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BASIC STATISTICS OF BRAZIL (2012 unless noted)

(Numbers in parentheses refer to the OECD average[a])

LAND, PEOPLE AND ELECTORAL CYCLE

Population (million)	193.9		Population density per km²	22.8	(34.5)
Under 15 (%)	24.6	(18.1)	Life expectancy (years, 2011)	73.7	(80.1)
Over 65 (%)	7.2	(15.3)	Men	70.0	(77.3)
Foreign-born (%, 2010)	0.3		Women	77.5	(82.8)
Latest 5-year average growth (%)	1.1	(0.6)	Last general election	October 2010	

ECONOMY

Gross domestic product (GDP)			Value added shares (%)		
In current prices (billion USD)	2 252.8		Primary	5.2	(2.5)
In current prices (billion BRL)	4 402.5		Industry including construction	32.0	(27.7)
Latest 5-year average real growth (%)	3.2	(0.6)	Services	62.8	(69.8)
Per capita, PPP (thousand USD)	12.1	(37.2)			

GENERAL GOVERNMENT[b]

	Per cent of GDP				
Expenditure	41.6	(42.6)	Gross financial debt	58.7	(110.6)
Revenue	38.9	(36.2)	Net financial debt	35.9	(72.6)

EXTERNAL ACCOUNTS

Exchange rate (BRL per USD)	1.954		Main exports (% of total merchandise exports)	
PPP exchange rate (USA = 1)	1.883		Crude materials, inedible, except fuels	26.1
In per cent of GDP			Food and live animals	22.2
Exports of goods and services	12.6	(53.5)	Machinery and transport equipment	15.8
Imports of goods and services	14.0	(50.1)	Main imports (% of total merchandise imports)	
Current account balance	-2.4	(-0.4)	Machinery and transport equipment	38.4
Net international investment position	-32.3		Chemicals and related products, n.e.s.	18.9
			Mineral fuels, lubricants and related materials	18.0

LABOUR MARKET, SKILLS AND INNOVATION

Employment rate (%) for 15-64 year olds (2011)	56.0	(65.0)	Unemployment rate (%)	5.5	(7.9)
Males	67.3	(73.1)	Youth (%, 2011)	15.0	(16.2)
Females	45.5	(57.0)			
Gross domestic expenditure on R&D (% of GDP, 2010)	1.2	(2.4)	Tertiary educational attainment 25-64 year-olds (%, 2011)	11.6	(31.5)

ENVIRONMENT

Total primary energy supply per capita (toe, 2011)	1.4	(4.3)	CO_2 emissions from fuel combustion per capita (tonnes, 2010)	2.0	(10.1)
Renewables (%)	43.9	(8.2)	Municipal waste per capita (tonnes, 2007)	0.3	(7.8)
Fine particulate matter concentration (urban, PM10, µg/m^3, 2010)	18.3	(21.5)			

SOCIETY

Income inequality (Gini coefficient)[c]	0.53	(0.31)	Education outcomes (PISA score, 2009)		
Relative poverty rate	25.0	(11.1)	Reading	412	(493)
(% below 50% of median income, 2007)			Mathematics	386	(496)
Public spending (% of GDP)			Science	405	(501)
Health care (2011, public and private)[c]	8.9	(9.7)	Share of women in parliament		
Pensions (2010)	8.5	(8.4)	(%, February 2013)	9.6	(25.3)
Education (excluding tertiary, 2010)	4.3	(3.7)			

Better life index: *www.oecdbetterlifeindex.org*

a) Where the OECD aggregate is not provided in the source database, a simple OECD average of latest available data is calculated where data exists for at least 29 member countries.

b) 2011 for the OECD.

c) 2010 for the OECD.

Source: Calculations based on data extracted from the databases of the following organisations: OECD, International Energy Agency, World Bank, International Monetary Fund and Inter-Parliamentary Union.

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Executive summary

Main findings

Brazil has moved up the ranks of the world's largest economies while achieving much more inclusive growth than in the past. Stable and predictable macroeconomic policies underpinned these gains. More recently, demand has been supported by macroeconomic stimulus, which has encouraged the expansion of the non-tradable sector, while manufacturing is suffering from declining competitiveness, and supply-side constraints appear to be biting. Inflation has remained high and has been allowed to drift momentarily above the tolerance band, and monetary policy credibility risked being undermined by political statements about the future trajectory of interest rates. The Central Bank started a tightening cycle in April of 2013. The fiscal rule has also been undermined, as the inflexible fiscal target – defined in terms of a primary surplus – has required unusual but legal measures to account for cyclical weakness and meet the target, reducing clarity. Fiscal challenges in the longer term are rising as the population will start to age fast in a decade from now and pension expenditures are already rising.

The global crisis has brought shortcomings in productivity and cost competitiveness to the fore. Supply-side constraints, which are increasingly impeding growth, include pressing infrastructure bottlenecks and a high tax burden, exacerbated by an onerous and fragmented tax system. A tight labour market and continuing skill shortages have resulted in strong wage increases. Although credit is rising at a substantial pace, investment financing at longer maturities continues to be scarce. Further development of long-term credit markets is hampered by a lack of private participation, owing to a uneven playing field caused by strong financial support to the national development bank which dominates long-term lending. Brazil's participation in international trade and its integration into global production chains is below what would be expected in an economy as large and sophisticated as Brazil's, and domestic producers continue to be shielded from foreign competition.

Substantial progress has been made in the sustainable use of natural resources. Energy generation relies strongly on renewable sources. Ethanol is a key ingredient of this strategy, but the pricing decisions of the majority government-owned oil company have resulted in petrol prices below import costs, undermining the ethanol industry. Carbon emissions have declined and deforestation has slowed, although its current pace still implies the destruction of forests of the size of Belgium (or the Brazilian state of Alagoas) every 5-6 years.

Successful policies to spread the benefits of economic growth more widely have substantially reduced poverty and income inequality. Wider access to education have allowed more Brazilians to move into an expanding number of better paid jobs. However, the quality of education has not kept pace with the impressive expansion of the system. There are severe shortages in physical school infrastructure. A still-large number of students drop out from secondary education, and the vocational education sector is small, although increasing. Transfer payments have also relieved poverty and enhanced incentives to invest in human capital. Social expenditures have been heavily focused on pension payments, although conditional cash transfers have proven an effective tool to address poverty and inequality. The tax system, by contrast, is characterised by a low degree of progressivity which limits its redistributive impact.

Key recommendations

Consolidating confidence in macroeconomic policies

- Further tighten monetary policy as needed to bring back inflation to the 4.5% inflation target, which would also help to bolster policy credibility.
- Solidify the credibility of monetary policy by establishing fixed-term appointments for its governor and the members of the Monetary Policy Committee, and by keeping communication on monetary policy to the Central Bank.
- Redesign the fiscal rule to take account of the business cycle, for example by adopting an expenditure rule. Consolidate fiscal oversight to monitor compliance with the fiscal rule *ex-ante*. Increase clarity by limiting quasi-fiscal operations.
- Reduce the fiscal burden of the pension system by severing the automatic link between pension benefits and the minimum wage and by raising effective retirement ages.

Boosting productivity and cost competitiveness

- Move forward on new infrastructure projects and concessions as planned.
- Continue efforts to consolidate indirect taxes into a single value added tax and reduce the use of turnover taxes.
- To protect the purchasing power of the minimum wage while allowing a gradual reduction relative to the median wage, index annual minimum wage increases to the consumer price index for low-income households plus only part of productivity gains for some time, in replacement of the current rule.
- Gradually phase out financial support to BNDES, and focus BNDES lending on the financing of infrastructure, small and medium enterprises and innovation. In the transition, continue efforts to facilitate the development of private long-term capital markets, including by requiring private co–financing of BNDES loans.
- Reduce tariff protection, and phase out local content requirements and targeted support to specific sectors.

Improving the responsible use of resources

- Remove implicit price support for fossil fuel by adjusting petrol prices in line with import costs, which would, among other things, promote the use of ethanol.
- Strictly enforce the new forest code and enhance incentive-based measures, such as rewarding forest preservation, to further reduce deforestation.

Maintaining the momentum of reducing poverty and inequality

- Scale up early childhood education and early detection and tutoring classes to reduce drop–outs and grade repetition in secondary schools. Continue expanding in-service teacher training and strengthen performance incentives.
- Build more schools where needed to ensure full-day schooling nationwide.
- Increase resources for *Bolsa Familia* and other programmes within the *Brasil sem Miseria* framework. Raise the level of benefits paid by *Bolsa Familia*.
- Strengthen the progressivity of labour taxation by reviewing the rate schedule, exemption thresholds and the cap on social security contributions.

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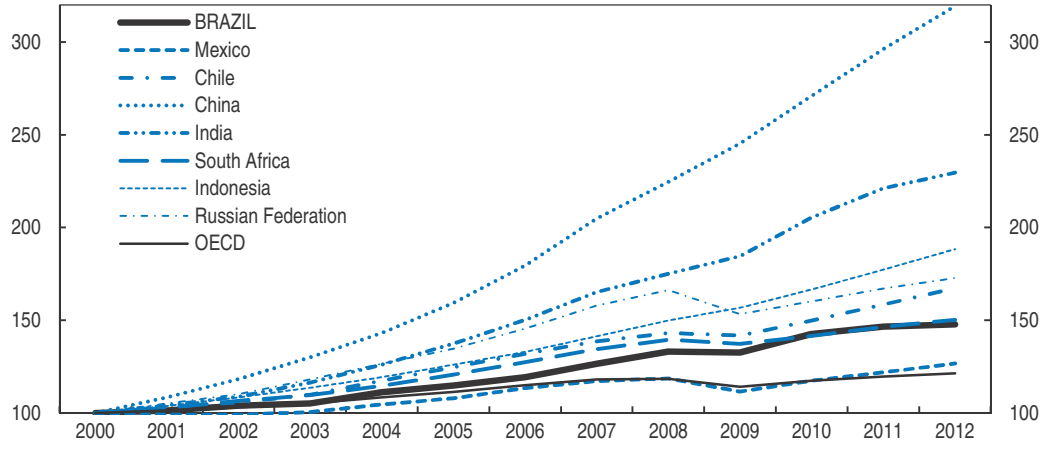
Assessment and recommendations

Towards more inclusive and sustainable growth

Brazil has moved up the ranks of the world's largest economies. Growth has been stronger than in the OECD, but has fallen short of other BRIICS except for South Africa (Figure 1). Perhaps even more importantly, Brazil has achieved a significantly more inclusive growth than in the past. Labour market informality has receded, unemployment is at a record low of 5.3% (August 2013), and poverty and inequality have fallen substantially.

Figure 1. **Brazil's growth in international comparison**

Real GDP at purchasing power parity, 2000=100



Source: OECD Economic Outlook Database.

StatLink http://dx.doi.org/10.1787/888932929815

A key issue for Brazil now is to build on these achievements. For fiscal and monetary policies, this includes solidifying the strong reputation that has been built up over the years. Another important challenge is to raise productivity growth and international cost competitiveness while making further progress in reducing poverty and inequality. Infrastructure development and reforms to labour markets, financial intermediation, taxes, trade and industrial policies will be crucial in this context. Sustaining future growth will also require responsible use of environmental resources, particularly as regards renewables where Brazil has been a leader, and reducing the pace of deforestation – on which progress has been made.

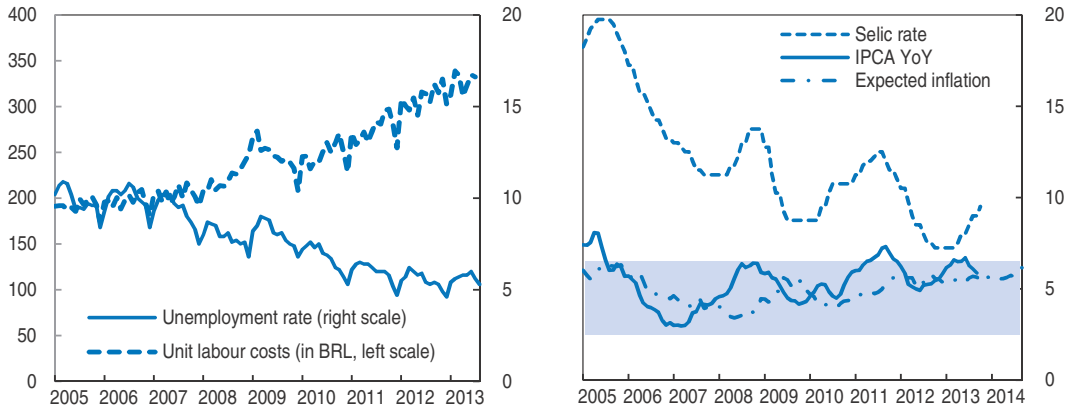
An expansion is underway but supply constraints are beginning to bite

A tight labour market, infrastructure bottlenecks and three consecutive quarters of negative investment growth have likely decreased the potential output growth of the economy, according to OECD calculations. During 2012, real GDP grew at only 0.9%, the lowest growth rate since the recession year of 2009, despite consumption being buoyed by stimulus policies. Growth has picked up markedly as of the last quarter of 2012, and an investment-led expansion is now underway. Real GDP is projected to grow by 2.2% in 2014 (OECD estimates, Table 1). Domestic demand, spurred by rising investment and strong consumption, will be the main pillar of the expansion. Private consumption is supported by a continuously tight labour market and rising wages. The current level of unemployment of 5.3% is close to OECD estimates of full employment, and nominal wages rose by 9.4% in 2012 (Figure 2, left Panel).

Table 1. **Brazil: Macroeconomic indicators**

	2010	2011	2012	2013	2014
Real GDP growth	7.5	2.7	0.9	2.5	2.2
Inflation (CPI)	5	6.6	5.4	5.9	5.0
Fiscal balance (per cent of GDP)	-2.5	-2.6	-2.5	-2.6	-2.7
Primary balance (per cent of GDP)	2.7	3.1	2.4	1.8	1.5
Current account balance (per cent of GDP)	-2.2	-2.1	-2.4	-3.6	-3.3

Figure 2. **Inflation, inflation expectations, unit labour costs and the unemployment rate**



Note: Shaded area depicts the 2 percentage point tolerance band around the inflation target of 4.5%. IPCA is the consumer price index used for inflation targeting. Unit labour costs refer to the industrial sector.
Source: Central bank of Brazil, IBGE.

StatLink http://dx.doi.org/10.1787/888932923887

The tight labour market, in combination with rising activity levels and continuing stimulus from tax exemptions and rapidly expanding credit from public-sector banks, as well as the existence of formal and informal indexation mechanisms has maintained inflationary pressures. Monthly inflation rose above the target midpoint of 4.5% (annual rates) in July 2012, and has since remained in the upper part of the 2% tolerance band around the 4.5% inflation target. In March 2013, year-on-year inflation rose above 6.5%, the ceiling of the tolerance band, which has to be met in December of each year. A number of factors have had transitory effects on inflation, including food price hikes on international

and domestic markets and exchange rate movements. However, looking through ups and downs, inflation, inflation expectations and unit labour cost growth have been drifting up for some years (Figure 2, right Panel). Core inflation – at 5.9% in September relative to the same month of the previous year – has closely followed overall consumer price inflation (see Table 2). Moreover, inflationary pressures have affected a large number of items in the consumer price index.

Table 2. **Basic economic indicators**

In per cent

	2000	2008	2009	2010	2011	2012
Supply and demand						
GDP (in current BRL billion)	1 179.5	3 032.2	3 239.4	3 770.1	4 143.0	4 402.5
GDP (in current USD billion)	644.6	1 653.2	1 622.0	2 142.4	2 474.1	2 252.8
GDP per capita (in current USD, PPP)	7 016.6	10 405.2	10 414.9	11 180.3	11 639.7	12 055
GDP growth rate (real, in per cent)	4.3	5.2	-0.3	7.5	2.7	0.9
Supply						
Agriculture	2.7	6.3	-3.1	6.3	3.9	-2.3
Industry	4.8	4.1	-5.6	10.4	1.6	-0.8
Services	3.6	4.9	2.1	5.5	2.7	1.7
Demand						
Private consumption	4.0	5.7	4.4	6.9	4.1	3.1
Public consumption	-0.2	3.2	3.1	4.2	1.9	3.2
Gross fixed investment	5.0	13.6	-6.7	21.3	4.7	-4.0
Exports	12.9	0.5	-9.1	11.5	4.5	0.5
Imports	10.8	15.4	-7.6	35.8	9.7	0.2
Public finances (in per cent of GDP)						
General government						
Revenue	32.5	36.7	35.6	36.8	36.1	38.9
Expenditures	29.3	38.6	38.8	39.6	39.0	41.6
Gross debt[1]	…	57.4	60.9	53.4	54.2	58.7
Consolidated public sector						
Primary balance	3.2	3.4	2.0	2.7	3.1	2.4
Nominal balance	-3.4	-2.0	-3.3	-2.5	-2.6	-2.5
Net debt	45.5	38.5	42.1	39.1	36.4	35.2
Balance of payments (in USD billion)						
Current account balance	-24.2	-28.2	-24.3	-47.3	-52.5	-54.2
In per cent of GDP	-3.8	-1.7	-1.5	-2.2	-2.1	-2.4
Trade balance	-0.7	24.8	25.3	20.1	29.8	19.4
Exports	55.1	197.9	153.0	201.9	256.0	242.6
Imports	-55.8	-173.1	-127.7	-181.8	-226.2	-223.2
International reserves (gross)	33.0	193.8	238.5	288.6	352.0	373.1
FDI (net inflows)	32.8	45.1	25.9	48.5	66.7	65.3
Outstanding external debt	236.2	198.3	198.2	256.8	298.2	312.9
In per cent of GDP	36.6	12.0	12.2	12.0	12.1	14.9
Exchange rate and prices						
Exchange rate (BRL per USD, period average)	1.8	1.8	2.0	1.8	1.7	2.0
CPI inflation (IPCA, in per cent, end-of-period)	6.0	5.9	4.3	5.9	6.5	5.8
Core inflation (in per cent, end-of-period)	3.9	6.1	5.0	6.1	7.0	5.6
GDP deflator (in per cent)	6.2	8.3	7.2	8.2	7.0	5.3
Labour market						
Unemployment rate (in per cent)[2]	…	7.9	8.1	6.7	6.0	5.5

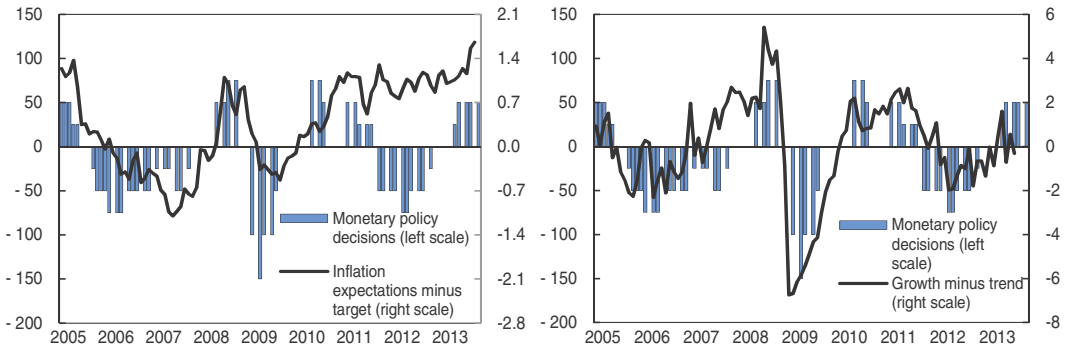
1. In this table, gross debt does not include treasury bills on the central bank balance sheet not used under repurchase agreements, amounting to about 9% of GDP at the end of 2012.
2. Monthly Employment Survey (PME/IBGE), new methodology.

Source: IBGE, Central Bank of Brazil, National Treasury, IMF.

Responding to inflationary pressures

Monetary policy makers anticipated deflationary pressures from weakening growth and a weaker international environment. Beginning in August 2011, they reduced the policy rate, the Selic, by 525 basis points to a record-low of 7.25%. Since then, growth has decoupled from both inflation and inflation expectations, probably reflecting the predominance of transitory factors (such as food prices mentioned above) on inflation. Accordingly, interest rate decisions seem to have become less tightly linked to inflation expectations, but have followed the economic cycle quite closely (Figure 3).

Figure 3. **Monetary policy decisions, inflation expectations and output**



Source: Central Bank of Brazil.

How to read this figure: The columns represent changes in the monetary policy target rate Selic in basis points as decided by the monetary policy committee COPOM. The line for inflation expectations describes deviations of expected inflation for the 12 months ahead from the 4.5% inflation target. The line for growth minus trend shows deviations of the forward-looking Central Bank activity index IBC-BR from a Hodrick-Prescott-filtered trend.

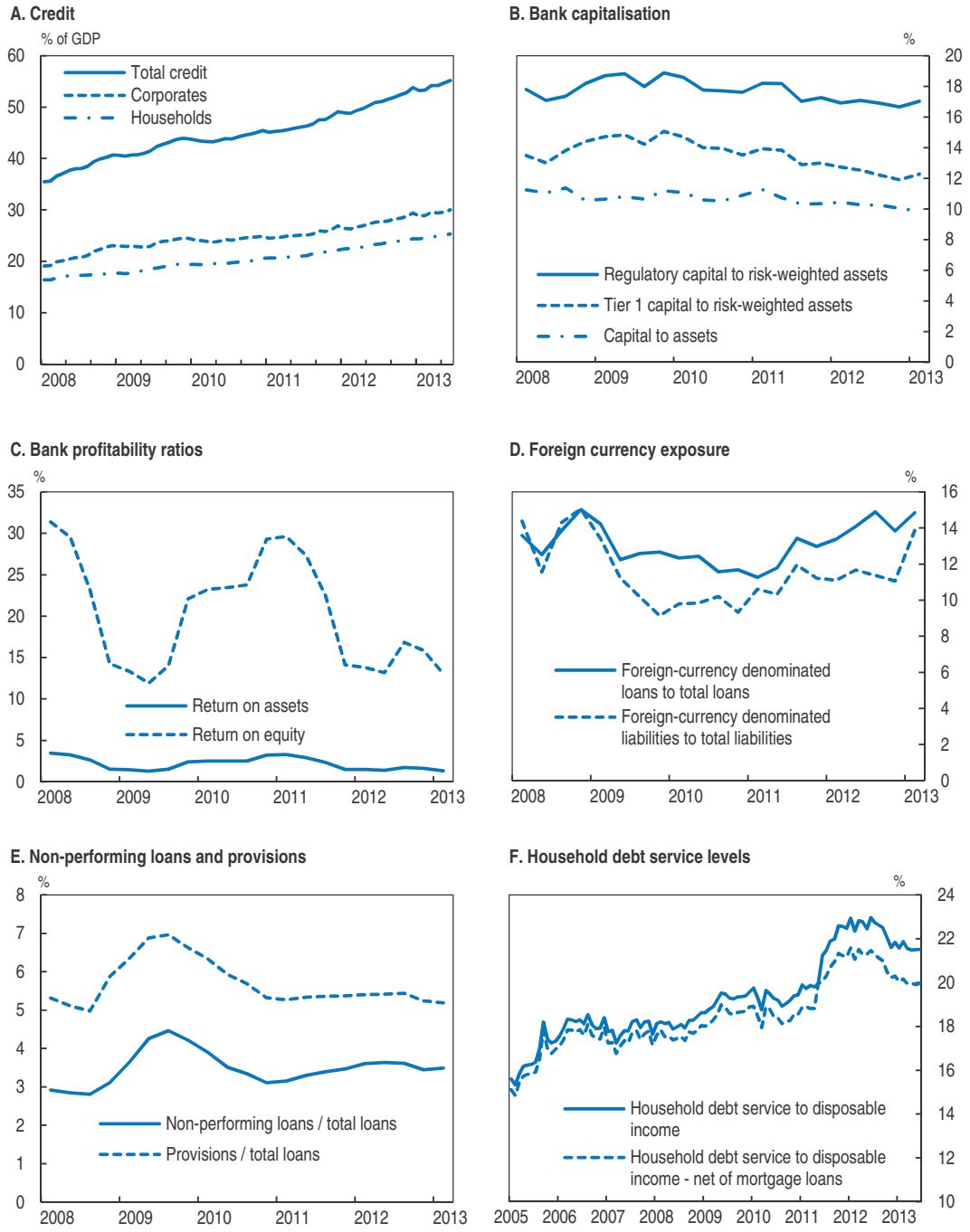
StatLink http://dx.doi.org/10.1787/888932923906

In April 2013, the Central Bank began a new tightening cycle, hiking the Selic rate initially by 25 basis points, followed by four more 50-basis-point hikes in May, June and August and October. These are steps in the right direction. Under the assumption that the economic upturn continues, the Selic rate should be raised further as needed to ensure that inflation returns to the target midpoint of 4.5%.

The banking sector has expanded significantly over the years. In relation to GDP, credit has roughly doubled over the last 8 years, although at 54% of GDP it is low in international comparison. Twenty-eight per cent of outstanding credit consisted of consumer loans, including car loans. Shares of non-performing loans have remained broadly stable and below loan loss provisions, despite a rising debt burden on households (Figure 4). The financial system's exposure to external shocks has been reduced due to the accumulation of foreign exchange reserves and severe restrictions on banks' foreign liabilities. All in all, banking indicators of capitalisation, profitability, foreign currency exposure and loan loss provisions are in line with international requirements (Figure 4). The 2012 Financial Sector Assessment Programme (FSAP) report of the IMF and World Bank finds financial sector oversight strong (IMF, 2012).

Household indebtedness has been rising and currently amounts to 44% of annual income, including mortage loans. Debt-service to income ratios of 21% exceed levels in the United States and many Latin American countries. A number of reasons can explain the

Figure 4. **Banking and credit developments**



Source: Central Bank of Brazil, IMF.

StatLink http://dx.doi.org/10.1787/888932923925

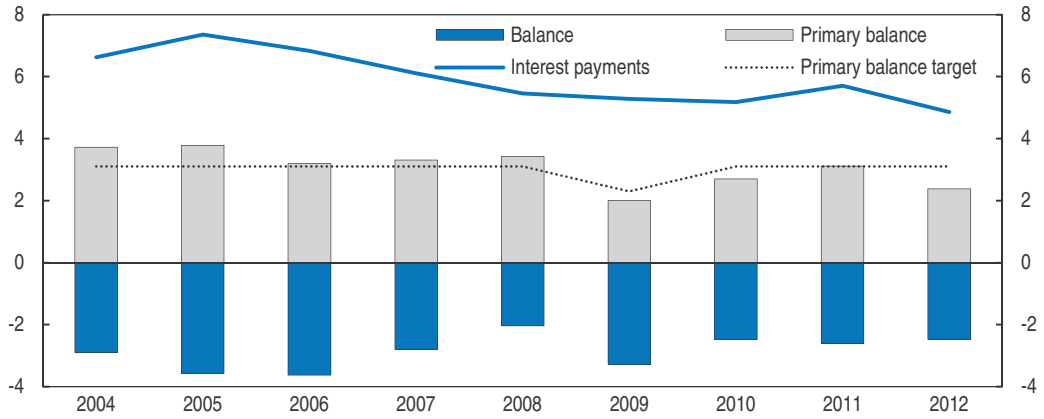
high debt service, including the high level of interest rates, short maturities, and stringent rules on paying back credit-card debt. House price indices for major metropolitan regions indicate annual increases of around 12%.

The risks for the financial system and for fiscal accounts associated with strong credit expansion should be monitored carefully, as episodes of financial sector distress have

often been preceded by fast credit expansions (Dell'Ariccia et al., 2012). During 2012, two large publicly-owned commercial banks, *Caixa Econômica Federal* and *Banco do Brasil*, started an aggressive expansionary strategy and gained market share by cutting lending rates. For example, the credit volume of the former expanded by 37% in a year. The credit rating agency Moody's downgraded *Caixa Econômica Federal* in March 2013 on the grounds of a weakening of its capital structure as the "bank had been used by government policy makers to fuel economic activity". Capitalisation and default rates of these two banks compare well to the other banks so far, but the authorities should monitor these developments carefully.

Fiscal policy has provided strong stimulus in the wake of unexpectedly weak activity during 2012, resulting in a decline of the primary surplus to 2.4% of GDP (Figure 5). In light of inflationary pressures, it will be important to reduce this stimulus as the economy gains momentum. However, tax exemptions for 2013 and 2014 contribute to a further reduction of the primary fiscal surplus. Moreover, the use of substantial quasi-fiscal operations suggests that the actual fiscal stance may be more expansionary than suggested by the primary surplus alone.

Figure 5. **Primary balance and overall balance**



Source: National Treasury.

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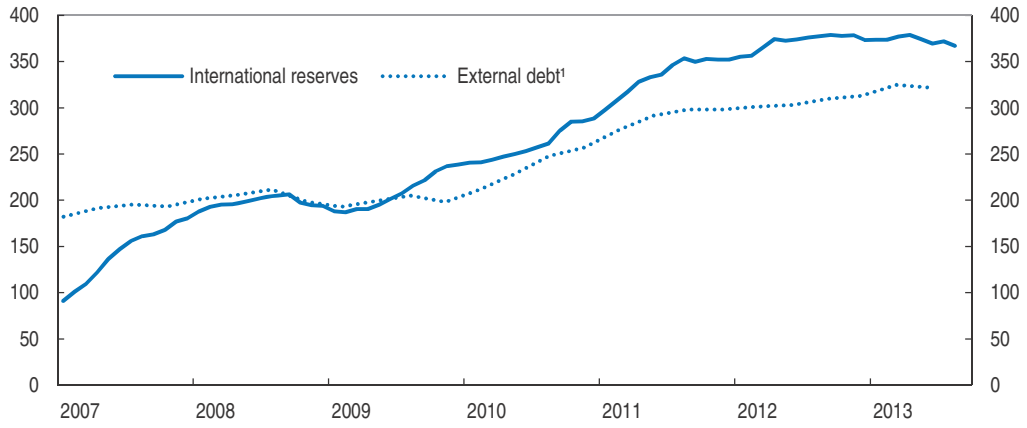
Risks to the outlook

There are important risks on both sides of the outlook. On the upside, growth could be higher if there was more progress on structural reform. An agreement on a broad-ranging reform of the indirect tax system, for example, could boost growth, as could lower levels of trade protection. A continuously lower value of the *real* – which has depreciated markedly in recent months – could improve industrial competitiveness and strengthen growth in tradable sectors. On the downside, the most immediate risk comes from inflationary pressures. The authorities should also monitor house prices and consumer credit. High debt-service-to-income ratios in international comparison may imply that there are risks related to the capacity of households to service their debt. In the context of rising social demands, it will be important to take the right long-term decisions on fiscal priorities, particularly for achieving objectives such as improving public services. If social demands help accelerate progress on structural reform, however, as may be the case in the area of urban infrastructure, this could prove an upside risk.

On the external side, the main risk relates to a possible deterioration of global economic conditions, in particular with respect to China, which has become an increasingly important destination for Brazilian exports. Brazil would be affected by renewed turbulence in global capital markets, but has instruments to alleviate this risk. Market expectations of a progressive reduction of the size of quantitative easing in the United States have reduced capital flows to emerging economies. Net capital outflows have not occurred so far, but if they did, this could temporarily increase inflation if the currency depreciates, as it has been doing since April 2013. In response, the Central Bank has successfully provided dollar liquidity and strengthened investor confidence through daily scheduled dollar auctions. Through 31 December, the Central Bank has announced to hold swap auctions of up to USD 500 million daily Mondays through Thursdays and a dollar repurchase auction of up to USD 1 billion on Fridays. These auctions provide investors with insurance against further devaluation. In any event, any possible effect on Brazil would be cushioned by its foreign exchange reserves, which are currently at 17% of GDP and exceed Brazil's external debt (Figure 6).

Figure 6. **International reserves and external debt**

USD billion



1. External debt does not include intercompany loans.
Source: Central Bank of Brazil.

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Brazil has experienced large surges in capital inflows since 2009, most of which have taken the form of foreign direct investment, although portfolio investment has accounted for most of the flows volatility in the flows. While they have contributed to currency strengthening in the past, these inflows have not led to a build-up in external vulnerabilities. In the case of a resurgence of strong capital inflows due to a renewed search for yield among investors, Brazil could revive the macro-prudential measures to manage capital flows that it had successfully applied in the context of an open and shared framework with other partners.

Sustaining inclusive growth

Much has been achieved since the stabilisation of the economy in the 1990s that laid the foundation for strong and inclusive growth. Macroeconomic policy has successfully built up credibility, but it is important to build on these achievements. Ensuring continued

confidence in the effectiveness of the macroeconomic policy framework and long-term fiscal sustainability is key. Future growth will also require more investment into physical and human capital now, and a responsible use of environmental assets for generations to come. Finally, continuing the fight against poverty and inequality will improve the opportunities for all Brazilians and allow the country to make the most out of its human potential.

Consolidating confidence in the effectiveness of the macroeconomic policy framework

The policies that have allowed a successful macroeconomic stabilisation have been based on three pillars: stable inflation, declining public debt and a flexible exchange rate. More specifically, monetary policy targets consumer price inflation of 4.5% at the end of each year with a tolerance band of 2 percentage points on each side of that. Fiscal policy is guided by a fiscal responsibility law and primary surplus targets.

Strengthening the inflation-targeting framework

The inflation targeting framework has worked well and should be maintained. The inflation target is set by the members of the National Monetary Council, which consists of the Minister of Finance as president, the Minister of Planning and the Governor of the Central Bank. The Central Bank alone is responsible for implementing the mandate. This arrangement is in line with current practice in other countries. The definition of the target is widely considered a political decision but independent Central Bank implementation is considered central to successful inflation targeting (Roger and Stone, 2005; Tuladhar, 2005; IMF, 2005; Henan et al., 2006).

The authorities should strengthen the perceived independence of the Central Bank. One way to do this would be to set a fixed term for appointments of the Central Bank governor and the remaining members of the monetary policy committee, during which they cannot be dismissed. Most inflation-targeting frameworks have such a fixed term (Hammond, 2012). Best practice elsewhere also implies that communication regarding monetary policy, as distinct from the target itself, should be the exclusive domain of the Central Bank. Statements about the future trajectory of interest rates from other officials risk confusing market participants and leaving the impression that Central Bank independence might be eroded. Both could result in inflationary expectations becoming unanchored from the inflation target.

A specific feature of credit markets in Brazil is the sizeable amount of directed credit, at interest rates which are not directly linked to market interest rates. This weakens the credit transmission channel of monetary policy. More weakening of the credit channel could result from the lending strategy of the two large publicly-owned commercial banks, *Banco do Brasil* and *Caixa Econômica Federal* if their behaviour is not in line with the incentives set by the monetary policy stance. As monetary policy has now begun to tighten, continuing such a strategy would be inconsistent with monetary policy decisions.

The primary fiscal surplus target could be made more flexible

The fiscal framework involves a gradual decline in the debt-GDP ratio through the generation of primary surpluses, for which a nominal target is currently set at 3.1% of GDP. This framework has delivered good results. However, the fiscal stimulus during 2012 could not be reconciled with the nominal primary surplus target without implementing unusual accounting measures, quasi-fiscal operations involving public banks, and exempting

certain expenditure items from the primary surplus. These measures, while legal, had not been used to the same extent in earlier years and led to a situation where an analysis of the actual fiscal policy stance became difficult. Several private economists have therefore started to publish their own calculations of the primary surplus. Fiscal clarity should be reinforced by avoiding quasi-fiscal operations, changes in the definitions and special exemptions.

However, the 2012 episode illustrated a need for flexibility to conduct countercyclical fiscal policy. This flexibility could be obtained by redefining the fiscal rule in a way that takes cyclical factors into account. There are a number of ways how this could be achieved. One relatively easy way forward could be to replace the current fiscal target by an expenditure rule. Under such a rule, public spending is only allowed to expand along a predetermined path, defined by medium-term expenditure ceilings. Since automatic stabilisers operate predominantly through the revenue side of public accounts, an expenditure rule allows them to operate almost fully. An expenditure rule is an attractive choice because it is easier to explain to a wider audience than a cyclically-adjusted balance rule, and easier to monitor. Expenditure rules are also a useful tool to support fiscal consolidation and they are consistent with the conclusion in the literature that fiscal adjustment is best done on the spending side. Finally, expenditure rules are a useful tool to build a multi-year budgeting framework. The experience of the Netherlands with such a rule has been positive.

Ensuring that the fiscal framework is implemented and that existing discretion is not abused requires clarity about all fiscal and quasi-fiscal operations. Brazil already has a number of institutions with a fiscal monitoring role. These should be consolidated into one institution charged with *ex-ante* monitoring of compliance with the fiscal rule and transparency requirements. To this end, many countries – and most recently all European Union countries – have established independent fiscal councils in some form.

Additional long-term challenges for fiscal policy

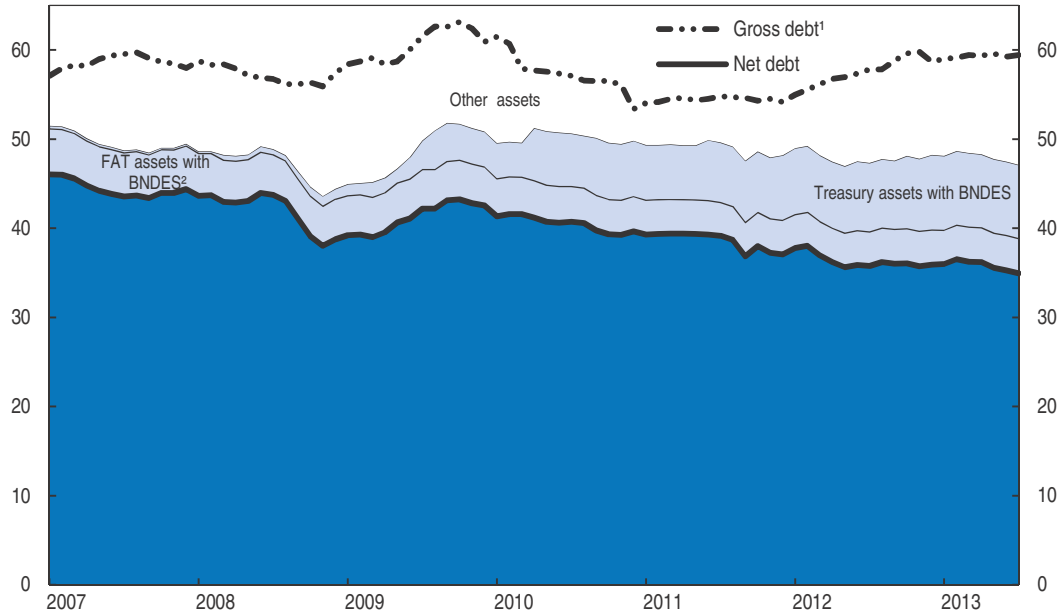
The clarity of public accounts could be strengthened by reconsidering the measure on which the government's debt-reduction efforts are focused. A strong surge in fiscal transfers to the national development bank *Banco Nacional de Desenvolvimento Econômico e Social* (BNDES) as of 2009 has led to a build-up of treasury assets with that institution, which contributed to an apparently widening gap between net and gross debt (Figure 7). However, treasury assets in BNDES are less liquid than public debt. Consequently, the authorities may want to shift their debt-reduction efforts towards gross debt, or adopt a net debt measure that subtracts only the most liquid assets, such as foreign exchange reserves.

Fiscal procedures could also be improved by unwinding the large build-up of committed funds ("*Restos a pagar*") that had been earmarked for projects in past years but were not disbursed. Such carry-over spending items, many of which are related to investment expenditure, have increased tenfold over the last decade and at the beginning of 2013 amounted to 20% of the projected primary spending for 2013, or 4% of GDP. These funds complicate expenditure management and could be avoided by implementing a multi-annual budgeting process.

In the area of social transfers, pension expenditures will have to be contained as the old-age dependency ratio will rise from around 10% in 2010 to around 40% in 2060 (Figure 8). This will increase expenditures on the pension system massively, and

Figure 7. **General government gross debt, net debt and assets with BNDES**

In per cent of GDP



1. In this figure, general government gross debt does not include treasury bills on the Central Bank balance sheet not used under repurchase agreements.
2. FAT is the workers' fund *Fundo de Amparo ao Trabalhador* which has been the traditional source of funding for BNDES.

Source: National Treasury.

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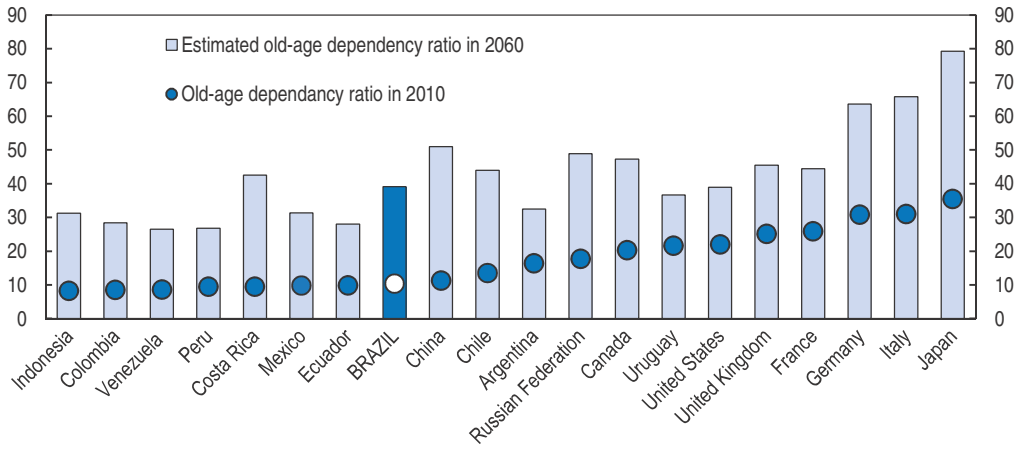
Figure 8. **Old-age dependency ratios**

In per cent



Source: United Nations (2011).

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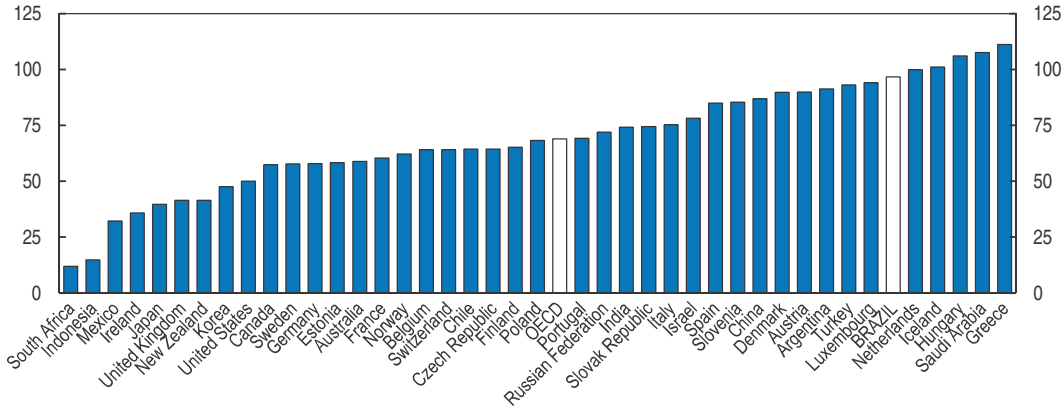
addressing the problem sooner rather than later is likely to make any adjustment easier. Brazil's pension system is comparatively generous in relation to working-life incomes. Its benefits replace 97% of the net income for a full-career average earner upon retirement, compared to an OECD average of 69% (Figure 9). However, the absolute level of benefits remains low compared to OECD countries.

Figure 9. **Net replacement rates of pension benefits for average earners**

In per cent



Source: OECD (2011).

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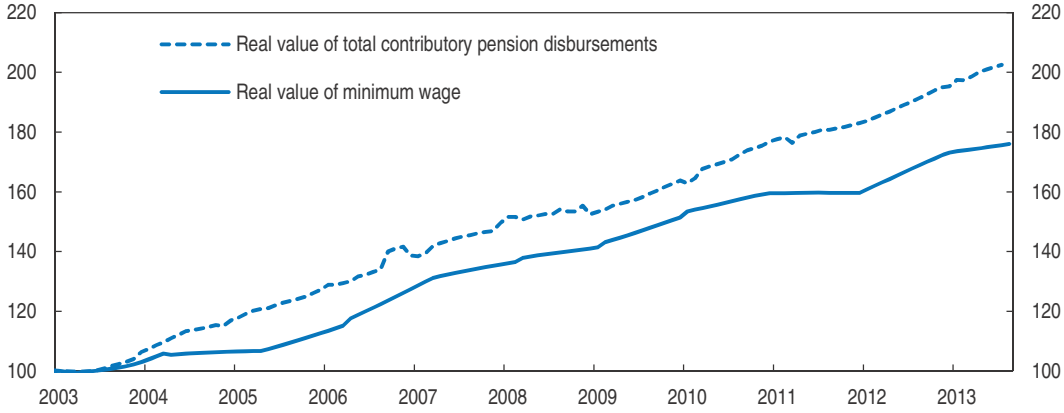
The principal reason behind the high net replacement rates is the rapid increase of individual pension benefits over the last decade. This increase has been the result of an automatic link between the minimum pension payment – which almost 2 out of every 3 pensioners in the private-sector regime receive – and the minimum wage, whose real value has almost doubled over the last decade (Figure 10). In order to contain pension expenditures in the future, this automatic link should be severed. Above the inflation adjustment which would preserve the purchasing power of pension benefits, the political question is how much of the productivity gains achieved by the current working generation should be passed on to pensioners, or in other words, at which point between inflation-adjustment and average wage increases the pension indexing factor should be placed. One possibility would be to pick the middle of that range, such as the choice made by Switzerland.

Figure 10. **Minimum wage and pension disbursements**

In BRL deflated by IPCA consumer price index, 12 months moving average, Jan 2003 = 100



Source: OECD calculations based on Central Bank data.

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In addition to slower benefit increases, raising effective retirement ages through the introduction of a general minimum retirement age and stronger incentives to retire later

would bring Brazil's pension system more into line with current practice in OECD countries and other emerging economies, as discussed in the 2011 *OECD Economic Survey of Brazil*. The successfully implemented reform of the pension system for civil servants is a step in the right direction and will reduce the long-term fiscal burden of public sector pensions. There is also scope to reduce pension expenses by subjecting survivor pensions to means testing and requiring a minimum number of years of marriage for eligibility, as there has been evidence of abuse in this area (Gragnolati et al., 2011, Mesquita and Neto, 2010).

Box 1. **Summary of policy recommendations for macroeconomic policies**

- Further tighten monetary policy as needed to bring back inflation to the 4.5% inflation target, which would also help to bolster policy credibility.
- Solidify the credibility of monetary policy by establishing fixed-term appointments for its governor and the members of the Monetary Policy Committee, and by keeping communication on monetary policy to the Central Bank.
- Redesign the fiscal rule to take account of the business cycle, for example by adopting an expenditure rule. Consolidate fiscal oversight to monitor compliance with the fiscal rule *ex-ante*. Increase the clarity of fiscal accounts by limiting quasi-fiscal operations.
- Reduce the fiscal burden of the pension system by severing the automatic link between pension benefits and the minimum wage and by raising effective retirement ages.

Boosting productivity growth and the competitiveness of firms

The recent slowdown has brought some structural weaknesses of the economy's supply side, which had been less visible during the commodity boom, to the fore. Symptoms of these weaknesses include a weak manufacturing sector and low investment and savings relative to GDP (Figure 11 and the special chapter on savings and investment in the 2011 *OECD Economic Survey of Brazil*). A continuation of the rebalancing of demand from consumption to investment that has taken place over the last 3 quarters would raise potential output growth, raise the resilience of the economy and may well have beneficial effects for productivity. At the same time, improving productivity and investment requires addressing infrastructure deficiencies, high labour costs and low skill levels, a high tax burden and an onerous tax system, excessive administrative burdens, shallow credit markets and barriers to international trade.

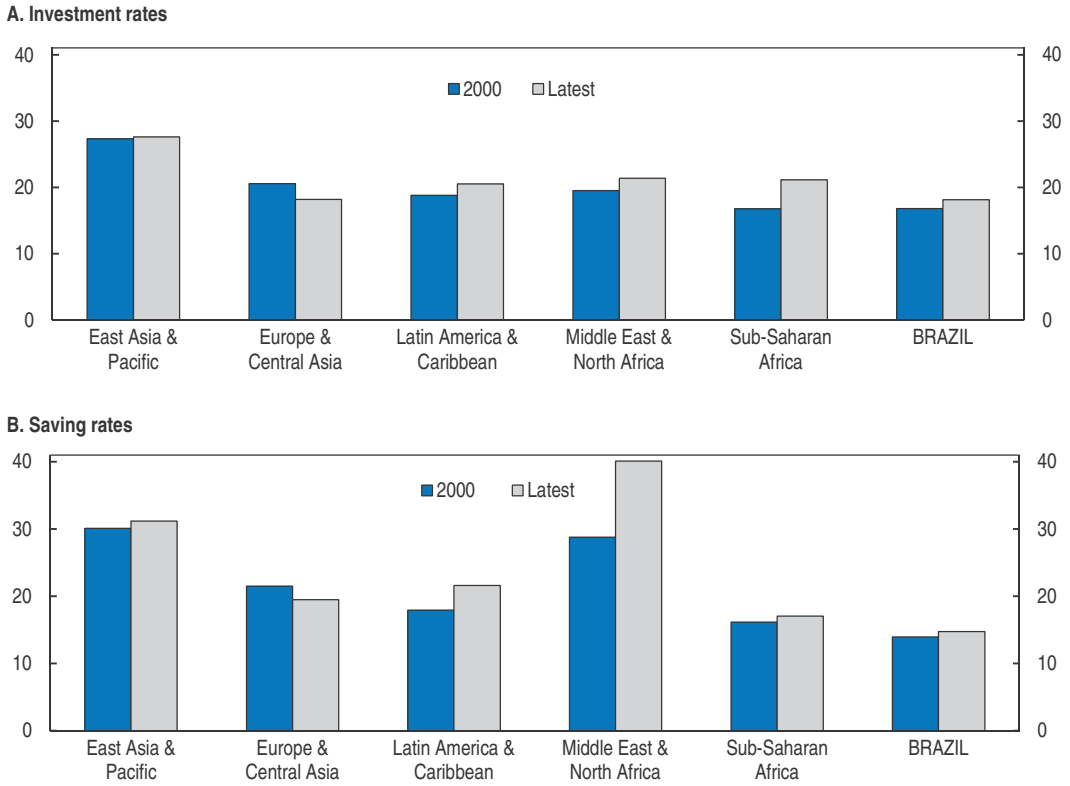
Addressing infrastructure bottlenecks

Infrastructure bottlenecks are visible in many areas, including roads, railways, ports and airports (see special chapter on infrastructure in the 2011 *OECD Economic Survey of Brazil*). Major airports are struggling to cope with rising passenger numbers, and following a successful soy harvest in early 2013, 25 km of lorries queuing to get to the Santos port vividly illustrated Brazil's lack of port capacity. In 2006, the last year with official data, total infrastructure investment in Brazil was 2% of GDP, against 6% in China and Chile, and 4% in India, although more recent figures from the Growth Acceleration Pact suggest that infrastructure investment has since increased.

The second phase of the 2007 Growth Acceleration Pact (PAC2) is a welcome strategy to address these bottlenecks. Planned investments for 2011-14 amount to around BRL 989 billion, of which slightly more than half have been spent by April 2013. Part of the PAC2

Figure 11. **Investment and saving rates in selected regions**

In per cent of GDP



Note: Latest year is 2012 for most economies/regions.
Source: World Bank (2013a) and IBGE (2013) for Brazil.

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programme is done through transfers to the local level, particularly in areas such as urban transport and sanitation. However, programme execution, particularly at the local level, can be slow, resulting in federal money remaining unspent. For example, plans for new metropolitan underground trains or extensions of existing lines have been delayed due to planning difficulties in Porto Alegre, Curitiba, Brasília and São Paulo. In some instances, a lack of precision of the tender calls has been the source of delay, or changes in municipal governments. Improving local administrative capacity may therefore warrant particular attention to get more infrastructure projects off the ground.

The authorities have recently made important simplifications in the procedures for public works which are likely to speed up the tender process. In addition to public works, the authorities have decided to engage private investors more, including through a massive expansion of concession contracts. While the number of kilometres under private concessions had barely risen since 2009, two pioneer concession tenders were held in September 2013, meant to be the first of an ambitious concession programme. However, only one received bids from the private sector.

In the ports sector, a new law passed in June 2013 is expected to enhance investment. Concession tenders should be renewed regularly to introduce more competition into the sector, and investment requirements should be clearly specified in the concession contracts. Contracting monopolies and special labour protection applying to temporary

port labour should be abolished to align labour regulation and labour costs with the rest of the economy. Administrative barriers in ports and airports should be eased further to reduce turnaround times. A recent move to keep public administration counters in ports open for 24 hours a day is a move in the right direction.

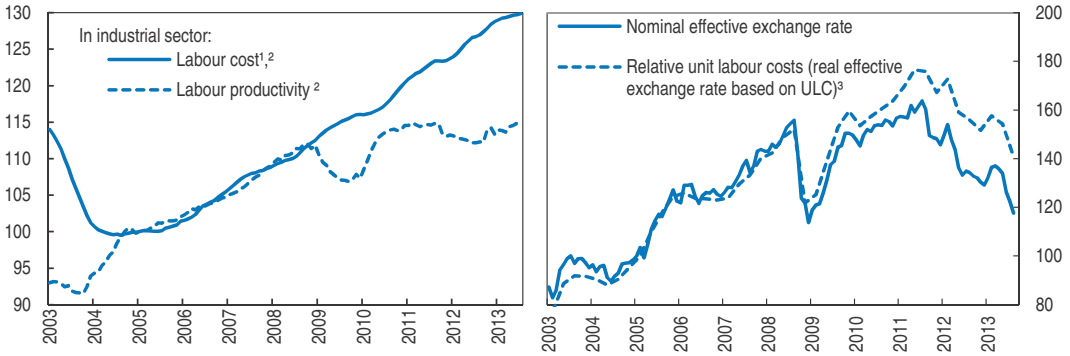
High electricity costs also constrain the productivity of Brazilian firms. Industrial electricity prices in Brazil are more than 50% higher than in an average of 27 countries examined by IEA (2012). In 2012, the government achieved a 20% average reduction in the cost of electric energy on the basis of tax reductions and offering current holders of electricity concessions the possibility of an early renewal. By accepting substantially lower prices, the current concession holders would be able to avoid a new tender process upon the expiry of their contracts. Rather than ad-hoc government decisions on the envisaged amount of rent reduction, which could be in conflict with the need for more investment, the authorities should continue to rely on competition embedded in the regular auction process. As long as investment objectives are spelled out clearly in the concession contracts, regular auctions will allow relying on the information of private operators regarding cost structures for determining prices that are compatible with those investment objectives while avoiding excessive rents.

Labour costs have outpaced labour productivity

Real labour costs in the industrial sector have been rising steadily in recent years, outpacing labour productivity by a sizeable margin as productivity growth slowed down partly due to cyclical factors (Figure 12, left Panel). This has gone along with a loss of external competitiveness, of which only part can be explained by nominal exchange rate developments (Figure 12, right Panel). These developments have become particularly acute in the industrial sector, which is more exposed to external competition than the services sector, and they coincided with a gradual structural shift from industry to services.

Figure 12. **Wages and productivity in the industrial sector and relative unit labour costs**

January 2005 = 100



1. Measured as average monthly real wages in the industrial sector.
2. Shown as 12-month moving averages.
3. Unit labour costs refer to the industrial sector.

Source: IBGE, CEIC, OECD.

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One factor that may be driving wage costs is the federal minimum wage. A simple vector autoregression analysis suggests a significant causal link going from the minimum wage to average monthly wages for employees. As a share of the median wage, it is 69%, higher than in any OECD or any of the BRIICS countries, with the exception of Turkey (OECD, 2013c). Annual increases in the federal minimum wage are currently determined automatically as the sum of inflation in the preceding year and average real GDP growth in the two preceding years. Individual states can set a state-level minimum wage above the federal level, and in contrast to the federal minimum wage, state-level minimum wages have no fiscal implications through linked social benefits. The federal indexation formula has resulted in the real value of the minimum wage almost doubling over the last decade (Figure 10). Allowing a progressive reduction of the minimum wage relative to the median wage would help improve international competitiveness. To that end, the current rule, which is set to expire in 2015, could be replaced by a rule that indexes annual minimum wage increases to the consumer price index for low-income households plus only part of productivity gains for some time. Such a rule would protect the purchasing power of minimum-wage earners, and imply reducing but not halting future real increases in the minimum wage.

Onerous labour regulations, many of which were set up decades ago, and uncertainties surrounding their interpretation by labour courts further add to the costs of the business sector. In some instances, detailed labour laws even restrict mutually beneficial agreements between unions and employers on issues such as the distribution of holidays over the year, often resulting in a discrepancy between common practice and the law. This poses legal risks for companies, as labour court decisions are a prerequisite any definite settlement of labour disputes, with no possibility for legally-binding out–of–court settlements. This legal uncertainty could be resolved by modernising labour regulations, and allowing more space for legally binding beneficial agreements at the firm level. As a first step, a tripartite dialogue should be encouraged and beneficial changes that are agreed by labour unions and employers should be implemented without delay.

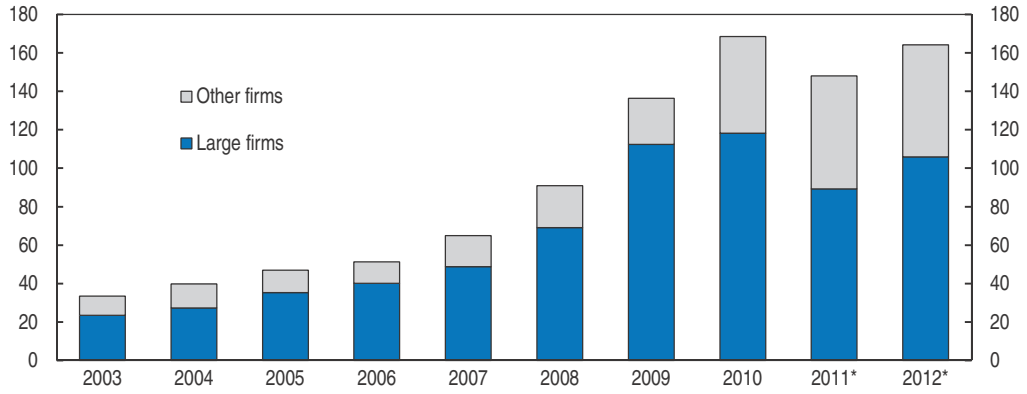
Long-term credit markets are underdeveloped

Despite improvements, Brazilian corporate borrowers continue to suffer from credit constraints, high lending rates and short average maturities. In particular, short-term bank loans are provided by many public and private institutions, but the long-term credit segment is almost exclusively served by the national development bank BNDES, which receives state-supported funding from public sources and provides credit at less than half the market short-term rate. BNDES was designed to remedy a market failure in the provision of long-term credit and is funded through a fixed share of contributions to the workers' fund FAT and through direct transfers from the treasury, which have become its dominant source of financing in recent years (Figure 7). But as the economy has developed, it is no longer clear if this market failure persists, especially for large firms. However, given the dominant role of BNDES, with its loan stock of over 6% of GDP and its access to funding at preferential rates, the playing field will need to be levelled before private lenders will be able to compete.

A large share of BNDES lending goes to large and very large companies, which may be the ones best-placed to get credit from other sources (Figure 13). Providing credit to credit–constrained firms should improve productivity. Empirical work using company-level data suggests that BNDES lending can raise productivity, but only for part of the recipient firms

Figure 13. **Annual disbursements by BNDES**

In billions of BRL



Note: The definition of large firms is turnover above BRL 60 million for 2003-2010, and turnover above BRL 90 million for 2011(*) and 2012(*). A consistent definition of the size categories for all years was not available.
Source: BNDES.

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(Coelho and De Negri, 2010, Lazzarini et al., 2011, Ottaviano and Souza, 2008, Pereira and Simões, 2010). This sheds doubt on whether credit allocation by BNDES reaches the firms that need it the most. The development of private long-term credit markets has much potential to relieve credit constraints and improve the allocation of credit.

The financial muscle of BNDES makes it uniquely placed to support the development of long-term capital markets, and BNDES has already started to play an important role as a market maker on secondary markets for long-term paper. Its credit portfolio could focus on the traditional development finance areas such as lending to small and medium-size enterprises, and for infrastructure finance and innovation, where pervasive market failures tend to hamper the performance of private credit markets (OECD, 2006, Wagenvoort et al., 2010). BNDES has already made steps in both these directions by providing loan guarantees to SMEs and increasing the share of its loan portfolio dedicated to SMEs from 18% in 2009 to 32% in 2012, and for infrastructure projects from 31% in 2010 to 45% in 2012. New infrastructure bonds are gradually rising with the help of BNDES, and for 2013 to 2016, BNDES intends to fund 44% of an estimated BRL 178 billion in infrastructure investment (BNDES estimates).

The transition towards private long-term credit markets will involve a series of steps. First, private lenders can be drawn into the segment by requiring private co-financing for BNDES loans, as practiced by the French development bank BPI, for example. In a second step, BNDES will need to make room for private entry by reducing its own lending volumes outside the areas of development finance mentioned above. The fact that large companies are those that would most likely get financing from private institutions in any case, suggests that this withdrawal might not be disruptive. Over time, the expansion of private-sector finance will allow the direct and indirect financial support to BNDES to be phased out in general. There may nevertheless be cases for specific state-supported lending, for example to meet social objectives that the market would not serve, and such financial support should be explicit and available to all lending institutions, not just BNDES.

Tax reform remains a priority

Brazil's tax burden of 37% of GDP resembles that of many developed economies, but is high compared to other emerging economies. Tax compliance costs are also exceptionally high in Brazil, and while there is not much scope to reduce the overall tax burden without cutting public expenditures, reducing compliance costs and shifting towards less distortive tax instruments can significantly alleviate the burden of taxation on productivity and competitiveness.

A fragmented system of 6 different indirect taxes is one of the key reasons behind the high compliance costs (see special chapter in the 2009 *OECD Economic Survey of Brazil*). The largest one is the state-level tax ICMS (*Imposto sobre Circulação de Mercadorias e Serviços*), for which each state applies a different tax code. As taxation is origin-based but applicable rates also depend on the destination, firms have to comply with 27 different tax codes. Many indirect taxes are applied in a cascading manner, resulting in very high effective rates. Recent government efforts to harmonise the ICMS system have made some progress, notably regarding the indirect taxation of imports, but moving towards a single unified VAT tax remains the number one priority in the area of taxation. Such a reform could reduce the burden from taxation without reducing revenues.

A new social security contribution on corporate revenues (equivalent to a turnover tax) has recently been established in exchange for an elimination of payroll-based contributions for select sectors. Rates are sector-specific, and not all sectors have been affected by the recent reform. At 34%, the statutory corporate tax rate is already significantly above the current OECD average of 25%. The additional contributions on turnover will further reduce returns on investment and should be reconsidered. They also make corporate taxation more distortionary, because taxing turnover rather than corporate income does not allow expenses to be deducted and thereby distorts the organisation of the value chain towards vertical integration. By contrast, global trends are moving towards more fragmented value chains, often organised across national borders, a process in which Brazil's participation has been scant so far.

Conversely, evidence from OECD countries suggests that labour taxes are associated with better growth performance than corporate taxes (Arnold et al., 2011). One of the authorities' objectives behind the elimination of payroll-based contributions was to provide tax relief to companies, but this may not materialise if the relief is captured by higher wages, which is conceivable in the current context of full employment. The authorities should consider reinstating the payroll-based contributions for all sectors or raising less distortionary taxes such as a well-designed consumption tax or property taxes.

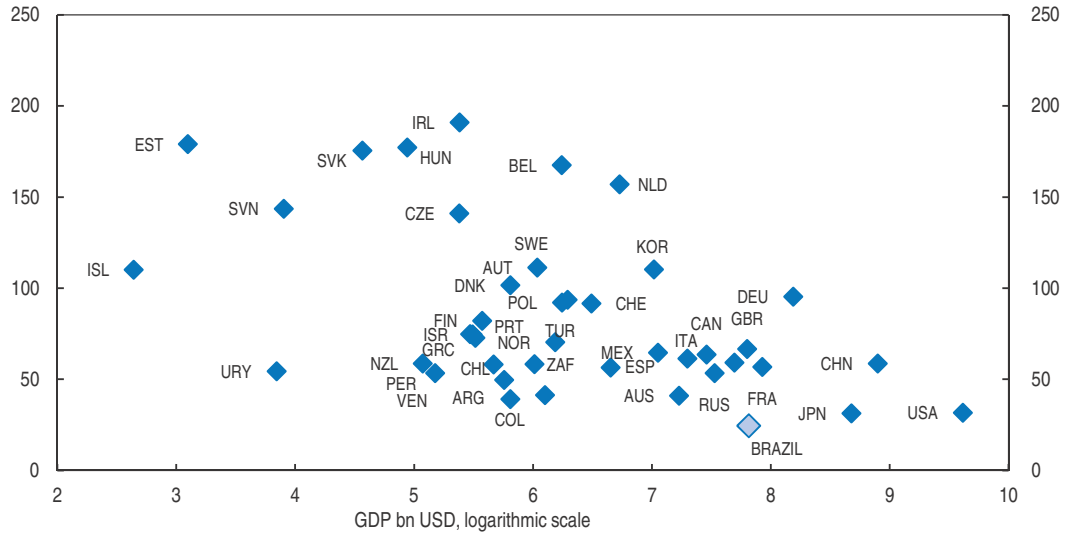
Although there is not one single method of measuring administrative burdens, the widely used World Bank Doing Business Indicators imply that they are high in Brazil (World Bank, 2012a). According to this source, starting a business requires 13 procedures and takes 119 days. Chile, Colombia and Mexico require fewer procedures that can be accomplished in less than 14 days. In these indicators, Brazil also compares poorly to other countries in construction permits, registering property, enforcing contracts and resolving insolvency. Administrative burdens could be eased by applying a silence-is-consent rule in most cases, except where there are major safety or environmental concerns. Portugal has recently had positive experiences with such a rule in certain areas. Under such a policy, applicants are only required to notify the authorities and an authorisation is assumed granted unless a negative reply is issued within a specified time frame.

Trade and industrial policies should focus on competition and productivity growth

The economy's exposure to international trade is fairly low. Imports and exports taken together are only about a quarter of GDP, which is significantly below that of countries of similar size (Figure 14), even though such a comparison does not account for differences in geographic remoteness and other factors across countries. Brazil is also less integrated into global value chains than many other countries, having a low share of imported intermediates (14%) and a low import content of exports (10%).

Figure 14. **Trade openness and economic size in international comparison**

Sum of exports and imports as a share of GDP vs. nominal GDP in USD, 2011



Source: World Bank (2013a).

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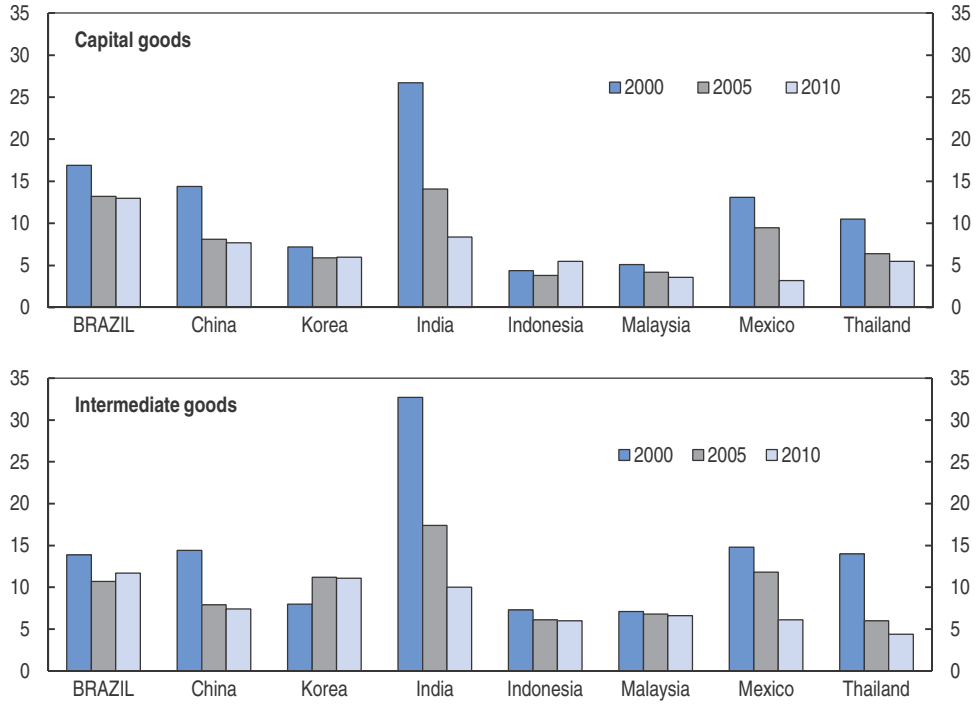
Despite progress in trade liberalisation, Brazilian producers are shielded more from foreign competition than in other countries (Figure 15). Higher tariff protection reduces competitive pressures that would spur firms to reach global best practice, and it hurts downstream sectors that use these products as intermediate inputs or capital goods. By contrast, other Latin American countries like Chile, Colombia, Mexico and Peru have actively promoted integration with large markets such as Japan, China and the United States through bilateral agreements. However, Brazil has free-trade agreements with almost all South American countries. A tariff exemption scheme for capital goods is in place, but it is applicable only if no equivalent domestic product exists, and Brazil has a sizeable capital goods industry. Tariffs have recently been increased for a set of 100 selected products and a consumption tax was raised that affected imported automobiles. These increases in protection should be unwound as recently announced for the 100 products, and the general level of protection should be reduced.

In addition to protection measures at the border, Brazil also has local content restrictions in publicly financed projects. For urban transport projects under the Growth Acceleration Programme (PAC2), 80% of a list of select manufactured goods and engineering services have to be domestically sourced with some exceptions, and this may increase the cost of urban transport investments. For other public procurement, domestic sourcing is required in some sectors following a cost-benefit analysis even if the cost is

Figure 15. **Tariff protection levels**

In per cent



Source: Baumann and Kume (2013).

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higher, and the cost difference up to which domestic sourcing is required by law can reach as much as 25% in those cases where the potential for technological development is deemed high. There are also local-content restrictions in telecommunications equipment, and BNDES attaches local content conditions to loans for capital goods. Exemptions from indirect taxes are another tool used to confer competitive advantages to local production, such as in the case of smart phones or tablet computers, where the policy objective is to develop a local industry against strong international competition. Horizontal policies aimed at improving the cost competitiveness of local producers should be given preference over trade protection measures, even temporary ones, which blunt competitiveness.

Box 2. **Main policy recommendations for enhancing productivity and cost competitiveness**

Infrastructure

- Move forward on new infrastructure projects and concessions as planned.
- Improve the capacities and incentives for subnational governments to execute infrastructure projects without unnecessary delays.
- Implement the planned modernisation of the port sector, including through regular concession tenders without automatic renewal. End the current monopoly contracts for temporary port labour.

Box 2. **Main policy recommendations for enhancing productivity and cost competitiveness** *(cont.)*

Labour markets

- To protect the purchasing power of the minimum wage while allowing a progressive reduction relative to the median wage, index annual minimum wage increases to the consumer price index for low-income households plus only part of productivity gains for some time, in replacement of the current rule.
- Modernise labour regulations and allow legally binding agreements between employers and employees at the firm level.

Taxes

- Continue efforts to consolidate indirect taxes into a single value added tax.
- Reduce the use of turnover taxes and contributions and offset the loss of revenue either by reinstating the payroll-based contributions or raising other less distortive taxes, such as a well-designed consumption tax or property taxes.

Administrative burdens

- Reduce administrative burdens affecting businesses, particularly in the areas of starting a business and enforcing contracts. Adopt a silence-is-consent authorisation policy wherever possible.

Financial markets

- Keep monitoring development in consumer credit and the housing sector closely.
- Gradually phase out financial support to BNDES and focus BNDES lending on the financing of infrastructure, small and medium size enterprises and innovation. In the transition, continue efforts to facilitate the development of private long-term capital markets, including by requiring private co-financing of BNDES loans.

Tariffs and industrial policies

- Reduce tariff protection and enhance the predictability of trade policies by avoiding short-term adjustments of tariff rates.
- Phase out local content requirements in publicly financed projects, including infrastructure projects and BNDES-financed investment. Eliminate targeted support to specific sectors and rely on horizontal measures to support industrial performance.

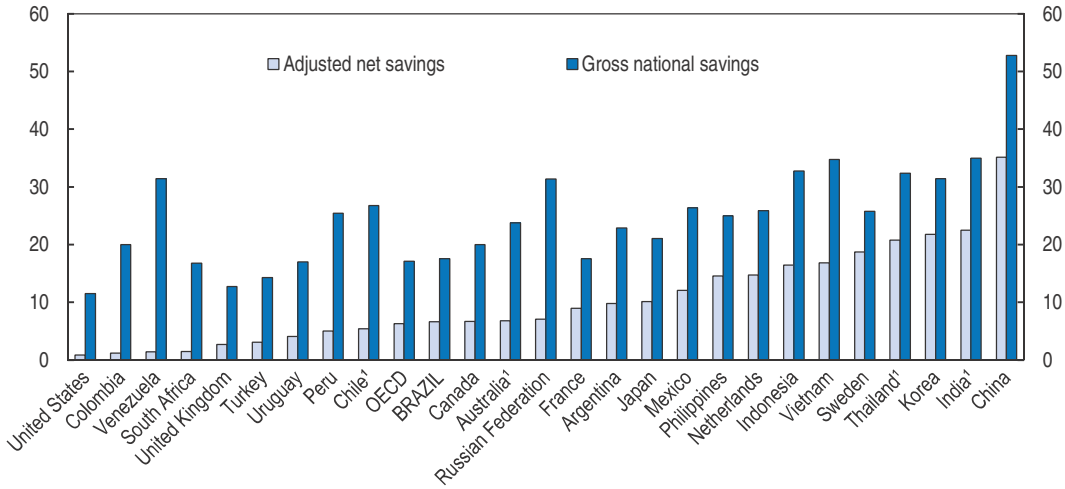
Improving the use of environmental resources

A key dimension of sustainability is the preservation of a country's asset base, and Brazil's progress in this respect is remarkable. The concept of adjusted net savings adjusts the standard national accounting measure of gross national savings for depreciation or the consumption of fixed capital, adds education expenditures, estimates the depletion of natural resources including energy, minerals and forests, and makes deductions for damages from carbon dioxide (CO_2) and air particulate emissions (World Bank, 2013b). Once these adjustments are made, Brazil's net savings are close to the OECD average but still low in comparison with many other countries, including some major emerging market economies (Figure 16).

The share of renewable energy sources in total primary energy supply is 44%, one of the highest in the world and far above the OECD average of 8.6%. Two important factors behind this stellar performance are the widespread use of ethanol for powering vehicles

Figure 16. **Adjusted net savings**

Selected countries, in per cent of GNI, 2011



1. Data for 2010.

Source: World Bank (2013b).

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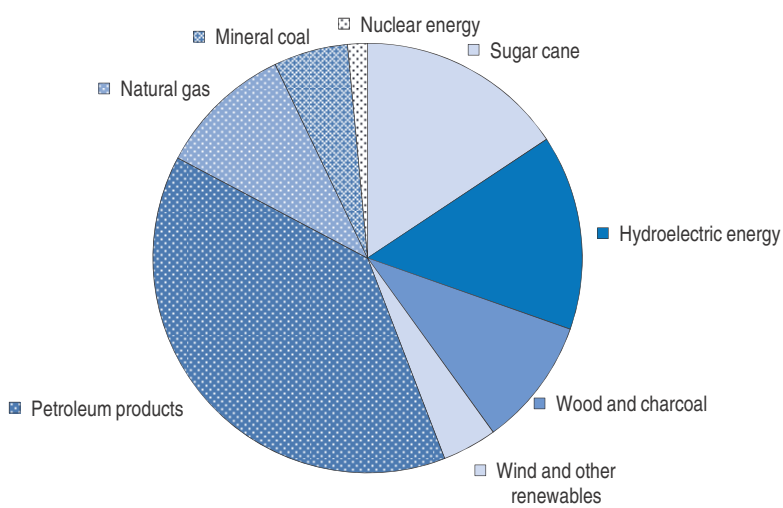
and the strong reliance on water power for energy generation (Figure 17). Moreover, the environmental impact of hydroelectric energy, which accounts for 75% of electricity generation in Brazil, has improved substantially. While some early projects relied on flooding large forest areas which increased greenhouse gas emissions significantly relative to output, the new approach of run-of-river projects relies on the natural water flow to power the turbines, albeit at the cost of generating less electricity.

Figure 17. **Brazil's energy mix**



Source: Balanco energetico nacional.

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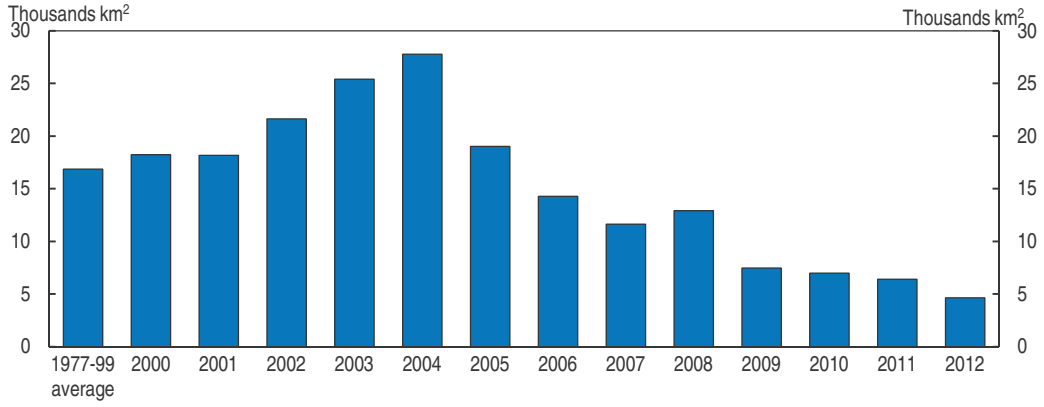
Despite these achievements, the country's ethanol industry has suffered from higher sugar prices and pricing decisions of the majority government-owned oil company *Petrobras*, which have kept their prices below the cost at which it imports petrol. Although

a staggered adjustment of prices was originally designed to smooth the volatility of dollar-denominated oil prices, the absence of any upward adjustment for months has resulted in price support for fossile fuel. This has depressed investment in the ethanol sector and is at odds with earlier tax incentives to promote flex-fuel cars that can be powered by either petrol or ethanol. The price support for fossile fuel has recently risen as the *real* depreciated and import prices increased.

Another promising energy source is wind energy, whose installed capacity has surged from 600 MW in 2009 to 2.5 GW in 2012, or 2% of total energy capacity. Due to shortcomings in the electricity grid, particularly in the North East region where winds are strongest, as much as 600 MW of this capacity is still not connected to the national grid and has not been switched on. Investments in the national energy grid are hence urgently needed to exploit this idle capacity.

In recent years, the rate of deforestation has fallen substantially in recent years (Figure 18), reflecting the implementation of better monitoring and enforcement measures to fight illegal logging, as well as incentive-based measures under which land owners are compensated for preserving forests. Nevertheless, at the current pace, it would still take only 6 years to cut forests of the size of Belgium or the Brazilian state of Alagoas (about 30 000 km^2). Over the last 20 years, deforestation in Brazil has amounted to 582 000 km^2. Forests currently cover 5 098 035 km^2 or 61% of the country's territory, one of the largest forest country covers in the world, and Brazil has the second largest forest area in absolute terms. Progress in reducing deforestation has been uneven, and deforestation rates have increased in 3 out of 9 states in the Amazon region. A new forest code was passed in 2012. Some of its elements have been criticised, including by the Minister of the Environment, as being too lenient towards commercial interests and less protective than its 1965 predecessor. Since the old forest code was hardly enforced, however, while the authorities have increased efforts to enforce the new code, the effective level of protection may nevertheless increase. In this context, strict enforcement of the new forest code and more incentive-based measures are crucial for reducing deforestation rates further.

Figure 18. **Forest depletion has slowed**



Source: Ministry of Environment.

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Brazil ranks fifth worldwide in terms of overall annual greenhouse gas emissions, representing 4.5% of the world total. However, in per-capita terms, Brazil is the world's 51st largest emitter (including emissions from land-use change and forestry) and emits

around 11 tons of CO_2-equivalent per year (World Resource Institute, 2013). CO_2 emissions in Brazil have grown 2.1% a year over the last decade. Growth of CO_2 emissions has been fastest in the transport sector, suggesting the need for more use of rail transportation, especially for freight transport. Moreover, recent plans to reduce the tax on aviation fuel used for domestic flights from some federal taxes would worsen the environmental footprint of the transport sector, since air transportation is the most emission-intensive means of transport. Less deforestation would also reduce CO_2 emissions, as deforestation releases carbon stored in plants and soils. Brazil's voluntary emission reduction target of 36-39% by 2020 relative to a business-as-usual scenario, set in 2009, is likely to be achieved, largely owing to the successful reduction of deforestation.

Box 3. **Main policy recommendations for a responsible use of resources**

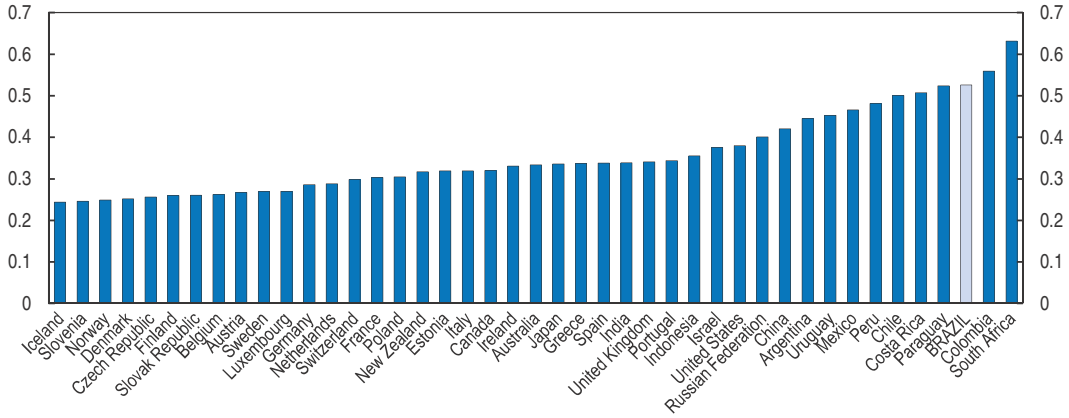
- Remove implicit price support for fossile fuel by adjusting petrol prices in line with import costs, which would, among other things, promote the use of ethanol.
- Keep developing the national electricity grid to integrate renewable energy sources, particularly existing wind capacity.
- Strictly enforce the new forest code and enhance incentive-based measures, such as rewarding forest preservation, to further reduce deforestation.
- Avoid tax reductions on aviation fuel for domestic flights.

Maintaining the momentum of reducing inequality and poverty

Brazil has made remarkable social progress. While income inequality continues to be high in international comparison, both inequality and poverty have fallen substantially over the last two decades (Figures 19 and 20). Poverty is still higher than in some Latin American countries, but significantly lower than in a number of Asian countries (Figure 21). Strong economic growth can explain almost half of this progress, but besides

Figure 19. **Income inequality in international comparison**

Gini coefficient, last available year



Note: The last available year is 2010 for most countries.

Source: OECD inequality database except for non-OECD countries for which the source is World Bank (2013a): Argentina, Brazil, China, Colombia, Costa Rica, Indonesia, India, Paraguay, Peru, Russian Federation, South Africa, Uruguay. For Brazil, the source is IPEA (2013) and data refer to 2012.

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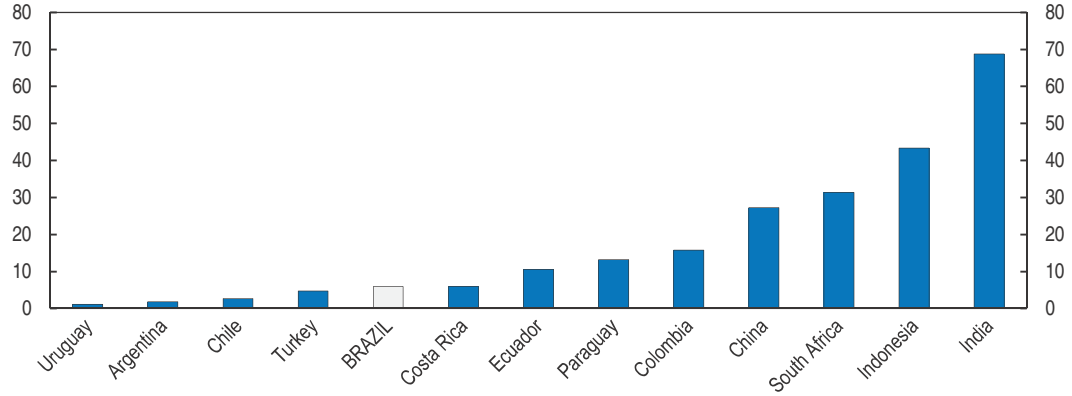
Figure 20. **Poverty in international comparison**

Per cent of the population with per capita income below USD 2 a day



Note: The last available year is 2009-11 depending on the country, 2012 for Brazil.
Source: World Bank (2013a), IPEA.

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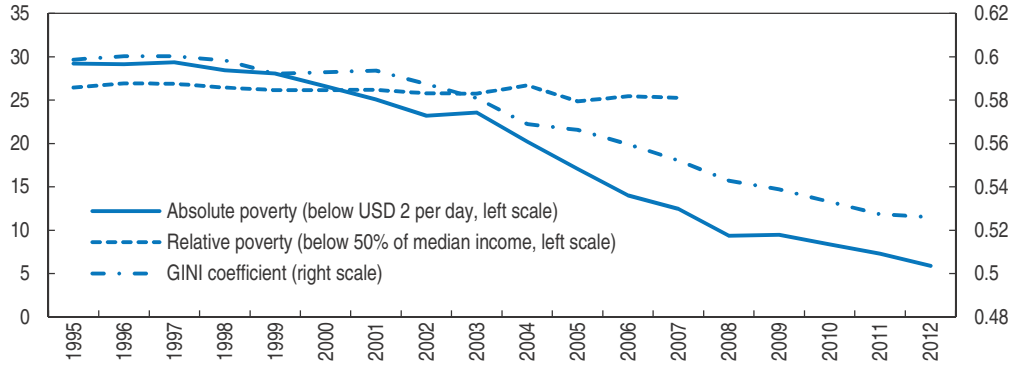
Figure 21. **Poverty and inequality over time**



Source: IPEA.

How to read this chart: Absolute poverty is the per cent of the population with per capita income below USD 2.00 a day, as defined in the Millennium Development Goals of the United Nations. Relative poverty is the per cent of the population with per capita income below 50% of the median income. The Gini coefficient measures the inequality of income distribution on a scale between 0 and 1 with higher values representing more income inequality.

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growth, social policies helped many households to escape poverty. The reduction of poverty and rapid income growth at the lower end of the distribution has been associated with the emergence of a new Brazilian middle class. About 40 million people have joined the income levels of what would be middle class households in OECD countries.

The two pillars of the successful policy strategy to support social progress have been improved access to education and increasing transfer payments. About half of the redistribution in income comes from changes in labour incomes (Barros et al., 2010), mostly because better education has allowed workers to move up the skills ladder and the availability of more skilled workers has reduced skill premiums. The other half is related to non-labour incomes, which have mostly consisted of pension payments and conditional cash transfers. Education and transfers will also be drivers for further social progress in the future.

A better-skilled labour force

Educational attainment has been rising in Brazil, especially among the young and people from low-income backgrounds. This has resulted in better competencies, reflected in better results in the OECD's PISA study (OECD, 2012), even though more students from less privileged backgrounds have been included in the study. Nonetheless, Brazil's level of human capital still lags significantly behind OECD standards, particularly in upper secondary and tertiary education. A high number of drop-outs exacerbates inequalities.

Educational outcomes could benefit from expanding early childhood education (ECE). ECE tends to improve student competencies significantly and has been found to add more to reading outcomes than one additional year of formal schooling (OECD, 2012). While 55% of 4-year olds are enrolled in ECE programmes in Brazil, the OECD average at that age is 79%, and a number of countries (Belgium, France, Mexico, Netherlands, Spain) reach almost full coverage. The government's *ProInfancia* programme to improve day care centres and pre-schools is now in its second phase, and should be continued. In addition, building pre-schools has been one element of the infrastructure programme PAC2. Also important are remedial interventions in basic education to assist children who are at risk of falling behind. Similarly in secondary education, early detection and tailored support with tutoring classes should be pursued to reduce drop-out rates.

Significant progress has been made in vocational training. Enrolment has more than doubled in the last 10 years, although it is still low compared to the OECD average. The federal *Pronatec* programme launched in 2011 aims to expand the federal network of technical schools, provide free training places for young people from poor backgrounds and give financial support through loans and bursaries. These are promising initiatives that should be reinforced with more resources. In order to make greater use of apprenticeships, Brazil could create better synergies between the national employment service *SINE* and the apprenticeship system SENAI. The successful experiences of Austria, Germany and Switzerland can provide some guidance in this context. Evidence suggests that apprenticeships can greatly smooth school-to-work transitions, have high private returns and improve labour market outcomes.

While access to education has improved massively over recent years, quality has not kept pace. The quality of public secondary schools tends to be lower than that of private schools, resulting in easier access to high-quality public tertiary education for graduates from private secondary schools. Quality shortcomings are partly related to short school days. The proportion of children receiving full-day schooling remains low because schools schedule up to three daily shifts to compensate for a shortage of class rooms. Moving towards universal full-day schooling would require building more physical school infrastructure (World Bank, 2012b). A priority is therefore to build more schools where there are shortages. Teacher quality could be raised by supporting continuous improvement through more in-service teacher training and rewarding performance stronger than at present. The federal government has already implemented more incentive mechanisms for teachers, and these efforts should be continued and reinforced. In addition, improving the match between school curriculums and the needs of students and employers could improve quality.

Social transfers

Transfers have been the second pillar of Brazil's social progress. Of particular importance is the conditional cash transfer programme *Bolsa Familia,* which is now part of the larger policy package *Brasil Sem Miseria* (Brazil without Misery). Based on a fairly complete nationwide registry of poor households and their living conditions, *Bolsa Familia* has proven a powerful and well-targeted tool to reduce poverty with hardly any leakage. By making transfers conditional on childrens' school attendance and basic health check-ups, it also lays the foundations for families to move out of poverty over time. The authorities should consider improving the living conditions of poor households by raising the benefit levels of *Bolsa Familia*, which currently costs less than 1% of GDP. A full integration of existing social programmes and delivery through a network of local centres for social assistance may improve awareness about existing programmes among poor households. These complementary social programmes can also improve the prospects for programme participants to find other sources of income and exit from the *Bolsa Familia* programme.

Old-age pensions have also reduced inequality and poverty. At the same time, the automatic rule that individual pensions cannot be lower than the fast-rising minimum wage – as discussed above – has contributed to making the pension system increasingly more expensive. Continuing the rapid increases of the minimum pension benefit will not reduce poverty, since the minimum wage is already far above the poverty line. By contrast, scaling up *Bolsa Familia* would benefit children and youths, whose poverty rates are well above the overall average. Further pension increases could still reduce inequality, but would be a relatively inefficient tool for doing so as the inequality effect of a marginal increase in *Bolsa Familia* benefits is estimated to be many times greater than for pension increases (IPEA, 2012). The current automatic rule passes on the full amount of productivity increases achieved by the current working generation to pensioners. An alternative rule that would pass on only part of these productivity gains to pensioners, while ensuring that the purchasing power of pensions continues to rise, would not raise poverty but it could exacerbate income inequality in the short run. However, if part of the resulting savings are directed towards Bolsa Familia to raise benefit levels and thereby minimum incomes, as recommended in this survey, inequality would almost certainly decrease.

The tax system

While transfers and the provision of public services appear to be the most efficient tools to reduce inequalities, the tax system can also contribute to distributional objectives, although there are some trade-offs between making taxes more progressive and a potentially negative impact of such a change on economic efficiency. In Brazil, personal income taxes and employee social security contributions are currently characterised by low degrees of progressivity. For example, comparing the labour tax wedge for a single individual at 67% and 167% of the average wage, this wedge increases by only a tenth in Brazil, compared to an increase by one quarter in the average OECD country (Gandullia et al., 2012). Social security contributions are currently capped at about twice the average wage, further reducing progressivity.

By contrast, specific exemptions targeting low-income households, such as the recent exemption of basic food and toiletry items from some indirect taxes, increase progressivity but are likely to create significant leakage, as a large share of the tax expenditure will benefit high-income households. If the objective is to reach the poorest households, the

tax revenues lost with these exemptions would be more effectively spent on transfers, such as *Bolsa Familia,* instead.

Box 4. **Main policy recommendations for improving income distribution and reducing poverty**

Education

- Scale up early childhood education, early detection and tutoring classes to reduce drop-outs and grade repetition in secondary schools.
- Continue expanding in-service teacher training and strengthen performance incentives.
- Ensure full-day schooling nationwide and build more schools where needed.
- Expand vocational training and apprenticeships further, including by devoting more resources to the *Pronatec* initiative.

Social transfers

- Increase resources for *Bolsa Familia* and other programmes within the *Brasil sem Miseria* framework. Raise the level of benefits paid by *Bolsa Familia*.

Taxes

- Strengthen the progressivity of labour taxation by reviewing the rate schedule, exemption thresholds and the cap on social security contributions.
- Remove the exemption of basic consumption items from federal indirect taxes and use these resources on more effective tools to improve income distribution, such as conditional cash transfers.

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ANNEX A1

Progress in main structural reforms

This Annex reviews progress in the area of structural reform based on the policy recommendations made in previous *Surveys*. Recommendations that are new are listed in the relevant chapter.

Survey recommendations	Action taken
Fiscal policy framework	
Continue efforts to secure support from state governments to pass the tax package and simplify the tax system.	State VAT rates have been unified for imports only.
Introduce an expenditure ceiling.	No action taken.
Remove one-off revenues and contingency measures.	No action taken. One-off measures including extraordinary dividends from public banks were used in 2012.
Monetary policy framework	
Minimise the risks posed by abundant volatile capital flows primarily by increasing public saving through fiscal consolidation.	No action taken on fiscal consolidation. According to Central Bank estimates of the structural fiscal balance, the fiscal stance in 2012 was expansionary.
If needed, this could be complemented by macro-prudential policies, temporary capital controls and measures to deepen long-term capital markets.	Capital controls were in place during 2012, and abolished for all inflows except for external loans of maturities up to one year during the first half of 2013.
Infrastructure development	
Continue to protect PAC measures from budget cuts, and focus on completing the most worthwhile projects.	Funding for PAC infrastructure projects was preserved. PAC expenditures increased by 31% during 2012. In the first 5 months of 2013, PAC expenditures grew by 15.7% relative to the same period of the previous year.
Review the costs and benefits of having a dual system, whereby firms are subject to different price-setting regulations and service obligations depending on the regime which they belong.	No action taken.
Specify the conditions under which a firm can exploit an existing network.	No action taken.
Set up compulsory interconnection fees.	No action taken.
Specify clear investment targets in concession contracts aiming at significantly extending and improving roads over the entire life of the contract.	No action taken.
Financial sector reform	
Phase out directed lending schemes to the rural sector and to housing.	No action taken.
Transform the implicit subsidy in lending operations through the public development bank BNDES into a tax credit independent of the choice of lender.	No action taken.

Survey recommendations	Action taken
Enhance the possibilities for commercial banks to obtain long-term funding, including through leveraging the strong potential of BNDES as a market maker.	BNDES has acted as a market maker, buying and selling corporate bonds with long maturities. It has also supported the market for infrastructure debentures, but it remains very small. Long-term securities have been promoted through tax benefits for investors and exemptions from reserve requirements and contributions to the deposit insurance fund. This has increased the average funding maturities of banks.
Move progressively towards greater private ownership among commercial banks.	No action taken. Public-sector banks expanded loan volumes strongly and have gained market share.
Reduce reserve requirements for financial institutions to reduce the costs of financial intermediation. Remove the special tax regime applied to financial institutions.	Reserve requirements relative to deposits have fallen from 35% in December 2011 to 27% in April 2013. Some long-term instruments have been exempt from reserve requirements.
Continue to reduce the share of Selic-indexed securities and increase debt maturities.	The share of Selic-indexed public debt has declined from 30.9% in December 2011 to 21.4% in April 2013, while average maturities have increased from 3.5 to 4.2 years over that period.
Taxes, regulation and contract enforcement	
Enhance creditor protection through reforms of the legal and judicial system. Create a unified national collateral registry, expedite court procedures for repossessing collateral, and introduce the possibility of extra-judicial enforcement of credit contracts involving collateral without the defaulting borrower's consent.	No action taken.
Reduce tax compliance costs by unifying the fragmented system of taxes and contributions. Create a single value added tax with full credit for exports and capital good purchases.	State VAT rates have been unified for imports only.
Remove remaining entry restrictions in air transport, water transport, telecommunications and financial services. Consider further reductions in tariff protection.	No action taken. Some tariffs have been raised temporarily.
Pension reform	
Reduce the burden of pension expenditures on public finances by removing the indexation of minimum pension benefits to changes in the minimum wage, and index them instead to an average of consumer price inflation and average wage gains.	No action taken on indexation. A reform of the civil servant pension system for new hires will reduce pension expenditures in the long run.
Introduce a general minimum retirement age that takes into account rising trends in life expectancy. Raise the earliest possible retirement age, and strengthen the penalties for early retirement.	No action taken.
Climate change	
Increase human resources for forest monitoring and regulatory enforcement.	Human resource shortages persist despite new hires, but monitoring will be supported by non-governmental organisations.
Education and social policies	
Expand the conditional cash transfer programme Bolsa Familia, and other social policies included in the Brasil sem Miseria programme.	The number of participating households in Bolsa Familia was increased by 791 000 between June 2011 and November 2012. Average benefit levels have risen by 49% between December 2010 and December 2012. Expenditures have risen from 0.42% of GDP in 2011 to 0.48% in 2012.
Improve the quality of instruction and teachers and increase opportunities for technical education and labour training not contingent on successful graduation from the regular academically oriented curriculum to students with high drop-out risk.	Some states (São Paulo, Pernambuco) have managed to improve the quality of instruction through performance-based teacher pay. The vocational training programme PRONATEC is being expanded through a presidential decree in December 2012, with new technical schools being built.

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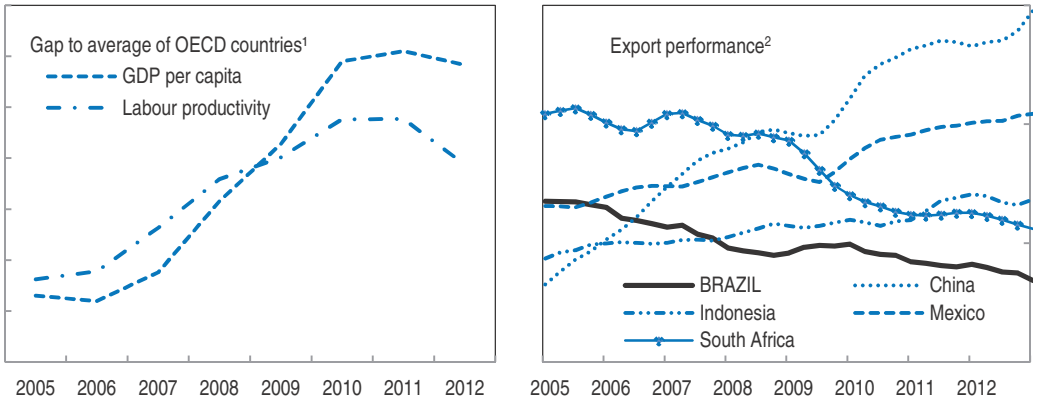
Chapter 1

Increasing the pie: Productivity and competitiveness of Brazilian firms

As Brazil's current demographic bonus is set to fade out, future growth will need to come increasingly from productivity improvements, which have so far contributed less to economic growth than in other regions of the world. Productivity growth has also been uneven across firms and, unlike in several Asian economies, flexibility to allocate resources to the most productive firms within sectors, is limited. Structural reforms could raise productivity and competitiveness in several areas. Reducing infrastructure bottlenecks could reduce the cost of transport and improve productivity. A high tax burden, exacerbated by an onerous and fragmented tax system and unnecessarily high administrative burdens, puts Brazilian producers at a disadvantage. A tight labour market, continuing skill shortage and stimulus policies that fuelled consumption growth have implied strong wage increases. Investment financing at longer maturities continues to be scarce due to a lack of both private participation and competition in long-term credit markets, owing to an uneven playing field dominated by the national development bank. The exposure of Brazilian firms to foreign competition has remained below that of many other emerging economies, which has limited incentives to improve efficiency and increased downstream production costs.

As the economy has slowed down in the past two years, Brazil has recently stopped catching up to OECD economies, and exports have been underperforming for some time (Figure 1.1). The factors that drive Brazilian production costs above international levels, an issue popularly referred to as the "Brazil cost", have become increasingly visible. This chapter deals with ways to improve the medium term growth prospects of the economy, with a particular focus on improving productivity and the competitiveness of Brazilian firms.

Figure 1.1. **Labour productivity and export performance**



1. Percentage gap with respect to the simple average of the highest 17 OECD countries in terms of GDP per capita and GDP per employee (in constant 2005 PPPs).
2. Export performance measures the growth of exports relative to the growth of its export markets.

Source: *OECD Economic Outlook Database*, OECD (2013b).

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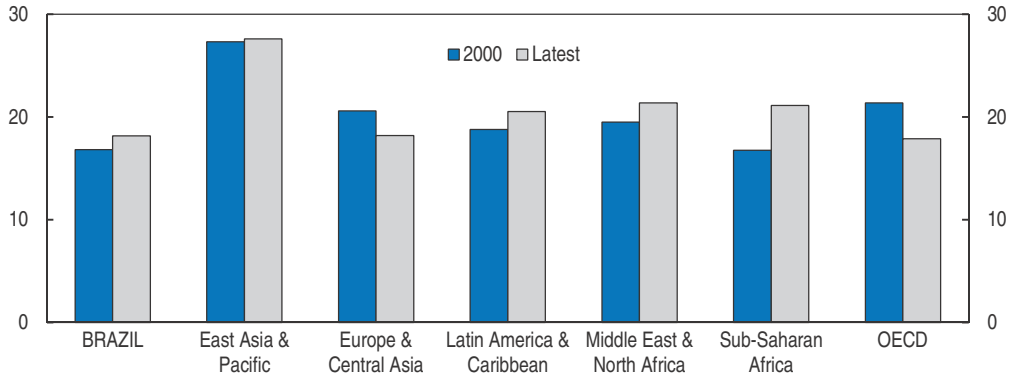
More growth will have to come from productivity improvements

Over the last decade, the Brazilian economy has grown at an average rate of 3.5% per year, placing it between a set of highly dynamic emerging economies and OECD economies. With GDP growing at twice the pace of the OECD area, per-capita income levels and labour productivity have been converging on OECD countries, but GDP per capita remains at 35% of the OECD average.

Increasing labour input resulting from a rising labour force has accounted for more than 40% of potential growth over the last decade, albeit with a declining trend over the years. For comparison, the labour force accounts for only around 25% of growth in India, Indonesia, China and South Africa. But demographic trends imply that labour input will contribute less to growth in the future. Brazil will therefore have to look for growth elsewhere. And there is scope for more growth from raising labour productivity, which has been the source of 85% of economic growth in China, Korea and Taiwan in recent years, but only 19% in Brazil (Miyagawa, 2010, OECD estimates).

Physical capital is one of the drivers of labour productivity, and Brazil has traditionally suffered from low levels of investment into physical capital – currently at 18% of GDP. Most regions in the world, including African economies, manage to invest a larger share of GDP than Brazil, suggesting that there is scope for more investment in Brazil (Figure 1.2).

Figure 1.2. **Investment rates in international comparison**



Note: Latest year is 2012 for most economies/regions.
Source: IBGE, Central Bank of Brazil, World Bank (2013b).

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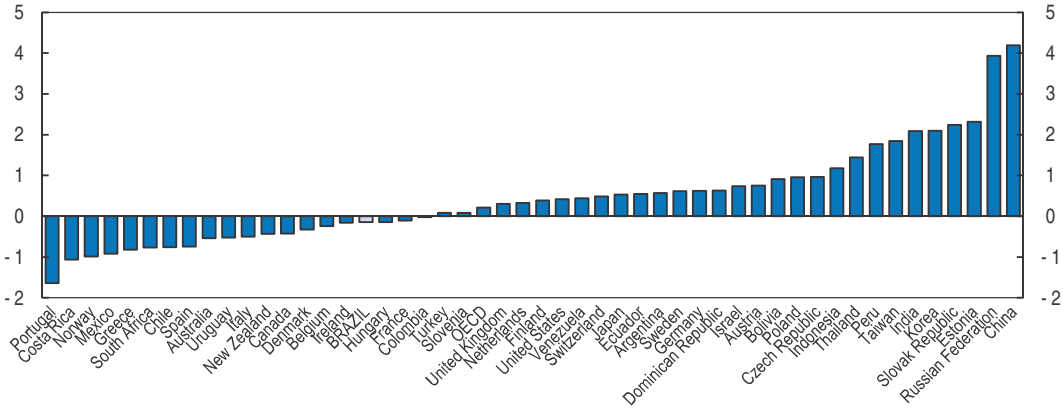
At the same time, developments in total factor productivity (TFP), which is the other component of labour productivity besides capital intensity, have also contributed less to economic growth in Brazil than elsewhere. In fact, Brazil's average annual TFP growth since the year 2000 has been negative (-0.3% over the period 2000-12 or -0.15% for 2000-10 which corresponds to the period depicted in Figure 1.2), while it was 0.14% in an average of 10 Latin American countries over 2000-10, and 2.4% in an average of 7 Asian countries (Figure 1.3).

Figure 1.3. **Average annual TFP growth 2000-10 in international comparison**

In per cent



Note: The period 2000-2010 was chosen because data beyond 2010 were unavailable for a number of countries.
Source: The Conference Board (2013).

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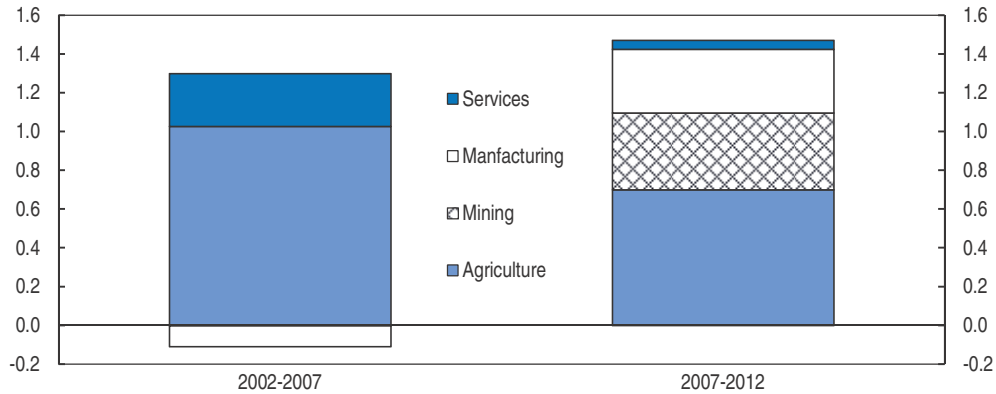
Productivity growth has been uneven across sectors and external competitiveness has declined

Much of Brazil's productivity growth has taken place in resources sectors, in particular agriculture and more recently in the mining sector (Figure 1.4). By contrast, manufacturing and services taken together accounted for only 20% of productivity growth, although over 80% of value added and employment took place there. This is very different from the earlier experience of a number of fast-growth Asian countries where manufacturing drove productivity growth.

Figure 1.4. **Average annual labour productivity growth by broad sector**

In percent



Source: OECD calculations based on IBGE.

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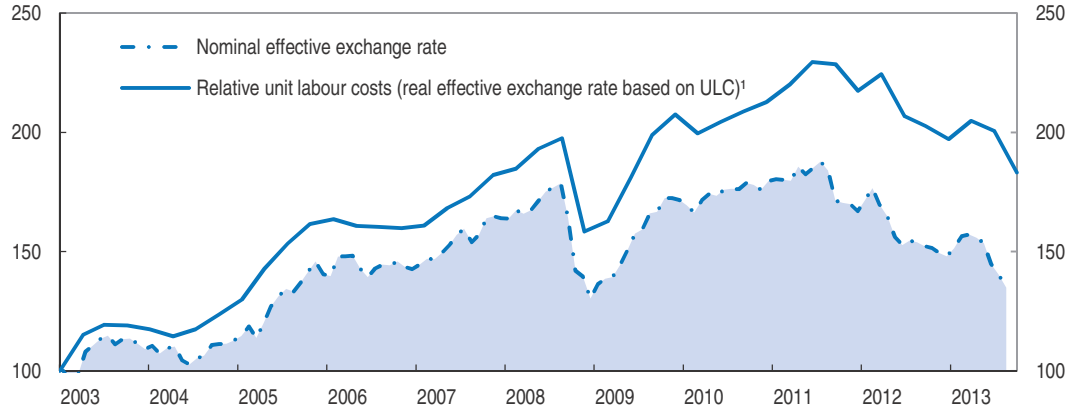
Low productivity growth, part of which is due to cyclical factors, and rising wages have gone along with a declining external competitiveness over the past decade, in particular for manufactured products. Unit labour costs rose in the industrial sector twice as much than in Brazil's trading partners, as can be seen from the rising real effective exchange rate (based on unit labour costs) in Figure 1.5. Although the appreciation of the *real* has

Figure 1.5. **Unit labour costs in relative terms and the nominal exchange rate**

Jan. 2003 = 100



1. Unit labour costs refer to the industrial sector.

Source: IBGE, CEIC, OECD.

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contributed to the rising unit labour costs in foreign currency, almost half of the loss of competitiveness is due to domestic factors, as the nominal effective exchange rate has only risen by 54%. Faced with rising costs and declining external competitiveness, the structure of the economy has shifted from manufacturing to services, possibly because the latter sector is less exposed to external competition. Some of the currency appreciation of the past decade has been reversed by a depreciation that initiated in 2011 and then intensified in April 2013. Between early April and late August 2013, the real lost almost 19% of its value *vis-à-vis* the US dollar.

Structural reforms can improve productivity performance

Productivity growth depends on getting policies right. Many of the issues holding back productivity are widely known, including infrastructure bottlenecks, a high tax burden in comparison with other emerging economies combined with an onerous tax system, high electricity prices, import taxes, underdeveloped financial markets, skill scarcity, administrative burdens and rigid labour markets. Some of these issues are long-standing problems that remain to be tackled, such as the 30 years of neglect in infrastructure investment. Other factors are more recent, or have become more urgent recently. While buoyant commodity prices were able to conceal the symptoms of slow productivity growth for some time, at least with respect to aggregate growth performance and unemployment, the problem has become more visible recently and supply-side constraints appear to be biting.

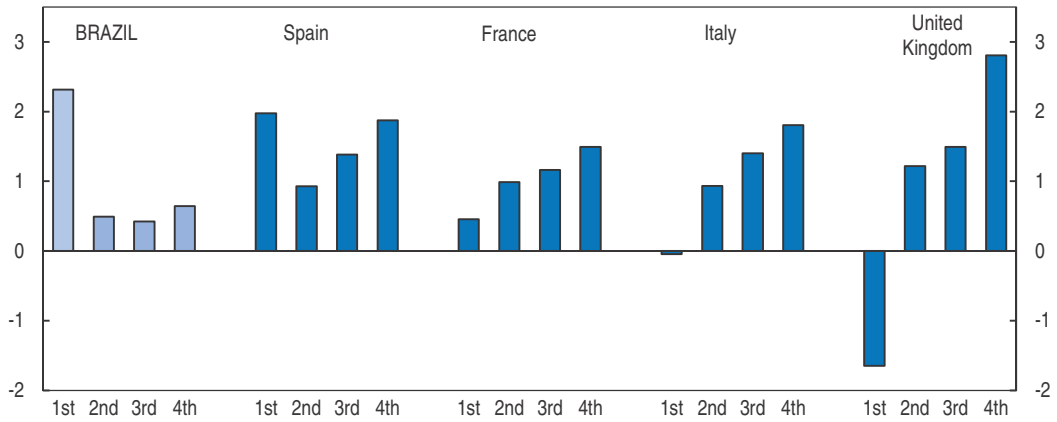
New empirical research based on 16 000 firm observations across all sectors of the Brazilian economy links the total factor productivity of firms operating in Brazil with factors like infrastructure, taxes, administrative burdens, labour costs, access to long-term credit as well as trade and industrial policies in Brazil (see Box 1.1). This analysis underlines the potential that structural reforms in this area can have for improving the productivity of Brazilian firms.

At the same time, the aggregate productivity effects of such structural reforms can go beyond the benefits that accrue to an existing set of firms. Aggregate productivity growth is also influenced by changes to the firm population, which includes the entry and exit of firms, and a reallocation of resources from low-productivity to high-productivity firms. An extensive literature has highlighted the important role of reallocation of resources across firms even within narrowly defined sectors for overall productivity growth (Arnold et al., 2008; Foster et al., 2001; Hsieh and Klenow, 2009).

Structural policies can influence the ease with which such reallocations occur. For example, administrative burdens can hamper firm entry, thresholds built into tax or labour codes can create disincentives for firms to grow beyond a certain size, credit markets may unduly favour incumbents if credit decisions are not based on objective market criteria, or selective policies tailored to support specific firms can make firm growth dependent on the judgement of bureaucrats or politicians.

Firm-level evidence suggests that Brazil lacks some of the flexibility with which other economies re-allocate resources to more dynamic and productive firms. The analysis underlying Figure 1.6 uses firm-level data from Brazil, France, Italy, Spain and the United Kingdom to examine how firm growth is related to differences in productivity. The analysis divides firms in any given sector into four groups according to their productivity levels, and compares subsequent employment growth across these quartiles. If resources flow to more

Figure 1.6. **The link between productivity and employment growth across firms within industries**



Source: OECD calculations, Arnold et al. (2008).

How to read this chart: The bars represent quartiles of firms within an industry ordered by productivity levels relative to the industry average. The height of the bars measures annual employment growth, relative to the average of the country and sector. A bar higher than 0 means that employment growth in a set of firms was above average. Data cover 1998-2009, depending on the country. For Brazil, the analysis is based on the same firm-level data set as described in Box 1.1, while for the other countries the analysis taken from Arnold et al. (2009).

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productive firms, which would increase aggregate productivity, then firms with higher productivity levels should experience faster growth –not only in terms of output but also in terms of inputs. The results show that the link between productivity and employment growth differs widely across countries. Only the United Kingdom shows a strong positive association between productivity and employment growth, although France and Italy also broadly follow this pattern. In contrast, productivity does not seem to play much of a role for its growth prospects in Brazil. In particular, firms with low productivity have faster employment growth than others, a pattern that is somewhat similar to what is observed in Spain.

Implementing reforms that raise the productivity of existing firms while at the same time fostering the flexibility needed for resource reallocations will be one of the principal policy challenges for ensuring strong growth in the future. An environment that promotes reallocation and entrepreneurial risk-taking can also encourage innovative activity and investment in knowledge-based capital, which are associated with productivity improvements (OECD, 2013a; Andrews and Criscuolo, 2013). In the context of the recent economic slowdown, the authorities have become increasingly eager to address some of these problems, and have shifted the attention of the stimulus debate away from demand-side measures like increasing credit or exchange rate interventions towards tackling those structural issues and reducing production costs. This is a very positive development for productivity and one that should be further pursued.

Improving infrastructure and reducing transport costs

Anecdotal evidence about bottlenecks abounds in almost all infrastructure areas. Three decades of neglect of infrastructure investment have left a strong mark, and infrastructure investment rates have risen only slowly since 2007 (see special chapter on infrastructure in the 2011 *Economic Survey of Brazil*). Supply of transport facilities lags

Box 1.1. **A short description of the methodology of the micro-level analysis**

In order to explore the link between structural policy variables and productivity, a large data set of accounting data from over 16 000 firm observations across Brazilian industrial and services sectors over the time span 2000-10 has been analysed. Using data from firms' annual balance sheets and profit and loss accounts from the OECD-ORBIS database, total factor productivity (TFP) is calculated as a multilateral index with industry-specific factor intensities, following Griffith et al. (2004). The main advantage of the index approach of measuring TFP is that it makes the comparison between any two firm-year observations possible, since each firm's inputs and outputs are calculated as deviations from a reference firm. Robustness checks with other TFP measures have also been used to confirm the findings. The data have been cleaned for obvious outliers and reporting mistakes, which has resulted in dropping less than 1% of the original sample. A few sectors have been excluded from the analysis due to their monopolistic nature such as in the case of utility sectors, or due to their the strong degree of public control, such as in public administration, defence, education and health services, or because they are subject to strong cyclical swings such as financial services or mining.

In a second step, firm-level TFP is then used as a dependent variable and related to policy measures or variables that are directly influenced by policies. The empirical strategy follows closely the difference-in-differences approach proposed by Rajan and Zingales (1998). The rigour of this approach stems from the fact that it draws on comparisons only across comparable units, such as firms within the same state of Brazil and the same year. In a typical estimation set-up, and there are minor differences across the estimations due to data availability, the policy variable varies across time or across states, and is interacted with an industry-specific variable that is assumed to measure the relevance of this policy aspect for the sector to which the firm belongs. For example, in the case of energy costs that vary across states, the interaction factor is the energy intensity of industries. This set-up assumes that firms in sectors that are more energy-intensive are more affected by regional differences in energy costs than other sectors. The estimation coefficient is hence identified only from comparisons across firms in different industries within the same state. State-industry combinations are the level at which the interaction measure varies, while fixed effects control for all idiosyncratic productivity influences specific to combinations of states and years and specific to industries. The resulting estimation equation in this case is the following:

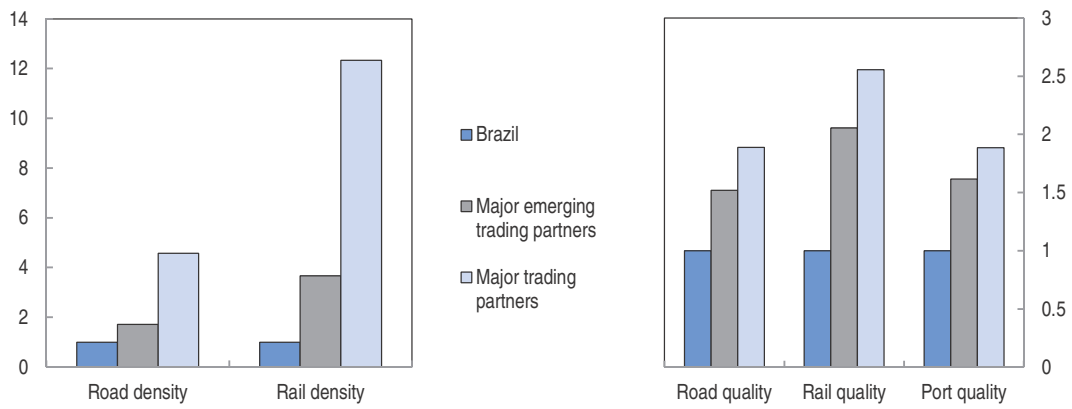
$$TFP_{it} = \alpha + \beta\ energy_cost_{reg}{*}energy_intensity_{s} + size_{it} + age_{it} + D_{reg,t} + D_{s} + \varepsilon_{it}$$

where subscripts *i* denote the firm, *t* the year, *reg* the region or state, *s* the sector. *size* and *age* denote a firm's size in number of employees and age a firms' age since its date of incorporation. D are binary variables and ε is a white-noise error term. Whenever possible, and following the strategy of Rajan and Zingales (1998), the interaction factors at the industry level have been taken from international benchmarks, for example the United States, rather than from Brazilian data, to ensure a maximum degree of exogeneity. This empirical strategy means that the estimated effect can be interpreted as causal under acceptance of the identifying assumption, i.e. the relevance of the interaction factor chosen. Estimation results have been obtained for the effects of energy prices, transport and road infrastructure, the tax burden, several aspects of administrative burdens, labour regulations and skill availability. Detailed estimation results including regression results are presented in the Annex to this Chapter.

desperately behind demand, manifesting itself in bottlenecks and delays in road transport, airports and ports. Major airports are struggling to cope with rising passenger numbers, and minimum investment needs in Brazil's 20 main airports have recently been estimated at BRL 25 billion over the next two decades (Fundação Getúlio Vargas, 2013). After a successful soy harvest in early 2013, 25 km of queuing lorries to get to the Santos port vividly illustrated Brazil's lack of port capacity. Agricultural exporters have come used to paying more for getting their goods to the port than from there to an overseas export destination. In terms of both road and rail density, Brazil lags behind its major trading partners (including the emerging market economies among them), and the same holds for perception indicators of infrastructure quality elaborated by the World Economic Forum (Figure 1.7).

Figure 1.7. **Brazil's infrastructure relative to its major trading partners**

Normalised to 1 for the value of Brazil



Note: The comparison is based on Brazil's 15 major trading partners, which account for over 75% of Brazil imports in industrial goods. These include Argentina, Canada, Chile, China, France, Germany, India, Italy, Japan, Mexico, South Korea, Spain, the United Kingdom, the United States and Switzerland. The major emerging market trading partners include Argentina, Chile, China, India and Mexico.

Source: FIESP (2013), World Economic Forum (2011), World Bank (2013b).

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One estimate suggests that Brazil would have to invest around 4% of GDP annually into infrastructure over 20 years in order to catch up with the infrastructure levels of Chile, the best performer in Latin America (Morgan Stanley, 2010). Yet, while Chile's public and private sectors invest over 5% of GDP in infrastructure, Brazil only invested slightly above 2% of GDP in 2006, the last year for which such data are available, although more recent figures from the Growth Acceleration Pact suggest that infrastructure investment has since increased. World Bank estimates suggest that Latin America's growth could rise by 2 percentage points if it enjoyed the infrastructure levels of East Asia's middle-income countries (Calderón and Servén, 2010, 2011).

In 2007, the government responded to the low capacity of the public sector to carry out infrastructure investment by implementing the Accelerated Growth Pact (*Programa de Aceleração do Crescimento*, PAC) which is now in its second phase (PAC2). During the first phase of the programme from 2007 to 2010, BRL 657 billion were spent, the largest share of which in the areas of energy, social housing and transport. For the second phase, planned investments for 2011-14 amount to around BRL 989 billion, of which slightly more than half had been spent by April 2013, suggesting that the programme is broadly on track. Beyond

growth-enhancing investment projects, the programme also aims to foster social objectives, including through the large-scale housing project *Minha Casa Minha Vida*, which has constructed more than 1 million dwellings, largely for low-income households who can access these dwellings at subsidised prices. These special investment programmes are explained in more detail in the 2011 *OECD Economic Survey of Brazil* (Chapter 3).

Part of the PAC2 programme is done through transfers to the local level, particularly in areas such as urban transport and sanitation. However, programme execution, particularly at the local level, can be slow, resulting in federal money remaining unspent. For example, plans for new metropolitan underground trains or extensions of existing lines have been delayed due to planning difficulties in Porto Alegre, Curitiba, Brasília and São Paulo. In some instances, a lack of precision of the tender calls has been the source of delay, or changes in municipal governments. Improving local administrative capacity may therefore warrant particular attention to get more infrastructure projects off the ground. Recent street protests have illustrated strong popular demand for better urban transport, but also lower user charges. To the extent that user charges are reduced or scheduled increases are not allowed to occur in response to recent street protests, it is important to ensure that the resulting loss of revenues will not further reduce the funds available for investment.

During 2012, important revisions were applied to the rules governing both public works and concession contracts, which are the most common form of private infrastructure engagement. For public works, the auction process has been simplified, and the in-depth checks about bidders and their financial credentials now have to be undertaken only for the winning bidder, which can speed up the auction process substantially. For concessions, a new and ambitious programme of BRL 240 billion in investment has been defined. These projects include 7 500 km of new highways, 10 000 km of new railways, 159 ports and 2 international airports. The length of the concessions has been increased from 25 to 30 years, with partial financing through Brazilian public banks provided for up to 25 years at rates considerably below market rates; indeed, at current inflation, the real rate is zero. In addition, guarantee requirements for these loans have also been reduced. Moreover, the maximum rate of return relevant for the calculation of applicable user charges has been revised upwards from 10% to 15%. At the same time, the concession revenues are based on GDP growth projections of around 3.9% until 2048, which is significantly above OECD projections of potential GDP growth. Tenders for the new road concessions began in September 2013. One of the two tenders offered at that time, covering the 436 km stretch from Goias to the São Paulo – Minas Gerais border, received 8 bids, while the other one linking the states of Espírito Santo and Minas Gerais over 375 km failed to receive any bid from the private sector.

The new concessions now also include areas where the scope for private participation was very limited in the past. One example is airports, where one public company used to operate all the main airports in the country. In 2012, concessions were given out for two airports of the greater Sao Paulo area, Guarulhos and Viracopos, and also the airport of the capital Brasilia. Some disappointment with the fact that several of the largest international airport operators backed off from the concession tender has led to refinements in the concession mechanisms for two additional international airports scheduled for concession, serving the cities of Rio de Janeiro and Belo Horizonte.

Since the 1950s, infrastructure policy has focused on roads, leaving rail transportation underdeveloped. Despite its huge economic potential and social benefits, including in

terms of lower greenhouse gas emissions, the total length of railway tracks decreased between 1930 and 2009. Rail transport is currently only used for freight. Tight control by the federal government over tariffs until the late 1980s and the privatisation programme of the 1990s made railway operations first economically unattractive and then limited the access for new operators, resulting in underinvestment. Recovering from this period is an important project that should be further pursued. A major revision to the regulatory framework and new concessions are steps into the right direction. In addition to cargo railways, there is also a plan for a high-speed train connection between the cities of Campinas, Sao Paulo and Rio de Janeiro. While this could replace a substantial amount of air traffic and reduce emissions considerably, the economic viability of a high-speed connection has been put into question by a number of observers due to the mountainous terrain and the substantial number of tunnels required for a high-speed line. Indeed, two rounds of auctions saw the withdrawal of several international consortia from the bidding process, and given the large amount of competing investment opportunities in Brazil, the tender was postponed once more in August 2013. The government should undertake a careful cost-benefit analysis of the different options for a train connection between these cities, including comparing the envisaged high-speed connection with a regular train line or more flexible tilting trains, which can go around curves designed for slower trains at higher speeds without causing undue discomfort to passengers. Given the relatively short distance of 430 km between Rio de Janeiro and Sao Paulo, a high-speed train is not the only railway option to reduce both air and road traffic substantially.

A particularly important infrastructure area is the improvement of ports, many of which are suffering from underinvestment, inefficient management under public operating companies, and a labour regime under which temporary port labour can only be contracted through a monopoly entity rather than hired directly under regular labour laws. Required port investments are estimated at BRL 43 billion, which is 3 times more than the amounts originally dedicated to the sector under PAC1 and PAC2. The strategy to improve the current situation includes both an enhanced efficiency of publicly managed ports and new licenses for entirely private ports. While in the past, ports could only be managed by private companies if they would commit to providing 70% of the cargo volume through own merchandise, new port licenses can now be obtained without any vertical integration requirements. One private port currently under construction in the Rio de Janeiro area under the original arrangement is likely to increase third-party shipments substantially.

Current concessions for 98 terminals have recently expired or will do so by the end of 2013, giving ample scope for attracting new investment through new tendering processes. In this context, it is important to resist pressure from current concession holders for automatic renewal and to organise an open and transparent tendering process for all new port concessions, as has been achieved by the new port law passed in June 2013, which is expected to enhance investment.

There is also much scope to reduce red tape and bureaucratic obstacles facing port users. In 2012, ships used to export corn from the main port of Santos spent an average of over 18 days in port, of which more than 16 days just to obtain permissions. There is not generally a one-stop shop for all the permissions and payments required to dock, load and unload cargo in Brazilian ports, and incoming ships may have to obtain clearance from up to 28 different government bodies, all of which require filling out paperwork in Portuguese. Administrative barriers in ports should be eased further to reduce turnaround times.

Significant progress has been made with respect to the opening hours of government bodies such as customs, which now operate on a 24-hour basis. However, this has not yet been extended to airport customs clearance, where cargo merchandise is typically even more time-sensitive. A recent study reveals that getting air cargo out of customs takes an average of 175 hours in Brazil's 5 major airports, compared with 4 hours in Shanghai and 8 hours at London's Heathrow airport (FIRJAN, 2013). Fixing these bureaucratic bottlenecks in ports and airports amounts to low-hanging fruits that should be tackled immediately, as they constitute unnecessary costs and put a strain on the productivity of Brazilian firms that rely on time-sensitive imports.

High electricity costs also raise the costs of Brazilian firms. Based on data from the national regulator and the International Energy Agency (IEA), a recent study revealed that Brazilian industrial electricity users paid more than 50% higher energy prices in 2011 than in an average of 27 other countries, including 16 OECD countries (FIRJAN, 2011). In addition, regional dispersion across Brazilian states is substantial, owing both to different base prices as well as different tax rates on electricity.

The government's attempts to reduce the tax burden on electricity are steps in the right direction and should be further pursued. In 2012, the government achieved a 20% average reduction in the cost of electric energy on the basis of tax reductions and offering current holders of electricity concessions the possibility of an early renewal. By accepting substantially lower prices, the current concession holders would be able to avoid a new tender process upon the expiry of their contracts in 2013 and 2014. Rather than ad-hoc government decisions on the envisaged amount of rent reduction, which could be in conflict with the need for more investment, the authorities should continue to rely more on competition embedded in the regular auction process. As long as investment objectives are spelled out clearly in the concession contracts, regular auctions will allow harnessing the better information of private operators regarding cost structures for determining prices that are compatible with those investment objectives while avoiding excessive rents.

OECD empirical analysis suggests a visible link between deficiencies in the energy and transport sectors and the productivity of Brazilian firms (see Box 1.1 for an outline of the empirical analysis, and the Annex to this chapter for more details). For energy prices, firm-level productivity has been related to state-level differences in electricity tariffs, and the results suggest that high electricity tariffs constitute a significant drag on the productivity of Brazilian firms. Similarly, the empirical analysis exploits sectoral differences in the share of freight costs to look at the link between transport infrastructure and the productivity of firms. The results suggest that further improvements in road infrastructure would enhance the productivity of firms.

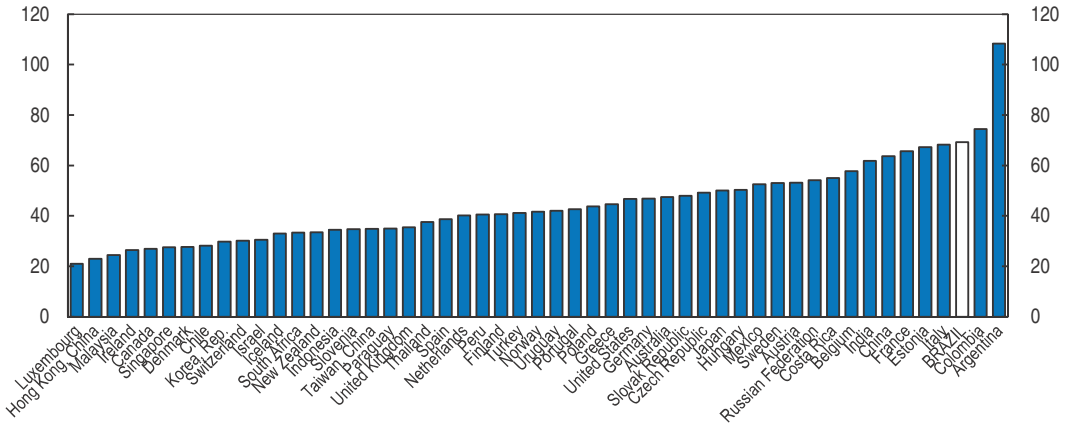
The tax system should be simplified

Brazil's tax and contribution system has evolved out of a rising need for increasing revenues, and it has succeeded in achieving that task. In Latin America, only Argentina and Bolivia manage to raise more than the 37% of GDP that Brazil raises in taxes and contributions. In other emerging market economies outside Latin America, revenues tend to represent a significantly lower fraction of GDP (e.g. China 17%, India 18%, Indonesia 12%, South Africa 27%). Over the last two decades, revenue has been increased from 24% to 37% of GDP, achieved to a large degree by increasing so-called federal contributions, which are not subject to mandatory sharing arrangements with subnational governments. The strong revenue-generating capacity of the Brazilian system of taxes and contributions has

come at the expense of efficiency, and also equity (see Chapter 2). High revenues translate into a high tax burden on corporations and a large number of different and often cascading taxes. World Bank estimates put the total tax burden on the profits of a benchmark medium-sized manufacturing company – including all taxes on income and factor usage – at 69% in Brazil, compared to an average of 47% in Latin America and 43% in OECD countries (Figure 1.8). These estimates, however, may not take into account the long-run incidence of some elements of this tax burden, such as employer-paid social security contributions or payroll taxes, part of which may fall on employees rather than employers.

Figure 1.8. **Total tax burden on company profits**

For a benchmark medium-sized company, corrected for differences in tax bases, 2012



Source: World Bank Group and PwC (2012).

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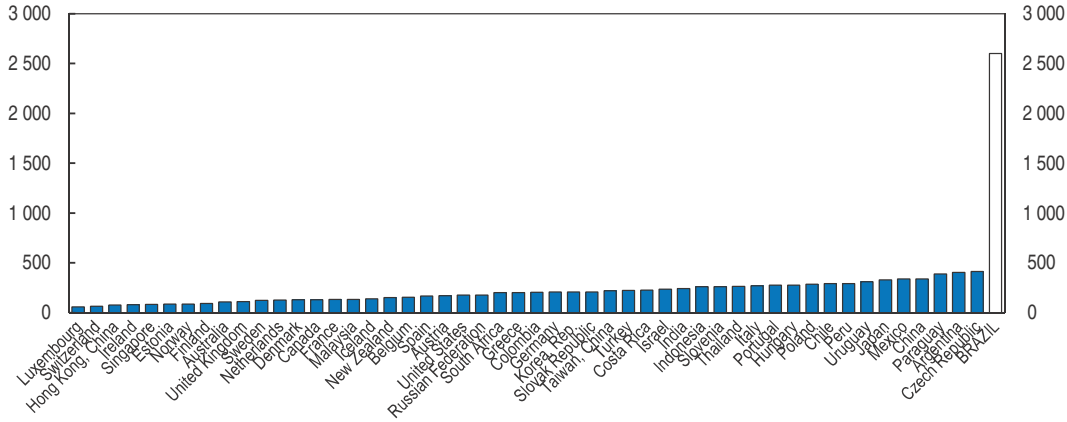
Brazil's taxes are not only high but also particularly burdensome to comply with. This is particularly the case for the fragmented system of 6 different indirect taxes, including the origin-based VAT-like tax ICMS, for which each of Brazil's states has its own tax code, tax base and tax rates. Due to the origin-taxation, companies wishing to offer goods and services nationwide are required to comply with each state's individual tax rules, and credits for interstate transactions are frequently delayed or refused. This cumbersome situation is the principal reason why Brazil compares so poorly to other countries in terms of tax compliance costs. When measuring the time requirement to comply with taxes for a model company in 183 jurisdiction across the world, the World Bank finds that Brazil comes out a distant last, with 2 600 hours required, as opposed to 367 in the average Latin American country or 176 in the average OECD country (Figure 1.9). Tax departments of companies are consequently huge in international comparison, adding substantially to fixed costs.

The micro-level analysis undertaken for this survey suggests that the tax burden on corporations is negatively related to the productivity of Brazilian firms. The analysis exploits differences in the effective tax burden across states, and interacts these with the amount of taxes each sector pays relative to its overall value added. The rationale behind the interaction factors is that some sectors have larger tax bases than others due to their specific production technologies, such as the extent to which they rely on profits to remunerate investments in tangible and intangible assets, or their intensity in the use of production factors that are taxed particularly strongly. The results suggest a negative link

Figure 1.9. **Hours required to prepare taxes**

2012



Source: World Bank Group and PwC (2012).

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between the tax burden and firm productivity, which is statistically significant at the 5% level. Given that fixed effects at the level of individual states and industries are controlled for, the estimation strategy based on differences in differences exploits only differences in productivity performance within states, which reduces the possible influence of tax incentives provided by individual states to attract investors. The results support the view that the tax burden on companies should be reduced in order to improve both the productivity and the competitiveness of Brazilian firms.

The most promising avenue to lower the burden of taxes on companies in the short run would be to simplify the tax system. Regarding simplification, the central government has set out an ambitious plan to move towards a unified indirect tax system. The challenge, however, is to find a political consensus among the states, some of which are threatened by revenue shortfalls. In light of the political difficulties involved in carrying out a major tax reform, the strategy has shifted towards a gradual approach. So far, progress has been made in the unification of ICMS rates for imports, which is a welcome first step. This has ended an unproductive tax competition among states to attract import shipments, which were taxed according to the port of arrival into the country. Eager to find a political consensus, the central government has offered to reduce states' debt with the central government in compensation for further progress, and the issue is currently discussed in Congress. The issue of indirect tax reform is crucial, and discussions about this issue have been going on for long. Continuing the efforts to unify indirect taxes into a single national VAT is clearly necessary.

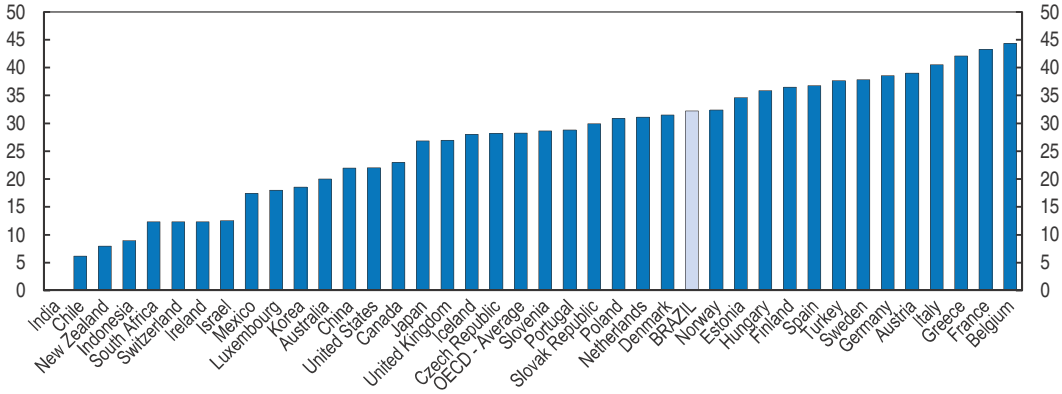
Base-broadening of indirect taxes, which currently cover around 70% of consumption, should be part of the reform strategy of the indirect tax system. In this context, the case for the recent decision to exempt basic consumption items from some consumption taxes is weak. Although many countries use such exemptions for redistribution purposes, they are often poorly targeted. A large share of the tax expenditures often accrues to high-income households, who spend more money on the kind of food and hygiene products that have recently been exempted even if this represents a smaller share of their total consumption than in the case of low-income households. Choosing the composition of such basic items is a difficult task – as evidenced by the fact that a number of luxury items were included in

the recent exemption of basic consumption items. The consumption tax exemptions should be removed, as supporting the real incomes of poor households can be done more effectively through other policy instruments, such as Brazil's successful flagship anti-poverty programme *Bolsa Familia*. From a perspective of containing price pressures, a policy priority at the time the exemption was implemented, tax exemptions can only have a one-time level-effect on prices, and hence a very short-lived effect on inflation.

Labour taxes, which are high in international comparison (Figure 1.10), have been lowered for select sectors in 2012 and 2013, as the authorities converted payroll-based social security contributions into turnover-based contributions. The list of eligible sectors has been extended gradually, including a number of non-tradable sectors such as construction, and extension to more sectors is planned for 2014. These tax conversions were meant to provide tax relief to companies, and they imply a change of the tax base from labour to turnover. However, the tax relief may not materialise if it is captured by higher wages, which is conceivable in the context of full employment. In any event, one academic estimate suggests that the amount of the tax relief may not be that large (Werneck, 2013). Indeed many sub-sectors used their right to opt out from the measure, as prior consultations with the private sector resulted in a definition of activities affected by the payroll tax conversion at a fairly detailed level.

Figure 1.10. **Average tax wedge on labour**

At 100% of average worker earnings, couple with two children



Source: OECD (2013b). Latest available year is 2012 for OECD countries, 2009 for Indonesia and 2010 for the remaining BRIICS countries.

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The conversion of payroll-based contributions into turnover-based contributions (equivalent to a turnover tax), applied at sector-specific rates, will further reduce returns on investment and should be reconsidered. They will make corporate taxation more distortionary, because taxing turnover rather than corporate income does not allow expenses to be deducted and thereby distorts the organisation of the value chain towards vertical integration. By contrast, global trends are moving towards more fragmented value chains, often organised across national borders, a process in which Brazil's participation has been scant so far. Conversely, evidence from OECD countries suggests that labour taxes are associated with better growth performance than corporate taxes (Arnold et al., 2011). At 34%, the statutory corporate tax rate is already significantly above the current OECD average of 25%. Moreover, given low investment and almost full employment,

strengthening investment incentives would be a stronger priority than strengthening hiring incentives in the current situation.

Already, Brazil is relying on turnover taxation of the corporate sector to a greater extent than other countries, because of its targeted tax system for small and medium enterprises *Simples Nacional*, under which the majority of Brazilian firms pay their corporate taxes, is based on turnover rather than value added or corporate income. In the case of *Simples Nacional*, however, the ease of administration is a valid argument in favour of turnover taxes. Administrative ease is a key concern for taxing small and medium size firms, but a blanket taxation of all companies – including large ones – on the basis of turnover seems like a missed opportunity to optimise the tax system.

This raises the question whether the payroll taxes might be converted into taxes on value added. In contrast to a tax on turnover, this would exempt investment expenses, which would foster competitiveness. While such a move may make the tax system less distortive in many countries, in the specific case of Brazil other tax reforms may be necessary before shifting more tax burden to value added taxes. As discussed above, Brazil's system of cascading indirect taxes is far from best practice in consumption taxation, and more of the tax burden to VAT would only reduce distortions with certainty after a consolidation of the state-level tax regimes into a single broad-based national VAT. At the same time, the tax burden implied by the different value-added taxes in Brazil is already high. One academic estimate currently puts this burden at a national average of 34%, which would have to rise to 40% to replace all payroll taxes (Werneck, 2013).

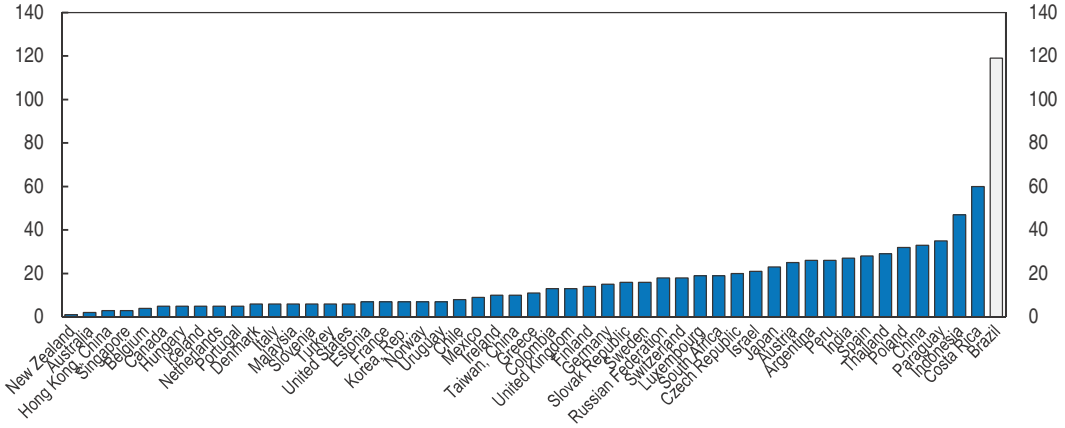
One element that has not received much attention is the possibility to raise more revenues from recurrent taxes on real estate. OECD evidence suggests that this can be a tax instrument associated with a low level of distortions. Revenues from recurrent taxes on immovable property (IPTU) have been stagnant for years, despite rapidly rising real estate prices in many cities, and they are currently lower than revenues from vehicle taxes (IPVA). Property tax revenues currently account for only 1.3% of tax revenues in Brazil, compared to an OECD average of 3.2%, and could be raised by raising the rates and by ensuring that values in property registers are kept up to date. Where updating property values creates administrative challenges, simplified ways of assessing tax liabilities, based on a combination of property size and location, could be employed.

Administrative burdens could be eased

Significant administrative burdens hamper productivity growth in many areas. Although there is not one single method of measuring administrative burdens, the widely used World Bank Doing Business Indicators imply that entrepreneurs wishing to start a business face many more administrative hurdles than in other economies. Starting a business requires 13 procedures in Brazil and takes 119 days, while Chile, Colombia and Mexico require fewer procedures that can be accomplished in less than 2 weeks (Figure 1.11). With this result, Brazil ranks at 121 out of 185 economies surveyed. There is also a significant degree of heterogeneity within Brazil. For instance, the gap between the worst and the best performing state is eight-fold in Brazil, while in Mexico the difference across states is two-fold (World Bank, 2006, 2013a). Other areas of regulation where Brazil is in the lower half of the countries surveyed include getting construction permits, registering property, enforcing contracts and resolving insolvency. Similarly, the OECD Product Market Regulation indicators suggest that barriers to entrepreneurship are higher than in the OECD on average, in particular with respect to the communication and

Figure 1.11. **Ease of starting a business**

Days required to start a business, 2012



Source: World Bank (2013a).

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simplification of rules and procedures and to the use of command and control regulation (Wölfl et al., 2009).

Empirical results from the firm-level analysis confirm that these administrative burdens affect the productivity performance of Brazilian firms (see Annex). Exploiting across-time variation, measures of the number of procedures and of the number of days required to start a business are interacted with a proxy for the role of firm entry and exit in different industries, based on industry-specific firm turnover rates in the United States from Bartelsman et al. (2008). This measure is exogenous to regulation in Brazil and has been used widely in the literature to reflect technology-driven differences in the role of firm entry across sectors. The results suggest that more required procedures for starting a business reduce firm-level productivity, and the same holds for the longer delays for starting a business. Both results are statistically significant at the 5% levels.

In addition, there is also evidence that productivity suffers from difficulties in enforcing contracts. Legal disputes with related parties can arise in the course of any business operation, and the efficiency of the judiciary system determines how much time and effort is lost over such disputes. The analysis uses substantial regional variation in the cost to enforce contracts as a fraction of the outstanding debt and interacts this with an indicator that measures the degree to which different industries depend on institutions to resolve disputes created by Nunn (2007). The empirical results suggest that higher enforcement costs hamper firm performance. Additional results suggest that this effect is particularly pronounced for young firms that have been in business for less than 5 years. This may suggest that long-term business relationships can to some degree substitute for difficulties in contract enforcement. But the disadvantage for start-up companies resulting from an unsatisfactory institutional environment reduces the flexibility and the dynamism of the economy by hampering firm turnover and reallocation. This evidence suggests that strengthening contract enforcement through the court system or other forms of arbitration and ensuring sufficiently quick decisions to make contract enforcement easier would improve productivity.

Administrative burdens even affect firms' access to finance. The official duties, taxes and notary fees to register collateral for a credit contract are high, but most of all they vary

substantially across states. While registering collateral for a loan costs an average of 0.2% of the loan value in Rio de Janeiro, it costs 3.8% of the loan value in the state of Ceará. Interacting this kind of variation with differences in the dependence of specific sectors on external finance, as measured by Rajan and Zingales (1998), allows an analysis of the productivity effects of administrative burdens for registering collateral. The firm-level results suggest a highly significant negative effect on productivity. Bureaucratic requirements to use assets as collateral for bank loans should be made easier, which may also support Brazil's underdeveloped long-term credit market (see below).

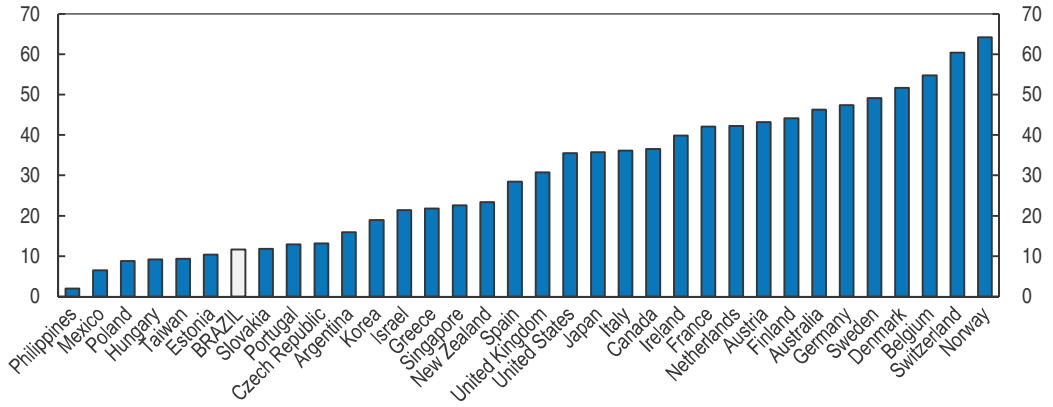
All these results suggest that the productivity of Brazilian firms would benefit significantly from streamlining the burden of administrative procedures. A major overhaul of administrative processes in business-relevant areas would be warranted, as there is no reason why Brazil should rank so much lower than other Latin American peers. One way forward would be to apply a silence-is-consent rule wherever possible, except where there are major safety or environmental concerns. Under such a policy, applicants are only required to notify the authorities and an authorisation is assumed granted unless a negative reply is issued within a specified time frame. Portugal has had positive experiences with implementing such a policy in certain areas.

Containing labour costs

Another driver of production costs in Brazil are labour costs, which are less competitive in Brazil than in a number of emerging and OECD economies, such as Estonia, Hungary, Mexico, the Philippines, Poland and Taiwan, all of which have lower labour costs than Brazil when measured in USD (Figure 1.12). For example, Brazil's labour costs are currently on a par with the Slovak Republic, a European country that has received significant amounts of manufacturing FDI but which scores 15-20% better than Brazil in the three areas of educational attainment measured by the OECD's PISA study, is well-connected to its export markets and has a low tax burden.

Figure 1.12. **Hourly compensation levels in manufacturing**

In USD, 2011



Source: Bureau of Labor Statistics (2011).

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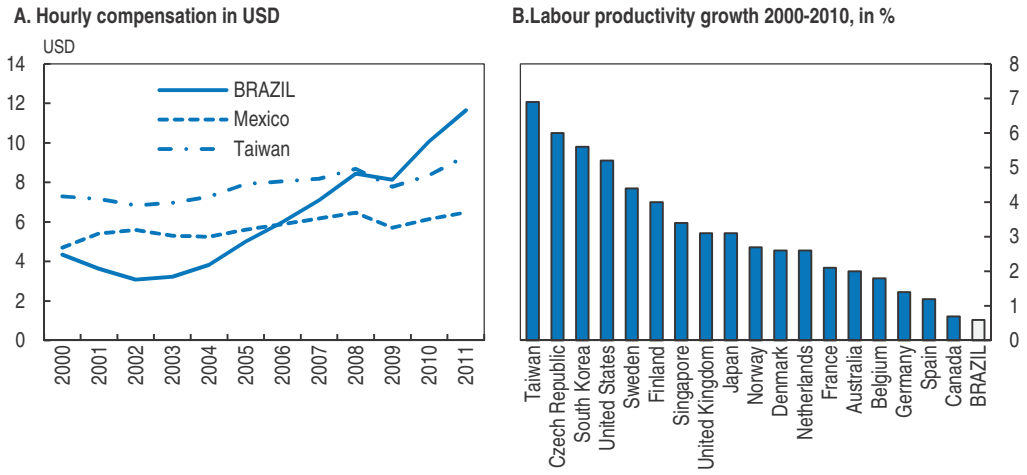
Wages in Brazil have been rising steeply over the last decade, overtaking first Mexico and then Taiwan (Figure 1.13, Panel A). But while Brazil's labour costs rose faster than in other countries, its labour productivity has grown less (Figure 1.13, Panel B). This pattern

Figure 1.13. **Wages and productivity in the manufacturing sector**



Source: IBGE, Bureau of Labor Statistics (2011).

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has resulted in a declining competitiveness of tradable sectors, in particular manufacturing, and is one of the reasons behind a falling weight of the manufacturing sector in overall value added. While a substantial appreciation of the *real* has played a role in this, exchange rate developments are not enough to explain the rise in labour costs over the last decade (Figure 1.5). Some of the currency appreciation of the past decade has been reversed by a depreciation that initiated in 2011, which intensified in April 2013.

For the whole economy, real wages have risen at a steady pace of around 3.4% over the last 5 years, while unemployment has been falling. Average monthly wages have been affected by strong increases in the national minimum wage rate, as suggested by a simple empirical analysis (Box 1.2). The real value of the minimum wage has almost doubled over the most recent decade, due to an automatic rule linking annual minimum wage increases to past inflation and increases in overall real GDP (as opposed to per capita GDP), which is scheduled for review in 2015. Allowing a progressive reduction of the minimum wage relative to the median wage would help improve international competitiveness. To that end, the current rule could be replaced by a rule that indexes annual minimum wage increases to the consumer price index for low-income households plus only part of productivity gains for some time. Such a rule would protect the purchasing power of

Box 1.2. **Direction of causality between minimum wage and average wages**

The existence of a causal relationship between the minimum wage and average monthly wages can be tested empirically by running a vector auto-regression model and testing for Granger-causality. This is an empirical model in which one time series is explained by its own past values and those of other time series. In this context, a time series X is said to Granger-cause another one Y if past values of X can significantly add to the explanation of present values of Y. Establishing Granger-causality requires rejecting the null hypothesis that X does not Granger-cause Y. Estimations in Table 1.1 suggest that there is a causal link from the minimum wage to average wages, but no such link seems to exist in the opposite direction.

Box 1.2. **Direction of causality between minimum wage and average wages** *(cont.)*

Table 1.1. **Minimum wage and average wage: Granger-causality tests**

	Granger-causality tests	
H_0: Minimum wage does not Granger-cause average monthly wages	26.095*** (0.006)	
H_0: Average monthly wages do not Granger-cause minimum wages		12.913 (0.299)

Note: P-values in parentheses. *** indicates statistical significance at the 1% level. Monthly data from March 2002 (beginning of the monthly series) to July 2013. The lag length has been determined as 11 months by the Akaike information criterion.

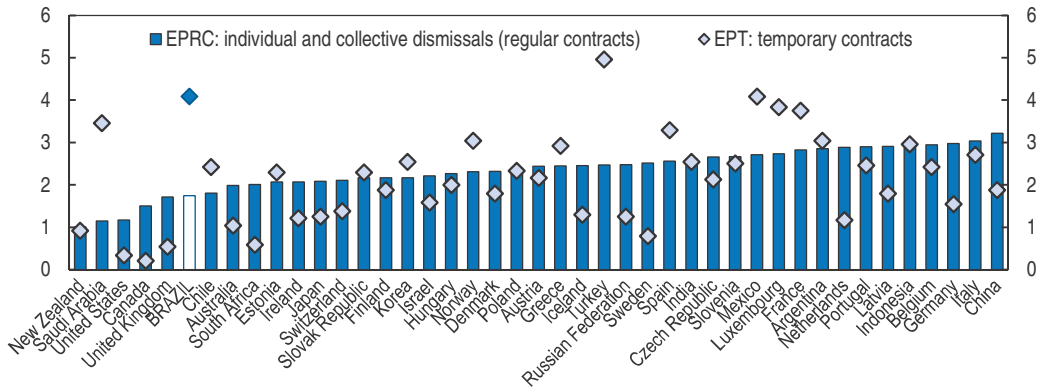
minimum-wage earners, and imply reducing but not halting future real increases in the minimum wage. Large minimum wage increases are not a way to improve the incomes of Brazil's poorest, whose earnings are already below the minimum wage (see Chapter 2).

Another part of the explanation for rising wages lies in the design of the stimulus policies put in place to lift the economy out of a patch of slow growth. A strong consumption boost resulting from consumption tax incentives and expanding credit from public banks kept the labour market tight despite slow growth in the industrial sector. Stronger demand for services has increased output and employment in the services sector. Going forward, the policy focus should shift away from stimulating consumption and resolve supply-side bottlenecks instead, to support the rebalancing of demand from consumption to investment that has taken place over the last 3 quarters. This would raise potential growth, raise the resilience of the economy and have beneficial effects for productivity. In this context, containing labour cost increases will be important for the cost competitiveness of Brazilian producers, especially in the manufacturing sector.

Besides the cost of labour, rigid labour market regulations, many of which are enshrined in the constitution and were set up many decades ago, together with uncertainties surrounding their interpretation by labour courts, also add to the "Brazil cost". These regulations are focused on the conditions of work and pay rather than on employment protection, which does not appear particularly strong in comparison to other countries in the *OECD Employment Protection Database* (Figure 1.14). Only the use of fixed-term contract is limited strongly by the law, but the practical relevance of this may be low since employment protection on regular contracts is not very strong.

In some instances, detailed labour laws even restrict mutually beneficial agreements between unions and employers, often resulting in a discrepancy between common practice and the law. This poses legal risks for companies, as labour court decisions are a prerequisite to any definite settlement of labour disputes. For instance, the constitution contains strict rules on the splitting of annual leave days which are often neither in the interest of employers nor employees and are therefore widely disregarded, but such practices can always be legally challenged by employees in the case of disputes. Court decisions can be difficult to anticipate and the fines imposed on employers can be very high. In merger and acquisition cases, labour liabilities on firms' balance sheets are often a crucial factor for assessing company values, reflecting the difficulties to design binding

Figure 1.14. **Employment protection legislation**



Notes: Data refer to 2013 for OECD countries and Latvia, 2012 for other countries. The figure presents the contribution of different subcomponents to the indicator of regulation for standard fixed-term contracts (EPFTC). A standard fixed-term contract is defined here as a generic employment contract with a precisely-specified end date (in the form of day, month and year at which the employment relationship is set to end, if the contract is not renewed). The height of the bar represents the value of the EPFTC indicator.
Source: *OECD Employment Protection Database*, 2013 update.

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contracts between employers and employees. This legal uncertainty could be resolved by modernising labour regulations, and allowing more space for legally binding beneficial agreements at the company level. As a first step, a tripartite dialogue should be encouraged and beneficial changes that are agreed by labour unions and employers should be implemented without delay.

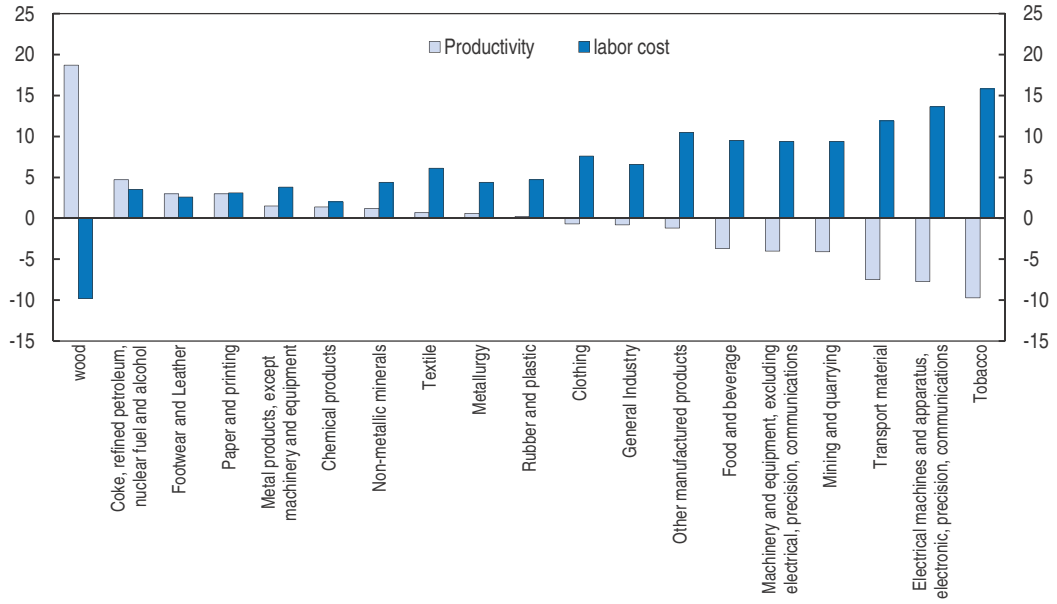
Empirical evidence suggests a link between both labour cost increases and labour regulations on the one hand, and productivity on the other. Hourly labour costs in the industrial sector have risen to different degrees across industries during 2012, and this variation display an inverse relationship to labour productivity growth, consistent with an inverse relationship between the idea that rising labour costs reduce productivity (Figure 1.15). Micro-evidence suggests a causal link between the strength of effective labour regulation and the productivity of firms. The evidence exploits regional differences in the enforcement of labour regulations, based on the analysis in Almeida and Carneiro (2012), interacted with an industry-specific measure for the degree of labour turnover across industries, taken from Bassanini et al. (2009). Firm-level results show that firms in sectors where labour turnover is stronger are particularly affected by stringent enforcement of labour laws, resulting in lower productivity levels.

Improving skills

An important factor behind low labour productivity is the low qualification level of the labour force. Brazil's scores in internationally comparable assessments such as the PISA study (OECD, 2012) are low in international comparison, with a statistically significant gap to the OECD average. Higher skill levels are particularly scarce in Brazil: Currently, only 10% of the population have a post-secondary degree, compared to 15% in Mexico, 25% in Chile or 30% in the average OECD country. Skill shortages are particularly acute in medicine and engineering, but also in mathematics, physics, chemistry, economics and social sciences. In these sectors, labour demand outpaced supply strongly and salaries rose faster than in other areas (Menezes Filho, 2012). Improving the skill set of Brazilian workers is necessary, and increasing the number of skilled people has the double advantage of strengthening

Figure 1.15. **Productivity and labour costs across sectors**

Percentage variation during 2012, ordered by increasing labour productivity



Source: IEDI, 2013.

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productivity growth and reducing income disparities. In the past decade, Brazil has made remarkable progress in improving access to education, particularly for people from less privileged backgrounds. The next important challenge will be to improve the quality of education, and to enhance vocational training programmes whose content is highly relevant for the labour market. Recent government policies go in this direction. A reform of the school assessment system, with targets for learning outcomes down to the school level in all regions, is beginning to show results. A promising initiative for vocational training, called PRONATEC, will be discussed in more detail in Chapter 2. For the high-end of the qualification levels, a programme to grant scholarships for Brazilians to pursue advanced university studies abroad is also likely to be helpful.

Empirical results from the firm-level analysis reveal a strong role for educational achievements in enhancing productivity. Exploiting state–level variation in Brazil's unique test scores that measure actual educational achievements of students in every school at the end of 12th grade (IDEB, 2011), and interacting this with the skill intensity of different industries as measured by ILO (2012), the results suggest a significant positive effect of higher skills of secondary students on productivity. Since the analysis exploits regional variation, the result hinges on the assumption that a states' current test scores are a good proxy for the skill level of its labour force, but casual evidence suggests that this is a fairly reasonable assumption, since differences in the quality of education systems across states seem to be fairly persistent over time and labour mobility is limited.

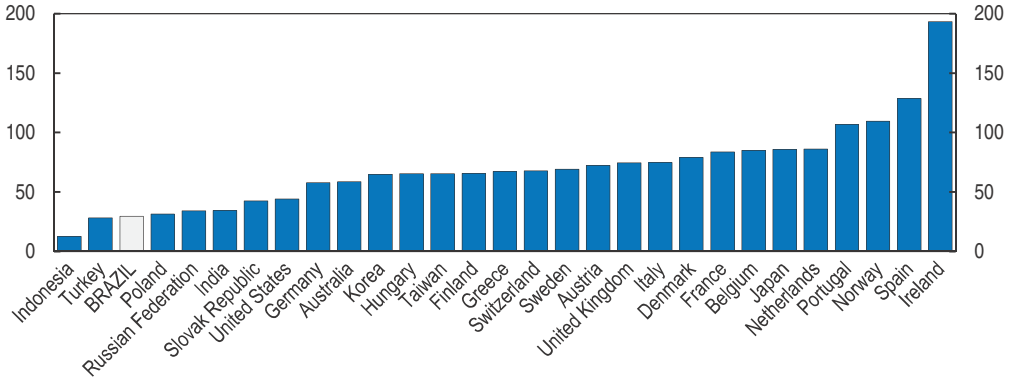
Achieving better and cheaper access to credit for Brazilian companies

The Brazilian credit market is characterised by stark differences between the short and long maturity segments. While the short-term credit segment is served by many competing public and private banks, including foreign banks, long-term credit is provided

almost exclusively by one public-sector institution, the national development bank *Banco Nacional de Desenvolvimento Econômico e Social* (BNDES). Demand for long-term credit exceeds supply, and loans are not allocated according to market criteria. Long-term credit markets continue to be underdeveloped, with outstanding loans to the corporate sector at around 29% of GDP, which is low compared to OECD countries (Figure 1.16).

Figure 1.16. **Credit to corporate sector**

In % of GDP, 2012



Source: Oxford Economics.

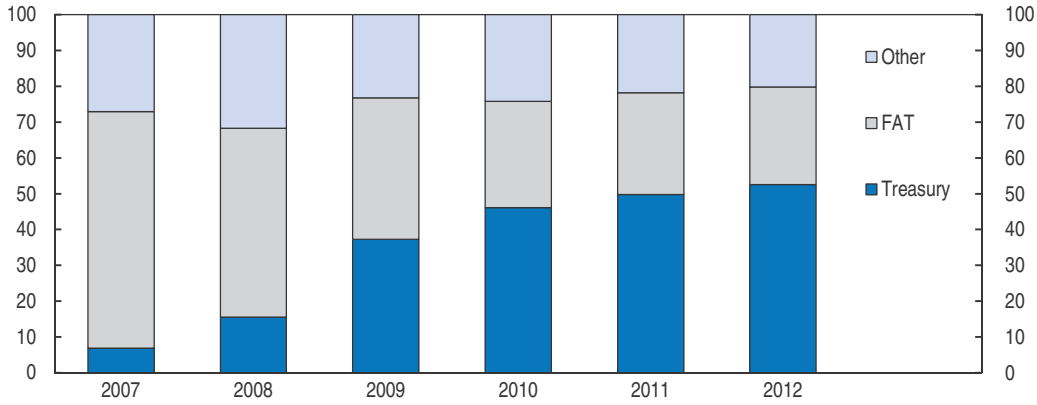
StatLink http://dx.doi.org/10.1787/888932924552

The interest rate applied to long-term credit by BNDES is based on an long-term interest rate (*Taxa de Juros de Longo Prazo* – TJLP) that is set quarterly by the National Monetary Council, which consists of the Minister of Finance as president, the Minister of Planning and the governor of the Central Bank. The TJLP is currently at 5.0% or 400 basis points below the Selic policy rate, which roughly represents the rate at which the government borrows. Investment decisions at the margin are probably determined by market interest rates because firms will always face the opportunity costs of investing any extra resources at the Selic rate and would not invest in their own company unless they expect a return above this rate.

BNDES has traditionally been financed through a fixed share of the revenues of the *Fundo de Amparo ao Trabalhador* (FAT), a tax-financed workers' welfare fund meant to provide social benefits such as unemployment insurance and annual salary bonuses to workers. The accumulated funds are remunerated at the TJLP, which makes the FAT similar to a mandatory saving scheme at below-market rates. Since 2009, direct transfers from the national budget to BNDES have increased substantially, and have become the main funding source for BNDES (Figure 1.17). The increase in these direct transfers have allowed BNDES to double its loan volume since the beginning of the economic crisis (Figure 1.18). In April 2013, Congress approved a decree raising support to BNDES to BRL 312 billion, up from 227 billion in 2012. Given that BNDES remunerates the funds it receives at the TJLP while the government borrows at more or less the Selic rate, the interest differential implies a substantial state support to BNDES.

A large share of BNDES loans is extended to large companies (Figure 1.18), which contrasts with development banks in other countries, such as Chile's CORFO. Large companies would be the ones that would probably enjoy the easiest access to credit in private credit markets, while evidence suggests that small and medium enterprises (SME)

Figure 1.17. **Sources of funding of BNDES**

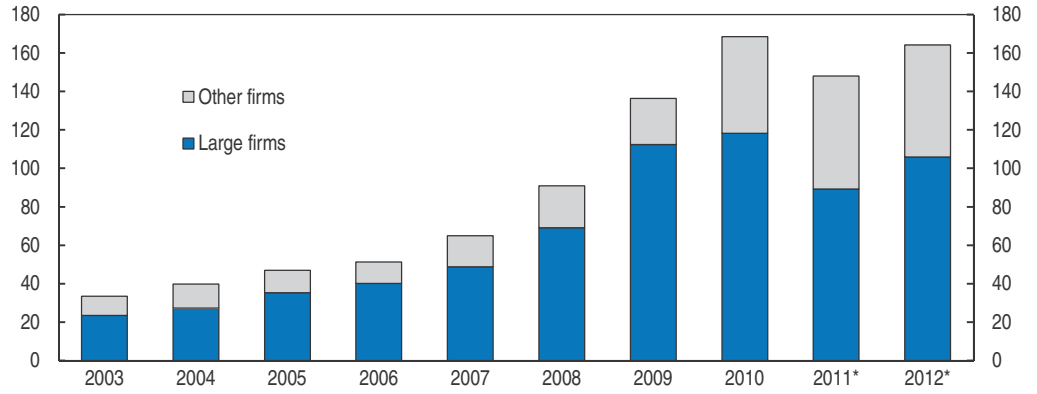


Source: BNDES.

StatLink http://dx.doi.org/10.1787/888932924571

Figure 1.18. **The evolution of BNDES disbursements**

In billions of BRL



Note: The definition of large firms is turnover above BRL 60 million for 2003-2010, and turnover above BRL 90 million for 2011(*) and 2012(*). A consistent definition of the size categories for all years was not available.
Source: BNDES.

StatLink http://dx.doi.org/10.1787/888932924096

sometimes struggle to get access to financing even in more developed financial markets (OECD, 2006). Indeed, several countries are providing public assistance for SME financing, and re-orienting BNDES further towards its SME activities such as the "BNDES card" would be a useful focus for future BNDES lending activities.

Empirical work using company-level data suggests that BNDES lending can raise productivity, but only for part of the recipient firms (Coelho and De Negri, 2010, Lazzarini et al., 2011, Ottaviano and Souza, 2008, Pereira and Simões, 2010). This sheds doubt on whether credit allocation by BNDES reaches the firms that need it the most.

Brazil's future investment needs clearly exceed the lending capacity of BNDES, and increasing private participation in the long-term credit market will be necessary both to increase lending volumes and to improve the allocation of credit. Private entry will require levelling the playing field by phasing out all direct and indirect financial support to BNDES. If the authorities feel that there is a need to support specific parts of long-term credit, then such financial support should be granted explicitly and independently of the lending institution.

BNDES would retain an important role even with strong private-sector participation in long-term credit. Its financial muscle makes it uniquely placed to support the development of long-term capital markets that would improve access to long-term funding for private banks and large companies. BNDES has already started to act as a market maker on secondary markets for long-term paper.

Its credit portfolio could focus on the traditional development finance areas like lending to small and medium enterprises, infrastructure finance and innovation, where market failures tend to hamper the performance of private credit markets (OECD, 2006, Wagenvoort et al., 2010). BNDES has already made steps into both these directions by increasing SME lending from 18% in 2009 to 32% in 2012 and increasing its share of infrastructure projects from 31% of new loans in 2010 to 45% in 2012. In addition to more SME lending, BNDES has also announced the end of its policy to promote the competitiveness of large Brazilian multinational companies. New infrastructure bonds are gradually rising with the help of BNDES, although this will be a lengthy process. For the period 2013 to 2016, BNDES intends to fund 44% of an estimated BRL 178 billion in infrastructure investment.

The transition towards private long-term credit markets will have to be gradual and involve a series of steps. First, private lenders should be drawn into the segment by means of mandatory private co-financing requirements for BNDES loans, as practiced by the French development bank BPI, for example. In a second step, BNDES will need to make room for private entry by reducing its own lending volumes outside the traditional areas of development finance like SMEs, infrastructure or innovation financing. The fact that large companies are those that would most likely get financing from private institutions suggests that such a withdrawal might not be disruptive.

Industrial policy, trade protection and competition

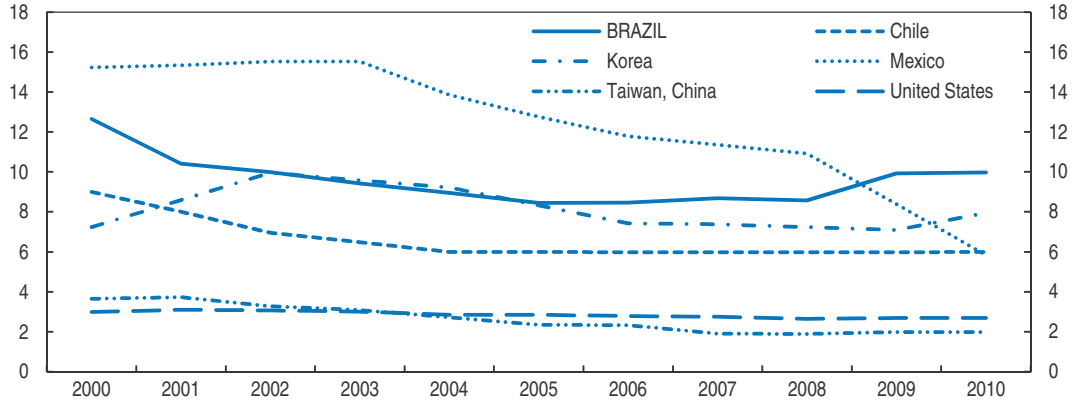
The economy's exposure to international trade is fairly low. Imports and exports taken together are only about a quarter of GDP. Part of this is related to the fact that Brazil enjoys a large domestic market and is geographically more remote than other economies. But even when accounting for the size of its market, Brazil trades little in international comparison. Beyond remoteness, trade policy plays a role. Average tariff levels in Brazil remain high in comparison to some other countries and have been rising since 2008 (Figure 1.19).

During 2012, trade protection rose in a number of sectors. Imported automobiles were affected by an additional consumption tax and tariffs were raised on a set of 100 products in 2012, including intermediate inputs and capital goods. These products constitute less than 4% of total imports and had not been characterised by particularly strong import surges. The effects of these tariff hikes became clearly visible in import figures, as imports of these products declined by 14.6% more than total imports during the last quarter of 2012 compared to one year earlier. In February 2012, a revision was announced for some products as some of the resulting price increases on these products were deemed abusive, and the tariff increases are now set to expire in October 2013. These rapid changes in trade policy reduced policy predictability, and may have affected profits and investment in downstream sectors.

Brazil is less integrated into global value chains than many other countries, as evidenced by a low share of imported intermediates (14%) and a low import content of

Figure 1.19. **Applied tariff rates in international comparison**

Weighted average, total trade, 2010



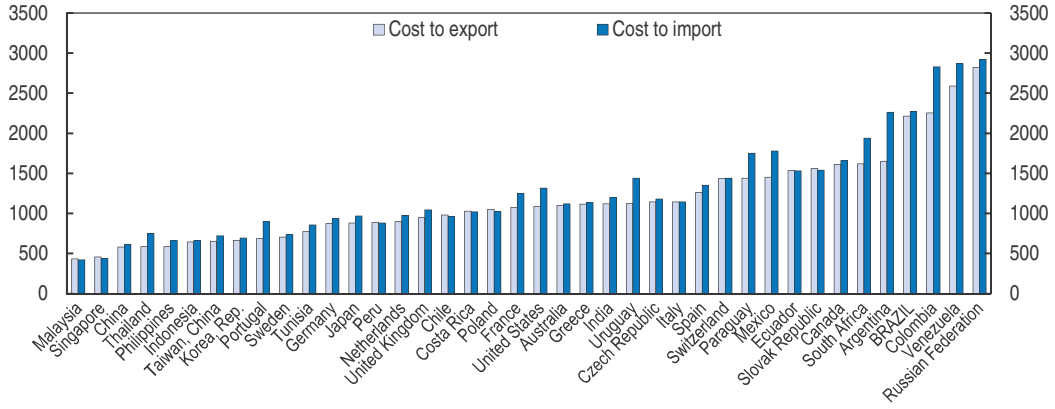
Source: World Bank (2013b).

StatLink http://dx.doi.org/10.1787/888932924590

exports (10%). Its participation in global value chains through exports results mainly from the fact that other countries use Brazilian intermediates in their exports (OECD, 2013c). One factor that may be hindering a stronger trade integration is the comparatively high cost of exporting and importing a container (Figure 1.20).

Figure 1.20. **Cost of exporting and importing a container**

In USD per container



Source: World Bank (2013a).

StatLink http://dx.doi.org/10.1787/888932924609

Higher trade protection reduces the competitive pressures from imports that drive firms to produce goods in which they have a competitive advantage, to adopt the most efficient production technologies and reach global best practice. In addition, trade protection hurts downstream sectors that use these products as intermediate inputs or capital goods. In contrast to Brazil, other Latin American countries like Chile, Colombia, Mexico and Peru have actively promoted integration with large markets such as Japan, China and the United States through bilateral agreements. However, Brazil has free-trade agreements with almost all South American countries. A tariff exemption scheme for capital goods has been put in place, but it is only applicable where no equivalent domestic

product exists, and Brazil has a sizeable capital goods industry. Recent increases in protection should be unwound, and the general level of protection should be reduced.

In addition to protection measures at the border, Brazil also uses local content restrictions in publicly financed projects. For urban transport projects under the Growth Acceleration Programme (PAC2), 80% of a list of select manufactured goods and engineering services have to be domestically sourced with some exceptions, and this may increase the cost of urban transport investments. For other public procurement, domestic sourcing is mandated by law in some sectors following a cost-benefit analysis, up to specific price differentials that can reach as much as 25% in those cases where the potential for technological development is deemed high. BNDES can also attach local content conditions to its loans for capital goods. Exemptions from indirect taxes are another tool used to confer competitive advantages to local production, such as in the case of smart phones or tablet computers, where the declared policy objective is to develop a local industry. The oil sector is also subject to strict local content rules, which can cause higher costs and delays where local capacities are insufficient. For example, in early 2013 *Petrobras* confirmed that it will start work on four oil platforms in China instead of Brazil, as originally planned, because of delays at local shipyards.

Horizontal policies aimed to improve the cost competitiveness of local producers should be given preference over trade protection measures, even temporary ones. Exposure to import competition is essential for creating the right incentives for minimising costs and margins and for keeping a country's production patterns in line with comparative advantage. While there are instances where governments have created comparative advantages through temporary protection, there is a significant risk that selective industrial policies may create domestic rents and harm downstream activities without any comparative advantage emerging. This reflects the difficulties for governments to pick winners among industries, with the risk of making wrong choices being tremendous. By contrast, the payoff from horizontal improvements of business conditions and reducing the "Brazil cost" is certain.

But maintaining strong competition is not only about foreign competitors. Domestic regulation also plays an important role for the competition on product markets, in particular in sectors with limited tradability such as services industries. As measured by the OECD Product Market Regulation (PMR) indicators, regulations that curb competition are more restrictive in Brazil than in the average OECD country, but less so than in the average of the BRIICS countries. While Brazil scores 1.98 on a scale of 0 to 6 in 2008, the OECD average is at 1.35, while the average values of China, India, Indonesia, Russia and South Africa is 2.86. Compared to the OECD average, Brazil's regulations are particularly restrictive with respect to administrative burdens on start-ups and the transparency and simplicity of rules and procedures, which echoes some of the earlier discussion on administrative burdens. Brazil could do more to make sure its regulations do not unnecessarily hinder competition. The OECD's Competition Assessment Toolkit (OECD, 2010) can assist the government by providing a flexible methodology not only for identifying but also for revising policies that unduly restrict competition. The consumer benefit of deregulation has been vividly demonstrated in the case of domestic air traffic. Following a complete overhaul of the competition-restricting regulatory framework a decade ago, real flight prices have dropped by 40%.

Box 1.3. **Summary of policy recommendations for enhancing productivity and cost competitiveness**

Infrastructure

- Move forward on new infrastructure works and concessions as planned and improve the capacities and incentives for subnational governments to execute infrastructure projects without unnecessary delays.
- Implement the planned modernisation of the port sector, including through regular concession tenders without automatic renewal. End the current monopoly contracts for temporary port labour.
- Move forward with planned electricity tax reductions, and define a transparent and stable framework for electricity concessions in the future.
- Evaluate different options for the planned link between Campinas and Rio de Janeiro, in particular compare the cost effectiveness of a high-speed train to alternative options such as a regular rail line or flexible tilting trains.

Taxes

- Continue efforts for a political agreement to consolidate state and federal indirect taxes into a single, broad-based value added tax.
- Reduce the use of turnover taxes and contributions and offset the loss of revenue either by reinstating the payroll-based contributions or raising other less distortive taxes, such as a well-designed consumption tax or property taxes.
- Reduce tax compliance costs by requiring less procedures and making the procedures easier to comply with. Unifying all states' tax codes for indirect taxes would be a useful first step.

Administrative burdens

- Reduce administrative burdens affecting businesses, particularly in the areas of starting a business and enforcing contracts. Adopt a silence-is-consent policy wherever possible, which assumes authorisation unless the authorities react within a specified time frame.
- Strengthen the court system and speed up decisions to make contract enforcement easier.
- Ease requirements to create collateral that can be used for bank loans.

Labour markets

- To protect the purchasing power of the minimum wage while allowing a gradual reduction relative to the median wage, index annual minimum wage increases to the consumer price index for low-income households plus only part of productivity gains for some time, in replacement of the current rule.
- Modernise labour regulations and allow legally binding agreements between employers and employees at the firm level. Start by implementing beneficial changes that can be mutually agreed on by trade unions and employers in a tripartite dialogue.

Improving skills

- Continue the successful expansion of the education system and with a stronger focus on improving quality and promoting vocational training.

Box 1.3. **Summary of policy recommendations for enhancing productivity and cost competitiveness** *(cont.)*

Financial markets

- Gradually phase out financial support to BNDES and foster competition in long-term credit markets.
- Continue efforts to facilitate the development of private long-term capital markets, including by requiring private co-financing mandatory for BNDES loans over a transition period, while gradually confining BNDES lending to the financing of infrastructure, small and medium enterprises and innovation.

Tariffs and industrial policies

- Reduce the overall level of tariff protection and ensure the predictability of trade policies by avoiding short-term adjustments of tariff rates.
- Phase out local content requirements in publicly financed projects, including infrastructure projects and BNDES-financed investment, and also in the oil sector.
- Eliminate targeted support to specific sectors and rely on horizontal measures to support industrial performance.

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ANNEX 1.A1

*A description of the empirical analysis and results**

This Annex provides details on the firm-level evidence on the links between market distortions and the productivity of firms. A full description of the analysis is available in Arnold and Flach (2013, forthcoming).

The analysis combines data from a number of sources. Firm-level productivity measures of total factor productivity are obtained from the commercially available data base ORBIS, published by Bureau van Dyke. These data have been prepared by the OECD Statistics Directorate and used for other countries in previous OECD work (Ragoussis and Gonnard, 2013). While the coverage of the data set is fairly large, it is certainly much smaller than that of official business registers, which were not available for this research. Most of the policy variables used are objective and measurable variables, although in some cases aggregates of perception-based variables have also been used to confirm results. Some of the policy or interaction variables were not available for all sectors, thus reducing the size of the estimation sample.

The firm-level data contain information from annual balance sheets and profit and loss accounts for the years 2000-2010, with sufficient data available to infer productivity for 16 384 firm observations, corresponding to 6 574 firms in Brazil. The main productivity measure has been constructed using a multilateral productivity index for each firm i in sector s at time t as follows:

$$TFP_{it} = \ln\left(\frac{Y_{it}}{\bar{Y}_s}\right) - \sigma_i^l\left(\frac{x_{it}^l}{\bar{x}_s^l}\right) - \sigma_i^k\left(\frac{x_{it}^k}{\bar{x}_s^k}\right) \quad (1)$$

where Y is value added, x^l and x^k represent the use of labour and capital, $\bar{Y}_s$, $\bar{x}_s^l$ and $\bar{x}_s^k$ are geometric means of value added and the use of factors labour and capital of all firms in the same 2-digit industry s over all years, and $\sigma_i^l = (\bar{\sigma}_i^l + \bar{\sigma}_s^l)$ is the average of the labour share in firm i and the geometric mean factor share in industry s, with the analogue definition applied for the factor capital. Constant returns to the two factors of production, capital and labour, are assumed by imposing $\sigma_i^l + \sigma_i^k = 1$.

The main advantage of the index approach is that it allows comparisons between any two firm-year observations even across industries, since each firm's inputs and outputs are calculated as deviations from a reference firm in the industry. Parametric productivity estimates do not allow such comparisons. For further details on the index measure, see Arnold and Schwellnus (2008) and Caves et al. (1982a, 1982b). In equation 1, value added is calculated using information on operating turnover, the cost of goods and the wage bill of

* The empirical work was done by Lisandra Flach and Jens Arnold.

employees, by firm and year. Nominal values are deflated using an industry-specific output and capital deflators from IBGE (2012). Robustness checks using alternative productivity measures, in particular the semi-parametric estimator proposed by Olley and Pakes (1996) confirm the results obtained in the analysis. The data have been cleaned for obvious outliers and reporting mistakes, which has resulted in dropping less than 1% of the original sample. A few sectors have been excluded from the analysis due to their monopolistic nature such as in the case of utility sectors, their the strong degree of public control, such as in public administration, defence, education and health services, or because they are subject to peculiar cyclical swings such as financial services or mining.

Productivity measures have been related to policy variables using a difference-in-differences strategy following Rajan and Zingales (1998), which relies on comparisons within comparable sub-groups of firms, such as firms within the same state of Brazil and the same year. In a typical estimation setup – and there are minor differences across the estimations due to data availability – the policy variable varies across times or across states, and is interacted with a industry-specific variable that is assumed to measure the relevance of this policy aspect for the sector to which the firm belongs. For example, in the case of energy costs that vary across states, the interaction factor is the energy intensity of industries. This setup assumes that firms in sectors that are more energy-intensive are more affected by regional differences in energy costs than other sectors. The estimation coefficient is hence identified only from comparisons across firms in different industries within the same state. State-industry combinations are the level at which the interaction measure varies, while fixed effects control for all idiosyncratic productivity influences specific to combinations of states and years and specific to industries. The resulting estimation equation in this case is the following:

$$TFP_{it} = \alpha + \beta\ energy_cost_{reg}{}^{*}energy_intensity_{s} + D_{reg,t} + D_{s} + \varepsilon_{it} \qquad (2)$$

Where the subscript reg represents the region or state, D are binary variables and ε is a white-noise error term. This empirical strategy means that the estimated effect can be interpreted as causal under acceptance of the identifying assumption, i.e. the relevance of the interaction factor chosen. The tables below show the results of the regression analysis following the approach set out in equation (2). A more detailed description of the variables used and their sources is available in Arnold and Flach (2013, forthcoming).

Table 1.A1.1. **Empirical results from firm-level analysis**

A. Energy, road infrastructure, tax burden, Dependent variable: TFP

Policy variable	Industry interaction factor	Policy variation				
Energy prices (ANEEL)	Share of energy expenses in value added for 2-digit industry (IBGE)	Across states	-0.289 (0.102)			
Paved road density, corrected for state population and surface (IBGE)	Share of freight costs in value added for 2-digit industry (IBGE)	Across states		-0.944* (0.561)		
Implicit tax rate (Doing Business)	Share of taxes paid in value added for 2-digit industries (IBGE)	Across states			-0.258 (0.113)	
Implicit tax rate (Doing Business)	Fraction of firms that consider tax burden a major or severe obstacle (Doing Business)	Across states				-0.062 (0.022)
Industry fixed effects			Included	Included	Included	Included
State fixed effects			Included	Included	Included	Included
Time fixed effects			Included	Included	Included	Included
Number of observations			15 536	7 069	6 702	7 636
R-squared			0.078	0.055	0.039	0.036

Table 1.A.1.1. **Empirical results from firm-level analysis** *(cont.)*

B. Administrative barriers, enforcement of labour laws, Dependent variable: TFP

Policy variable	Industry interaction factor	Policy variation				
Number of procedures required to start a business (Doing Business)	Firm turnover rates by industry in the US (Haltiwanger et al., 2006)	Across time	-0.173 (0.007)			
Time required to start a business (Doing Business)	Firm turnover rates by industry in the US (Haltiwanger et al., 2006)	Across time		-0.107 (0.046)		
Number of procedures required to start a business (Doing Business)	Firm turnover rates by industry in the US (Haltiwanger et al., 2006)	Across states			-0.108 (0.019)	
Enforcement of labour laws (Number of visits by inspectors, Almeida and Carneiro, 2012)	Worker layoff rate (Bassanini et al., 2009)	Across states				-0.096 (0.038)
Industry fixed effects			Included	Included	Included	Included
State fixed effects			Included	Included	Included	Included
Time fixed effects			Included	Included	Included	Included
Number of observations			15 358	15 358	13 295	15 452
R-squared			0.054	0.054	0.052	0.055

C. Contract enforcement, administrative burdens for access to finance, education, Dependent variable: TFP

Policy variable	Industry interaction factor	Policy variation				
Cost of enforcing debt contract (Doing Business)	Institution-intensity by industry (Nunn, 2007)	Across states	-0.08 (0.035)			
Cost of creating collateral for loans (Doing Business)	Dependence on external finance (Rajan and Zingales, 1998)	Across states		-9.882 (2.840)		
INEP test scores for upper secondary school (INEP)	Share of skilled workers (ILO)	Across states			0.278 (0.125)	
INEP test scores for lower secondary school (INEP)	Share of skilled workers (ILO)	Across states				0.213 (0.117)
Industry fixed effects			Included	Included	Included	Included
State fixed effects			Included	Included	Included	Included
Time fixed effects			Included	Included	Included	Included
Number of observations			6692	5316	12802	12802
R-squared			**0.063**	**0.053**	**0.054**	**0.054**

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Chapter 2

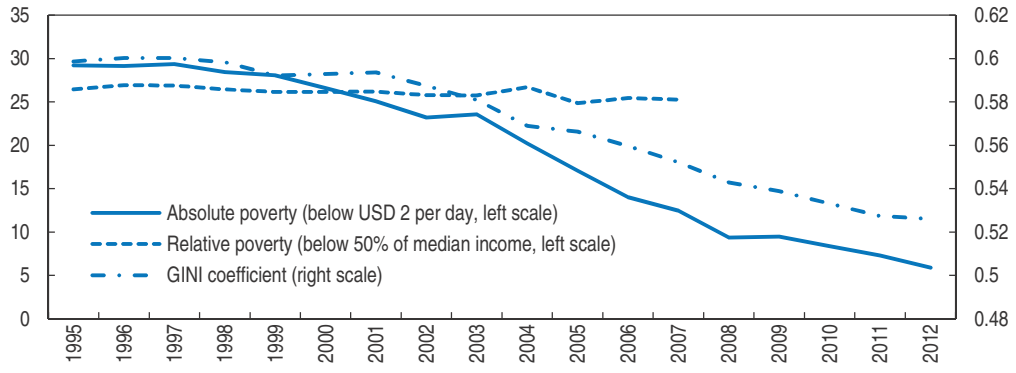
Dividing the pie: Income distribution, social policies and the new middle class

Brazil has made remarkable progress in reducing poverty and inequality. This reduction is explained by strong growth but also by effective social policies. Besides growth, public services and cash transfers have played the biggest role, the latter notably through the successful "Bolsa Familia" programme. Among public services, improved access to education has played a major role, allowing more Brazilians to move into better-paid jobs. However, shortages in physical school infrastructure are limiting the hours of instruction that students receive. The high drop-out rate needs to be reduced through early interventions such as expanding early-childhood education, by reducing grade-repetition and through more tailored support for those at risk. The quality of teaching could also be raised through more in-service teacher training and stronger performance incentives for teachers. Performance of public services devoted to health and transports has been mixed. Public health services are widely available but suffer from underfunding and training places for medical staff need to be expanded. The public urban transport system suffers from a shortage of investment which is urgently needed to upgrade capacity. Regarding cash transfers, the success of "Bolsa Familia" and new programmes put in place under the umbrella of the "Brasil sem Miseria" programme is remarkable but transfer payments remain too heavily focused on pension benefits. Giving more priority to "Bolsa Familia" and "Brasil sem Miseria" while limiting the real growth of pension expenditures in the future would improve the effectiveness of social expenditures for reducing poverty and inequality.

Poverty and inequality have been improving substantially but inequality remains high

A distinct feature of Brazil's economic progress since the macroeconomic stabilisation in the 1990s is its social dimension. Income inequality, which has been relatively high, has been on a steady downward trend since the late 1990s, as evidenced by the decline of a common measure of inequality, the Gini coefficient (Figure 2.1). Between 1997 and 2011, inequality of disposable income has fallen by over 12%, and it is currently at its lowest level since data became available in 1960. These dynamics are particularly impressive in international context since two thirds of the countries in the world experienced an increase in income inequality despite solid growth between 1990 and 2005 (United Nations, 2012, OECD, 2011d). Most of the reduction in inequality results from income gains of Brazil's poorest.

Figure 2.1. **Inequality and poverty over time**



Source: IPEA.

How to read this chart: Absolute poverty headcount refers to per cent of the population with household income per capita below the extreme poverty line set out in the Millennium Development Goals of the United Nations (USD 2 per day). Relative poverty is the per cent of the population with per capita income below 50% of the median income. The Gini coefficient measures the inequality of distribution on a scale between 0 and 1 with higher values representing more income inequality.

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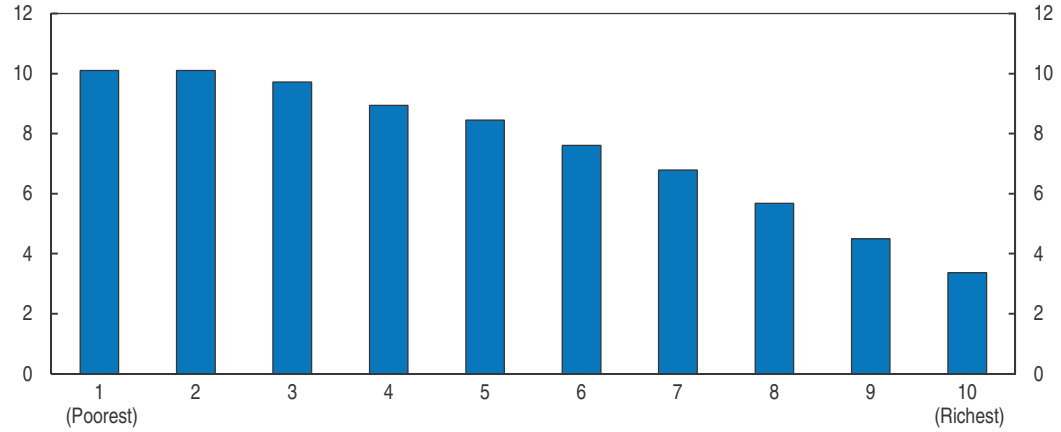
Poverty rates have fallen visibly, in particular since 2003, regardless of the exact definition of the poverty line employed. Using the extreme poverty definition of the United Nations, the percentage of the population living below USD 2 per day dropped from 23.2% to 5.9% between 2002 and 2012 (Figure 2.1). As a result, Brazil reached the Millennium Development Goal (MDG) of reducing extreme poverty by 2015 to one quarter of its 1990 level in 2007, eight years ahead of schedule. Incomes have grown visibly stronger for lower income strata than for Brazil's affluent population over the last years, with incomes of the poorest decile growing 3 times faster than for the most affluent decile (Figure 2.2).

Figure 2.2. **Average annual real income growth 2003-11 by deciles**

In per cent



Source: IPEA (2012).

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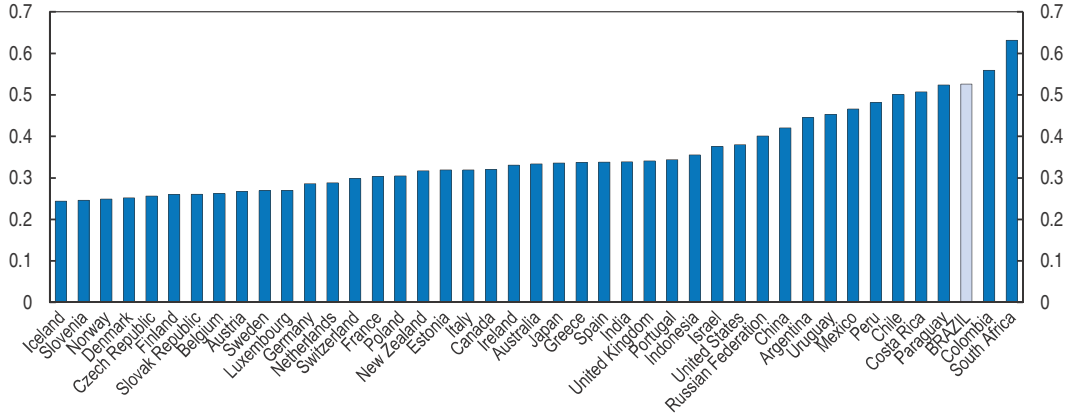
But despite this progress, much remains to be done. Brazil still has one of the highest inequality levels in the world (Figure 2.3) and it would take at least 20 years at the current pace to reach the inequality levels of the United States, which is one of the most unequal OECD economies (Lopez-Calva and Lustig, 2010). While Latin America is itself a region that is generally characterised by high levels of inequality, Brazil has one of the highest inequality levels even among its regional peers. The last decade, however, has seen Brazil converging towards the regional average, with inequality declining almost twice as fast as in the regional average (Lopez Calva et al., 2011; Bianchi et al., 2012). Poverty is still higher than in some Latin American countries, but significantly lower than in a number of Asian countries (Figure 2.4).

Figure 2.3. **Income inequality in international comparison**

Gini coefficient, last available year



Note: The last available year is 2010 for most countries, 2012 for Brazil.

Source: OECD inequality database except for Non-OECD countries for which the source is World Bank (2013): Argentina, Brazil, China, Colombia, Costa Rica, Indonesia, India, Paraguay, Peru, Russian Federation, South Africa, Uruguay. The last available year is 2010 for most countries. For Brazil, the source is IPEA (2013).

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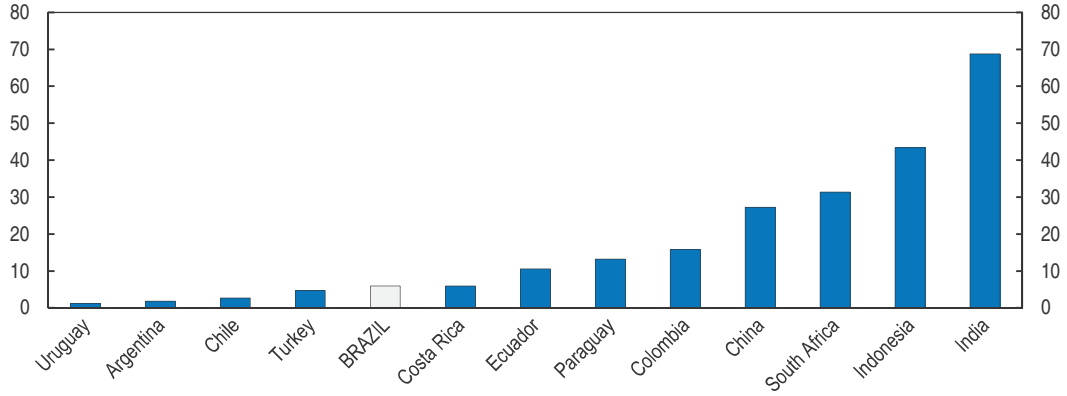
Figure 2.4. **Poverty in international comparison**

Per cent of the population with per capita income below USD 2 a day, last available year



Note: The last available year is 2009-11 depending on the country, 2012 for Brazil.
Source: World Bank (2013), IPEA.

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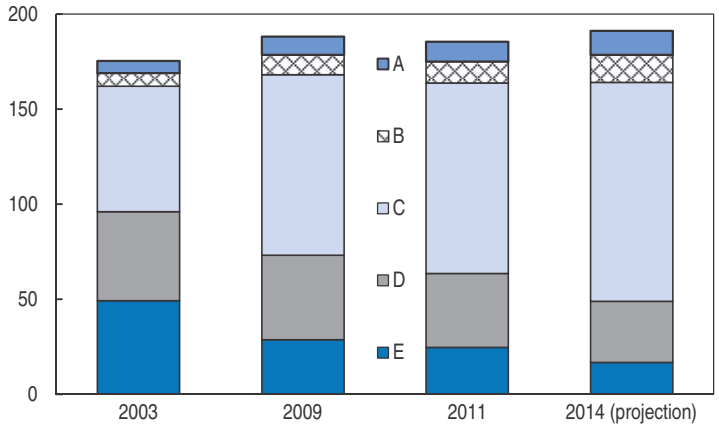
The new middle class

As a large number of households were able to leave poverty behind, the middle class has expanded so strongly that many observers have referred to it as the emergence of a "new" middle class. These households are now enjoying consumption possibilities that go much beyond the satisfaction of basic needs, and they have given a substantial boost to aggregate consumption growth. Around 53% of the population now possess a formal job, enjoy access to credit and have acquired a car or motorbike (Neri, 2011). Following the standard class definitions used in the literature, the number of people belonging to the C-class – representing the middle class – has increased from 66 million to 115 million since 2003, while the lower D- and E-classes have declined (Figure 2.5). In the lowest income class, the upward dynamics have been particularly rapid (Neri, 2011). At the same time, movements from the middle to the upper class have been considerably slower than from the lower to the middle class (SAE, 2012).

Figure 2.5. **Distribution of population by income classes in Brazil (in millions)**



Class definitions:

Class	Monthly household income (2011 BRL)
A:	>9745
B:	7475-9745
C:	1734-7475
D:	1085-1734
E:	<1085

Source: IBGE, IPEA, Neri (2011).

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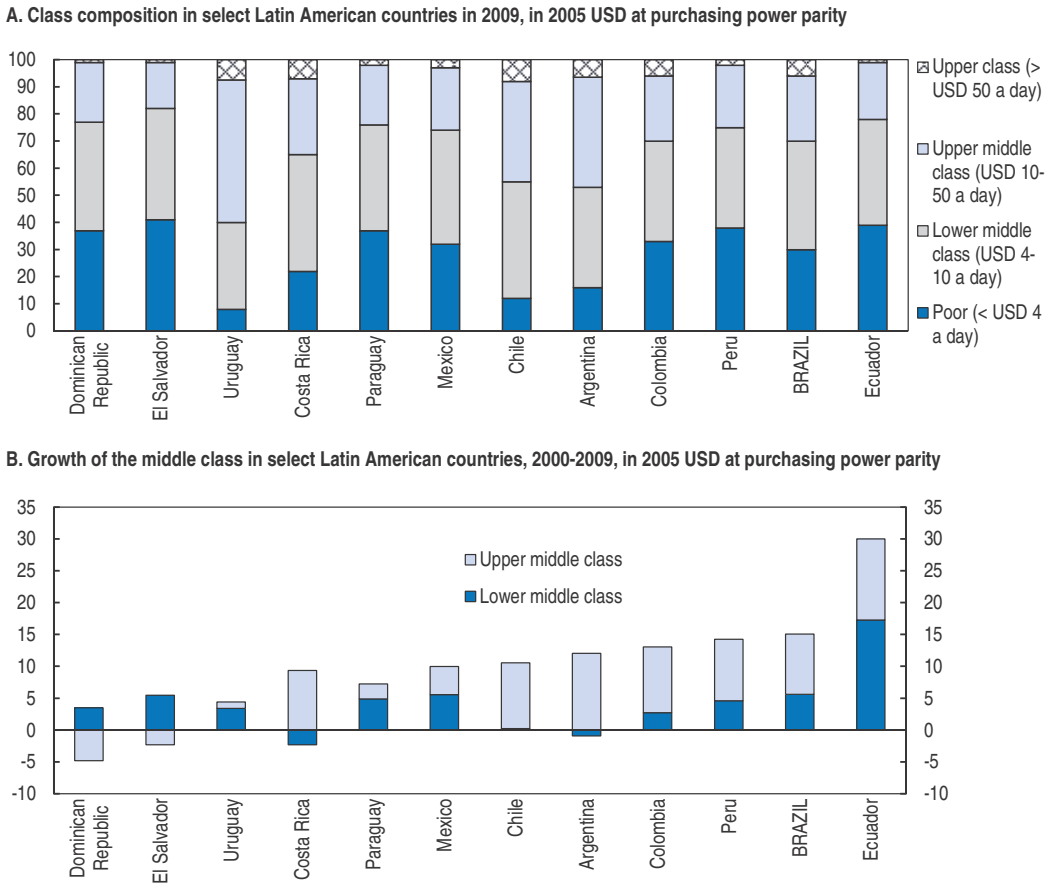
The distributional trends that Brazil has experienced are in line with developments in some other countries in Latin America, although Brazil's performance is quite remarkable even in a regional comparison. Using purchasing-power-adjusted prices in a common currency, the regional comparison in Panel A of Figure 2.5shows the weight of Brazil's middle class – 64% of the population – in the upper range of countries, although below Argentina, Chile, Costa Rica and Uruguay. Given that the last available data are 2009 for this comparison, it is likely that Brazil's position has improved relatively to other peers, given the particularly fast growth of its middle class (Figure 2.6, Panel B).

Figure 2.6. **A comparison of growth and size of the middle class in Latin America**



Note: Instead of 2009, the respective value for Mexico refers to 2010. For Brazil, 2000 was interpolated from the two adjacent years.
Source: Ferreira et al. (2012).

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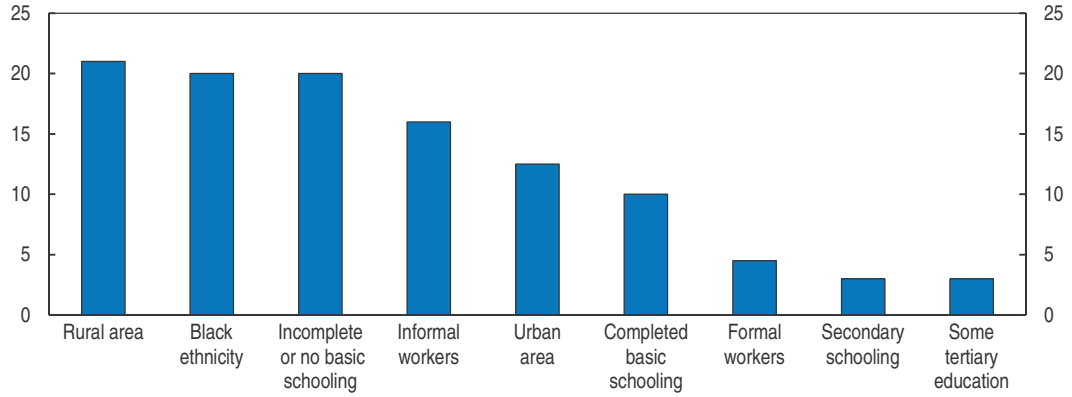
A closer look at the characteristics of people who have joined the middle class suggests that even members of socioeconomic groups that have traditionally been disadvantaged had fair chances to move into the middle class during the last decade, such as inhabitants of rural areas, ethnic minorities, informal workers or people with low educational attainments (Figure 2.7).

The strong role of improvements in education that underpin the increase of the middle class households (see next section) suggest the sustainability of their social ascent, but there are also risks. Many middle class households finance a significant share of their

Figure 2.7. **Characteristics of people who joined the middle class**

Per cent of people belonging to a socioeconomic group that have joined the middle class between 2002 and 2012



Source: SAE (2012).

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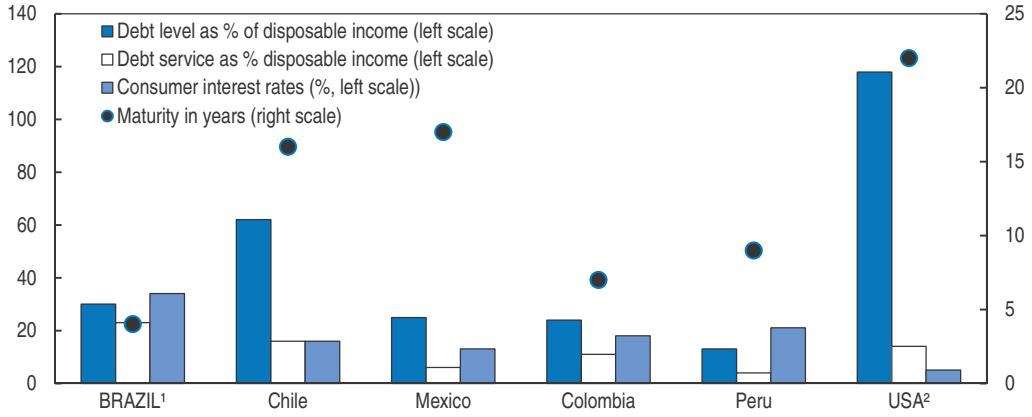
consumption through credit, which has increased leverage and debt servicing costs. Rising household indebtedness levels currently amounts to 44% of annual income including mortgage debt or 30% excluding mortgages, which is not out of line with the levels observed in Mexico and Colombia (Figure 2.8). However, given that households face higher interest rates in Brazil (34% for personal credit), the costs of servicing this debt relative to incomes is substantially higher at 21% of disposable income. This number is larger than in the other countries in the region (IMF, 2012). A number of reasons can explain the high debt service, including the high level of interest rates, short maturities, and stringent rules on paying back credit-card debt. House price indices for major metropolitan regions indicate annual increases of around 12%.

Figure 2.8. **Household indebtedness in select economies, 2011**



1. Data for Brazil are for 2013. Interest rates are for household credit from non-earmarked funds.
2. Data for the US are for 2010.

Source: IMF (2012), Central Bank of Brazil.

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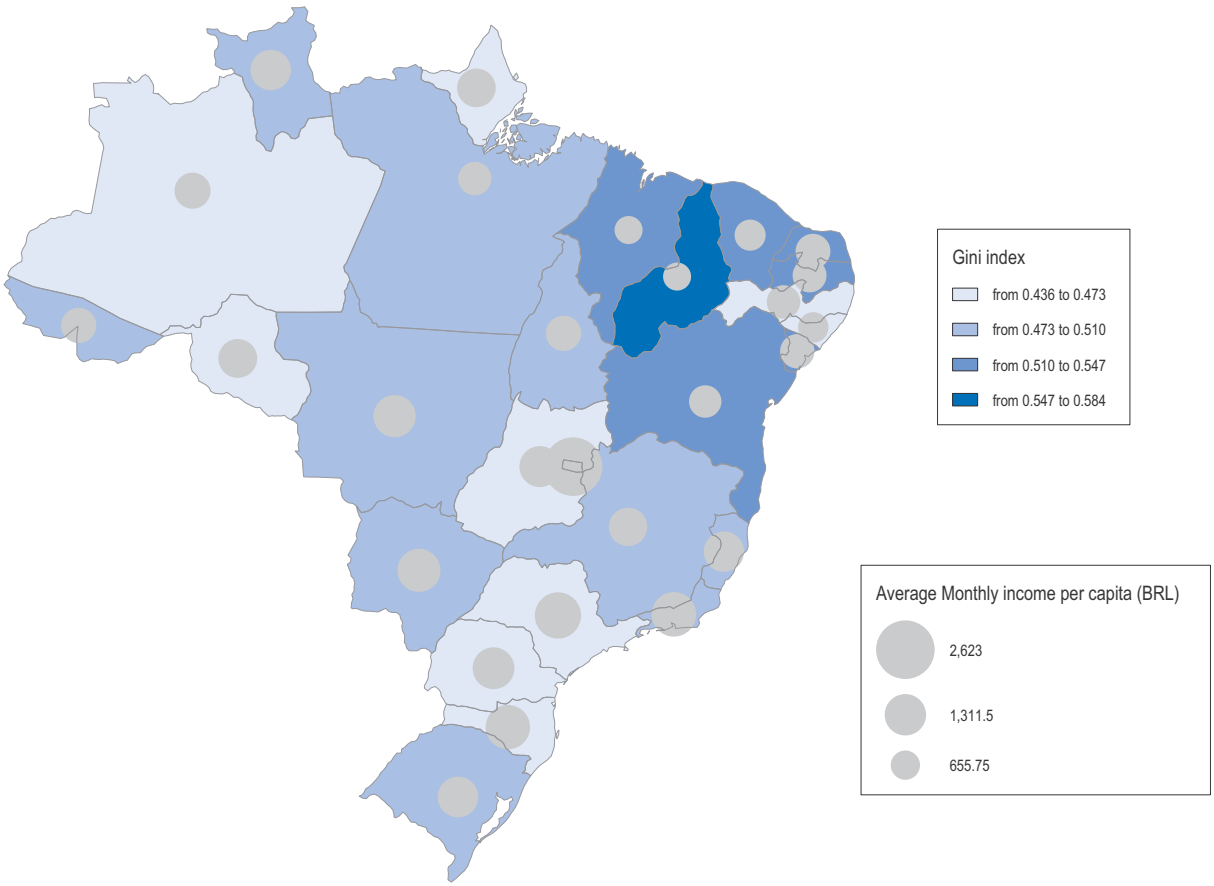
Regional disparities have diminished but remain high

Regional income disparities among Brazil's states are very high (Figure 2.9). Average labour incomes are 4.4 times higher in Brazil's capital region Distrito Federal than in the state of Piauí, while GDP per capita is more than 8 times higher. But there has been a convergence in regional incomes in recent years, driven mainly by rising income levels in resource-intensive regions (Tocantins, Mato Grosso, Rondônia, Espírito Santo and Maranhão), while a number of other states appear to have been excluded from this convergence process (Amapá, Pernambuco, Pará and Ceará). Inequality within states tends to be higher in regions with lower average incomes per capita, with particular progress made in Piauí and Maranhão in the Northeast. Poorer states have also been able to lift a greater number of people out of poverty, implying a convergence in poverty rates across states (Allwine et al., 2012).

Figure 2.9. **Average labour incomes per capita and inequality by state, 2011**



Note: Based on labour incomes of employed people above age 10.
Source: PNAD 2011.

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The sources of social progress

Deliberate policies to improve income distribution have contributed significantly to social progress

Brazil's social progress since the macroeconomic stabilisation has been supported by a solid growth performance, which has increased the size of the pie for the entire society, but it is also the result of deliberate policies to distribute the pie more evenly. To evaluate the contribution of policies to the observed improvements and get a sense of their effectiveness, a useful exercise is to decompose the respective contributions of the increasing pie and the improvements in distribution.

The poverty reduction of economic growth between 2001 and 2011 can be isolated, using household data, by assuming that the distribution of incomes remained constant over this period while all incomes grew proportionally to the average income growth over the period. By contrast, keeping the average income level constant while applying only the change in income distribution to the households data allows an estimate of how much redistribution alone contributed to poverty reduction. Such a decomposition reveals that between 52% and 56% of the observed decline in poverty can be traced back to growth, depending on the poverty definition applied, with the other half owing to successful policies that improved the income distribution. If the distribution of income had remained unchanged, the same observed decline in poverty would have required average incomes to rise by 89%, instead of the 32% observed between 2001 and 2011 (IPEA, 2012).

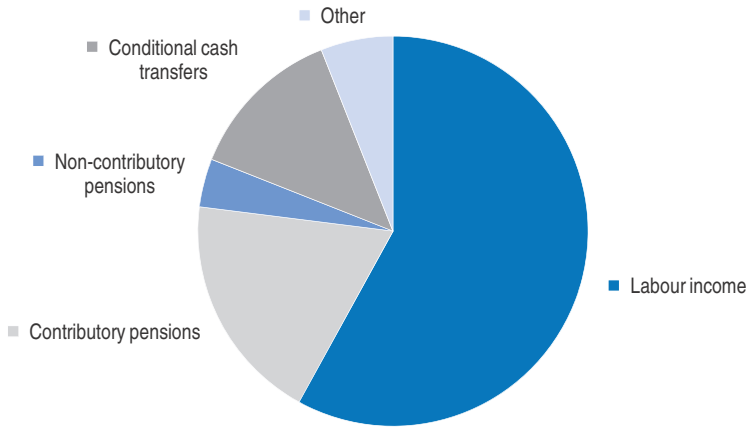
The same simulations have been applied to analyse the determinants of the rise of the growing middle class (SAE, 2012). Between 2002 and 2012 the middle class increased by 14% of the population. This increase is the net result of 21% of the population joining the middle class, and 7% leaving it – the vast majority of which upward. Applying the average income growth rate over the decade to all households without altering the distribution would have led to a net increase in the size of the middle class of only 5%, instead of the 14% actually observed. In other words, approximately two thirds of the growing middle class can be attributed to improvements in the income distribution, which was strongly affected by policies, while only one third was due to growth.

Education and labour market policies have improved the distribution of labour incomes

Policies have improved the distribution of incomes through a number of channels, the most effective of which have been the effects of education and labour market policies on one hand, and social transfers on the other. Improvements in education and changes on the labour market have allowed individual to earn higher labour incomes, while the beneficial effects of rising transfer incomes are also clearly visible in household surveys.

Evidence from micro data suggests that labour income contributed the lion's share of 58% to the fall in inequality in disposable incomes between 2001 and 2011 (Figure 2.10). Besides labour income, social transfers have reached an increasing number of households and this has been the second largest driver of improvements in the income distribution, accounting for 23% when contributory and non-contributory pensions are counted together. Finally, conditional cash transfers are responsible for 13% of the declining inequality, although Brazil spends less than 1% of GDP on these. This is a first indication of how effective conditional cash transfers are in the quest for more income equality, an

Figure 2.10. **Contributions of different factors to declining inequality**



Note: Excludes households with unknown income and rural areas in the North region. Based on disposable incomes.
Source: IPEA (2012).

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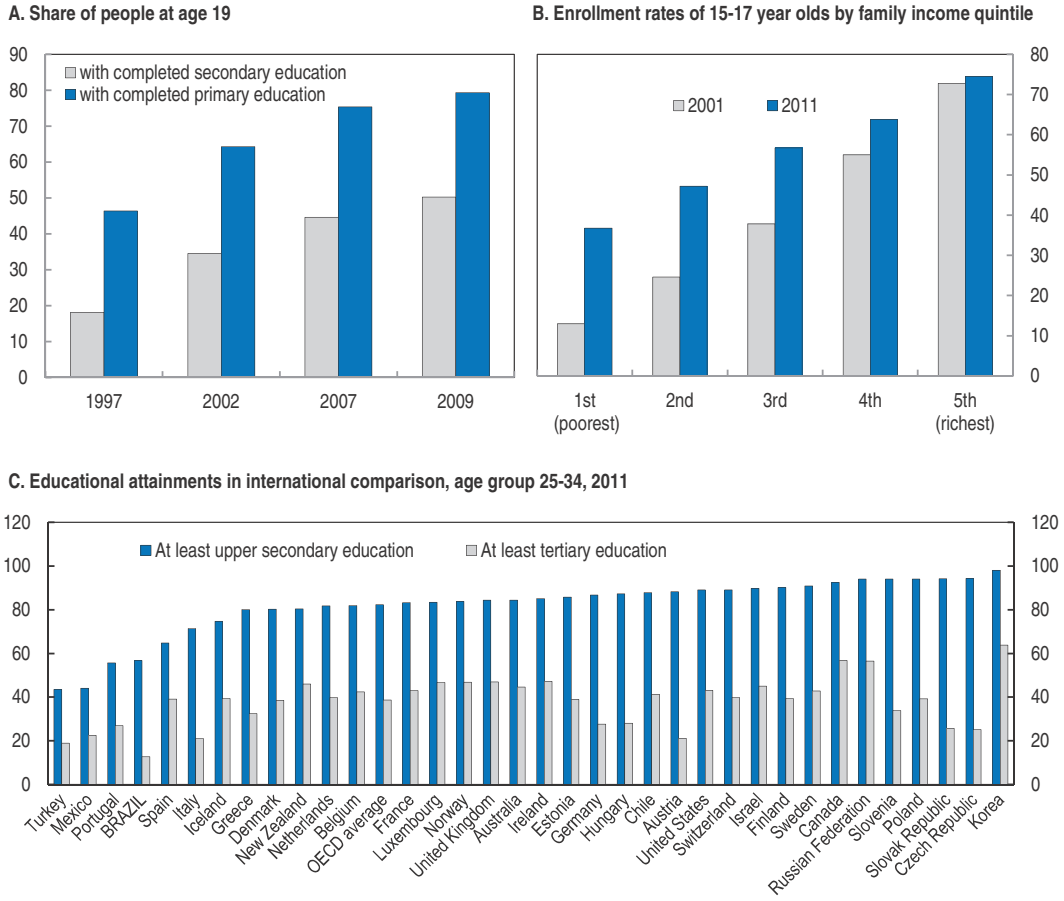
observation on which there seems to be broad consensus in the literature (*e.g.* Barros *et al.*, 2009, 2010).

To further understand the sources of falling inequality, the next step is to analyse in turn why labour and transfer incomes have become more equally distributed. Household data for 2009 suggest that almost half of the differences in labour incomes can be explained by education as measured by years of schooling, even after controlling for other differences (Ferreira de Souza, 2012). This indicates that improvements in access to education have played a significant role for the declining inequality of labour incomes. Indeed, youth are staying in school longer than in the past, and the starkest changes have occurred among people from the lower income strata (Figure 2.11, Panel A). Among the two lowest income quintiles, enrolment rates of 15-17 year olds have more than doubled to 42%, while for ages 6-14, more than 98% of children are in school (PNAD, 2011). Higher school attendance has also translated into higher educational attainments. The shares of youth at age 19 with completed lower and upper secondary education have roughly doubled within a decade (Figure 2.11, Panel B). This has also allowed an increase in tertiary enrolments by 73% between 2003 and 2011. These improvements have also left their mark on the skills of Brazilian youths, as evidenced by the results of the OECD's PISA study which suggests that between 2000 and 2009 students gained the equivalent of a full academic year of math (OECD, 2012a). Brazil went from being the lowest performing country in 2000 to being one of the 3 fastest improving countries over the past decade, although in comparison to other countries levels continue to be low. This is despite the fact that more students from less privileged backgrounds have been included in the education system and the aptitude tests.

Exiting poverty has been highly correlated with educational achievement. Slightly over 20% of the poor household whose household head had less than primary education exited poverty between 2003 and 2011, compared to 50% of households whose head had completed primary education (Fruttero et al., 2012). As more people have attained better education, they gained access to better paying jobs. Given Brazil's sizeable skill premiums in international comparison, this has had a large impact on many households. A

Figure 2.11. **Progress in education**



Source: IBGE (2012) and OECD (2013c).

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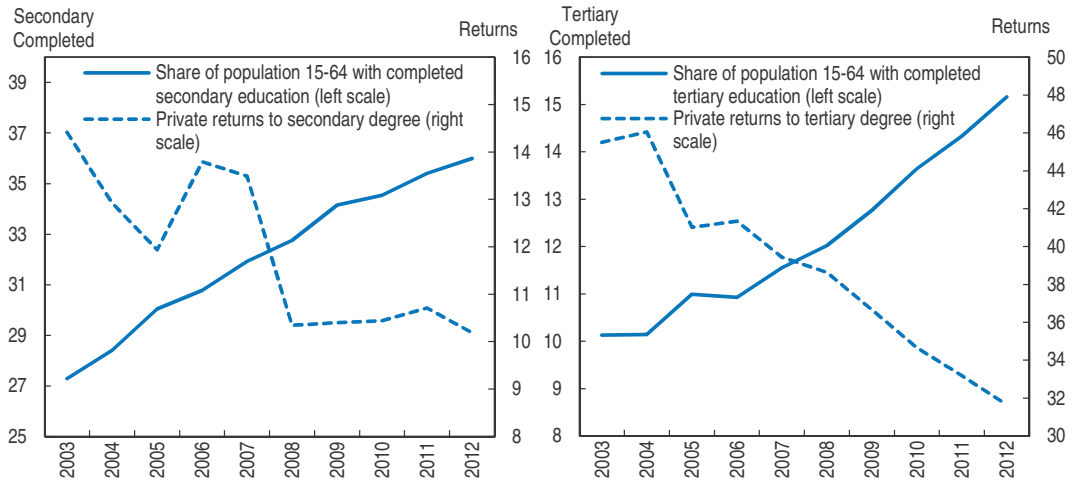
completed tertiary education, for example, would increase expected earnings by 45% in 2003. But as more people attained higher levels of education, skills have become less scarce and skill premiums have declined accordingly (Figure 2.12). The wage premium for a completed tertiary education, for example, fell to 31% in 2012. Concretely, this meant that even people that were not able to improve their educational attainments personally saw their earning opportunities rise with the emergence of more skilled labour. In other words, improving access to education has had positive externalities on low-educated individuals.

In addition to the role of skills, other developments on labour markets have also underpinned the rising labour incomes at the bottom end of the income distribution. A strong rise in minimum wages has benefited the incomes of low-income employees. Over the last decade, the real value of the minimum wage has almost doubled, while the average real wage has risen by around 25% (Figure 2.13). This has compressed wages in the formal sector, and improved the relative earnings of those receiving the minimum wage. The level of Brazil's minimum wage relative to the earning of other employees has become an outlier in international comparison. At 69% of the median wage, Brazil's minimum wage was the second highest in that comparison among OECD and BRIICS countries (behind Turkey) in 2011, with the OECD average being at 49%, although the absolute level of the minimum wage remains low compared to OECD countries (OECD, 2013a). While unemployment has

Figure 2.12. **Educational attainment and skill premiums**

In per cent



Source: OECD (2013b).

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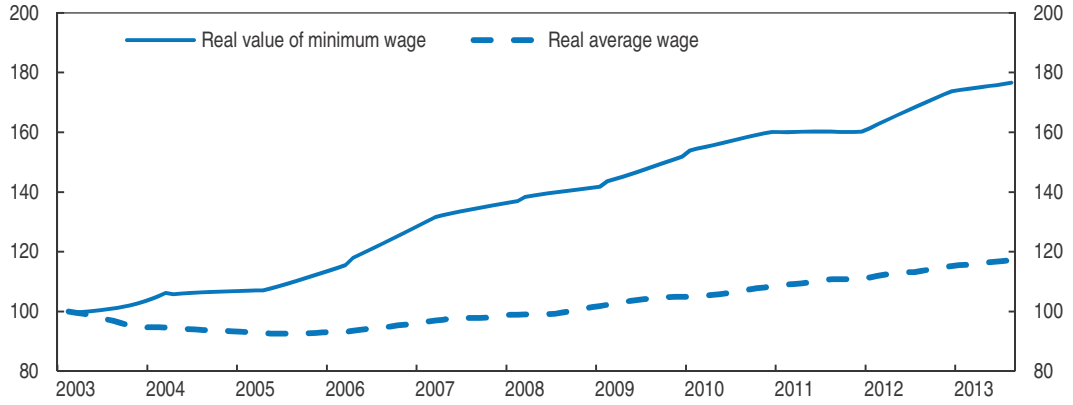
Figure 2.13. **Real minimum wages and average wages**

12-months moving averages, Feb. 2003 = 100



Source: IBGE.

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decreased steadily over the years, labour market informality in the main metropolitan areas has fallen from 55% in 2001 to 33% in 2013, supported by special tax and registration regimes that made it easier for small enterprises to declare formal employees with a minimum of bureaucracy and a low tax burden. At the same time, the rising minimum wages have been associated with a structural shift of the economy towards non-tradable sectors, which suggests that international competitiveness may have been affected by the strong minimum wage increases, even if unemployment has not (see Chapter 1).

Social transfer programmes have played an important role

Transfers have been the second pillar of Brazil's social progress. Transfers comprise a wide range of heterogeneous policies, designed around a number of policy objectives. From the perspective of poverty and inequality, the most important ones are pensions and the

conditional cash transfer programme *Bolsa Familia* which is now part of the larger policy package *Brasil Sem Miseria* (Brazil without Misery).

Based on a fairly complete nationwide single registry of poor households and their living conditions, *Bolsa Familia* was designed to provide direct transfers (as opposed to in-kind support) to households whose monthly per capita income is below BRL 70 (Soares, 2012). While initially some of the benefits were available only to households with children, households without children have by now become eligible for all the benefits necessary to lift them above the poverty line. Beneficiaries must meet a series of conditions such as keeping their children in school and regular health check-ups, which adds a sustainability element to the programme and lays the foundations for families to move out of poverty over time. Since poverty is highly concentrated in the Northeast region, more than 50% of *Bolsa Familia* transfers are paid out in this region, which also reduces regional inequalities (OECD, 2011b).

Over the years, the programme has expanded in several dimensions (Table 2.1) and it has proven a powerful and well-targeted tool to reduce poverty, with hardly any leakage. This is the reason why its impact on the incidence of poverty has been so remarkable, despite costing less than 1% of GDP. In particular, *Bolsa Familia* has proven to be a very effective tool for fighting child poverty (Afonso *et al.*, 2011).

Table 2.1. ***Bolsa Familia* characteristics over time**

	Number of beneficiaries	Average value of benefit	Expenditure as % of GDP
2004	6 571 839	67	0.3
2005	18 700 445	63	0.3
2006	10 965 810	63	0.3
2007	11 043 076	75	0.4
2008	10 557 996	86	0.4
2009	12 370 915	95	0.4
2010	12 778 220	97	0.4
2011	13 352 306	120	0.4
2012	13 724 590	150	0.5

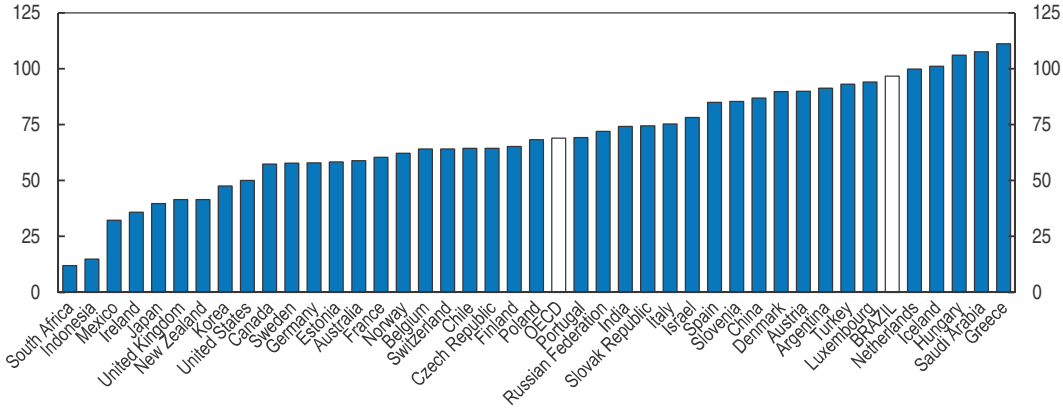
Source: IPEA data and Ministério do Desenvolvimento Social e Combate à Fome (MDS).

Beyond this traditional anti-poverty programme, pensions – which amount to around 7% of GDP – have also contributed to reducing inequality and poverty. The primary objective of the pension system is to act as a saving vehicle and provide incomes to the retired, providing for a link between individual contributions during working life and future pensions. At the same time, pension payments deviate from individual contributions in a number of instances, introducing a sizeable redistributive element into the system. This is particularly the case for people who have made low contributions to the system during their working life and for whom the system tends to be more generous than for those with higher contributions.

To prevent pensioners' incomes from falling behind the rest of the population, the minimum pension benefit payable by the social security system is required by law to be as high as the federal minimum wage. This is exceptionally generous by international standards, as most OECD countries have a minimum pension level lower than the minimum wage. This rule also means that any upward revision to the minimum wage has immediate fiscal consequences. In fact, changes in the minimum wage affect more

people's incomes through their effect on social transfers than through their effect on wages. Over the last decade, the real value of the minimum wage has almost doubled, and this has affected the large share of pension recipients who receive the minimum pension benefit. As a result of this constellation, the pension system pays out average benefits that are fairly generous in international comparison, with net replacement rates for average earners at 97%, compared to an OECD average of 69% (Figure 2.14).

Figure 2.14. **Net pension replacement rates: average earners**



Source: OECD (2011e).

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Besides the regular contributory pension system, there are several smaller pension programmes allowing additional benefits targeted at specific groups. One is the non-contributory pension system, consisting of the social assistance pensions and the Rural Social Security programme. Both programmes extend coverage to persons above 65 years of age who are unable to fulfill the usual contribution criteria, and provide pension benefits at the level of the minimum wage. People with disabilities are also covered under these schemes, whose existence explains the almost universal coverage of the elderly under Brazil's social security system. This is a part of the pension system that covers a fairly small part of the pension beneficiaries (around 3% in 2009), but has a high poverty impact. At the same time, the system fails to reward workers that have contributed during their working life while earning minimum wages, because they receive no additional pension benefit over an individual who never paid into the social security system.

Another programme grants survivor pensions at the full value of the retirement pension paid or payable to the deceased. These benefits can be accumulated with the beneficiary's own retirement benefit, and almost half the beneficiaries have other sources of income (Mesquita and Neto, 2010). As a result, per-capita income typically rises with the passing of a family member. In 2011 Brazil spent 2.8% of GDP for survivor benefits, which is almost a quarter of total social security expenditure. For comparison, most countries in Europe spend around 1.6% of GDP on this kind of pensions. The system presents strong incentives for abuse. For example, a young person marrying a pensioner will be eligible to the spouse's pension for the rest of life, even if the marriage lasted only a few days and without any means testing.

Policy options for sustaining and enhancing social progress

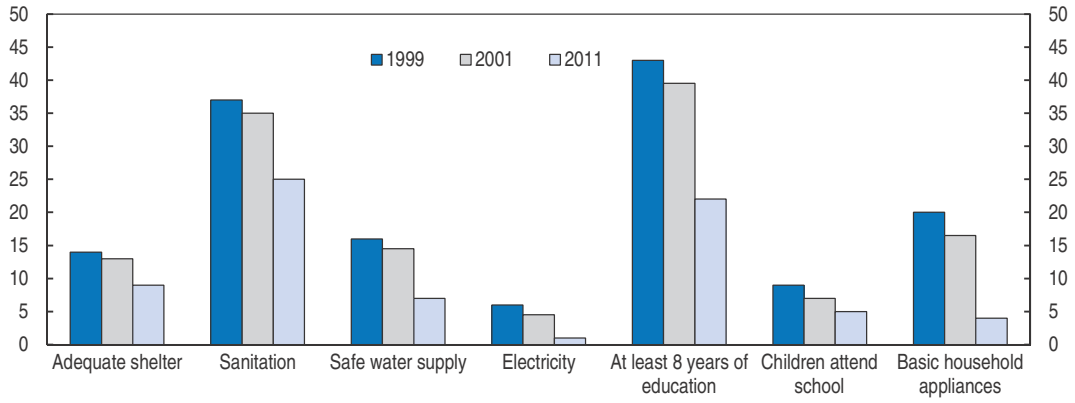
Brazil's social achievements have been remarkable, and many good policy choices have supported this progress. But as people manage to move out of poverty, there is always a risk of falling back, and future policies will need to ensure that the positive developments of the last decade become more sustainable. Beyond that, the sizeable number of Brazilians who are still struggling to meet all their basic needs call for further progress at an even faster pace than in the past. Indeed many indicators suggest that in terms of the level of social inclusion, much more work remains to be done in Brazil.

Policy should continue to focus on the broad set of instruments that has been successful in the past: the improvement of public services such as education, but also health and transport services and social transfers. In addition to these, as addressed below, more attention could be paid to the potential role of the tax system for reducing income inequality, and to developments in consumer credit markets. Within these broad areas, there may be scope for rethinking the allocation of resources and the reliance on a particular policy mix. Given how much Brazil has changed over the years, policymakers should not take for granted that what has worked well in the past will deliver best results in the future. This is particularly true for the allocation of resources in the area of social transfers.

Provision of public services

The public sector provides a number of essential services, and many of these have played key roles for reducing poverty and inequality, as argued in the preceding section. Education is probably the most prominent example for such public services, but other areas may play important roles as well, including health and transport policies. Despite much progress, a significant share of Brazil's population lacks access to essential services. In 2011 nearly 22% of the population lived in a household where no resident had completed at least 8 years of schooling, although ten years earlier this share was almost twice as high (Figure 2.15). Also, a quarter of Brazilians live in dwellings with no access to a sewage network or septic tank, while 7 % of dwellings have no access to piped water or wells. The perceived quality of public services, in particular in light of Brazil's high tax burden (see Chapter 1), was one of the issues that prompted many Brazilians to take to the streets in June 2013, which highlights the importance of improvements in this area.

Figure 2.15. **Share of population deprived of access to basic goods and services**



Source: Bianchi et al. (2012).

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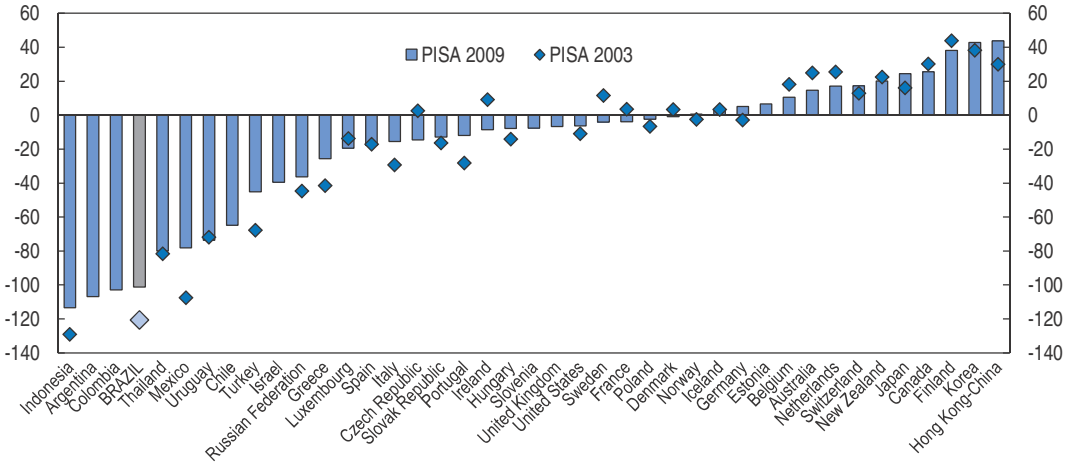
In Brazil's federal system, many public services are delivered by state or municipal authorities, and capacities to deliver public services can vary substantially across jurisdictions. Beyond that, for municipal services, the size of a municipality may not necessarily coincide with the most efficient scale at which to provide a given service, in which case there is scope to improve service efficiency by having several municipalities join hands for the delivery of services, but this involves significant coordination challenges. One example where successful ways have been found to address such challenges is the central government's "Territories of Citizenship" initiative, launched in 2008 to support development in poor rural areas. Many projects included in the initiative have successfully enhanced capacity at municipal level, increased citizen participation and accountability and enhanced the coordination of sectoral policies at the federal level.

Educational policies

Education has played a key role for social progress in the past, and will continue to be paramount in the future. Following the advances in terms of access to education described in the preceding section, one of the principal challenges going forward will be to improve the quality of education. Competencies of school-aged children have increased over the years as enrolment rates improved, but compared to international benchmarks, Brazilian students still learn significantly less. The OECD PISA programme assesses 15-year-olds' competencies across 70 countries, and allows direct comparisons (OECD, 2012a). Despite a 92% enrolment rate in education up to age 14, Brazilian youths still underperform their peers from other countries significantly in terms of competencies (Figure 2.16). This suggests that the bottleneck is no longer access but quality. The quality of public secondary schools tends to be lower than that of private schools, resulting in easier access to high-quality public tertiary education for graduates from private secondary schools. However, a law enacted in 2012 reserves 50% of places in public universities for students from public secondary schools or disadvantaged backgrounds. There are also strong geographic disparities, with students in the North-East region – where adult illiteracy still is close to 20% – scoring particularly low in the tests.

Figure 2.16. **PISA scores on reading and mathematics**

Average of scores in reading and in mathematics, deviation from the OECD mean



Source: OECD (2011a).

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To some extent, lower quality of education is the natural consequence of an education system that has expanded rapidly over the last years, and as time goes by, the system should be able to recruit better-trained teachers in sufficient quantities. What is essential for this improvement to be realised, however, is to improve teacher training and create the right performance incentives now. While the provision of education is the responsibility of the states, the federal Ministry of Education (MEC) has played an important role in this context.

With regard to teacher training capacity, the MEC has created a new national exam for entrants into the teaching profession, and has collaborated with federal universities to fund 100 000 new training places for teachers. In addition, it has required states and municipalities to establish a formal recruitment process and career plan for teachers, and set a nationwide floor for teacher pay in 2009. In-service training to improve the capabilities of existing teachers has become more prominent, and some states have founded specific schools for training current teachers.

Concerning performance incentives, the federal government has provided additional funding to equalise and top up per student school funding across regions, states and municipalities via the FUNDEB programme, and much of this funding is coupled to performance improvements. Brazil has established a set of nationwide student competency tests after the 4th, 8th and 11th grades that allow almost every school in the country to be benchmarked, and this has proven tremendously helpful for introducing incentive mechanisms. A reform of the school assessment system, with targets for learning outcomes down to the school level in all regions, rewards schools not only for improving results but also for student retention, and this reform is beginning to show results. Some states have also devised promising incentive mechanisms of their own. For example, the state of São Paulo offers regular performance tests to teachers with pay rises conditional on test outcomes. Two more states have also adopted similar procedures, which continue to be an exception in a system where pay scales are largely dominated by seniority. The early empirical evidence suggests visible improvements in student aptitudes, with schools with more ambitious targets achieving more progress (Bruns and Ferraz, forthcoming). Extending such performance-based pay nationwide would be a useful measure.

Another impediment to better teaching quality is the lack of physical infrastructure, with many school buildings operating in several shifts a day. Most secondary students receive only 4 hours of instruction a day, while the average in OECD countries is 7 hours (World Bank, 2012). Only 5.8% of students up to age 14 receive full-day schooling (OECD, 2011a). In addition, teachers in Brazil spend less time on actual teaching and learning activities than in other countries (OECD, 2013d, p. 33). International evidence suggests that increasing instruction time has a positive performance effect, provided that the curriculum remains focused on core subjects (Glewwe et al., 2011). Additional investment in appropriate education infrastructure, including class rooms, libraries, science labs and computer facilities should therefore be undertaken. These facilities have become standard in most OECD countries.

An aspect of the education system that is particularly relevant from a distributional angle is the high number of drop-outs and the disengagement of some groups from the education system. Almost 10% of students leave secondary school in a given year. In many instances, this affects youths from disadvantaged backgrounds, who have been exposed to

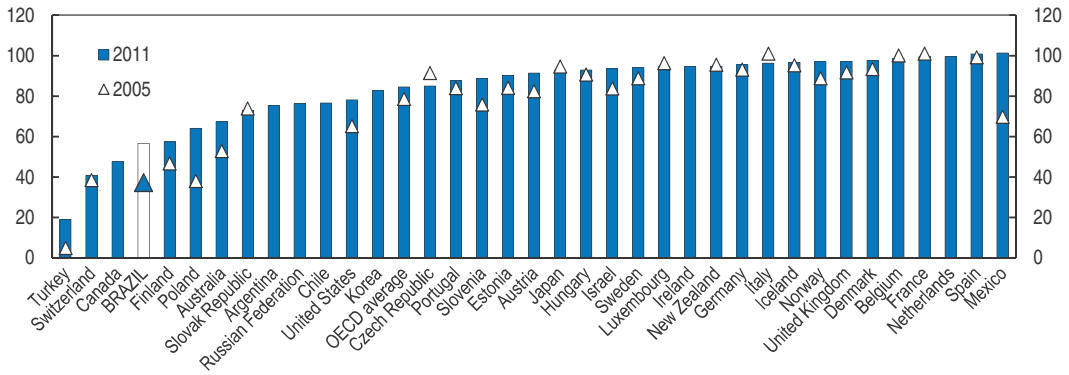
social issues such as family instability, gang or drug involvement, teen pregnancy or developmental deficits (World Bank, 2012). If these youths simply drop out from schools, future earning opportunities for such disadvantaged youths are reduced even further. Drop-outs can be reduced through action in a number of dimensions, including early childhood education, targeted assistance during primary and secondary school and sufficient flexibility of the curriculum including a stronger vocational focus.

Early childhood education (ECE) has important short and long-term effects on cognitive development, social behaviour and students' ability to succeed in the education system and on labour markets further on. In the United States, both early experience in the 1970s that allow a long-term evaluation and more recent evidence from the state of Oklahoma suggest strong benefits associated with ECE (Heckman and Masterov, 2007). In fact, marginal returns on spending appear to be higher than anywhere else in the US education system. When looking at how children from ECE programmes perform later on in life, evidence suggests complementarities between ECE and later education investments (Felicio et al., 2012). Children from disadvantaged family backgrounds that are at risk of receiving less attention than others during their early childhood years can benefit particularly strongly from ECE enrolment. For this reason, ECE also improves the equality of opportunities and strengthens social mobility.

While 55% of 4-year olds are enrolled in ECE programmes in Brazil, the OECD average enrollment at that age is 79%, with a number of countries reaching almost full coverage (France, Netherlands, Spain, Mexico, Belgium, see Figure 2.17). A lack of funding is one of the reasons for low enrolment rates, although federal funding is available to support the current expenditures of operating childcare centres and building pre-schools has been one element of the infrastructure programme PAC2. In addition, the federal ProInfancia programme provides financial support for the costs of building and equipping childcare centres. It has so far funded over 2000 centres and provided resources to equip several hundred more (Evans and Kosec, 2012). Federal support for ECE should be continued and expanded to reach the ambitious objective of the new National Education Plan (PNE) of achieving universal enrolment of 3 and 4-year-olds by 2016. In comparison to the 40 countries covered in the OECD's *Education at a Glance* study, Brazil is placed in the bottom

Figure 2.17. **Enrolment rates at age 4 in early childhood and primary education (2005 and 2011)**

Full-time and part-time pupils in public and private institutions



Source: OECD (2012a). For Argentina: UNESCO Institute for Statistics (World Education Indicators Programme).

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quarter of countries with respect to expenditure on early childhood education relative to GDP (OECD, 2012a).

While widening access to ECE programmes, particularly in disadvantaged areas, will be the most immediate priority, its quality could also be improved, including through more intense training and supervision of educators (Early et al., 2007). In Denmark, France and Sweden a sizeable proportion of childhood education workers are required to have specialised training (Moss, 2000). The Brazilian Federal Ministry of Education operates a distance-learning programme for ECE educators called *ProInfantil*, on which efforts to improve training could build. Regular in-class observation by experts coupled with real-time feedback has proven a useful tool in the PERA programme of the US state of Illinois. The Ministry of Education could also support municipalities in applying benchmarking mechanisms such as the "Early Childhood Environment Rating Scale" developed in the United States.

While ECE can reduce drop-out rates by addressing some of the underlying problems before they occur, targeted support to those at risk of leaving the education system should be available during primary and secondary education. Useful remedial interventions that are consistent with global best practices include early detection and tailored support with tutoring classes (Glewwe et al., 2011; Guimaraes and Sampaio, 2013). Increasing flexibility in the way qualifications are acquired could attract more students, such as organising school years by semesters or adopting credit systems (Barros et al., 2012). More subject choice should be introduced in secondary education as the curriculum is heavily standardised and academically focused (Schwartzman, 2010). A curriculum reform could integrate more vocational components for those students who are less academically inclined (Bassi et al., 2012). Some of the attempts to address the issue appear promising and should be pursued further, such as the comprehensive youth programme *ProJovem Integrado* launched in 2008, which aims to reengage disadvantaged youth with the education system.

International experience suggests that grade repetition has high costs and doubtful benefits (OECD 2011a). Brazil has one of the highest proportion of students repeating a grade and significant numbers of students in a given grade are over-aged, which constitutes a waste of students' time and system resources. Already in the first grade, repetition rates are 24.5% (United Nations, 2012). More than 40% of 15 year-old students reported having repeated a grade at least once, compared to an OECD average of 13%. In countries where more students repeat grades, overall performance tends to be lower and social background has a stronger impact on learning outcomes than in countries where fewer students repeat grades, although it is hard to ascertain the dominant direction of causality (OECD, 2011b).

Vocational training is another way to offer education opportunities to students who are disengaged with an academically-oriented curriculum. The number of students enrolled in alternative learning programs, such as upper secondary vocational education, has more than doubled in the last 10 years. However, it still represents a small fraction of total enrolments, below the OECD average, despite evidence that returns are high and labour market outcomes are positive (OECD, 2012). The *Pronatec* programme launched in 2011 aims to expand and strengthen the federal network of technical schools, invest in distance learning courses, provide free training places for young people from poor backgrounds and give financial support through loans and bursaries. Overcoming liquidity

constraints through bursaries is an important pillar of this strategy, as financial reasons are a common explanation for not attending or finishing professional qualification and vocational courses (Ministry of Education, 2009; Neti, 2012).

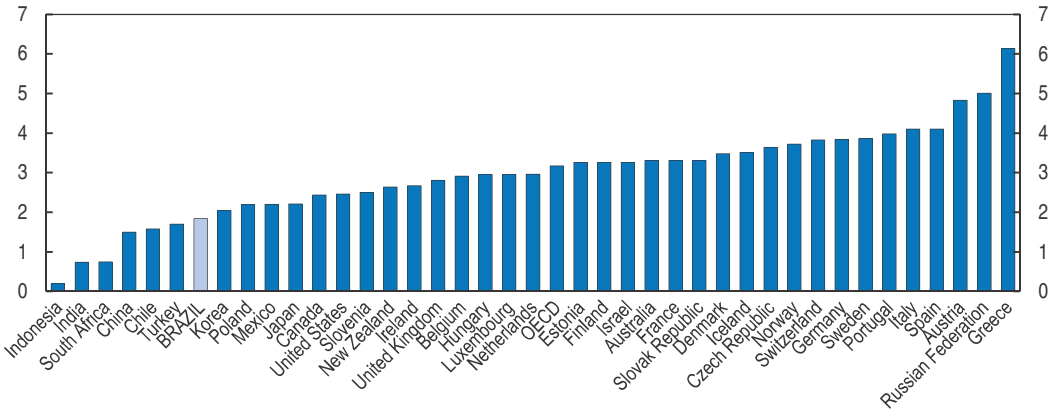
Health policies

Basic health services are provided to the population by the public Unified Health System (SUS) free of charge. The 1988 constitution established health as a fundamental right and the responsibility of states, which resulted in increased access to primary and emergency care, in addition to achieving universal coverage of vaccination and prenatal care (Paim et al., 2011). SUS is funded by tax revenues and social contributions. Service delivery is strongly decentralised, which has led to a fragmentation in the delivery of services and inequalities in the distribution of health system resources, as not all municipalities are capable of delivering services to people and economies of scale are often not exploited sufficiently.

Despite the success of the SUS, the Brazilian public health system suffers from chronic underfunding. Brazil's public sector invests about 4% of GDP in health, compared to almost 6.5% of GDP in OECD countries. As a result, medical infrastructure and the number of doctors and nurses are insufficient, with 1.8 doctors and 0.9 nurses per 1 000 inhabitants in 2009, compared to OECD averages of 3.1 and 8.4, respectively (Figure 2.18). This shortage of medical staff leads to insufficient access to basic health care services.

Figure 2.18. **Physicians per 1 000 population**

2011 or nearest year



Source: OECD Health data 2013.

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Catching up with the OECD average would require a 70% increase in the number of doctors, and a much larger increase in the number of nurses. Despite recent increases in training capacity, Brazil is currently not training enough doctors and nurses to keep up with demand. The measure to require new medical graduates to serve in the SUS for two years before their degree becomes officially valid – discussed in July 2013 – can be useful if supervision is ensured, as it would boost the number of doctors available to the public system in the short term. However the experience form OECD countries suggest that increasing overall supply of doctors does not necessarily help to rectify geographic imbalances. Recent attempts to recruit foreign doctors are unlikely to make any noticeable difference, even provided that they can be successfully attracted. Of the estimated

388 000 doctors in Brazil, about only 0.6% of them are foreign trained non-Brazilians. Even a multiple of this share – which is ambitious given similar shortages in other lusophone or hispanophone countries besides Cuba – would have only a negligible impact on Brazil's doctor shortage. Besides the quantity of health professionals, nurses in public health services tend to have low qualification levels, which may impede the delivery of high quality services.

Beyond the number and skill level of health professionals, regional disparities and lack of access to specialty care need to be addressed. Regional disparities in the availability of human resources are strong, with the South and Southeast regions being twice as well served as the rest of the country. The capacity of municipalities to deliver health services varies. Therefore, the quality and type of services offered vary. Beyond primary care, there is limited access to diagnostics services and specialist care within the public system, with long waiting times and high out-of-pocket costs. This has clearly negative consequences in terms of inequality as the poorer parts of the population cannot access the costly private health system and suffer from a lower quality health service.

Urban transportation services

The poor state of urban transportation in Brazil has been a factor in igniting recent street protest, and indeed, virtually all major Brazilian urban centres suffer severe transport bottlenecks. While São Paulo's metropolitan underground railway system has 71 km of rail tracks, Mexico City has more than 200 km. Improving urban transport systems is one of the focuses of the Growth Acceleration Programme PAC2, which is meant to fund infrastructure investments across Brazil.

However, a lack of local administrative capacity and complicated administrative procedures seem to be holding back progress. Strengthening the capacity of local governments to execute projects might be one way forward. To the extent that user charges are reduced or scheduled increases are not allowed to occur in response to recent street protests, it is important to ensure that the result will not be further reductions in the funds available for investment. The cost of investing in urban transportation could be reduced by reconsidering local content restrictions under the PAC2 programme, which are at 80% for a number of manufactured goods such as buses.

The future of social transfers

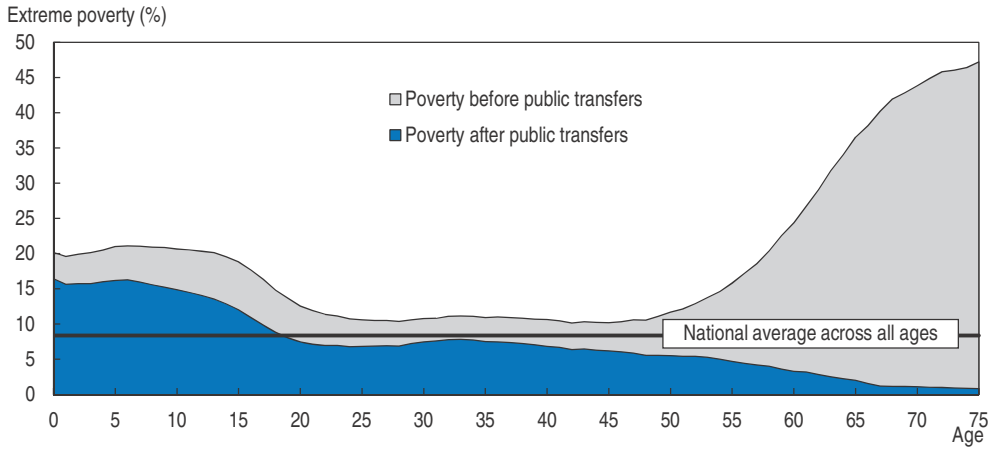
Social transfers have played a significant role in fighting poverty and reducing income inequality in the past, and will continue to be an important policy tool in the future. The principal challenge for the future will be to rely more strongly on the policy instruments that are most effective in addressing poverty and that deliver the most results on social expenditure. In particular, this means giving a higher priority to increasing expenditure on *Bolsa Familia* and other complementary programmes within the *Brasil sem Miseria* framework rather than on further pension increases. Evidence suggests that the effect of a marginal increase in *Bolsa Familia* benefits on inequality would be many times greater than for pension increases (IPEA, 2012).

Managing expenditure increases in the pension system

Pensions have undoubtedly played a significant role in the quest against old-age poverty, and they have been very successful in reducing it well below the population-wide average, as Figure 2.19 shows on the basis of data from 2009. At present, all pension

recipients – and this includes almost all people aged 65 and above – receive at least the minimum wage, which is almost 10 times as much as the extreme poverty line of BRL 70. Further real increases in the level of the minimum pension will hence have hardly any poverty impact, while at the same time, poverty is significantly above average among children and youths (Barros et al., 2010). Such increases could still reduce inequality since minimum pension recipients have incomes below the national average, but the inequality reduction that could be achieved by allocating the same funds to the poorest would be much greater.

Figure 2.19. **Poverty impact of public transfers by age group, 2009**



Source: Barros et al. (2010).

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Severing the automatic link between the minimum pension and the minimum wage will be required to prevent the pension system from absorbing an increasing amount of social expenditures that could be used in a more effective and targeted way to combat poverty. It will also help to address long-term fiscal challenges for the pension system related to a rising old-age dependency ratio. Addressing this problem sooner rather than later is likely to make any adjustment easier. This should be done in a way that preserves the real value of pensions, while in addition passing on part of the productivity gains achieved by the current working generation. Preserving the purchasing power of pensions would be achieved by indexing minimum pension increases at least to the inflation rate for low-income households, which has been slightly above general consumer price inflation in recent years. Beyond this inflation-adjustment, the political question is how much of the productivity gains achieved by the current working generation should be passed on to pensioners, or in other words, at which point between inflation-adjustment and average wage increases the pension indexing factor should be placed. The current automatic rule passes on the full amount of productivity increases achieved by the current working generation to pensioners with minimum pension benefits. An alternative rule that would pass on only part of these productivity gains, while ensuring that the purchasing power of pensions continues to rise, would not raise poverty but it could exacerbate income inequality in the short run. However, if part of the resulting savings are directed towards *Bolsa Familia* to raise benefit levels and thereby minimum incomes, as recommended in this

survey, inequality would almost certainly decrease. One possibility would be to pick the middle of that range, such as the choice made by Switzerland.

In addition, Brazil's pension system, which is comparatively generous in relation to working-life incomes even if absolute levels of benefits are lower than in OECD countries, could be brought more into line with current practice in OECD countries and other emerging economies by raising effective retirement ages. This could be achieved through the introduction of a general minimum retirement age and stronger incentives to retire later, as discussed in the *2011 OECD Economic Survey of Brazil*. A successfully implemented reform of the pension system for civil servants is a step into the right direction.

There is also scope to reduce pension expenses by subjecting survivor pensions to means testing and defining some threshold level of income at which survivors become ineligible for a survivor pension. In addition, given the evidence of abuse in this area (Gragnolati et al., 2011), survivor pensions could be made subject to a minimum number of years of marriage or to additional contributions during working life in order to insure a surviving spouse, as practised in Sweden.

Beyond the implications for social expenditures, continuing the current pace of minimum wage increases may also bear other risks. Although the economy is currently at full employment, the recent past has been characterised by a structural shift of the economy towards non-tradable sectors, which present less scope for productivity gains. A further deterioration of competitiveness in the tradable sector, in particular manufacturing, could at some point also have more visible effects on unemployment than is currently the case. A window of opportunity for revising the minimum wage rule will open in 2014, the last year for which the current automatic rule determining minimum wage increases based on past real GDP growth will apply. Replacing the current rule, which is set to expire in 2015, with one that links the minimum wage solely to the consumer price index for low-income households would both preserve living standards and help improve international competitiveness. Individual states that wish to set a higher minimum wage at the state level are free to do so under current law. Given that state-level minimum wages have no effects on benefit levels in the social transfer system, this would also further the objective of giving priority to the most effective transfer instruments.

Expanding and improving the successful cash transfer programme

Bolsa Familia and related social assistance programmes under the umbrella of *Brasil sem Miseria* have managed to achieve a very good targeting to poor families through the use of the Single Registry of poor families, and this has endowed Brazil with a very effective policy tool for combating poverty. It has also reduced poverty among children and youths, whose poverty rates are well above the overall average. The administrative structure of the programme is so effective that several state governments have decided to rely on the Single Registry to devise specific assistance programmes that go beyond federal benefits. For example, the state of Rio de Janeiro decided to top up *Bolsa Familia* benefits up to the level of the extreme poverty line, a policy that was adopted by the federal government for the whole country in 2012. All families with per capita incomes of BRL 70 per person are now receiving the amount of transfers necessary to lift their incomes to this level. This implies that, according to the BRL 70-definition, extreme poverty is almost eradicated by now, with the exception of a few households that are not covered by *Bolsa Familia*, e.g. perhaps because they have not yet been discovered by the Single Registry's active search policy.

Additional social programmes included in *Brasil Sem Miseria* deliver other social services to poor families according to their specific needs, such as early childhood education, care for elderly family members, training, assistance in finding employment or the provision of loans. By addressing specific bottlenecks of individual families, these programmes are meant to make the escape from poverty more sustainable and enable families to move away from dependence on transfer incomes.

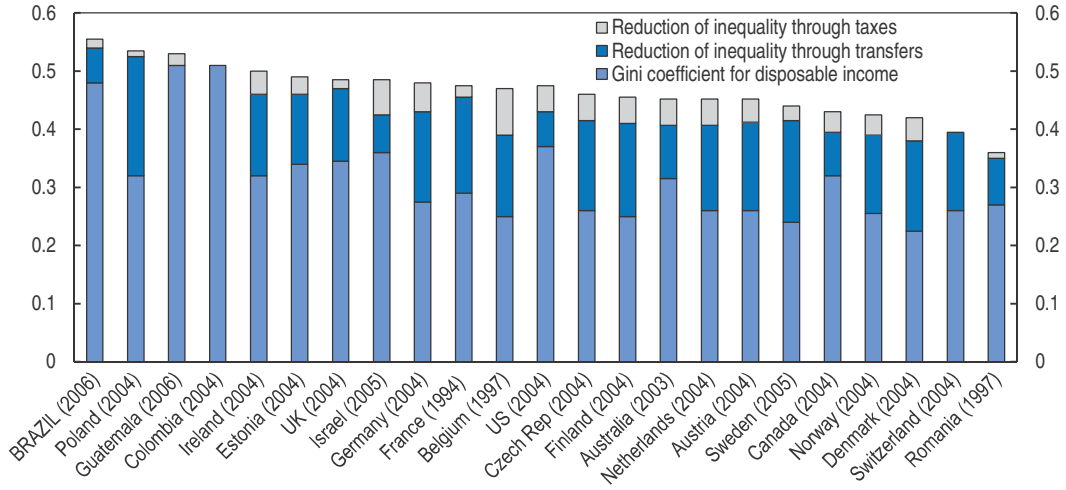
Despite much progress, the integration of different social assistance and social protection programmes could be further enhanced. In addition to the federal government, state and municipal authorities also operate social assistance programmes, and sometimes these programmes overlap, or eligible recipients are not aware that they could apply for a certain kinds of assistance. A promising initiative is the roll-out of Centres of Reference for Social Assistance (CRAS) across municipalities with a high incidence of poverty. These centres deliver family-assistance services, and could become the main point of delivery of all assistance programmes, including federal programmes under *Brasil sem Miseria* and state and municipal programmes. At present, they are institutionally separated from *Brasil sem Miseria*, and a full integration could improve the awareness of households about the social assistance programmes for which they are eligible. Increasing this awareness could trigger additional strong demand for some of the assistance services offered and lead to bottlenecks in their delivery, such an integration would nonetheless enhance the transparency of social assistance policies and help identifying programmes or municipalities that should receive more resources.

Harnessing the tax system for redistribution objectives

While transfers and the provision of public services appear to be the most efficient tools to reduce inequalities, the tax system can also contribute to distributional objectives, although there are some trade-offs between making taxes more progressive and a potentially negative impact of such a change on economic efficiency. In fact, in many countries, the progressivity of taxation is a significant redistribution instrument, even though public expenditures typically account for three quarters of the overall redistributive impact in OECD countries (Joumard et al., 2012). In Brazil, however, reliance on the tax system for redistribution seems underexploited compared to other countries (Figure 2.20, also Immervoll et al., 2009).

A closer look at the individual effects of taxes and transfers on inequality confirms that transfers are a key source of inequality reductions, and this applies both for cash-transfers and for in-kind transfers such as the imputed value of public health and education services. While the former reduce inequality by around 7.5%, the latter decrease it by another 16%. The tax system as a whole, i.e. taking both direct and indirect taxes together, actually increased the Gini coefficient in 2009, suggesting an overall regressive effect of taxes (Figure 2.21). This, however, masks stark differences between direct and indirect taxes. Direct taxes – which account for around 45% of tax revenues – have a mildly progressive effect, reducing the Gini coefficient by around 1.5 percentage points, which corresponds to more than twice the average annual decline over the last decade. European countries achieve an average of 4 percentage points of inequality reduction through direct taxes (Atta-Darkua and Barnard, 2010). Taken together, transfers and direct taxes reduce inequality by around 10%, which compares well by Latin American standards, but European countries manage to achieve a reduction of around one third through these instruments (Higgins and Pereira, 2013). Given that Brazil's level of taxes is not far away

Figure 2.20. **Reduction of inequality through taxes and transfers**



Note: The overall height of each column corresponds to the Gini coefficient for market income, i.e. before taxes and transfers.
Source: *Luxembourg Income Study Database* (LIS).

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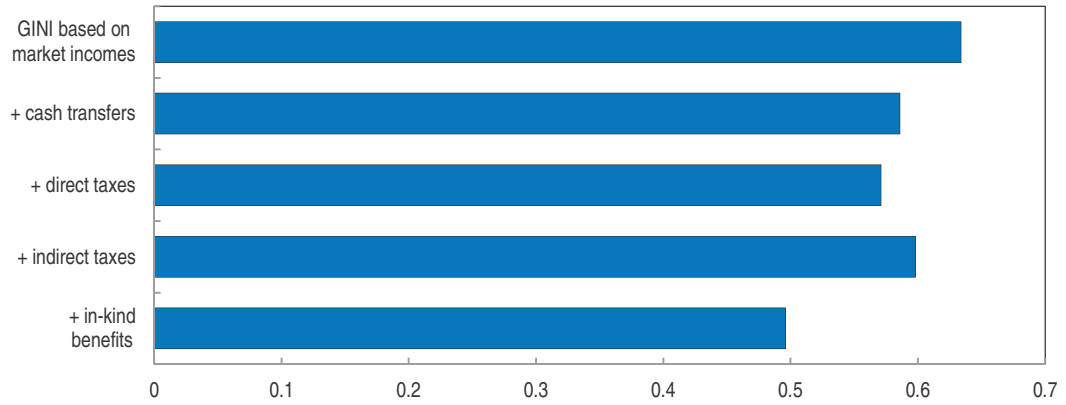
Figure 2.21. **Effects of taxes and transfers on inequality**

Gini coefficient, 2009



Source: IPEA (2011).

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from European levels, this comparison suggests that more could be done to raise the distributional effect of direct taxes in Brazil.

OECD estimates of the average tax wedge on labour income illustrate the low effective progressivity of personal income taxes and employee social security contributions in Brazil. For example, comparing the labour tax wedge for a single individual at 67% and 167% of the average wage, this wedge increases by only a tenth in Brazil, compared to an increase in the labour tax wedge by one quarter in the average OECD country (Gandullia et al., 2012). Social security contributions are currently capped at about twice the average wage, and this could be reconsidered to achieve more progressivity.

In contrast, indirect taxes – which account for 55% of tax revenues in Brazil – are typically considered slightly regressive from the usual perspective of annual disposable income (although this may change when considering lifetime income instead). This is not

unique to Brazil; in fact consumption taxes tend to have less favourable distribution effects than personal income taxes in most countries. In many cases, however, there are strong efficiency arguments for using consumption taxes nonetheless (Arnold et al., 2011), although in light of the fragmented and cascading nature of Brazil's indirect tax system and their large share of revenues – OECD countries raise about one third of revenues from consumption taxes – it is doubtful to what extent this empirical result obtained on OECD countries carries over to Brazil. Simplifying the current system would be a first priority in the area of indirect taxes (see Chapter 1). If any revenue losses were to materialise in the process of a simplification, these could be replaced by a moderate increase of more progressive income taxes.

Lower rates on specific items consumed by low-income households have the potential to improve the distributional impact of consumption taxes, but they often do so at the expense of creating significant leakage. This applies also to the recent exemptions of food and toiletry items from federal indirect taxes, which have included items that are heavily consumed by high-income households. If the objective is to reach the poorest households, the tax revenues lost with these exemptions would be more effectively spent on transfers, such as *Bolsa Familia*, instead.

Box 2.1. **Summary of recommendations**

Education

- Scale up early childhood education, and improve upon its current quality level with more intense training and supervision of educators.
- Reduce the use of grade repetition and focus on early detection and tailored support with tutoring classes instead to reduce the number of drop-outs. Increase the subject-choice and integrate more vocational content in secondary education for students who are less academically-inclined.
- Continue expanding in-service teacher training and increase the number of teachers that participate.
- Extend the successful experience of some states, including São Paulo and Pernambuco, with performance-based teacher pay to a nationwide scale.
- Ensure full-day schooling nationwide and invest in school buildings where that is currently an obstacle to full-day schooling.
- Reinforce the *Pronatec* initiative with more resources to keep on expanding vocational training and apprenticeships.

Health policies

- Increase the funding for public health services and create more training places for doctors and nurses.

Urban transport policies

- Strengthen incentives and accountability for local governments to execute projects and withdraw unspent funds more rapidly.
- Reconsider local content requirements that drive up the costs of investment in urban transportation.

Box 2.1. **Summary of recommendations** *(cont.)*

Social transfers

- Give higher priority to increasing *Bolsa Familia* and other policies under the *Brasil Sem Miseria* programme rather than pension expenditure. Sever the automatic link between increases in the minimum pension and the minimum wage. Introduce a general minimum retirement age and strengthen the disincentives for early retirement.
- To protect the purchasing power of the minimum wage while allowing a gradual reduction relative to the median wage, index annual minimum wage increases to the consumer price index for low-income households for some time.
- Allocate more resources to the conditional cash transfer programme *Bolsa Familia* and other social assistance programmes under the umbrella of *Brasil sem Miseria*.
- Work towards a full integration of social assistance programmes and delivery through local centres for social assistance (CRAS) to improve awareness about available programmes.

Tax system

- Increase the progressivity of direct taxes by reviewing the rate schedule, exemption thresholds and reconsidering the cap on social security contributions paid by employees.
- Remove the exemption of basic consumption items from federal indirect taxes and use these resources on more effective tools to improve income distribution, such as conditional cash transfers.

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