources (such as skill sharing) and reduce costs and thereby develop economies of scale and scope.<sup>97</sup> Cooperation with other firms, particularly with clients and suppliers is frequently associated with increased innovation performance and productivity gains.<sup>98</sup>

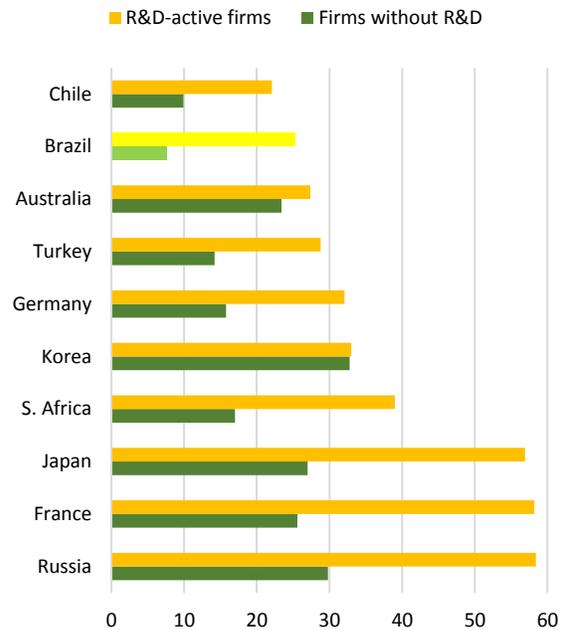
<sup>97</sup> Cassiman and Veugelers (2002); Cassiman, Pérez-Castrillo, and Veugelers (2002).

<sup>98</sup> Freel and Harrison (2006); Belderbos, Carree, and Lokshin (2004).

**Figure 4.35: Cooperation in Innovation with Other Firms or Institutions by Size 2008–2010**



**Figure 4.36: Cooperation in Innovation with Other Firms or Institutions by R&D Status, 2008–2010**



Source: OECD 2013.

#### 4.4.2 The Supply of Inputs to Innovation: R&D, Patents and Scientific Capacity

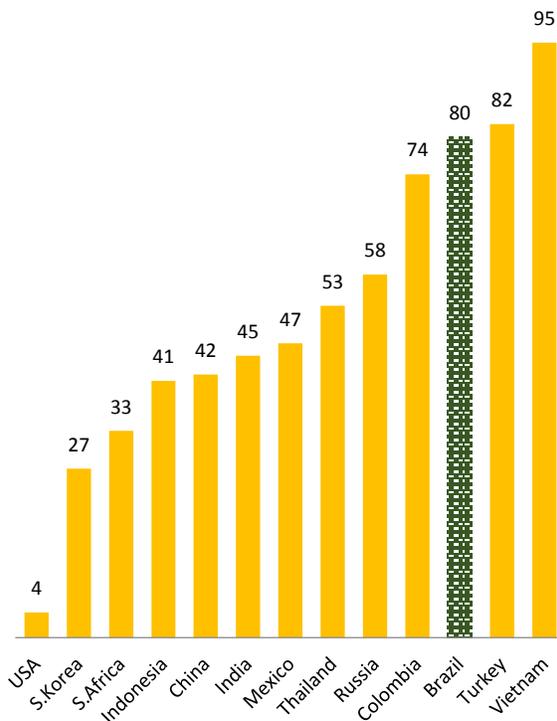
260. **Brazil has significantly increased public spending on Research and Development (R&D), but this has yet to contribute to stimulate more private sector innovation.** Public R&D spending rose from 0.52 percent of GDP in 2003 to 0.68 percent in 2012. The number of PhD researchers per 100,000 residents more than doubled between 2000 and 2008, expanding from 17.1 to 40.1. The share of science and engineering PhDs also improved over the period 2007–2011. A key issue, though, is that most researchers and new science and engineering specialists continue being absorbed by the public sector rather than joining the private business sector.

261. **The private sector contributes less than half of total R&D, while the OECD average is around 70 percent.** The participation of the business sector in the total financing of national R&D has actually decreased between 2000 and 2012 from 47 percent to 43.1 percent, whereas the government share correspondingly increased. In 2012, R&D financed by the business sector represented only 0.53 percent of GDP, a third of the corresponding OECD average at 1.59 percent (OECD, 2013). Brazil shares a number of shortcomings in its national innovation system with other emerging and some high-income countries. These include (a) a disconnect between science and technology investments from business needs and demands; (b) a too slow shift by researchers from theoretical to more practical applications (exacerbated by the fact that close to two-thirds of all scientific researchers are still based at universities, compared to just one-quarter in the United States or Germany); (c) regulatory and governance deficiencies (such as career management practices) that constrain business collaboration; and (d) a continued scarcity of engineering and technology specialists (accounting for only 20 percent of all researchers in Brazil compared to over half in Russia or Korea).

262. **Innovation-related outputs as proxied by patent registrations are low.** Between 2000 and 2010, Brazil’s share of world patents granted by the USPTO (United States Patent and Trademark Office) remained stable, at around 0.07 percent. In a comparison with 75 countries, Brazil ranked 54<sup>th</sup> in 2010 on resident patent applications as a share of GDP, at 1.38 patents per US\$, billion (World Intellectual Property Organization - WIPO, 2013), 55<sup>th</sup> among 82 countries in patents per capita (13.9 patents per million inhabitants). Although patenting has been growing over the past decade, it remains largely restricted to a select number of high-performing industries such as aerospace, oil and gas, agroindustry, and cosmetics, and confined to a few large Brazilian firms and multinational companies. Research networks around Embraer (aircraft technologies), Petrobras (oil and gas), and Embrapa (agriculture) have had significant success (see Box 4.1). However, their particular combination of government-business partnership and significant embedded autonomy has been difficult to replicate in other industries or to extend to smaller companies.

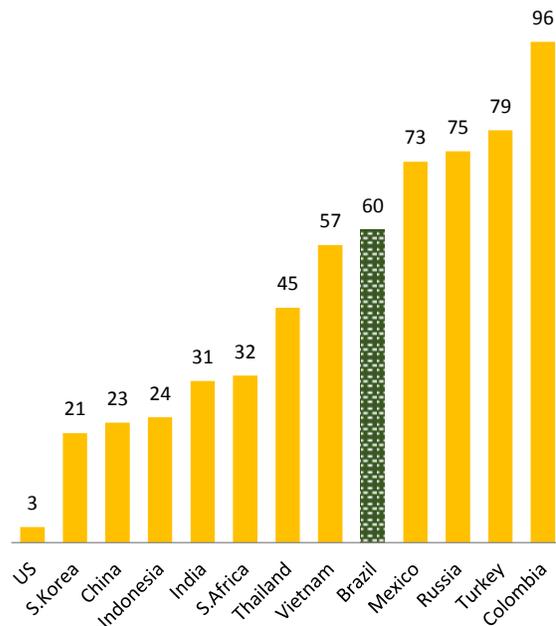
263. **Despite these shortcomings, the supply of innovation in Brazil does not seem particularly more constrained than in other middle-income countries.** According to WEF assessments, out of 140 countries, Brazil ranks average for the amount spent on R&D, and the quality of scientific institutions (see Figures 4.37 and 4.38). This suggests that the reasons for the relatively low aggregate and the substantial variation in innovation activity at the firm level in Brazil may lie on the demand side more than on the supply side.

**Figure 4.37: Quality of Scientific Research Institutions, Rank**



Source: WEF, Global Competitiveness 2015–2016.

**Figure 4.38: Company Spending on R&D Rank**



Source: WEF, Global Competitiveness 2015–2016.

#### Box 4.1: Embrapa and Frontier Innovation

One of the most extraordinary events in Brazil in the past 30 years has been the country's 'agricultural revolution'. In the 1970s, food scarcity was a risk in a country experiencing rapid urbanization and middle class expansion. One of the government's initiatives to address Brazil's stagnant agriculture sector and food scarcity was Embrapa (*Empresa Brasileira de Pesquisa Agropecuária*). Embrapa has succeeded in creating, adapting, and transferring technologies to Brazilian farmers for the past 30 years, helping transform Brazil into one of the world's largest food exporters. The use of these technologies by farmers facilitated the expansion of agriculture and increased exports at internationally competitive prices—first, by expanding the supply of arable land and, second, by improving the productivity of selected crops.

Embrapa is arguably a major factor contributing to the systematic increases in Brazil's agricultural productivity. How did Embrapa get it right when similar organizations failed? Embrapa was created in 1973 as an agricultural research organization under Brazil's Ministry of Agriculture and was almost entirely funded by government resources. Embrapa generated and transferred new technologies and techniques tailored to Brazil's climate and soil conditions. Pursuing a clear vision of recuperating and boosting the agricultural sector, Embrapa has developed and transferred more than 9,000 technologies to Brazilian farmers. These new technologies enabled the expansion of agriculture and cattle ranching activities into Brazil's Cerrado, one of the largest reserves of arable land in the world. This process helped keep the cost of the marginal land down and the growth of Brazilian agricultural production internationally competitive. Further, the development of seeds that were more suitable for tropical climate conditions (and the Cerrado's soil) helped increase land productivity for a number of crops, especially those originally grown in temperate climate regions.

Embrapa's successful experience is at odds with the performances of many other public research institutes in developing countries, which often struggle to generate high-quality research and effectively transfer technology to farmers. Embrapa's success is due to four main factors:

(a) **Adequate levels of public funding.** Embrapa's expenditures in the last 20 years, at around 1 percent of Brazil's agricultural GDP compare well with public spending on agricultural R&D in more developed countries, such as Canada, the United States, and Australia.

(b) **Sustained investment in human capital.** Around 20 percent of Embrapa's budget was invested in the education and training of its employees between 1974 and 1982 alone. Currently, three-quarters of Embrapa's 2,000 researchers hold PhDs.

(c) **International collaboration and research excellence.** From the beginning, researchers were drawn from leading universities, setting a high standard of research excellence. Furthermore, Embrapa strengthened its international links by establishing 'virtual labs abroad' on three continents to institutionalize knowledge generation and exchange.

(d) **A mission orientation and IPR (Intellectual Property Rights) policy.** Embrapa was created with 'the mission to provide feasible solutions for the development of Brazilian agribusiness through knowledge and technology generation and transfer.' Pursuing an open innovation system and an IPR policy in the agricultural sector facilitated technology transfer, diffusion of new cultivars, and the filing of international patents.

*Source:* Correa and Schmidt 2014.

#### 4.4.3 The Demand for Innovation: Management Quality and Competitive Pressures

264. **Even when the supply of innovation inputs is adequate, this is no guarantee that innovation will actually take place.** Firms may fail to innovate for a number of additional reasons. Among others, they may lack access to the necessary information about available technologies, their management may fail to see opportunities for innovation, or they may be sheltered from competitive pressures and burdened by various business environment deficiencies associated with the *Custo Brasil*, thus having few incentives and limited ability to innovate.

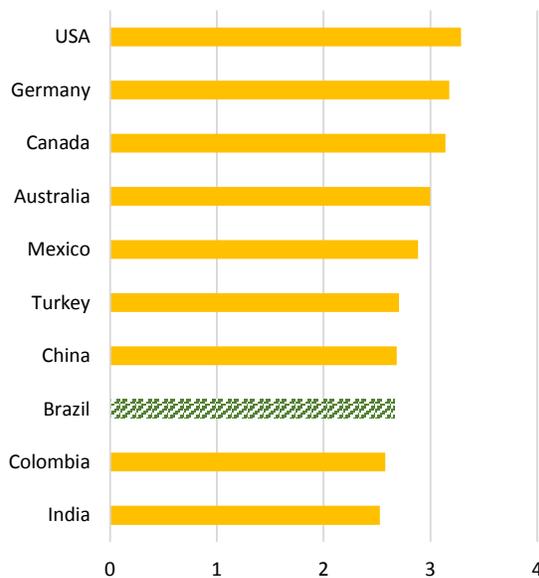
265. **Management quality is increasingly seen as a key determinant of firm-level innovation.** A large body of literature has recently developed that empirically establishes a link between enterprise productivity and management quality (Bloom and Van Reenen 2010). One output of this research is the development of a management quality index at the firm level, which can be aggregated to compare countries. On this measure, Brazil not only lags behind Mexico,

Poland, Chile, China, and Turkey (Figure 4.39), but its list of poorly run firms is bigger than China's (Bloom et al. 2014). This corresponds to the much greater variation in productivity levels in Brazil than in peer countries described earlier.

266. **One fairly robust determinant of management quality is the type of ownership of firms.** Specifically, family firms, on average, tend to have weaker management, even after taking account of factors such as firm size, industry, and manager/workforce education (Bloom et al. 2014). Firms that are family owned and family managed have, on average, much worse management scores, while family-owned but externally managed firms perform better. Brazil has a relatively high share of family-owned firms, although this is not unusual among emerging markets with the exception of China (Figure 4.40).

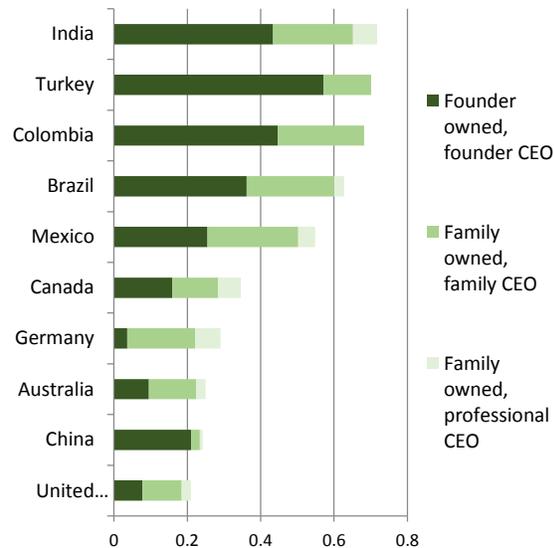
267. **Product market competition is critical in stimulating firm-level innovation by thinning the ranks of the badly managed companies and incentivizing the better-managed survivors to improve.** The previous section as well as Chapter 3 showed the extent to which market competition remains hampered by regulatory distortions, subsidies, and tax incentives and the substantial presence of SOEs and directed credit from state banks. These factors may all contribute to the relatively low average management quality score in Brazil, its large dispersion, and the resulting variance in firm-level innovation and productivity. In addition, the human capital of managers and the extent to which they can access sources of information on their relative performance and that of their peers also determines the demand for innovation at the firm level.

**Figure 4.39: Average Management Score by Country, Manufacturing**



Source: World Management Survey, 2004–2014 combined survey data.

**Figure 4.40: Share of Founders/Family Firms**



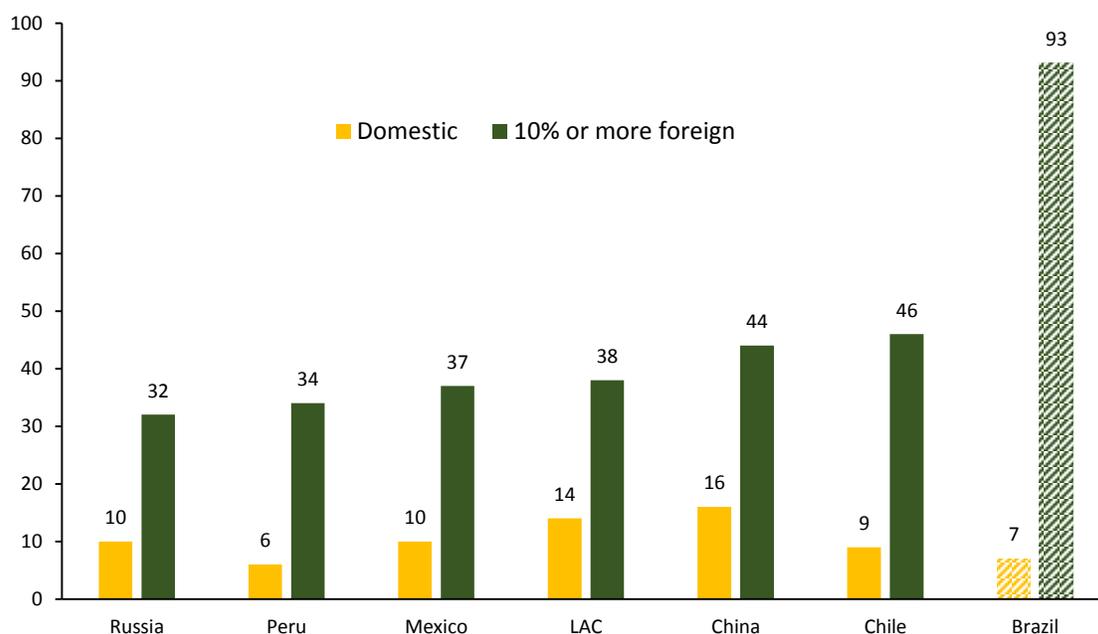
Source: Lemos and Scur 2015. Special tabulation.

#### 4.4.4 Innovation, Learning, and International Integration

268. **One critical channel for the diffusion of advanced technologies is learning through international integration.** Not surprisingly, given the relatively closed nature of Brazil's

economy, its domestically owned enterprises make less use of technology licensing from foreign companies compared with other emerging countries. Only 7 percent of domestic firms in Brazil are engaged in technology licensing whereas firms with this type of technology adoption and learning transaction represent 16 percent of total firms in China, 14 percent on average in LAC, and 10 percent in Russia and Mexico (Figure 4.41).

**Figure 4.41: Firms with Technology Licensing from Foreign Companies per Ownership Origin (percent)**



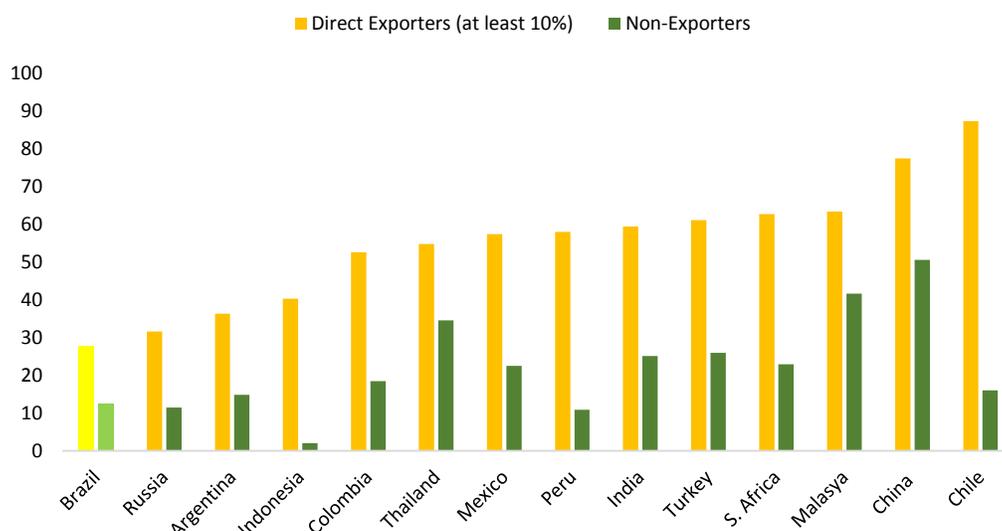
Source: World Bank Enterprise Surveys.

269. **Brazilian firms also seem less likely, on average, to adopt international quality standards, such as the ISO (International Organization for Standardization) international quality certificate.** By signaling to external buyers and investors that the firm is a high-performer on quality management issues, quality certification is a form of upgrading that facilitates firms' integration into GVCs and exporting.<sup>99</sup> Certification facilitates firm growth (after certification) and the growth effect is greater when buyers have greater difficulty acquiring information about suppliers (Terlaak and King 2006). ISO certification is increasingly seen as a requirement for firms supplying high-quality markets. In Brazil, only 26 percent of manufacturing firms have an internationally recognized quality certification while the corresponding figure for China is 53 percent (Figure 4.42). However, with regard to total national numbers of international certifications issued, Brazil ranks relatively higher. For instance, according to Harmes-Liedtke and

<sup>99</sup> A number of papers show that ISO 9000 certification is correlated with direct measures of product quality (for example, Carlsson and Carlsson 1996; Brown et al. 1998; Withers and Ebrahimpour 2000).

Oteiza di Matteo (2011), Brazil ranked 12th out of 53 countries on the total number of ISO 9000 certifications issued in 2010, well above South Africa, Mexico, Thailand, and Indonesia.

**Figure 4.42: Percent of Firms with International Quality Certification by Exporting Status**



*Source:* World Bank Enterprises Survey, online database; most recent data. (Brazil 2009)

**270. A less-developed national quality infrastructure discourages the adoption of international quality standards in Brazil.** A country's quality infrastructure includes metrology, standardization, accreditation, and conformity assessments (inspection, testing, and certification). Brazil ranks 30<sup>th</sup> out of 53 countries in the Quality Infrastructure Index, adjusted by GDP.<sup>100</sup> Russia, India, and South Africa rank 24<sup>th</sup>, 25<sup>th</sup>, and 26<sup>th</sup>, respectively, and Korea and China are far better in 14<sup>th</sup> and 15<sup>th</sup> position, respectively. The focus of most Brazilian companies on the sheltered domestic market may explain the lack of demand for improvements in this area, which in many countries has often been driven by the private sector.<sup>101</sup> However, with regard to absolute values of each indicator composing the Quality Infrastructure Index, Brazil appears to be converging with more advanced economies such as the United States, Germany, Japan, the United Kingdom, Italy, and France, which have a longer tradition in quality infrastructure. This is an important achievement given that national quality institutions from developed countries typically have a much longer historical experience and are better known within the national business environment than their peers in Brazil. As an example, the Brazilian INMETRO has half the

<sup>100</sup> The Quality Infrastructure Index is a composite indicator reflecting the level of development of a nation's quality infrastructure, namely the set of institutions that provide the services to guarantee the quality and safety of products and services for local and international consumers. The resulting composite indicator is weighted by population or by GDP. See Harmes-Liedtke and Oteiza di Matteo (2011).

<sup>101</sup> The Quality Infrastructure Index is not without limitations. As with other such composite national indicators, it may not capture important aspects of quality, effectiveness, accessibility and cost, and may not capture national changes in a sufficiently timely manner. In addition, enterprises (entrepreneurs) can often obtain certifications without following all protocols and guarantees, so the number of existing rules may not in practice be such an important constraint. Finally, country comparisons are likely more meaningful when limited to groups that are more homogeneous – which explains why we selected other emerging economies as comparators.

lifetime of its counterparts in these developed countries. Yet, there is potential to improve the impact of the national infrastructure of quality and its services by stimulating greater awareness by small and medium enterprises (SMEs) (better connecting supply and demand) and making these services more accessible to all businesses.

#### 4.4.5 Innovation and Public Support Mechanisms

271. **Given the importance of innovation for sustained economic growth, particularly in upper-middle-income and high-income countries, many governments have developed ambitious policies to support the adoption of new technologies.** Brazil has used a wide array of policy instruments with the purported goal of enhancing firm-specific innovation capacity since the mid-1990s. In 1999, sectoral funds were established to fund R&D at the firm level and stimulate stronger linkages between universities, research institutes, and firms. In the early 2000s, the government adopted a series of institutional and legal changes to support innovation, initially the Innovation Law (2004) and the *Lei do Bem* (2005),<sup>102</sup> followed by the Science, Technology, and Innovation Action Plan (PACTI) for 2007–10 and the Production Development Policy (PDP) launched in 2008. The latest innovation policy framework, the National Strategy on Science, Technology and Innovation (ENCTI 2011–14) is supported by the national industrial policy contained in the Brazil Plan 2011–14 (*Plano Brasil Maior*). With regard to specific financial instruments, FINEP (*Financiadora de Estudos e Projetos*), the Brazilian Innovation Agency, is the main firm-specific direct innovation funding agency that provides grants and credits to firms and institutions. Its budget has increased eight times in the last decade. The financing packages for innovation offered by BNDES have supplemented FINEP resources. They include below-market rate loans as well as equity investments through capital markets. The other major national source of support to innovation has been in the form of public procurement with strictly enforced LCRs. Finally, states in Brazil are taking an increasingly active role in supporting start-ups and firm innovation.

272. **Brazil currently allocates twice as much for firm-level R&D than for catch-up innovation through technology extension.** The magnitude of public support for R&D through formal programmatic channels is about 0.15 percent of GDP, relative to about 0.07 percent of GDP allocated to SEBRAE and SIBRATEC, the main agencies for technology extension to SMEs. Indirect government support to R&D through tax incentives represents about 0.05 percent of GDP. Indeed, in Brazil, 27.3 percent of R&D expenditures are subsidized (Araújo, 2012). On the other hand, strong technology extension initiatives are especially useful when governments are attempting economic reform and industry restructuring. In such environments, good extension services (that reach out to individual and groups of firms, work with them on-site, provide tailored help in restructuring and upgrading, filter funding demands and ensure that only those with viability are prioritized, and provide on-the-ground intelligence back to government) are an important tool to improve firm performance and industry dynamics.

273. **Neither SEBRAE nor SIBRATEC have been the subject of an impact evaluation.** More generally, public policies for innovation and productivity in Brazil still lack a strong framework for M&E, allowing policy makers to learn from current actions and properly assess effectiveness and impact of policies. What evidence exists on the effectiveness of public support

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<sup>102</sup> Law 11,196 consolidated and expanded tax incentives for companies that perform R&D within the country.

schemes in encouraging innovation is mixed (Box 4.2). To improve technology diffusion and firm upgrading for SMEs, policy oversight and evaluation need to be strengthened.

#### **Box 4.2: Lessons from Impact Evaluations**

**De Negri et al. (2006a)** examine the impact of subsidies (matching grants) from the Scientific and Technological Development Fund (*Fundo para Desenvolvimento Científico e Tecnológico* - FNDCT) for university-industry collaboration on R&D expenditures turnover and employees. For the 2000–2005 period, 135 beneficiary firms were identified. Accordingly, participant firms' R&D spending increased around 50 to 90 percent more than non-participant firms (in the selection models). Estimation showed a positive and significant impact of the FNDCT on firm R&D intensity (net of subsidy) of 1.63 percent. No significant difference was found between beneficiaries and non-beneficiaries for sales, employees, and labor productivity (in growth rates).

**De Negri et al. (2006b)** show that firms that benefited from reimbursable funding (credits) from the National Technological Development Support Program (*Apoio ao Desenvolvimento Tecnológico da Empresa Nacional* - ADTEN) over the period 1997–2005 had significant increases in R&D expenditures (levels) between 28 and 39 percent higher on average than firms that did not benefit from this program.<sup>103</sup> Beneficiary firms showed increase in sales, but no significant impact on productivity, employment, or patenting was detected. The authors point out that the main limitation of the program is its limited coverage, reaching only 0.07 percent of industrial firms.

**Araújo et al. (2011)** evaluate the impact of sectoral funds on the number of scientific and technological-related employees, employment, and exports using panel data for 344 industrial firms between 2000 and 2007. They considered 'treated' firms as those accessing any of the instruments provided through sectoral funds: credit access at favorable conditions, grants, and incentives for cooperative projects linking universities and firms. Estimates indicate that the funds do have a positive impact on technological effort but a weak effect on high-tech exports. Impacts for R&D inputs were higher for credit instruments, but richer data and further analysis are needed. Only one marginally significant impact was found for high-tech exports (after four years of accessing funds). The funds did not have any robust impacts on patents.

**Alvarenga et al. (2012)** also examine the impact of Sectoral Funds on the number of researchers and technicians but focus on two mechanisms: funding for cooperative projects (between universities and research centers) and credits. Their sample of beneficiaries covers 2001–2006 and is restricted to firms with five or more employees. Only the total average effect in the year of access was statistically significant: treated firms had an average increase of 1.5 percent in their R&D investment. This impact increases over time. By analyzing groups (amount levels), significant effects only occur after long periods and for firms that received between R\$222,000 and R\$349,000: if these firms had received 1 percent more resources, they would have invested on average 4.5 percent more. 1 percent increase in sectoral funds' resources would lead to 5 percent more growth in firm size. The effect on most deciles occurs three years after access.

**INGTEC Research Group (2013)** evaluated the impact of ADTEN, FDNCT and tax incentives. Dynamic random effects estimates indicate that the number of researchers and technicians grows by 4.7 percent. With the exception of a subsidy program, direct support in the form of credit or cooperative projects fosters more innovative effort than tax incentives. Nonetheless, as the authors explain, direct and tax-based incentives for innovation have different purposes, and as such, they are not directly comparable. Subsidies do not have a robust impact on the innovative effort of its direct beneficiaries. Dynamic random effects indicate that subsidies may foster a 6.5 percent increase for direct beneficiaries. In both cases, the peak effect seems to occur one year after receiving the program.

274. **Ultimately, fostering firm-level innovation requires a careful balance between competition and cooperation.** Increasing productivity is very much a learning process involving experimentation, risk taking, and sometimes failure. It is not a matter of simply injecting firms with the necessary knowledge or even providing incentives to do research. Exposure to competition is needed to weed out the poorest performers and create incentives for process and product innovation. Efficiency-seeking FDI and participation in export markets provide critical

<sup>103</sup> Projects that are eligible for financing are basic engineering projects with a technological development element, establishment of research and development centers, the purchase and incorporation of technology, quality control and management, and innovative marketing.

access to useful knowledge on the improvement of production processes. Cooperation may take place between public, private, and academic institutions, but also between firms through joint ventures and investments. Coordination between public and private entities may be helpful but should only correct a market failure rather than support a specific firm's development process. Coordination between private firms (for example, joint ventures) typically receives special treatment under competition law seeking balance between efficiency of economies of scale and competition. If Brazil has disappointed in its productivity and innovation performance, it is surely not because of insufficient public support—rather, the broader innovation eco-system seems to have militated against greater firm-level efforts to develop new products, improve quality, and thereby improve their competitive position.<sup>104</sup> A final factor in this broader eco-system, which has hampered productivity growth, is the legacy of a poorly skilled workforce.

#### *4.5 Productivity Constraints at the Individual Level*

**275. Organizing the supply of skills in an economy to meet the requirements of businesses and support the technological advancement of the economy is a complex undertaking.** This is because firms will invest in those technologies for which they believe they can find adequately skilled workers. If skill levels are low, so will the level of technology employed and this in turn will reduce incentives for skills upgrading. Public policy is thus needed to coordinate investment by individuals in skills and by companies in technologies and processes. This includes anticipating what the required skills of the future might be and involving the private sector to ensure what students learn is relevant to their needs. Public regulation of labor markets may also influence the extent to which firms are willing to invest in on-the-job training, a key element of skill upgrading in middle-income and high-income economies.

##### *4.5.1 Public Policies to Improve Skills Levels*

**276. Skills shortages are an important constraint for increasing productivity.** In Brazil, the lack of human capital, skills, and training are key bottlenecks. This is particularly relevant given that trade (imported technologies) and the adoption of external technologies typically have a skilled-labor bias. Technology upgrading then results in greater demand for skilled workers and leads to a possible displacement of unskilled employees—unless the greater efficiencies result in higher outputs and concomitant higher demands for all types of workers.<sup>105</sup> This effect has been confirmed for both developed and developing countries, including Brazil.<sup>106</sup>

**277. Not only the quantity but also the quality of education needs to be reinforced at all levels, with participation of business to reflect their needs.** Although they have improved dramatically over the last ten years, the Brazil Program for International Student Assessment (PISA) science and math scores of 15-year-olds are still among the lowest in the OECD countries. At the level of tertiary graduates, the dearth of science and technology university graduates (as

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<sup>104</sup> Frischtak and Davies (2015).

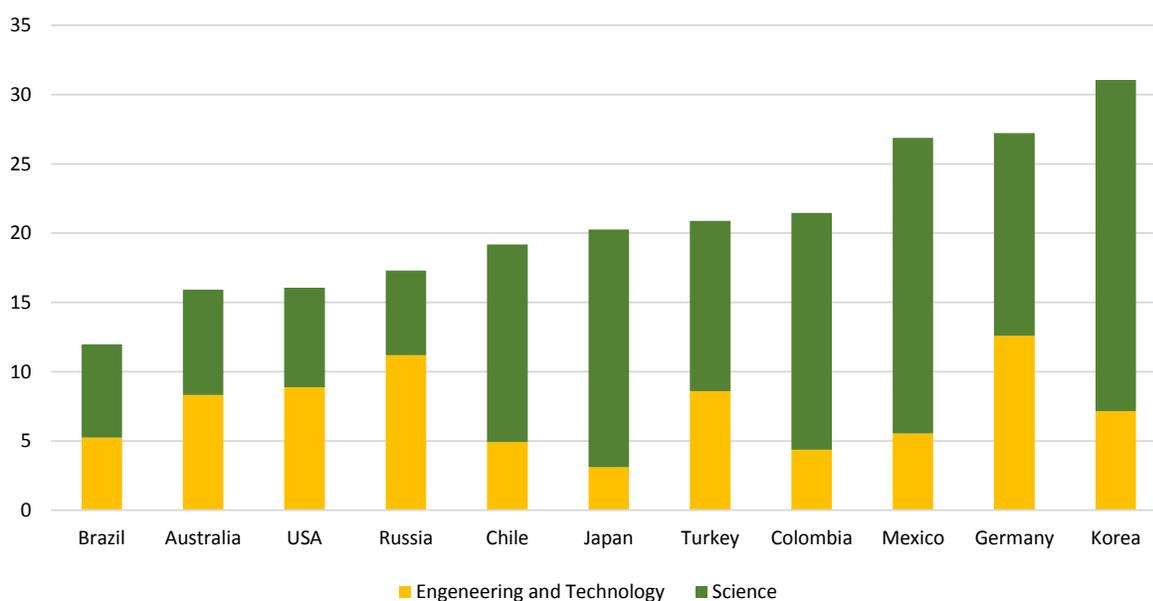
<sup>105</sup> Tan and Batra (1997) for Colombia, Mexico, and Taiwan, China; López-Acevedo (2002) for Mexico; and Araujo, Bogliacino, and Vivarelli (2011) for Brazil, all provide evidence of skill-biased technological change.

<sup>106</sup> Looking at Brazilian manufacturing firms, Araujo, Bogliacino, and Vivarelli (2011) found evidence of skill-upgrading effects from imported capital goods. Accordingly, R&D and capital formation are complements for skilled employment; to be used effectively, capital goods would require an upgrading of skills in line with country-of-origin technologies.

compared to the supply of graduates in social sciences and management) is an important handicap for firms to engage in innovation activities (Figure 4.43). A recent survey suggests that almost half of Brazilian employers cannot fill entry-level positions because applicants do not have the skills required to do the job. However, according to the same survey, over 70 percent of education providers feel that their graduates are adequately prepared for the labor market.<sup>107</sup> This suggests a major mismatch in perceptions of education quality that needs to be addressed to ensure young people are provided with market relevant skills.

278. **Much of the formation of graduates now takes place in private institutions, whose quality is variable.** The Brazilian Higher Education Census of 2013 reported that the higher education sector had grown to 7.3 million students, including three-quarters at private institutions. One of the big concerns with private institutions has been that of quality. The government is attempting to address this through reforms to the (*Fundo de Financiamento Estudantil - FIES*) program which provides scholarships for students to private institutions, by ensuring that only students who have a minimum score of 450 in the *Exame Nacional do Ensino Médio (ENEM)*, the national high school exam, will be eligible for the program. In addition, only institutions meeting minimum quality standards will be eligible for students funded by the FIES program. The effectiveness of these measures will also depend on including the employability criteria in assessment of quality.

**Figure 4.43: Graduates in Engineering and Science  
(as share of total tertiary graduates) 2012**



Source: UNESCO Institute for Statistics Online Database 2015.

279. **The principal technical and vocational education and training (TVET) program is PRONATEC.**<sup>108</sup> This flagship program was created in 2011 and has seen a major investment of

<sup>107</sup> Moursched, Farrell, and Barton (2012).

<sup>108</sup> PRONATEC is an umbrella program coordinating a variety of existing and new vocational education and training policies, including courses in two modalities: Technical Education (TEC) and Initial and Continuing Training

resources. PRONATEC has focused on reaching the poor and disadvantaged populations, with around 40 percent of the slots filled by Cadastro Único registrants (Brazil, Ministry of Social Development, 2013). PRONATEC changed the traditional panorama of TVET in Brazil, whereby technical education had primarily reached students of high socioeconomic backgrounds and vocational training was geared toward the needs of larger firms. For instance, since PRONATEC's creation in 2011, at the upper-secondary level alone, enrollments in technical education have grown by around 60 percent (based on IBGE 2010, 2013). PRONATEC has greatly expanded opportunities in Brazil not only for technical education but also for lifelong skills development, with short-duration courses representing most of the new slots created.<sup>109</sup> In addition to PRONATEC, secondary post-basic technical education has also grown significantly with recent support from the federal PROUNI<sup>110</sup> and FIES<sup>111</sup> programs.

**280. Although the TVET system in Brazil has several well-designed features, its main challenge is to coordinate effectively with the private sector.** Positive features of the TVET system include (a) a strong articulation of general and technical skills across tracks at the secondary level (Almeida, Amaral, and Felicio 2015; Schwartzman and Moura Castro 2013) and (b) a well-coordinated set of diverse, short-duration courses that often yield good employability and productivity results (Silva, Gukovas, and Caruso 2015). However, the system also faces important challenges, including little coordination with the private sector. For the TVET courses to be a success, a continuous dialog with private firms and industry associations is required, including mechanisms to ensure practical experience and to track employability. Moreover, while Brazil has good administrative datasets and strong monitoring of TVET programs through the National System of Vocational Education and Information Technology (SISTEC), these are not regularly used to track employability and inform policy.

**281. Promoting evidence-based policymaking through better M&E systems is an essential first step to begin adjusting resources and program content depending on labor market needs.** Although the existing M&E systems (for example, SISTEC) represent an important first step, they do not focus on trainees' employability and earnings increases upon training completion. Without strong M&E systems that trace the impacts of TVET on trainees' labor market outcomes and knowledge acquired—and without using this information to inform policy making—PRONATEC will lack a solid mechanism for ensuring internal efficiency and of aligning course content with actual labor market needs.

#### *4.5.2 Labor Market Policies and Incentives for Skill Upgrading*

**282. Current labor regulations may generate disincentives toward longer tenures, more hiring, and ultimately higher productivity.** Brazilian manufacturing enterprises across all size categories view labor regulations as the fifth most important constraint to competitiveness and

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Programs (FIC). It is being implemented by 15 different government agencies (ministries and secretariats) that administer varying training programs to different target groups.

<sup>109</sup> PRONATEC's TEC courses are preemployment technical education and are longer. Its FIC courses are generally for the current workforce, consisting of short-duration vocational training and aiming to improve workers' qualification by upgrading their skills.

<sup>110</sup> The University for All Program (*Programa Universidade para Todos* - PROUNI) is a federal program that provides scholarships to poorer students to study in private universities.

<sup>111</sup> FIES is a federal program that provides financing to students who want to pursue a higher-education degree at a private university.

growth, while large companies view labor regulations as the second most important constraint after tax rates.<sup>112</sup> Job turnover in Brazil is remarkably high by international standards, and low job duration can decrease firms' incentives to invest in training. High turnover is a feature of both formal and informal labor markets, and may partly be linked to the design of unemployment insurance, as job separations are more likely to happen around the thresholds of the minimum time required for unemployment insurance eligibility.

**283. Brazil's labor market programs and policies have the potential to promote more effective job matches, address skill gaps, and support entrepreneurship.** Brazil, like most other middle-income countries, has a range of active labor market policies (ALMPs) that aim to facilitate job searching and matching, improve employability, and connect people to more productive employment, as well as several financial and non-financial programs and services to promote self-employment and growth of micro and small enterprises. In addition to PRONATEC's vocational training courses, Brazil's primary ALMPs include its labor intermediation services through the National Public Employment System (*Sistema Nacional de Emprego - SINE*), programs that specifically support unemployed and vulnerable youth, and other training programs such as professional training for unemployment benefit recipients (*Bolsa Formação*). Finally, Brazil has been a pioneer in promoting the 'solidarity economy' (*Economia Solidária*).

**284. Brazil's public employment services currently have low job placement rates.** Among the possible reasons for this is that its youth programs are still classroom based, whereas recent best practice is to add 'soft skills' and on-the-job components to training. In addition, fragmentation and lack of coordination among various programs to support self-employment and entrepreneurship are likely to significantly reduce their effectiveness. Finally, 'solidarity economy' programs (which support both urban and rural cooperatives), although innovative, are fragmented and lack data on uptake and results. Strengthening the design, management, and M&E systems of the ALMPs, as well as complementary structural policies, could improve job matches, better equip youth for jobs, and increase the productivity of businesses—ultimately promoting firms' and workers' overall productivity.<sup>113</sup>

**285. Improved individual skills do not yet guarantee a job, particularly for the poor.** The poor face a number of mutually reinforcing barriers to employability beyond a lack of technical skills. For example, most Brazilians (80 percent) rely on informal networks to find jobs (DIEESE 2011), and the poor are less likely than the rich to have networks that include well-connected, high-earning people (Chapter 1). Another important factor that limits labor force participation among the poor, especially women, is access to child-care, which is significantly lower among the worse-

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<sup>112</sup> Labor regulations include hiring and firing rules, labor safety rules, unionization, and the functioning of labor courts. For instance, it is typically difficult for firms to win a case in Brazilian labor courts, even with just cause, as it is presumed that rulings should be pro-labor biased, insofar as workers have historically been the weaker side. The result is that there are a large number of court cases (over 3 million court actions in 2013, compared to 3,000 in Japan). Uncertainties surrounding the interpretation of labor regulations and practices by labor courts further add to the costs of doing business. However, the extent to which labor regulations are a critical barrier to productivity would require further study, as these results only reflect the perceptions of businesses. Data for 2009 (reissued in 2014) Enterprise Surveys (<http://www.enterprisesurveys.org>), The World Bank.

<sup>113</sup> According to a recent OECD study (2015), the likelihood of matching workers to firms where they will be most productive increases with lower-cost entry and exit, easier labor mobility, and greater participation by workers in lifelong learning. Cross-country data also show that reducing skill mismatches raises both productivity and wages with gains to labor productivity from reducing skill mismatches highest in countries with the highest percent of workers with skill mismatch.

off. In 2013, only 15 percent of poor families (in the bottom two income quintiles) with children below 3 years had access to child-care but 40 percent of rich families did (based on IBGE 2013). As discussed in Chapter 5, the BSM program is a promising attempt to connect the poor with productive jobs.

*Concluding Remarks: Toward a Better Mix of Productivity-enhancing Policies*

286. **The analysis in this chapter suggests that the structural roots of low investment and low productivity growth in Brazil run deep.** The accumulation of a large infrastructure gap; a financial system oriented toward providing cheap credit to preferred enterprises, with extraordinarily high interest rates and short terms for others; a business and trade environment that is both relatively closed to entry and competition and imposes significant costs on incumbents; distortions to competition and innovation efforts resulting from poorly designed and implemented government industrial policies; and the legacy of a relatively poorly skilled labor force all combine to make Brazil a difficult place to invest and operate. The result is that many firms decide to stay small, while many of the largest domestic players feel sheltered within a protected and captive domestic market.

287. **To address this combination of challenges, arguably a shift from traditional industrial policy to a framework based more on experimentation, government-business cooperation, strong M&E, and a strengthening of market competition across the board would be likely to yield results.** Such a policy shift need not cost additional resources. Indeed, it may well save some public funds currently wasted on inefficient subsidies. It would promote the restructuring of agriculture, manufacturing, and services industries toward greater domestic value added and allow resources to move to more-productive sectors and more-efficient enterprises. The hidden productivity boost that could result from such a productive reallocation of resources is potentially very large. Moreover, the resulting incentives for greater firm-level innovation in new products and processes would unlock further dynamic productivity gains at the level of each enterprise and encourage greater individual investment in skills.

288. **The suggested policy shift is likely to face significant resistance from two sources.** On the one hand, vested interests benefiting from the current system of market distortions, protective barriers, government subsidies, and other forms of support to less-productive firms are likely to lobby against any changes that would reduce the level of rents accruing to them. On the other hand, many workers may feel threatened by the prospects of greater competition, economy-wide restructuring, and the resulting labor reallocation. The design of policy can help overcome resistance of vested interests by pointing to the significantly larger social gains for all and the unsustainability of Brazil's existing growth model. It would also be important to carefully consider the sequencing of reforms to progressively build support among 'natural allies' of productivity upgrading, that are driven by economy-wide interests, wherever they are, including owners, managers and workers of firms, government officials and other policymakers, households, and broader civil society. Most importantly, there is much that well-designed social policies can do to support a smooth pattern of labor reallocation by helping workers adjust to higher productivity jobs rather than protecting existing low-productivity jobs. In addition, investments in public services such as health and education can matter hugely in helping people adapt to a changing economic environment. This SCD now turns to a review of Brazil's social policies, covering health, education, social security, and social transfers.

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### *Introduction*

289. **Brazil's significant progress in social inclusion since the reintroduction of democracy in 1985 and in particular during the past decade is well documented, including in earlier chapters of this SCD.** However, the end of the commodity boom and the slowdown of the economy since 2012 raise serious concerns about how Brazil can continue to make progress in the social sphere when the fiscal space is narrowing and the resources to fund increased access and improvements in quality become increasingly scarce.

290. **This chapter argues that the concern that progressive social policies may no longer be affordable in a more constrained budget environment is overblown.** Brazil's government spending is large in comparison to other middle-income countries (Chapter 2) and the country's dependence on highly cyclical indirect taxes requires significant spending adjustments to maintain fiscal balance (Chapter 3). However, as previewed in Chapter 3 and further illustrated in this chapter, a large share of public expenditure is accounted for by budget lines that are of little benefit to the poor and the B40. The most obvious example are public sector pensions, benefiting mostly civil servants on high salaries and with generous early retirement provision. Another example is the significant bias of education spending toward tertiary education, which benefits the better-off disproportionately more than the poor. A third example are tax exemptions, budget subsidies, and the cost of directed credits, which are of questionable effectiveness for promoting the creation of productive employment opportunities for the B40 (Chapter 4).

291. **The large share of expenditures going to programs of dubitable social benefit implies that socially progressive expenditures could easily be maintained or even increased through expenditure reallocations.** In 2014, the share of social assistance transfers directly targeting the poor was just 7.7 percent of primary general government spending (see Table 3.2 in Chapter 3). Adding primary health, early childhood education, and primary education spending, the share increased to 16.4 percent.<sup>114</sup> Public administration consumed 5.4 percent of spending, and with multiple overlapping responsibilities and generous civil servant pay packages, there would appear to be scope for some savings there. Transfers to economic sectors, including implicit tax expenditures and transfers through the state banks exceed 5 percent of GDP, or the equivalent of almost 14 percent of primary expenditure. The bulk of spending (just below 29 percent) is on public pensions (not including the semi-contributory rural pensions), an important part of which accrue to public servants. There is clearly ample scope for progressive redistribution through spending reallocations. As this chapter further elaborates, there is also ample scope for efficiency improvements within spending categories.

292. **Greater efficiency in public spending is particularly critical given increased expectations of the population regarding the quality of public services, as well as the changing demographic composition of the Brazilian population.** The increased size of the 'new' middle class during the golden decade has been accompanied by increased expectations regarding the quality of public services delivered. In spite of improved and more equitable access to a range of services in the last decade, quality remains low and uneven across regions and the

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<sup>114</sup> Data for primary health, early childhood education, and primary education were estimated based on the proportions (relative to overall health and education expenditures) observed in 2012.

population, with low-quality services and infrastructure affecting low-income and vulnerable and lower-middle-class households disproportionately. The large demonstrations in June 2013 in many cities exposed the high degree of dissatisfaction of the population over the delivery of poor public services, particularly in the major urban centers of the country. Urban dwellers are also concerned about the high levels of crime and violence, which directly affect many poor families, and indirectly discourage business investment, thus reducing job opportunities, particularly close to poorer neighborhoods. In addition, the dramatic decline in Brazilian fertility in the past two decades implies that the expected rapid aging of the population is expected to place tremendous pressures on the fiscal sustainability of Brazil's pension and health systems unless preventive steps are taken.

293. **Brazil is now at a critical juncture.** The decreased fiscal space following the end of the commodity boom, the already high level of taxation, the aging of the population, and the expectations of and pressures for better quality in public services suggest the need for a renewed model of public service delivery that delivers 'more with less'. The chapter shows that this is entirely consistent with maintaining a progressive stance in social policies with a particular emphasis on the interests of the poor and vulnerable. The next sections analyze, respectively, the provision of services in education, health care, social security and social assistance, urban utilities, and security from crime and violence. In each case, the impact on the livelihoods of the poor and the B40 is examined and the scope for efficiency gains and spending reallocations is reviewed, leading to policy recommendations on how to salvage a progressive social policy agenda in times of tight budgets.

### *5.1 Access, Quality, and Equity in Brazil's Education System*

294. **Education reforms introduced in the mid-1990s were the foundation for gradually reducing Brazil's large gap in access to education.** These included an education law that decentralized and reorganized the school system, giving municipalities the main responsibility for basic education (ages 5–14 years) while also putting them in sole charge of preschool provision. State governments were required to give priority to secondary education, while the federal government's role was restricted mainly to higher education and to regulating and evaluating schools.

295. **Education reforms have continued in the past decade, driven and encouraged by the federal government.** After Brazil's economy stabilized in the mid-1990s, the Cardoso administration increased federal spending on primary education through *Fundo de Manutenção e Desenvolvimento do Ensino Fundamental* (FUNDEF) and simultaneously distributed the funding more equitably, replacing a population-density formula that allocated the majority of funds to large cities and linking part of the funding to school enrollments. This was only possible after developing a student and school census to gather and consolidate information. FUNDEF also raised teachers' salaries, increased the number of teachers, increased the length of teacher preparation programs, and contributed to higher enrollments in rural areas. A CCT program for families who send their 7–14-year-old children to school (Bolsa Escola) lifted many families out of subsistence-level poverty, encouraging interest in their children receiving an education. In 2006, the government expanded FUNDEF to cover early childhood and after-school learning and increased overall funding for education, renaming the program *Fundo de Manutenção e Desenvolvimento da Educação Básica e de Valorização dos Profissionais da Educação* (FUNDEB), as it now covered

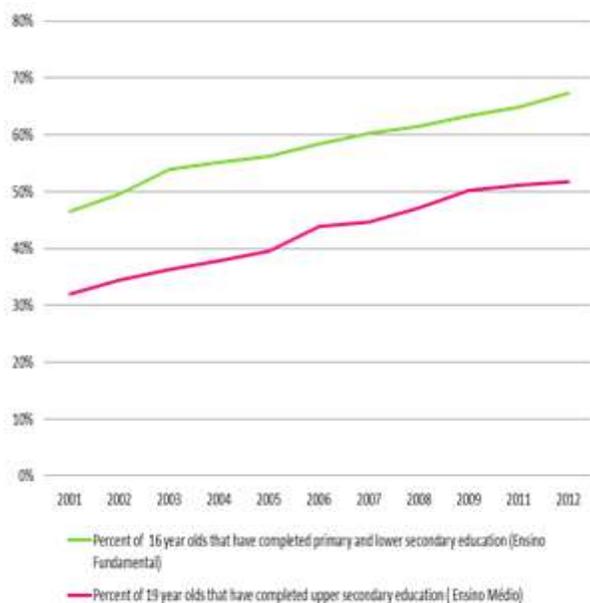
basic education more broadly. The administration also expanded the CCT to cover students aged 15–17 years, thereby encouraging enrollment in upper secondary education.

296. **As a result of these reforms, Brazil has made remarkable progress in increasing access to education for all socioeconomic groups.** The average educational level of the labor force rose by more than 50 percent between 1995 and 2010, driven by the rapid expansion of secondary education. Brazilians who were 25 years and older had an average of 7.2 years of schooling in 2010, up from 4.6 years in 1995. Schooling of students from lower-income households increased the most because the extension of coverage during these years favored those households (World Bank 2013). However, overall secondary education coverage also increased significantly over the period. According to the School Census (*Census Escolar*), the number of students enrolled in secondary education (*Ensino Médio*) increased from 4 million in 1992 to 8.3 million in 2010. Similarly, completion rates in both primary and secondary education have steadily increased over the past decade and a half (Figure 5.1a).

297. **The quality of education has similarly improved over the past decade, as shown by student assessment scores.** Between 2003 and 2012, Brazil’s PISA math scores increased by 35 points (Figure 5.1b)—the largest increase among all participating countries (OECD 2012). Since 2000, reading scores have improved by an average of 1.2 score points per year and since 2006, science scores have risen by an average of 2.3 score points per year. Lowest-achieving students (defined as the 10 percent of students who score the lowest) have improved their performance by 65 score points—the equivalent of more than a year and a half of schooling. Despite these considerable improvements, around two out of three Brazilian students still perform below Level 2 in mathematics (in 2003, three in four students did).

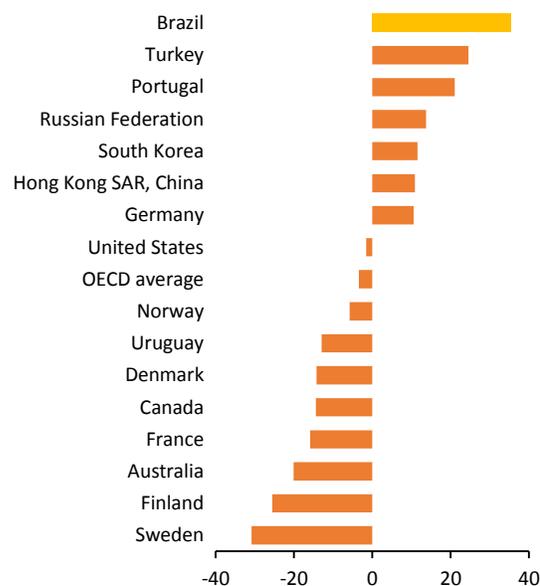
**Figure 5.1: School Completion and Student Mathematics Performance**

**(a) Basic Education Completion Rates, Brazil, 2001–12**      **(b) Performance Gains in 2003–12 PISA Average Math Scores, Selected Countries**



Source: Observatório do PNE 2012.

Note: Data for 2010 are not available because PNAD data were not collected as it was a census year.



Source: OECD PISA results 2012 2003

Note: PISA = Program for International Student Assessment.

298. **Improvements in education outcomes also took place among socioeconomically disadvantaged students.** Many of the students who are now included in the school system come from rural communities or socioeconomically disadvantaged families, so the population of students who participated in the PISA 2012 assessment is very different from that of 2003. PISA compares the performance of 15-year-old students who are enrolled in schools; but for those countries where this population has changed dramatically in a short period, trend data for students with similar background characteristics provide another way of examining how students' performance is changing beyond changes in enrollment. For mathematics, the score attained by socioeconomically disadvantaged students increased by 27 points between 2003 and 2012, an increase that is higher than for students from better-off families.

299. **High dropout rates, particularly among boys, is one remaining challenge in the quality and efficiency of Brazil's general education system.** Brazil continues to have some of the highest levels of repetition in the world, resulting in an average of 15 years of schooling to produce one high school graduate (instead of 12 years). Many students aged 7–14 years leave during the school year because the curriculum is not engaging or because they want or need to work or because of a perceived lack of relevance for insertion into the labor market and/or higher education. Repetition of grades is especially high and well above the OECD average among males in Brazil. Dropout rates for secondary schooling are also higher for boys, who are often needed as providers in the poor segments of the population.<sup>115</sup> On the other hand, teenage pregnancy is also above the OECD average, especially among poorer groups, with a high risk of inter-generational transmission of early parenthood, low educational attainment, and poverty.<sup>116</sup> High dropout and repetition rates are the main drivers behind Brazil's costs per graduate in secondary and higher education, which are higher than in any other country in the region.

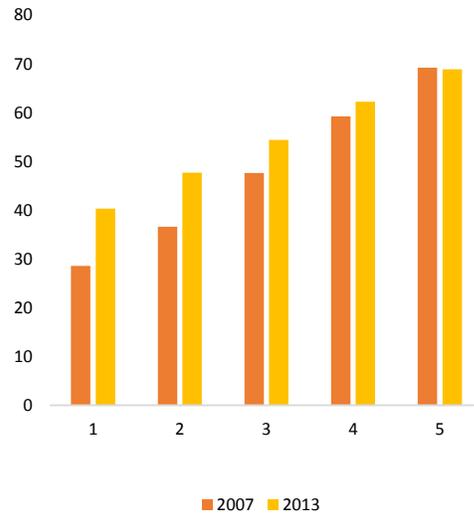
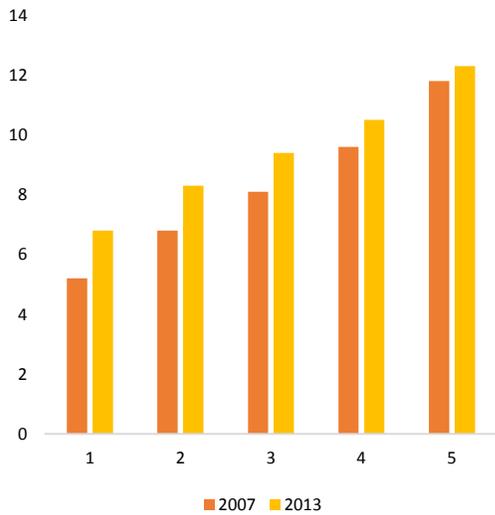
300. **In spite of efforts to increase and equalize education spending, disparities in education outcomes persist between poor and non-poor.** There has been a striking equalization in schooling attainment in just one generation as a result of aggressive expansion of schooling coverage and of the conditionalities linked to programs such as the PBF. However, several gaps remain across income groups. Figures 5.2a and b show the evolution of the average years of schooling and net enrollment rate in upper-secondary education by income quintile, revealing that despite significant improvements in the last few years, there are still stark educational inequalities in Brazil.

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<sup>115</sup> OECD (2015).

<sup>116</sup>Cardoso and Verner (2006) and World Bank (2012).

**Figure 5.2: Average Years of Schooling and Net Enrollment Rate: 2007 vs. 2013**  
**(a) Average Years of Schooling by Income Quintile, Brazil: 2007–2013**      **(b) Net Enrollment Rate by Income Quintile, Upper Secondary Education, Brazil: 2007–2013**

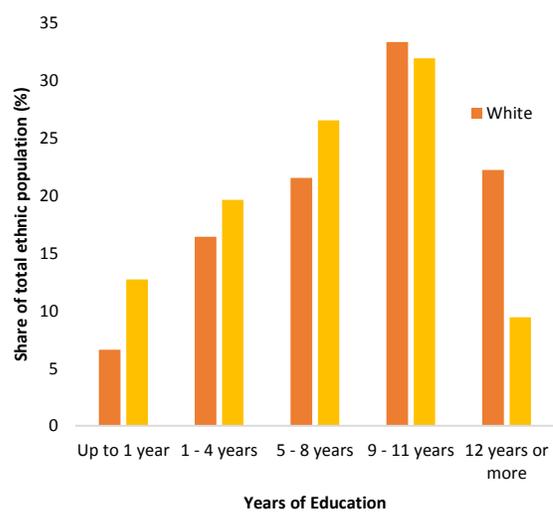
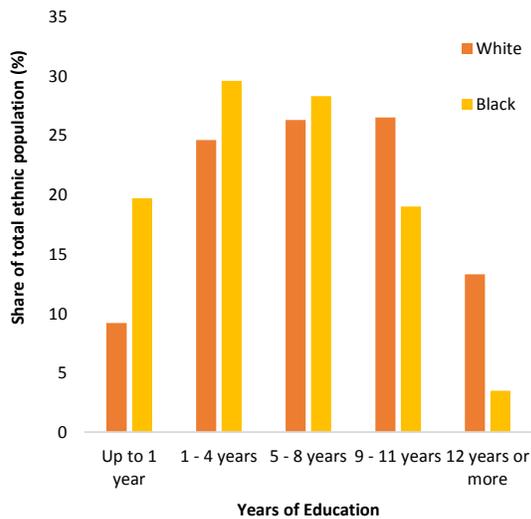


Source: World Bank, with data from PNAD/IBGE.

Source: World Bank, with data from PNAD/IBGE.

301. **Substantial gaps also remain in the years of schooling completed by Afrodescendants and whites.** The fraction of whites with 9 years of education or more increased from 39.8 percent in 2001 to 55.5 percent in 2012 (an increase of 39 percent). Among Afrodescendants, the fraction with nine or more years of education increased from 22.5 percent in 2001 to 41.3 percent in 2012 (an increase of 84 percent). However, in spite of the speed at which the gap between the two races is closing, a significant gap remains between Afrodescendants and whites, especially among with those 12 or more years of schooling (see Figure 5.3).

**Figure 5.3: Education Years Attained and Race: 2001 vs. 2012**  
**(a) Population Aged 15+ Years by Education Years and Ethnicity, Brazil (2001)**      **(b) Population Aged 15+ Years by Education Years and Ethnicity, Brazil (2012)**

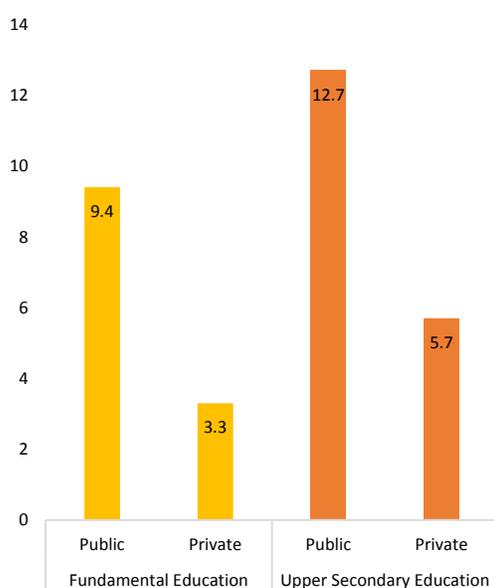


Source: *Situação Social da População Negra por Estado*, IPEA 2014.

302. **These inequalities are partly explained by gaps in access that start early in life and also by the poorest having less access to higher-quality private schools.** Despite substantial progress in access to early childhood education in the last few years, the net enrollment rates among the households in the poorest quintiles of the income distribution are less than half of the rates observed for the richest households in Brazil. These inequalities are reinforced by the fact that richer families are able to send their children to private schools, which generally have higher educational outcomes. Some of the largest gaps between private and public schools can be observed in repetition and dropout rates (Figures 5.4). The most striking difference occurs in the dropout rates in the secondary-education, in which 9.2 percent of the students of public schools drop out, whereas this figure is only 0.5 percent for private school students.

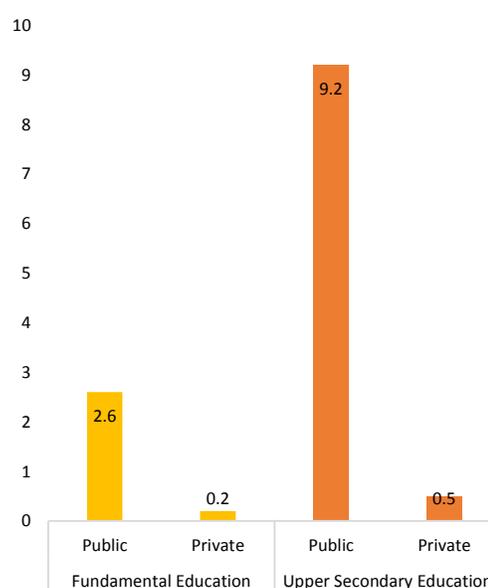
**Figure 5.4: Repetition and Dropout Rates: Public vs. Private, 2013**

**(a) Repetition Rate: Public vs Private for Fundamental and Upper-Secondary Education, 2013**



Source: World Bank, *Instituto Nacional de Estudos e Pesquisas* (INEP), Ministry of Education (MEC).

**(b) Dropout Rate: Public vs. Private, Brazil, 2013**



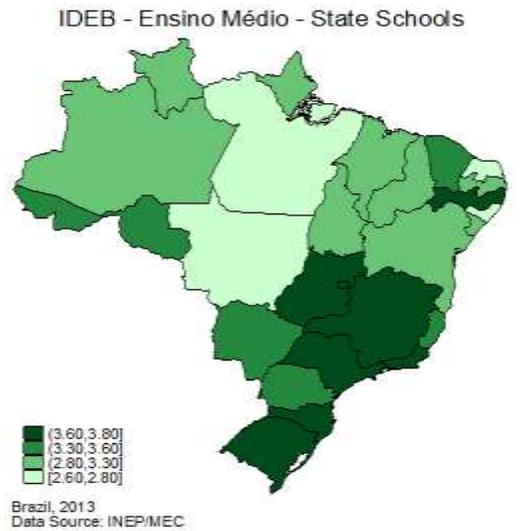
Source: World Bank, INEP/MEC.

303. **Gaps in learning and access persist across regions despite progressive federal policies to equalize funding within regions.** Figure 5.5 shows the Basic Education Development Index (*Índice de Desenvolvimento da Educação Básica - IDEB*) results for Brazilian states in 2013, revealing that, except for Pernambuco in the Northeast region, only the wealthier states like São Paulo and Rio de Janeiro are in the higher group of the distribution. Recent legislation establishing that each level of government (federal, state, and municipal) set aside 20 percent of its revenue to finance education<sup>117</sup> and setting minimum per-student spending levels, or programs like FUNDEB,<sup>118</sup> that prioritize municipalities with low expenditure per student in the allocation of federal funding, have yet to reduce the considerable heterogeneity of spending per student across the states (Figure 5.6).

<sup>117</sup> Revenues are mainly tax revenue and constitutional transfers to states and municipalities.

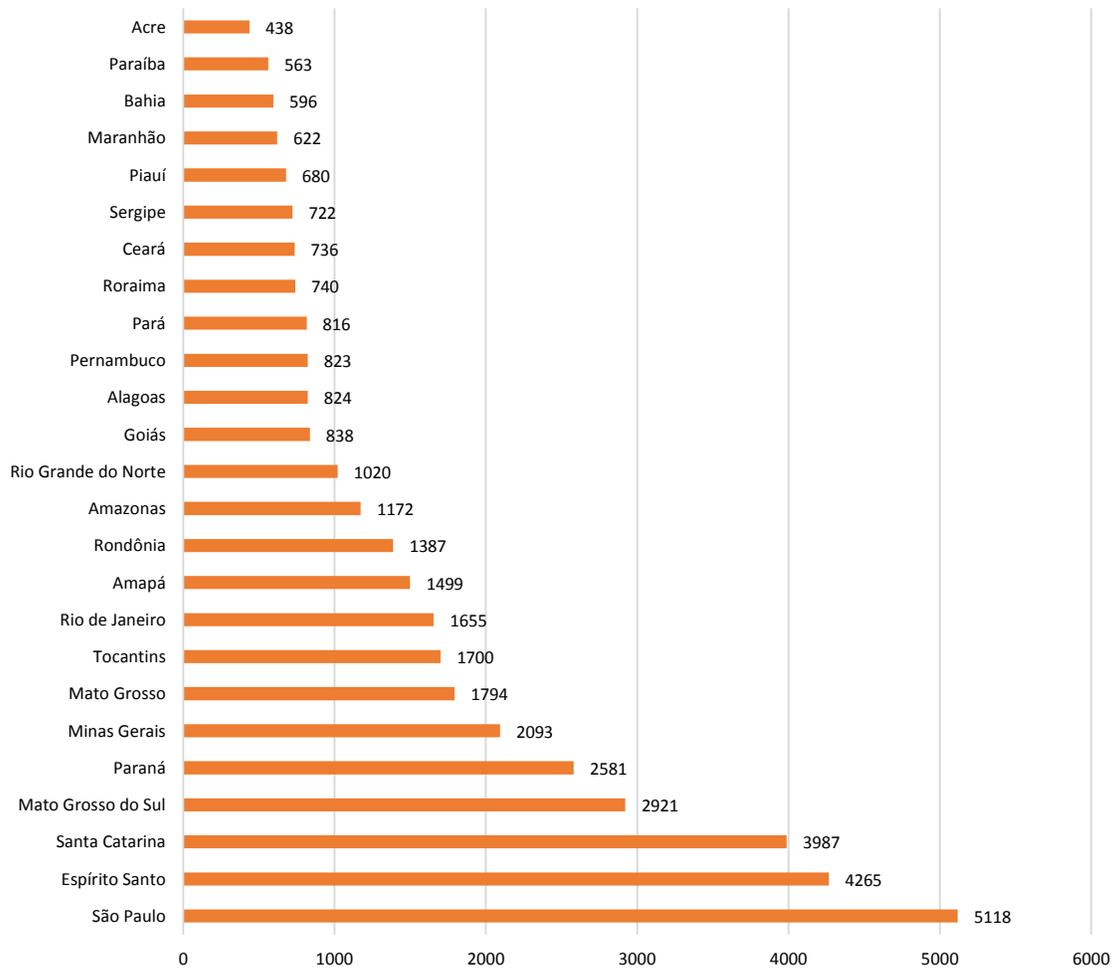
<sup>118</sup> *Fundo de Manutenção e Desenvolvimento da Educação Básica e de Valorização dos Profissionais da Educação*.

**Figure 5.5: Quality of Education Measured by Brazilian IDEB, Upper Secondary, 2013**



Source: World Bank, with data from INEP/MEC.

**Figure 5.6: Spending per Student on Early Child Education Across Brazilian States, 2013**



Source: FUNDEB.

304. **Variation in education outcomes among states are also driven by state-level policy choices.** States such as Pernambuco, Rio de Janeiro, and Goiás have made impressive progress in raising graduation rates and learning in secondary education. Minas Gerais, Ceará, and Goiás have seen big gains in primary education. However, others have stagnated. Important drivers of regional (and urban/rural) disparities in basic education outcomes are (a) large disparities in preschool coverage and access to ECD services,<sup>119</sup> which global research shows play a critical role in protecting the developmental potential of children, especially those from disadvantaged backgrounds (see Box 5.1 for examples of innovate multisector ECD provision); (b) disparities in teacher quality (both the level of formal education completed and teachers' content mastery); (c) disparities in effective spending per student, due to differences both in state and municipal priorities for education and the efficiency of the use of resources; and (d) disparities in the quality of local higher education institutions that train teachers.

305. **The low quality of teachers poses a binding constraint on education quality.** Teaching remains a low-prestige profession, with low standards for entry into teacher training schools, low-quality programs, little selectivity at entry into state and municipal school systems, and salary incentives delinked from performance. Changing this paradigm will require coordinated policy reforms at the federal, state, and municipal levels. Demographic trends, however, will provide a major opportunity to raise teacher standards and education quality over the next decade, as the size of the school-aged population in basic education is expected to fall by 25 percent from 2010 to 2025. This creates an opportunity to weed out lower-performing teachers through early retirement, recruit new teachers to higher standards, and pay salaries that are more attractive on average and, crucially, differentiated by performance.<sup>120</sup> It also creates an opportunity to lengthen the school day. Teaching children better for longer could do much to improve educational outcomes.

306. **Technical education has expanded significantly but there remain concerns with quality, linkages with employer demands, and cost-effectiveness.** Since 2011, Brazil has invested massively in TVET through the federal flagship program PRONATEC, which aims at expanded economic opportunities—especially for the poorest and most vulnerable (Chapter 4). The Brazilian TVET system includes solid positive features, including coordinated technical and general curricula at the upper-secondary level and 'vertical permeability', which allows many students on a technical track to go forward to university. Short-duration courses, especially those provided by the 'Sistema S' often yield good employability and productivity results.<sup>121</sup> However, there is clear scope to improve the TVET system. The MDS and MEC have been compiling statistical information on PRONATEC trainees and job market insertion. However, the monitoring of learning and tracking of trainees' labor market outcomes could be further improved to systematically inform program expansion. Second, only a couple of elite schools offer career guidance to support students' school-to-work transition and older trainees' sector or job redeployment. Third, stronger partnerships with the private sector and access to apprenticeships would better align training offerings and content with employers' needs. There is also need to

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<sup>119</sup> To increase access to ECD the federal government launched in 2007 the *Proinfância* program to provide financing to municipalities for the construction and equipping of *creches* and preschools (5670 facilities were built between 2007 and 2011). In addition, in 2009 the federal government increased compulsory schooling to four years of age as a mean to increase coverage of ECD.

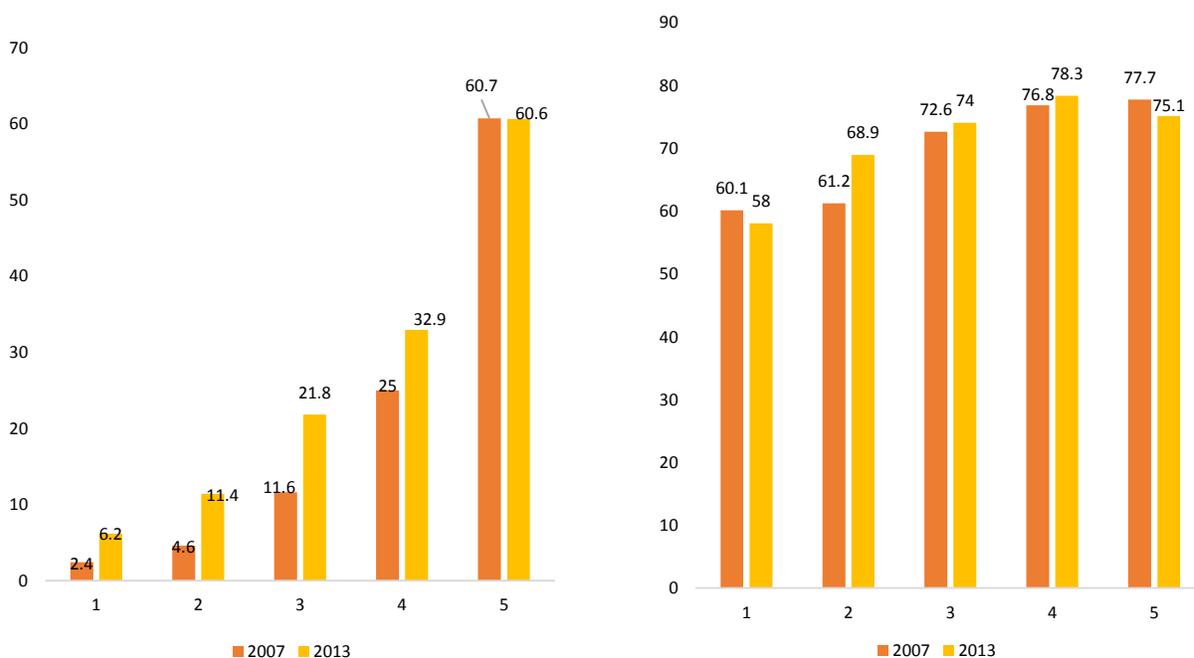
<sup>120</sup> See Bruns and Luque (2014).

<sup>121</sup> See Silva et al. (2015) for a more in-depth discussion of how the skills and jobs policies can be twisted to increase employability and productivity, especially for the poorest and most vulnerable.

improve the quality and relevance of program content, including more innovative curricula and pedagogies; stronger emphasis on foundational skills (cognitive and socioemotional); and stronger technical preparation for teachers and trainers, including greater linkage with sector experience. Finally, understanding gender differences in the choice of training tracks where social norms can play an important role and the experience of trainees in their labor market transition and outcomes will matter to address bottlenecks and persisting labor markets differences between men and women.

307. **Public spending in the tertiary education system tends to benefit the non-poor.** At around R\$20,000, spending on tertiary education per student in Brazil is roughly four times higher than spending on general education.<sup>122</sup> However, only few of the poorest have access to tertiary education, although enrollment rates have been increasing in lower-income quintiles between 2007 and 2013 (see Figure 5.7a). Moreover, the increase of the private sector share in the higher education system in Brazil has been concentrated in the intermediate income levels (Figure 5.7b). Access to public universities is highly selective and competitive and students from poor backgrounds are often disadvantaged in admissions tests because they went to less well-performing secondary schools. The poorest among them are also priced out of private provision.

**Figure 5.7: Access to Tertiary Education and Enrollment in Private Higher Education, 2007 vs. 2013**  
**(a) Access to Tertiary Education in Brazil by Income Quintiles.**      **(b) Share of Students Enrolled in Private Higher Education Institutions across Income Quintiles.**



Source: World Bank, with data from PNAD/IBGE.

Source: World Bank, with data from PNAD/IBGE.

308. **Equity in higher education is improving but improving quality assurance is critical for future expansion.** Federal policies over the past decade have greatly broadened the access of lower-income students to tertiary education, through federal scholarship, loan, and quota policies (for example, FIES, PROUNI). There is little question that these are moves in the right direction.

<sup>122</sup> Because of the rise in spending on general education over the past decade, this ratio has declined from around 10:1 at the start of the 2000s.

Nevertheless, there has been little analysis of the cost-effectiveness of these federal policies. Moreover, in times of tight budgets, greater means testing for access to public universities, which still predominantly benefit students from richer families, may be necessary. The large expansion of private provision also calls for greater quality assurance. Almost three-quarters of higher education enrollments are in low-quality private institutions with questionable labor market relevance. Dropout rates are high and default rates on student loans are expected to grow substantially as these relatively young loan programs mature. On the other hand, there appear to be real opportunities for well-designed PPPs in education, both at the tertiary and basic education.

#### **Box 5.1: Innovations in Alternative Ways to Deliver Early Childhood Development in Brazil**

Some Brazilian states and municipalities are exploring alternative delivery mechanisms for ECD especially in less-dense rural areas. These are alternatives to center-based care and are usually designed to reach children who cannot be effectively or efficiently reached by standard modalities. Two examples include *Primeira Infância Melhor* (or PIM) in Rio Grande do Sul and *Programa de Desenvolvimento Infantil* (or PADIN) in Ceará.

**PIM is based in the Health Secretariat in the state of Rio Grande do Sul and was modeled on Cuba's *Educa a Su Hijo* program.** It provides two modalities of care, individual care for pregnant women and for children from birth to two years, eleven months of age and group care for pregnant women and for children aged 3–6 years. For the individual care, an agent visits the home once a week and conducts cognitive stimulation activities as well as child health and development monitoring. For group care, participants meet in a community center, church hall, or other space and take part in games and activities to stimulate children or prepare expectant mothers for parenthood. Topics include nursing and childbirth, among others (Schneider et al. 2009; Schneider and Ramires 2007). An early evaluation shows significant cognitive, social, and motor development (Zorzan 2011).

**PADIN is a multisector program led by SEDUC in Ceará, targeted to improve the cognitive and social development of children up to 47 months.** The target areas are the 36 municipalities with the highest poverty incidence in the lowest-income quintiles. The program aims to enable the cognitive and social development of children, with emphasis on stimulating their learning process by improving the caregiver's learning and awareness for their development needs and literacy skills. PADIN offers a combination of home-based visits, access to an itinerant playroom with low-cost toys/materials adjusted to the local culture/needs, and community meetings. The latter is important for the supervision of the agents, continued parenting training in different settings, focus group discussions, and to promote interactions across children. The design of PADIN and its curricula takes into account national (PIM) and international experiences (for example, Nurse-Family Partnership in the United States, the Nutrition and Cognitive Stimulation Programs both in Jamaica and in Colombia, and *Nadie Es Perfecto* in Chile). The program is accompanied by a rigorous evaluation and will be the first study assessing the cost-effectiveness of this type of interventions and exploring heterogeneity of impacts across the beneficiaries and disentangling the channels through which the program may produce impacts.

*Source:* Based on Evans and Kosec (2012); Almeida, Costa, Cunha and Oliveira (2014).

## **5.2 Improved Health Outcomes but Scope for Efficiency Gains Remain**

309. **Since the creation of the Unified Health System (*Sistema Único de Saúde* - SUS), substantial progress has been made in improving the level and equity of health outcomes, particularly related to maternal and child health.** Since 1990, Brazil has seen one of the strongest declines in child mortality in Latin America (Figure 5.8). These gains were made primarily through improving outcomes of the B40, though poor children today still die at a much higher rate than their wealthy peers (Dmytraczenko et al. 2015). Several studies give an important role to the expansion of SUS coverage in the decline in infant and child mortality. One of the most effective programs is its flagship Family Health Program, which is also associated with improved school enrollment and increased labor supply of adults in rural areas (Macinko et al. 2006; Rocha

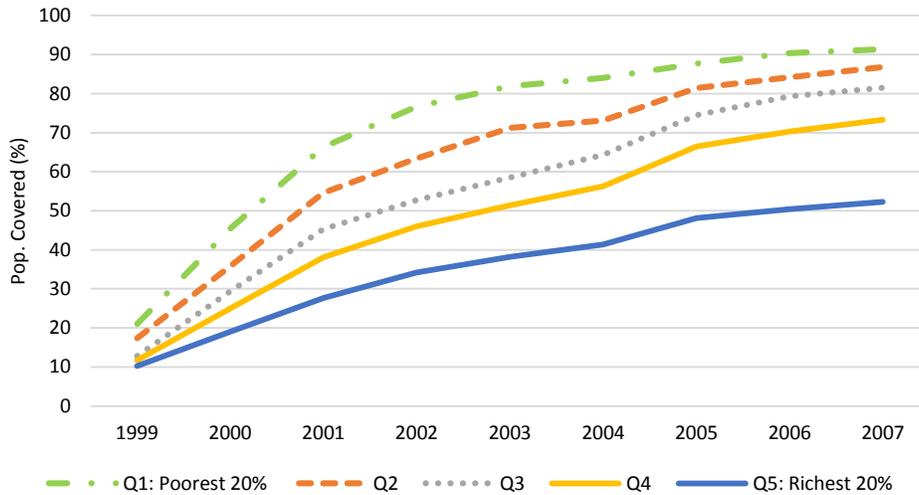
and Soares 2010). It is notable that expansion of the program privileged poor municipalities (Gragnotati et al. 2013; Figure 5.8).

**Figure 5.8: Under-Five Mortality Rates, 1995–2012**



Source: Data from Dmytraczenko et al. (2015).

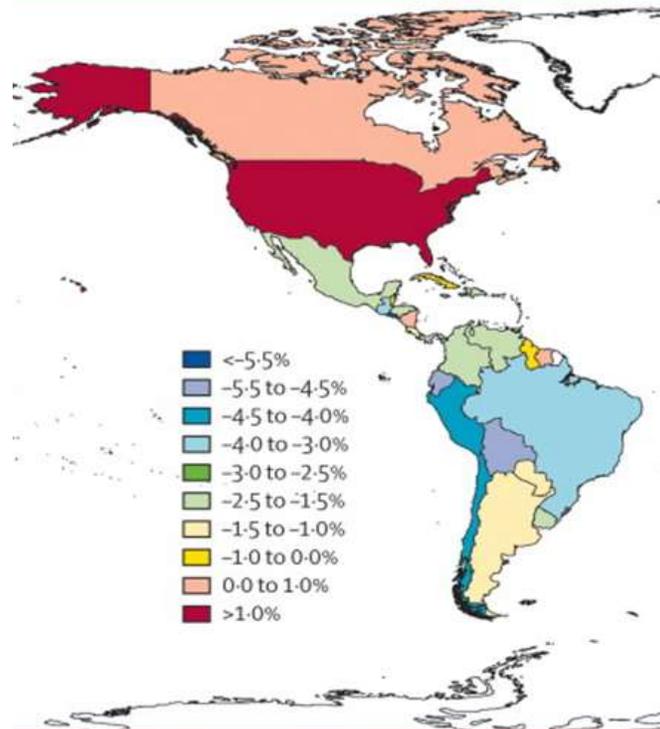
**Figure 5.9: Expansion of the Family Health Strategy by Income Quintiles**



Source: Paim et al. (2011) from DATASUS (Ministry of Health) in Gragnolati et al. (2013).

310. **Progress on maternal mortality has not been quite as rapid, although this may be due to changes in the registration system.** Improvements in the quality of the vital registration system reduced the number of previously under reported maternal deaths (Hogan et al. 2010; Figure 5.10). Indeed, since the scale-up of the Family Health Program, utilization of essential maternal health services has increased markedly, particularly among the B40, allowing Brazil to catch up with and even surpass its regional peers in improving overall levels of utilization and nearly eliminating disparities in access to maternity care across income groups (Dmytraczenko et al. 2015).

**Figure 5.10: Yearly Rate of Decline in Maternal Mortality Ratio, 1990–2008**



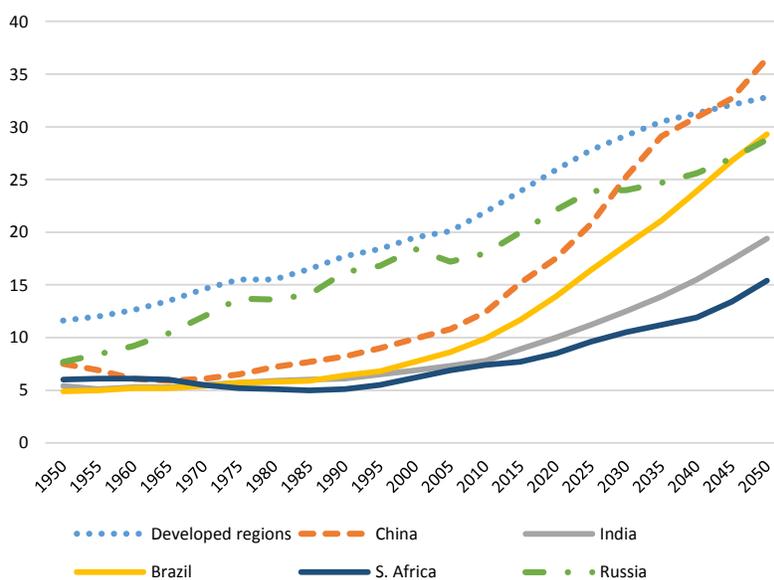
Source: Hogan et al. (2010).

311. **Other related sexual and reproductive health indicators have likewise improved, but the high incidence of caesarean deliveries has become a ‘public health problem’.** In 2006 (latest data available), almost all births were attended by skilled health staff (97 percent) compared to only 86 in LAC (2000). In comparison, 62.4 percent of children were born to women who had seven or more prenatal visits during pregnancy (2012). However, there continues to be a significant difference by race or ethnic background, with 74.9 percent of the white population having seven or more prenatal visits compared to only 54.8 percent among the black/pardo population and as little as 24.3 percent among indigenous people. In addition, a very high share of births take place through caesarean deliveries (52.3 percent of the total in 2010) in Brazil, particularly among families covered by a private health plan (84 percent). Despite the convenience associated with precise planning of deliveries, caesarean deliveries impose unnecessary risks to many pregnant women. In 2015, the government started implementing measures aimed at curbing the number of caesarean deliveries. Under the new requirements, health insurance companies will have to provide users with information about the percentage of caesareans performed by individual doctors and hospitals. Failure to provide the statistics in 15 days will result in hefty fines.

312. **In spite of the advances in primary care and access to maternal and child health services overall, significant gaps in the health conditions among the indigenous population continue to persist.** The infant and child mortality rates among indigenous peoples continue to be very high (50.1 per 1,000 in 2013). In recent years, some indigenous peoples became emblematic of the pitfalls of the Indigenous Health System such as the Guarani Kaiowa (Mato Grosso do Sul state), due to infant mortality related to malnutrition. In many situations, rates of morbidity and mortality among indigenous peoples are three to four times higher than the prevalent rates among the overall Brazilian population. Gastroenteritis remains the main cause of death among indigenous children living in rural areas (60 percent of the deaths among children with one year of age or less), whereas respiratory infections are the major reason of death among the cohort of children up to five years of age. Child mortality rates are higher in the North and West Central regions in which most of the indigenous peoples live.

313. **Brazil’s changing demographic and epidemiological profiles and the rise of the middle class are placing increasing pressure on the health system.** These pressures are likely to increase in the future. Brazil’s population is aging, and the share of the population above 65 years of age will expand significantly in the coming decades (Figure 5.11). As a result of an aging population, combined with lifestyle changes (eating habits, physical inactivity) and a reduction in communicable diseases, chronic diseases now account for a growing share of morbidity and mortality in Brazil (IHME and World Bank 2013; Gragnolati et al. 2011). This is in turn placing new demands on the health system, with primary prevention activities focused on behavior change, long-term management of patients involving a range of different services and providers, and growing demands for complex technology (pharmaceuticals and procedures). At the same time, population expectations from the health system are growing as a larger share of the population enters the middle class and as improvements in primary care stimulate significant suppressed demand for medium- and high-complexity care.

**Figure 5.11: Rising Share of the Population over Age 65 Years in Brazil, Western Europe, and the BRICS**



Source: WDI.

314. **These pressures expose the weaknesses in the quality of primary care, gaps in availability and quality of medium- and high-complexity care, and poor coordination across the levels of the service delivery network.** They also highlight disparities between the public and private subsystems and across regions of the country. For instance, Dmytraczenko et al. (2015) found that only 42 percent of women over 40 years in the B40, had a mammogram in the preceding 3 years. The rate was twice as high among women in the top quintile, who have higher coverage of private insurance and can afford to access private care. In contrast to maternal and child health services, Brazil lags behind other countries in the region in equitable access to breast cancer screening. Another study showed that almost 37 percent of SUS patients were diagnosed at a late stage versus 16.2 percent from private institutions and that 46.2 percent of women were diagnosed at a late stage in the North, compared to 25.1 percent in the wealthier South (Lindelov et al. 2015).

315. **Although there is ample perception-based data on problems of access, waiting times, and quality, there are fewer hard data to draw on.** However, as an illustration, a recent analysis by the Health Secretariat of the São Paulo Municipality found an enormous backlog of unmet needs, with a total of 800,244 cases registered in waitlists for diagnostic procedures, specialist consultations, and surgeries and with waiting times averaging 8 months (Estado de São Paulo, 2013). For some specialties, the situation was considerably worse. For instance, the municipality estimated that the waiting times for gynecological procedures could be as high as 5 years, and for some surgeries, the waiting time may be as high as 9 years.<sup>123</sup>

316. **Data on delays in accessing cancer care also shed light on the predicament faced by many patients.** A TCU report (TCU 2011), using data from 2010, shows that the median waiting time for chemotherapy in 2010 was 76.3 days (from the point of confirmed diagnosis), with only

<sup>123</sup> Inevitably, the waitlist includes individuals who may have opted to seek care in the private system, who no longer need care, or who have passed away. The actual number of patients actually waiting will be lower than the total number on the list.

35.6 percent of patients receiving treatment within 30 days. In addition, many patients face considerable delays in accessing diagnostic procedures or specialist care to confirm a diagnosis. In the case of radiation therapy, the corresponding figures were 113.4 days and 15.9 percent. As a point of comparison, nearly all patients receive treatment within 30 days in the United Kingdom and Canada, and median waiting times range from 5 to 25 days depending on the type of treatment.

**317. The problems of long waiting times reflect in part capacity constraints (human resources and equipment) but also weaknesses in systems and management to ensure that existing capacity is used as effectively as possible.** In response to concerns about waiting times, the government has taken a number of measures. For instance, legislation was approved in 2013, guaranteeing cancer patients access to treatment within 60 days from confirmed diagnosis introduced in 2013. However, the systems for monitoring and enforcing the guarantee are still being developed, but enforcement is expected to be based on administrative sanctions and patients resorting to litigation of the right to health. So far, there is no evidence of the impact of the guarantee.

**318. In addition to access problems, another important challenge for the health system is quality.**<sup>124</sup> As is the case with waiting times, evidence is sparse. However, several studies have pointed to weaknesses in the quality of prenatal care, with implications for how effective such care is in improving child and maternal health outcomes. These studies have shown that prenatal care is often deficient in the sense that recommended diagnostic exams are not performed or mothers do not receive indicated medication or advice (for example, antihypertensive medication or advice regarding referral maternity services and breastfeeding). For instance, in a study in Rio de Janeiro, only 41 percent of women aged 28–33 years completed recommended exams (Domingues and others 2012). Similar findings have been recorded in other studies (Barros et al. 2005; Ribeiro et al. 2009).

**319. Quality challenges are also apparent in other parts of the health system.** Blood glucose control is a cost-effective intervention that contributes to a reduced risk of morbidity and mortality. Nevertheless, studies suggest a high prevalence of inadequate glycemic control in Brazil, varying from 20.9 percent<sup>125</sup> to 76 percent<sup>126</sup> (Gomes et al. 2006; Strock and Mazze 2009; Mendes et al. 2010). Weaknesses in the capacity for effective cancer diagnosis have also been documented (Salles et al. 2008; Lee et al. 2012), and the public system has been relatively slow in the uptake of modern treatments for cancer care (TCU 2011), leading to large differences in treatment patterns (likely reflected in outcomes) between the public and private sector.

**320. These shortcomings explain the high and increasing level of dissatisfaction with the SUS despite the progress in the availability and use of health services achieved since the system came into operation in the early 1990s.** According to opinion polls by Datafolha (2015), in 2014 more than 40 percent of the population identify health as the country's main problem, up from less than 10 percent in 2003, although in 2015 health had been displaced by corruption as the main perceived problem (Figure 5.12). Over the same period, the share of respondents who identify

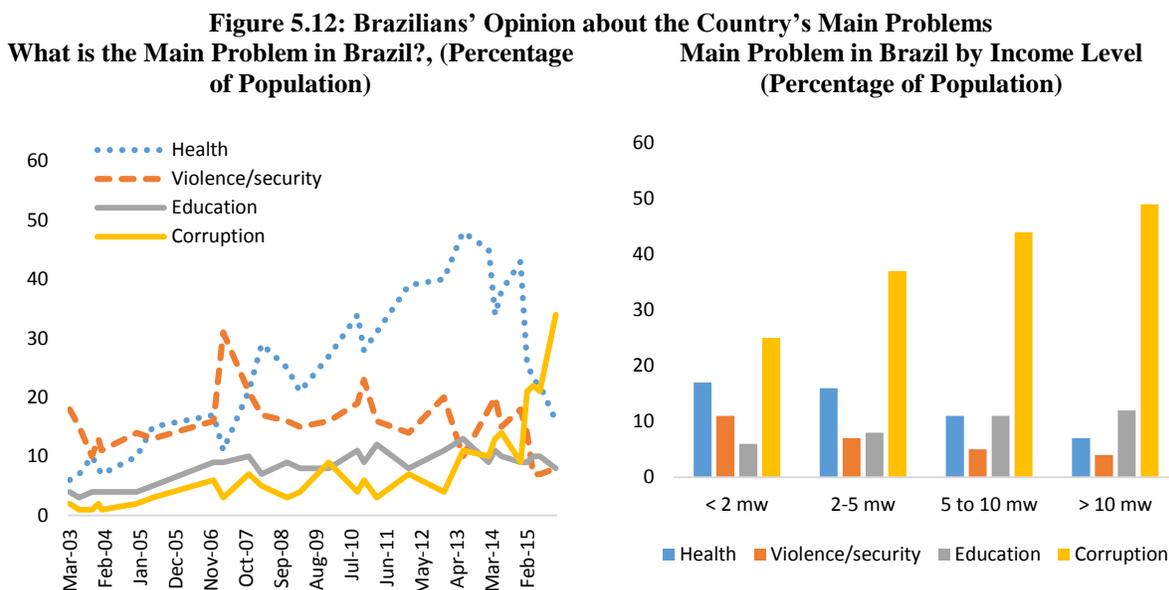
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<sup>124</sup> Quality is understood here to mean that care is delivered in compliance with defined technical standards—that is, does the nurse or physician ask the right questions, perform the appropriate tests and exams, reach the correct diagnosis, communicate effectively with the patient, and prescribe appropriate treatment.

<sup>125</sup> In this study, 1,106 patients with type 2 diabetes were recruited from both public and private centers.

<sup>126</sup> This cross-sectional study was conducted with 6,701 patients from general public hospitals (11), university-affiliated hospitals (5), and not-for-profit hospitals (4).

unemployment and hunger as their main concerns have declined significantly (not in chart), while there has been a slower increase in violence, education, and corruption as primary concerns. Health and education are more likely to be identified as the main concern by lower-income households, while for richer households it is education and corruption. Other opinion polls have pinpointed in more detail the basis of concerns with the health system. Waiting times are consistently reported as an important reason for not seeking care and are a poorly rated aspect of the health system (Deloitte 2011; IPEA 2011). Similarly, another opinion poll (CNI and IBOPE 2012) found very high levels of dissatisfaction with the health system, especially with delays in access to consultations or exams and a lack of doctors, although dissatisfaction was significantly lower among those who actually had direct experience using the health system. In part reflecting the concern with access to care, demand for private health plans has remained significant. Indeed, in a study by Datafolha and the *Instituto de Estudos de Saúde Suplementar - IESS* (2011) nearly all sampled individuals without health plans (88 percent) ranked health plans as the second most desirable good or service, after ‘own house’, but ahead of car, life insurance, new household appliances, and computer.



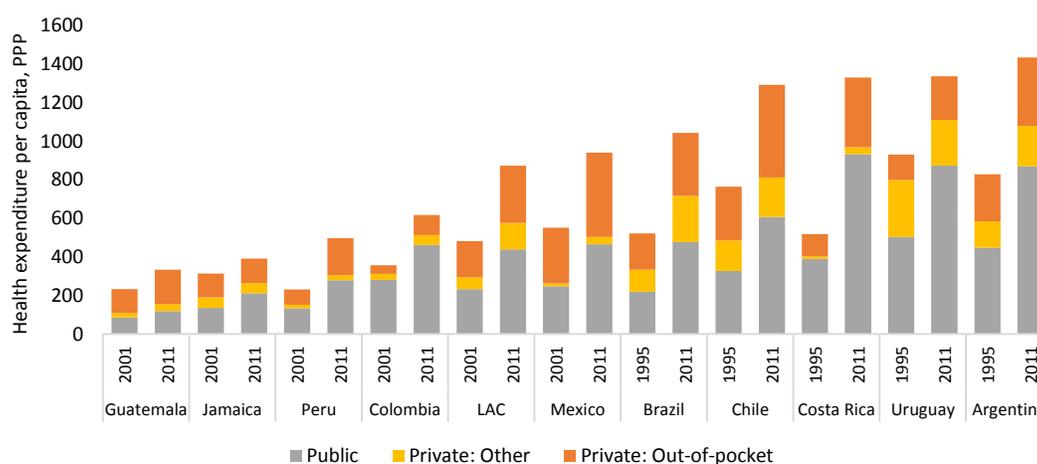
Source: Datafolha (2015). Respondents are asked to identify what they consider the main problem in Brazil.  
 Note: mw = minimum wage.

321. **Real and perceived quality differences are a contributing factor to Brazil having a higher share of the population covered by private health insurance than any other country in Latin America.** Over a quarter of the Brazilian population supplements the SUS with private insurance. Although overall coverage of voluntary private health insurance has remained steady and highly skewed toward the better-off, the share of the B40 enrolled in private plans is inching up. Changes in private coverage are largely attributable to shifts in the labor market, in particular the decline in joblessness and the increased share of formal sector employment, with large numbers of the poor moving out of informality. Nearly three-quarters of health insurance policies in Brazil are obtained as a fringe benefit, in part because of tax incentives. This raises two concerns. First, this is a highly regressive use of public resources as the rich are disproportionately represented among the insured. Second, there has been a proliferation of cheap plans with few contracted

providers who are underpaid, resulting in long waiting lists and costs being passed on to the insured, sometimes for services available free-of-charge from the SUS.

322. **The expansion of the SUS has been financed through an increase in public spending for health funded through general revenue taxation, with constitutionally mandated minimum spending requirements for each level of government.**<sup>127</sup> Although earmarking may not be desirable from a public finance perspective (because it reduces flexibility to reallocate resources across sectors to meet changing needs and priorities and can lead to inefficiency in the use of resources in sectors with earmarked allocations), the increase in government spending eased reliance on out-of-pocket payments as a source of financing for health, hence reducing exposure of household to the risk of enduring financial hardship due to health expenditures (Figure 5.13). Indeed, the share of the population becoming impoverished because of health spending (less than 1 percent) or incurring expenditures that are deemed catastrophic because they absorb a large share of disposable income (2.4 percent) is low in Brazil relative to other countries in the region (Dmytraczenko et al. 2015).<sup>128</sup> Another factor contributing to the decline in the share of out-of-pocket payments in total health spending is increase in expenditure for private insurance premium and co-payments for health services. Though the share of the population covered by private policies has not changed markedly, private insurance now finances a large share of private expenditures on health. Given that regulation of private insurance and providers is weak, this raises concerns about the potential for cost escalation to go unchecked as patients are encouraged to consume more (and sometimes not medically needed) procedures and can do so at little to no cost to them. For instance, it is common practice in Brazil for private providers to recommend an annual mammogram for women over 40 years, going against SUS’s evidence-based guideline that women aged 50–69 years undergo the procedure every two years, except in high-risk cases.

**Figure 5.13: Health Expenditure per Capita by Source, 2001–11  
(PPP in Constant International US\$)**



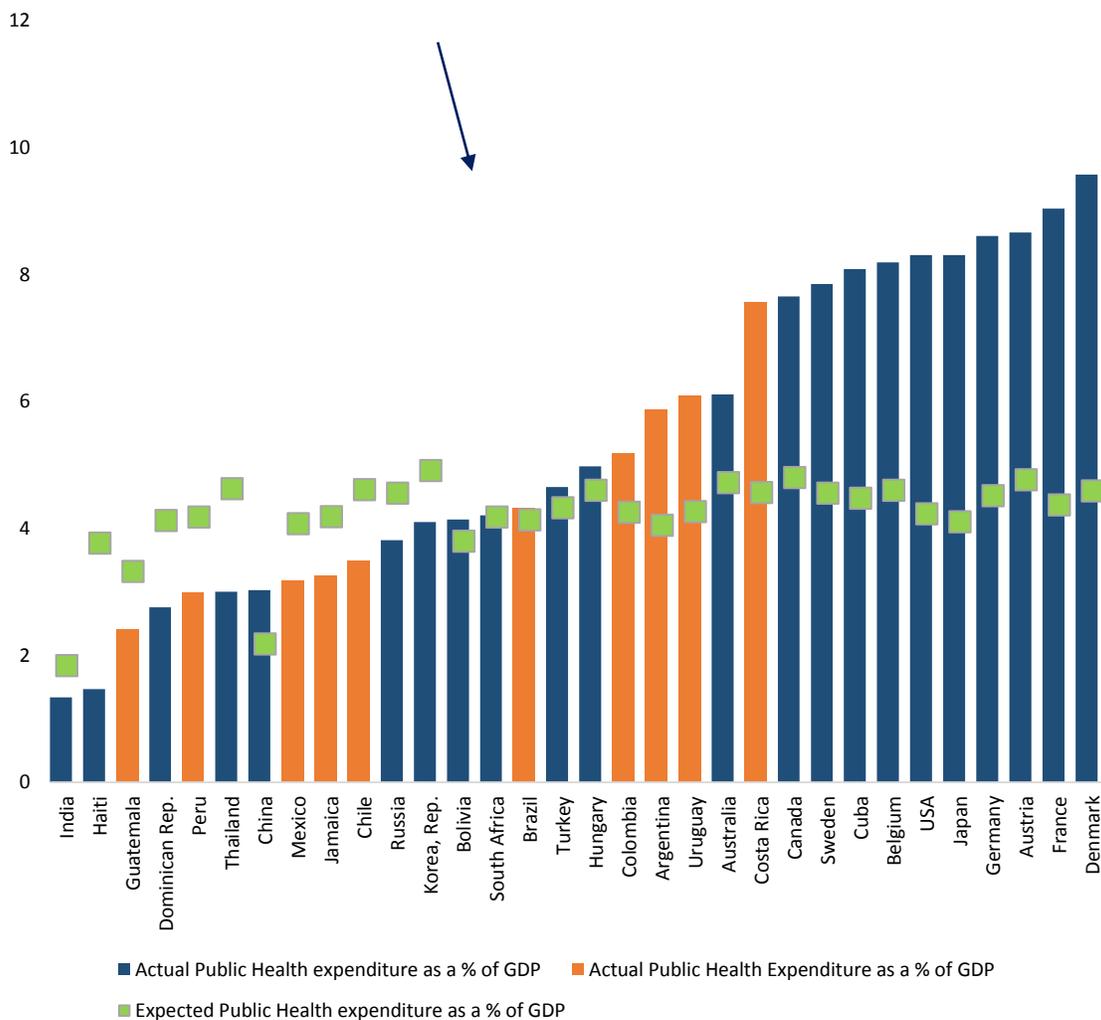
Source: Cavangero et al. (2015).

<sup>127</sup> Constitutional Amendment No. 29/2000 requires at least 15 percent of the municipalities’ total budget, 12 percent of the states’ total budget, and the previous fiscal year’s amount adjusted by the nominal change in GDP in the case of the federal government.

<sup>128</sup> Impoverishment attributable to out-of-pocket payments for health is measured as the percentage of households falling below the poverty headcount of US\$2.00 per day. Catastrophic health expenditure is defined as health spending that exceeds 25 percent of a household’s non-food consumption.

323. **Despite the increase in public health spending in recent years, Brazil still spends considerably less than many of its peers.** The share of the public budget going to health is low (7.6 percent compared to 15–20 percent in most OECD countries), which would indicate that there is fiscal space to increase the allocation to the sector. However, Cavangero et al. (2015) conducted a benchmarking exercise in which they compared projected outcomes for all 187 countries for which data are available for 2012 and regressed selected health outcomes on a set of demographic and economic variables to estimate expected values for indicators of interest. These values were then compared to actual values. They found that, though total health expenditures per capita as well as public expenditures as a share of GDP are significantly lower in Brazil than in the OECD countries, Brazil spends more public resources on health than expected, given its economic and demographic characteristics. This suggests that policy efforts should be focused on increasing the efficiency of health services rather than aiming to address public dissatisfaction through additional spending. This is, of course, also in line with Brazil’s reduced fiscal space.

**Figure 5.14: Actual and Expected Public Health Expenditure as a Share of GDP**



Source: Cavangero et al. (2015).

324. **The scope for greater efficiency<sup>129</sup> of spending in the health sector is considerable.** With regard to overall system-level efficiency, existing studies present a mixed picture. Some studies have found that Brazil could achieve similar health outcomes with significantly lower levels of spending (Ribeiro and Rodrigues 2006; Afonso et al. 2010), but others have found comparatively high cost-effectiveness (Marinho et al. 2012). Efficiency analyses are also available at the subnational level. These studies have tended to find substantial inefficiencies at the municipal level.<sup>130</sup>

325. **With regard to allocative efficiency,<sup>131</sup> the focus is typically on three key issues:** (a) the balance between preventive and curative services; (b) the balance between primary care and higher-level services (specialist care and hospital services); and (c) the process of deciding which drugs and procedures to finance and provide. Brazil has a strong track record on prevention in many areas. For instance, the country has received much recognition for its effective HIV/AIDS program, which was launched in 1986 in response to the rapid expansion of the HIV/AIDS epidemic. Brazil has also been a pioneer in tobacco control (involving banning of advertising, health warnings on cigarette packages, banning of smoking in public places, taxation of cigarettes, and so on) and smoking rates among individuals over 18 years halved between 1989 and 2009 (to around 17 percent). However, notwithstanding efforts to address other chronic disease risk factors, both obesity and hypertension are on the rise, with a growing concentration among the poor. Coverage and effectiveness of many preventive interventions (screening, chronic disease management, and so on) are low, in particular in the poorer parts of the country, and access to specialist care and treatment are often problematic. Reflecting these challenges, mortality from many chronic conditions remains high and in some cases is rising (for example, hypertensive heart disease and many forms of cancer), and complications from chronic conditions account for a large share of hospitalizations and hospital costs.

326. **Arguably, the most important challenge concerning allocative efficiency is choosing which drugs and procedures to finance.** In principle, everyone in Brazil has access to a comprehensive package of benefits free of charge. However, in practice, access to needed services is restricted (for example, long waiting lists, insufficient hospital beds, overcrowding) and the benefit package is delimited. For example, there is a list of health services and procedures that are financed by the SUS, which is used as a reference for the reimbursement of providers. Similarly, there is a national list of essential drugs financed by the SUS.<sup>132</sup> This contradiction has generated many problems for the SUS. Recent efforts (in 2011) by Brazilian courts have overruled attempts to restrict the package and have led to risks of cost explosion. Attempts to introduce Health Technology Assessment have not completely solved the issue, because of the lack of a permanent

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<sup>129</sup> Efficiency is concerned with the relationship between inputs and outputs or outcomes, with a health system considered efficient if it produces a certain level of outputs or outcomes with the minimum level of input (for example, human resources and equipment).

<sup>130</sup> For instance, OECD (2009) reports estimates for “social production functions” for education and health care in Brazil using a sample of approximately 4,000 municipalities. The findings demonstrate that the size of the municipality, government spending on health care, and non-health government spending do not have a statistically significant association with health status for most segments of the distribution of health outcomes.

<sup>131</sup> Allocative efficiency refers to whether resources are directed at the correct mix of services to maximize health outcomes (or broader health system goals).

<sup>132</sup> As public health is financed by the three levels of government, however, a state and/or municipality may decide to finance a procedure or drug not included in these lists. In these cases, however, there is no co-financing by other(s) level(s) of government.

technical body to review the evidence with all stakeholders. While the 2011 revised legislation is an improvement, there is still more to be done.

327. **There is ample international evidence that technical inefficiencies in the health sector are substantial** (Joumard et al. 2010). At the global level, Chisholm and Evans (2010) found that between 20 percent and 40 percent of total health spending was wasted, with technical inefficiencies related to human resource management, inappropriate use of medicines, medical errors and suboptimal quality, and corruption and fraud being the main source of inefficiency. Technical inefficiencies in Brazil stem from similar sources, as summarized in Table 5.1 and point to areas for reform going forward.

**Table 5.1: Evidence on Technical Inefficiency in Brazil**

| <b>Source of Technical Inefficiency</b>                                 | <b>Description</b>  |
|---|---|
| Workforce performance   | Over-reliance on physicians and resistance to the performance of tasks by other professionals categories; providers' lack of autonomy to manage human resources; low levels of performance, including high turnovers, weak incentive and accountability mechanisms, and poor work environments; and insufficient training |
| Poor quality of health services and medical error                       | Non-compliance with guidelines for diagnosis and treatment, poor coordination across different care levels, no continuity of care, and preventable medical errors   |
| Hospital inefficiencies: inappropriate size or low capacity utilization | Small scale of operations, high use of human resources, low utilization of installed capacity and technical resources (for example, consultation rooms, equipment, and beds), and payment mechanisms  |
| Inefficiencies in procurement and use of drugs                          | High-prices; deficient procurement practices, including acquisition, storage, and distribution; and inadequate prescription and dispensation practices  |
| Overuse of procedures/unnecessary care                                  | Over-medicalization; limited availability and few incentives for staff to use updated protocols; poor mechanisms to monitor performance and held professionals accountable; and inadequate financial incentives for providers   |
| Corruption and fraud  | Misprocurement; mismanagement (for example, non-execution of contracts); and staff absenteeism.   |

### ***5.3 Social Transfers and Social Inclusion: Light and Shadow***

328. **Social security payments continue to dominate social transfers, although social assistance has recently expanded considerably.** The 1988 Constitution included amendments that either increased or maintained benefits and relaxed eligibility rules in the pre-existing contributory pension schemes and it explicitly acknowledged the right of older people and people with disabilities to a minimum guaranteed income. This allowed the addition of a social assistance component grounded on a citizenship principle, as a component of social protection alongside social-insurance-based contributory pensions.<sup>133</sup> The policy emphasis on social assistance has led to a welcomed re balancing of public subsidies away from social insurance as the latter was and to a large extent continues to be only available to people working in the formal wage sector of the Brazilian economy.

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<sup>133</sup> Social assistance and social insurance are the main components of social protection. Social assistance describes tax-financed public programs and policies addressing poverty and vulnerability. Social insurance describes contributory schemes addressing life-cycle- and work-related contingencies.

### 5.3.1 Brazil's Social Security System: Costly and Not Pro-poor

329. **Currently, in addition to the federal pension scheme, all 27 Brazilian states (including the Federal District) and approximately 2,050 municipalities (out of 5,570) maintain their own pension schemes for their employees.** These schemes are known as the *Regimes Próprios de Previdência Social* (RPPS), as opposed to the 'general regime of social security' (RGPS) that covers private sector workers and some public sector workers who are not enrolled in the RPPS. Over the years, states and municipalities were allowed to create pension plans that followed the federal government but had more generous eligibility conditions and a required contribution rate that was insufficient to maintain the actuarial balance of the plan.<sup>134</sup> At the same time, federal legislation did not clearly establish the principle of actuarial and financial equilibrium of RPPS schemes. In addition, public sector employees were transferred to the RPPS. For instance, 600,000 civil servants were shifted to the RPPS, being entitled to benefits based on their entire employment history without the corresponding contributions.<sup>135</sup>

330. **The reforms to the RPPS in 1998 and 2003 represented important steps toward a sustainable and fair pension system, but they did not address critical issues.** By the early 2000s, the inequities in the pension system were reflected in the disproportionate relationship between the numbers of beneficiaries and the volumes of expenditures. While the beneficiaries in the combined RPPS schemes of the federal, states, and municipal governments accounted for only 12 percent of total beneficiaries, they were responsible for 40 percent of total pension expenditures and 70 percent of total pension deficits. While the 2003 reform was a significant step toward a sustainable and fair pension system, it had a much greater impact on new entrants to the civil service than on existing pensioners and workers. The same is valid for the creation in 2012 of *Previdência Complementar* for civil servants, whose pension plans are in the process of creation, including plans for the federal government and some states. The change in the patterns of fertility and longevity rates expected to bring the Brazilian economy to rapid aging over the next two decades, combined with the high coverage at old age, generous pension benefits, and significant transfers to elderly individuals has resulted in high pension expenditures (comparable to those in the European Union). While high contribution rates have been essential in financing pension commitments, they also contribute to the high labor cost of the Brazilian worker and to the low competitiveness of the economy compared to the rest of the world.

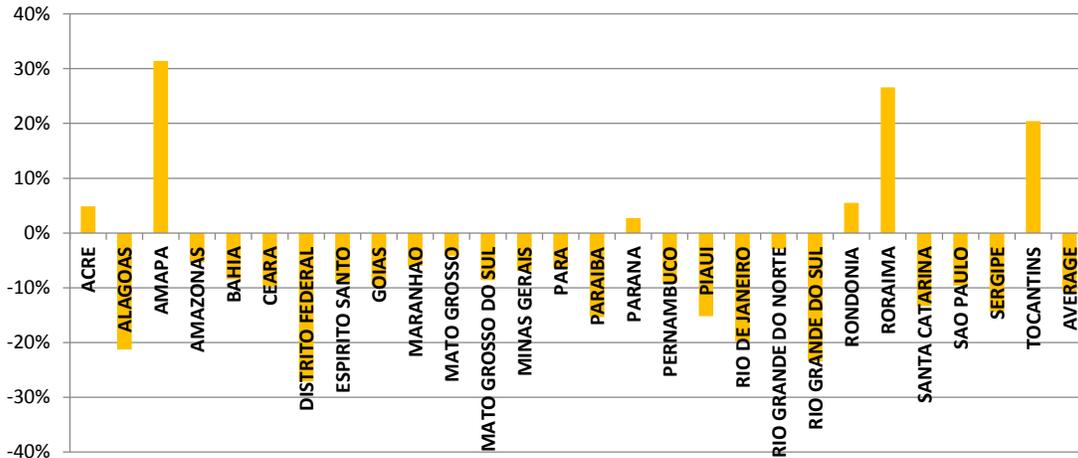
331. **To date, the federal and subnational governments have been able to finance generous pension systems owing to the demographic dividend and high contribution rates.** However, by all estimates, this situation will change dramatically in the next decade. The dependency ratios will worsen and the contributions will be insufficient to finance the pensions of the individuals. As of 2013, the fiscal situation of the RPPS schemes looks precarious. With the exception of the newer states of Brazil, including Rondônia, Roraima, Amapá, and Tocantins by date of creation, the RPPS is running significant deficits. As shown in Figure 5.15, the average deficit for the states in the country is approximately 10 percent of the tax revenue, but large disparities exist among states, with cases like Rio Grande do Sul or the Federal District having pension deficits above 20 percent of the tax revenues.

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<sup>134</sup> The Constitution guaranteed an old-age pension (and an ensuing survivor pension) equal to the final wage received by the employee, that is, a replacement ratio of 100 percent, as well as wage indexation of all benefits.

<sup>135</sup> See Oliveira and Beltrão (2001).

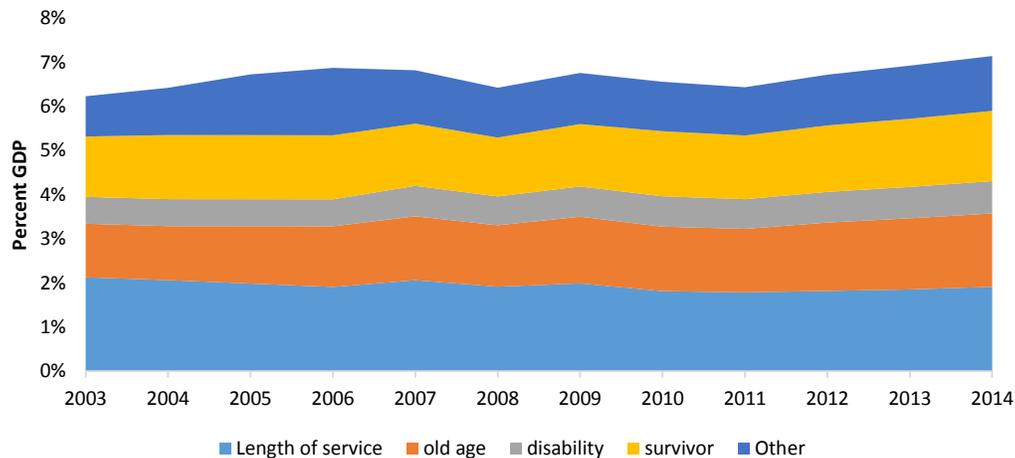
**Figure 5.15: RPPS State Pension Deficits, 2013**  
(as a percentage of tax revenues)



Source: Ministry of Social Welfare (*Ministério da Previdência Social - MPS*).

332. **The deficits of the pension systems of Brazil increase when the RGPS is taken into account.** RGPS spending has a number of components, including length of service, survivor benefits, disability benefits, and old-age benefits. Figure 5.16 shows the expenditure on the main components of RGPS as a percentage of GDP over the period 1998–2013. In 1998, about 36 percent of the overall RGPS expenditures were attributable to length of service expenditure, which has now been reduced to 30 percent due to recent reforms. Length of service expenditure as a percentage of GDP has declined by 16 percent, but old age and disability program spending as a percentage of GDP have both increased by 43 percent while survivor program expenses have grown by 23 percent. It should be noted that these increases were from an already high base. Spending on other benefits, including sickness, maternity, and accident insurance as well as some social assistance programs has grown by 76 percent over the same period.

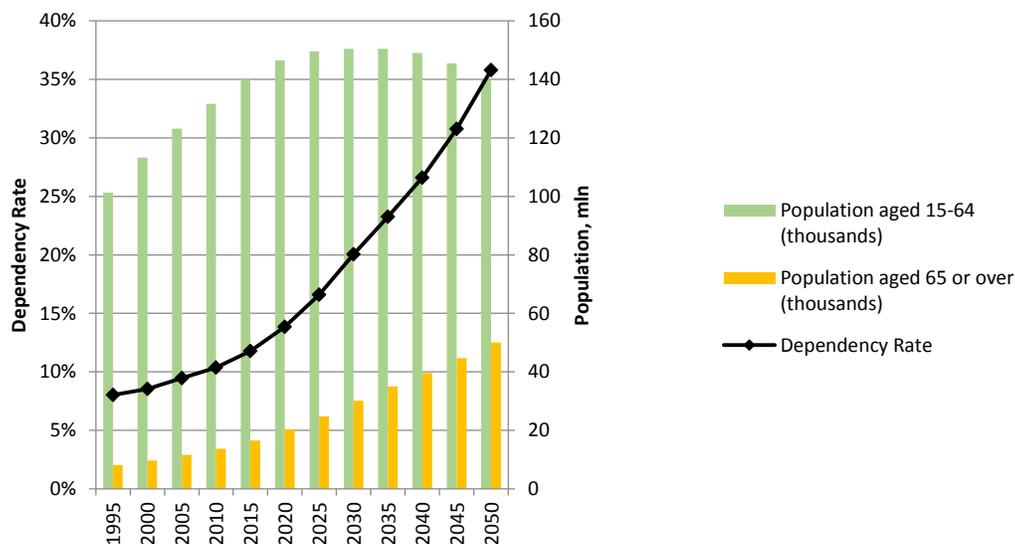
**Figure 5.16: Spending on the Main Components of RGPS Pension System: 1998–2013**  
(as Percentage of GDP)



Source: *Anuário Estatístico da Previdência Social (AEPS) infologo*, MPS.

333. **Changes in the demographics of Brazil are at the core of concerns over the sustainability of the RGPS system.** Figure 5.17 shows how the population demographics have changed since 1995 and are expected to change to 2050. It also looks at the population old-age dependency rate defined as the size of the population aged 65 years or older relative to the working-age population between 15 and 64 years of age. The old-age dependency rate was only 8 percent in 1995 and rose only slightly to 10 percent by 2010.<sup>136</sup> The dramatic decline in Brazilian fertility in the past two decades (from 2.4 percent in 1998 to 1.8 percent in 2012), leads to a projected doubling in the old-age dependency rate from 10 percent to 20 percent by 2030 and to 30 percent by 2045 (for a detailed analysis, see Gragnolati et al. 2011). Effectively, this means each decade there will be fewer persons of working age supporting each old person and if pension benefits are inflexible, the RGPS pension system will incur increasing deficits.

**Figure 5.17: Demographic Patterns and Projections for Brazil**



Source: AEPS infologo, MPS, WDI.

334. **In the coming years, state RPPS schemes as well as the RGPS will run into increasing deficits that will need to be financed from general revenues.** This poses a major constraint on the fiscal space available for policies for social inclusion. Consequently, the pension reform agenda is at the core of the broader policy agenda of bringing back long-term growth and increasing productivity for shared prosperity in the country. Brazil's government spends approximately 11 percent of GDP on pensions, which is only comparable with economies with old populations in Europe. These figures will continue increasing toward unsustainable levels in the next decade unless pension reforms are implemented to contain the pension benefit scheme. This is critical not

<sup>136</sup> These figures compare favorably with most European economies.

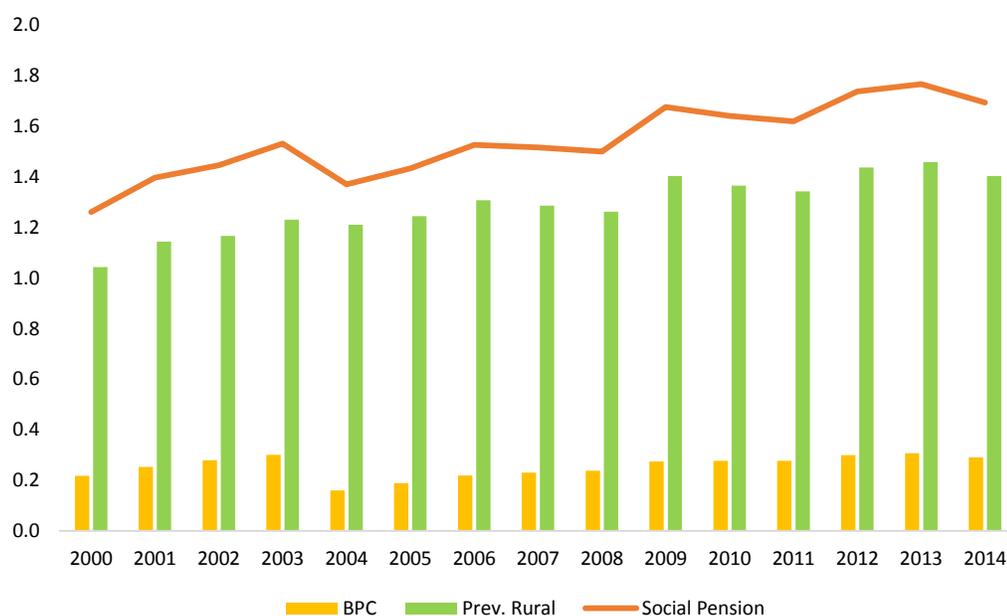
just for pension system sustainability but also to safeguard fiscal space for critical education, health, and social assistance spending.

### 5.3.2 Social Assistance: Cheap, Expanding and Very Pro-Poor

335. **Social assistance in Brazil consists of three main pillars.** First, disability benefits provide transfers to older or disabled people known as *Benefício de Prestação Continuada* (BPC); second, the inclusion of self-employed or agricultural family workers into social insurance institutions, such as the Rural Pension Program (*Previdência Social Rural* or PSR) ; and third, targeted income support, such as the PBF CCT program. The benefits of the social assistance programs for poverty prevention in old age in Brazil are received primarily by low-income workers, both rural and urban, who move in and out of informality during their working lives (Gragnotati et al. 2013). Brazil initiated these programs years ago, it was an early mover in the field of social pensions but other LAC countries have followed suit. Between 2000 and 2013 at least 18 countries in the region introduced inclusive reforms, which sought to increase coverage of the elderly (Rofman et al. 2014).

336. **The BPC benefit targeted to the elderly poor is a temporary social benefit for the disabled and the elderly above 65 years with family income per capita of less than 25 percent of minimum wage.** After qualifying for the program, the individual is entitled to receive a monthly transfer equal to the minimum wage for as long as s/he qualifies for it. Legislation requires a renewal of eligibility every two years. BPC has increased in importance since 2003 and it now covers about 7 percent of the elderly population. The value of the benefit has increased faster than the average value of benefits for retirement and survivors' pension: 93 percent compared to 49 percent between 2003 and 2009. This is the result of linking the benefit to the minimum wage, which, increased substantially over the last decade. Spending on BPC for the elderly amounts to about 0.3 percent of GDP (Figure 5.18)

Figure 5.18: Social Pensions Spending as Percent of GDP

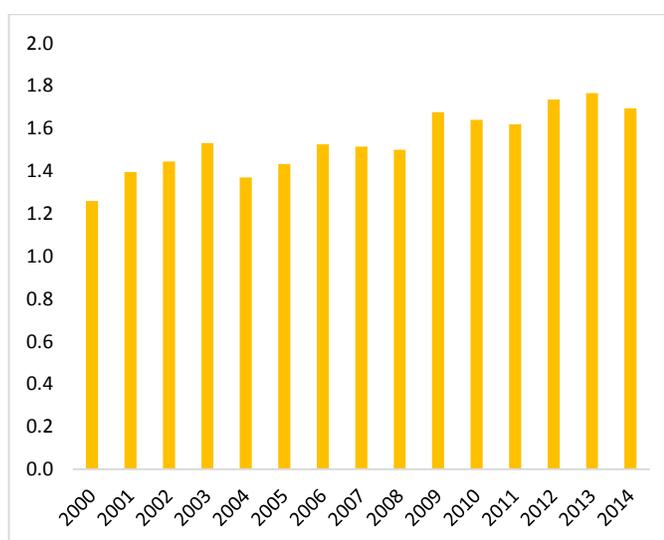


Source: LAC Social Protection Database.

337. **The program *Previdência Social Rural (PSR)* helps to address important issues related to the inclusion of self-employed and family unpaid workers into social insurance institutions.** This program originated as a response to the emphasis of the Constitution on the need to address the large inequalities between urban and rural areas in Brazil. PSR is formally a contributory program. Yet, owing to the particularities of rural activity, it has contributory rules that are different from the traditional rules of the urban scheme. This entails a high degree of public subsidy making PSR a ‘partially contributory’ scheme (Barbosa 2011).<sup>137</sup> The rural pension program has contributed substantially to extending coverage to a large segment of the population and to poverty reduction. It is partly financed by taxes on agriculture sales but it is strongly subsidized (revenues cover about 10 percent of expenditures). The cost of this program is over 1.4 percent of GDP, substantially higher than BPC (see Figure 5.18).

338. **In Brazil, as in other countries in the region, over the last decade there has been an increase in the number of beneficiaries and spending on disability benefits.** Spending for the BPC disability<sup>138</sup> went from about 0.19 percent of GDP in 2000 to 0.37 percent in 2013 (Figure 5.19). The program guarantees a monthly minimum wage to all disabled who can demonstrate not having the means to provide for their own maintenance and that they cannot be provided for by their family. Any disabled person who has long-term<sup>139</sup> physical, mental, intellectual, or sensory impairments, which in interaction with various barriers may hinder their full, equal, and effective participation in society, is eligible for the program.

Figure 5.19: Disability Benefits as Percent of GDP



Source: LAC Social Protection Database

339. **Chronic poverty is addressed through the *Bolsa Família Program (PBF)*, the flagship CCT program of the MDS.**<sup>140</sup> It provides cash transfers to poor households conditional on school attendance and use of maternal and child health services. The program was brought to scale at remarkable speed with the number of beneficiaries going from 16 million to 48 million in three years (Figure 5.20). Today it reaches about 56 million individuals or 14 million households—around quarter of Brazil’s population. Spending as a percentage of GDP increased from less than 0.05 per cent of GDP in 2003 to over 0.5 per cent in 2013, with the increases in spending since 2011 mostly due to increases in the amount of benefits.

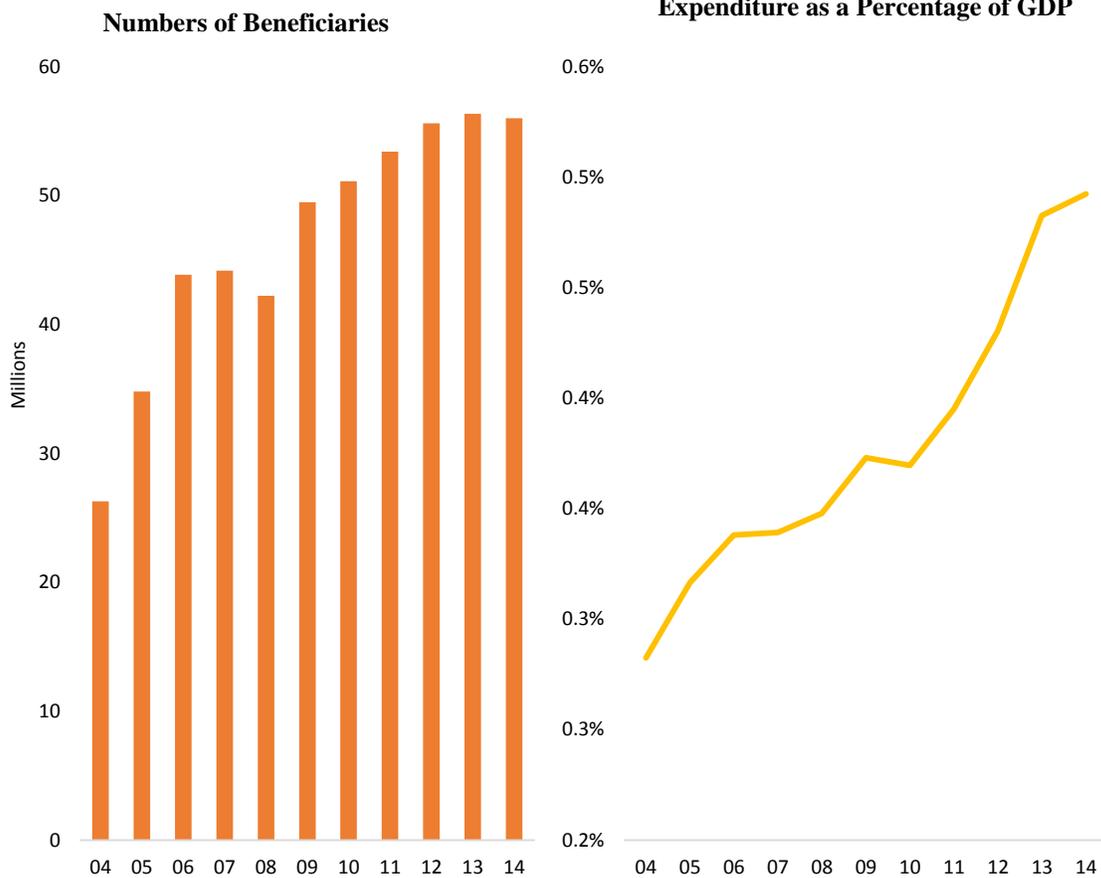
<sup>137</sup> Barbosa (2011).

<sup>138</sup> Benefício Assistencial à Pessoa com Deficiência - BPC.

<sup>139</sup> For a minimum period of 2 years.

<sup>140</sup> The PBF and BPC are the only two programs that are means-tested. All the others are universal, in the sense that access to these programs is open to anyone who qualifies. However, there are barriers to access and much more effort has been placed on facilitating access for the extreme poor than for the poor and even more than for the vulnerable.

**Figure 5.20: Bolsa Familia Beneficiaries and Spending, 2004-2014**



Source: LAC Social Protection Database.

340. **Numerous impact evaluations demonstrate that the PBF has significant positive impacts on poverty reduction and human capital.** It is estimated that around 20 percent of the reduction of extreme poverty and 15 percent of the reduction in inequality can be attributed to the program (Osorio and de Souza 2012). The PBF also increased school attendance and grade progression (Cireno et al. 2013). For instance, as a result of the program, the chances of a 15-year-old girl being in school increased by 21 percent. Other effects of the program include positive impacts on the number of prenatal care visits, immunization coverage, child mortality (Rasella et al. 2013), crime reduction (Chioda et al. 2015) and positive effects related to two of the key challenges to gender equality in the country: the reduction of teenage pregnancy (Azevedo and Favara 2012) and the reduction of domestic violence (Perova et al. 2012).<sup>141</sup> Importantly, rigorous analysis on the potential perverse incentives of the program shows that PBF did not discourage work efforts by beneficiaries and did not increase fertility among beneficiary households (Oliveira and Soares 2013).

341. **Over the last 4 years, the PBF has been consolidated as a fundamental pillar of the *Brasil Sem Miséria* (BSM) initiative.** BSM is an umbrella plan that strengthens and coordinates a diverse array of programs. The premise of the plan is not only to expand cash transfers but also

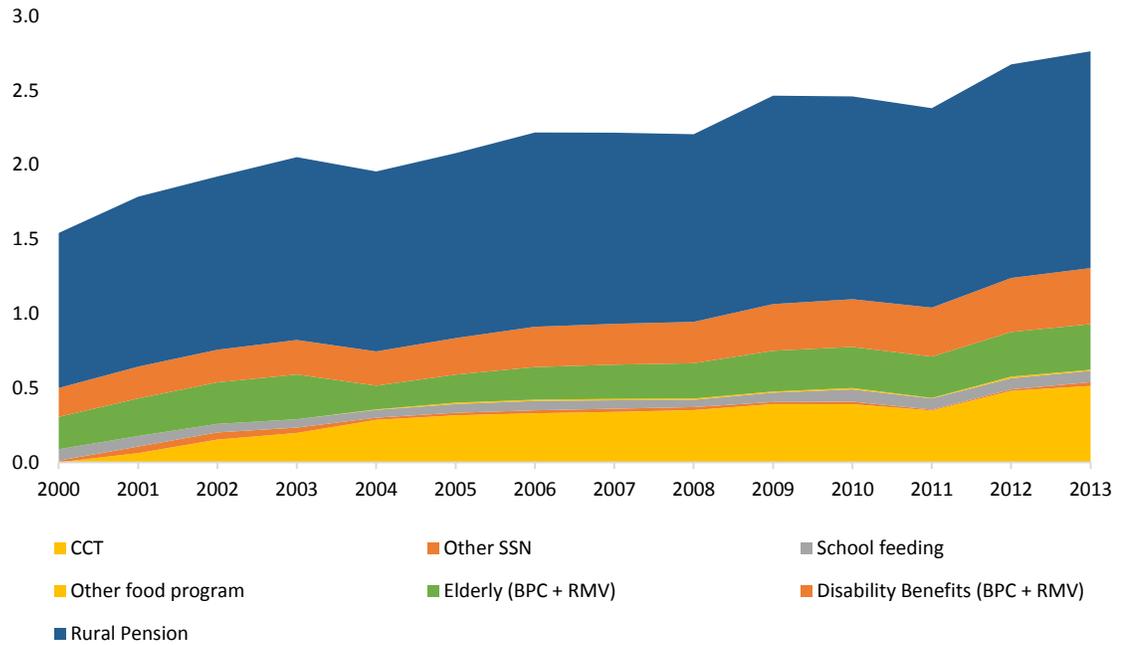
<sup>141</sup> See Azevedo and Favara (2012). See also Perova et al. (2012) in the same report.

to try to generate economic opportunities and improve living conditions of the extreme poor. It also provides the impetus for improving integration and coordination of social policy. The plan has three axes: (a) income transfers (PBF and a transfer program for the elderly and disabled); (b) access to services—enhancing the access to public services among the poor and vulnerable populations, closing the existing coverage gaps in basic services such as education, health, sanitation, and electricity; and (c) productive inclusion—promoting activities in rural and urban areas aimed at increasing the productivity of families in extreme poverty toward employment, and income generation. There is also an overarching element to BSM that refers to the active search (*Busca Activa*) of the extreme poor not registered in the country's single registry of the poor and vulnerable *Cadastro Único*. This strategy led to a total of 1.38 million families being added to the registry by November 2014 while the number of families identified in the *Cadastro Único* as belonging to traditionally disadvantaged groups (indigenous, quilombolas, extractivists, and so on) went from about 200,000 in 2011 to 1.42 million in 2014.

342. **The productive inclusion component of the BSM holds great promise as an effective instrument for graduation from social assistance and better social inclusion.** However, the final verdict will have to wait for the evidence from rigorous evaluation. Significant components of the BSM directed to production inclusion are vocational training (PRONATEC-BSM), individual micro-entrepreneur program (MEI), Water for All (*Água para Todos*), Second Water (*Segunda Água*), and the food Purchasing program (PAA), which buys agricultural production from small farmers. The first two are focused in urban areas and the latter in rural areas. In urban areas, productive inclusion articulates actions and programs that facilitate insertion into the labor market through formal employment, entrepreneurship, or solidarity economy enterprises. As of December 2014, about 1.7 million people had enrolled in the vocational training program PRONATEC-BSM, of which 67 percent were women and 47 percent were between 18 and 29 years old; 478,200 PBF beneficiaries participated in *Programa de Microempreendedor Individual* (MEI), a program providing incentives for formalization of individual micro-entrepreneurs. In rural areas, where 47 percent of the BSM target population lives, the goal is to strengthen family farming for extreme poor families, increasing their production capacity and the entry of their products into markets through guidance, technical assistance and supply of raw materials and water. For example, 781,800 water reservoirs were built in the semi-arid Northeast region of the country with the support of the *Água Para Todos* (Water for All) program, while 102,000 water tanks for agricultural production have been constructed between 2001 and 2014. In 2010, only 32 percent of families reached by the program were poor. In 2014, more than half the families reached by the program were registered in the *Cadastro Único*.

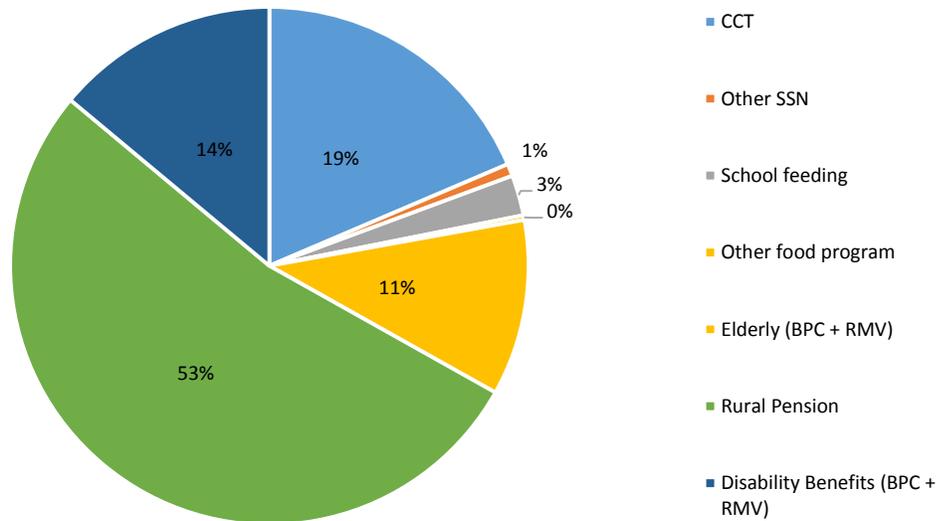
343. **Taken all together, since 2000, spending on social assistance programs has increased substantially from 1.5 percent to about 2.65 percent of GDP in 2014 (Figure 5.21).** This is similar to the general trend in the region during the decade of the 2000s: spending in social assistance as percentage of GDP increased three-fold, from an average of 0.4 percent for 10 countries in 2000 to 1.2 percent in 2010 (Cerutti et al. 2014). The components that increased the most have been rural pensions and PBF. With regard to composition, in 2014, more than half of social assistance spending went to rural pensions (53 percent), 19 percent to PBF, 14 percent to the disability part of BPC, 11 percent to BPC for the elderly and 2.5 percent to school feeding programs (Figure 5.22).

**Figure 5.21: Evolution of Social Assistance Spending as Percentage of GDP**



Source: LAC Social Protection Database.

**Figure 5.22: Composition of Social Assistance Spending in 2014**



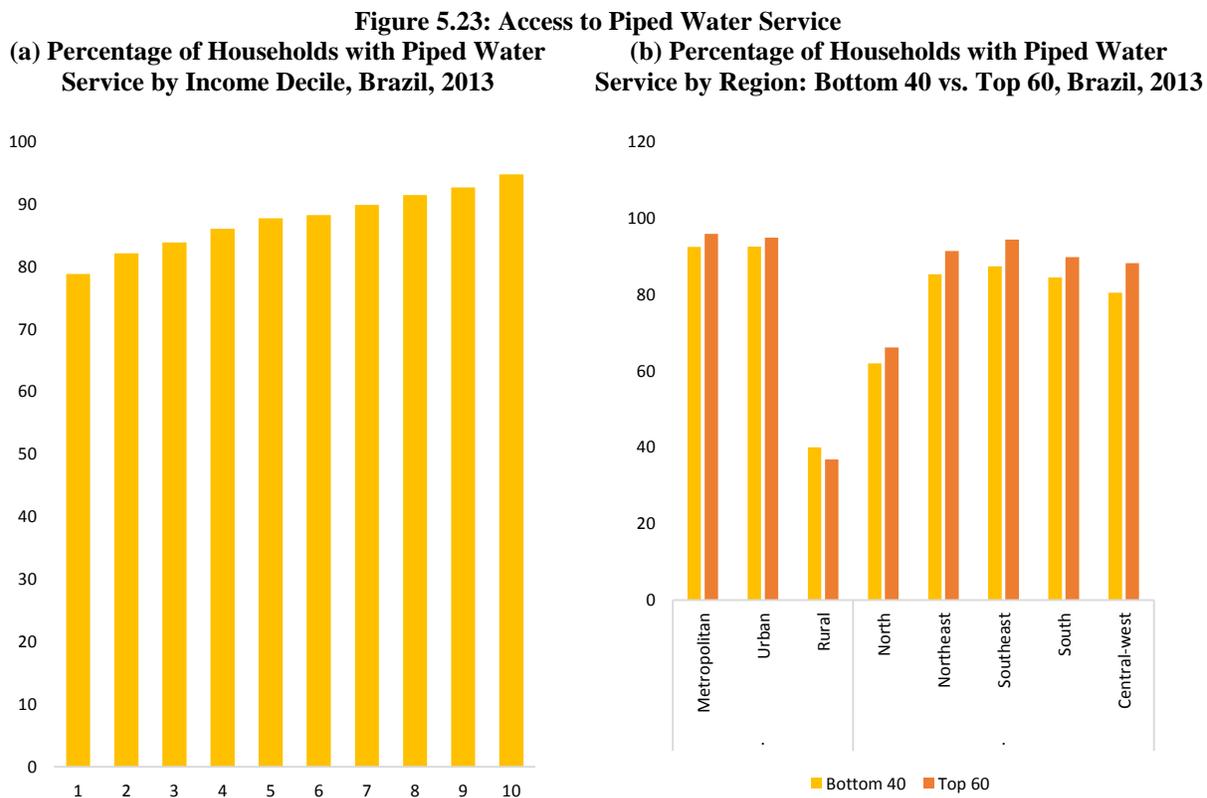
Source: LAC Social Protection Database.

344. **Brazil’s social assistance programs have had an important effect on the monetary measure of extreme poverty.** However, big challenges remain ahead. Poverty has many dimensions and the multisectoral approach of BSM is meant to address these other dimensions apart from income. To address these issues more effectively, a number of constraints must be

tackled. These include (a) the unification of the registries for all social programs. The information in the registries of BPC and rural pension beneficiaries should be integrated with the information in *Cadastro Único*. (b) The need for more evidence on outcomes. While the direction that social assistance has taken in strengthening its link to access to services and its productive inclusion agenda, very little is known about the impact and cost-effectiveness of these programs. (c) The incentive compatibility of the benefit structure of the different programs. The issue is most pronounced in the case of urban men, who would qualify for the same minimum benefit at the age of 65 years either without contributing at all by claiming social assistance or with a 12-year contribution by retiring through the Age Rule program. The minimum guarantee can also create incentives for workers to participate only until they have complied with vesting requirements and to evade thereafter. Assessing the incentive compatibility of the current benefit structure in the light of the aging population and the implications for the financial sustainability of non-contributory programs is critical.

#### 5.4 Living Conditions and Access to Infrastructure Services

345. **Access to a variety of housing and infrastructure services is an important element of the non-monetary dimensions of social inclusion.** Brazilian households at the bottom of the income distribution still have significantly lower access to water, and sanitation services (Figures 5.23 and 5.24). Moreover, the inequalities between poorer (B40) and richer households (T60) are also present within different geographic areas (metropolitan areas, urban and rural areas, and within regions). The richest regions (the Southeast and South) have the highest coverage, with the lowest figures in the North and Center-West.

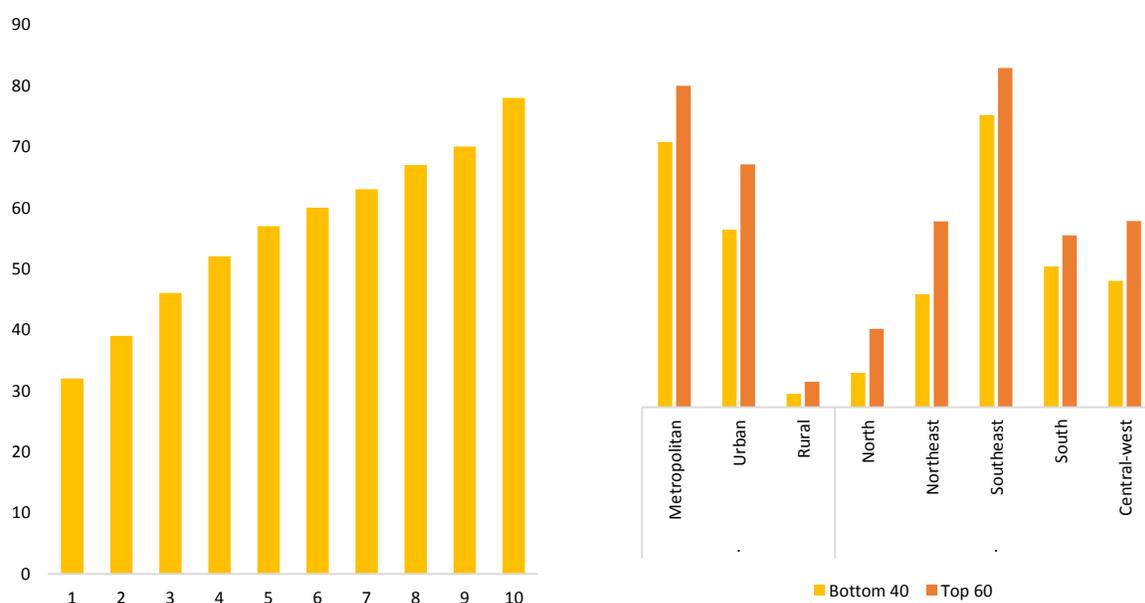


Source: World Bank estimates based on PNAD 2013.

Source: World Bank estimates based on PNAD 2013.

346. **Lack of access to adequate water and sanitation services has important economic and social consequences, particularly in health.** The Ministry of Health (DATASUS) reported more than 340,000 hospitalizations for gastrointestinal infections<sup>142</sup> nationwide in 2013; of these, 170,700 were children under 14 years. Hospitalization costs for gastrointestinal infection in the Unified Health System (SUS) were R\$121 million for the same year. It is estimated that universal sanitation access would lead to about 75,000 avoided hospitalizations per year and generate savings of about R\$27.3 million for the public health system.<sup>143</sup> The same study estimates working days losses of about 849,000 due to poor sanitation, with a resulting economic loss estimated at R\$1.1 billion per year.

**Figure 5.24: Access to Toilet Connected to Sewage Network**  
**(a) Percentage of Households with Toilet Connected to Sewage Network by Income Decile, Brazil, 2013**      **(b) Percentage of Households with Toilet Connected to Sewage Network by Region: Bottom 40 vs. Top 60, Brazil, 2013**



Source: World Bank based on PNAD 2013.

Source: World Bank estimates based on PNAD 2013.

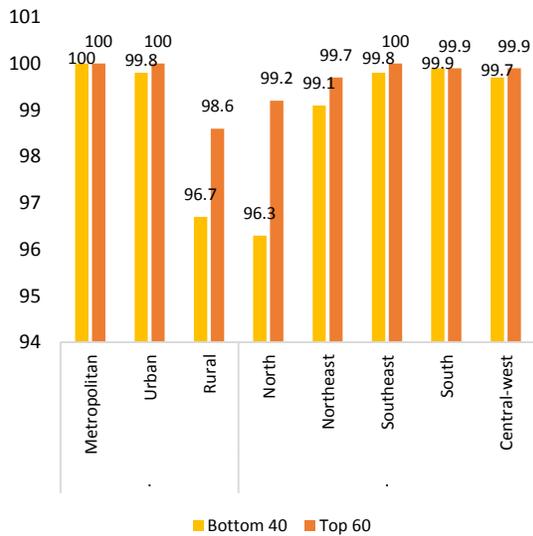
347. **Access to electricity is now close to universal but affordability remains a challenge.** The *Luz para Todos* (LpT) the rural electrification program, a public investment of R\$22 billion mostly financed by sectoral funds, has been very successful in bringing access to electricity to almost full coverage (Figure 5.25a). In the decade between 2004 and 2014, the LpT program brought electricity to 15.2 million (around 3 million connections) people, mostly poor (91 percent below two minimum wages). Due to a confluence of factors, including a change in the government, rules for concessions contracts and the need to switch to high-cost thermal power plants, the cost of energy has risen to historically high levels (Figure 5.25b and Chapter 4). This raises new social challenges.

<sup>142</sup> CID-10: cholera, shigellosis, amebiasis, diarrhea, and gastroenteritis of presumed infectious origin, other intestinal infectious diseases.

<sup>143</sup> Instituto Trata Brasil and Conselho Empresarial Brasileiro para o Desenvolvimento Sustentável (2014) “Benefícios Econômicos Da Expansão Do Saneamento,” available at [www.tratabrasil.org.br](http://www.tratabrasil.org.br).

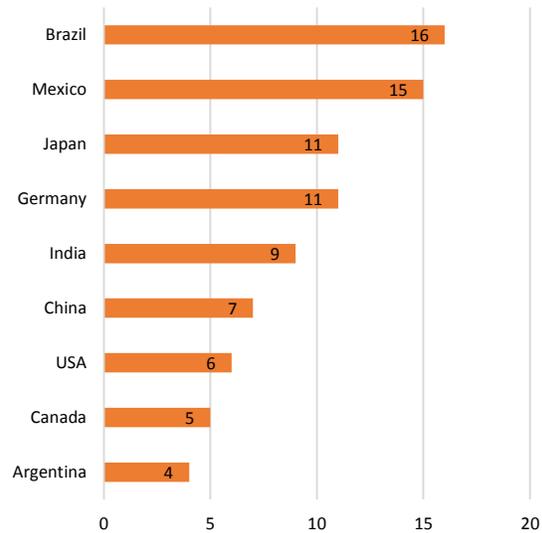
**Figure 5.25: Access to electricity**

**(a) Percentage of Households with Access to Electricity by Region: Bottom 40 vs. Top 60, Brazil, 2013**



Source: World Bank estimates based on PNAD 2013.

**(b) Electricity Price in Brazil Compared to Other Countries (August 2012)**



Source: Graphic by Bloomberg Businessweek Data: Federation of Industries of the State of Rio de Janeiro.

348. **One important instrument to promote access to electricity is the Social Electricity Tariff (*Tarifa Social de Energia Elétrica - TSEE*) that provides a subsidized tariff to low-income residential consumers.** It was created in 2002 by the federal government and it is directed to families earning a monthly income per-capita less than half the minimum wage and that are enrolled in the Unified Register of Federal Government Social Programs (*CadUnico*).<sup>144</sup> Families with monthly income per capita greater than half of the minimum wage and lower than three minimum wages may benefit from the social tariff if they are enrolled in the *CadUnico* and they have a member continually depending on the use of electrical medical equipment. Native Brazilian descendants and Quilombolas<sup>145</sup> are also entitled to the social tariff. Social tariffs and the LpT program have been shown to stimulate the purchase of consumer durables, support the creation of jobs, facilitate the integration of women into the labor market, and reverse out-migration from rural areas.

### 5.5 Making Brazil's Urbanization Process More Inclusive

349. **In the last half-century, Brazil has been transformed into an urbanized country.** In less than 50 years, Brazil evolved from a predominantly rural society and economy to a highly urbanized country in which 85 percent of its people now live in urban areas and more than 90 percent of the country's GDP is generated in the cities. This rapid urbanization process was characterized by a lack of planning, resulting in high degrees of concentrated poverty in the urban areas. Slums were created by building on hillsides, river bottoms, or flood-prone areas. In such

<sup>144</sup> The management of *CadUnico* is the responsibility of the MDS.

<sup>145</sup> According to the Palmares Foundation (the government agency in charge of certifying Quilombola communities), Quilombolas "are descendants of African slaves who keep cultural, livelihood and religious traditions through the centuries."

circumstances, housing fails to meet minimum construction standards, municipal urban infrastructure and services are lacking, minimum health standards are not achieved, and residents are vulnerable to environmental hazards. While slum dwellers are most affected by the lack of access to basic municipal services, the lack of quality of such services is a more general source of discontent as demonstrated by widespread street protests in the summer of 2013.

**350. One of the urban services of key importance for social inclusion and upward mobility is urban transport.** A recent IPEA study on commute times demonstrates that low-income travelers in metropolitan regions have, on average, 20 percent longer commutes than high-income travelers. Moreover, between 2003 and 2009, low-income travelers saw their expenditures on public transport grow faster than their income.<sup>146</sup> Increases in the cost of transportation contributed to the street protests in 2013, which actually started as a protest against the increase of bus fares in state capital cities.

**351. Constraints to mobility are a special concern for the poor living in peripheral urban areas.** Improved transportation—notably through better integration of different transportation modes (for example, trains and buses)—can increase access to job opportunities and increase returns to skills.<sup>147</sup> In 2010, a resident of Rio’s periphery spent an average of 86 minutes commuting every day (close to a quarter of the workday). Such long commuting times suggest the presence of serious constraints in the mobility of labor and in accessing employment opportunities especially by the poor and vulnerable. These mobility constraints may be reinforced when safety concerns are factored in. In metropolitan Recife, for instance, the incidence of homicides closely matches the location of bus stops.

**352. In 2009, transport was the third most important expenditure item for rural households, representing almost 18 percent of monthly expenditures.**<sup>148</sup> Investments in public infrastructure, local roads in particular, have proved beneficial to the poor, by increasing accessibility to markets, jobs, and services, including education and health.<sup>149</sup> Such investments can also have important implications in the reduction of gender inequalities. In the Amazon Basin, waterways are key accessibility vectors, especially for the poorest and most remote populations. These transport routes are vulnerable to the impact of climate change, requiring particular attention to prevent negative impacts on the poor.

**353. Because of the importance of urban mobility for the poor, affordability concerns have been salient in shaping government policy.** Some municipal authorities have introduced subsidies to alleviate the high financial burden that the urban poor face to pay for their daily travel. The establishment of the *Bilhete Único* (BUI) in Rio de Janeiro and São Paulo, consisting of an integrated fare scheme allowing seamless inter-municipal travel has positively affected travel patterns of the most disadvantaged groups. The BUI includes a targeted subsidy ranging from 20 percent to 50 percent of the full fare for low-income groups. As a result, in the case of São Paulo, for instance, the share of household income devoted to transport dropped from 30 percent to 13.1 percent and 15 percent to 8.8 percent for the two lowest-income brackets, respectively, in the 2004–2006 period. The BUI also enabled low-income households to travel more often and access previously unreachable districts in search of higher-paying and better-quality jobs. However, such

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<sup>146</sup> IPEA 2012.

<sup>147</sup> Pereira and Schwanen 2013.

<sup>148</sup> IBGE 2010.

<sup>149</sup> World Bank 2015b.

encouraging effects are tempered by concerns over the rapidly increasing financial burden on municipal budgets as a result of increasing use of public transport. The decision to publicly finance these deficits has to be accompanied by financing mechanisms to ensure that investments will continue to occur until the infrastructure deficit is reversed.

**354. Lack of access to affordable land and housing can further exacerbate inequality and negatively affect the livelihoods of the poor.** Brazilian cities face an acute housing deficit of some 5.43 million units across the country, 4.66 million of which (or 85.9 percent) is in urban areas.<sup>150</sup> Nearly 39 percent of the total housing deficit of the country is in the Southeast region, while only 7.9 percent is in the Center-West. The urban housing deficit varies between 70 percent of the total in Northeast region and 97 percent of the total in the Southeast region. There are substantial absolute and relative inter-regional and urban versus rural disparities, which need to be taken into account. For instance, as of 2012, the urban housing deficit in the South region was 6 percent of the stock, while in the North region these figures were as high as 12.6 percent of the stock. The 2009 National Housing Plan projects that the total housing demand could reach 27 million by 2023, of which approximately 20 million is for low-income families, based on population growth and projected housing construction.<sup>151</sup> In addition to the deficit, there is also the issue of inadequate housing, as well as those lacking basic infrastructure services and title, all of which are tackled separately within the government policies and programs. Stringent land regulations in Brazilian cities led to dramatic increases in slums in the last 60 years and about 60 percent of urban land is now under some kind of informality. The annual growth rates of slum dwellers in cities in the 1980s and 1990s was 5.5 percent and 3.9 percent, respectively, which exceeded the rate of urban growth as a whole (2.4 percent and 2.0 percent). Restrictive land regulations may also be contributing to the housing deficit.

**355. Weaknesses in the framework for metropolitan governance have complicated efforts to address these problems.** The fragmentation of administrative boundaries within municipal areas has complicated integrated urban planning for years. However, the recent approval of a new framework for metropolitan governance—the Statute of the Metropolis (dated January 2015)—creates the opportunity for a step forward in municipal governance in Brazil. Under the governance structure proposed by this law, states are now obliged to develop integrated plans for metropolitan development. Cities, on the other hand, shall articulate their master and land-use plans with reference to the integrated state and metropolitan plans. Various forms of collaboration and partnerships are encouraged, and states shall detail their arrangements through specific regulating laws. This new governance framework now needs to be followed up with a reform on inter-governmental finances to align incentives for municipal planning with resources and responsibilities for implementation.<sup>152</sup>

**356. Two federal programs have been important drivers of urban development.** Investment from the national level through the Growth Acceleration Program (PAC) and the My House, My

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<sup>150</sup> Fundação João Pinheiro (2015). Centro de Estatística e Informações Déficit habitacional no Brasil 2011–2012. <http://www.fjp.mg.gov.br/index.php/docman/cei/559-deficit-habitacional-2011-2012/file>. The methodology used for calculating the housing deficit in Brazil includes four components: (a) units made of non-durable materials; (b) households with families cohabitating or living in tenements; (c) renter households paying more than 30 percent of income on rent; and (d) overcrowded renter households (more than three residents per bedroom).

<sup>151</sup> *Plano Nacional de Habitação*, Ministério das Cidades - Secretaria Nacional de Habitação,

[http://www.cidades.gov.br/images/stories/ArquivosSNH/ArquivosPDF/Publicacoes/Publicacao\\_PlanHab\\_Capa.pdf](http://www.cidades.gov.br/images/stories/ArquivosSNH/ArquivosPDF/Publicacoes/Publicacao_PlanHab_Capa.pdf).

<sup>152</sup> Metropolitan Governance in Brazil: Inputs for an Agenda and Strategy, World Bank Group, 2015.

Life Program (MCMV) has shaped urban development patterns over the last decade in Brazil. Since 2007, the government announced over US\$796 billion in investment, R\$657.4 billion through PAC1 and R\$1 trillion through PAC2. However, the actual execution of PAC initiatives has proven very difficult, with long delays in the implementation of projects (Chapter 4). Despite the ongoing fiscal adjustments, the latest official announcement of PAC for the period 2015–2018 projects investments of R\$1.05 trillion (including PAC2 projects not yet concluded). MCMV, launched by the federal government in 2009 and implemented in partnership with the private sector at the subnational levels, seeks to address the housing deficit among low-income residents. As of September 2015, 4 million housing units were contracted, 2.3 million of which were delivered to the beneficiaries, representing an investment of R\$272.3 billion. The third phase of MCMV has not yet been formally announced. The government's original target was to contract an additional 3 million housing units by 2018. Through extensive financial subsidies by the central government, MCMV has obtained rapid and substantial results in supporting the construction of housing units that enable (very) low-income and moderate-income households' access to homeownership.

**357. Government regulation of, and intervention in, urban land markets are critical determinants of inclusive urban development.** The 2001 City Statute established the general guidelines and instruments for land transfer and regularization of informal settlements,<sup>153</sup> thus contributing to making cities more inclusive. It also provided the municipal governments with important instruments to implement the urban development policy. These include, among others, the possibility of land transfer, land value capture, progressive property tax, and opportunities for partnerships between the public and the private sectors for the redevelopment of selected areas (*Operações Urbanas Consorciadas*).<sup>154</sup> Holding legal title to property improves access to credit, encourages residents to invest in their homes, and creates opportunities for expanding tax revenue. The property tax is also an effective policy instrument for local governments to send price signals to land markets.<sup>155</sup> While the 1988 Brazilian Constitution and the 2001 City Statute give local governments control over property tax revenues (*Imposto Predial e Territorial Urbano* - IPTU and *Imposto de Transmissão de Bens Imóveis Inter-Vivos* - ITBI), local implementation of taxes and collection capacity varies across municipalities in Brazil. Cities like São Paulo are at the forefront and have experimented with new instruments for revenue capture, for instance, trading additional building rights in the stock market (*Certificados de Potencial Adicional de Construção* - CEPACs). São Paulo authorities are also considering proposals to retrofit old central areas (including mixed-income and mixed-use housing) and to increase taxes on disused land and vacant buildings (including in former industrial belts and near rail corridors)—to encourage development.<sup>156</sup> Such uses of the existing instruments can steer urban growth and development and be tailored to encourage low-income housing that benefits the poor. They can also contribute to making cities more competitive and unlock new sources of financing.

**358. A final important dimension of inclusive urban development is the degree of citizen engagement and government accountability.** Brazil has pioneered citizen engagement in public decision making and participatory governance, which have enhanced social accountability in many

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<sup>153</sup> With the enacting of Law 11.977/2009 (on MCMV and on regularization of informal urban areas), the legal framework for regularization was consolidated.

<sup>154</sup> Legal instrument that allows both the private and public sectors to propose and enter partnerships with the objective of promoting the redevelopment of selected areas, provided there are proven social benefits.

<sup>155</sup> Avila 2006.

<sup>156</sup> Torres et al. 2007.

sectors and cities (Belo Horizonte, Porto Alegre, and Recife, among others). An important step in this direction was the creation of the Cities Council (*Conselho das Cidades*) led by the Ministry of Cities, which marked an important step in local participation in urban development policies led by the federal government. There is evidence from Brazil's range of experiences of a positive causal relationship between participation and pro-poor growth. However, one key challenge that remains is the enlargement of the pool of community leaders and representatives above and beyond the well-established leadership structures that have become consolidated over the years. Another challenge is the impact that pervasive crime and violence may have on the social fabric in local communities.

## 5.6 *Crime and Violence: An Economic and Social Burden Especially for the Poor*

359. **Crime and violence threaten citizens' security and impose huge costs—social, economic, and institutional—on Brazilian's cities and communities, disproportionately affecting the poor.** The direct costs of crime in Brazil have been estimated at about 5 percent of GDP and the social costs may amount to a further 4 percent of economic output.<sup>157</sup> Crime and violence foment poverty and exclusion by deterring business, constraining economic activity, and disproportionately affecting life in poor neighborhoods. Violence in Brazil has fallen slightly in recent years, though 2013 still registered upwards of 53,000 murders, and the police killed around 11,197 people between 2009 and 2013.<sup>158</sup> These headline figures mask large variance across regions, states, municipalities: while violence has fallen overall, it has *increased* in the country's North and Northeast. Similarly, there are marked differences in victimization rates across income strata and the poor are more likely to be victims of violent crime than the well-off.<sup>159</sup> Insecurity in Brazil keeps residents from participating in the gains of the country's recent macroeconomic growth, and hampers efforts to reduce poverty and boost shared prosperity.

360. **Crime and violence are predominantly urban phenomena and represent one of the major challenges that mayors and city managers face in Brazil today.** In 2012, 10 out of the 30 most violent cities in the world were located in Brazil, posing a significant challenge to citizens' well-being and making improving citizen security a critical issue for urban development.<sup>160</sup> High levels of crime and violence shake the very foundations of economic and social development, exacerbating the risk of pervasive poverty and a vicious circle of poverty and crime. Income inequality, not poverty per se, has been empirically demonstrated to have a significant and positive effect on the incidence of crime. Fajnzylber, Lederman, and Loayza<sup>161</sup> found crime rates and inequality to be positively correlated within countries and, particularly, between countries, and this correlation reflects causation from inequality to crime rates, even after controlling for other crime determinants. Further, the incidence of violent crime was found to have a high degree of inertia, which justifies early intervention to prevent crime waves. Violent crime rates decrease when economic growth improves. Since violent crime is jointly determined by the pattern of income

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<sup>157</sup> Cerqueira et al. 2007.

<sup>158</sup> Fórum Brasileiro de Segurança Pública (2014) *Anuário Brasileiro de Segurança Pública* [http://www.forumseguranca.org.br/storage/download//anuario\\_2014\\_20150309.pdf](http://www.forumseguranca.org.br/storage/download//anuario_2014_20150309.pdf)

<sup>159</sup> Murray et al. 2013. <http://www.ncbi.nlm.nih.gov/pmc/articles/PMC3763365/>.

<sup>160</sup> UNODC 2013.

<sup>161</sup> Fajnzylber, Lederman, and Loayza, (2002). Evidence also shows that income inequality is also strongly correlated with violent firearm crime, as well as the measures of social capital: per capita group membership and lack of social trust.

distribution and by the rate of change of national income, they can conclude that faster poverty reduction can lead to a decline in national crime rates. The mean level of income, the average educational attainment of the adult population, and the degree of urbanization in a country are not related to crime rates in a significant, robust, or consistent way, suggesting the relevance of investing in targeted crime prevention initiatives in urban centers in Brazil.

**361. Youth represent most of the victims and perpetrators of urban crimes.** In 2012, more than 30,000 youths (15 to 24 years old) were killed in the country, representing 38 percent of all homicides in that year. This represents a homicide rate of 57.6 murders per 100,000 youth, a 194 percent increase between 1980 and 2012.<sup>162</sup> Furthermore, men in the 15–29 years age cohort, who represent 25.5 percent of the country’s population, counted for 54.7 percent of homicide victims.

**362. Afro-Brazilian youth suffer the most, being more than twice more likely to be victims of homicide than white youth.**<sup>163</sup> Two out of three victims of homicides in Brazil are Afro-Brazilians, 76 percent of all youth homicide victims in Brazil are black, and the majority are male.<sup>164</sup> Additionally, Afro-Brazilians also suffer more from police brutality (institutionalized racism) than white people do. Data from 2010 show that physical assaults and injuries by police forces and/or private security guards affected 6.5 percent Afro-Brazilians but only 3.7 percent of self-declared whites (Waiselfisz 2013). A recent study by Federal University of São Carlos (UFSCar) also showed that, in the state of São Paulo, where self-declared Afro-Brazilians represent approximately 35 percent of the population,<sup>165</sup> 61 percent of the victims of police lethality between 2009 and 2011 were black.<sup>166</sup>

**363. Violence affects men and women differently: while homicide rates are much higher for men, women are much more affected by domestic violence.** Brazil continues to face a high incidence of gender-based violence.<sup>167</sup> According to the *Serviço Social do Comércio* (SESC) and *Fundação Perseu Abramo* (2010), 24 percent of women have experienced physical violence by an intimate partner and 10 percent have experienced sexual violence by a partner. Domestic violence is one of the starkest manifestations of the lack of agency, that is, one’s capacity to take decisions and act on them. Domestic violence constitutes a violation of basic human rights and negatively affects other development outcomes, such as labor market or health outcomes. Women who suffer from domestic violence have considerably lower earnings (between 40–60 percent lower in Latin America) than similar women who are not subject to abuse. Moreover, domestic violence has heavy impacts on the economic and social welfare of future generations. For all those reasons, the Rousseff administration has been a strong proponent of a criminalization of gender-based violence, all the while recognizing the multisectoral approach needed to tackle it.

**364. To address the challenges arising from high levels of violence, Brazil has risen to the forefront of policy innovation in citizen security when compared to its regional neighbors in Latin America and the Caribbean.** In the modern and industrialized Southeastern region, for example, some groundbreaking citizen security policies have been successful in deterring violent

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<sup>162</sup> Waiselfisz 2015.

<sup>163</sup> INESC 2010.

<sup>164</sup> For example, the homicide rate for Afro-Brazilian male youth increased from 47.7 per 100,000 in 1998, to 52.9 per 100,000 in 2008, while remaining stable among the older cohorts (Waiselfisz 2013).

<sup>165</sup> *Censo Nacional* 2010. IBGE: Brasília.

<sup>166</sup> Sinhoretto 2014.

<sup>167</sup> Exercised by an intimate partner or family member.

crime. The success of these policies are related to the combination of activities that (a) strengthened the results orientation and managerial capacity of the police and public security system; (b) reduced the presence of key environmental risk factors (for example, easy access to guns and unsafe urban spaces); and (c) targeted at-risk territories and populations through multisectoral prevention strategies, integrated and multistakeholder subnational citizen security plans (World Bank 2012). São Paulo led Brazil in adopting state-of-the-art, results-oriented public security management systems and providing policy-makers with high-quality information for decision making. In less than ten years the state went from being the second most violent to the third *least* violent in the country. Minas Gerais established a consolidated results-oriented management system for all law enforcement and public security agencies operating in the state. The successful *Fica Vivo* program combined police interventions with social programs and worked in cooperation with multiple stakeholders. In Rio de Janeiro, progress in this area has been more recent and remains contested politically, with the highlight of the reform being the introduction of the Police Pacification Units (*Unidades de Polícia Pacificadora* - UPP).

**365. The Pacto pela Vida (PPV) program, from Pernambuco, learned from these efforts from the Southeast and took the innovation and results orientation and multisector integration of a citizen security program a step further.** Launched in 2007 with the goal of reducing the high levels of homicides in the state, PPV is a comprehensive, cross-sectoral and integrated citizen security program that combines control and prevention interventions across six key areas: qualified repression, institutional improvement, education and training, information and knowledge management, social prevention of crime and violence, and democratic management. It has a strong monitoring system and emphasizes management based on results. The program brought together key entities such as the police, the judiciary, the prosecutor's office, and agencies at the state, municipal, and federal governments that used to work in silos. While homicide rates were skyrocketing in virtually every other state in the Northeast, they dropped by 35 percent and 52 percent in Pernambuco and Recife, respectively, between May 2007 and April 2013. The program became a model in the country, with similar initiatives now being implemented in states such as Bahia, Ceará, and Espírito Santo. Still, the long-term sustainability of such high-intensity programs remains to be evaluated.

**366. At the national level, there have also been efforts related to the reduction of violent crime and improvement of citizen security information systems.** However, results have yet to materialize. The National Plan for the Prevention of Violence against Black Youth - *Juventude Viva*, launched in 2012, draws attention to the connection between security and race, although it is also still early to assess potential results. *Juventude Viva* prioritizes 132 municipalities distributed in 26 states (including all state capitals) and the Federal District that together represented 70 percent of homicides against black youth in 2010. The Plan consists of a series of violence prevention efforts targeted at youth-Afrodescendants at risk, focusing on social inclusion, employment, education, access to justice, culture and sports at hotspot territories within these municipalities. In 2012, the Ministry of Justice also launched the *Brasil mais Seguro* program, which consisted in establishing partnerships with state governments through which the federal government provided funds to improve the criminal justice systems and strengthen police forces. Piloted in Alagoas, the most violent state in the country, the program is said to have helped reduce homicides by 10 percent between 2011 and 2013. The *National Information System for Public Security and Drugs* (SINESP) was also created in 2012 with the goal of integrating all police, health, and justice sectors databases, and will help to systematize the methodologies on public security data collection used across the country. In 2015, the government announced a National

Pact for the Prevention of Homicides. The plan will prioritize 81 municipalities—including all state capitals. The goal is to reduce homicides by 5 percent every year until 2018.

367. **Brazil has also emerged as a powerful voice in the fight against gender-based violence.** The enactment of the Maria da Penha Law (2006); the launch of the *Pacto Nacional pelo Enfrentamento da Violência Contra as Mulheres* I and II; the launch of the *Programa Mulher Brasileira - Viver sem Violência* (Brazilian Women - Living Without Violence') (March 2014); and most recently, the passing of a law that aims to address femicide in the country (March 2015) represent significant political commitment and steps toward addressing gender-based violence. Brazil has also invested significantly in increasing the network to provide services to victims, protect them, and punish the perpetrators. Services for victims are highly specialized (including women's police stations, reference centers for women victims of domestic violence, special courts for domestic violence cases and so on). Implementation and coordination at the local level faces challenges that better M&E can help identify and address.

### ***Concluding Remarks***

368. **Brazil has made substantial progress toward social inclusion.** Progressively realizing the rights to education, health, social housing, and social protection has been an important priority for successive administrations over the last couple of decades. This chapter has provided plenty of evidence that there has been significant progress in realizing these rights and in promoting the non-monetary dimensions of welfare and social inclusion. This was facilitated by ample fiscal space during the boom years of the golden decade. The question is whether the gains can be sustained and even extended now that public funding is more constrained.

369. **Overall, the analysis in this chapter suggests that in spite of the limited fiscal space in the medium run, there is still ample scope for progressive social policy in Brazil.** Brazil has some well-targeted antipoverty programs, such as the PBF and BPC, but these programs are small as a share of GDP, and the transfers involved are relatively low in per capita terms. In contrast, large programs (in terms of GDP share), such as pensions, involve large per-capita transfers and are directed mainly to beneficiaries who are non-poor. There is thus ample scope to maintain or even expand funding for the most progressive elements of social policy, through reallocations from poorly targeted social transfers and through improvements in the efficiency of spending.

370. **The biggest savings could be made if the public pension system was reformed to tighten eligibility criteria and reduce the generosity of benefits.** At 11.2 percent of GDP, spending on public pensions is high—indeed around five times higher than the corresponding spending on social pensions to informal workers and rural laborers. Prospects for targeted spending reallocations also exist in education, where tertiary education swallows a disproportionate part of the overall education budget, even though it benefits mostly the better-off. In other areas of education, as well as in health care, the agenda is mostly about quality improvements within existing budget envelopes. When it comes to access to urban services, the constraints that have prevented coordinated investment planning and efficient execution of infrastructure projects also apply to municipal services. However, some local experimentation is emerging both with respect to access to urban services (for example, the Bus Rapid Transit solution for urban mobility) and in the combat against crime and violence. Brazil should encourage subnational governments to learn from one another while at the same time promoting changes in local governance that overcome the current problems of fragmentation and the resulting poor incentives for integrated planning.

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### *Introduction*

371. **Brazil is a vast country and its development prospects matter globally.** It is rich in natural resources, which are an important source of income and a critical input for the country's economic development. Huge reserves of tropical forests and fresh water are especially important for some of the poor for whom they constitute a significant share of their wealth. Brazil's vast natural resource endowments can be key drivers of economic growth, in at least three ways: (a) as direct sources of income and employment; Brazil is the world's second largest food exporter, and agriculture and agribusiness accounted for 8.4 percent of the country's GDP, 16.2 percent of total employment,<sup>168</sup> and 40 percent of total exports; (b) as sources of basic services (water and electricity); and (c) as fundamental inputs to economic development; 62 percent of electricity is generated from hydropower, and a total of 78 percent is from renewable sources.

372. **Environmental challenges threaten Brazil's competitiveness and productivity.** While the country has achieved significant progress in reducing deforestation, other environmental risks result in increased morbidity and mortality, and loss of productivity. Air pollution, water pollution, untreated sewage runoff, heavy metal pollution, lack of solid waste management, and direct and indirect exposure to agro-chemicals are only a few categories of modern environmental challenges that impact people's health and productivity and, thus, offset many of the accomplishment achieved through economic growth, higher incomes, and access to services.

373. **Brazil has made a commitment to balance growth and social progress with environmental sustainability.** The past decade demonstrates what can be achieved with appropriate policy. Brazil has made meaningful progress toward fostering environmental protection and attaining sustainable development: it has a highly advanced environmental legislation, has reduced deforestation, has set aside large areas for biodiversity protection, and has created other forms of conservation areas reconciling conservation, development, and poverty reduction. Brazil was also an early mover in developing a national climate change plan and has made significant progress in lowering, on a voluntary basis, its CO<sub>2</sub> emissions.

374. **Brazil's experience demonstrates how complex and challenging it is to integrate environmental and natural resource management into national economic planning, particularly in the context of preparing for climate change.** Brazil still needs to improve the coordination of environmental policies and the regulation of the use of its natural resources across responsible government agencies, both at the ministerial level and between tiers of government. Beyond regulation, there is a need to strengthen planning and incentives for infrastructure investments to better protect and manage natural resources, such as its forests and freshwater. There is a growing recognition that appropriate policies, flanked with the right infrastructure, can create new economic opportunities that reconcile environmental and social development objectives.

375. **Ever since the 1992 Rio Conference, Brazil has been at the forefront of the international debate on sustainable development.** At the most recent international climate negotiations, the COP21, Brazil played a key role in reaching the 2015 landmark climate accord.

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<sup>168</sup> Data from IBGE Contas Nacionais, for 2013.

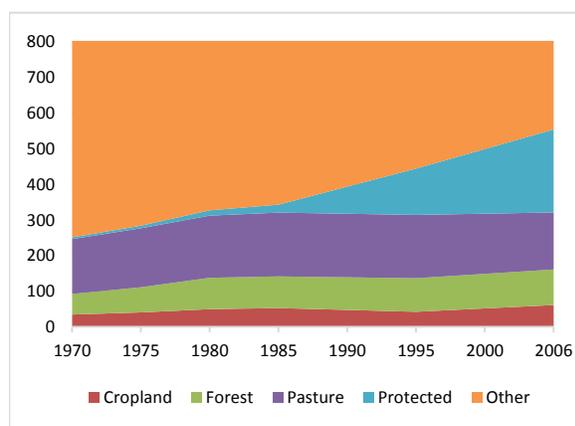
It showed once again its leadership in the arena of international climate change negotiations that is credibly backed up by the significant contributions it has made to climate change mitigation at home. By further demonstrating that emerging markets can effectively decouple economic and social progress from an ever increasing and damaging environmental footprint, Brazil would not only pay a huge service to its own future generations, but to the rest of the international development community as well. In this effort, it should be generously supported.

376. **This chapter outlines the key challenges related to sustainable development and green and inclusive growth in Brazil.** Section 6.1 discusses efficient land use in relation to Brazil’s economic and environmental goals with a focus on economic development in family farming. Environmental and natural resource management is discussed in Section 6.2, while Section 6.3 focuses on water and water-related infrastructure. Section 6.4 discusses risk management and vulnerability while the chapter concludes with some policy considerations.

## 6.1 Land and its Uses

377. **The efficient use of land is critical for achieving Brazil’s economic and environmental goals.** Land is a key input into Brazil’s agricultural sector, one of the country’s main growth engines in recent decades. Without proper land management, however, the needs of this sector will increasingly conflict with the desire to conserve valuable biomes and protect Brazil’s important resources of forests, freshwater, and the most diverse flora and fauna in the world. Of the three main agricultural sectors—large-scale cattle ranching, large-scale crop farming, and small-scale agriculture (family farming)—cattle ranching is the most land-intensive agricultural activity. According to the most recent Agricultural Census of Brazil in 2006, pasture occupied half the area of private rural landholdings (see Figure 6.1).<sup>169</sup> Soybean, sugarcane, and maize account for approximately 60 percent of Brazil’s cropland. Small-scale agriculture occupies only about 25 percent of Brazil’s agricultural lands, but accounts for 75 percent of the rural labor force and over 80 percent of rural land holdings.

Figure 6.1: Land Use in Brazil, 1970–2006



Source: Assunção et al. (2013).

378. **Larger commercial farms account for 70 percent of the land area and value of production in the agricultural sector, with family farms accounting for the rest.** Although the agribusiness sector of Brazil has grown at an impressive rate, this growth has not been equal across rural households and regions. The agribusiness sector accounted for 8.4 percent of the country’s GDP in 2013,<sup>170</sup> which is relatively large compared to other higher middle income countries and demonstrates the sector’s economic importance and potential.

<sup>169</sup> Assunção et al. (2013).

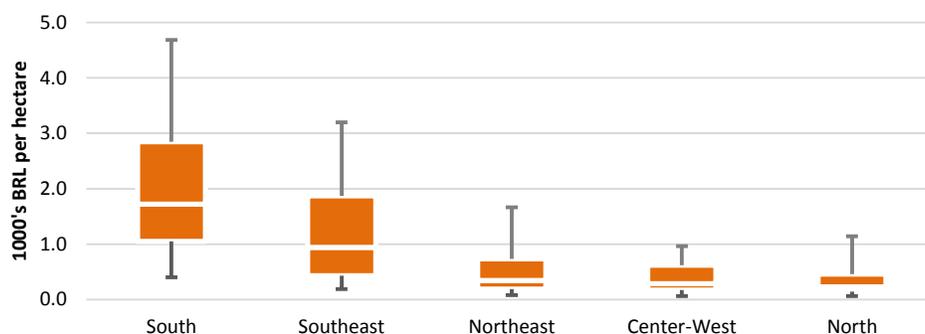
<sup>170</sup> IBGE Contas Nacionais.

379. **TFP in the agricultural sector of Brazil has increased dramatically in the past 25 years.** The sector makes an important contribution to the country’s trade balance and contributes to global food security. Exports by agriculture and agro-food industries totaled over US\$90 billion in 2014, accounting for 40 percent of total exports. Brazil is the world’s second largest agricultural exporter and the biggest supplier of sugar, orange juice, and coffee. In 2013, it surpassed the United States as the largest supplier of soybeans and it is a major exporter of tobacco and poultry. It is also a major producer of maize, rice, and beef—the majority of which are absorbed by the large domestic market.

380. **However, many opportunities exist for further increases in agricultural productivity, in particular in the family farming segment and in the North and Northeast regions.** There is substantial variation in agricultural productivity both across and within Brazil’s five regions. Moreover, close to two-thirds of the total variation in Brazilian agricultural productivity is explained by non-geographical factors including access to finance, technology, infrastructure, and rental markets (Figure 6.2).<sup>171</sup> Thus, improvements in access to and quality of these four factors have the potential to lead to further improvements in agricultural productivity in the future.

381. **Furthermore, the sustainable intensification of production on current agricultural lands is critical to avoid a destructive competition for land between agriculture and natural ecosystems.** A recent study estimates that the productivity of Brazilian cultivated pasturelands is only 32–34 percent of its potential and that increasing productivity to 49–52 percent of the potential would suffice to meet demands for meat, crops, wood products, and biofuels until at least 2040, without further conversion of natural ecosystems.<sup>172</sup>

**Figure 6.2: Variation in the Productivity of Land in Agriculture: Brazil, 2006**



Source: Assunção et al. (2013).

Note: The figure shows the variation in productivity measured as the value of agricultural output per hectare at the municipality level by region. The upper whiskers show the 90th percentiles of municipalities’ productivity; the upper box edges show the 75th percentiles; the white marks show the medians; the lower box edges show the 25th percentiles; and the lower whiskers show the 10th percentiles.

382. **One potential source of further productivity growth is to improve the access of family farmers to infrastructure, credit, and modern production technologies.** Brazil provides a relatively low level of direct support to its farmers (as percentage of gross farm receipts), despite

<sup>171</sup> Assunção et al. (2013); Ibid.

<sup>172</sup> Strassburg et al. (2014).

maintaining an extensive range of price and credit policies.<sup>173</sup> Spending on public goods and services (such as rural extension services, for instance) that benefit farmers represents only 17 percent of total support to agriculture (compared to 26 percent in the OECD), whereas the remaining 83 percent is distributed via guaranteed prices, government purchases, preferential credit, and insurance (*OECD Environmental Performance Reviews: Brazil 2015*). Improvements and increased investments in agriculture innovation for family farmers (agriculture R&D, rural extension services, and education) would reduce exposure to production and market risks and increase improved technology adoption.

**383. Weak infrastructure and logistics remain a major bottleneck for the development of Brazilian agriculture, but funding has been decreasing relative to direct farmer support.**

There is a need for investments in transport networks and rural infrastructure not only to improve competitiveness, but also to anticipate the expected moves in production and land use according to climate change projections. Brazil has been one of the most cost-efficient producers within the farm, but given the agrologistics bottlenecks, most of this efficiency is lost when transporting the goods to the final destinations. International best practices suggest ample opportunities to improve rural infrastructure and logistics using PPPs, through integration of the rural-urban space, rural communication and information technologies, expanding agriculture risk management instruments and adopting climate smart agriculture practices and tools, stimulating increased investments, and greater returns along the whole agribusiness supply chain<sup>174</sup>.

**384. Rural finance and credit suffer from distortions.** Different types of direct farmer supports are financed by the government of Brazil, totaling US\$4 billion in 2014 or an equivalent of 8 percent of total production value (OECD 2015a). They include payments (subsidies) to farmers based on (a) output (such as interest rate subsidies on marketing loans, deficiency payments, and compensation for storage costs), which represents 6 percent of agriculture subsidies today; (b) input use (such as interest rate subsidies on working capital loans and investment credit, rural extension, premium subsidies on insurance, and in-kind grants to family agriculture) which represents 92 percent of agriculture subsidies; and (c) land ownership/entitlements<sup>175</sup> (such as indemnity payments from Garantia Safra)<sup>176</sup> representing just 2 percent of total agricultural subsidies. Brazil's system of managed credit benefits farmers who are already recipients of subsidies and is of little consequence for larger farmers as the amounts allowed under such programs are very low. It imposes a burden on farmers and other industries obliged to borrow domestically at market rates, and reforms would reduce the misallocation of resources and lower average rates (OECD 2015a).

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<sup>173</sup> Brazil recently created the National Rural Extension Agency (ANATER) to provide technical assistance to farmers (only state governments would provide such technical assistance and extension services); however, this agency is not yet operational.

<sup>174</sup> Agrosocieties has become the new frontier for agribusiness, opening new business opportunities and partnerships between several levels of producers—favoring strategic alliances with the agribusiness, family agriculture, and small and midsize producers through cooperatives (for example, Aurora Alimentos, Coamo, Santa Clara, Holambra, and so on).

<sup>175</sup> These are subsidies provided on the basis of entitlements due to land ownership (not production).

<sup>176</sup> Garantia Safra is a federal level program from 2002, and seeks to guarantee the survival of family agriculture in municipalities with severe risk of crop loss. The total yearly budget for this program in 2014 was R\$859 million.

### 6.1.1 Opportunities to Increase the Efficiency of Land Use

385. **Brazilian land rental markets are underdeveloped in comparison to other countries.** Land rental markets help catalyze the conversion of low-productivity to high-productivity land uses and may increase efficiency of land use by placing more skilled operators on available land. The capacity of land rental markets to improve land use is particularly strengthened in a setting in which land is used for non-agricultural ends. This is especially relevant for Brazil because, given the country's long history of macroeconomic instability, land ownership in Brazil has traditionally been used as a hedge against inflation. Less than 5 percent of Brazilian agricultural land was under lease or used in partnership in 2006. In contrast, this figure is above 35 percent and above 65 percent for Europe and the United States, respectively. Possible explanations include the country's lack of well-established property rights, restrictions in land rental legislation, high risk of eviction, and difficulty in enforcing contracts, among others.

386. **Land management practices at the local government level need to improve to benefit from recent reforms to the land governance framework.** Brazil's land governance framework has progressed since the 1988 Constitution, including with the passage of the City Statute in 2001 and the more recent Federal Law No. 11,977, which created a framework for widespread land regularization and public land management. In the Amazon, Federal Law No. 11,952 produced the *Terra Legal* program to regularize agricultural and forest areas. However, it is widely perceived that these legal innovations are not yet adequately supported by spatial data management tools, registration processes, mobilization of resources, and suitable capacity at the municipal level (outside of a few exceptional cities and state agencies) to address the problems of land allocation for affordable housing, land regularization, infrastructure expansion, and sustained competitiveness. The institutional and implementation capacity at the local level also imposes serious constraints in environmental management (discussed in more detail in Section 6.3).

387. **More coordinated agriculture and rural development policies and programs in Brazil can also play an important role in increasing agricultural productivity.** The Ministry of Agrarian Development (MDA - *Ministério do Desenvolvimento Agrário*) was created to support family farming (small-scale farms), while the Ministry of Agriculture, Livestock and Food Supply (MAPA - *Ministério da Agricultura, Pecuária e Abastecimento*), created more than 100 years earlier, continues to support non-family farming even though some family farmers are also eligible for MAPA's programs. Since the beginning of 2000's, MDA and MAPA have shared responsibility for supporting Brazilian agriculture, using largely the same broad agricultural policies (rural credit, minimum agriculture prices, rural extension, and subsidized insurance), but with programs tailored for their respective sectors (family and non-family). Furthermore, problems with targeting have arisen as the MDA has broadened the definition of what constitutes small-scale agriculture, while MAPA is putting more efforts and resources to support medium-size farms and less-developed regions. A major risk of this is the creation of inefficiencies in the management of resources and overlapping or conflicting regulation in the use of natural resources, such as water.

388. **Nevertheless, small-scale farms continue to require targeted support.** A recent study shows that farms in the Northeast with between zero and five hectares (nearly one-half of all farms in this macroregion) are too small to allow their owners to escape out of poverty, even if productivity were to increase.<sup>177</sup> Multiple policy approaches are necessary, including land reform, improved access to appropriate technologies, education, improved non-farm job opportunities, and

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<sup>177</sup> Helfand et al. (2013).

social transfers. Fragmented land holdings and diversified production, often with considerable subsistence elements, create challenges for rural extension services. After the decentralization of rural extension services from the federal to state governments, governments in the North and Northeast have been unable to fund enough rural extension workers to attend the large family farming population, creating technological and knowledge gaps with family farms and rural households in other parts of the country, although this may change once ANATER is operational. In the last 20 years, there has been a reduction in the rural exodus due mainly to the work opportunities in rural non-agricultural sectors. In 2004, out of the 16 million rural work force, 25 percent had non-agricultural incomes, whereas in 2012, even with the reduction in the total work force to 13.4 million, approximately 44.7 percent receive income from non-agricultural activities. However, a large portion of these rural non-agriculture jobs have been for low-skilled labor in construction, trade, and social services, calling for a vocational training agenda for rural areas to raise the quality and skills of the rural workforce. Other non-agriculture rural economic activities that have been growing relate to rural tourism, arts, and crafts.

**389. Recent government initiatives proposing an integrated policy to support small-scale farmers in the North and Northeast are a promising response to these challenges.** The Rural Productive Inclusion approach, one of the axes of the BSM Plan, consists in the integrated provision of three types of support: (a) microcredit and matching grants, (b) technical assistance to improve agricultural production, and (c) access to markets. Another priority of the government is to provide access to water for consumption and production for the rural population in the semiarid areas of Brazil. The fundamental idea behind this approach is to exploit the synergies that exist among more integrated policies, for the purpose of enhancing their effectiveness and providing sustainable impacts on poor family farmers and their families. Qualitative studies conducted by the MDS provide evidence supportive of that idea.<sup>178</sup> While this approach has the potential of promoting the incomes of family farmers, upward mobility for others in rural areas will mean moving out of agriculture. In this context, training and entrepreneurship programs adapted to the labor market needs and their skills and experience can provide support toward moving to better jobs in other sectors.

## **6.2 Environmental and Natural Resource Management**

### **6.2.1 Climate Change**

**390. There is mounting evidence that economic and social development in Brazil is threatened by climate change.** According to the Brazilian Space Agency (AEB - *Agência Espacial Brasileira*), temperatures have risen by about 0.7°C over the last 50 years. Historical series of climate-related disasters project an increasing frequency of extreme events, threatening cities in particular. Nearly half of the Brazilian population was in some form affected by climate-related disasters over the last two decades. Various sectoral climate risk insurance mechanisms are already stretched beyond their nominal capacity. Increased vulnerabilities are also compromising the headway made by Brazil's poverty reduction programs while undermining the enabling environment for economic growth and shared prosperity.

**391. As one of the world's largest emitters of GHG, Brazil has already done much to reduce its own contribution to the causes of climate change.** Hydroelectrical development and

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<sup>178</sup> Convivência com o Semiárido Brasileiro: Autonomia e Protagonismo Social, Conti and Schroeder (2013).

large-scale biofuel use have made Brazil's energy matrix one of the world's cleanest. As a result of reduction in deforestation in the Amazon region, Brazil is the only large economy that was able to cut its total emissions in half, in absolute terms, over the last decade, while simultaneously achieving an impressive reduction in inequality. Since 2009, when the country announced its first voluntary emission reduction target in Copenhagen, the country's climate change policy and legal framework have developed quickly: Brazil has adopted a National Climate Change Plan (*Plano Nacional sobre Mudança do Clima*, or *Plano Clima*), and is now developing and implementing 11 sectoral climate change plans, which are supported by large subsidized lines of financing and funding that are managed primarily by BNDES and the *Banco do Brasil*.

392. **However, strong drivers of future emissions are still developing.** Deforestation is not yet under control, particularly in the Cerrado; the vehicle fleet is expanding rapidly while bioethanol is losing market share; and fossil-fuel-based thermal power generation is increasing quickly. Yet, there are very substantial opportunities to either contain future gross emissions or compensate them by carbon sequestration: the industry's vast energy-efficiency potential remains untouched; medium- to long-term urban and mass transport planning can divert the demand toward efficient, low-carbon transport modes; and large amounts of carbon can be removed from the atmosphere by forest restoration and/or capture and storage in industrial facilities. Sustaining a low-carbon development trajectory would require new policies and instruments, particularly to strengthen land-use monitoring and planning, speed up the learning curve of sequestration activities, and develop the incentive framework for scaling up new mitigation and sequestration opportunities.

393. **Against this background, the determined implementation of Brazil's recently declared economy-wide GHG emissions target (the Nationally Determined Contribution – NDC), with absolute reductions and eventual decarbonisation this century, will be crucial.** The NDC calls for reducing GHG emissions by 37 percent below 2005 levels by 2025 and 43 percent by 2030. This marks the first time a major developing country has committed to an absolute reduction of emissions from a base year, as opposed to reductions based on projected emissions or per unit of GDP. This is an important shift, because absolute emissions-reduction targets offer greater certainty that emissions will be cut, even as Brazil's economy expands.<sup>179</sup>

## 6.2.2 *Urbanization and Environmental Management Challenges*

394. **Brazil's spatial transformation toward urban centers is a key driver of the country's environmental challenges.** In the last 50 years, Brazil's development consisted of a massive migration of people to jobs located primarily in urban areas. This rapid urbanization process was characterized by a lack of planning and poor access to basic services, resulting in high degrees of concentrated poverty in the urban areas. By 2013, Brazil's urban population had increased to 85 percent and is expected to continue to grow annually by nearly 1.2 percent (WDI database). Urban growth in small- and medium-size cities could bring about significant challenges, as governmental agencies have limited financial, technical, and management capacities to keep up with the needs of a growing population and to address problems such as urban sprawl and environmental externalities. The present and future importance of these cities is evident when taking into account

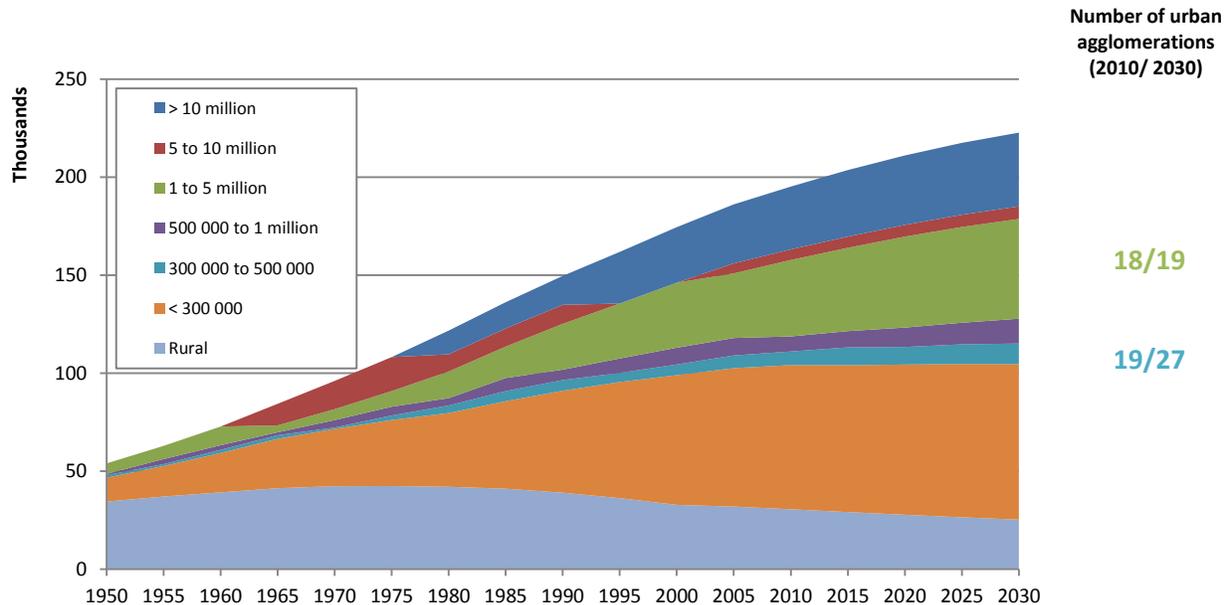
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<sup>179</sup> See Brazil's Intended Nationally Determined Contribution toward achieving the objective of the United Nations framework convention on climate change:

<http://www4.unfccc.int/submissions/INDC/Published%20Documents/Brazil/1/BRAZIL%20iNDC%20english%20FINAL.pdf>.

that the largest increase in the number of urban agglomerations (by one-third between 2010 and 2030) is expected to happen in the medium-size city category (300,000 to 1 million) (see Figure 6.3).

**Figure 6.3: City Size Analysis in Brazil , Projections to 2030**

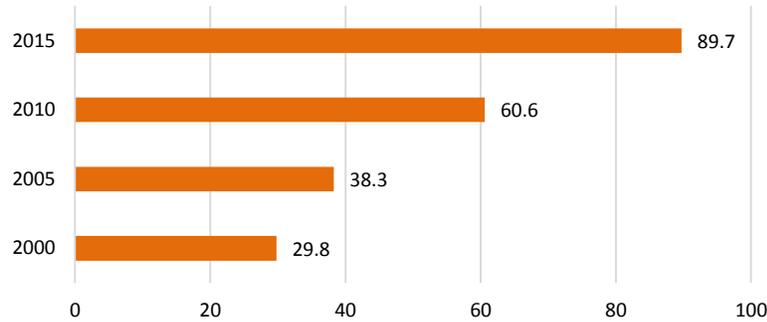


Source: based on United Nations World Urbanization Prospects, 2014

**395. Urban regions are the center of Brazil’s economic production, growth, and capital.** Urban agglomerations, particularly metropolitan areas, are also the sources of much of Brazil’s human, social, and financial capital. More than 90 percent of the country’s GDP is being generated in the cities. Most universities, research centers, think tanks, and consulting services are located in cities where they can benefit from the greater interaction and the access to better public services that come with agglomeration. Ninety-four percent of Brazil’s skilled labor force is also found in cities. Metropolitan areas house the lion’s share of community organizations, large national nongovernmental organizations and affiliates of international ones, and the media. The banking sector, stock exchanges, insurance, and other financial services are largely urban-based. Brazil’s 15 metropolitan regions account for more than 40 percent of the national population, 37 percent of unemployment, 39 percent of the skilled labor force, and 51 percent of GDP. On the fiscal front, the majority of government revenues are generated by taxpayers, firms, and activities in Brazil’s cities.

**396. The rapid growth in Brazil’s cities has left a growing environmental footprint.** One of its manifestations is the dramatic increase in private car ownership. In Brazil, car ownership has trebled since 2000 (Figure 6.4). Sulfur contents in diesel fuel in Brazilian cities reached up to 1,000 ppm in 2004, compared to 500 ppm in Mexico City and a reduction for Santiago de Chile from 500 to 300 ppm in 2001 and to 50 ppm in mid-2004. This has significant implications for human health as sulfur dioxide emission can ultimately contribute to Particulate Matter (PM<sub>10</sub>) (Cifuentes et al. 2005). The increase of urban mobility largely explains the severity of air pollution in urban areas.

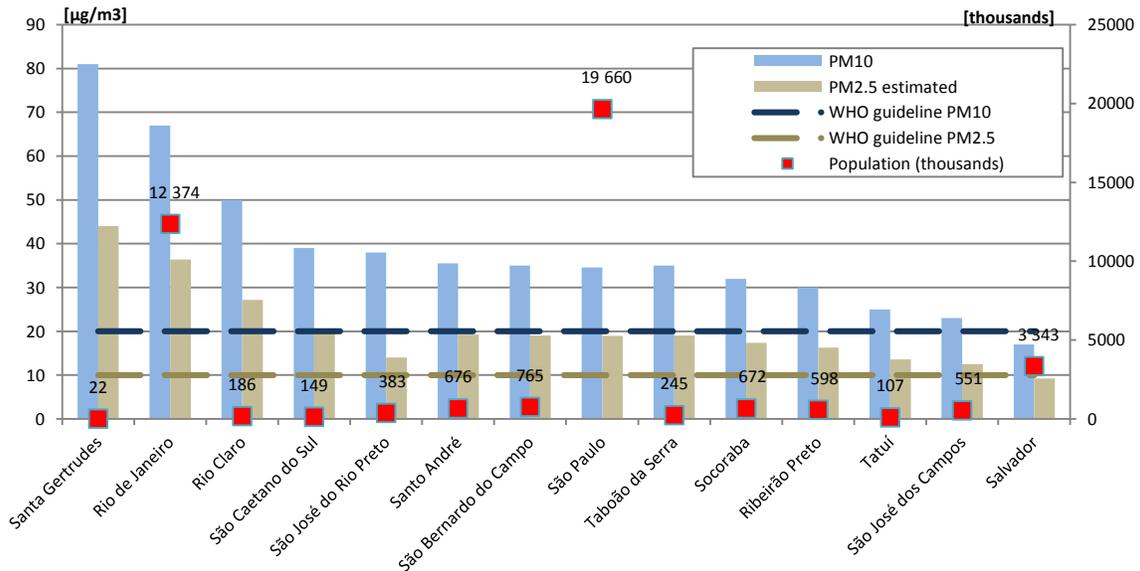
**Figure 6.4: Increase in Registered Vehicles in Brazil between 2000 and 2015**  
Millions of Vehicles



Source: Sistema de Registro Nacional de Veículos Automotores - RENAAM/DENATRAN

397. **Concentrations of air pollutants in the country’s main areas exceed the levels recommended by the World Health Organization (WHO) guidelines.** Fine particulate matter (PM<sub>2.5</sub>) is the air pollutant that causes the most severe health impacts, including cardiovascular disease, chronic obstructive pulmonary disease, and lung cancer among adults, and acute lower respiratory infections among young children. The limited data that is available indicates that PM<sub>2.5</sub> concentrations in cities such as Santa Gertrudes and Rio de Janeiro were three to four times higher than the WHO recommended limits in 2010 (Figure 6.5). Nevertheless, it is possible that these readings have improved recently as a result of the prohibition on the burning of sugar-cane residuals, as the production of sugar is one of the main economic activities in Santa Gertrudes and in some of the surroundings of Rio de Janeiro.

**Figure 6.5: Air Pollution Exposure in Selected Cities (2010)**



Source: Based on WHO 2014; World Urbanization Prospects 2014; Instituto Brasileiro de Geografia e Estatística

398. **Lead exposure has been documented in Brazil since the 1970s, mainly in industrial and previous mining areas.** Based on the available studies, it is estimated around half of the

children below five years of age, half of the adult females, and 84 percent of male adults in Brazil have a Blood Lead Level (BLL) of  $\geq 2$   $\mu\text{g/dL}$ . Lead exposure can result in neuropsychological impairment in children, even at very low BLLs, resulting in loss of intelligence and lifelong earnings. In addition, lead exposure increases the risk of ischemic heart disease and cerebrovascular disease, among other ailments.

399. **As a result of rapid and irregular urbanization, water pollution has emerged as a major challenge for urban areas since the lack of sewage systems leads to uncontrolled discharge of wastewater.** Also, solid waste management has remained insufficient contributing to environmental pollution and impacting human health. The high variability in access to basic services among Brazilian regions and metropolitan areas is documented in Chapter 5 (see Figures 5.27 and 5.28). There is clear inconsistency between the access to water, the sewage coverage, and the treated sewage (see Table 6.1): While water coverage was estimated at 82.5 percent, sewage coverage was at 48.6 percent and the actual treatment of generated sewage was only 39 percent in 2013 (SNIS 2014), which in turn leads to discharge into water bodies or treatment through (unregulated) septic tanks (World Bank 2013a) with severe consequences on water quality. The unwillingness of households to pay for connections and sewage service, and inadequate enforcement of relevant regulations still encourage illegal discharge. Except for some positive examples (São Paulo, Belo Horizonte, Brasília) the majority of metropolitan areas suffer a lack of accountability of all those involved, including service providers, municipalities, enforcement agencies, and users.

**Table 6.1: Water and Sewage Coverage, 2013**  
Percentages

| Region      | Water Coverage<br>(total   urban) |      | Sewage Coverage<br>(total   urban) |      | Sewage Treatment<br>(percent generated) | Sewage Treatment<br>(percent collected) |
|-------------|-----------------------------------|------|------------------------------------|------|---|---|
| North       | 52.4                              | 62.4 | 6.5                                | 8.2  | 14.7                                    | 85.3                                    |
| Northeast   | 72.1                              | 89.8 | 22.1                               | 29.3 | 28.8                                    | 78.1                                    |
| Southeast   | 91.7                              | 96.8 | 77.3                               | 82.2 | 43.9                                    | 64.3                                    |
| South       | 87.4                              | 97.4 | 38.0                               | 44.2 | 35.1                                    | 78.9                                    |
| Center-East | 88.2                              | 96.3 | 42.2                               | 48.6 | 45.9                                    | 91.6                                    |
| TOTAL       | 82.5                              | 93.0 | 48.6                               | 56.3 | 39.0                                    | 69.4                                    |

Source: National Sanitation Information System (SNIS) for 2013.

400. **The health and associated economic impact of current water pollution levels in Brazil pose a significant burden on the economy as a whole.** For example, 70 percent of hospitalizations in Brazil are due to diseases spread through contaminated water (White et al. 2010). Furthermore, the high malnutrition rate among the Amazonian indigenous Surui population could be attributed to the low level of sanitation and inadequacy of safe water. Also, the rate of acute respiratory infections accounted for 58 percent of the causes of hospitalization for children below 10 years, followed by infectious and parasitic diseases (mainly gastroenteritis) accounting for 35 percent of the causes (Orellana et al. 2006), both could be associated among themselves (one followed by the other) and related to poor water quality.

401. **A similar gap between access to services and quality of treatment can be observed in the case of solid waste.** Nearly 87 percent of Brazil's urban population was connected to municipal waste collection in 2008 according to United Nations. However, in 2010, only 55 percent of the overall generated waste in Brazil was treated in sanitary landfills, while 20 percent was still disposed of at controlled sites and a significant 25 percent at open dumpsites. This has serious

consequences for the environment due to water and air pollution ultimately affecting the population's health.

402. **Industry is a major contributor to environmental degradation.** Industrial effluents including heavy metals and hydrocarbons have been detected in surface water bodies and sediments in metropolitan regions (World Bank 2013a). Industrial wastewater is still discharged into waterways without any prior treatment. For cities like São Paulo and Recife, this implies that their surrounding rivers are no longer safe for potable supply forcing the cities to procure water from distant basins or from wells (White et al. 2010). There are some cities with heavy industrial air pollution such as Cubatão, with a maximum monthly average being over  $75 \mu\text{g}/\text{m}^3$  (Cifuentes et al. 2005). The expected growth in industrial complexes, particularly in the Northeast, will potentially result in long-term environmental impacts, such as the competition for natural resources (mainly water) and pollution from facilities including solid waste, liquid effluents, and air emissions (World Bank 2013a). Major investments in infrastructure will put strain on land resources, but are also necessary to mitigate the effects of industrial pollution.

### 6.2.2 *Rural Development and the Conservation of Biomes*

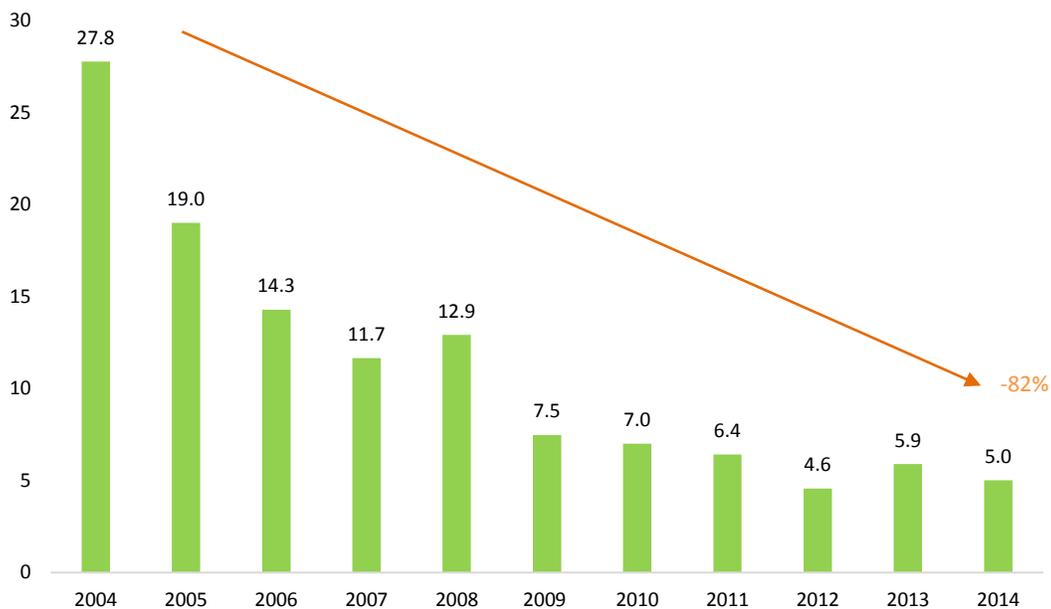
403. **In recent years, there has been significant progress in limiting the deforestation of the Brazilian rain forest and protecting other sensitive biomes.** The net deforestation rate of Legal Amazon declined from around 27,000 km<sup>2</sup> in 2004 to less than 5,000 km<sup>2</sup> by 2014 (the reduction corresponds roughly to half the size of Switzerland). This is an achievement of major national and international significance, given the importance of the Amazon rain forest as a considerable carbon stock at risk, but also its role as a source of income and livelihood for poor segments of the Brazilian population. The success in limiting deforestation in the Amazon has focused policy attention on other sensitive biomes, such as the Cerrado in Brazil's central interior, and on reforestation activities along Brazil's Atlantic Coast. However, despite these successes, the attempt to protect Brazil's biomes faces continued challenges (for example, land-use pressure, carbon price, energy demand, and restoration costs), which may further increase in the current difficult economic environment.

404. **Brazil's success in reducing deforestation rates has been due to increasing the designation of protected areas and improved accountability and control.** In the Legal Amazon, the Action Plan for Prevention and Control of the Legal Amazon Deforestation (PPCDAm), launched in 2004, was instrumental in this process. The plan initially comprised 13 ministries of the federal government, under the direct coordination of the president's chief of staff. Ensuing interdisciplinary efforts stimulated increased enforcement of environmental laws, provided for improved forest monitoring by satellite, and created new incentives for utilizing already deforested lands. These efforts were complemented by MDA's *Terra Legal* program. Introduced in 2009, it aims at land regularization and the dissemination of sustainable production practices. A process of significantly expanding protected areas, buttressed by the Amazon Regional Protected Areas (ARPA) program, as well as the demarcation of indigenous reserves, further contributed to the decrease of deforestation rates (Figure 6.6). Similar efforts are under way for the Cerrado biome.

405. **Nevertheless, much remains to be done to sustain what has been achieved and maintain the momentum to further contain deforestation.** The recent devaluation of the Brazilian real may once again increase the incentives to expand areas for agriculture and pasture. Illegal logging and laundering illegal timber—while just as unlawful as trafficking drugs—are not nearly as stigmatized. Producers who adhere to the laws have difficulties to compete with criminals

who avoid taxes and concession fees and ignore environmental regulations. Perpetrators, even when apprehended, have good chances of going unscathed due to the inefficiencies of the justice system. To illustrate, on a global level, the loss of revenue and tax income from illegally harvested wood is estimated to be at least US\$10 billion per year (Nellemann, 2012), and only a small fraction of fines for environmental contraventions occurring in Brazil are ever collected. Relatedly, Legal Amazon’s sophisticated deforestation monitoring system does not yet report on forest degradation, disturbance or selective logging—a major concern, as available evidence indicates that the amount of forestland impacted by illegal logging could be as high as 40 percent of that removed annually by deforestation (Asner et al., 2005; Curran and Trigg, 2006).

**Figure 6.6: Deforestation in Legal Amazon between 2004 and 2014 (Thousands, km<sup>2</sup>)**



Source: INPE 2015.

406. **Brazil is an extremely diverse country. Due to Brazil's continental dimensions, besides the Amazon biome—which covers more than 40 percent of Brazil—Cerrado, Caatinga, Atlantic Forest, Pampa and Costal and Marine biomes are recognized worldwide for their role in biodiversity conservation.** Biodiversity is a hugely important resource, not only with regard to of the environmental services it provides, but also with regard to the opportunities presented for development and sustainable use. However, all of the Brazilian biomes have points of vulnerability due to a diversity of factors: (a) demands for infrastructural expansion in the Amazon; (b) small and fragmented remaining forest cover in the Mata Atlântica; (c) rapid agricultural expansion in the Cerrado; (d) changes in the flooding regime in the Pantanal; (e) profound changes in land use combined with susceptibility to invasive species in the Pampas; and (f) accelerated environmental degradation leading to desertification in some places in the Caatinga. All these vulnerabilities would be escalated under the scenarios of climate change and are related to higher exposure and lower resilience among the populations most reliant on the natural capital that are climate sensitive for their livelihoods and concentrated in high-risk areas, which are expected to face drops in agricultural production, food insecurity, and worse survival conditions. In response to these drivers, among other actions, the Brazilian government and the private sector

are steadily facilitating the adoption of best agricultural practices for soil conservation, including direct planting and the most efficient systems with regard to of resources in place of modes of intensive cultivation.

407. **One of Brazil's most important environmental policy initiatives was the recent introduction of new land and forest regulations to safeguard environmental and natural resources.** The Brazilian Forest Code (Law 12,651 of 2012) requires that (a) all private rural landholdings maintain a percentage of native vegetation as Legal Reserves (*Reservas Legais*, RLs) and (b) Areas of Permanent Preservation (*Áreas de Preservação Permanente*, APPs), such as riparian forests along watercourses, steep slopes, mountain tops, and so on, also be maintained by landholders. The Forest Code also obliges landholders to register their landholdings in the Rural Environmental Registrar (*Cadastro Ambiental Rural*, CAR).

408. **The implementation of environmental regularization of rural landholdings through the CAR enables a more effective supervision and monitoring of deforestation and degradation of natural vegetation.**<sup>180</sup> The CAR will provide essential information for monitoring and controlling rural land use, including compliance with reforestation obligations. The system will be able to distinguish between legal and illegal land clearing, and will facilitate land-use planning. Furthermore, its widespread application contributes to the better management of the remaining forest areas on private landholdings and to recover degraded RL and APP in them. The CAR is under the responsibility of the Ministry of Environment (MMA) and the State Environmental Agencies (OEMAs). MMA and OEMAs are estimated to have trained 40,000 technical staff to support the implementation of the CAR nationwide. On September 30, 2015, approximately 60 percent, or 239.5 million ha of 398 million ha to be covered, were registered. This amount of area corresponded to some 41 percent of the landholdings that will eventually enter into the system (that is, 2.1 million out of 5.1 million landholdings). While not a direct outcome of the CAR, Brazil's 7.6 million ha of planted forests (mostly commercial plantations in the Center-South and Southeast) are estimated to have created 630,000 jobs in 2013. The number suggests that forest restoration activities, subsequent to the CAR's implementation, could have a meaningful impact on rural employment in other parts of the country as well.

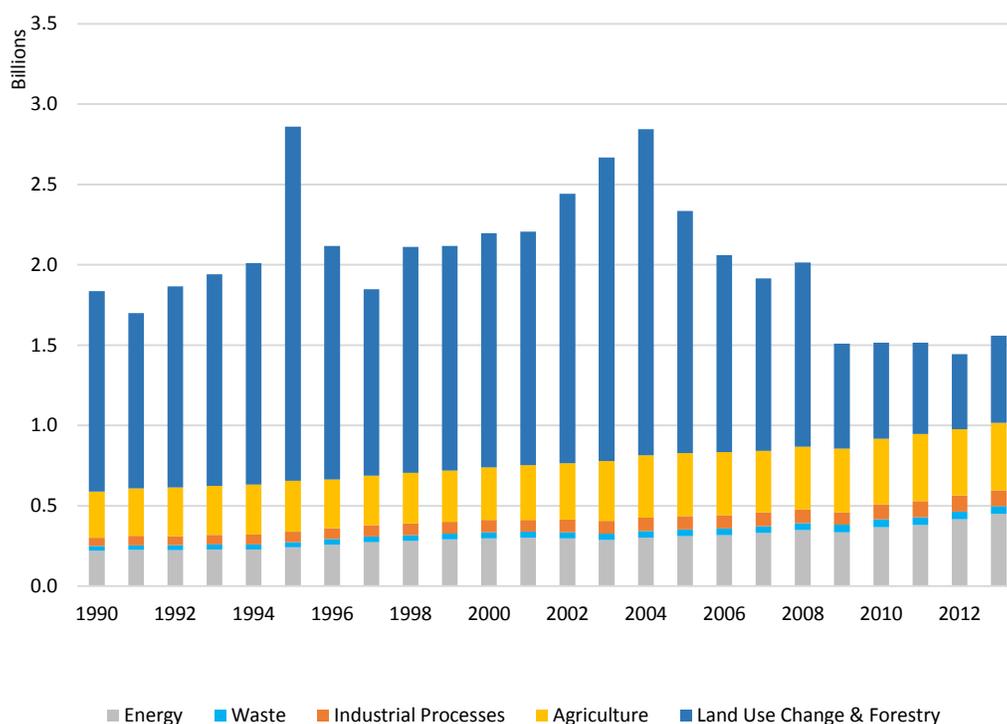
409. **The registration with CAR provides several advantages for landholders and rural producers.** Registration in CAR is required to obtain an environmental license for rural economic activity on the land, and for other official permits and authorizations issued by the environmental authorities. Failure to register in CAR will eventually result in the application of penalties for previous deforestation and losing access to government subsidies and lines of credit. A property that is free of 'environmental liabilities' tends to be worth more. The owner may also participate in programs that target markets for products sourced from environmentally correct sources and avoid the legal restrictions placed on products from illegally cleared areas. However, whether the commodities produced on this land might fetch a premium has yet to be ascertained. Landowners who do not register their properties by the deadline (May 5, 2016) will lose access to government credit programs.

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<sup>180</sup> On registering his property, the landholder is required (a) to declare the geo-referenced boundaries of the respective landholding, the location of remaining native vegetation cover, the proposed location of the RL set-aside area, and the present location of APPs and (b) to provide a plan which shows that the land will be maintained in accordance with the Forest Code or to take appropriate action to ensure compliance with the Forest Code.

410. **The progress in limiting deforestation has made a major contribution to reducing Brazil's GHGs emissions over the past decade.** Brazil's GHG emission profile has historically been characterized by the prominence of Land Use, Land Use Change and Forests (LULUCF) as compared to Agriculture and Livestock, Energy, Industrial Processes and Waste Disposal. LULUCF emissions are mainly comprised of emissions related to deforestation and forest degradation in the Amazon and the Cerrado biome, two huge carbon reservoirs. Since 2004, there has been a dramatic shift in the pattern of emissions, and by 2010 LULUCF accounted for less than 20 percent of the total, down from close to two-thirds (Figure 6.7).

**Figure 6.7: GHG Emissions– Brazil – 1990-2013**  
(CO<sub>2</sub>eq)



*Source:* Annual estimates of GHG emissions in Brazil, Ministry of Science, Technology and Innovation (2014).

411. **These advances notwithstanding, the protection of the forest and other biomes remains contested, particularly from farming but also from the exploitation of other natural resources lying on the territory of the forest.** The deforestation rate in the Amazon remains one of the highest in the world and Brazil is one of the largest emitters. Cattle ranching and soybean production for export accounted for around one-third of Brazil's GHG emissions between 2000 and 2010 due to their impact on land use (Karstensen et al. 2013). Moreover, areas of oil and gas explorations in the western Amazon were found to overlap with some of the most species-rich parts of the Amazon including a great diversity of trees, insects, and amphibians. The latter are particularly vulnerable as much of their global diversity is found in these areas and they are the most-threatened vertebrate taxa worldwide (Finer et al. 2008).

412. **Wider impacts of deforestation and forest degradation are particularly visible in the country's water shortages that affect urban water supply, agricultural production, and hydropower generation.** There is increasing evidence about the link between deforestation, forest

degradation, and changing precipitation patterns in Brazil. The interruptions of water cycles have already led to changes in rainfalls across the country with impacts on urban water supplies, but also agriculture and hydropower generation. Forest conversion has led to the loss of watershed functions. Around 20–30 percent of water vapor is now no longer staying within the Amazon basin but is being transported to other parts of the country, thus playing an important role in local precipitation patterns. This is particularly crucial for drier regions like southern Brazil as well as for urban areas like Rio de Janeiro or São Paulo relying primarily on hydroelectric power (Fearnside 2005).

413. **The competition over forest resources is also reflected in recent policy decisions.** For instance, the revision of Brazil's Forest Code in 2012 implies a decrease by more than half in the total area to be reforested (from  $50\pm 6$  to  $21\pm 1$  million ha). This is due to several measures, including (a) a change in definition of Hilltop Preservation Areas (HPA) resulting in a reduction of HPA by 87 percent and (b) reverting part of forest liabilities of landholders that illegally deforested before 2008, thereby, reducing the 'environmental debt' by 58 percent. As the reductions in environmental debt are unevenly distributed across states and biomes, the consequent losses in the Amazon, Atlantic Forest, and Cerrado may have significant impact on biodiversity conservation and forest restoration programs. To avoid the perception that illegal deforesters are now less likely to be prosecuted, Brazil will have to strengthen its monitoring and enforcement capacities and expand INPE's satellite-based monitoring systems to track and be able to differentiate between the types of areas (Soares-Filho et al. 2014).

414. **However, it would be wrong to see the protection of biomes and the development of economic opportunities as conflicting objectives.** The conservation of Brazil's forests offers significant employment opportunities for the local population through green value chains and forest products. Moreover, changing consumer demand and pressure from advocacy groups have triggered progress on strategies for better environmental and social performance of beef and soy producers. The three major Brazilian meat producers (JBS, Marfrig, and Minerva) have recently shown efforts in greening their supply chains by agreeing to monitoring systems and independent, external audits. In the face of increases in demand for Brazilian beef from non-Western countries (especially Russia and China) by over 10 percent and Russia's recent embargo of Western beef, these strategies are at risk to be undermined as many of those countries do not require their imported products to be deforestation-free (Ward 2014, taken from Stokes et al. 2014).

415. **Indigenous people and traditional forest-dependent and riverine communities have an important role to play in protecting the forest, on which they depend for their own livelihoods.** Recent studies are leading to a consensus that indigenous lands are effective buffers against deforestation (Ferreira et al. 2005; Kothari 2008; Anderson 2009). For instance, land inhabited by indigenous peoples has been found to be the most important barrier to deforestation and forest fires in the Brazilian Amazon and along the agricultural frontier (Nepstad et al. 2006, Soares-Filho et al. 2010). This large amount of forestland in indigenous hands, indigenous peoples' historical and cultural role in the management of forests, and their relative success in the prevention of deforestation compared to non-indigenous groups has given indigenous peoples a prominent role in debates around deforestation and climate change. However, the ecological integrity of the indigenous lands ultimately depends upon cultural factors and on the economic alternatives that are available to indigenous peoples—such as access to land and other natural resources, type of livelihood strategy, degree of contact with mainstream society and integration with the market, cultural resourcefulness, and institutions (Kronik and Verner 2010). Thus, appropriately designed

and targeted support toward the indigenous peoples could be effective toward not only at decreasing the levels of poverty within indigenous communities but also at preventing deforestation.

### *6.2.3 Opportunities to Reconcile Environmental Management and Economic Growth*

**416. Conflicts between conservationist and developmental goals are common in many countries.** Brazil is no exception in this regard. However, there are several areas where policy adjustments considerably lessen the weight of such conflicts and to some extent at least reconcile environmental management and economic growth.

**417. The impact of climate change creates an urgent need for more resilient agricultural practices and technologies.** Climate change will affect rainfall patterns and is expected to create soil moisture deficits at critical phases of crop growth in many production areas. There is an urgent need for priority crop zones to develop integrated, improved, drought-tolerant (deeper-rooted) varieties coupled with good land and water management strategies to mitigate the projected effects. An improved rural extension system will be required to help farmers conserve and enhance soil carbon for increased soil moisture retention capacity, in addition to extending access to efficient irrigation technology.

**418. Regulatory costs for businesses could be reduced without affecting environmental goals through simplification and better coordination.** Confusing, overlapping, or unevenly enforced requirements across regions result in increased compliance costs. The currently evolving mix of deforestation laws impose bureaucratic obstacles requiring ranchers to collect a number of both federal and state licenses to operate. According to interviews conducted for a study on behalf of the Environmental Defense Fund in 2014, ranchers indicated that increased transaction costs might have an impact on general compliance (Stokes et al. 2014). Coordination and integration of policies across various tiers of government is also critical to the successful implementation of Brazil's new Forest Code.

**419. Against the background of the continued expansion of agricultural land use in the North and Northeast of the country, forest restoration is becoming an increasing priority.** Restoration of forests in this context requires engagement with local community needs and integration with the development of agroforestry systems. There is a paucity of information on local vegetation management, making science-based restoration of degraded lands problematic. Moreover, there are significant research lacunae to be addressed. These include species selection, germination rates, planting strategies, and management practices appropriate to the local/social context.

**420. Better land registries and an integrated cadaster system would facilitate more efficient land allocation and improved land governance.** The development of lease markets for rural land to improve the efficiency of land use, investments in higher land productivity, including among small holders, and the management of land conflicts all require improved security of land tenure. Available information suggests that 4.5 to 5.1 million landholdings are registered in INCRA's National System of Rural Cadaster (SNCR), comprising nearly 500 million ha of agricultural lands. However, just two-thirds of these parcels hold land titles and they comprise only 41 percent of the national territory. There is no legally defined cadaster, which can be referenced, and no requirement for municipalities to maintain one. Existing cadasters developed by each municipality are deficient and serve multiple, rather than integrated purposes. Adding to

this complexity, property rights must be recorded in the notaries' land registries, a system of privately administered *cartórios* which many times is incomplete and not linked to updated geodetic information. Moreover, the federal government, states, and municipalities also have their own land registries and they administrate their land assets with a certain degree of autonomy.<sup>181</sup> The development of an integrated national land administration policy would contribute greatly to reduce current fragmentation across tiers of government and the resulting transaction costs.

421. **Brazil has undertaken a range of initiatives to address environmental concerns, especially to adapt to and mitigate long-term climate change and short-term weather shocks, especially drought.** Environmental and sustainability criteria are now part of the requirements of farm support programs. Key areas requiring policy attention include improved management of land and natural resources in agricultural frontiers and climate-smart agriculture at landscape scales. A critical frontier for cutting edge 'green investments' is the Cerrado-Amazon interface where empirical evidence points to increasing risk of southern Amazon forest degradation that could in turn risk reduced rainfall in central and southern Brazil. The current São Paulo water crisis could become commonplace in the next 3–4 decades. In addition, the role of the private sector in practicing sustainable approaches is critical. Improvements in the management of environmental and social risks in agricultural supply chains can also positively impact environmental outcomes. Progress has been made in certain commodities. An important aspect of good environmental and social risk management in these supply chains is traceability mechanisms that can help open up markets and link sustainability efforts across supply chains. The quality of these mechanisms varies among geographic regions, and additional progress is in part constrained by weak enforcement and reporting of national regulations and/or voluntary standards.

### 6.3 *Water Resources and Water Infrastructure*

422. **While home to 19 percent of total world freshwater resources, Brazil is challenged by significant regional differences in water availability.** The country's contrasting climates, population densities, and development patterns have resulted in wide differences in water demands between regions. Water resource management is constrained by scarcity in the Northeast and Southeast, and by poor quality in the most urbanized river basins. As a result, water availability is below 500 m<sup>3</sup> person per year in the semiarid Northeast and in urban and industrial regions. Compounding regional scarcity, Brazil is currently suffering from a prolonged drought in the Northeast, Midwest and Southeast regions and severe flooding in the North. A recent World Bank Report (Turn Down the Heat) predicts that climate change will significantly impact Latin America going forward, leaving dry regions still drier and wet regions wetter as well as increasing the likelihood of droughts, flood, and other extreme weather events.

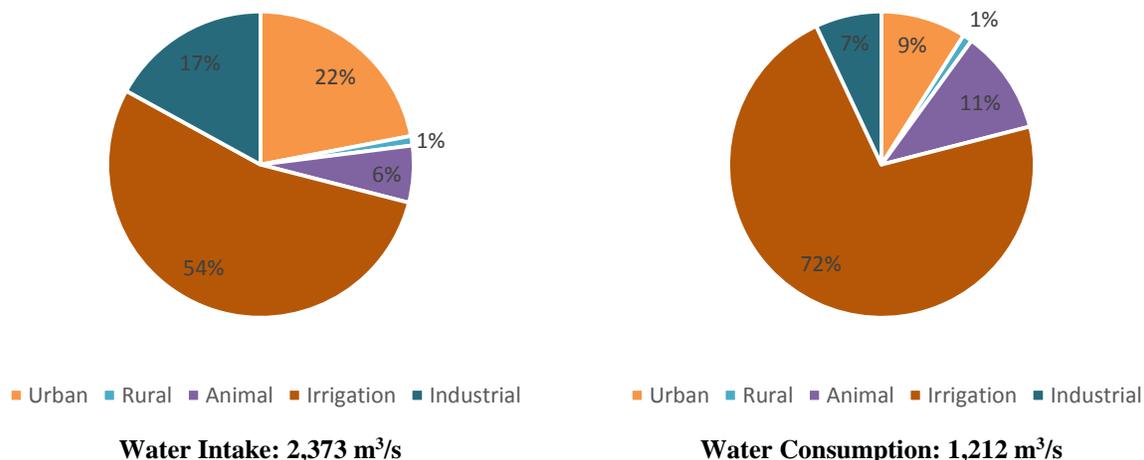
423. **Constitutional responsibility for water is divided among three tiers of government, creating a complex institutional environment.** Water rights, federal (interstate) hydropower reservoirs, and trans-boundary rivers are regulated by the Union, with intra-state rivers and groundwater regulated by the states. Water management is governed by the National Water Resources Management Policy Law of 1997, under the basic principles of Integrated Water Resources Management, at the river basin level, with a decentralized, participative model. Water

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<sup>181</sup> World Bank (2014a).

services operate under distinct constitutional jurisdictions; hydropower is a federal responsibility, with water supply and sanitation services generally provided at the state or municipal level.

**Figure 6.8: Water Use in Brazil: 2013**



Source: Water Resources Conjuncture 2013, ANA - National Water Agency.

424. **The most water-dependent sectors of the economy are the key drivers of development and growth.** The cost and availability of water directly impacts energy generation, urbanization patterns, and agricultural production — not only affecting economic growth rates, but shaping the contours of development and poverty reduction. On the other hand, these sectors also tend to be important water polluters. Almost 68 percent of Brazil’s energy supply is currently derived from hydropower; even with the planned diversification of energy generation for the next two decades, hydropower will continue to supply 57 percent of the nation’s energy in 2030.<sup>182</sup> Although a low-cost, low-emission source of power in times of abundant rainfall, hydropower is vulnerable to supply shortages due to low precipitation, especially given increasing consumer and industrial demand. The water demands of burgeoning cities have exacerbated underlying scarcities, and urban pollution from poor sanitation and water treatment infrastructure is a key factor affecting water quality. Agricultural withdrawals are also rising, with irrigated land increasing by 3.8 percent per year in the last decade. Brazil’s estimated irrigated area (5.4 million ha, 7 percent of total cultivated area) accounts for 18 percent of total crop production by weight and 29 percent of total farm gate value. Water demand for irrigation is likely to increase, as currently less than 20 percent of irrigable lands have access to water supply.

425. **The allocation and pricing of water across users and regions significantly affect economic performance.** Though there have been no economy-wide assessments using a water computable general equilibrium (CGE), the limited empirical evidence available suggests that current water allocation decisions may have generated significant losses, with subsequent impacts on poverty outcomes.<sup>183</sup> Additionally, a number of industry-level studies find that water charges better reflecting service provision costs would have limited impacts on firm profits and provide a

<sup>182</sup> Decennial Energy Plan 2024, EPE - Energy Planning Company.

<sup>183</sup> Using a partial equilibrium simulation approach Hewings et al. (2005) find that suboptimal water allocations in Northeast Brazil could have led to losses in employment of 15 percent each year between 2000 and 2012..

significant boost to water-use efficiency, economic outcomes, and incentives to recycle wastewater.<sup>184</sup> There is a compelling case to treat water in Brazil as a valuable economic good, allocated judiciously to higher-value uses in an equitable and inclusive manner.

**426. Brazil’s current water infrastructure is insufficient to respond to recent extreme climate events.** Half of Brazilian municipalities faced extreme water-related climate events—mostly droughts—in 2012; the situation has since worsened due to severe and continued regional droughts. Improving resilience requires large, multipurpose infrastructure to link water sources to users and increase storage capacity in high-demand regions to prepare for increased water variability.

**427. Brazil’s water and wastewater sector is dominated by state water companies, which account for 75 percent of the market.** Municipal operators account for 20 percent, and private water-companies less than 5 percent. The quality of state water companies varies widely, from well-run, strong cash generators with access to capital markets to finance investments<sup>185</sup> to poorly managed companies dependent on state government budgets to cover operational costs. Most of the 1,400 municipal service providers are heavily dependent on grants for investment, and in many cases operation and maintenance (O&M) costs. Private sector participation—which is responsible for services in 304 municipalities in nearly 5 percent of the market—is concentrated among four large players, which run generally efficient operations and have made sizeable investments to improve service coverage and quality. A large number of other participants have entered the market on a smaller scale, with some performing poorly.<sup>186</sup>

**428. Water supply and sanitation (WSS) services are characterized by inefficient operations and tariff structures.** Many utilities suffer from high water losses (37 percent on average),<sup>187</sup> overstaffing, and high operational costs. Sector financing is based on tariffs and cross-subsidies, with an outdated tariff structure unable to cope with current demand for more focused subsidies and more efficient and sustainable services. Inefficiency and low tariffs lead to unsustainable services and leave utilities with insufficient capital to cover investments for increased coverage and repairs. Municipalities and state-owned water companies have historically relied heavily on the Brazilian federal government’s Accelerated Growth Program (PAC) and on substantial government-sponsored financing at below-market rates from Caixa Econômica Federal (‘Caixa’) and BNDES to finance their investment needs. Caixa and BNDES financing has also been widely used by private water sector companies to finance essentially all of their capital investments for service coverage, quality, and efficiency improvements. Given the current pressures on the budget, new financing models may be needed for continued capital investment in the country’s water sector.

**429. Some concessions and PPPs have attracted private operators to the water sector.** However, relatively few private sector opportunities under either concession or PPP contracts have been signed in the last decade, covering about 5 percent (270) of the Brazilian municipalities. The private share of the WSS market (full or partial concessions, PPPs) is facing consolidation, driven by a variety of factors including economies of scale and scope, and difficulties in accessing credit,

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<sup>184</sup> See, among others, Féres et al. (2012) and Féres, and Reynaud (2003).

<sup>185</sup> Sabesp (State of São Paulo), Copasa (State of Minas Gerais) and Sanepar (State of Parana).

<sup>186</sup> See Examination of Private-Sector Participation in the Provision of Water Supply and Sewerage Services in Brazil, Ministry of Cities/PMSS, 2008.

<sup>187</sup> Ministry of Cities, National Basic Sanitation Information System (SNIS) 2013 – [www.snis.gov.br](http://www.snis.gov.br).

and reduced competition in tenders, which, in general, attracted an average of two qualified bidders only. It should be noted that some major sponsors working in other sectors have been investigated as part of the *Lava-Jato* investigation, which may affect the ability of these large construction companies to further expand their business in the water sector as a result of reputational, legal, and financing constraints. This could result in a combination of additional market consolidation among existing private water players and/or the entrance of new domestic or foreign private players.<sup>188</sup>

430. **Rural areas present a particular challenge.**<sup>189</sup> Reaching universal rural WSS access by 2030 would require an investment of R\$24 billion (US\$7.7 billion). Sustainable services provision would require revision of the current O&M model (usually undertaken by local association with no support from municipal/state companies). New rural management models in some states (Sisar and Copanor) are being tested but have not yet been more widely adapted, nor has a federal- or state-level rural WSS policy been proposed.

431. **Irrigation presents both a challenge and an opportunity for Brazil going forward.** A 2004 World Bank study concluded that irrigation is a key instrument for the promotion of the economic and social development of the poorest areas of the country in the Northeast. It is estimated that irrigated areas could increase by 900,000 ha in 2015. Irrigated lands are 3.5 times more productive than rain-fed agriculture, and economic returns are 7 to 8 times greater.

432. **Future constraints on irrigation growth may come in the form of water insecurity.** Irrigation already accounts for 72 percent of total consumptive water use. Substantial amounts of water will be required to bring about the projected expansion of irrigation, a great part of which is likely to occur in already water-stressed regions with high competition by other water users. Insufficient water storage and irrigation infrastructure also increases vulnerability to climate shocks for both food security and exports.

### 6.3.1 *Opportunities for More Efficient Water Use*

433. **Resilience to increased variability of water supply requires large, multipurpose infrastructure, better institutions, and long-term preparedness and response planning.** Brazil's current physical and institutional infrastructure is insufficient to ensure water security for all and long-term resilience. A continued and iterative process involving both infrastructure and institutional improvements is necessary for Brazil to adapt to extreme weather events and climate change in a sustainable, resilient manner. The water scarcity crises occurring in the Northeast, Southeast, and Midwest regions have already had major repercussions, generating a national debate about the changes needed to ensure the government does not ignore early signs of drought and disaster events.

434. **There is a need for more integrated sector governance, with better coordination between institutions at all points of the water cycle.** Inter-basin water transfers and increasing

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<sup>188</sup> The biggest firms are Odebrecht Ambiental, 10.4 million people served in 20 contracts; CAB Ambiental (Galvão Engenharia), 6.5 million people served in 18 contracts; SAAB (Carioca Engenharia, Queiroz Galvão and others), 4.1 million people served in 12 contracts; Andrade Gutierrez and Camargo Correia (São Lourenço SABESP/PPP), 1.7 million people in 1 contract. These companies represent about 85 percent of the private market share in the WSS sector (with regards to population served) and are all involved in the recent Petrobras corruption case, which may affect their appetite for future businesses or to run current operations and investments. The current situation may affect competitiveness for new concessions or PPPs, unless smaller national groups or international companies come to compete.

<sup>189</sup> 2014 Rural Water Supply in Brazil Study, the World Bank/WPP, draft report.

conflicts over trans-border basins and between users<sup>190</sup> have illustrated a clear need for more integrated sector governance. The major elements of the required policy shift include (a) improved water resources management at the basin level, (b) expanding and improving WSS services, (c) developing more effective irrigation, (d) integrating water and urban and agricultural environmental management, (e) supporting multi-sector, integrated approaches to complex infrastructure, and (f) planning for climate change and other issues of regional and global concern.

**435. An efficiently implemented environmental licensing system is essential to attract the necessary investment to mitigate the risk of growing water scarcity, while equally relevant to all areas of private and public infrastructure development.** Increases in the efficiency of implementation of environmental licensing at the early stages of clean energy and infrastructure projects, can be achieved through more adequate planning at the government level, more clear assignment of legal authority between federal and state levels, and reductions in the delays in issuing the terms of reference for the environmental impact assessments that are required by law. A simplified, consistent, and transparent regulatory framework is also essential for facilitating the predictability of the environmental licensing process. Key steps toward a more simplified regulatory framework for hydropower include (World Bank 2008): (a) improving and expanding the database on hydropower potential at the river basin level and incorporate environmental factors into energy sector planning; (b) reducing the large quantity of uncertainties involved in the licensing process; and (c) continuously improving energy sector regulation.

**436. There is significant scope for efficiency gains in water use through better pricing policies.** The use of tariffs to incentivize water conservation<sup>191</sup> needs to be disseminated, either as bonuses for use reduction or penalties for over-consumption, prior to imposing a ban on some water users and as a way to avoid service cuts and supply limits. In the agriculture sector, policy measures should provide incentives for the adoption of validated technologies, such as drought-resistant crop varieties and farm investments in drip irrigation, micro-watershed management actions including reforestation around water sources and terraces, and, at a policy level, enabling joint decision making between agriculture planning (*Plano Safra*) and water resources planning and allocation (water rights).

**437. Reduction of water losses is a key aspect of conservation that could be addressed in the medium term.** Rehabilitation of ageing assets requires large investments at times, but remains cheaper than replacing existing infrastructure assets with new ones. With regard to agriculture, a major water user, losses can be reduced through efficiency improvements in irrigation and water harvesting and usage at the farm level. Irrigated agriculture in Brazil needs a multi-institutional effort, including implementation of the new Irrigation Law, an increase in strategic storage

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<sup>190</sup> The recent cases involving water transfer proposed by the State of São Paulo from the Paraíba do Sul River, shared between the States of São Paulo (upstream), Minas Gerais, and Rio de Janeiro (downstream), to the Cantareira System, resulted in a law suit before a high-level dialogue could be established and result in an agreement on water allocation revision. The same river basin is seeing conflicts between energy generation and water supply for both human and industrial consumption. There is also reported increase of water conflicts in several river basins in the country—according to a report from the Pastoral Land Commission Report (CPT), Brazil recorded the highest number of water conflicts in 2014 since the survey on the subject was started in 2005, with 127 cases involving 42,815 families in the country, mainly in the Northeast and Southeast.

<sup>191</sup> Demand management through tariff incentives (bonuses for lower consumption and penalties for over-consumption) has been successfully used by SABESP since mid-2014, with about 85 percent of users' adherence.

capacity, addressing of environmental concerns, and increased water use efficiency and productivity.

438. **Multi-purpose water infrastructure (dams, reservoirs, canals, mains, and so on) and alternative technologies (reuse, desalination) can play a key role in reducing vulnerabilities and ensuring that future demands are met even during extreme events.** While demand and supply management and improved planning and modelling are crucial for water security, they are insufficient. Encouraging investments in the required infrastructure and the use of alternative technologies would require a more proactive government role, particularly in dealing with environmental and social regulations and pressures from national and international interest groups. There is a need for proper planning, engineering, and management capacity to expedite the construction of large infrastructure projects, ensuring adequate storage and production capacity for water. With regard to environmental management, major water supply systems often still lack measures to protect watersheds and water bodies from wastewater discharge, industrial pollutants, and runoff from surrounding land uses. Climate change in many cases will exacerbate such water quality issues.

#### **6.4 Risk Management and Vulnerabilities**

439. **The management of natural and environmental resources not only affects livelihoods directly, it also affects the vulnerability of a region, an economy, or a country to risks of climate change or extreme weather events.** Thus, the impact of water scarcity has been deeply felt in Brazil across various sectors. In the Northeast alone, the current prolonged drought is affecting more than 9 million people in about 1,000 municipalities. Additionally, it is estimated that a total of R\$16.6 billion of federal resources have been devoted to emergency and structural actions associated with the most recent multi-year drought in the Northeast.<sup>192</sup> The current reduction in hydropower generation and increase in the use of thermal plants is estimated to have cost about R\$35 billion in 2014 according to various estimates. Extreme events, like the current drought, have also started to pose inflationary pressures on food prices. At a local level there are cases where production losses lead to short-term food price increases. Also, estimates of significant reductions in agriculture production in states like São Paulo, where primary agriculture production constitutes only a small part of the economy, show increases in unemployment of up to 3 percent (42,000 jobs) during the current drought. Finally, World Bank estimates indicate that, between 2010 and 2014, the drought reduced the gross value of agricultural production of the São Paulo region by about 14 percent of the normal (historical) level. For the period 2012–2014, when the drought indicators reached their most extreme levels, the estimates point to a loss of about 24 percent. These negative impacts reflected primarily losses in the production value of temporary crops. Evidence was also found that the drought significantly reduced the headcounts of bovine and swine livestock.

440. **The costs of natural disasters can be significant for Brazilian cities.** The disaster-related costs of only four major events that occurred between 2008 and 2011 totaled approximately R\$15.3 billion: R\$9.4 billion in damages and R\$5.9 billion in losses. The high share of damages and losses in the housing sector (especially low-income housing) indicates that vulnerability to natural

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<sup>192</sup> Source: <http://www.brasil.gov.br/infraestrutura/2013/04/mais-recursos-serao-investidos-em-aco-es-de-combate-a-estiagem>.

hazards can translate into welfare losses for the poor. Transportation is the sector with the second highest damages after housing (see Box 6.1). In Rio de Janeiro, the total cost of the 2011 landslides (R\$4.78 billion) was equivalent to 36.20 percent of the *Região Serrana* GDP, illustrating the disruptive impact of disasters on local economies.<sup>193</sup> A fiscal risk assessment suggests that the country may expect annual losses in excess of R\$8.9 billion, of which government liability would be 30–40 percent (R\$2.8–3.9 billion).

**Box 6.1: Economic Vulnerability in the São Paulo-Santos Transportation Corridor**

About 25 percent of national GDP depends on the Anchieta/Imigrantes complex that links the São Paulo metropolitan region with the port of Santos. Ninety percent of freight shippers use this corridor to move a quarter of all Brazilian exports and 40 percent of agribusiness from the metro region to the port. On February 22, 2013, the coastal region of São Paulo state experienced heavy rainfall that resulted in a landslide, which closed the northbound lanes of the Imigrantes Highway, with another landslide and flooding in Cubatão leading to the closure of the Piacaguera-Guarujá highway and shutdown of the Transpetro industrial complex. This incident underscores the vulnerability of Brazil's economy and transportation infrastructure to climate-related natural disasters in and around urban areas.

*Source:* Incorporating Disaster Risk Management in the Transport Sector in Brazil, 2014.

441. **Weather and price risks have also increased the volatility of agricultural GDP in recent years.** In the past decade the volatility of agricultural GDP has increased, driven mainly by weather and price risks, in contrast to the decrease in volatility in other sectors. If not properly managed, volatility in output and prices can have short- and long-term economic implications, negatively affecting the most vulnerable rural producers. Estimates<sup>194</sup> for the Northeast states of Bahia and Paraíba show that annual expected losses in the agriculture sector from risks that could be better managed (in particular in the family farming sector) can be in the order of 3 to 6 percent of the agriculture GDP of the state. In the latest Agribusiness Index of Confidence (IC-Agro), 47 percent of farmers pointed out climate change as a main challenge<sup>195</sup> for the sector.

*6.4.1 Managing Risks More Efficiently*

442. **The government has developed a portfolio of agricultural risk management (ARM) policies and programs that involve management of drought, pests and diseases, and price-related risks for small and large-scale producers.** They have a nationwide coverage and their implementation requires the participation of many state and federal institutions. These ARM policies and programs represent a large portion of agriculture public expenditures in Brazil that cut across the output, input, and land ownership subsidies mentioned above. According to OECD (2015), the government has been spending in excess of US\$3 billion per year (37 percent of total agriculture public expenditures) in agriculture supports (at the federal level) for ARM programs such as agriculture insurance (premium subsidies, PROAGRO, and *Garantia Safra*), price guarantees, and minimum price purchases targeting family farmers as well as the large commercial producers. Considering all agricultural production, however, agricultural insurance premium

<sup>193</sup> For more details, see World Bank (2014b).

<sup>194</sup> World Bank (2015).

<sup>195</sup> Three main factors have guided this reality: (a) lack of accuracy and efficacy of current meteorology and weather variability systems (modeled for a large area it does not provide information at a regional or at a local level); (b) lack of knowledge of several different production systems' adaptability and vulnerability in relation to climate change; and (c) the social, cultural and economic scenarios/practices to scale up new technologies adoption, even those already developed and available.

subsidies are small (in 2013, for instance, the insured amount was roughly 5 percent of the total gross production value).<sup>196</sup> ARM programs need to be further developed to reach a larger percentage of production, especially for large commercial producers. PROAGRO only supports small farmers and there is no government incentive for farmers to purchase crop insurance, except in the case of PRONAF (*Programa Nacional de Fortalecimento da Agricultura Familiar*).

443. **Agricultural climate risk zoning has been a key instrument of agricultural policy and risk management in Brazil.** The ‘zoning’ program has been designed to minimize agricultural weather-related risks. The program allows each municipality to identify the best time for crop planting based on a methodology designed by the Brazilian Agricultural Research Corporation (EMBRAPA). The methodology quantifies agricultural risks using parameters like climate, soil, and crop cycles. The zoning has been adopted by MAPA and MDA, and is an important requirement not only for insurance support but also for the provision of several other farm-level support mechanisms including credit. Furthermore, private providers of financial services are more often conditioning their services to the zoning rules. Initially used in 1996 for wheat by 2012, it had been applied to over 40 crops, of which 15 were annual and 25 permanent. In Brazil it has been used by 25 of the 26 states. A World Bank (2013b)<sup>197</sup> study upgraded the climate-crop models used by the zoning and rural credit program.

444. **The Brazilian government and the private sector have been steadily facilitating the adoption of improved conservation agriculture practices** moving toward low-carbon agriculture, improved resilience to climate shocks, and reduced emissions of GHG.<sup>198</sup> Examples of such practices include no-till planting, biological nitrogen fixing crop and pasture systems, and integrated crop-livestock systems. The government is providing credit and financing for the ‘Low Carbon Emissions Agriculture Program’ (*Agricultura de Baixo Carbono - ABC*).<sup>199</sup> Increased soil carbon absorption and emission reductions may also be eligible for carbon payments in voluntary and (future) formal markets. However, these programs are not sufficient to improve conservation practices for commercial farming. Private solutions, such as allowing the blending of commercial credit to increase the amounts might improve the uptake for programs like ABC. Greater emphasis on regional agricultural policies is a new objective of the MAPA since 2013. The idea is to target existing support programs to regions with particular social, environmental, and economic characteristics, to the less-developed regions and to family agriculture. Some of the priorities are the financing of storage, irrigation systems, conservation and recovery of degraded soils, machinery and equipment, and infrastructure.

445. **Recent pressures to revisit the use of agrochemicals has generated public and private sector discussion about the lack of a transition strategy to maintain yields while phasing out harmful substances being used on-farm.** Over the past 40 years, agriculture in Brazil has increased 68 percent while the use of agrochemicals rose 700 percent<sup>200</sup> representing one million

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<sup>196</sup> Source: OECD (2015a).

<sup>197</sup> World Bank (2013a).

<sup>198</sup> Synthetic nitrogen fertilizers are a major source of nitrous oxide that is 300 times more potent than CO<sub>2</sub> as a GHG.

<sup>199</sup> ABC is probably the largest Climate-Smart Agriculture endeavor in the developing world and its impacts are already evident. Brazil’s strong commitment with respect to climate changes has been constant. Its overall objective is to promote the reduction of GHG emissions and the increase of carbon sequestration in agriculture.

<sup>200</sup> Embrapa, AGEITEC.

tons of products utilized in one year, or an equivalent of 5 kg per person.<sup>201</sup> Internationally, Japan leads the rank in the use of agrochemicals, followed by France, the European Union, Argentina, the United States, and Brazil. Based on recent statistics that 25 percent of agricultural crops are utilizing unnecessary and excess dosages of chemicals, ANVISA (National Sanitary Control Agency) founded the National Agrochemical Usage Reduction Program (PRONARA) in 2013 under the National Agroecology and Organic Production Policy (PNAPO-2012). The program aims at establishing short- and long-term goals to reduce the usage of the agrochemicals. The initiative is very recent and remains to be fully implemented.

**446. Enhancing the resiliency of Brazilian cities to natural hazards and climate change has a strong potential of reducing future economic losses that threaten poverty reduction gains.** Promising options include (a) increasing awareness by closing the knowledge gap about the causes, costs, and consequences of urban disaster risks and climate change, including an understanding of which sectors are or will be hit the hardest, for example, housing and transportation. (b) Enabling instruments for financial protection against disasters with involvement of the federal Ministries of Planning and Finance as well as state and municipal governments. (c) Accelerating the preparation and implementation of the *Planos Municipais de Redução de Risco*. (d) Using opportunities to promote livable cities, economize resources through more efficient resource use and scale up experiences with low-carbon development strategies and policies to mitigate GHG emissions, plan for adaptation, and promote co-benefits.

**447. To better address climate change induced damages, Brazil has to shift from an ex post, responsive approach to natural hazards and emergencies to an ex ante, more proactive and preventive approach to Disaster Risk Management (DRM).** Brazil is exposed to a variety of natural hazards and to date has made little headway in addressing the underlying elements of disaster risk. Years of underinvestment in DRM have created institutions, which lack the technical capacities to holistically cope with disasters (that is, from risk reduction to disaster response). For example, 70 percent of Brazilian municipalities do not have any instruments to manage disaster risks and only 5 percent have implemented disaster mitigation projects. There are also several examples where communities and municipalities were built in the same place where previous disasters had struck or new settlements were planned and constructed in hazardous areas.

**448. Resiliency, green growth, and low-carbon development will reduce the ecological footprint of Brazilian cities while allowing for more sustainable and equitable development.** This will entail policies to improve infrastructure and services (for example, access to water, sanitation, and public transportation), internalize the environmental costs of natural resource consumption, reduce subsidies to polluting activities, and raise awareness about opportunities to pursue green growth.

### ***Concluding Remarks***

**449. Brazil has made major advances toward balancing growth and social progress with environmental sustainability.** A number of the policies adopted by Brazil have established a conservation paradigm for tropical countries aiming to reduce their carbon emissions from deforestation and forest degradation. The policy commitments and the progress achieved over the past decade provide strong evidence that Brazil is well placed to continue along a green growth

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<sup>201</sup> Instituto Nacional do Câncer, 2015.

path. Yet, this will require additional hard work in three interrelated areas. First, the institutional fragmentation characteristic of Brazil's policy environment in many areas needs to be overcome to reduce compliance costs of environmental regulation, increase the efficiency of public resource allocation, and facilitate improved long-term planning in the face of increased risk of natural disasters. Second, pricing policies need to be reviewed in a number of areas to improve incentives for conservation of water and other natural resources, and encourage investments into improved quality and resilience of service provision. Third, the conflicts between conservationist and developmentalist goals could be solved more easily if still greater attention was placed on the access of small producers to appropriate technologies to increase land yields, and on the role of indigenous people as guardians of Brazil's natural patrimony.

**450. Falling commodity prices increase the urgency of making progress in all the three above-mentioned areas.** Falling commodity prices and the current stagnation in the growth rate of the Brazilian economy entail the risk of reduced incentives for the enforcement, monitoring, and proper implementation of these conservation policies under the guise of creating jobs and supporting the livelihoods of rural households dependent on the environment. Indeed, before 2006, there was an inverse relationship between international commodity prices and rates of deforestation in the Amazon.<sup>202</sup> Under the auspices of the Legal Amazon program this has recently been halted, but this provides no grounds for complacency.<sup>203</sup>

**451. Greater coordination of environmental and land management policies is administratively and politically challenging, but it costs little money.** The unification of cadaster systems will require investments in the necessary data collection and storage, but the main challenge once again is institutional. In the water and sanitation sectors, larger investments are required, but many of these could be easily financed through better pricing policies, which would have the additional benefit of discouraging over-consumption. A shift in agricultural support policies from direct payments to greater investments in agricultural extension and rural infrastructure could also contribute significantly to improving the resilience of small-scale producers in particular. The move toward a green growth path is not sensitive to the current fiscal predicament.

**452. The analysis in this chapter also suggests that continuing towards a green growth path is certain to give rise to major opportunities.** Brazil could be a leader among emerging markets and show that development and a reduced environmental footprint can go hand in hand. Opportunities exist in particular in developing higher-value agricultural products, eco-tourism, the payment for ecosystem services (including domestic pricing instruments such as cap and trade or a carbon tax), and a range of services along green supply chains. Realizing this potential would not just be good for the many Brazilians that depend on natural resources for their livelihoods but for the planet more generally.

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<sup>202</sup> Arima et al. (2011).

<sup>203</sup> See Assunção et al. (2012).

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### *Introduction*

453. **Brazil has enormous potential and resources, but also faces a number of complex and interrelated development challenges.** The previous chapters of the SCD showed how Brazil has been successful in many aspects of development since the return to democracy. Solid institutions have developed in many areas. Brazil has begun to redress the inequities resulting from its historical model of development, and has made significant progress in reducing poverty and inequality. It also managed to establish, for the first time in its history, a macroeconomic framework that provided a basis for stable development.

454. **Notwithstanding Brazil's undeniable successes, the analysis also points to basic structural problems, which present obstacles to Brazil's future development and particularly to improvements in the welfare of the B40.** Two central themes run through this analysis. The first is Brazil's lower underlying growth potential, related to insufficient infrastructure and persistently low levels of public and private investment, limited domestic competition, and low levels of international integration. The second theme is the unsustainable nature of public spending commitments in the face of low growth and considerable public sector inefficiencies. While public transfers have grown considerably, the majority of public spending benefits individuals who are not poor (particularly through an unaffordable pension system), and firms that are uncompetitive and specialize in rent seeking rather than innovation.

455. **Brazil's structural and fiscal challenges are inextricably mixed.** The large public sector not only creates fiscal pressures and puts macroeconomic stability at risk, it also makes claims on resources that could be more effectively used in the private sector. Brazil aspires to a development model built around a strong and active state. To reach this vision, it will have to improve the way public resources are allocated and overcome vested interests that militate against the reduction of rents. It will also have to combine public transfers to the poor and vulnerable with stronger incentives for private investment and harness the power of market competition to encourage innovation.

456. **While these obstacles are serious, none are insurmountable.** Brazil's large budget provides ample opportunities for spending reallocations to benefit the poor and vulnerable, while cutting wasteful economic subsidies and social transfers to the better-off and restoring macro-fiscal balance. Many other countries have shown that improvements in the business environment can be achieved relatively rapidly, with positive impact on private investment and job creation and international competitiveness. Moreover, Brazil's recent history contains several examples of decisive policy action to fix long-standing macro-fiscal problems and introduce better-targeted public programs, which may contain useful lessons for how to deal with the current political and institutional impasse.

### *The Logic of Prioritization*

457. **This chapter attempts to pull together the analysis of the previous chapters to identify a few key priorities for sustained growth and improvements in the welfare of the B40 in Brazil.** It does not, and cannot, provide detailed solutions. As a diagnostic, the SCD identifies the key areas and problems which have emerged from the analysis and which will need to be addressed

in the coming years. The interrelated nature of the challenges has guided the selection of broad focus areas covering a group of related issues, rather than highlighting specific policies.

458. **A number of potential approaches were considered to identify the priority constraints.** One approach would simply be to use survey evidence of what citizens, and particularly the poor, consider to be priorities. Unfortunately, such a methodology will tend to point to those issues, which are tangible and immediate, but not necessarily to their underlying causes. For example, the most commonly cited problems in such surveys are health, crime and violence, and unemployment,<sup>204</sup> all of which are clearly fundamental problems for the welfare of the B40. All of these issues have the characteristic that they have an immediate and tangible, and indeed potentially life changing, effect on people. However, surveys cannot easily capture critical enabling issues for the welfare of the B40. For example, in surveys one would never see issues such as a lack of infrastructure or the state of public finances being cited as critical issues, although our analysis does show that both of these are powerful indirect drivers of the welfare of the B40.

459. **An alternative method would be to construct a formal general equilibrium model with which the direct and indirect impacts of policy changes and other factors on the welfare of the B40 can be identified.** However, this method would require considerable effort to correctly specify the model and to derive appropriate parameters for its calibration from the data. While some other SCDs – for example, Turkey’s currently under preparation – have opted for a CGE approach, this was not considered feasible for Brazil. Moreover, Brazil is currently undergoing such rapid and deep changes to its development model, that parameters that were stable over time in the past may not be stable going forward, rendering forecasts based on stable model parameters of limited value.<sup>205</sup>

460. **Prioritization through structured discussion.** It was thus decided that the prioritization should be done through a structured discussion within the SCD team, using the organizing framework developed in Chapter 1 to identify the linkages and entry points to the basic development problems in Brazil. The main ideas from the prioritization exercise are summarized below and all draw on the analysis in the previous chapters.

461. **Three basic criteria guided the selection of priorities.** These were: (a) the constraints should have a critical medium- and long-term impact on the welfare of the B40, including generating synergies and complementarities while relieving other constraints; (b) that any proposed measures should fit into the available resource envelope and be consistent with long term fiscal and environmental sustainability; and (c) there should be some evidence of impact from other countries or Brazil’s own development experience. The discussion was guided by the logical framework outlined in Chapter 1.

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<sup>204</sup> See for example the Latin America Public Opinion Project (LAPOP) survey for 2014, where the top issues identified were lack of health care services (26 percent of the population), violence (20 percent), corruption (12 percent), lack of security (6 percent), quality of education (4 percent) and unemployment (4 percent). From 2006 to 2008, unemployment had been the first or second issue, but had declined with the reduction of unemployment.

<sup>205</sup> This problem was very eloquently expressed by Keynes in the *General Theory of Employment Interest and Money* (1936) where he noted: “in ordinary discourse (...) we can keep ‘at the back of our heads’ the necessary reserves and qualifications and the adjustments which we shall have to make later on, in a way in which we cannot keep complicated partial differentials ‘at the back’ of several pages of algebra which assume that they all vanish.” (Keynes, 1936, 297-298).

462. **The fundamental inputs into the welfare of the B40 are increasing employment, real wages, public services, and access to natural (environmental) capital.** Making progress in all of these areas requires higher and more effective public and private investment, particularly in infrastructure, rising productivity (to allow for increasing real wages) and the efficient delivery of public services, targeted particularly to the B40.

463. **Increasing productive and well-remunerated employment will require increasing productivity, and stimulating investment and innovation.** Increased investment and innovation are a function of a stable and sustainable fiscal and macroeconomic framework, improvements in the business environment, access to capital at reasonable prices, and increased competition, which together provide the conditions for improving productivity.

464. **The lack of fiscal space and the difficulty in achieving fiscal sustainability are among the fundamental obstacles for public and private investment.** The lack of fiscal space is due to a rigid budgetary system and institutions which favor the accumulation of current expenditure commitments which are either ineffective or do not significantly benefit the B40. Reduced fiscal space directly affects the resources available for public investment. It also reduces public savings, and threatens fiscal sustainability and macro stability. Macro stability in turn, is a prerequisite for an environment in which the returns to investment become more certain, interest rates can decline, and the returns to and incentives for investment can increase.

465. **Regaining fiscal space is very closely linked to increasing the efficiency of spending and service delivery.** Reducing current expenditure while protecting the poor can only be accomplished if there exist institutional incentives and mechanisms to regularly review the efficiency, efficacy, and distributional impact of current expenditure and to ensure that the results of such reviews are translated into policy. In such a framework it is likely that expenditure on items such as pensions for the well-off, subsidies, tax breaks, and below-market interest rates for enterprises, as well as many other items which largely benefit the wealthy, would need to be reconsidered. Increasing efficiency however is not simply a question of reducing resources allocated to these and other activities, but redesigning policies such that they really benefit the B40, as was done so successfully in programs such as PBF and BSM. It means also that new policies and policy changes should be based on evidence of effectiveness and good performance, with institutional mechanisms to ensure that this is the case. Only then will it be possible to change the existing institutional bias in favor of current expenditure without affecting the B40.

466. **The analysis indicates that even with reductions in overall spending, particular attention should be placed on safeguarding and even expanding programs and services that protect the most vulnerable.** This would include expanding non-contributory programs such as PBF and ensuring that they reach indigenous groups and remote populations. In addition, it is important to continue with and expand programs targeted at other groups such as Afrodescendants, many of whom still suffer discrimination and are particularly subject to violence and insecurity. Finally, programs to enhance economic opportunities for women and to prevent gender-based violence would be essential in this respect.

467. **Closely linked to increasing the efficiency of current spending is the need to improve the mechanisms for planning and implementation of public investment.** The previous discussions suggested that even when additional resources have become available for public investment in infrastructure there are significant problems in planning, evaluating, and implementing proposed investments. The constraint in this case is the lack of coherent institutions

and processes to manage the project cycle of public investment, including its coordination across levels of government. The private sector could potentially contribute an important share in the necessary investment in infrastructure and help raise the efficiency of public services, if the regulatory framework for PPPs throughout the project cycle is improved.

**468. Increasing private investment and raising productivity growth are the keys to generating jobs and incomes for the B40.** One of the biggest obstacles to private investment is the lack of a functioning credit market, particularly for medium- to long-term credit. In addition, the current system implies high interest rates for enterprises that are not among the few which benefit from below-market rates for credit provided by the public banks. The current arrangement is fiscally costly, may contribute to increasing the average level of interest rates, reduces the effectiveness of monetary policy, and discourages competition and innovation among existing firms.

**469. Other obstacles to the growth of private investment and productivity are connected to the lack of competition, a difficult business environment, and ineffective public policies to encourage investment and innovation.** The business and trade environment in Brazil (outside of the agricultural sector) is both relatively closed to entry and competition and imposes significant costs on existing firms.<sup>206</sup> Moreover, distortions to competition and innovation efforts resulting from poorly designed and implemented government industrial policies, and the legacy of a relatively poorly skilled labor force all combine to reduce investment, learning, and productivity growth. Among the most important distortions is the burden of one of the most complex tax systems in the world, partly resulting from a complex and inefficient system of intergovernmental finances. The overall result is that many firms stay small, while the largest domestic players are sheltered within a protected and captive domestic market. Private investment is discouraged by bureaucratic and regulatory obstacles, with many entrepreneurs preferring to engage in rent-seeking activities behind protective barriers instead of innovating and integrating into the world economy.

**470. The analysis showed that measures to increase public and private investment would allow more resources to be allocated to improve connectivity.** This is directly important for the B40 with regard to ensuring access to employment in urban areas, and connectivity to markets for rural producers. It also includes measures to improve the logistics infrastructure along main economic arteries (road, rail, transport, storage facilities, and ports) as well as competition-friendly regulation of the communications sector.

**471. The quality of life for the B40 also depends fundamentally on the natural environment in both urban and rural areas.** The management of natural resources, the protection of the environment, and the mitigation of and adaptation to climate-related and other natural risks are fundamental for shared prosperity. Many of the poor and vulnerable depend on the natural environment for their livelihoods, as small-scale agricultural producers, as indigenous communities whose lifestyles are intrinsically linked with the preservation of Brazil's natural habitats, but also as urban dwellers exposed to pollution, water scarcity, or power shortages, and the risks of natural disasters. With much fewer means to protect or insure themselves against environmental risks, the poor and B40 are particularly affected by the degree to which government

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<sup>206</sup> In fact, the two may be directly related. To compensate for the high cost of operating in Brazil existing firms may lobby for protective barriers and seek government subsidies, but precisely these support mechanisms further distort the playing field and reduce incentives to innovate and improve efficiency.

policy and regulation manages to balance the needs of economic development with the objective of environmental sustainability.

472. **Three principal issues in natural resource management stand out and affect the B40 directly and indirectly through their effects on growth and incomes.** These are the questions of access to land and insecure property rights, water management and, more broadly, the management of the natural environment. Thus the priorities in this area would be to strengthen the management of Brazil’s natural assets including land regularization, safeguarding the forest estate and expanding the sustainable management of native forests, agricultural innovation, water basin management, energy and water resources planning, DRM, and strengthening the environmental licensing process.

473. **The priorities identified in the previous paragraphs do not constitute all the development challenges facing Brazil.** Nevertheless, following the analysis in the previous chapters, they are the challenges which, if not addressed, will impede Brazil’s progress towards poverty reduction and increased shared prosperity in the next few years. More than anything the challenges involve making choices about the allocation of resources in view of the interests of the poor and vulnerable, and ensuring that there are institutions to guide these choices and make them transparent and accountable. The approach taken here is not to provide detailed policy recommendations (which will by their nature require more detailed work in close partnership with government and non-government stakeholders) but to identify the root causes of the problems as the foundation for developing practical solutions. The previous analysis should not be interpreted to suggest that issues not prioritized in this section should be ignored or are unimportant, but rather that unless major efforts are made to address the prioritized issues, progress in other areas will be very difficult, or may not benefit the B40.

474. **Moreover, the priorities are broad and will require work to define both details and sequencing.** One of the principal themes of the priorities is the need to identify and confront policy trade-offs. However, even within the priorities there will be issues of sequencing and speed of reforms. Both the structural and fiscal reforms will be difficult, and may not yield benefits immediately. It might be necessary to put more emphasis on one block rather than the other. Even within the fiscal adjustment, the issue will be how quickly it can and should be carried out. The potential benefits of a large rapid fiscal adjustment are that it could re-establish confidence quickly. The risks would be that too rapid a fiscal adjustment could exacerbate an already intense recession and prove unsustainable. Equally, a slower fiscal adjustment could prove ineffective, if it was believed that it would not be sustained. In essence, one of the key issues in any process of reform will be its sustainability and credibility. For this reason, just as important as any specific measures taken to strengthen Brazil’s development prospects will be the generation of the political consensus to support a reform program and the establishment of institutional mechanisms to ensure that future policy choices and expenditure decisions are subject to scrutiny for effectiveness and consistency with available resources. The table below provides a short summary of the five key priority constraints derived from this analysis:

| Priority Constraints  | Potential Opportunities   |
|---|---|
| <p><b>Lack of fiscal space and large transfer of resources to the non-poor:</b><br/>Resolution of the constraint would allow more investment, provide resources for the B40, reduce</p> | <p>Zero based review of all expenditure for efficiency, effectiveness and incidence on the poor and non-poor. Possible areas for savings: pension reform; reducing earmarking in the budget; and rationalizing expenditures. Improvements in the framework for fiscal management (including fiscal rules and institutions, the budget preparation and</p> |

|  |  |
|--|--|
| <p>levels of taxation and promote macro stability and thereby enable job creation, shared prosperity and poverty reduction.</p>  | <p>execution, public investment management), will also contribute to create fiscal space and maintain macro-fiscal sustainability. Simplifying the tax system, rationalizing tax expenditures, reducing the use of tax amnesties and improving capital-wealth taxation.</p> <p>To protect the vulnerable through enhancing the responsiveness of non-contributory safety net programs (for example, PBF) to benefit newly eligible groups, targeting specific groups, such as indigenous populations in remote/isolated areas (Amazon), Afrodescendants and other minorities, and women; reducing crime and violence through cross sectoral programs; increasing support for programs against gender-based violence and providing economic opportunities for women.</p>  |
| <p><b>Public sector governance weaknesses and institutional fragmentation hamper effective long-term policy design, planning and implementation:</b></p> <p>Dealing with the constraint in the medium term would increase the quality of services and ensure their focus on the B40 in the context of a sustainable and flexible overall policy framework.</p> | <p>Development of institutions and processes focusing on quality of public service delivery, as well as encouraging private sector service delivery (for example, through PPPs, direct local and foreign investment), accompanied by a more systematic implementation of results-based management and evidence-based policy formulation. Through increasing the efficiency, and reducing unequal access to education and health, attracting private resources within a strong quality assurance framework).</p> <p>Increasing the quality of spending in infrastructure, housing, and in science, technology and innovation (including skills upgrading) programs to boost firms' productivity and thereby generate more and better jobs, through strengthening of public accountability while removing obstacles related to over-lapping mandates and poor policy coordination.</p>   |
| <p><b>Segmentation of financial markets, lack of long term credit, and high interest rates:</b></p> <p>Resolving the constraint would increase the efficiency of the allocation of capital and raise private investment</p>  | <p>By reducing the direction of credit, and gradually moving away from below-market interest rates to ensure all lending takes place at positive real interest rates; establishing long-term financial markets; and reducing subsidies to profitable enterprises with market access.</p>   |
| <p><b>Insufficient competition and poor business environment:</b></p> <p>Improving the business environment and increasing competition is critical to increasing productivity growth in a sustained way to allow for higher wages and higher levels of private investment</p>  | <p>Greater openness to trade and investment and greater participation of businesses in global value chains. Investments in skills, tax reform (to simplify and increase the transparency of the tax system), and regulatory simplification to improve the business environment. Reducing existing rents and subsidies to privileged businesses and creating a more level playing field where business is rewarded for innovating and upgrading productivity and low performing companies are either forced to adjust or exit the market.</p> <p>To invest in infrastructure and logistics to reduce distance, urban travel times, cost and time of the use of main economic arteries (road, rail, air, transport and ports) and competition-friendly regulation of the communications sector. Integrated land use planning with housing, transport and service provision so that the poor do not have to sacrifice livability for access to jobs. Better access for small farmers to markets to provide income opportunities and hence resources for investment in improved land yields.</p> |
| <p><b>Weaknesses in the management of Brazil's natural assets/resources and insufficient resilience against climate risks:</b></p> <p>Improving management of Brazil's natural resources is essential for their conservation, and ensuring sustainable livelihoods for those dependent on them</p>   | <p>Continuing along the path to green growth, and making the best use of Brazil's natural resources, through better water basin management, energy management, forest management, agricultural practices, reforming environmental licensing structures and processes, strengthening of land rights, and creating a national land registry system. Continue climate change mitigation efforts and invest in adaptation measures. Improved implementation of environmental safeguards and licensing to reduce costs of operation and investment for business, while tightening control and risk management upstream during planning stages.</p>  |

### *Critical Data and Knowledge Gaps and Directions for Additional Analysis*

475. **The SCD has drawn from a number of completed and ongoing studies.** In spite of the wealth of data and plethora of empirical studies available on Brazil, the SCD has identified a variety of data and knowledge gaps that if filled would be particularly helpful toward making progress in sustainable poverty reduction and improving shared prosperity in Brazil.

476. **On the knowledge front, several important gaps emerge in need of further attention.** The first gap relates to a detailed examination of public spending to identify areas for potential changes (particularly in the transfers to the non-poor) to restore fiscal balance, or reforms of taxation that would widen the tax base while reducing distortions and compliance costs. This SCD has identified broad categories of spending, most prominently public pensions that would seem to offer opportunities for cuts that do not hurt the poor. However, to get from here to detailed recommendations requires more analysis. A comprehensive public spending review as well as an assessment of public budgeting and financial management systems is an urgent priority if the broad challenge of restoring fiscal space is to be addressed.

477. **The second gap, closely related to the first, concerns the availability of empirical evidence on the impacts of a variety of public policies on the welfare of the poor.** Strong results-based M&E systems accompanied by rigorous impact evaluation are already being used effectively in the areas of social assistance (for example, PBF and BSM) and crime and violence (for example, PPV). However, there is remarkably little available evidence on the impacts of public policies aimed at promoting tertiary education, increasing access to early child education, increasing worker productivity through TVET programs, providing support to small farmer agriculture, or increasing the quality of service delivery in education and health. The implementation of strong results-based M&E systems in all of these areas, would allow Brazilian policy makers to learn from current actions and properly assess the cost-effectiveness and impacts of policies so that results can systematically inform policy decisions and program expansion or possible contraction in the context of constrained fiscal space. Finally, closely related to the above, it will be important to systematize data on the link between public spending and quality of public services, including at the subnational level.

478. **Third, also related to the first point, the impact of (implicit and explicit) subsidies on enterprise productivity remains imperfectly understood.** One of the key themes that has emerged from the SCD is the difficulty in measuring the effectiveness of many of the policies to stimulate specific sectors and to increase productivity and innovation, through subsidies and transfers. Simply documenting the flows of resources to enterprises (through tax breaks and explicit subsidies) in different sectors is not easy. There is, in addition, very little evidence on which policies, if any, have achieved the expected results, although in aggregate clearly Brazil's competitiveness has not improved sufficiently. Work in this area could help the design of effective policies to raise productivity, investment, and employment, and avoid wasting fiscal resources.

479. **The fourth gap is related to better understanding the causes of implementation problems in infrastructure investments.** The key issues have been identified in this SCD and include poor project preparation, overlapping jurisdictions which cause implementation delays, the impact of budget sequestration throughout the year on predictability of funding, weaknesses in public procurement and more generally in public sector governance and transparency, and an environment that seems to benefit insiders among domestic construction companies through unsolicited bids, thus reducing the attractiveness to foreign strategic investors. Lack of long-term

funding presents an additional challenge. However, in view of the priority placed by successive governments on closing Brazil's infrastructure gap and the limited success of these initiatives to date, there is a need for a more detailed analysis and practical solutions to demonstrate implementation models that are cost effective, timely, and leverage more commercial financing.

480. **Fifth, the implications of financial market distortions on the levels of interest rates and on firm competitiveness more generally need deeper analysis.** As in the case of explicit subsidies, there is little evidence regarding the effectiveness of credit directed to specific sectors. There is, however, a significant risk that credit is being inefficiently allocated. Allocation of below-market rate credit also plays a major role in affecting the ability of banks to provide long-term credit at market interest rates. This also almost certainly plays a role in the causes of high short-term interest rates. Examining these questions will be critical for designing more effective financial policies and strengthening financial institutions.

481. **The sixth knowledge gap concerns the quality of the environment and its impacts on the different dimensions of welfare in the poorer segments of the population.** For instance, the evidence available to date about the adverse impact of air pollution and untreated water and on the welfare of the poor is only inferred indirectly from the fact that the poor reside in areas more likely to be polluted and have polluted water (households in rural areas) and untreated sewage (poor households in urban areas/slums). At the same time, there is a need to analyze economic opportunities for the poor and B40 resulting from better management of Brazil's natural assets, and move beyond the traditional conflict between conservation and land conversion for instance. How to leverage Brazil's natural assets in a more sustainable way for long-term improvements in social welfare remains an exciting knowledge frontier.

482. **There is also a dearth of adequate data on the health and nutritional conditions of indigenous peoples in Brazil, which undermines the design and adoption of sound evidence-based policies to effectively address health inequities faced by Indigenous Peoples.** The first countrywide inquiry on the health, nutrition and dietary status of the indigenous peoples collecting data from a geographically representative sample of indigenous peoples and carried out in 2010, with the support from the World Bank's Disease Surveillance and Control Project (VIGISUS II) provides a good basis for a more frequent assessment of the accessibility, affordability, utilization, quality and local capacity for improved delivery of services to a predominantly poor segment of the Brazilian population.

483. **In many other areas, additional analysis could help refine public policy.** In partnership with the authorities, as well as the range of excellent Brazilian research institutions, think tanks, and civil society organizations, the next CPF of the World Bank will provide an opportunity to address several of the remaining knowledge gaps. The SCD has provided the foundation for a discussion on future priorities for Brazil. The next step in the elaboration of a new CPF will be to identify those areas where the World Bank Group can most effectively contribute through its global knowledge, its experience, and its various instruments of financial support.

## ANNEX 1: TEAM ENGAGEMENT AND CONSULTATION PROCESS

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With the help of the program leaders, two informal pre-Concept Note meetings were held with participants from all the Global Practices, as well as MIGA and IFC, where open discussion took place on the proposed areas of emphasis of the SCD and the proposed methodology of prioritization. Following the Concept Note review meeting, a revised annotated outline of the SCD was prepared incorporating all the main comments received and through the program leaders, a guidance and methodology note was distributed to the members of all the Global Practices and IFC. All the specific inputs received were used extensively for the preparation of the Brazil SCD. A presentation of the main messages of the Brazil SCD, followed by an open discussion, was made at the retreat of the Brazil Country Team on June 25, 2015. The final prioritization of the recommendations in the Brazil SCD was completed at a meeting with the core SCD team on September 1, 2015. A further discussion of the SCD and the priorities was held on September 17, 2015 for the whole of the Brazil country team. The guidance of that meeting suggested refining the priorities, and as a result the critical priorities were narrowed down to five.

### *External Consultations*

The SCD was accompanied by an external consultation process that was designed to ensure that all key stakeholders were included in the deliberations and their views are heard.

In view of the recent political and economic developments in Brazil since October 2014, two round table discussions were organized on the topics of governance and political economy of decision making in Brazil, attended by the leading academic authorities on the subject from Brazil and the United States. The first round table held in Brasília on April 13, 2015, was attended by Argelina Maria Cheibub Figueiredo (Universidade Estadual do Rio de Janeiro), Fernando Limongi (Professor of Political Science, Universidade de São Paulo), Marcus Melo (Professor of Political Science, Universidade Federal de Pernambuco), Marcos José Mendes (Senate), Carlos Pereira (Fundação Getúlio Vargas), Jonathan Rodden (Stanford University), and Ben Ross Schneider (Massachusetts Institute of Technology). The second round table, held in Washington, DC, on April 24, 2015, was attended by Barry Ames (University of Pittsburgh), Frances Hagopian (Harvard University), Scott Mainwaring (University of Notre Dame), Ben Ross Schneider (Massachusetts Institute of Technology), and Matthew Taylor (American University). In addition, five background papers were commissioned on the Drivers of Political Fragmentation (by Fernando Limongi, USP), the Political Economy of Reform and Federalism (by Jonathan Rodden, Stanford University), Politics, Big Business and Industrial Policy in Brazil (by Ben Ross Schneider, MIT), The Political Economy of Public Investments in Brazil (by Marcus Melo, UFP, and Carlos Pereira, FGV), and Public Investment and Infrastructure Investment in Brazil (by Marcos José Mendes, Senado).

In addition, a series of consultations with representatives of the private sector in Brazil were organized by IFC between June 1 and June 10, 2015, in São Paulo. The objective of these consultations were to solicit opinions and reactions about the main constraints faced in their business sector, the policies identified as priorities for Brazil by the private sector representatives, and the condition of the economy.

Extensive consultations were also held with the government to ensure the accuracy of the analysis. An early draft was shared with government counterparts on August 31, 2015, detailed written comments received on each chapter, and a meeting with main government counterparts was held on November 5, 2015, to clarify issues in the written comments. Further consultations were held with counterparts during November and December, 2015, and a final draft was shared with government counterparts in January 2016, and further comments were received and taken into account in this draft.