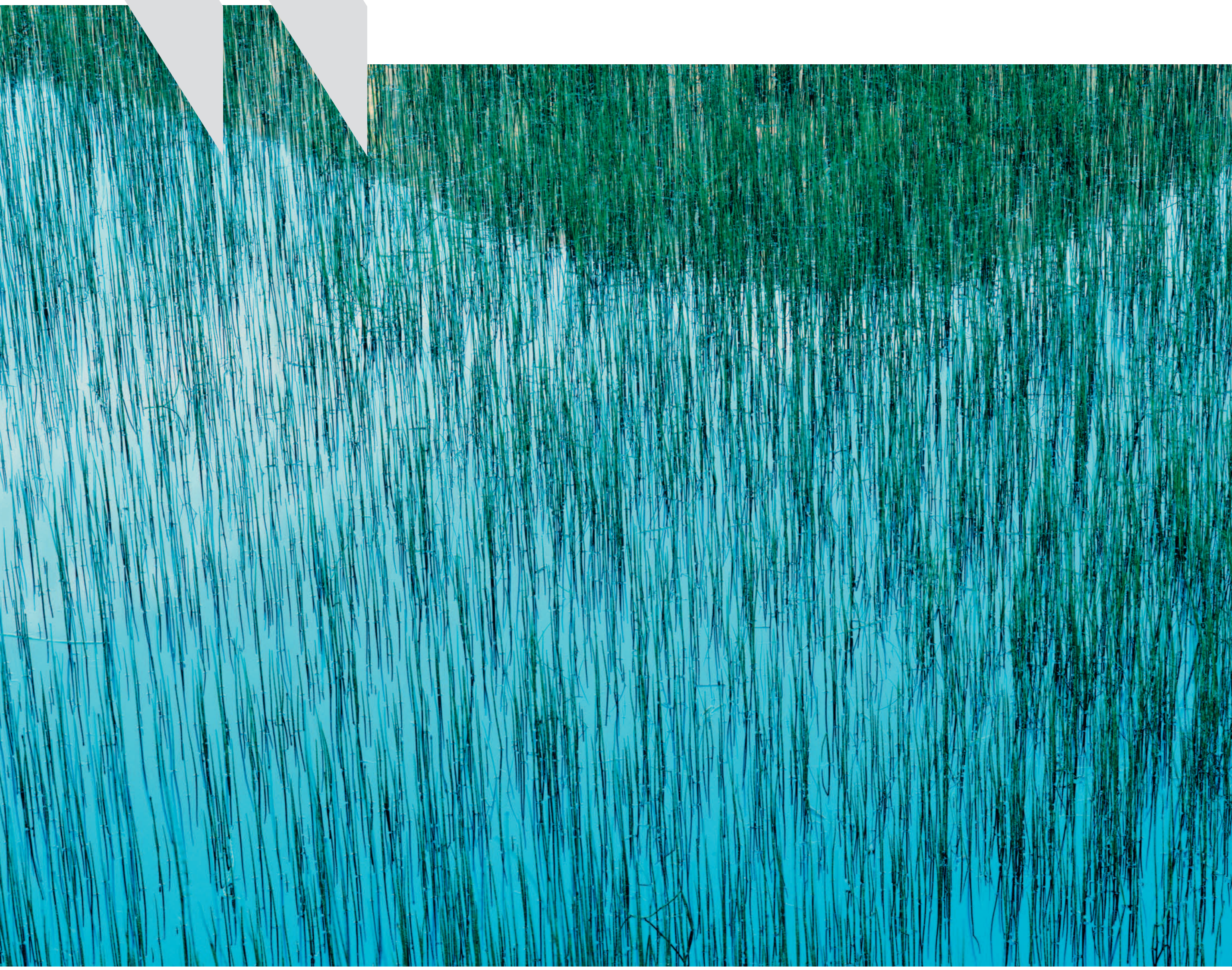
OECD Economic Surveys

BRAZIL



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This Survey was prepared in the Economics Department by Luiz de Mello and Mauro Pisu, under the supervision of Peter Jarrett.

Research assistance was provided by Anne Legendre and secretarial assistance by Mee-Lan Frank.

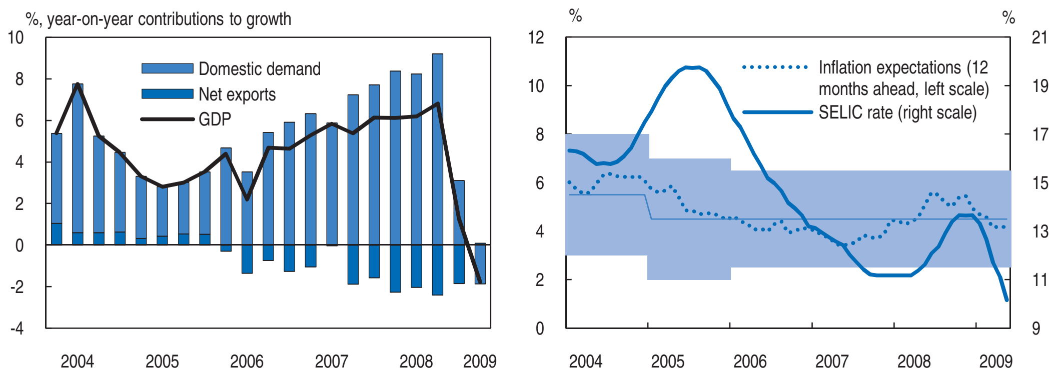
The Survey was discussed at a meeting of the Economic and Development Review Committee on 4 June 2009.

BASIC STATISTICS OF BRAZIL (2008 UNLESS NOTED)

Area (thousands sq. km)	8 515
POPULATION	
Total (millions)	191.9
Inhabitants per sq. km	22.6
Net average annual increase over previous 10 years, per cent	1.4
EMPLOYMENT	
Total employment (thousands, PNAD, 2007)	90 786
In %: Agriculture	18.3
Industry (including construction)	22.0
Services	59.6
GROSS DOMESTIC PRODUCT (GDP)	
GDP at current prices and current exchange rate (USD billion)	1 575.3
Per capita GDP at current prices and current exchange rate (USD)	8 210
Average annual growth over previous 5 years (in %)	4.7
In % of GDP: Agriculture	6.7
Industry (including construction)	28.0
Services	65.3
INVESTMENT	
Gross fixed capital formation (GFCF) in % of GDP	19.3
Average annual growth of ratio over previous 5 years (%)	4.9
CONSOLIDATED PUBLIC SECTOR (in % of GDP)	
Revenue	35.9
Primary balance	4.1
Nominal balance	–1.5
Net debt	36.0
INDICATORS OF LIVING STANDARD	
Internet users, per 100 inhabitants (2007)	35.0
Doctors, per 1 000 inhabitants (2004)	1.61
Infant mortality per 1 000 live births (2007)	24.31
FOREIGN TRADE	
Exports of goods (USD billion)	197.9
In % of GDP	12.6
Average annual growth over previous 5 years (%)	22.1
Imports of goods (USD billion)	173.1
In % of GDP	11.0
Average annual growth over previous 5 years (%)	29.1
Total official reserves (USD million)	192 844
As ratio of average monthly imports of goods	13.4

Executive summary

The global financial and economic crisis has not left Brazil unscathed. But a recovery is getting under way and should gather momentum in the second half of 2009 and into 2010. Continued macroeconomic consolidation – based on a sound policy framework combining inflation targeting, a flexible exchange rate and rules-based fiscal management – together with a much improved external liability position have underpinned the economy's resilience. Policymakers should nevertheless not lose sight of longer-term challenges that will need to continue to be addressed to bolster the economy's growth potential and to close the gap in living standards in relation to the OECD area at a faster pace.



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Reaping the benefits of macroeconomic consolidation

The short-term policy response to the global financial and economic crisis has been by and large appropriate. Decisive action to shore up liquidity since the onset of the crisis has been important, and there may be room for some further monetary easing in the coming months. Fiscal policy has been relaxed on cyclical and discretionary grounds without compromising longer-term debt sustainability, but additional activism would be inadvisable, unless activity weakens much further. Additional structural reform should focus on containment of expenditure growth in support of continued fiscal adjustment, as well as on further financial deepening, based on a gradual elimination of compulsory reserve requirements for banks and a phasing-out of existing directed credit operations.

Reforming indirect taxes and labour levies

Brazil's tax system is complex, conducive to predatory tax competition among the states and burdensome on labour. Overcoming these weaknesses is of utmost importance. The authorities propose to unify state-level VAT legislation across the country, to replace federal levies on enterprise turnover and payroll by a federal VAT and to alleviate the tax burden on labour income. A well *thought-out reform package is under discussion in Congress. Support will be needed, especially among the state governments, to ensure that reform is efficiency-enhancing and consistent with ongoing fiscal adjustment efforts.*

Making government operations more cost-effective

Brazil is a big spender by emerging-market standards and, in some respects, in comparison with OECD countries. But outcomes are not always commensurate with the level of spending, suggesting ample scope for efficiency gains in government operations. The payoff from initiatives to strengthen longer-term planning and to reduce downward rigidities in the budget would be large. Progress in this area would allow policymakers to identify cost-effective programmes more accurately and to secure adequate funding for these programmes, including through a reallocation of budgetary resources.

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Assessment and recommendations

Brazil has not been spared from the global financial and economic crisis, although it is expected to weather its effects reasonably well

Domestic financial conditions tightened considerably as the global financial and economic outlook deteriorated from mid-September 2008. The supply of foreign credit to Brazilian enterprises, including exporters, had been abundant before the crisis but dried up rapidly. The cost of domestic borrowing rose sharply, and the *real* depreciated by over 40% from the highs of mid-2008 through year-end. Activity plummeted in the last quarter, dragged down by a collapse in industrial production, especially in credit-sensitive sectors, such as the motor industry, and a run-down in inventories, albeit from high levels. Demand for Brazilian exports also began to weaken later in the year. However, pressures were notably lower than those experienced by other large emerging-market economies. This is due essentially to the continued consolidation of macroeconomic adjustment following the floating of the *real* in 1999 – based on a policy framework combining inflation targeting, a floating exchange rate, rules-based fiscal policymaking and prudent public-debt management. This policy framework has delivered gradually falling inflation and public indebtedness, and has reduced external vulnerabilities. These factors have been essential for increasing resilience to external shocks and have laid the groundwork for raising the economy's growth potential. Another reason for relatively good performance in spite of the crisis is that the banking sector is in good shape, and the non-financial corporate and household sectors do not suffer from the balance-sheet weaknesses that are at the heart of financial distress elsewhere. Indeed, there are signs that the economy is recovering, although the global economic outlook remains extremely uncertain.

The monetary policy responses to the global crisis have been appropriate

The central bank took decisive action to enhance liquidity in the domestic money market by reducing compulsory reserve requirements for banks, which have traditionally been tight, by some 3.5% of GDP during September-December 2008. The authorities also created incentives for larger financial institutions to purchase the loan portfolios of smaller banks, which were affected particularly adversely by the deteriorating credit environment. As in previous periods of financial distress, interventions in foreign-exchange markets were carried out in a transparent manner; they were aimed at ensuring liquidity in periods of thin trade and geared towards smoothing excessive volatility in the exchange rate. The relaxation of the monetary stance as from January 2009 has been appropriate; it has brought real *ex ante* interest rates to historically low levels. *There may well be room for some further monetary easing in the near term, depending on the strength of the recovery and the evolution of inflation expectations over the coming months.*

Fiscal support is being suitably provided, but further discretionary stimulus is not warranted

Fiscal policy responses to the crisis have included an alleviation of the tax burden on selected sectors, including the motor vehicle and construction industries, and on financial transactions. Cyclical revenue losses associated with the automatic fiscal stabilisers will also add to fiscal support, together with an increase in the duration of unemployment insurance and higher spending related to hikes in the minimum wage and in social protection, infrastructure development and social housing programmes. The consolidated primary surplus is projected by the OECD to fall from 4.6% of GDP in 2008 (before a transfer of 0.5% of GDP to a newly created Sovereign Wealth Fund) to 2.3% of GDP in 2009, which is close to the official target of 2.5% of GDP. A federal loan to BNDES, the National Development Bank, as well as other government-owned banks, of up to 4% of GDP during 2009-10 is allowing these institutions to expand their lending. Moving forward, *the authorities are advised to let the automatic stabilisers work unimpeded, rather than engaging in further discretionary activism, unless the slowdown in activity turns out to be more severe than expected*. A supplementary rise in the budget deficit needed to finance additional discretionary measures would put pressure on financial markets and therefore crowd out the private sector in a particularly challenging credit environment. In addition, counter-cyclical fiscal action that would result in an increase in expenditure commitments on a permanent basis would be inconsistent with efforts to prevent a further ratcheting-up of current expenditure. The pace of monetary easing would also certainly be constrained if confidence in the fiscal programme is eroded.

Longer-term growth prospects have improved in earnest, but further reforms are needed

Annual GDP growth rose to 4.7% on average during 2004-08, more than double the outturn of the previous five years that had followed the floating of the *real*. The fact that faster growth is delivering tangible improvements in the distribution of income, which nevertheless remains notoriously skewed in Brazil, is particularly auspicious. But, for the strong performance of the last few years to be maintained, there is no room for complacency. *Policy effort will need to be focused on building on past achievements and on making headway into policy areas where progress has been less comprehensive than desired*. This is the case for reform of Brazil's indirect taxes and labour levies, as well as initiatives to enhance the efficiency of government operations, discussed in detail in this *Survey*. New policy challenges have also arisen, including those related to the regulatory framework for developing the recently discovered offshore oil and gas fields and to the use of the associated revenues accruing to the budget. They will need to be confronted in the near term to make sure that Brazil makes the best possible use of these natural resources so as to generate dividends for future generations.

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Fiscal management has so far been commendable, but long-standing fiscal challenges have yet to be fully addressed

Brazil's fiscal track record, as gauged in terms of attainment of the primary budget surplus targets, is exemplary. This, together with prudence in public debt management, is delivering a gradual reduction in public indebtedness. In addition, the government now enjoys a net foreign asset position; as a result, unlike in previous episodes of financial duress, its debt dynamics are no longer affected adversely by a depreciation of the exchange rate. These are remarkable achievements, especially because public indebtedness has traditionally been the single most important source of macroeconomic vulnerability. The government has been able to sustain fiscal adjustment, despite the limited room for manoeuvre caused by a ratcheting-up of current spending over the years and strong downward rigidities in the budget, through revenue hikes. To illustrate, primary general government spending has risen by almost 7% of GDP since macroeconomic stabilisation in 1994 to nearly 32.5% of GDP in 2008. Measures will therefore need to be taken to stem further increases in expenditure in the future. *To do so, a cap could be introduced on the expansion of outlays*. Attempts to introduce such a ceiling have been made in the past, and draft legislation to that effect awaits Congressional approval. Policy action in this area is important to make room in the budget for rebalancing expenditure in favour of capital outlays, which would be consistent with the authorities' efforts to develop infrastructure and to reallocate budgetary appropriations towards cost-effective programmes.

Additional reform to the pension system would be advisable

Much has been done over the years to put the pension system on a sounder financial footing. Parametric reforms included a comprehensive overhaul of pension entitlements for private-sector workers in 1998 to discourage early retirement and to encourage the creation of complementary retirement savings schemes. The separate social security regime for civil servants was reformed in 2003, although several provisions are yet to be legislated, including the creation of complementary pension funds for government employees. More recently, initiatives have been taken to improve compliance in the regime for private-sector workers through better enforcement and administration, including the transfer of responsibility for collection of social security contributions from the Ministry of Social Security to the Federal Revenue Service. Backtracking on these policy efforts would be regrettable. Robust economic growth in the last few years, which has delivered rising incomes and plentiful job creation in the formal sector, has contributed to stabilising the deficit of the social security system. But its long-term financial sustainability could be bolstered through complementary measures. This is important, because pensions for private-sector workers account for about one-third of federal primary expenditure, and outlays on pensions for retired civil servants are placing an increasingly heavy financial burden on the states and municipalities. Consistent with previous OECD policy advice, *minimum age provisions should be introduced in the private-sector regime for retirement on the basis of length of contribution; the link between pension benefits and the minimum wage should be severed, although the purchasing power of the minimum pension could be at least maintained,* *possibly through its indexation to a price index that best reflects the consumption basket of pensioners; and regulations should be issued allowing for the creation of complementary pension funds for civil servants, preferably of the defined-contribution type and in line with entitlements prevailing in the private sector.*

A fiscal target will need to be set for the longer term

The public debt-to-GDP ratio is likely to remain at close to 40% of GDP in 2009-10 and then to fall gradually to close to 35% over the medium term. This achievement is commendable but does not obviate the need for continued prudence in financial management and unabated commitment to the consolidation of fiscal adjustment. This is because Brazil's gross public debt remains high by comparison with its emerging-market peers, and a rapid fall in the net debt-to-GDP ratio late in 2008 was due predominantly to a pronounced exchange-rate depreciation, rather than to enhanced fiscal effort, given that the public sector is now a net foreign creditor. *Future policy discussions should focus on setting the level of public indebtedness that the authorities consider appropriate for the longer term and the corresponding budget targets*. The policy debate on this matter should be guided by the need to prepare for the emergence of future liabilities, including those associated with the pension system. To do so, Brazil already has the budgetary instruments required for longer-term planning and policy evaluation, such as the Budget Guidelines Law (LDO) and the multi-year budget plan (PPA). One important consideration is the use of budgetary savings associated with a likely fall in debt-service obligations over the coming years. A case can be made for using these savings to retire debt at a faster pace, to alleviate the tax burden while tackling the well-known weaknesses of Brazil's tax system (discussed below) and to reallocate at least part of the budgetary appropriations towards cost-effective programmes, which would be consistent with ongoing efforts to improve the efficiency of government operations.

Adoption of an overall budget balance target would be welcome

The authorities have expressed their intention to redefine the fiscal rule in terms of the overall (nominal) budget balance, rather than the primary budget surplus. *This would be a positive development*. It makes sense to focus on the primary budget surplus when debt maturities are short and the bulk of the traded public debt pays floating interest rates or is indexed to the exchange rate. In such an environment, interest payments are overly sensitive to short-term fluctuations in the exchange rate and to changes in the monetary stance. But this situation is now changing: sustained fiscal adjustment and prudent public debt management have raised the average duration of traded securities and reduced considerably the shares of floating-rate debt and of instruments indexed to the exchange rate or denominated in foreign currency in the stock of government financial liabilities. In this new policy environment, a focus on the overall budget balance, rather than on a fiscal aggregate that excludes interest payments, would be welcome, because the consolidated public sector's overall budget balance has remained in deficit, despite earlier successive increases in the primary surplus target and continued adherence to the fiscal rule. If the fiscal rule is redefined, it would be advisable to draw increasing attention to trends in the

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overall budget balance in public communications in preparation for its future adoption as the fiscal target. This would ensure a smooth transition to the new, more appropriate fiscal rule and contribute to building confidence in the policy framework.

The monetary policy regime is working well, but more can be done in support of further financial deepening

Brazil's monetary policy framework changed radically ten years ago, when the *real* was allowed to float freely. The current regime, combining inflation targeting and a flexible exchange rate, is working well, as noted in previous *Surveys*. Monetary policy has been conducted in a forward-looking manner, and the central bank's inflation-fighting credentials have been strengthened over the years. The policy move in late 2008 to free up part of commercial banks' required reserves held at the central bank was essential for shoring up credit as the global financial and economic crisis worsened. Nevertheless, *there is still considerable scope for easing the remaining compulsory reserve requirements for a variety of bank deposits*. Progress should be sought in this area, because it would reduce the implicit tax burden on financial income, which would lower intermediation costs. Most countries that have adopted inflation targeting as the framework for monetary policymaking have reduced or eliminated such requirements.

Another consideration is the existing regulations on the allocation of credit to selected sectors, especially agriculture and housing, including through mandated saving arrangements. These requirements were introduced in the past, when financial markets were less developed, and market failures would have prevented sufficient credit from being extended to important sectors of economic activity. But maintenance of mandated credit provisions may well be impeding further financial deepening and resulting in resource misallocation. *These restrictions should be gradually removed to improve the efficiency of the financial sector and to reward long-term saving adequately*. As in the case of compulsory bank reserves, these constraints on the allocation of credit amount to a tax on financial income, which affects the cost of intermediation. The payoff from reform in this area could therefore be considerable in terms of reducing the stubbornly high real rates of interest facing those without access to preferential credit terms, which weigh heavily on the economy's growth potential.

Brazil's indirect tax system is complex, and the authorities are appropriately acting to reform it

The authorities are taking welcome steps to correct important deficiencies in the tax system. Considerable gains can be achieved through policy action in this area in terms of increased welfare and faster economic growth. Draft legislation was submitted to Congress in February 2008 to reform the state-level value-added tax and alleviate the tax burden on enterprise turnover and labour income. Brazil's indirect tax system is particularly cumbersome to enterprises, due to its fragmentation, complexity and changing provisions. The tax burden on labour income is also heavy, owing to a combination of onerous social security contributions and a multitude of additional levies on enterprise payroll. The reform package, which is well thought-out overall, recognises the need for a careful setting of the new tax rates, because it encompasses the bulk of federal and state-level indirect levies. Revenue losses, which Brazil can ill afford in a period of consolidation of fiscal adjustment and until upward pressures on spending are mitigated, need to be avoided in the course of the reform. But, at close to 36% of GDP in 2008 according to OECD estimates, the country's tax take is high in relation to emerging-market comparators, which makes further hikes inadvisable. The introduction of a trigger mechanism requiring a re-calibration of tax rates if collections rise by a specified amount in real terms is therefore welcome. In any case, *the proposal to implement the reform only gradually is sound, as it would allow adjustments to be made, if needed, in terms of rate setting and tax administration.*

Reform of the state-level value-added tax is key to eliminating predatory tax competition among the states

The proposed reform of the state-level value-added tax – the ICMS – focuses on reducing the scope for predatory tax competition among the states. In the current regime, the states are free to set ICMS legislation on intra-state transactions; therefore, they have often used the ICMS as an industrial policy instrument by granting tax breaks for investment. Several tax incentives have been ruled illegal by the judiciary, because they have not been sanctioned by an interstate council that has the prerogative to endorse state-level initiatives in this area (CONFAZ). The government proposes to tackle this problem by making rates and bases homogeneous throughout the country and by imposing heavier sanctions for non-compliance. The reform proposal also honours the incentives granted before 5 July 2008 and allows for arrangements put in place after that date and until the tax reform is approved by Congress to be maintained, if they are endorsed by the states. *While maintenance of the incentives granted prior to July 2008 is understandable on contractual grounds, those granted during Congressional deliberations on the reform should be annulled.*

Another consideration is that the ICMS is collected at origin, although special provisions are in place for taxing interstate trade at a lower rate. As a result, exporting states are reluctant to refund credits earned in other jurisdictions. An accumulation of unrefunded credits creates an anti-export bias in the tax system, an issue that remains by and large unresolved. The authorities propose to deal with this problem by gradually shifting most collection to destination and by shortening the time frame for refunding value-added tax credits. Both initiatives are welcome. Nevertheless, *it would be desirable to shift all collection to destination, so that no ICMS-liable goods and services would be taxed at origin.* This would further simplify the tax system.

This shift to collection at destination would result in a significant reallocation of the tax take among the states. The government's reform proposal addresses this issue by strengthening its regional development policies, including through the establishment of a regional development fund (FNDR). Efforts in this area are welcome, because existing mechanisms for financing regional development focus on the poorer states and therefore fail to address the needs of the poorer areas of the more prosperous parts of the countries. *The regional development fund will need to be designed to encourage contestability in the use of development assistance.* In addition, the less developed states, which are net importers of ICMS-liable goods, are likely to be the main beneficiaries of the shift in collection location, but they are also likely to face capacity constraints on administering the new ICMS. As a result, *there is a role for the federal government in providing technical assistance to the states with weak administrative capacity.*

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The tax burden on labour income needs to be alleviated

Previous reform initiatives have reduced the tax burden on enterprise turnover. This is the case of the conversion of federal levies (PIS and Cofins) into value-added taxes during 2003-04, although enterprises operating in several sectors, such as services and public utilities, as well as those that pay their taxes under presumptive regimes (*e.g.* SIMPLES) continue to do so on the basis of turnover, rather than value added. The cascading nature of turnover taxation is particularly detrimental to the competitiveness of Brazilian exports. The government's current proposal seeks to take reform efforts a step further by reducing the tax burden on labour income through the elimination of *Salário-Educação*, a federal levy on enterprise payroll, and a reduction in employers' social security contributions. Developments in this area are particularly welcome, because, as argued in previous *Surveys*, a high tax burden on labour income encourages informality, especially among low-income workers. But there remain a number of para-fiscal levies on labour income, including the "S" system contributions (to finance sectoral development and labour training programmes) and contributions to INCRA (an agricultural development programme), which cost employers nearly 3.5% of payroll. *These contributions could be eliminated over time or, as argued in previous* Surveys *in the case of the* "S" *system, they could be converted into user fees, so as to allow for a better match between the services currently provided by the affiliated institutions and market demands. With regard to employers' social security contributions, the option of reducing these contributions on low-paid workers could also be considered*. Of course, the cost of foregoing much needed revenue at a time of consolidation of fiscal adjustment needs to be weighed against the impact on collections of increased formality in labour relations.

There is considerable scope for making government operations more cost-effective

The level of public spending is particularly high in relation to GDP for a country of Brazil's income level and in comparison with its emerging-market peers. Government outlays on education and health care alone account for nearly 9% of GDP, the second largest item of spending following social protection. But outcome indicators are not always commensurate with the country's high level of government-financed spending, suggesting that service delivery is inefficient, rather than under-funded. Much has been done in education to raise enrolment rates, especially for secondary education, to equalise spending capacity among the sub-national jurisdictions, which account for the bulk of spending on education, and to introduce systematic performance assessments for students and institutions. These initiatives have been highly successful, particularly in terms of delivering near-full enrolment at the primary and lower-secondary levels. But the performance of Brazilian students remains comparatively low when judged on the basis of standardised international tests, such as PISA. Of course, it takes time for innovative policy initiatives to deliver sustained improvements in performance, and follow-through is essential. *Policy action should therefore focus on improving the quality of services for those levels of education where full – or nearly full – coverage has already been assured*. As argued in previous *Surveys*, the largest payoff from growth-enhancing reforms is likely to come from further improvements in human capital, with special emphasis on basic skills.

In health care, a number of conventional output indicators are not out of step with OECD averages. Following the decentralisation of service delivery in the early 1990s, increasing emphasis has appropriately been placed on enhancing preventive care. But, in a decentralised setting, cost-effectiveness depends a great deal on the ability of service deliverers to exploit economies of scale and scope. Experience with inter-municipal initiatives for procurement, as well as flexible arrangements for hospital administration and human-resource management, is by and large positive. *These initiatives could be disseminated more broadly among the sub-national levels of governments*. The identification of successful initiatives would be an important step towards setting best practices to be followed by policymakers.

Inter-governmental transfers can be used to encourage cost-effectiveness at the sub-national level of government

As in other federal countries, mechanisms for financing decentralised provision often rely on inter-governmental transfers. The bulk of federal transfers to the states and municipalities are in the form of block grants related to the sharing of revenue collected by the federal government. Sub-national governments have full autonomy to use these resources, a prerogative that is awarded to them by the Constitution. Voluntary grants, which may be conditional, account for a small share of inter-governmental transfers. On the face of it, there appears to be limited scope for building incentives for cost-effectiveness into the transfer system. But a number of initiatives stand out in this area. The case of education is particularly instructive, in that the introduction of conditional and equalisation transfers for service delivery (under FUNDEF and subsequently FUNDEB) has been essential for financing the expansion of the municipal school network, especially in remote parts of the country. The success of these initiatives suggests that *the federal government could strengthen incentives for efficiency enhancement by making more extensive use of conditionality in voluntary transfers and by introducing rewards for performance*. Initiatives to this effect would go in the direction of using the intergovernmental transfer system as a vehicle for efficiency enhancement without infringing on sub-national autonomy in policymaking and the use of sharable funds.

Budget-making needs to be more forward-looking and performance-oriented

Brazil's budget institutions have been strengthened since the mid-1990s as an integral part of structural reforms in the macroeconomic area. Years of chronic inflation until then had favoured short-term financial management to the detriment of long-term planning and performance orientation in budgeting. A number of budget instruments are now available, including a four-year budget envelope (PPA), which lays out the government's longer-term policy priorities, and a three-year budget guidelines law (LDO), which sets fiscal targets for the annual budget laws. This institutional setting is appropriate for Brazil's policymaking needs, and experience to date is by and large positive, although there is room for further improvement. An important policy consideration is that, while the policy objectives stated in the annual budget laws should be consistent with, and in support of, longer-term goals set out in the PPA and the medium-term fiscal targets enshrined in the LDO, this nesting order is often reversed. As a result, especially in periods of fiscal stress, short-term policy considerations have often taken precedence over longer-term policy directives. To remedy this situation, *more effort is needed to improve the integration and consistency of the policy priorities set in the PPA and the targets included in the LDO and in the annual budget law*. Progress in this area is an important pre-condition for the regular evaluation of policy outcomes and for using the existing budget's institutional setting as a vehicle for cost-effective fiscal management.

Budget rigidities should be removed, especially those related to revenue earmarking

Effort to enhance the efficiency of government operations will not come to fruition unless budgetary appropriations can be re-allocated towards the most cost-effective programmes. Nevertheless, as noted in previous *Surveys*, the flexibility required for performance-oriented budgeting is constrained by a number of institutional rigidities. For example, considerable revenue is earmarked, including that of the federal levies (*contribuições*) introduced over time to finance a variety of social programmes (discussed above). Including the compulsory sharing of federal revenue with the sub-national governments, almost 90% of federal revenue is estimated to be earmarked. Mandated aggregate spending floors, including for health care and education, have also been introduced over the years to ensure financing for a variety of programmes, regardless of their cost-effectiveness. *Policy action to make budgeting more flexible should focus on a gradual elimination of revenue earmarking and aggregate spending floors*. This would allow budget-making and planning to be guided more by efficiency considerations and the government's policy priorities, rather than historical costing and short-term revenue trends. Greater budgetary flexibility could also underscore efforts to contain the rise in current spending by making it easier to discontinue programmes that are not deemed cost-effective but whose financing is assured by spending covenants.

A regular sequestration of budgetary appropriations complicates expenditure management and budget planning

According to Brazilian legislation, budgetary appropriations can be discretionary, such as those for capital outlays, or non-discretionary, which includes pensions and payroll. In addition, the appropriations for discretionary programmes are authoritative, in the sense that the executive branch of government has the prerogative to establish ceilings for their execution that may be lower than those approved by Congress. This prerogative is often exercised, because the legislature has the right to alter the budgetary envelope submitted by the government in the draft budget law; revenue is adjusted upwards on the basis of optimistic assumptions to accommodate higher discretionary spending. Nevertheless, this sequestration of appropriations for discretionary programmes complicates expenditure management and budget planning, especially for capital outlays. It also creates incentives for expenditure rigidities through the introduction of mechanisms to protect priority programmes from sequestration. *The option of making budgetary appropriations for discretionary programmes mandatory could therefore be considered in the longer term, but not until existing rigidities, such as mandated aggregate spending floors and revenue earmarking provisions,* *have been eliminated. A more cooperative arrangement would also need to be put in place between the executive branch and the legislature to ensure realism in revenue and expenditure projections, both in the draft budget law and in the budget approved by Congress.*

Brazil needs to prepare for the rise in oil and gas revenue that will result from the development of new offshore fields

The discovery of large oil and gas fields in deep waters off Brazil's south-eastern coast may well double the country's proven reserves of about 14 billion barrels, although official estimates are not yet available. According to the International Energy Agency, Brazil accounts for about 40% of known undeveloped offshore reserves outside the OPEC area. Options are being considered for developing these fields. The current exploratory regime is based on concessions and the transfer of property rights over the hydrocarbon reserves to the concessionaires. The authorities are considering the introduction of production-sharing arrangements to develop the new fields, because their production costs are high and exploration risk relatively low, while maintaining the concessionary regime for the blocks that have already been auctioned. *Definition of the regulatory framework for the new fields is important to ensure that their development is not delayed by regulatory uncertainty*. Of particular importance is the need to set a clear role for the sector regulator in the new legal framework.

The sharing of future oil and gas revenue will pose policy challenges

An arrangement will need to be made for sharing the revenue arising from the exploitation of the new offshore reserves of oil and gas among the different levels of government. Currently, the bulk of revenue from royalties and other levies accrues to the coastal municipalities and states that have proprietary rights over the offshore fields. Only a limited portion of revenue is shared with non-producing jurisdictions. Maintenance of the current regime would likely exacerbate this concentration of revenue in a handful of municipalities. In addition, the recipient localities tend to use the hydrocarbon revenue predominantly to finance operating expenditure with little long-run return. *It would therefore be advisable to introduce a new mechanism for sharing the revenue associated with the new oil fields among the different layers of government to ensure that it is saved and/or spent on programmes that could generate returns for future generations*. The recently created Sovereign Wealth Fund could be used to save the revenue that accrues to the federal government and/or to smooth transitory fluctuations in the budget associated with business and oil-price cycles.

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Chapter 1

Looking beyond the global financial and economic crisis towards sustained growth

Brazil's economic fundamentals have improved considerably in the ten years following the abandonment of exchange rate management in 1999 and adoption of a policy framework combining inflation targeting, rules based fiscal management and a flexible exchange rate. The economy is therefore weathering the effects of the unfolding global financial and economic crisis rather well, and an incipient recovery is getting under way. The policy responses to the crisis have been appropriate: measures were taken to enhance liquidity and prop up credit, the monetary stance began to be relaxed in January 2009, and the tax burden on selected financial transactions and activities was alleviated. The banking sector is sound, and Brazilian households and firms do not suffer from the financial imbalances that have been at the core of financial distress in other parts of the world. The largest payoff from macroeconomic consolidation over the last few years has been improved growth outcomes. The fruits of higher growth have also been fairly well distributed, contributing to falling income inequality, which has been traditionally highly skewed. But further progress will be needed in several policy areas to sustain high growth over the long term, once the deleterious effects of the global crisis have waned. In particular, initiatives to raise labour productivity and to maintain the current dynamism of private investment could have the largest payoffs in terms of raising the economy's growth potential.

Brazil has not been immune to the unfolding global financial and economic crisis. But the country is much better prepared to withstand the effects of the crisis than in previous episodes of financial stress and in comparison with other large emerging-market economies and several OECD countries. Falling demand for Brazilian exports, an adverse terms-of-trade shock and a credit crunch due to a sharp reversal in capital flows resulted in an abrupt deceleration in economic activity in the last quarter of 2008. Nevertheless, improved public finances, sizeable international reserves and resolute policy action to shore up liquidity in domestic financial markets have helped to buttress the economy against the contractionary effects of the global slowdown. A supportive policy mix, based on ongoing monetary easing and a fiscal stance combining some counter-cyclical activism and the unencumbered action of the automatic fiscal stabilisers, is projected to pave the way for a domestic demand-driven recovery later in 2009 and into 2010.

The global crisis, while taking its toll on the economy's short-term growth prospects, should not sidetrack policymakers from pursuing their structural reform agenda to lift the economy's long-term growth potential. Brazil's growth outcomes have improved considerably since 1999, when exchange-rate targeting was abandoned and inflation-targeting adopted. GDP grew on average by 4.7% during 2004-08, up from less than 2% during the previous five years. Favourable external conditions until 2008 contributed, but, as argued in previous *Surveys*, sustained macroeconomic adjustment – underpinned by efforts to strengthen longer-term credibility in the policy framework – has played a leading part in bolstering the country's growth performance. Consistent with these trends, the economy's growth potential has also risen, laying the groundwork for maintaining higher growth and further narrowing Brazil's income gap with the OECD countries over the medium-to-longer term. Income gains arising from faster growth over the last few years have also been equitably distributed, delivering tangible improvements in the distribution of income.

Achieving and sustaining high growth requires policy initiatives in several areas. This chapter argues that the largest payoffs are expected to come from policies that raise labour productivity and sustain the recent dynamism of private investment. This is because comparatively low labour productivity, rather than insufficient labour supply, accounts for the bulk of the gap in value added per worker that currently exists between Brazil and the OECD area. At the same time, a low, albeit rising, investment-to-GDP ratio and the resulting slow rise in the capital stock are constraining the economy's growth potential.

The effects of the global financial and economic crisis

Activity

Economic activity decelerated abruptly as the global crisis worsened in the last quarter of 2008, but it is now showing signs of recovery. Industrial production fell particularly sharply in the sectors producing credit-sensitive goods, such as consumer durables. A fall in inventories, which had been high, also dragged down industrial production, especially in the motor vehicles industry. The utilisation of manufacturing capacity slackened,

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reflecting the contraction in industrial production. Retail sales retreated, in particular for motor vehicles, which had risen steadily during the year on the back of buoyant credit. Consistent with these trends, business confidence indicators and private investment tumbled. Demand for Brazilian exports weakened considerably and imports contracted, essentially due to the slack in activity and the sizeable depreciation of the *real* from the highs of mid-2008. The labour market began to soften with an increase in unemployment towards year-end and in the first quarter of 2009.

The current slowdown differs significantly from previous episodes of financial duress. The confidence crisis that erupted in the run-up to the 2002 presidential election had also resulted in a large depreciation of the *real*. But the effects of the earlier crisis on the real economy were less pronounced and shorter in duration (Figure 1.1). This is because the exchange-rate collapse also led to an export boom, which sustained industrial production and paved the way for a recovery later in the year. As discussed below and in Chapter 2, policy reactions also differed fundamentally: macroeconomic consolidation over the last few years has allowed for a gradual policy easing in response to the current crisis, whereas the need to ensure fiscal sustainability left limited room for an accommodative policy stance in 2002-03.

Credit

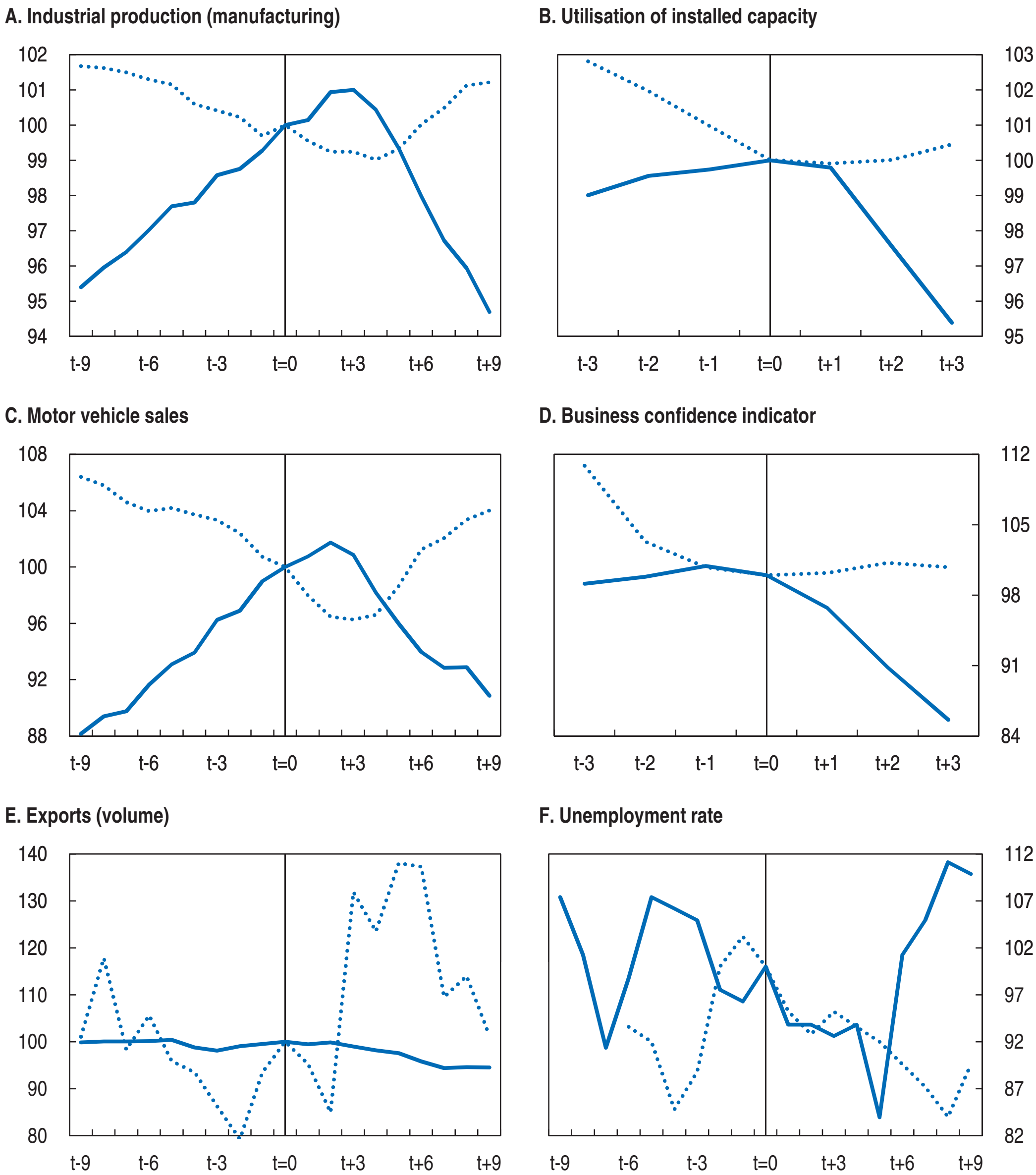
The global crisis has put considerable pressure on domestic credit markets. Brazil's interbank market came to a standstill following the demise of Lehman Brothers in mid-September 2008, despite the fact that the country's banking system had limited exposure to the toxic assets that were at the core of the international credit crunch. Heightened risk aversion was the main culprit for the credit crunch at the onset of the crisis. The closing of foreign credit lines, including for export financing – notwithstanding the fact that Brazilian banks and non-financial enterprises fund themselves predominantly domestically – prompted borrowers to substitute domestic credit for foreign loans (Figure 1.2). At the same time, the repatriation of foreign exchange by foreign investors resulted in considerable capital outflows in October-December. Average loan maturities shrank, especially for enterprises, and borrowing costs rose. Credit default rates rose, although credit risk remains comfortably provisioned, and the banking system is sound. To a certain extent, an increase in loans by government-owned or controlled banks compensated for a deceleration in credit extension by private banks. The increase in freely-allocated credit to enterprises after mid-September 2008 is due in part to the substitution of domestic for foreign credit.

Labour market and earnings

The labour market began to soften towards end-2008 in line with the slackening of economic activity. Job creation had been strong during 2003-08, and unemployment had fallen steadily, despite a modest increase in labour force participation (Figure 1.3). Real earnings had also risen, as a result of rising productivity and gradually falling inflation after 2003, as well as a tightening labour market during 2007-08. The share of informal-sector employment, measured as the ratio of own-account workers and those without social security coverage to the employed population aged 15-59 years and residing in the country's metropolitan regions, had been falling since 2004. As argued in the 2006 *Survey* (OECD, 2006), falling informality had owed much to the dynamism of the labour market, as well as policies that had been put in place to encourage labour formalisation, including a reduction in the social security contribution rate on domestic workers.

Figure 1.1. **The global financial and economic crisis and the real economy: An event analysis**[1]

Dotted line: t_0 = 100 for April 2002 (2002Q2 for capacity utilisation and business confidence)
Solid line: t_0 = 100 for July 2008 (2008Q3 for capacity utilisation and business confidence)



1. The events reflect large nominal exchange-rate depreciation episodes, which were selected using the following criterion: a sustained monthly depreciation of the exchange rate during at least five months, leading to a cumulative depreciation of at least 40%. On the basis of this definition, two episodes can be selected since the abandonment of exchange-rate targeting in 1999: the periods April-October 2002, when the exchange rate depreciated by 64%, and July-December 2008, when the exchange rate depreciated by 44%.

Source: Central Bank of Brazil and OECD calculations.

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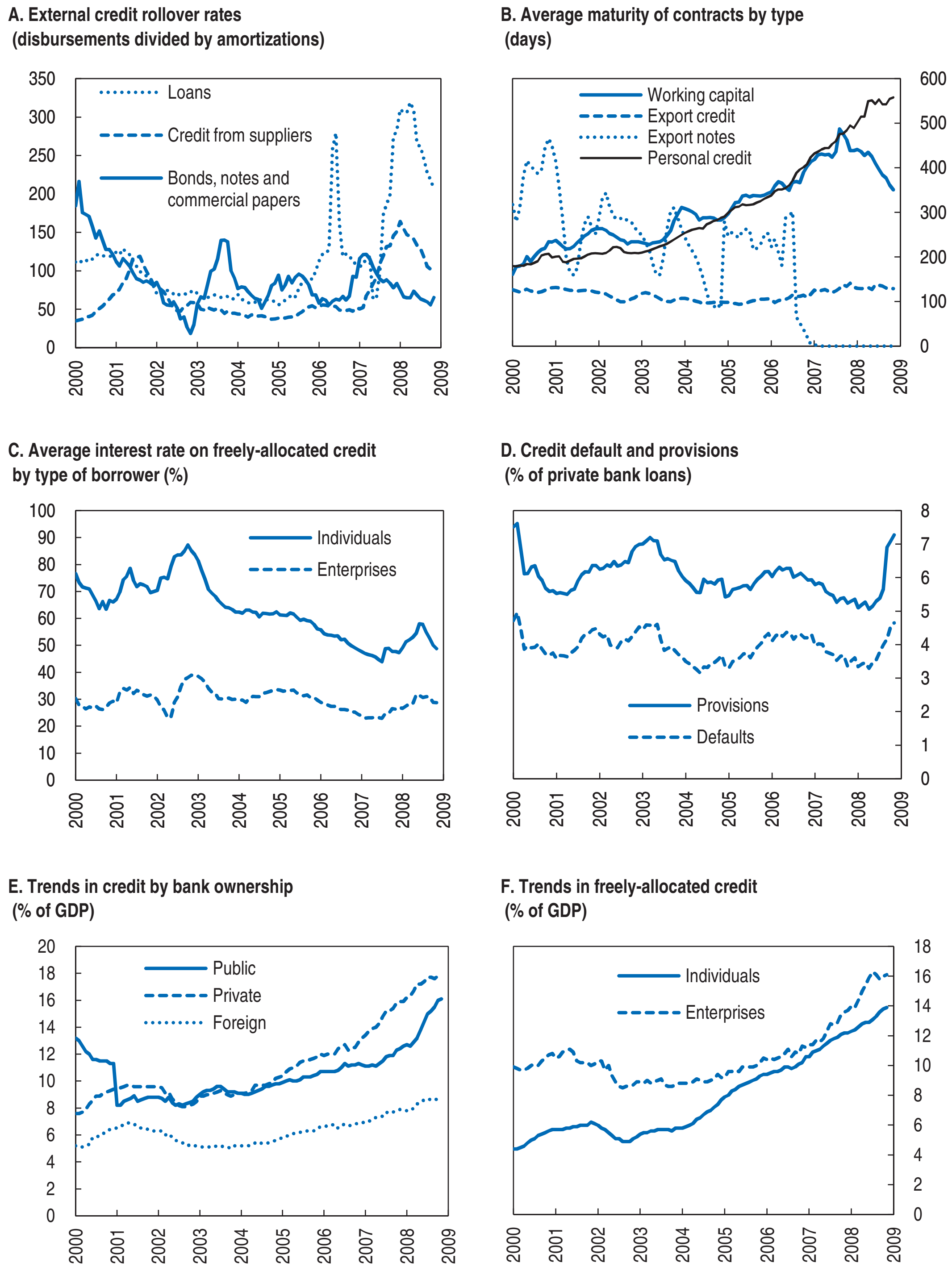
Figure 1.2. **Trends in credit, 2000-09**



Source: Central Bank of Brazil.

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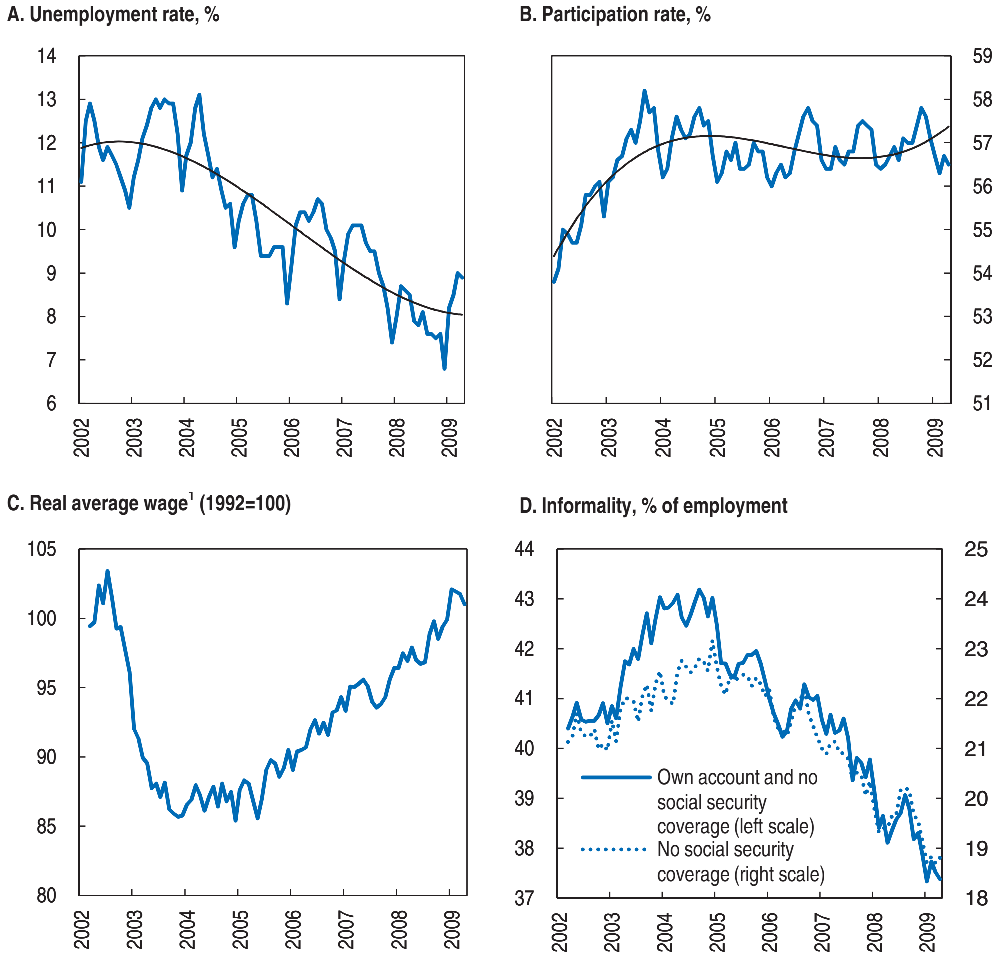
Figure 1.3. **Labour market indicators, 2002-09**



1. Refers to employed workers residing in metropolitan regions.

Source: IPEA (IPEADATA) and OECD calculations.

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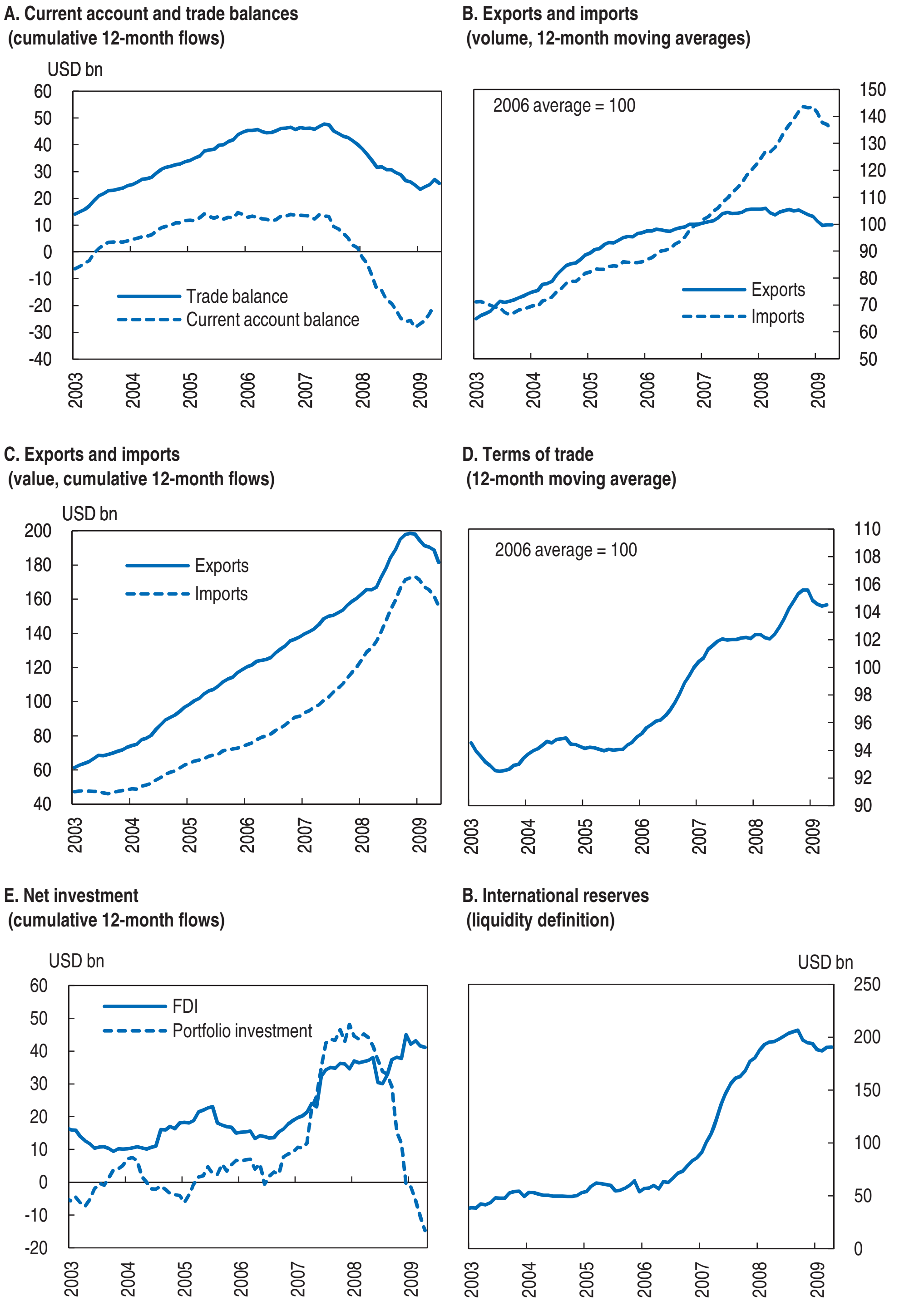
The balance of payments

Following nearly five years of surpluses, Brazil's current-account balance shifted into deficit in early 2008 (Figure 1.4). The main culprit was merchandise trade, as the surplus shrank due essentially to rising import volumes on the back of a fast growing economy and despite improvements in the terms of trade until mid-2008. Imports also began to retreat towards end-2008 as domestic demand eased, and the current-account deficit is therefore shrinking. It continues to be financed comfortably by robust FDI inflows, which more than offset the decline in portfolio investment as the global financial environment weakened in the second half of 2008. As a result of a positive balance-of-payments position, international reserves continued to be accumulated until late in 2008, when the central bank launched a number of liquidity-enhancing measures and intervened sporadically in the foreign exchange market (discussed below). International reserves stood at close to USD 200 billion in May 2009 (about 13% of GDP).

A change in the composition of Brazil's foreign liabilities – a phenomenon that predates the global crisis – is affecting the country's international payment flows. A sustained fall in

Figure 1.4. **Balance-of-payments indicators, 2003-09**



Source: IPEA (IPEADATA) and FUNCEX.

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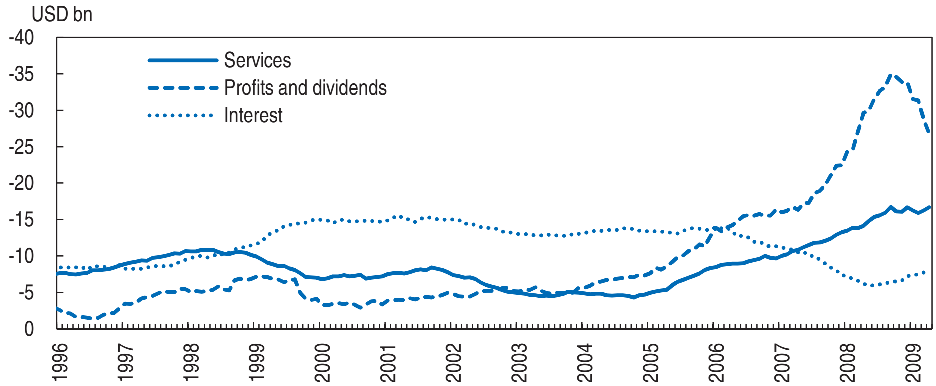
foreign indebtedness has led to a gradual decline in interest payments (Figure 1.5). At the same time, increased attractiveness to foreign direct investment since macroeconomic stabilisation in the 1990s, initially motivated by the government's large privatisation programme, has led to an increase in profit and dividend remittances. Rising overall service payments can be attributed to the greater openness to trade and investment. As a result, because profit and dividend flows are much more sensitive to the business cycle than interest payments on debt, Brazil's current account is becoming increasingly sensitive to the business cycle and the difference between domestic and global cyclical positions.

Figure 1.5. **Trends in net service and income payment flows, 1996-2009**



Source: Central Bank of Brazil.

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Policy responses and the short-term outlook

Financial and monetary policy

The authorities responded decisively to the credit crunch brought about by the global crisis through successive liquidity-enhancing measures implemented during October 2008 and January 2009 (Box 1.1). Compulsory reserve holdings by banks, which have traditionally been high in Brazil, were reduced, and incentives were created for larger institutions to purchase the loan portfolios of smaller banks, which were affected more severely by worsening credit conditions. These measures resulted in a reduction in compulsory reserves held by banks by about 100 billion *reais* in October-December 2008 (about two-thirds of end-September base money or 3.5% of GDP). Government-owned or controlled banks were also encouraged to expand their credit operations, financed in part by federal loans to the National Development Bank (BNDES) and other institutions of up to 115 billion *reais* (4% of GDP) during 2009-10.

The impact of the liquidity-boosting measures on longer-term credit creation is still unclear, but recent trends are encouraging. The reduction in compulsory reserve requirements for banks has been offset in part by higher voluntary deposits at the central bank. But freely-allocated credit has trended up since end-2008, and an increase in directed credit has taken place on the back of strong BNDES lending. Despite lower demand and increased risk associated with the deterioration in the economic outlook, domestically and abroad, new bank lending to individuals had recovered to pre-crisis levels by April 2009. Borrowing costs are also coming down from the end-2008 highs for both individuals and enterprises.

Central-bank interventions in the foreign-exchange markets were aimed essentially at enhancing liquidity, rather than defending a particular level of the exchange rate. Most interventions focused on the sale of foreign-exchange swaps to support enterprises and

Box 1.1. **Measures taken to deal with the global crisis-led domestic credit crunch**

Domestic credit conditions began to deteriorate sharply in September 2008, as the global crisis worsened. Measures taken during October 2008 and January 2009 to mitigate the impact of the crisis on domestic credit and foreign-exchange markets focused on easing compulsory reserve requirements for banks, the creation of credit lines for exporters, the sale of foreign-exchange swaps by the central bank, the alleviation of the tax burden on selected financial operations and greater involvement of public financial institutions in export credit.

Greater flexibility in reserve requirements and prudential regulations

- The authorities responded initially by raising, in successive moves between end-September and mid-October, the exemption threshold that currently exists on a variety of deposits above which compulsory reserve requirements apply. These thresholds were raised from 100 million to 2 billion *reais* for time deposits and to 1 billion *reais* for the "additional requirements", which are supplementary to ordinary requirements, for sight and time deposits. The liquidity created through these measures amounted to about 32 billion *reais*.
- Banks were allowed to deduct (up to 70%, against 40% originally) from their compulsory reserves on time deposits the resources used to purchase loan portfolios from smaller banks (with capital originally set at 2.5 billion *reais* and then raised to 7 billion *reais*). The liquidity injected into credit markets through these measures amounted to about 27 billion *reais*.
- The deposit insurance fund (FGC)[1] was allowed to buy loan portfolios of smaller banks subject to a cap of 6 billion *reais*. Purchases would be financed through a loan to FGC by the central bank using the stock of compulsory reserves on sight deposits held by the central bank. At the same time, banks were allowed to pre-pay their contributions to FGC for the following 60 months in exchange for a reduction in their compulsory requirements on sight deposits, which are not remunerated. This measure was estimated to boost liquidity by about 5.5 billion *reais*.
- The remuneration of compulsory reserves was altered. In the case of time deposits, for which requirements could be met entirely though government bond holdings and would therefore be remunerated at the policy interest (SELIC) rate, the authorities required that 70% of requirements be met in cash. This requirement created an incentive for banks to use the non-remunerated share of their compulsory reserves to expand their lending or to purchase the loan portfolios of smaller banks. This measure was partially reversed at end-year, when banks were required to meet the additional reserve requirements (which are supplementary to the ordinary requirements, below) on sight, time and savings deposits in the form of government bonds rather than cash. Given the estimated level of government bond holdings by private banks, it was estimated at the time that these measures would free up about 40 billion *reais*.
- Compulsory reserve ratios were altered for a variety of deposits. For example, the ordinary compulsory reserve ratio was lowered from 45 to 42% in the case of sight deposits, for which reserves are not remunerated, and maintained at 15% for time deposits. This measure was estimated to boost liquidity by about 3.5 billion *reais*. The 20% ratio for savings accounts was reduced to 15% in the case of rural savings, enhancing liquidity by an estimated 2.5 billion *reais*. The additional requirement ratios were also lowered from 8 to 5% for sight and time deposits, and maintained at 10% for savings accounts, releasing nearly 15.5 billion *reais* in liquidity. At the same time, the authorities changed earmarking requirements for selected operations. For example, directed credit to agriculture was raised from 25 to 30% of sight deposits and from 65 to 70% for rural savings.
- Additional measures included some flexibility in selected prudential regulations. For example, provisioning for non-performing loans was excluded from the reference capital of banks in the case of leasing operations. It was estimated in early 2009 that this measure could free up about 40 billion *reais* that could be used to prop up credit. In addition, the introduction of reserve requirements for leasing companies, which had been announced earlier in 2008, was delayed to 2010.

Box 1.1. **Measures taken to deal with the global crisis-led domestic credit crunch** *(cont.)*

Measures to enhance liquidity in foreign exchange markets

- In late October 2008 the central bank announced a programme for sales of exchange-rate swaps of up to USD 50 billion. The measure targeted enterprises with exposure to exchange-rate derivatives, which were adversely affected by the sharp depreciation of the *real* in September-October. These enterprises' liabilities were estimated in the neighbourhood of USD 30 billion in October. The measure also benefited banks that wished to wind down their holdings of exchange-rate derivatives (reverse swaps with the central bank), estimated at about USD 7 billion in October. The authorities also allowed purchases of foreign-exchange swaps to be deducted from compulsory reserve requirements on inter-bank deposits, a measure that was estimated to free up about 19 billion *reais* in liquidity.
- Credit lines in foreign exchange were created to meet the demand for export credits using as collateral sovereign bonds traded abroad (*Globals*) and/or export receivables. These operations accounted for nearly USD 9.2 billion from September 2008 through April 2009.[2] The central bank also sold USD 14.9 billion in the spot market between September 2008 and March 2009. Moreover, repo lines of credit in foreign exchange were offered by the central bank, amounting to USD 21.6 billion between September 2008 and April 2009.
- A six-month USD 30 billion swap facility was set up between the Brazilian and US central banks in July 2008 and extended in January 2009 for another six months.
- A programme was introduced in January 2009 allowing the central bank to lend foreign exchange to Brazilian enterprises and financial institutions with external debt obligations coming due in the course the year. It was estimated that refinancing needs for the private corporate sector would amount to about USD 27.5 billion in 2009.

Tax measures to reduce borrowing costs

- The financial transactions tax (IOF) rate was reduced at end-October from 1.5% to nil for credit and insurance operations, as well as for sales/purchases of securities. The rate was also reduced from 0.38% to nil in the case of foreign-exchange transactions.

Greater involvement of public financial institutions in export credit

- In October 2008, the authorities authorised BNDES, the national development bank, to allocate 5 billion *reais* to export credit operations. In January 2009, a federal loan to BNBES of up to 100 billion *reais* during 2009-10 was announced to enhance the bank's lending capabilities.

1. FGC is funded through mandatory contributions from all banks and guarantees sight, time and savings deposits of up to 60 000 *reais*.
2. See Central Bank of Brazil (2008) for more information.

banks in their efforts to liquidate positions in foreign-exchange derivatives. These investors, including a number of large exporters, had engaged in hedging operations until mid-2008 that would protect them against future appreciations of the exchange rate, given that the *real* had gradually strengthened in the first half of 2008. They were therefore affected adversely by the sharp depreciation that took place in September-October. Spot-market interventions were intermittent and relatively modest in volume. The central bank reiterated its commitment to a floating regime for the exchange rate and stressed the temporary nature of the interventions. This policy strategy is consistent with previous episodes, in which a combination of interventions in the spot and futures markets sought to ensure liquidity so as to smooth exchange-rate volatility, rather than targeting a particular level for the nominal exchange rate (Box 1.2).

Box 1.2. **Foreign-exchange interventions: Experience under inflation targeting**

Interventions

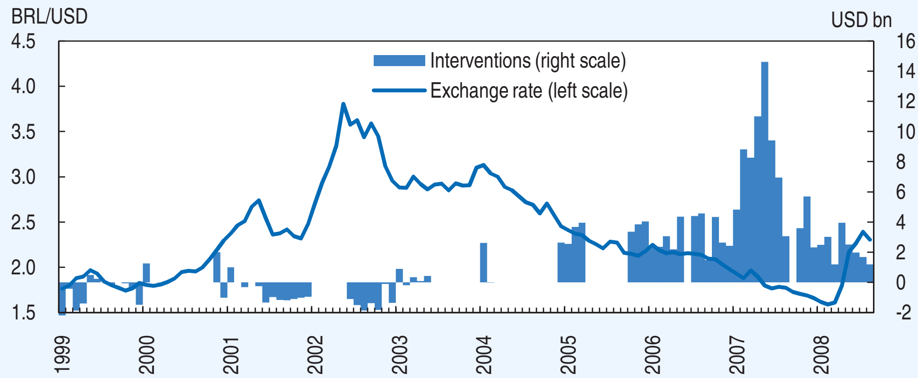
The central bank is allowed to intervene in the foreign-exchange market to smooth excessive exchange-rate volatility and to build up international reserves. Interventions are sterilised through open-market operations.

Following abandonment of the exchange-rate peg in January 1999, the nominal exchange rate depreciated until end-2002, with short-lived periods of appreciation, and began to appreciate thereafter until mid-2008. The main culprit for the April-December 2002 depreciation episode was a lack of confidence in the policies to be pursued by the frontrunner in the presidential election of October 2002, which fuelled a speculative attack on the *real*. Maintenance of a responsible macroeconomic policy mix after the new administration took office in 2003 restored confidence. Robust trade and current-account surpluses sustained the appreciating trend.

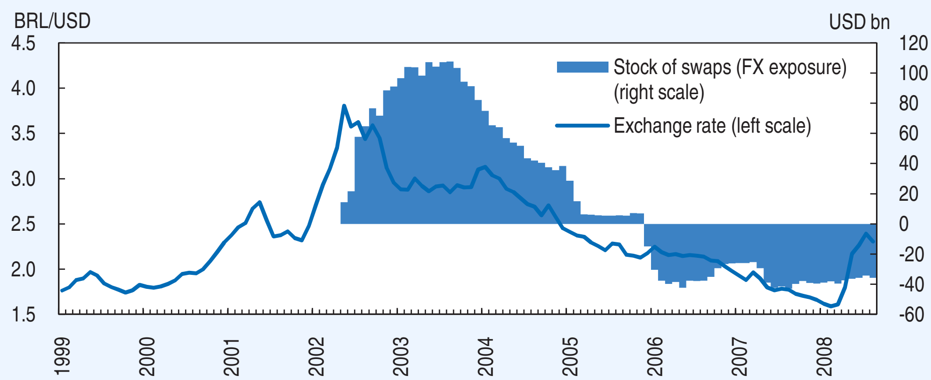
Spot-market interventions predominantly leaned against the wind and were in the form of pre-announced auctions of USD until end-2002 (Figure 1.6). Interventions also took place in the derivatives market through the sale of exchange-rate swaps, which resulted in

Figure 1.6. **Exchange rate and foreign-exchange market interventions, 1999-2009**

A. Exchange rate and spot interventions



B. Exchange rate and foreign-exchange swaps



Source: Central Bank of Brazil.

Box 1.2. **Foreign-exchange interventions: Experience under inflation targeting** *(cont.)*

a sharp increase in the public sector's exposure to foreign-exchange risk over the period.* Since 2003, interventions have been less frequent and predominantly in the form of USD purchases to build up international reserves and to smooth excessive volatility in the spot market. The unwinding of foreign-exchange swaps has reduced the public sector's exposure to its net creditor position.

Empirical evidence

The empirical literature on central-bank interventions focuses on the estimation of "intervention reaction functions" to predict the timing and magnitude of interventions, as well as for testing whether or not the motives stated by the authorities for intervening are borne out by the data. Consistent with this literature, Gnabo, de Mello and Moccero (2008) used a friction model to estimate an intervention reaction function for the Brazilian central bank over a period spanning late 1999 through early 2007.

The authors show that, *first*, the main reason for spot interventions has been to calm disorderly markets, rather than to target a specific level of the exchange rate. This is because interventions were found to be strongly affected by exchange-rate volatility. *Second*, there also appears to be an asymmetry in the central bank's intervention reaction function. The monetary authority has intervened predominantly to encourage a depreciation of the exchange rate, rather than to prop up the value of the *real*. *Finally*, interventions seem to take place independently of contemporaneous monetary-policy moves, suggesting that the two policy instruments are independent.

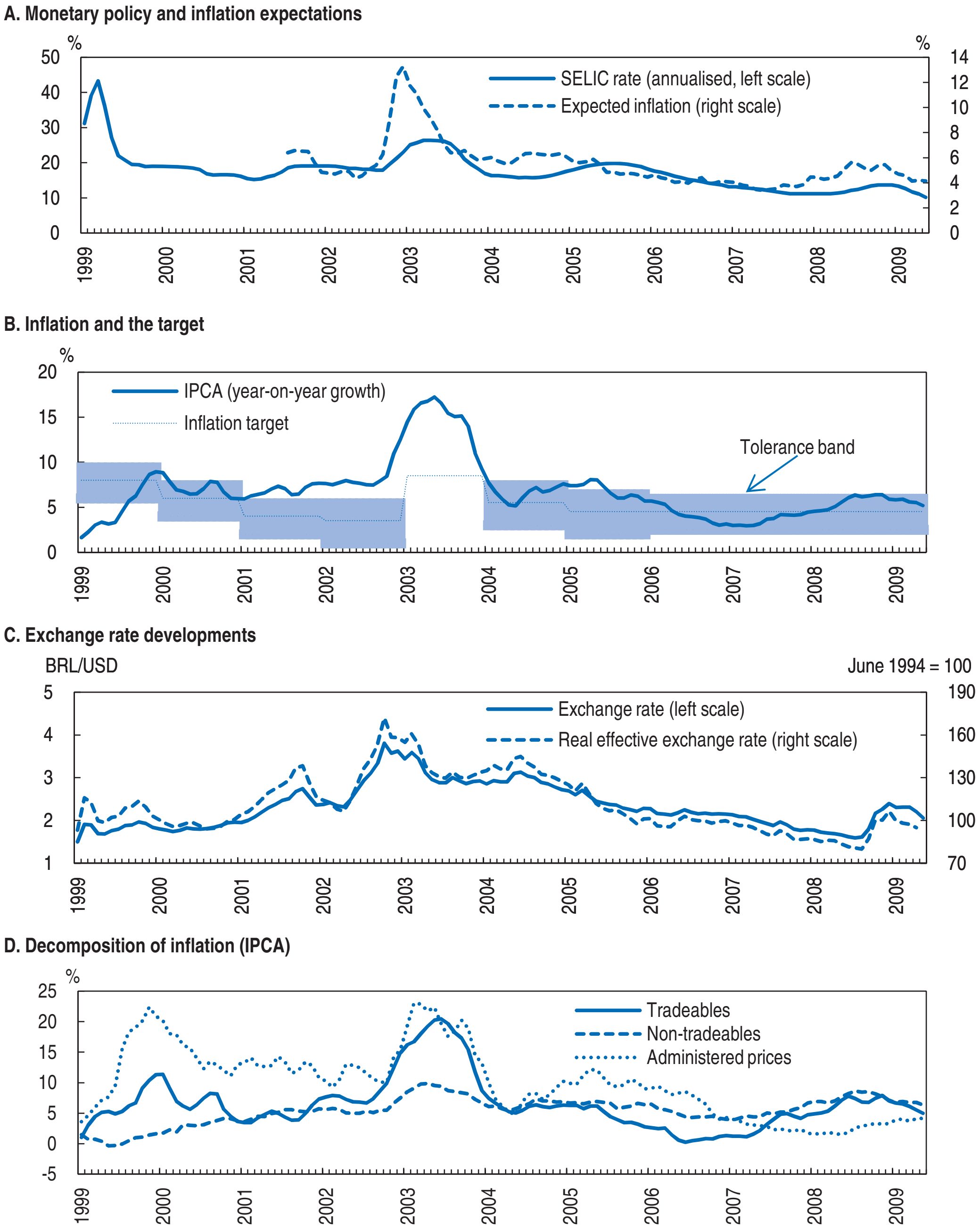
* Through the exchange-rate swaps, the central bank pays contract-holders the variation in the USD/BRL exchange rate plus the local onshore USD interest rate, and receives in exchange the cumulative one-day interest rate on interbank certificates of deposit (CDI rate) over the duration of the contract. See Bevilaqua and Azevedo (2005) for more information.

Monetary policy began to be relaxed in January 2009. A surge in food prices and strong demand growth in the first half of 2008 lifted inflation above the central target of 4.5% and put a temporary end to a two-year easing cycle (Figure 1.7). The policy interest rate was raised to 13.75% in September 2008, a cumulative 250-basis point rise from April, and was left unchanged in the remainder of the year, when inflation expectations began to converge to the 2009 target and the economic outlook deteriorated considerably. The policy interest rate was therefore reduced by a cumulative 450 basis points in January-June to 9.25%. The depreciation of the *real* from the peak of mid-2008, despite a sharp appreciation in the first half of 2009, did not put upward pressure on consumer prices. Falling commodity prices towards end-2008 compensated to a certain extent for the increase in the price of tradable goods as a result of a weaker exchange rate at a time when non-tradable inflation had begun to recede in response to monetary tightening. The erosion of the economic outlook towards year-end also contributed, with evidence suggesting that most businesses facing rising production costs opted for absorbing them rather than passing them on to consumers for fear of losing market share.

Fiscal policy

The authorities have taken a number of fiscal measures in response to the global crisis. The industrialised products tax (IPI) burden was reduced on a temporary basis on motor vehicles and a variety of consumer durables and construction items, the financial

Figure 1.7. **Inflation, exchange rate and monetary policy, 1999-2009**



Source: Central Bank of Brazil.

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transactions tax (IOF) was lowered on a variety of transactions (noted above), including credit to individuals, and the personal income tax burden was alleviated through an increase in the exemption threshold and in the number of income brackets and marginal rates (within the current range of 15-27.5%). The revenue foregone associated with these measures amounts to a cumulative 0.6% of GDP over the period 2009-10. Additional supportive measures included an increase in the duration of unemployment insurance and increases in government support for housing[1] – accounting for about 0.7% of GDP in direct support in the course of 2009-11 – and infrastructure development under PAC, the Growth Acceleration Programme that was launched in 2007. Hikes in means-tested income transfers and an increase in the minimum wage by nearly 6% in real terms, to which pensions and social assistance benefits are linked, together with a scheduled rise in compensation for civil servants, will add to the fiscal stimulus. Supportive quasi-fiscal operations have also been put in place, including loans to BNDES and other government-owned institutions (noted above).[2]

The outlook for 2009-10

The sharp deceleration in activity brought about by the unfolding global crisis will take its toll on growth in 2009-10. GDP is likely to shrink in 2009, although domestic demand is projected to regain some dynamism in the second half of the year and into 2010, due predominantly to the supportive policy stance (Table 1.1). Improving credit conditions on the back of ongoing monetary easing and plentiful liquidity, coupled with an increase in government transfers to households, are set to prop up private consumption. Indeed, a number of favourable signs emerged in the second quarter, including a renewed strengthening of the *real*, an improvement in credit conditions and a sharp upward movement in the stock market. Moreover, a swifter execution of public infrastructure development programmes, especially those under PAC, will likely compensate for a weakening of private investment growth. However, demand for Brazilian exports is set to remain weak until year-end owing to the global recession.

Table 1.1. **Summary of short-term projections, 2006-10**[1]

	2006	2007	2008	2009	2010
Real GDP growth (%)	4.0	5.7	5.1	–0.8	4.0
Inflation (CPI, end-period, %)	3.1	4.5	5.9	4.2	4.2
Fiscal balance (% of GDP)	–3.0	–2.2	–1.5	–2.4	–1.2
Primary fiscal balance (% of GDP)[2]	3.8	3.9	4.1	2.3	3.3
Current account balance (USD billion)	13.6	1.6	–28.2	–18.0	–22.0
Current account balance (% of GDP)	1.3	0.1	–1.8	–1.3	–1.4

1. Figures for 2006-08 are from national sources (IBGE, Central Bank of Brazil). Figures for 2009-10 are OECD projections.
2. Includes a capital injection (0.5% of GDP) into the Brazilian Sovereign Wealth Fund, which was treated as an expenditure in 2008. For 2009-10, the primary fiscal balance is adjusted for the exclusion of Petrobras from the public-sector aggregate.

Source: OECD Economic Outlook (June 2009).

The macroeconomic policy stance is projected to be expansionary in 2009. As discussed in Chapter 2, there may be room for further monetary easing in the coming months. With regard to fiscal policy, the primary budget surplus is projected to fall short of the target of 2.5% of GDP (adjusted for the exclusion of Petrobras, the national oil company from the government accounts, discussed in Chapter 2). Based on the estimated elasticity of the budget balance with respect to the business cycle (0.32),[3] and assuming that the automatic stabilisers would be allowed to operate freely, if the output gap were to widen to about -3% of potential GDP in 2009, which would be consistent with the projected contraction of real GDP, the primary budget surplus would fall by about 1.3% of GDP. Together with the discretionary measures announced (up to March) for 2009 (0.4% of GDP), and taking into account the exclusion of Petrobras from the government accounts, these cyclical effects could result in a fall of the primary budget surplus from 4.6% of GDP in 2008 (before the capital injection in the Sovereign Wealth Fund, which was booked as expenditure) to at most 2.3% of GDP in 2009, including adjustments (0.2% of GDP) to the base of comparison associated with collections of income tax on capital gains, which were sizeable in 2008.

Although there are considerable uncertainties around the baseline scenario, the balance of risks may well be shifting to the upside. An incipient recovery in domestic production on the heels of a supportive policy stance, if maintained over the coming months, could underpin a prompter-than-expected rebound in activity. But heightened uncertainty about the sustainability of the recovery in the global economy would weigh down on Brazilian exports. Sustained risk aversion would also affect access by Brazilian borrowers to international credit markets, discourage foreign investment inflows and slow down the recovery in domestic credit.

Medium-term growth prospects

Brazil's growth potential has been improving steadily. Trend GDP growth had been on the rise since the mid-1990s to close to 4.5% in 2008 (Annex 1.A1), but is estimated to have fallen to just above 4% over the near term as a result of the global crisis-induced deceleration in capital accumulation. Of course, estimation of potential GDP and the associated growth rates is particularly challenging in periods of uncertainty and sizeable reversals in business investment. In any case, and taking these caveats into consideration, Brazil's potential growth rate is lower than those estimated for the fast growing Asian countries, such as China and India. To a large extent, this is due to the fact that Brazil's income level (measured in purchasing power parity terms) is nearly twice as high as China's and over three times higher than India's (Table 1.2). But Brazil's potential growth rate exceeds the pre-crisis OECD average of 2.2% per year (as estimated at end-2008) by a comfortable margin. This differential in potential growth rates (about 2.3 percentage points in 2008) illustrates the speed of convergence in relative per capita income levels that might be expected over the longer term. Given that Brazil's income per capita in purchasing power parity terms is nearly one-third of the OECD average, it would take over 40 years for the income gap relative to the OECD area to be closed at these rates.

Table 1.2. **Basic indicators: Enhanced engagement countries, 2007**

	Brazil	China	India	Indonesia	South Africa
GDP (in current USD billion)	**1 333.8**	3 205.5	1 176.9	432.8	283.0
GDP per capita (in current USD)	**6 854.7**	2 431.5	1 046.3	1 918.3	5 914.4
GDP growth (real, 2002-07 average, in per cent)	**3.9**	11.0	8.9	5.5	4.7
GDP per capita (in current USD, PPP)	**9 566.7**	5 383.2	2 753.3	3 712.3	9 757.4
GDP per capita growth (real, 2002-07 average, in per cent)	**2.5**	10.4	7.4	4.1	3.5
Population (millions)	**191.6**	1 318.3	1 124.8	225.6	47.9
Population density (inhabitants per sq. km)	**22.6**	141.3	378.3	124.5	39.4

Source: Central Bank of Brazil and World Bank (*World Development Indicators*).

Sustaining capital accumulation

Renewed dynamism in private investment in recent years has been essential for raising potential growth. Gross capital formation had been erratic in the first half of the decade, often acting as a drag on growth. But it appears to have regained impetus during 2005-08, despite a large contraction in the last quarter of 2008 (Table 1.3 and

Table 1.3. **Basic economic indicators, 2000-08**

	2000	2005	2006	2007	2008
Supply and demand					
GDP (in current BRL billion)	1 179.5	2 147.2	2 369.8	2 597.6	2 889.7
GDP (in current USD billion)	645.0	882.4	1 088.9	1 333.8	1 573.3
GDP growth rate (real, in per cent)	4.3	3.2	4.0	5.7	5.1
Supply					
Agriculture	2.7	0.3	4.5	5.9	5.8
Industry	4.8	2.1	2.3	4.7	4.3
Services	3.6	3.7	4.2	5.4	4.8
Demand					
Private consumption	4.0	4.5	5.2	6.3	5.4
Public consumption	–0.2	2.3	2.6	4.7	5.6
Gross investment	5.0	3.6	9.8	13.5	13.8
Exports	12.9	9.3	5.0	6.7	–0.6
Imports	10.8	8.5	18.4	20.8	18.5
Public finances (consolidated public sector, in per cent of GDP)					
Revenue	30.4	33.4	33.5	34.8	35.9
Primary balance	3.2	4.4	3.8	3.9	4.1
Nominal balance	–3.4	–3.0	–3.0	–2.2	–1.5
Net debt	45.5	46.5	44.0	42.0	36.0
Balance of payments (in USD billion)					
Current account balance	–24.2	14.0	13.6	1.6	–28.2
In per cent of GDP	–3.8	1.6	1.3	0.1	–1.8
Trade balance	–0.7	44.7	46.5	40.0	24.8
Exports	55.1	118.3	137.8	160.6	197.9
Imports	–55.8	–73.6	–91.4	–120.6	–173.1
International reserves (gross)	33.0	53.8	85.8	180.3	206.8
FDI (net inflows)	32.8	15.1	18.8	34.6	45.1
Outstanding external debt	216.9	169.5	172.6	193.2	198.4
In per cent of GDP	33.7	19.2	15.8	14.5	12.6
Exchange rate and prices					
Exchange rate (BRL per USD, period average)	1.83	2.43	2.18	1.95	1.83
CPI inflation (IPCA, in per cent, end-of-period)	6.0	5.7	3.1	4.5	5.9
GDP deflator (in per cent)	6.2	7.2	6.2	3.7	5.9
Labour market					
Unemployment rate (in per cent, period average)[1]	...	9.8	10.0	9.3	7.9

1. Refers to the Monthly Employment Survey (PME/IBGE).
Source: IBGE, Central Bank of Brazil, National Treasury.

Figure 1.8). The consolidation of macroeconomic stabilisation has contributed, with falling and steadily more stable inflation, lower sovereign risk and improved credit ratings. Robust domestic credit growth and a supportive global environment until 2008 also contributed. In this regard, the empirical evidence reported in Annex 1.A3 shows that the availability of credit to the private sector is an important driver of investment. This is consistent with evidence based on firm-level data, which also shows that investment is particularly sensitive to the availability of credit, especially for small firms (Terra, 2003).

Further financial deepening supported by continued macroeconomic rectitude will be essential to sustain investment growth over the longer term. Of particular interest in this area are the reforms implemented – and whose benefits are now coming to full fruition – to strengthen the equity and corporate bond markets, which have expanded at a fast pace in recent years. This expansion reflects not only a favourable financial environment until 2008, but also efforts to strengthen corporate governance, as in the case of the

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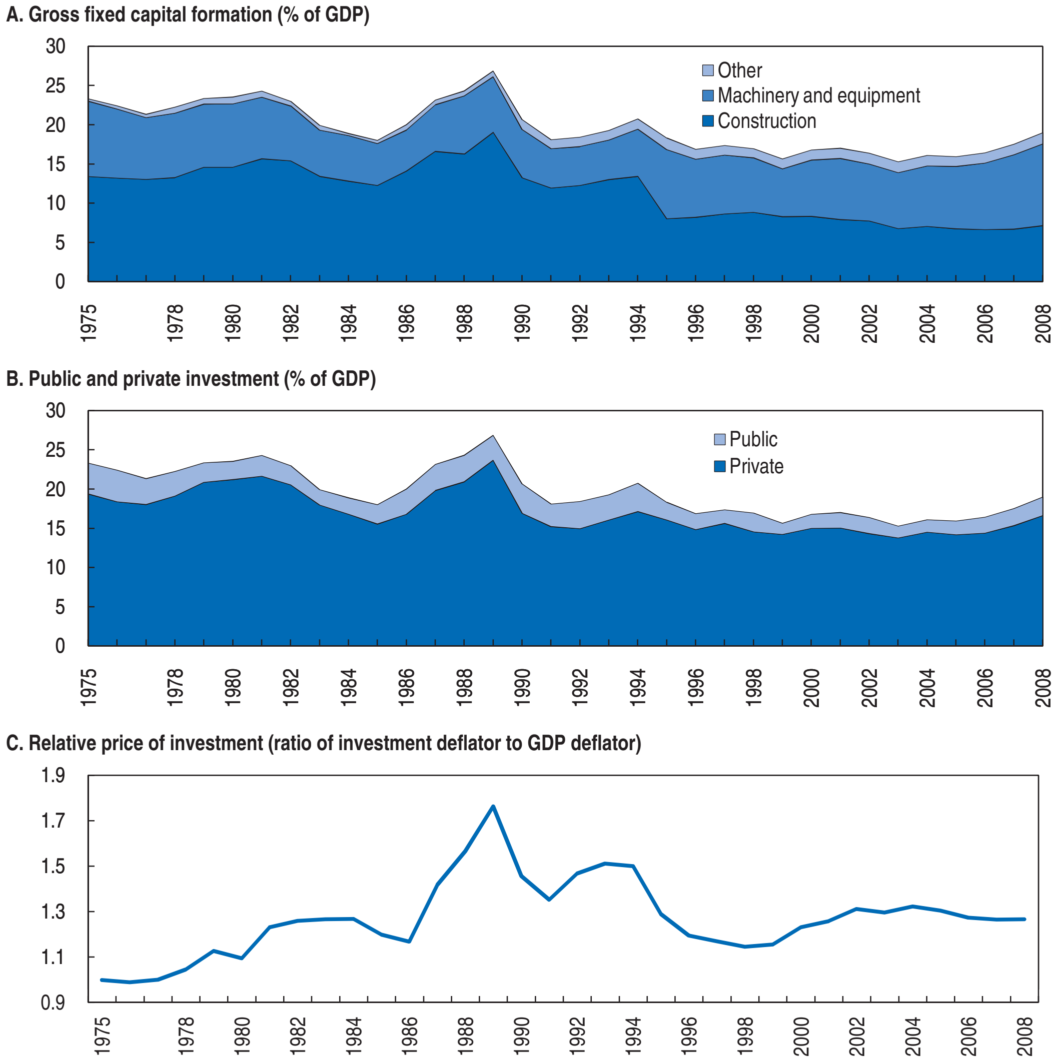
Figure 1.8. **Trends in investment, 1975-2008**



Source: IPEA (IPEADATA) and OECD calculations.

StatLink http://dx.doi.org/10.1787/652085712682

São Paulo Stock Exchange's New Market, launched in 2002, and to facilitate the exercise of collateral, including through the enactment of new bankruptcy legislation in 2004. Efforts to extend credit to the underserved population, including small enterprises and entrepreneurs operating in the informal sector, are also paying off.

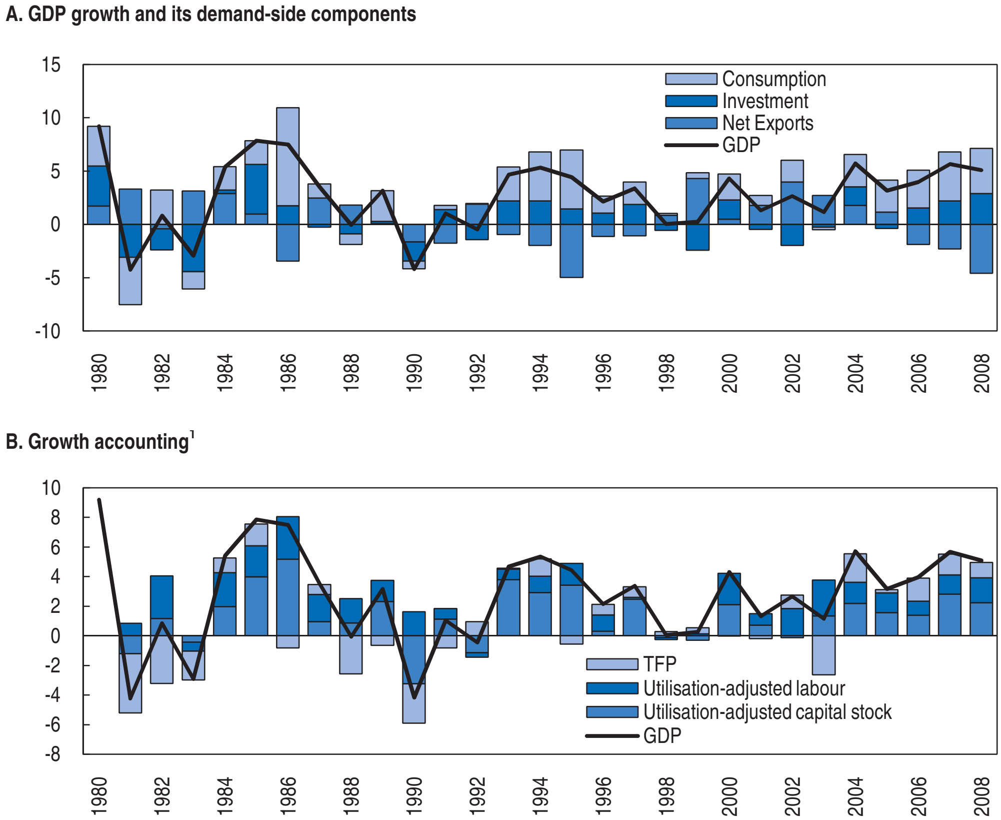
Initiatives to reduce the tax burden on investment would also militate in favour of sustaining the dynamism of fixed capital formation beyond the slowdown brought about by the global financial crisis. The tax reform currently under discussion in Congress (Chapter 3) proposes to make purchases of machinery and equipment fully creditable against the state-level VAT (ICMS). This is important, because the current mechanism for crediting these purchases relies on federal funding, which is often insufficient to meet the demand from the business sector. A reduction in the timeframe for processing these credits would also be shortened. Another consideration, as noted in the 2005 and 2006 *Surveys* (OECD, 2005 and 2006), is that Brazil still imposes import duties on a number of capital goods and intermediate inputs as part of the government's industrial policy objectives, despite the gradual easing that took place over the 1990s. These duties add to the cost of imports, which has a deleterious impact on investment and productivity, because the acquisition of imported capital goods and equipment is an important source of embodied technologies in the manufacturing sector. Lower tariff protection for domestic producers would also enhance competition and could further reduce the price of investment.

Raising labour and economy-wide productivity

Labour productivity will also need to be bolstered to lift the economy's longer-term growth potential. The contribution of utilisation-adjusted labour to economic growth has been stable over the recent past (Figure 1.9), but it is likely to fall in the future because of lower labour force growth. As noted in previous *Surveys*, labour force participation rates are comparable to the OECD average for prime-age men, but they are slightly lower for women, which creates some, albeit small, room for raising labour utilisation through increases in participation. As a result, the bulk of the income gap that exists between Brazil and the OECD area arises from a shortfall in labour productivity. Of course, concerted policy action will be needed on several fronts to close this gap, especially as labour productivity growth appears to be losing momentum, at least in the industrial sector, following significant

Figure 1.9. **Decomposition of GDP growth, 1980-2008**

In per cent



1. Adjustments for capital and labour utilisation are as in Annex 1.A1.

Source: IPEA (IPEADATA) and OECD calculations.

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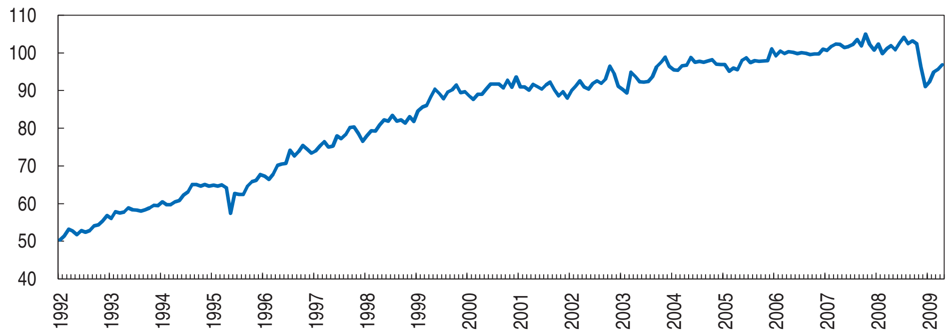
improvements in the 1990s (Figure 1.10). It could be argued that the largest gains would come from sustained effort to improve educational attainment and student performance, an area where Brazil fares particularly poorly in comparison with OECD countries. As argued in Chapter 4, these outcomes cannot be solely attributed to a dearth of financing for education, given that public spending levels are not much lower than the OECD average in Brazil in relation to GDP. In fact, OECD countries have better indicators than Brazil, despite somewhat lower spending-to-GDP ratios. This suggests that the payoff from policy action to improve the cost-efficiency of publicly funded programmes may exceed that of outright increases in budgetary appropriations.

Figure 1.10. **Trends in labour productivity, 1992-2009**

Industrial production per hour worked (average 2006 = 100)



Source: IPEA (IPEADATA) and OECD calculations.

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Further labour formalisation would likely have a beneficial impact on labour productivity. An increase in formal employment would benefit workers who are already working by making them eligible for labour training programmes that are currently financed for formal-sector workers only. There is broad consensus on the need to tackle informality through a variety of channels, including by alleviating the tax burden on labour income and by boosting human capital. As discussed in Chapter 3, the tax burden on labour is heavy because of a combination of social security charges, para-fiscal levies and a mandated saving scheme that makes compliance with the tax system particularly onerous to enterprises, especially those hiring low-skill workers. Brazil's employment protection legislation is not overly burdensome in comparison with OECD countries, as discussed in the 2005 *Survey* (OECD, 2005). The largest payoff from reform would therefore come from lowering the taxation of labour income. But initiatives in this area would need to be complemented by policy action elsewhere, given the multi-faceted nature of labour informality. In particular, enhancing human capital through the education system would contribute to raising formality in labour relations, because the empirical evidence reported in the 2006 *Survey* (OECD, 2006) shows that educational attainment is a powerful predictor of employability.

Labour productivity would also benefit from greater emphasis on innovation in the private sector. As noted in the 2006 *Survey*, Brazil spends much less than the OECD average on R&D, and, unlike the best performers in the OECD area, most spending is financed by the government, rather than enterprises (IPEA, 2008). Low upper-secondary and tertiary educational attainment is an important obstacle to innovation; as a result, emphasis on human capital accumulation through the educational system could go a long way to removing skills shortages that deter innovation. But effort is also needed to increase enrolment at the tertiary level, given that the tertiary educational attainment gap between Brazil and the OECD area appears to be widening. In this respect, ongoing initiatives are welcome, including the expansion of the network of federal technological institutes (CEFETs) to improve access to double-qualification (vocational and formal) programmes at the upper-secondary level and to increase the supply of shorter post-secondary education programmes.

Maintaining a sound external position

Maintenance of external current-account surpluses has made the Brazilian economy increasingly resilient to adverse shocks. The external sector has traditionally been Brazil's Achilles' heel, with periods of rapid growth often coming to a sudden halt on account of emerging external imbalances. As in other emerging-market economies, changes in market sentiment arising from concern over the sustainability of domestic policies and varying global liquidity conditions have often resulted in a lack of appetite for Brazilian assets and a dearth of financing for current-account deficits.

Moving forward, the emergence of modest current-account deficits should not necessarily be disruptive. Brazil's saving rate is comparatively low, in part because of persistent government dissaving, and therefore insufficient to finance robust investment growth without recourse to foreign savings. But it is important to understand the dynamics of current-account adjustments in response to shocks, especially to income, investment and government consumption. The results of the analysis reported in Annex 1.A3 suggest that the current-account balance is particularly sensitive to changes in investment. Shocks to fixed capital formation explain nearly 30% of variation in the current-account balance three quarters following the shock, a proportion that rises continuously to around 40% after six or seven quarters.

Fiscal policy also affects the current-account dynamics. This is important, because the effectiveness of counter-cyclical activism in response to an economic slowdown depends on how the external current account responds to fiscal impulses. In the case of Brazil, as far as the estimations reported in Annex 1.A3 are concerned, shocks to government consumption appear to be somewhat more frontloaded, but of much lower intensity, than those to total investment. In particular, government-consumption shocks explain about 7% of variations in the current-account balance four quarters following the shock. This finding is in line with the empirical evidence reported by de Mello and Mogliani (2009), which shows in addition that the current-account balance responds more strongly to fiscal impulses following periods of fiscal expansion than retrenchment. In other words, a positive fiscal impulse results in a more pronounced deterioration of the current-account balance in the short run if it follows a period of fiscal expansion, in which government consumption has been rising, rather than a contraction. These empirical findings shed some light on the limitations imposed by the current-account dynamics to the use of fiscal policy in a counter-cyclical manner: a counter-cyclical fiscal expansion may have a muted impact on demand, because it would be mitigated at least in part by an increase in the current-account deficit.

Another important consideration is that adoption of a floating exchange-rate regime, underpinned by continued macroeconomic consolidation, has changed the current-account dynamics. A flexible exchange rate not only facilitates external adjustment in response to shocks, but it also changes the nature of policy responses. Income shocks and fiscal impulses had a stronger, longer-lasting effect on the current-account balance in the pre-1999 period of managed exchange rate than investment shocks.

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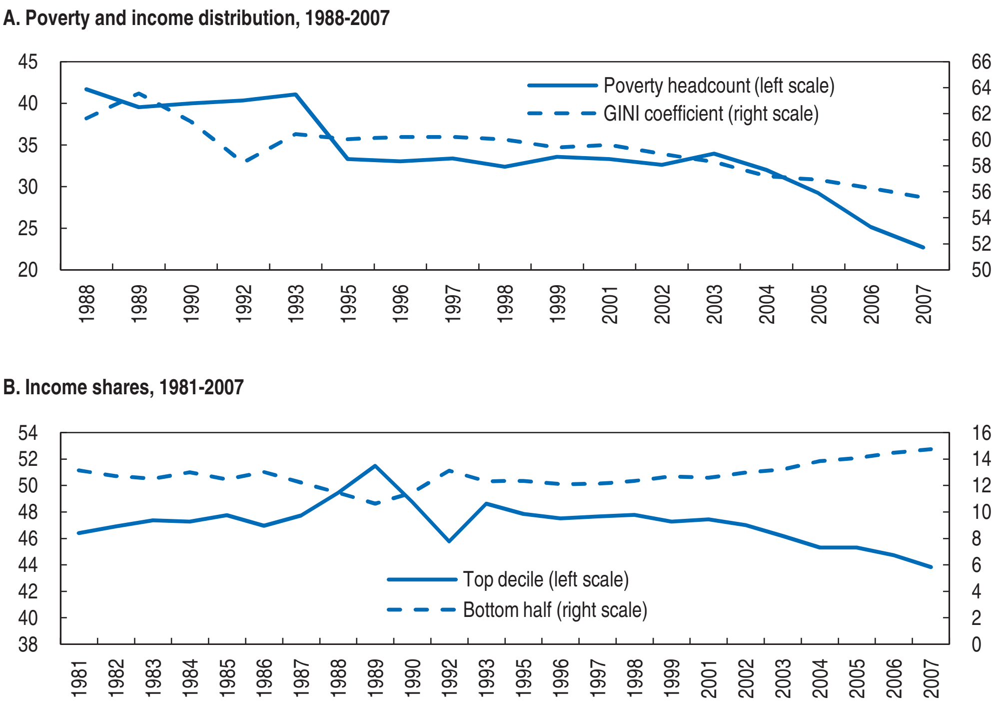
Sustaining social development

The resumption of economic growth in a stable macroeconomy, coupled with sound social policies, is delivering a steady reduction in poverty and improvements in the distribution of income, which has been notoriously skewed in Brazil. The fall in inflation since 2003, which resulted in considerable gains in real earnings, together with improving labour-market conditions, have been important factors behind the gradual fall in the percentage of the population living below the poverty line to below one-quarter in 2007 (Figure 1.11). The distribution of income has also improved significantly in recent years. To illustrate the recent achievements in this area, the Gini coefficient fell by about 0.7 percentage points per year during 2001-07; if this pace of reduction could be maintained over the medium term, Brazil could reach the current level of inequality of the United States in less than 15 years. To a large extent, this improvement is due to a better distribution of labour income (IPEA, 2006; Paes de Barros, Franco and Mendonça, 2007; Soares *et al.*, 2007; Soares, 2008) brought about by improving educational outcomes. In particular, an increase in the average years of education of the labour force, especially since the mid-1990s and for the least educated workers, has narrowed returns to education, as discussed in the 2006 *Survey* (OECD, 2006).

A further strengthening of social programmes would further improve the distribution of income. As discussed in previous *Surveys*, Brazil has put in place a number of such programmes since the late 1990s, which are currently under the umbrella of *Bolsa Família*. These programmes are considered to be reasonably well targeted[4] and are undoubtedly contributing to a reduction in poverty and income inequality.

Figure 1.11. **Poverty and income distribution indicators**

In per cent



Source: IPEA (IPEADATA).

StatLink http://dx.doi.org/10.1787/652110837455

Progress in structural reform

A summary of the actions taken in response to the policy recommendations included in the 2006 *Survey* (OECD, 2006) in the areas of macroeconomic management, innovation and labour force participation and productivity is reported in Annex 1.A4. Measures have been put in place in several policy domains, including in the macroeconomic area, although progress in complementary pension reform has been less ambitious than desirable.

Notes

1. Support measures were announced in March 2009 combining subsidies from the federal government for housing for low-income individuals, a reduction in the tax burden for the construction companies involved in the programme and credit lines for the construction sector from BNDES. The authorities are aiming for the construction of one million homes during 2009-11, which would reduce the estimated housing deficit by about 12%.
2. These operations, although neutral from the point of view of the government's net debt position, may well create a quasi-fiscal cost to the budget, in addition to raising the country's gross debt ratio. This cost arises because the borrowing rate facing the Treasury, the SELIC rate, exceeds the cost of BNDES loans, which are linked to the long-term interest rate (TJLP) plus 2.5 percentage points or the bank's borrowing costs in international markets. Estimations carried out when the loan was announced, based on a SELIC rate at 12.75% and average BNDES lending costs of about 8% would imply a para-fiscal cost to the Treasury of about 4.8 billion *reais* per year.
3. This elasticity is comparable to that of Japan and the United States, but lower than that of the European countries and the OECD average (0.44), reflecting the higher share of cyclically-dependent revenue and expenditure in relation to GDP in the latter countries. See de Mello and Moccero (2006) for more information.
4. See Soares *et al.* (2007) for an analysis of the targeting of income transfers in Brazil (*Bolsa Família*), Chile (*Chile Solidario*) and Mexico (*Oportunidades*). The authors show that these three programmes are well-targeted, with nearly 60% of transfers accruing to individuals in the lowest income quintile.

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ANNEX 1.A1

Re-estimating Brazil's potential GDP

This Annex updates the calculations of Brazil's potential GDP provided in de Mello and Moccero (2006) and de Mello (2008) and takes into account the 2007 national accounts revisions. As a first step, total factor productivity was calculated as follows:

$$\ln(TFP)_t = \ln(Y_t) - 0.49\ln(\overline{K}_t) - 0.51\ln(\overline{L}_t)\ , \qquad (1.A1.1)$$

where Y_t denotes real GDP; $\overline{K}_t = \gamma_t K_t$ is the utilisation-adjusted capital stock, where γ_t denotes a coefficient of utilisation of installed capacity, K_t; $\overline{L}_t = (1-u_t)\overline{F}_t$ denotes utilisation-adjusted labour, where $\overline{F}_t$ is the labour force and u_t is the rate of formal unemployment; ln(.) denotes the natural logarithm; and *t* is a time indicator.

The share of capital in GDP is obtained from the national accounts and is in line with previous literature (Silva Filho, 2001; Souza Junior and Jayme Junior, 2004; and Souza Junior, 2005).* Due to methodological changes in the unemployment series, the rate of unemployment was calculated as $u_t = (1-E_t)/\overline{F}_t$, where E_t is the employed (formal and informal) population. Finally, potential GDP was calculated as follows:

$$\ln(Y_t^*) = \ln(TFP_t)^* + 0.49\ln(K_t^*) + 0.51\ln(L_t^*)\ , \qquad (1.A1.2)$$

where $\ln(TFP_t)^*$ is the HP-filtered TFP series calculated by Equation 1.A1.1; $K_t^* = \overline{\gamma}_t K_t$, $\overline{\gamma}_t$ is the HP-filtered series computed for γ_t, proxying for the non-accelerating inflation capital utilisation (NAICU); and $L_t^* = (1-\overline{u}_t)\overline{F}_t$, where $\overline{u}_t$ is the HP-filtered series computed for u_t, proxying for the non-accelerating inflation rate of unemployment (NAIRU). Forecasts of $\ln(TFP_t)$, γ_t and u_t using an autoregressive (AR) model were computed for 2008-10 and used to calculate the HP trends in order to minimise the end-point bias associated with HP filtering.

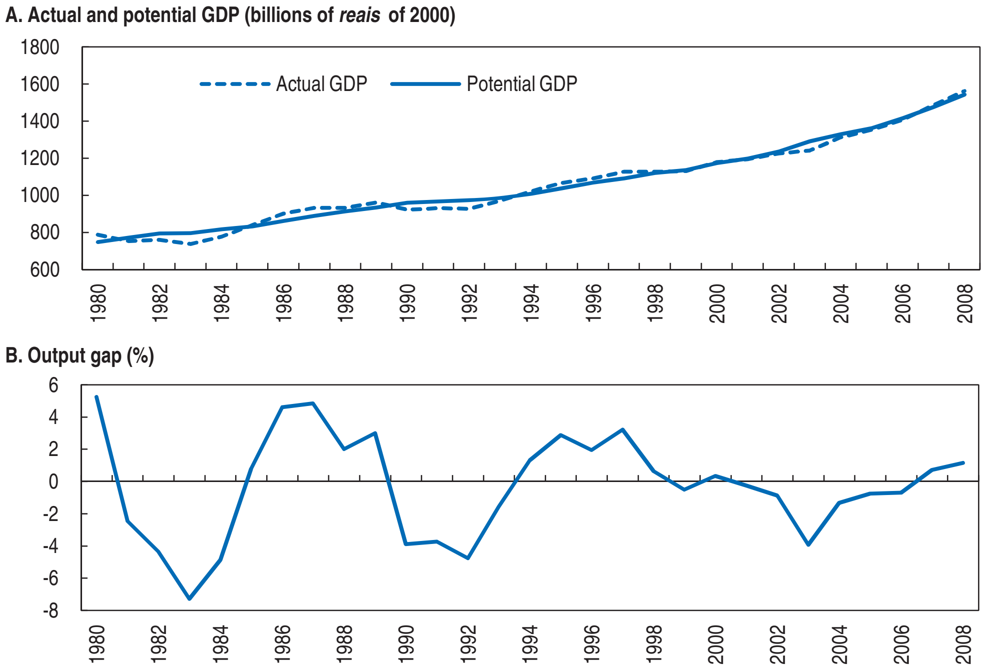
Annual data are used in the calculations for the period 1980-2008. The labour force and employed population series are available from IPEA for the metropolitan regions, the stock of physical capital is also taken from IPEA in billions of 1999 *reais* (and updated through 2008 using the perpetual inventory method), the index of utilisation of installed capacity is available from the *Getúlio Vargas Foundation*, and GDP is available from IBGE.

On the basis of these calculations, Brazil's potential GDP growth rose gradually until 2008. Trend GDP growth averaged less than 3% per year during the 1980s. It fell to less than 2% per year on average in first half of the 1990s, but has picked up gradually since

* It can be argued that a capital share of about 50% is high by international comparison. This is due essentially to the fact that Brazilian national accounts treat the income of own-account and informal-sector workers as capital income. A capital ratio of 40% has been used in recent growth accounting exercises (Gomes *et al.*, 2003).

then to close to 4.5% in 2008. Consistent with these trends, a positive output gap emerged in 2007 following several years of negative, albeit diminishing, gaps (Figure 1.A1.1). A deceleration capital accumulation towards end-2008 and early 2009 due to the ongoing global financial and economic crisis is estimated to lead to a reduction in trend GDP growth to close to 4% over the short term. Of course, estimations of the level and rates of growth of potential GDP are particularly difficult in a period of sharp deceleration in economic activity and in business investment.

Figure 1.A1.1. **Potential GDP and TFP growth, 1985-2013**



Source: IBGE and OECD calculations.

ANNEX 1.A2

The long-term determinants of investment

This Annex uses cointegration analysis to estimate the long-term determinants of investment in Brazil. Empirical evidence is provided on the basis of the Pesaran, Shin and Smith (2001) methodology, which allows for testing for the existence of a long-run investment equation irrespective of whether the set of determinants of investment contains stationary or integrated series.

The methodology and the data

The methodology consists of testing for cointegration on the basis of the following ARDL regression:

$$\Delta I_t = c_0 + \pi_{II} I_{t-1} + \pi_{IX,X} X_{t-1} + \sum_i^{p-1} \alpha_i' \Delta z_{t-1} + \beta' \Delta x_t + v_t \,, \qquad (1.A2.1)$$

where I_t is investment, X_t is a vector of investment determinants, $z_t = (I_t , X_t)$, Δ is the first-difference operator, and v_t is a white-noise error term.

The set of investment determinants includes total credit to the private sector (C_t, deflated by the GDP deflator, end-of-period stocks), the exchange rate (e_t, defined in nominal *reais* per US dollars, average of period-average selling and buying rates) and an interest rate (R_t, annualised). Two interest rates were experimented with: the (annualised) government-set long-term interest rate (TJLP) used essentially for long-term loans financed by the National Development Bank (BNDES) and the fixed (pre-set) lending rate for non-earmarked funds (annualised period-average). Investment is defined as gross fixed capital formation (chain-linked, seasonally unadjusted, average-1995 prices). All series are available from the Central Bank of Brazil (and IBGE, for the investment series) on a quarterly basis for 1995:1 to 2008:2. While the stock of credit and the interest rate measure the availability and cost of external funds, and therefore the opportunity cost of internal financing, the exchange rate is included in the investment equation to proxy for overall macroeconomic uncertainty.

The Elliott-Rothemberg-Stock ADF-GLS test (results not reported) was used to test for the presence of unit roots in the level series that do not appear to have a break. The appropriate lag lengths were selected using the Schwartz criterion, starting from a maximum of 10 lags. On the basis of this test, there appear to be unit roots in the levels of the credit and investment series (all expressed in logs). As for the exchange rate and the interest rate, which appear to contain breaks in the level data, the Lee and Strazicich LM test was performed. The test results suggest that the TJLP series (in logs) is trend-stationary around two breaks: 2000:1 and 2003:4. A modified series was therefore computed to detrend and account for the breaks in the original data. As for the other series, there is weak evidence of the presence of unit roots in levels when (one or two) breaks are accounted for in the data.

Table 1.A2.1. **Cointegration tests and level equations**[1]

(Dependent variable: I_t)

	TJLP		Pre-set rate	
	Level equation			
C_t	0.38	***	0.43	***
	(0.001)		(0.006)	
R_t	–0.21	***	–0.14	***
	(0.047)		(0.017)	
e_t	–0.04	**	–0.14	***
	(0.017)		(0.018)	
	Cointegration tests			
$H_0 : \pi_{II} = 0$	–4.506		–5.612	
Bounds (1% level)	(–2.86, –3.78)		(–2.86, –3.78)	
$H_0 : \pi_{II} = 0$ and $\pi_{IX,\ X} = 0$	5.138		10.900	
Bounds (1% level)	(3.23,4.35)		(3.23,4.35)	
	ARDL regression tests			
Adj. R^2	0.40		0.62	
$\hat{\sigma}$	0.036		0.028	
$\chi^2_{SC}(1)$	3.71 (0.054)		0.26 (0.880)	
$\chi^2_N(2)$	0.77 (0.681)		1.08 (0.583)	
$\chi^2_{HET}(22)$	30.91 (0.098)		18.29 (0.689)	

1. Standard errors are reported in parentheses for the level equations. The hypothesis tests refer to the coefficients estimated by the ARDL regression (Equation 1.A2.1). C_t, R_t and e_t denote, respectively, credit to the private sector, the interest rate and the exchange rate. $\hat{\sigma}$ denotes the standard error of the regression. $\chi^2_{SC}(2)$, $\chi^2_N(2)$, and $\chi^2_{HET}(22)$ denote, respectively, the Breusch-Godfrey LM serial correlation test, the Jarque-Bera normality test and the White heteroscedasticity test (*p*-values in parentheses). (***) indicates statistical significance at the 1% level. The sample spans the period 1995Q1-2008Q2.

Source: Data available from IBGE and Central Bank of Brazil, and OECD estimations.

The results

The cointegration tests and parameter estimates of the level equations are reported in Table 1.A2.1. The lag order of the error-correction equation was selected on the basis of the Schwarz criterion, pointing to one lag for all specifications. The cointegration test statistics clearly reject the null hypothesis of no level relationship, as they are above the critical upper bound defined for models with three variables in X_t, no trend and an unrestricted intercept at the 5% level of significance.[1] Finally, the error-correction regression parameters suggest that investment reacts positively to the availability of credit to the private sector and negatively to the interest rate, regardless of the rate used, and the nominal exchange rate.[2] Additional diagnostic tests suggest no evidence of serial correlation or heteroscedasticity in the residuals, as well as departures from normality. Moreover, plots of the cumulative sum and cumulative sum of squares of the regression coefficients suggest parameter stability during the time period spanned by the data.

The short-term dynamics are reported in Table 1.A2.2. The error-correction terms (derived from the level equations reported in Table 1.A2.1) are negatively signed and strongly significant, suggesting that adjustment towards the long-run equilibrium is relatively swift. The significance of the lagged changes in the dependent variable supports the idea of irreversibility in investment decisions, which affects the short-term dynamics of investment spending. The availability of credit is a powerful determinant of the investment dynamics, which is also affected negatively by the cost of funds (regardless of the interest rate used). The exchange rate appears to affect the investment dynamics with a lag only when the pre-set interest rate is used. Finally, the models satisfy the diagnostic tests for serial correlation in the residuals, heteroscedasticity due to omitted squared regressors and normality.

Table 1.A2.2. **Error-correction regressions: Short-term dynamics**[1]

(Dependent variable: ΔI_t)

	TJLP	Pre-set rate
Intercept	0.27 *	0.36 ***
	(0.152)	(0.121)
ΔI_{t-2}	–0.44 ***	–0.27 **
	(0.106)	(0.104)
ΔC_t	0.30 ***	0.29 ***
	(0.101)	(0.089)
ΔC_{t-1}	0.43 ***	0.25 **
	(0.111)	(0.095)
ΔC_{t-2}		–0.21 **
		(0.101)
ΔR_t	–0.16 **	–0.11 **
	(0.064)	(0.045)
Δe_t	–0.06	–0.08
	(0.057)	(0.048)
Δe_{t-2}		–0.11 **
		(0.049)
ECM_{t-1}	–0.52 **	–0.96 ***
	(0.210)	(0.200)
Adj. R^2	0.45	0.63
$\hat{\sigma}$	0.033	0.027
$\chi^2_{SC}(1)$	0.97 (0.615)	2.06 (0.357)
$\chi^2_N(2)$	0.40 (0.817)	0.70 (0.705)
$\chi^2_{HET}(22)$	17.55 (0.228)	12.88 (0.799)

1. Standard errors are reported in parentheses. C_t, R_t and e_t denote, respectively, credit to the private sector, the interest rate and the exchange rate. The error-correction term (ECM_{t-1}) is computed using the level equations reported in Table 1.A2.1. $\hat{\sigma}$ denotes the standard error of the regression. $\chi^2_{SC}(2)$, $\chi^2_N(2)$, and $\chi^2_{HET}(22)$ denote, respectively, the Breusch-Godfrey LM serial correlation test, the Jarque-Bera normality test and the White heteroscedasticity test (*p*-values in parentheses). (***), (**) and (*) indicate statistical significance at the 1, 5 and 10% levels, respectively. The sample spans the period 1995Q1-2008Q2.

Source: Data available from IBGE and Central Bank of Brazil, and OECD estimations.

Notes

1. The results of the test are robust to running the error-correction regressions for two lags, instead of one.
2. A dummy variable was included to identify the foreign-exchange regime change in 1999:1, but it failed to attract a statistically significant coefficient and was therefore omitted.

ANNEX 1.A3

Brazil's current-account dynamics

This Annex estimates the impact of exogenous shocks on government spending, investment and the national cash flow, defined as GDP minus investment and government spending, on the current-account balance. The empirical approach is that of Ghosh (1995) and Hussein and de Mello (1999).

The methodology

The methodology consists of estimating a vector-autoregressive (VAR) model as follows:

$$Z_t = \Pi\, Z_{t-1} + \nu_t, \qquad (1.A3.1)$$

where $Z_t = [y_t \;\; i_t \;\; g_t \;\; CA_t]$, with y_t, i_t, g_t and CA_t denoting, respectively, GDP, investment (gross fixed capital formation), government consumption and the current-account balance; Π is the transition matrix of the VAR and ν_t is a white-noise error term.

The transition matrix can be decomposed as $\Pi = \alpha\beta'$, where $\alpha = [\alpha_y \;\; \alpha_i \;\; \alpha_g \;\; \alpha_{CA}]$ denotes the speed of adjustment to equilibrium and $\beta' = [\beta_y \;\; \beta_i \;\; \beta_g \;\; \beta_{CA}]'$ is the vector of long-term coefficients. The hypothesis that capital flows respond to consumption-smoothing behaviour requires that changes in output, investment or government consumption be endogenous to the current-account balance. This can be tested by imposing the following restriction on the VAR coefficients in the current-account equation: $\alpha = [1 - 1 - 1\; 0]$.

Variance decomposition analysis is conducted using the following reduced-form, common-trend representation of the VAR system in Equation (1.A3.1):

$$\Delta Z_t = A(L)\, \nu_t, \qquad (1.A3.2)$$

where Δ is the first-difference operator and $A(L)$ is a square matrix of lag polynomials.

The technique consists of orthogonalising the VAR residuals, by Cholesky decomposing them into as many orthogonal times series as endogenous variables in the VAR.

The data

The national-accounts data are available from the IBGE on a quarterly basis. The series used are (chain-linked, seasonally unadjusted, average 1995 prices) GDP, gross fixed capital formation and government consumption. The current-account balance (available from the Central Bank of Brazil) is expressed in *reais* and deflated using the GDP deflator.

The current-account balance was not found to have unit roots in levels, whereas the null hypothesis of trend stationarity could not be rejected for GDP, gross fixed capital formation and government spending on the basis of the Elliott-Rothemberg-Stock test (results not reported). The appropriate lag lengths were selected using the Schwartz criterion, starting from a maximum of 10 lags. The residuals were found to be normal. The results of the unit root tests suggest that the series should enter the VARs in levels.

The results

The VARs were estimated with 5 lags (according to the Akaike, Schwartz and Hannan-Quinn criteria) for pre- and post-1999Q1 samples, corresponding to the periods before and after to the floating of the *real*. The results of the variance decomposition analysis, reported in Table 1.A3.1, suggest that the current-account balance has been particularly sensitive to shocks to investment since the floating of the *real*. After 3 quarters, shocks to investment explain nearly 30% of variation in the current account, a proportion that rises continuously to around 40% after 6-7 quarters before falling again towards the end of the 10-quarter estimation horizon. Government consumption shocks also explain variations in the current-account balance, albeit in a more frontloaded manner. These shocks explain about 8% of variations in the current-account balance in the six quarter following the shock, a proportion that gradually falls to about 7% 10 years after the shock. In the pre-1999Q1 period, however, government-consumption shocks explained nearly 16-18% of variation in the current-account balance over the 3-5 quarters following a shock. Income shocks nevertheless had a somewhat stronger explanatory power over the longer term, accounting for nearly one-third of variation in the current-account balance after 10 quarters.

Table 1.A3.1. **Forecast error variance decomposition**

CA_t responses to exogenous shocks in output, investment and government consumption

Lags	Exogenous shocks in:						S.E.	
	y_t		i_t		g_t			
	Post-1999Q1	Pre-1999Q1	Post-1999Q1	Pre-1999Q1	Post-1999Q1	Pre-1999Q1	Post-1999Q1	Pre-1999Q1
1	0.01	6.31	16.17	16.96	4.27	6.73	1.09	1.30
	(3.730)	(9.674)	(10.785)	(11.261)	(5.606)	(7.647)		
2	6.64	29.96	19.78	8.77	5.48	6.51	1.70	2.45
	(10.560)	(17.134)	(11.837)	(9.638)	(7.234)	(10.339)		
3	5.11	25.88	29.08	10.78	5.64	16.48	2.22	2.66
	(9.917)	(15.619)	(13.590)	(9.963)	(7.726)	(11.966)		
4	6.48	29.92	34.86	10.23	6.77	15.95	2.45	2.90
	(11.950)	(15.164)	(14.612)	(9.941)	(8.621)	(12.375)		
5	12.33	30.27	37.35	10.35	5.40	17.57	2.67	3.33
	(14.589)	(15.513)	(15.305)	(9.239)	(8.145)	(12.428)		
6	17.21	34.80	40.36	7.76	5.70	14.09	2.83	3.59
	(17.056)	(15.011)	(16.128)	(10.423)	(8.028)	(12.382)		
7	16.66	33.03	38.83	7.65	4.72	16.52	3.08	3.89
	(17.901)	(15.022)	(15.629)	(10.523)	(8.744)	(12.872)		
8	20.62	35.87	36.87	7.31	4.77	15.94	3.33	4.12
	(19.487)	(15.847)	(15.721)	(10.814)	(8.976)	(13.298)		
9	22.90	31.92	35.09	6.44	4.40	16.54	3.68	4.54
	(20.027)	(14.657)	(15.410)	(11.434)	(9.336)	(12.724)		
10	26.40	31.01	33.82	6.47	5.96	16.08	3.99	4.71
	(21.132)	(16.439)	(15.554)	(11.430)	(9.828)	(13.673)		

Note: Monte-Carlo-computed standard errors are reported in parentheses. The sample spans the period 1991Q1-2008Q2.
Source: Data available from IBGE and BCB, and OECD estimations.

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ANNEX 1.A4

Progress in structural reform

This Annex reviews progress in the area of structural reform based on the policy recommendations made in the 2006 *Survey* (OECD, 2006).

Table 1.A4.1. **Progress in structural reform**

2006 *Survey* recommendations	Action taken
CONSOLIDATING MACROECONOMIC ADJUSTMENT	
IMPROVE THE QUALITY OF FISCAL ADJUSTMENT	
Introduce further parametric changes in the social security system; redefine the expenditure cap in nominal growth terms, rather than in relation to GDP; reduce revenue earmarking and eliminate aggregate spending floors; extend the revenue withholding mechanism (DRU); make the rates and bases of the state-level VAT (ICMS) uniform across the states.	A project to cap yearly increases in payroll spending at no more than 1.5 percentage points above inflation in the previous year awaits congressional approval. DRU was extended in 2007 until 2011. Draft legislation was submitted to Congress in 2008 to unify the ICMS rates and bases.
STRENGTHEN PUBLIC DEBT MANAGEMENT	
Foster the development of hedge instruments for investment in long-dated securities; continue to reduce external public indebtedness; consider the option of targeting the overall (nominal) budget balance.	Efforts are ongoing to issue benchmark securities and swap short-term securities for longer-term debt instruments. An Early Redemption Programme was set up for foreign debt management and resulted in a sharp decrease in foreign public indebtedness.
MAKE MONETARY POLICY MORE EFFECTIVE	
Gradually remove directed credit and compulsory reserve requirements for banks; over time, reduce the inflation target and the width of the tolerance band.	Compulsory reserve requirements were eased on a variety of deposits as a liquidity-boosting measure during September-December 2008 (discussed in the main text).
BOOSTING INNOVATION PERFORMANCE	
STRENGTHEN THE FRAMEWORK CONDITIONS FOR INNOVATION	
Reduce domestic tax burden on capital and ICT goods; gradually eliminate import tariffs on capital goods and intermediate inputs.	The federal tax burden (IPI) was reduced on industrial products and on financial transactions involving borrowing for innovation (BNDES, FINEP and FINAME). Accelerated depreciation provisions were extended through 2010 for payment of corporate taxes (CSLL). Import duties were reduced for selected capital goods.
FACILITATE PATENTING	
Take steps to reduce the current backlog of patent and trademark applications to be reviewed by INPI.	INPI, the National Intellectual Property Institute, has been restructured so as to improve patent registration, including through the hiring of new staff.
ADDRESS THE PROBLEMS OF HIGHER EDUCATION AND VOCATIONAL TRAINING	
Make curricula more attuned to market demands; update libraries and increase the availability of computers; use student performance indicators for tightening the accreditation requirements of private institutions; create double qualification (general and vocational) programmes at the upper-secondary education level; increase the supply of shorter, more practically-oriented post-secondary education programmes.	Student performance (assessed on the basis of standardised test, ENADE) is being used, although timidly, for reducing enrolment in courses whose grades are low. The network of federal technological institutes (CEFETs) is being expanded (from 150 to 350 institutions) to improve access to double-qualification programmes at the upper-secondary level as well as for increasing the supply of shorter post-secondary education programmes.

Table 1.A4.1. **Progress in structural reform** *(cont.)*

2006 *Survey* recommendations	Action taken
IMPROVE THE COST-EFFECTIVENESS OF DIRECT GOVERNMENT SUPPORT	
Conduct regular impact assessments of the existing instruments; focus sectoral-fund support on horizontal projects with counterpart financing from businesses; introduce alternative support instruments, such as risk-sharing, matching grants and loan subsidisation, which may be more applicable to start-ups; improve contestability in the allocation of sectoral-fund support by reducing emphasis on regional and sectoral earmarking.	An evaluation of technological innovation policies was carried out by IPEA in 2008.
IMPROVE THE COST-EFFECTIVENESS OF TAX INSTRUMENTS	
Conduct regular impact assessments of the existing tax instruments, including those related to the Manaus Free Trade Zone; exempt the capital gains from the sale of venture company shares from income taxation.	No action taken.
STRENGTHEN THE NATIONAL INNOVATION SYSTEM	
Promote co-operation between federal and the state-level S&T and innovation promotion agencies; assign CGEE a clear advisory role in long-term planning.	A programme (*Política de Desenvolvimento Produtivo*, PDP) was launched in 2008, although it has yet to be fully implemented, to encourage synergies among the private sector and various government agencies in charge of innovation policy, among other objectives.
IMPROVING LABOUR UTILISATION	
FACILITATE FEMALE LABOUR FORCE PARTICIPATION	
Improve access to child care and pre-school education; move gradually from part- to full-time schooling.	Pre-school education has been included in FUNDEB, the mechanism for financing sub-national provision of education.
REDUCE UNEMPLOYMENT	
Increase focus on activation within the current policy framework; require unemployment benefit recipients to participate in an activation scheme after some time has elapsed.	Sector-specific labour training programmes (construction, oil and gas, tourism, etc.) have been included in *Bolsa Família* and PAC (Growth Acceleration Programme) so as to integrate activation policies more effectively into the government's social policies.
DISCOURAGE EARLY RETIREMENT AND DISABILITY/SICKNESS INACTIVITY	
Pursue further pension reform; improve the monitoring of disability/sickness benefit concessions.	Administrative controls have been strengthened for a variety of social security/assistance benefits.
TACKLE LABOUR INFORMALITY	
Reduce social security contributions for low-paid workers; raise the rate of return on FGTS balances and gradually phase out the severance indemnity in the event of unfair dismissal.	Administrative controls have been strengthened for FGTS (the severance insurance scheme) in partnership with the Regional Labour and Employment Offices. A Simplified Social Security Plan was introduced in 2007 to lower social security contributions for the self-employed.
MAKE LABOUR TRAINING MORE ATTRACTIVE	
Improve the supply of vocational training while integrating it into upper-secondary education; create a national skills certification system; consider the options of replacing the current system of direct funding to institutions by voucher-type funding schemes to introduce contestability into the "S" system.	A programme (*Projovem Trabalhador*) was created in 2008 to integrate labour training and vocational education for youths. Efforts were stepped up in 2008 to set up regulations for the accreditation of labour training providers through technical cooperation between the Labour Ministry and the Standardisation and Industrial Quality Agency (INMETRO).

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Chapter 2

Reaping the benefits of macroeconomic consolidation

Despite the current problems related to the global financial and economic crisis, ongoing macroeconomic adjustment continues to bear fruit. Attainment of the primary budget surplus targets has delivered falling public debt-to-GDP ratios since 2003. Prudent debt management has reduced refinancing risk and external vulnerabilities. The forward-looking conduct of monetary policy within a framework combining inflation targeting with a floating exchange rate has yielded reasonably low and progressively less volatile inflation, as well as anchoring inflation expectations around the pre-announced targets. Credit, which had traditionally been in short supply, began to expand in earnest in 2003 on the back of favourable market conditions, monetary easing and financial innovation to improve access to bank loans among the underserved population. While there may be room for some further monetary easing during 2009-10, depending on the pace and strength of the recovery, additional counter-cyclical discretionary fiscal action in response to the global crisis would be inadvisable, unless activity weakens much further, because it would put additional strain on financial markets at a time when credit is scarce for private-sector activity. A long-standing challenge remains in the fiscal area: expenditure growth will need to be contained to make room in the budget for raising pro-growth public investment and reducing the tax take over the longer term. Further financial deepening should also feature prominently in the authorities' structural reform agenda. In this respect, a gradual elimination of compulsory bank reserve holdings, which began to be eased as part of a liquidity-enhancing package in response to the global crisis, as well as of directed credit operations, would also be advisable.

Brazil continues to make progress in macroeconomic consolidation, which is a pre-condition for sustainable growth. The primary budget surplus targets have been met since 1999, when they were set for the first time following the abandonment of a managed exchange-rate regime and the adoption of inflation targeting as the institutional framework for monetary policymaking. Continued adherence to this fiscal rule has allowed for a decline in net public debt in relation to GDP; public indebtedness had risen sharply as a result of the depreciation of the *real* following the exchange-rate regime change, to pre-1999 levels. The monetary policy regime has been strengthened over this ten-year period and is working well: inflation expectations are anchored around the targets, and exchange-rate flexibility is cushioning the economy from the effects of adverse external shocks, such as the unfolding global financial and economic crisis. Credit growth had been vigorous before the crisis, especially for individuals, a market segment that has traditionally been underserved.

This chapter's main policy message is to maintain macroeconomic policy prudence in support of faster, sustained growth. Liquidity-enhancing measures have appropriately been taken in response to the crisis (discussed in Chapter 1) and monetary policy continues to be eased. But further discretionary fiscal action would be inadvisable, unless activity is much weaker than expected. In addition, there are longer-term structural challenges that need to be addressed to strengthen the country's macroeconomic policy framework. As recommended in previous *Surveys*, fiscal policy should aim at stemming the rise in current public expenditure in relation to GDP, which now appears to be stabilising at the federal level, in part due to robust growth over the past years. This would allow for a rebalancing of outlays in favour of growth-enhancing investment and for additional reductions in the tax take. With regard to monetary policy, a gradual phasing-out of directed credit and compulsory reserve requirements for banks, which began to be eased in response to the global crisis, would also be welcome in support of financial deepening.

Fiscal policy

Recent trends

Fiscal management continues to be guided by a fiscal rule. Annual primary budget surplus targets were introduced in 1999 for the consolidated public sector as an integral part of a new institutional framework for fiscal policymaking after abandonment of the exchange-rate peg. These targets were predicated on separate sub-targets for the central government and the federal enterprises and the expected outturn of the regional governments (states and municipalities) and their enterprises. The targets were revised over time so as to ensure the sustainability of the public debt dynamics and have been met uninterruptedly since their inception (Table 2.1). The target was set at 3.8% of GDP in 2007-08, a level that is equivalent to the target of 4.25% of GDP originally set in 2005 on account of an upward revision in nominal GDP that was announced in 2007. The actual outturn exceeded the target in 2008 by a wide margin, allowing for a capital injection of 0.5% of GDP into a Sovereign Wealth Fund that was created at end-2008 (Chapter 4). The target was

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Table 2.1. **Fiscal targets and outturns, 1999-2012**

In per cent of GDP

	Consolidated primary budget surplus	
	Target[1]	Outturn
1999	3.1	3.2
2000	3.4	3.5
2001	3.35	3.6
2002	3.75	3.9
2003	4.25	4.3
2004	4.5	4.6
2005	4.25	4.8
2006	4.25	4.3
2007	3.8[2]	3.9
2008	3.8	4.1[3]
2009	2.5[4]	3.3[5]
2010-12	3.3[6]	..

1. The targets refer to those set for the central government and its public enterprises in the Budget Guidelines Laws (LDOs), together with the expected outturn for the regional governments (states and municipalities) and their public enterprises. When targets have been changed during the year, the latest target is considered.
2. The target was set at 4.25% of GDP and then re-set at 3.8% following a revision of the national accounts, which increased nominal GDP by about 11%.
3. Net of a capital injection of 0.5% of GDP into the Sovereign Wealth Fund.
4. The target was originally set at 3.8% of GDP and then reduced in part to accommodate the exclusion of Petrobras from the public-sector aggregate.
5. Cumulative 12-month flow through March (includes Petrobras).
6. The target was originally set at 3.8% of GDP and then adjusted due to the exclusion of Petrobras from the public-sector aggregate.

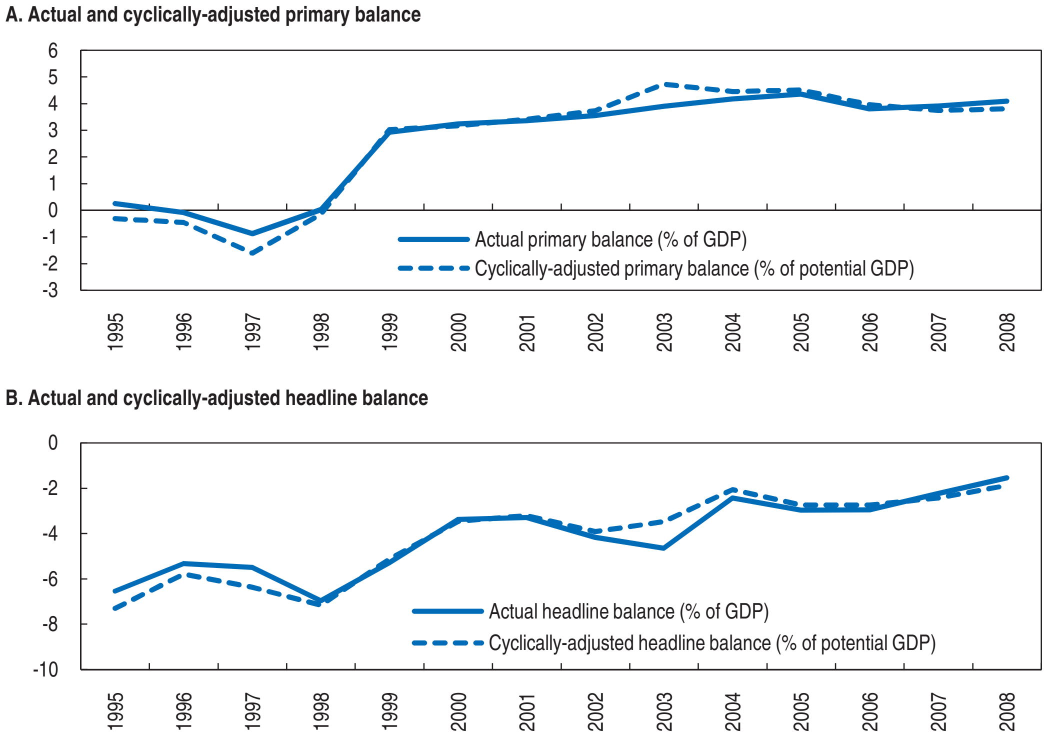
Source: National Treasury.

subsequently lowered to 2.5% for 2009 and 3.3% of GDP for 2010-12 to accommodate the effects of the automatic fiscal stabilisers on the budget and the counter-cyclical measures related to the financial crisis in 2009, as well as the exclusion from 2009 of Petrobras, the national oil company, from the public sector aggregate (discussed below).

Fiscal performance benefitted from cyclical and discretionary gains in revenue until 2008. On the basis of the elasticities estimated by de Mello and Moccero (2006) for the personal and corporate income taxes, as well as that of social security contributions, with respect to the business cycle, cyclical revenue gains contributed to the attainment of the budget targets in 2007-08, a period when the output gap is estimated to have been positive (Figure 2.1). Discretionary measures also boosted receipts in 2008, including an increase in the taxation of selected financial operations to compensate in part for the losses associated with the non-renewal of the bank debit tax (CPMF) at end-2007. Moreover, revenue performance benefited from one-off effects, as an unprecedented increase in listings on the stock exchange during 2006-07 on the back of favourable financial conditions boosted revenue from taxes on capital gains.

A combination of supportive fiscal measures announced to date and the working of automatic fiscal stabilisers will likely bring the consolidated primary budget surplus below the target of 2.5% of GDP in 2009 (Chapter 1). The authorities remain committed to achieving this target, although a reduction of the consolidated primary budget surplus to 2% of GDP in 2009 would not breach the fiscal rule. This is because an adjustor – introduced in 2005 but so far never used – allows the primary budget surplus target to be reduced by as much as 0.5% of GDP to finance those public investments included in the Pilot Investment

Figure 2.1. **Actual and cyclically-adjusted budget balances, 1995-2008**



Source: Central Bank of Brazil, STN, IBGE and OECD estimations.

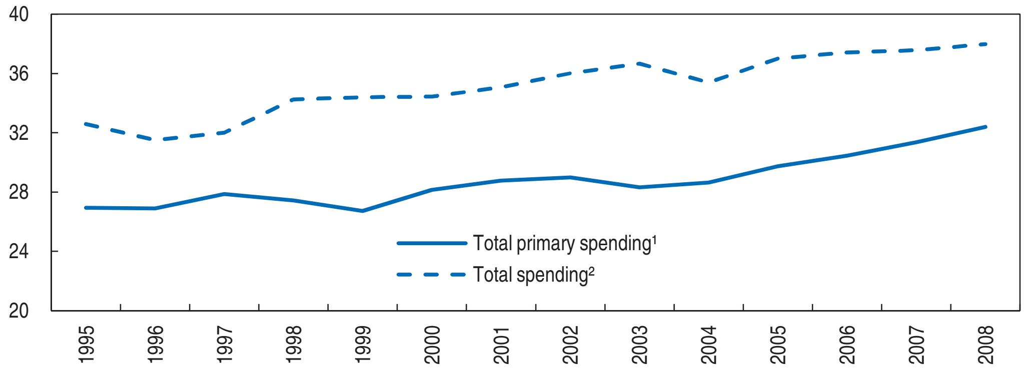
Programme (PPI). The PPI includes a variety of infrastructure development programmes that are deemed to have a high social rate of return. In addition to this adjustor, a shortfall in revenue of up to 0.5% of GDP due to cyclical losses could be financed through a transfer from the Sovereign Wealth Fund to the federal Treasury. The original capital injection into the Fund was booked as expenditure in 2008.

Emerging expenditure pressures will weigh on the federal budget. Outlays on payroll rose steadily as a share of GDP from mid-2004 to early 2008, following a period of decline that started in 2003 (Figure 2.2). This contraction in personnel spending owes much to a rise in inflation at the beginning of the first Lula administration (2003-06), following a sizeable exchange-rate depreciation in the run-up to the 2002 presidential election, coupled with nominal-wage restraint in support of fiscal consolidation, which eroded the real value of civil servants' compensation. But personnel spending will trend upwards again in the coming years due to wide-ranging changes in career streams and hikes in compensation announced in 2008 and so far only partially implemented. With regard to pension benefits paid to private-sector workers, federal spending on these programmes began to stabilise in relation to GDP in 2007-08. The deficit of the social security system also narrowed, essentially as a result of robust growth and the attendant creation of formal-sector jobs. As noted in previous *Surveys*, social protection outlays, which include both pensions and social assistance programmes, already account for about 12% of GDP, a high share for a country of Brazil's demographic structure and income level. Finally, capital outlays have also risen, in part due to the implementation of infrastructure development programmes included in PAC, a pro-growth programme that was launched in January 2007.

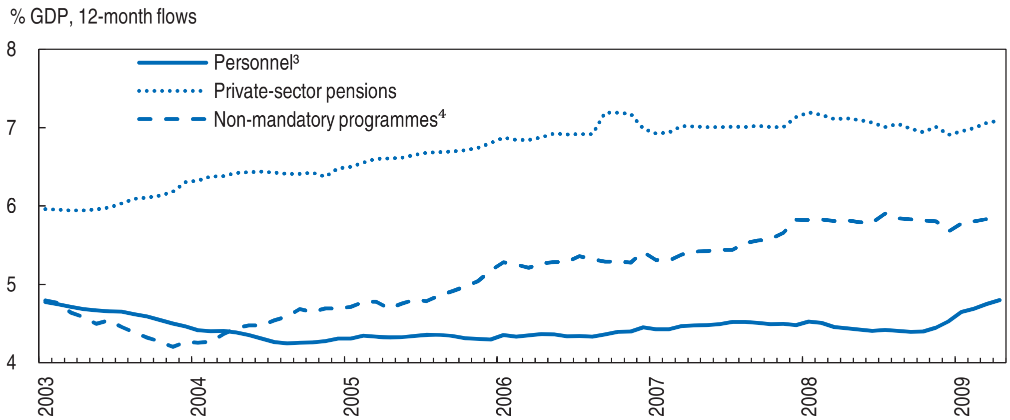
Figure 2.2. **Trends in expenditure**

In per cent of GDP

A. General government spending, 1995-2008



B. Selected federal expenditures, 2003-09



1. Calculated as tax revenue minus the general-government primary budget surplus.
2. Calculated as tax revenue plus the general-government overall (nominal) budget balance.
3. Includes pensions to retired civil servants.
4. Refers to "Other OCCs" in Brazilian budget documentation and includes selected mandatory spending on means-tested social assistance transfers to the elderly and the disabled (RMV and LOAS).

Source: IPEA (IPEADATA), Federal Treasury.

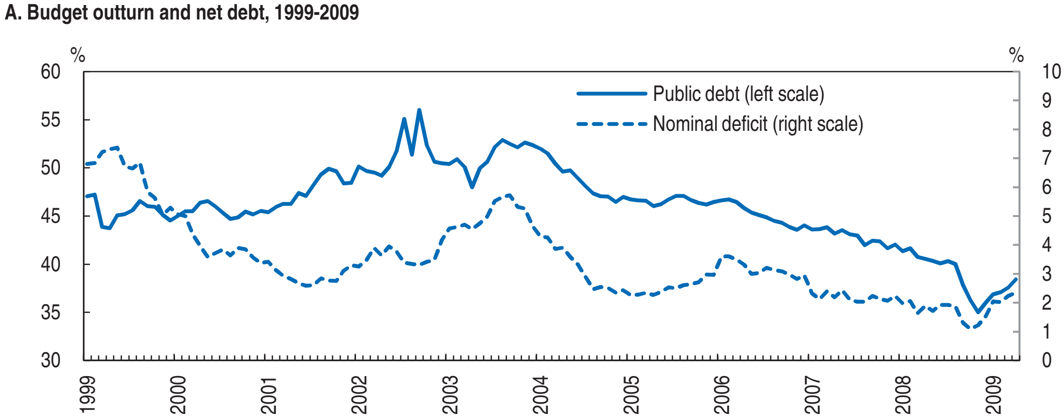
StatLink http://dx.doi.org/10.1787/652121845100

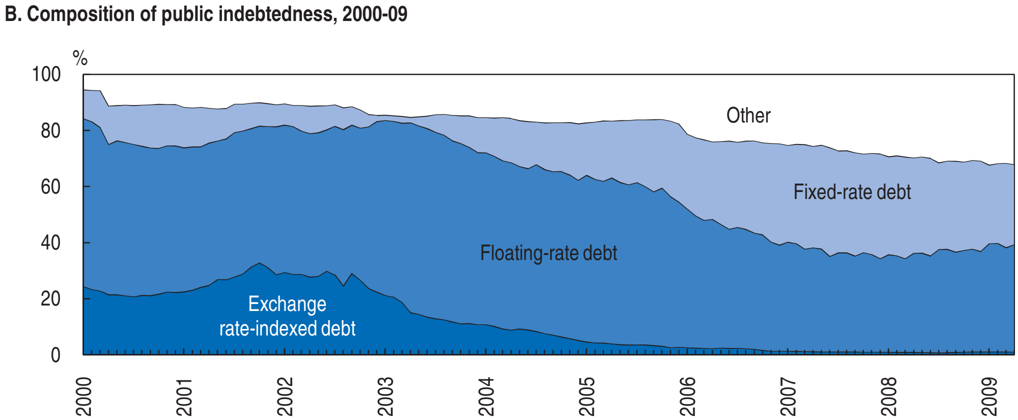
Public investment and selected social protection schemes, including income support for the elderly and the disabled, account for a large share of federal non-mandatory outlays.

Public indebtedness continues to decline. The consolidated public sector's net debt-to-GDP ratio fell by about 20 percentage points during 2002-08 from a peak of 56% in September 2002 (Figure 2.3). Continued attainment of the budget surplus targets has been essential for the steady reduction in the debt ratio, but the depreciation of the *real* in the second half of 2008 also contributed (Table 2.2). Consistent with their yearly debt management plans, the authorities have wound down the stock of securities paying floating interest rates. Fixed-rate bonds now account for around 30% of the traded debt stock, against less than 5% in the first semester of 2003. At the same time, exchange rate-indexed and foreign exchange-denominated securities have been retired and, owing to the issuance of foreign-exchange swaps and the accumulation of foreign reserves by the central bank, the public sector became a net creditor in foreign exchange terms in

Figure 2.3. **Trends in public indebtedness**

Consolidated public sector, in per cent of GDP, end-period debt stocks





Source: Federal Treasury.

StatLink http://dx.doi.org/10.1787/652126051737

Table 2.2. **Decomposition of public debt by conditioning factors, 2003-08**

Consolidated public sector, in per cent of GDP[1]

	2003	2004	2005	2006	2007	2008
Net consolidated debt	52.4	47.0	46.5	44.0	42.0	35.8
Decomposition of yearly change	1.9	–5.4	–0.5	–2.4	–2.0	–6.2
Nominal GDP growth	0.0	–7.5	–2.6	–5.1	–5.0	–3.5
Public sector borrowing requirement	4.5	2.3	2.9	2.9	2.1	1.5
Primary surplus	–3.8	–4.0	–4.3	–3.7	–3.7	–4.0
Interest payments	8.3	6.3	7.3	6.6	5.8	5.4
Exchange-rate adjustments	–3.7	–0.8	–0.8	–0.2	1.1	–3.3
Domestic exchange rate-indexed debt	–1.3	–0.2	–0.2	–0.1	–0.1	0.1
Exchange rate-denominated debt	–2.4	–0.6	–0.6	–0.1	1.2	–3.4
Other exchange rate-related adjustments	1.0	0.4	–0.1	0.1	–0.1	–0.9
Recognition of liabilities	0.0	0.3	0.2	0.0	0.0	0.0
Privatisations	0.0	0.0	0.0	–0.1	0.0	0.0

1. GDP was calculated at end-period prices.

Source: Central Bank of Brazil.

early 2008. As a result, the net debt-to-GDP ratio now falls with a depreciation of the *real*; indeed, the sharp depreciation that took place as the global crisis worsened from September 2008 accounted for the bulk of the reduction in the net debt-to-GDP ratio towards year-end.

Exclusion of Petrobras from the government accounts has been under discussion for several years. The authorities have argued that inclusion of the oil company in the consolidated budget has constrained its ability to invest and to pursue its commercial objectives independently from the government's fiscal policy priorities. It has also been argued that a State-controlled enterprise that is financially independent from government and compliant with corporate-governance requirements as its private-sector peers (Petrobras is listed on exchanges in Brazil and abroad) should be allowed to pursue its corporate objectives and compete on an equal footing with other global players. From the viewpoint of fiscal management, exclusion of Petrobras from the budget target implies not only a lower consolidated primary surplus but also somewhat higher public indebtedness, given that the company has a net asset position of about 2.5% of GDP.

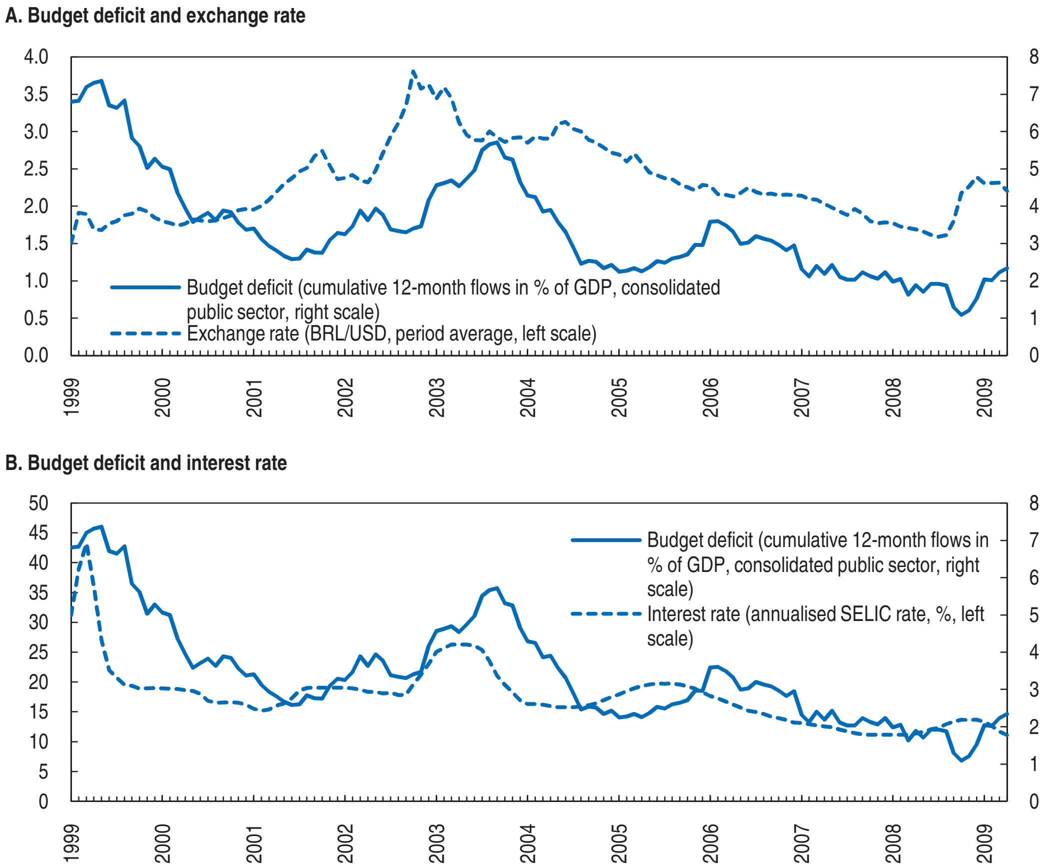
Issues for policy consideration

Downward rigidities in the budget make it particularly difficult to retrench expenditure commitments. As noted in previous *Surveys*, public finances are sensitive to minimum-wage policy, which affects outlays on pensions and social assistance benefits, because of the requirement that the value of the minimum pension should be no lower than that of the minimum wage. There is no cap on increases in the minimum wage/pension above inflation, and the government is required to preserve the real value of the minimum wage/pension through nominal adjustments every year. An agreement was reached between the government and the trade unions in 2007, according to which the nominal value of the minimum wage would be set on a yearly basis on the basis of the previous year's inflation and the rate of growth of real GDP. This agreement, which is not set in law, makes minimum-wage setting more predictable, but it also adds to the existing downward rigidities in government spending. Because of successive real gains in the value of the minimum wage over the years, pensions due to private-sector employees already account for approximately one-third of central government primary expenditure. Further increases in the pension bill will make it increasingly difficult for the government to find room in the budget to raise appropriations for growth-enhancing and cost-effective programmes in the social area (discussed in Chapter 4).

The tax burden is rising in tandem with the gradual increase in expenditure. Consistent with fiscal adjustment efforts and rising current expenditure commitments, general government revenue rose from nearly 28% of GDP in 1994, the year of implementation of the Real Plan (a comprehensive disinflation programme accompanied by monetary reform), to close to 36% of GDP in 2008. As a result, Brazil's tax take is already high for a country of its income level and by emerging-market standards. These trends suggest that Brazil has gone through a spend-and-tax fiscal adjustment. This hypothesis is corroborated by empirical evidence, which suggests that about two-thirds of changes in central government primary spending are offset by higher revenue over the longer term (de Mello, 2007). As argued in Chapter 3 and in previous *Surveys*, an increasingly onerous and complex tax system calls for reform in several areas.

The authorities expressed their intention to target the overall budget balance, rather than the primary surplus. A band would be defined around the new target to deal with uncertainty about fluctuations in the interest bill arising from changes in the monetary stance. This debate came to the fore in 2008, with a possible re-definition of the fiscal target from 2010, but has since then lost impetus. A focus on the primary budget surplus, which excludes interest payments, has been justified on the grounds that, despite a decline in recent years, securities paying floating interest rates and indexed to the exchange rate have traditionally accounted for the lion's share of the traded public debt. As a result, the net public debt-to-GDP ratio has been overly sensitive to fluctuations in the monetary stance and in the exchange rate. But this no longer appears to be the case (Figure 2.4), essentially on account of the improvements in debt management discussed above.

Figure 2.4. **Sensitivity of the budget balance to fluctuations in the exchange and interest rates, 1999-09**



Source: Central Bank of Brazil.

StatLink http://dx.doi.org/10.1787/652150387488

Monetary policy

Recent trends

The end-2008 inflation target was met, despite rising inflation in mid-year and a large exchange-rate depreciation during September-December. Brazil formally adopted inflation targeting in June 1999 following the abandonment of an exchange-rate peg in January 1999. Since then, the end-period headline inflation targets have been met, except in periods of exogenous supply shocks, such as the energy crisis of 2001, and as a result of the confidence crisis of 2002, which resulted in a sharp depreciation of the *real* in the run-up to a presidential election (Table 2.3). As argued in previous *Surveys*, despite these target breaches, the monetary authorities have built credibility in the policy regime by conducting monetary policy in a forward-looking manner. Empirical evidence shows that monetary policymaking under inflation targeting has contributed to anchoring expectations around the targets and reducing interest-rate volatility in Brazil (de Mello and Moccero, 2008 and 2009).

As noted in Chapter 1, monetary policy began to be relaxed in January 2009, following a short tightening cycle that started in April 2008. A combination of falling inflation expectations towards the central target and a rapidly deteriorating economic outlook prompted the central bank to cut the policy interest rate by a cumulative 450 basis points by June to 9.25%. Consistent with this policy easing, the real *ex ante* interest rate fell to about 5-5.5% in March-June, a historically low level. Additional, albeit smaller, cuts are expected in the coming months.

Table 2.3. **Inflation targets and outturns, 1999-2010**

End-period headline IPCA inflation, in per cent

	Target	Outturn
1999	6-10	8.9
2000	4-8	6.0
2001	2-6	7.7
2002	1.5-5.5	12.5
2003	8.5[1]	9.3
2004	3-8[2]	7.6
2005	2-7	5.7
2006	2.5-6.5	3.1
2007	2.5-6.5	4.5
2008	2.5-6.5	5.9
2009	2.5-6.5	5.2[3]
2010	2.5-6.5	..

1. Refers to the adjusted target set in January 2003. The 2003 target was originally set at 3.25% in 2001 with the confidence bands at ±2 percentage points and then raised to 4% in 2002 with the confidence bands at ±2.5 percentage points.
2. The target for 2004 was originally set in 2002 at 3.75% with the confidence bands at ±2.5 percentage points.
3. Yearly rate through May.

Source: Central Bank of Brazil.

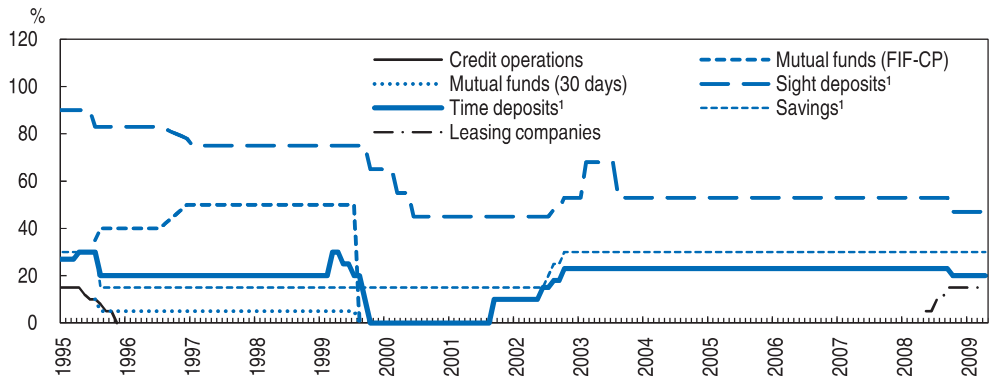
Issues for policy consideration

Previous *Surveys* have argued that Brazil suffers from a dearth of domestic credit. Recent trends are nevertheless auspicious, notwithstanding the more challenging financial environment brought about the global crisis. Following a period of relative stability, the stock of private bank loans to the private sector grew sharply after early 2003 without jeopardising the soundness of the banking sector (Chapter 1). As a result, the stock of bank credit to private borrowers rose to about 42% of GDP in early 2009, nearly double the end-2002 ratio (Annex 2.A1). Credit to individuals has led the expansion of freely allocated credit, and loans to enterprises started to rise in earnest after late 2005. Non-bank credit also rose considerably during 2005-08, including through leasing operations (to individuals and enterprises), which now account for nearly 4% of GDP, against about 0.5% of GDP in 2003-04. Issuance of equity and fixed-income corporate securities (promissory notes, debentures and securitisation of receivables) also rose sharply in 2007-08.

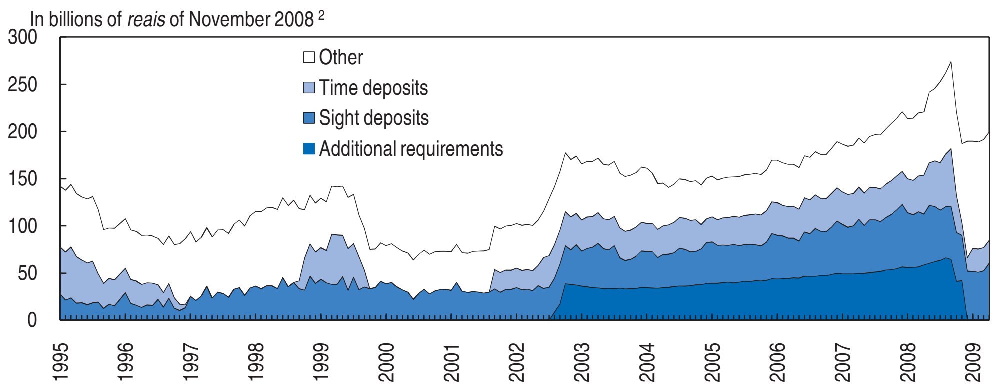
Compulsory bank reserve requirements remain heavy (Figure 2.5), despite a recent easing associated with the liquidity-enhancing measures taken in response to the global crisis (discussed in Chapter 1). To a large extent, high compulsory reserve holdings are a legacy of macroeconomic adjustment in the mid-1990s, which required a tight rein on liquidity in the aftermath of monetary reform. These obligations have been useful instruments to manage liquidity in periods of financial stress, such as during the confidence crisis that erupted in the run-up to the presidential election of 2002. But they are otherwise undesirable, because they act as an implicit form of taxation on financial income, which raises the cost of intermediation. Empirical evidence suggests that high compulsory reserves have a bearing on the spreads between lending and borrowing rates, which have fallen over time but remain high in Brazil (Costa and Nakane, 2004; Souza Rodrigues and Takeda, 2005).

Figure 2.5. **Compulsory reserve requirements, 1995-2009**

A. Compulsory reserve requirements by type of deposit



B. Compulsory bank reserves



1. Includes the "additional requirements" on sight and time deposits, as well as savings accounts, that are remunerated at the SELIC rate.
2. Deflated by IPCA.

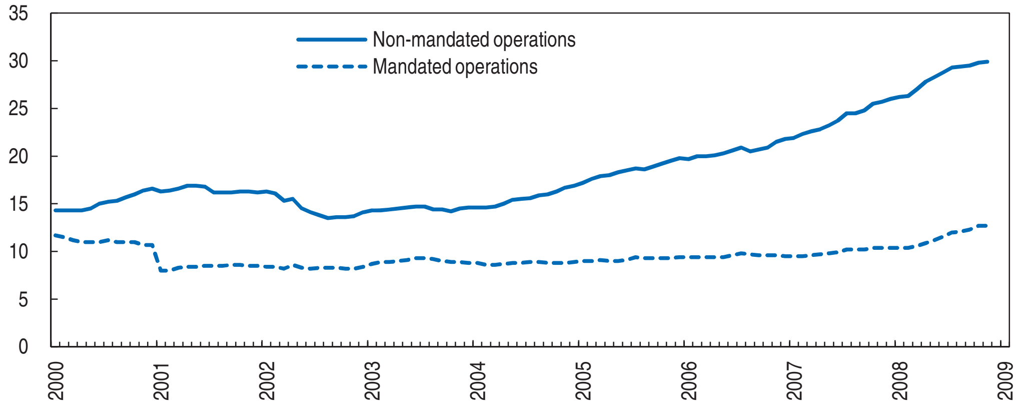
Source: Central Bank of Brazil.

StatLink http://dx.doi.org/10.1787/652151121722

Directed credit continues to account for a relatively large, albeit falling, share of outstanding loans to the private sector (Figure 2.6). About one-quarter of total credit is earmarked, benefiting predominantly the industrial sector, agriculture and housing, with public banks playing a dominant role in this market segment.* Again, as in the case of stringent compulsory reserve requirements for banks, directed credit is an inheritance from Brazil's more regulated past. These provisions were initially put in place to deal with market failures that inhibited private-sector involvement in selected market segments. But directed credit is undesirable for a number of reasons, including because it is likely to impinge on the cost of financial intermediation by reducing the resource pool for extending loans to the unregulated market segments. It may also end up thwarting the development of private-sector credit mechanisms, instead of correcting market failures.

Figure 2.6. **Outstanding loans to the private sector: Freely allocated and directed credit, 2000-09**

In % of GDP



Source: Central Bank of Brazil.

StatLink http://dx.doi.org/10.1787/652275587081

Another important consideration is the need for flexibility in existing arrangements for remunerating savings accounts. The rate of return paid by banks on these accounts is set by the government (TR, a long-term interest rate, plus 6.2% per year, which corresponds to a mandated monthly rate of return of 0.5%). This institutional arrangement was motivated in the past as a means of encouraging savings, especially among less wealthy individuals, who have limited access to alternative financial products. But ongoing monetary easing has brought nominal (and real) interest rates to historically low levels, which are currently close to the mandated remuneration for savings. Because savings accounts are also exempt from income taxation, a convergence between the rates of return on fixed-income investments and savings would affect the allocation of financial wealth in the economy in a manner that would constrain further monetary easing. In early 2008, when monetary easing had brought this problem to the fore, the mandated remuneration on savings was lowered through a reduction in the TR rate. In May 2009, the authorities decided to tax interest earnings from savings accounts above 50 000 *reais* and to reduce the tax burden on earnings from mutual-fund investments from 2010, pending approval by Congress, so as to reduce the attractiveness of these accounts in relation to other fixed-income investments as the policy interest rate is reduced. Other options, such as the

* Earmarked credit operations refer to existing regulations on the allocation of savings and sight deposits in commercial banks to finance credit to selected sectors, especially agriculture and housing, including through mandated saving arrangements. See the 2005 and 2006 *Surveys* (OECD, 2005 and 2006) for a summary of directed credit requirements.

indexation of the mandated rate of return on savings to the policy interest rate or inflation were considered. In any case, a longer-term solution has yet to be found.

Policy recommendations

Brazil's macroeconomic fundamentals have improved considerably over the ten-year period that has followed the floating of the *real* in 1999 and the ensuing adoption of inflation targeting as the institutional framework for monetary policymaking. Initiatives were also put in place to strengthen the public finances in support of overall macroeconomic consolidation, including through the enactment of the Fiscal Responsibility Law in 2000. The macroeconomic policy regime performed well in the run-up to the presidential election of 2002, when a confidence crisis resulted in a sharp depreciation of the *real* and the attendant deterioration of the public debt dynamics. The global financial and economic crisis that deepened in September 2008 has also posed policy challenges, but decisive action to boost liquidity in a well-capitalised banking sector, coupled with a reasonably comfortable balance-of-payments position, has allowed the country to ride out the initial fallout from the crisis rather well.

A set of policy actions to strengthen Brazil's framework for macroeconomic policymaking should focus on further improving the quality of fiscal adjustment. As discussed above and in previous *Surveys*, fiscal consolidation has been achieved on the back of revenue hikes, rather than a retrenchment of expenditure commitments, especially those of a recurrent nature. Commitment to fiscal consolidation is very important, especially in a period of counter-cyclical easing, so as to preserve longer-term credibility in the fiscal programme. The monetary policy regime is working well, but a number of institutional arrangements inherited from the country's inflationary past, such as restrictive compulsory reserve requirements for banks, directed credit provisions and mandatory remuneration for selected investment modalities, should be abolished in support of further financial deepening. The current environment of historically low interest rates and ongoing monetary easing offers an invaluable opportunity for making headway in this important policy area.

Setting an appropriate policy mix for the near term

The monetary policy response to the immediate fallout from the global crisis has been appropriate, as discussed in Chapter 1. The consequent slowdown in activity together with rapid disinflation has paved the way for successive cuts in the policy interest rate in the first half of 2009. Importantly, unlike a previous episode of a sharp exchange-rate depreciation in 2002, the weakening of the *real* in the second half of 2008 did not create inflationary pressures or destabilise inflation expectations (Figure 2.7). Therefore, *there may be room for some additional cuts in the policy interest rate in the remainder of the year*. Of course, the pace of monetary easing will need to continue to be guided by changes in inflation expectations and the economic outlook over the coming months.

Further fiscal stimuli are inadvisable, unless the downturn proves much more severe than expected. A number of governments in the OECD area and beyond have announced discretionary fiscal measures to prop up their economies in response to the deceleration in activity caused by the global crisis. However, Brazil can ill afford to follow suit. The country's public finances are in reasonably good shape, and improvements in public debt management over the years have allayed market concern about longer-term policy sustainability. But the increase in the budget deficit – beyond that associated with the

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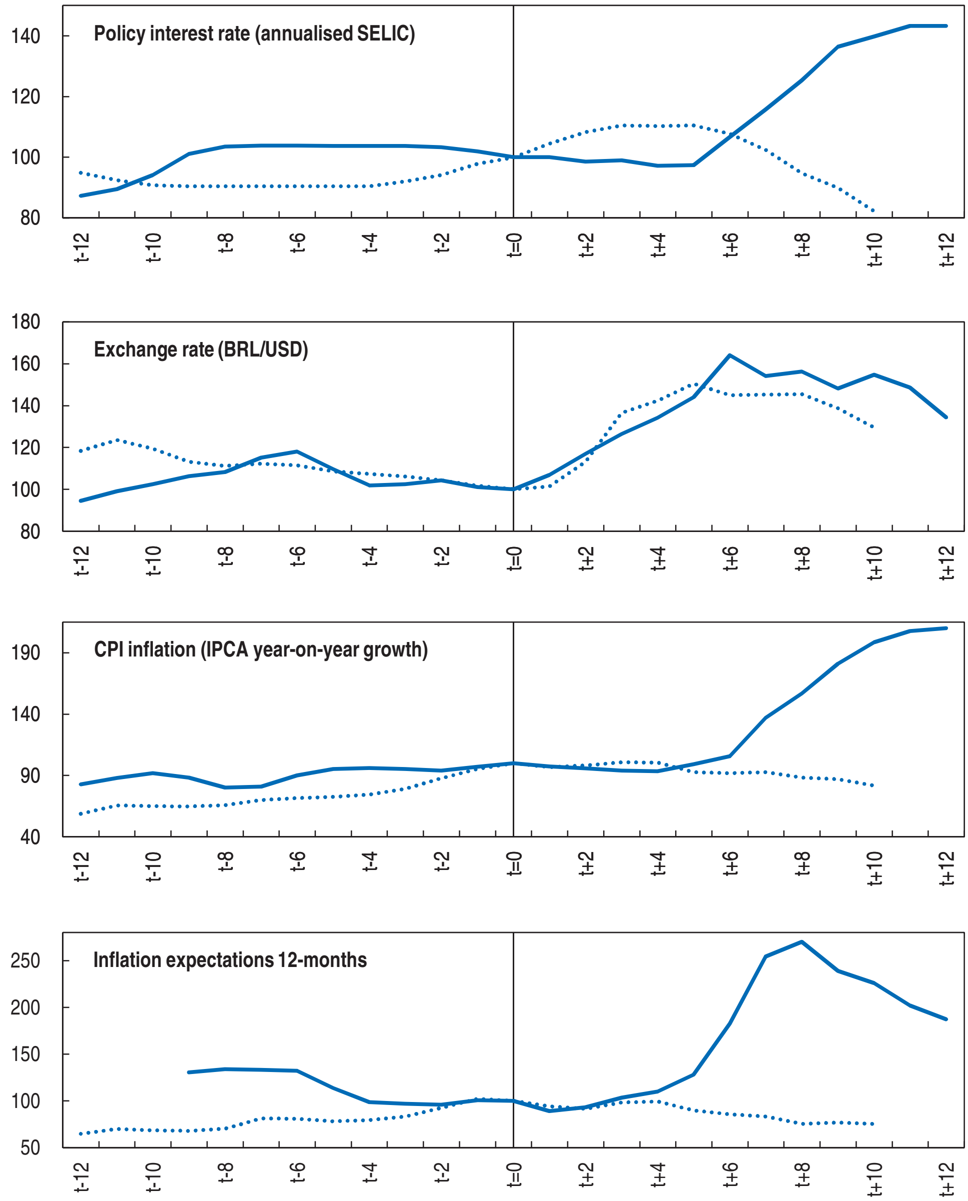
Figure 2.7. **Inflation, exchange rate and monetary policy responses: An event analysis**[1]

Solid line: t_0 = 100 for April 2002

Dotted line: t_0 = 100 for July 2008



1. The events reflect large exchange-rate depreciation episodes, which were selected using the following criterion: a sustained monthly depreciation of the exchange rate lasting at least five months, leading to a cumulative depreciation of at least 40%. On the basis of this definition, two episodes can be selected since the abandonment of exchange-rate targeting in 1999: the periods April-October 2002, when the exchange rate depreciated by 64%, and July-December 2008, when the exchange rate depreciated by 44%.

Source: Central Bank of Brazil.

StatLink http://dx.doi.org/10.1787/652280580731

automatic stabilisers and the discretionary measures announced so far – needed to finance an additional fiscal stimulus would likely place further pressure on domestic financial markets at a time when credit conditions are particularly tight and foreign investors' appetite for emerging-market assets is low, even if recovering recently. Any further stimulus might therefore just crowd out resources that would otherwise be channelled to the private sector to sustain the recovery. *As a result, while further fiscal activism should be avoided, the automatic fiscal stabilisers should be allowed to work freely over the near term, even if the primary budget surplus target is breached*. Based on the macroeconomic projections reported in Chapter 1 for 2009-10, a consolidated primary budget surplus of about 2.0-2.5% of GDP would be consistent with stability in the debt-to-GDP ratio over the near term at close to 40% of GDP.

There are other reasons why additional fiscal activism would be undesirable. First and foremost, if they result in permanent increases in spending commitments, such measures would run counter to efforts to reduce the pace of expenditure growth. Also, additional debt issues might turn out to be large in relation to Brazil's relatively small domestic saving pool. This would raise the cost of budget financing, especially if sovereign credit ratings were to be impaired by faltering confidence in the fiscal programme. As noted in the 2006 *Survey* (OECD, 2006), Brazil's credit rating history suggests that recent upgrades have been closely associated with improving external solvency indicators, but downgrades continue to be prompted by a deterioration in the public finances. Another consideration is that part of any discretionary fiscal impulse is likely to be muted through external current-account responses. Based on Brazil's recent experience and the empirical evidence reported in Chapter 1, current-account "leakages" associated with fiscal impulses do not tend to be large. But they are stronger following episodes of fiscal expansion, which has been the case of the last few years, given the steady increase in current expenditure. Finally, the possibility that a hike in public indebtedness to finance a fiscal expansion may have limited impact on aggregate demand should not be excluded. This is because rising public indebtedness, albeit from a declining level, may elicit non-Keynesian responses by consumers. The experience of OECD countries shows that fiscal policy actions may be thwarted by simultaneous, anticipatory changes in private saving, especially in indebted countries, because movements in aggregate private and public saving partially offset each other (de Mello, Kongsrud and Price, 2004).

Stemming the rise in expenditure

Brazil's fiscal adjustment has been underpinned by continued increases in the tax take, rather than a long-lasting retrenchment of expenditure commitments. Expenditure pressures are now emerging at the federal level on the heels of rising payroll outlays. *Policy action will therefore be needed to avoid further increases in expenditure in relation to GDP*. If successful, initiatives in this area would create room in the budget to rebalance expenditure in favour of capital outlays, which would be consistent with the authorities' efforts to develop infrastructure, and to reallocate budgetary appropriations towards cost-effective programmes, given the need to improve the efficiency of government operations, as discussed in Chapter 4. Progress in this area would also allow for a reduction in the tax burden over the longer term.

The authorities have experimented with the introduction of an expenditure ceiling in the budget. A cap was set for federal primary current expenditure in relation to GDP in the 2006-08 Budget Guidelines Law (LDO) and maintained in the draft 2007-09 LDO. The ceiling was subsequently abolished. A project to cap yearly increases in payroll spending at no more than 1.5 percentage points above inflation in the previous year awaits congressional approval. International experience suggests that expenditure caps, such as the United States' Budget Enforcement Act (in place up to 2002) and those currently in

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effect in the Netherlands and Sweden, are useful tools in fiscal restraint. Against this background, *the authorities could consider re-introducing an expenditure growth ceiling*. This initiative would complement measures to make the budget more flexible, discussed in previous *Surveys* and in Chapter 4.

Previous policy advice on options for restraining current expenditure growth included additional changes to the pension system. Parametric reforms have been put in place over the years, including a comprehensive overhaul of pension entitlements for private-sector workers in 1998 and for civil servants in 2003 (OECD, 2005 and 2006), although several provisions of the latter are yet to be legislated, including the creation of complementary pension funds for civil servants. More recently, revenue-enhancing measures have been implemented, including better enforcement and a strengthening of the administration of disability benefits, which had suffered from poor governance and abuse. But little additional progress has been made in this area since publication of the 2006 *Survey*. Further reform would therefore be welcome to strengthen the financial sustainability of the social security system over the longer term. In particular:

- *Minimum age provisions should be introduced in the private-sector regime (RGPS) for retirement on the basis of length of contribution*. The 1998 reform introduced a minimum age provision for retirement on the basis of old age in the regime for private-sector employees (at 65 years of age for men and 60 years for women, provided that they have contributed to social security for at least 15 years), but there is no such conditionality for retirement on the basis of length of contribution (35 years for men and 30 years for women). Extension of the minimum retirement age to this other retirement modality would contribute to increasing the average age of retirement, which is low in Brazil, at less than 54 years in 2005, for retirees on the basis of length of contributions, as opposed to about 61 years for old-age pensioners.
- *The link between pension benefits and the minimum wage should be severed*. As argued in previous *Surveys*, the indexation of the minimum pension to the minimum wage transfers productivity gains accruing to the working-age population to retirees and constrains the government's ability to set the minimum wage independently of macro-fiscal considerations. Current arrangements also result in a lower incidence of poverty among the elderly than for youths and the working-age population. Options for at least preserving the purchasing power of the minimum pension could be considered, possibly including its indexation to a price indicator that best reflects the consumption basket of the retired population. Such an indexation mechanism may put upward pressure on the pension bill, to the extent that the price of selected items, such as medical services and pharmaceuticals, rises faster than inflation, given that these items account for a higher share of consumption among the elderly than for the population as a whole.
- *The creation of complementary pension funds for civil servants should be regulated*. These funds should preferably be of the defined-contribution type and open for civil servants at all levels of government. The unification of the pension regimes for federal, state and municipal civil servants would be welcome to promote economies of scale and improve governance. It *would also be important to ensure that these complementary pension funds be subject to the same prudential regulations and operational* rules as those for private-sector workers. Finally, and in line with international trends, entitlements should be standardised between the regimes for private- and public-sector workers, so as to

facilitate portability, which would make the overall social-security system more equitable and the labour market more flexible.

Setting the fiscal targets in an environment of stable public indebtedness

Improved debt dynamics are a major policy achievement. However, this should not be an excuse for complacency in the years to come. *Policy discussions should now focus on setting the level of public indebtedness the authorities consider appropriate for the longer term and the corresponding budget targets*. The policy debate should be guided by the need to prepare for the emergence of longer-term liabilities, including those associated with the pension system, so that an appropriate level can be established for the fiscal targets to be pursued by future administrations. Particularly important in the debate is the use of budgetary savings associated with the likely fall in debt-service obligations over the medium-to-longer term. Of course, the magnitude of this "interest dividend" will be a function of the pace of debt reduction in the coming years and on the cost of debt service, which will depend ultimately on financial markets' assessment of the government's fiscal and debt management programmes. A case can nevertheless be made for using the expected interest dividend to alleviate the tax burden while tackling the well-known weaknesses of Brazil's tax system (Chapter 3) and for reallocating at least part of these budgetary appropriations towards the most cost-effective programmes, which would be consistent with ongoing efforts to improve the efficiency of government operations (Chapter 4).

Despite the achievement of substantial primary surpluses, and the government's sound track record in adjusting the targets when needed to ensure the sustainability of public indebtedness, Brazil's overall budget balance remains in deficit. *A redefinition of the fiscal rule in terms of the overall budget balance, rather than the primary budget surplus, would be welcome*. The authorities had expressed their intention to change the target before the global crisis erupted, and discussions to this end may come to the fore in the future. A focus on the overall balance would therefore allow for increased emphasis in fiscal policymaking on the budget outcome that ultimately feeds into the path of public indebtedness. In the interim, it would be advisable to draw increasing attention to trends in the overall budget balance in public communications in preparation for its probable future adoption as the fiscal target measure. This would ensure a smooth transition to the new fiscal rule and contribute to building confidence in the new fiscal target.

Strengthening monetary policy through further financial deepening

The monetary authorities have taken appropriate measures to mitigate the deleterious effects of the global crisis on domestic credit. Liquidity-boosting initiatives have been centred on the easing of compulsory reserve requirements for banks, which have traditionally been stringent in Brazil, especially in comparison with other inflation-targeting countries. Most countries that now use short-term interest rates as the main instrument for monetary policymaking have reduced or eliminated such provisions. Therefore, *continued effort to gradually eliminate the remaining compulsory reserve holding requirements would be welcome*.

Bank lending to the private sector has risen steadily in relation to GDP, especially since 2003. Policy action in a number of areas has removed obstacles to the expansion of credit to market segments that have traditionally been underserved, including low-income individuals and small and medium-sized enterprises. By facilitating the collateralisation of loans, the introduction of payroll-backed borrowing (*crédito consignado*) has played an

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important role in increasing the supply of credit and reducing borrowing costs for individuals. But most borrowers in this credit market are civil servants, given that conditions for portability of contracts when workers change jobs are tight. For private-sector workers, in the event of separation, loan repayment is guaranteed by the balances accumulated during the worker's employment contract in his/her mandated saving scheme (FGTS, described in the 2005 *Survey*). However, there is a 30% cap on FGTS balances that can be used for this purpose. *An increase in the cap on FGTS balances that can be used as collateral in payroll-backed loans could be increased as a means of encouraging the use of this credit modality among private-sector workers*. Empirical evidence suggests that this restriction on the use of FGTS resources has indeed constrained the expansion of payroll-backed lending to private-sector workers (Chu, Lundberg and Takeda, 2008). Initiatives to reduce the cost of borrowing, including through the creation of positive credit histories, should also be given greater prominence. This would be an important step in the direction of strengthening Brazil's already fairly developed credit information industry, which nevertheless focuses on negative credit histories.

A number of requirements remain in place to channel credit to particular sectors/activities, especially agriculture and housing. These directed credit operations amounted to about 30% of the stock of bank credit to the private sector at end-2008. These requirements are likely to affect intermediation costs, which are exceedingly high in Brazil, by placing an implicit tax burden on financial income, and to create inefficiencies in the allocation of resources through the subsidisation of sectors/activities that benefit from directed credit. Therefore, *directed credit requirements should be eased with a view to their eventual elimination*. This also applies to the current arrangements for remunerating savings accounts.

To the extent that the removal of constraints on the allocation of credit and the phasing-out of compulsory reserve requirements affect the cost of intermediation and the responsiveness of credit to monetary-policy moves, action in this area would probably contribute to lowering Brazil's notoriously high real interest rates and making monetary policy more efficient. Although the *ex ante* cost of money has come down significantly since the onset of the global crisis to historically low levels, these low rates are unlikely to be maintained as the economy gathers strength towards year-end and into 2010. This is because the severe slowdown in activity that took place in the last quarter of 2008 is likely to have pushed the interest rate below its long-term equilibrium level, instead of having lowered the equilibrium rate on a permanent basis. At the same time, the credit channel of the monetary transmission mechanism would likely be strengthened. Empirical evidence reported in Annex 2.A1 shows that bank lending is already fairly strongly affected by monetary-policy moves, despite the constraints that are currently imposed on the allocation of credit across the economy. By gradually lifting these constraints, it can be argued that the cost of credit is likely to become even more responsive to monetary policy, making it more efficient. Of course, it is extremely difficult to gauge the level of equilibrium interest rates and to estimate empirically the responsiveness of credit to monetary impulses. These considerations underscore the need for caution in the conduct of monetary policy.

The inflation target has been kept unchanged since 2006 at 4.5% with a ±2 percentage-point tolerance band. An important policy question concerns the level of the inflation rate to be targeted by the central bank over the medium term. As argued in the 2006 *Survey*, the 4.5% mid-point of the inflation target is not too high by emerging-market standards, although it is higher than the weighted average of Brazil's main trading partners (3.7% during 1999-2007), to some extent because of Balassa-Samuelson effects. Likewise, the tolerance band around the central target is comparatively broad, although actual and expected inflation have become less volatile over time (de Mello and Moccero, 2008). This target has been set for 2010. *The monetary authorities could then consider the possibility of pursuing a somewhat lower target from 2011, possibly within a narrower tolerance band*. To the extent that changes in the inflation target affect inflation expectations, which appears to be the case in Brazil (de Mello and Moccero, 2009), the announcement of a lower target for the medium term may well also contribute to reducing inflation expectations further.

Box 2.1. **Summary of recommendations: Macroeconomic policies**

Setting an appropriate policy mix for the near term

- Allow the automatic fiscal stabilisers to work freely, rather than engaging in additional discretionary stimulus during 2009-10, unless activity weakens further.

Stemming the rise in expenditure

- Re-introduce a nominal ceiling for expenditure growth in the federal budget.
- Gradually eliminate revenue-earmarking requirements and aggregate spending floors (discussed in Chapter 4).
- Introduce additional changes to the pension system: sever the link between pension benefits and the minimum wage, introduce minimum age provisions in the private-sector regime (RGPS) for retirement on the basis of length of contribution, and create complementary pension funds for civil servants.

Setting the fiscal targets in an environment of stable public indebtedness

- Set a desired level of public indebtedness and the corresponding budget balance targets in relation to GDP to be pursued over the longer term.
- Re-define the fiscal target in terms of the overall, rather than the primary, budget balance.

Strengthening monetary policy through further financial deepening

- Continue to gradually eliminate the remaining compulsory reserve holding requirements, possibly starting with the "additional requirements" on sight and time deposits, and savings accounts that are currently remunerated at the policy interest rate.
- Increase the cap on FGTS balances that can be used as collateral in payroll-backed loans to encourage the use of this credit modality among private-sector workers.
- Gradually ease existing directed credit requirements with a view to their eventual elimination.
- Consider the option of lowering the central target from 2011, possibly around a narrower tolerance band.

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ANNEX 2.A1

Monetary policy and the bank lending channel in Brazil: A VECM approach

This Annex uses vector error-correction modelling (VECM) to estimate the long-term determinants of loan demand and supply in Brazil. Monthly data are available from the banking survey and the central bank's dataset on a variety of credit instruments and associated lending rates over a period spanning December 1995 through June 2008. Attention is focused on private (domestic and foreign) banks and on the non-earmarked credit market segment. This approach allows for multiple co-integrating relationships among the variables of interest, which is particularly useful for the identification of supply and demand responses to changes in the monetary stance.

Data and unit root tests

Total credit to the private sector is available from the banking survey (private financial system's claims on private non-financial agents). The banks' borrowing rate is the annualised monthly rate on interbank deposit certificates (CDI). We follow the literature (Takeda *et al.*, 2002; Souza Sobrinho, 2003) and define the lending rate as the annualised pre-set rate on loans financed through non-earmarked resources, which is a weighted average of a host of bank lending rates (for enterprises, including loans for working capital, discounts of promissory notes, overdraft facilities; and for individuals, including payroll-back loans). Bank capital is also available from the banking survey. The CPI (IPCA) is used as the price index.

To test for the presence of unit roots in the data, the nominal series were deflated by the CPI (IPCA) and defined in logs. The Lee and Strazicich LM test, which allows for one or two endogenous breaks, was used. The presence of breaks in the series is expected, because the time period under examination includes a change in the exchange-rate regime in January 1999, when the *real* was allowed to float freely, as well as the financial stress associated with the emerging-market crises of the second-half of the 1990s. On the basis of this test, there appears to be one or two endogenous breaks, depending on the variable, in the levels (but not in the trends) of bank capital and the lending and interbank deposit certificate rates. All breaks were identified between 1997:6 and 1999:2, a period that includes episodes of significant financial strain associated with the Asian and Russian crises, as well as the change in the exchange-rate regime. The hypothesis of integration could not be rejected at classical levels of significance for these three series. The test was also performed on the other series and the results also suggest that they follow I(1) processes.

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With regard to industrial production, which does not appear to exhibit breaks, the Elliott, Rothenberg and Stock ADF-GLS test was used. The optimal number of lags was selected on the basis of the Schwartz information criterion, starting with a maximum of 12 lags and testing for normality of the residuals. The results (not reported) show that the series follows an I(1) process. As for CPI and the stock of credit to the private sector, which do not exhibit breaks, but appear to be trended, the Schmidt-Phillips test (SP) was used (lag truncation equal to 4). In both cases, the null hypothesis of unit roots could not be rejected at classical levels.

The cointegrating relationships

We consider a simple aggregate model of loan supply (l^S) and demand (l^D). Loan demand depends on macroeconomic conditions, proxied by economic activity (y) and inflation (π), as well as the lending rate (r_l) offered by banks. The supply of loans depends on the sources of funds available to banks, including capital (c), the borrowing rate (r_b) paid by banks for external funds and inflation, which affects the real rate of return on credit operations. In particular, the model can be written as:

$$l^S = l^S\,(c,\ \pi,\ r_b,\ r_l),\ \text{and}\ l^D = l^D\,(\pi,\ y,\ r_l). \tag{2.A1.1}$$

If the presence of two cointegrating relationships cannot be rejected by the data, identification of the supply and demand functions depends on the sign of the lending rate, which should be negative in the demand equation and positive in the supply equation, and the sign of the borrowing rate, which should be negative in the supply equation. Identification also depends on testing for two exclusion restrictions: bank capital should not be related to credit demand (while being positively signed in the supply equation), and economic activity should not be related to credit supply (while being positively signed in the demand equation).

Model (2.A1.1) is estimated in a VECM setting, including six variables: the credit stock, CPI inflation, a proxy for economic activity, the interbank deposit certificate rate, the lending rate and bank capital. The VECM can be defined, as usual, as $\Delta Y_t = A(L)\Delta Y_t + \Pi Y_{t-1} + \varepsilon_t$, for $Y = [c,\ \pi,\ r_b,\ r_l,\ y,\ l]$, where L is the lag operator, and ε is an error term. The rank of Π, which can be written as $\Pi = \alpha\beta'$, where α and β are $p \times r$ matrices, and p is the number of variables in Y, is denoted by r. β is a vector of cointegrating relationships, and α is a loading matrix defining the adjustment speed of the variables in Y to the long-run equilibria defined by the cointegrating relationships. An unrestricted constant and seasonal dummies were included in the VECM. The optimal lag length was selected on the basis of the Schwarz (SC) and Hannan-Quinn (HQ) criteria, along with misspecification tests for the error terms. Both the SC and HQ criteria suggest the inclusion of two lags. However, this lag structure proved to be insufficient to eliminate serial correlation in the error terms. Thus, we experimented with increasing the number of lags until the errors were found to be serially uncorrelated, which was achieved with five lags.[1]

Table 2.A1.1 reports the results of the Johansen trace test for cointegration. The null hypothesis is of cointegration rank of at most r (*i.e.* the VECM has at most r cointegrating relationships). On the basis of the test, the null is rejected for $r = 0$ and $r \leq 1$ (at the 1 and 5% levels, respectively), suggesting the presence of two co-integrating relationships. In addition, all characteristic roots lie inside the unit circle; as a result, the system is stable and converges towards its long-term equilibrium.

The estimated unrestricted co-integrating vectors are reported in the top panel of Table 2.A1.2. Based on the signs of the relevant parameters, it appears that vectors β_1 and β_2

Table 2.A1.1. **Johansen's trace statistics test for cointegration rank**

Null hypothesis	Eigen value	Trace statistics	5% *p*-value
$r = 0$	0.351	135.15	0.000
$r \leq 1$	0.219	71.98	0.031
$r \leq 2$	0.098	35.93	0.405
$r \leq 3$	0.080	20.85	0.377
$r \leq 4$	0.049	8.71	0.399
$r \leq 5$	0.009	1.379	0.240

Source: Data available from the Central Bank of Brazil, and OECD estimations.

could be interpreted as demand and supply relationships, respectively.[2] The bottom panel of the table reports the hypothesis tests conditional on the selected rank. Consistently with the univariate tests, the hypothesis of stationarity can be rejected for all variables in the system (at least at the 10% level). The long-run exclusion tests suggest that none of the variables included in the VECM can be omitted from the long-run relationships. Finally, the hypothesis of weak exogeneity cannot be rejected for both capital and inflation. A joint exogeneity test also fails to reject the null that both variables are weakly exogenous. This finding is interesting for the conduct of monetary policy. It implies that disequilibria in loan supply and demand do not contain information about future inflation the behaviour of bank capital.

Table 2.A1.2. **Unrestricted cointegration vectors and restriction tests**

	y	c	l	r_b	r_l	π
			Unrestricted vector			
β_1	13.203	–4.203	–0.577	0.263	–0.137	–0.124
β_2	–16.648	–0.046	5.45	0.315	–0.134	–0.028
			Hypothesis tests[1]			
Stationarity	7.611	5.72	4.722	22.207	30.305	18.307
	[0.022]	[0.057]	[0.094]	[0.000]	[0.000]	[0.000]
Long-run exclusion	33.42	32.147	33.336	22.15	27.314	24.598
	[0.000]	[0.000]	[0.000]	[0.000]	[0.000]	[0.000]
Weak exogeneity	8.435	1.208	40.681	12.204	11.631	3.886
	[0.015]	[0.547]	[0.000]	[0.002]	[0.003]	[0.143]

1. The test statistics are distributed as χ^2 with 2 degrees of freedom. P-values are reported in brackets.
Source: Data available from the Central Bank of Brazil, and OECD estimations.

To identify the supply and demand equations, we test for joint exclusion and exogeneity restrictions on the cointegration parameters: $H_0 : \beta_{1c} = \beta_{1r_b} = \beta_{2y} = \alpha_{1c} = \alpha_{2c} = \alpha_{1\pi} = \alpha_{2\pi} = 0$. If the null hypothesis is not rejected, loan demand is unaffected by bank capital and the interbank deposit certificate rate, loan supply is unaffected by activity, and capital and inflation are weakly exogeneous (in line with the findings reported above). The null hypothesis could not be rejected at classical levels on the basis of a LR test ($\chi^2(5) = 7.875$, p-value = 0.163). As a result, the parameters of the demand and supply equations normalised in l are the following (absolute t-statistics in parentheses):

$$l^d = \underset{(6.69)}{2.164\, y} - \underset{(4.69)}{0.011\, r_l} - \underset{(4.68)}{0.031\, \pi}, \tag{2.A1.2}$$

$$l^s = \underset{(7.88)}{0.942\, c} - \underset{(7.20)}{0.097\, r_b} + \underset{(7.20)}{0.040\, r_l} + \underset{(0.82)}{0.007\, \pi}.$$

These parameter estimates show that economic activity is a powerful determinant of the demand for bank loans, which is also negatively related to the lending rate and inflation. As for the supply equation, there is a positive association between loans and bank capital.[3] In addition, inflation is positively related to loan supply, although the estimated semi-elasticity is not statistically significant. Moreover, the supply of loans is positively related to the lending rate and negatively related to the interbank borrowing rate. This provides *prima facie* evidence of the existence of a bank lending channel, since monetary policy moves affect the supply of loans.

The short-term dynamics

The short-run dynamics of loan supply and demand can be assessed using the loading matrix (α) in conjunction with the normalised restricted co-integrating vectors reported in Equation (2.A1.2). If α_{ij} and β_{ij} (as expressed in Equation 2.A1.2, which is normalised in *l*) are of the same sign, then variable *i* adjusts towards the equilibrium defined by the co-integrating relationship *j*. On the other hand, if they have opposite signs, then variable *i* does not converge to that equilibrium; in this case, convergence is achieved through movements in the other variables included in the VECM.

Based on the loading matrix presented in Table 2.A1.3, the demand equation is equilibrium-correcting in the volume of loans, whereas this is not true for the supply equation (α_{l2} is low and insignificant). As a result, all else equal, short-term disequilibria in the demand for loans are self-correcting, albeit slowly, given the magnitude of the estimated loading coefficient. Activity and lending rates are also equilibrium-correcting in the long-run demand equation: a demand overhang will cause activity to rise and the lending rate to decrease. On the other hand, short-term disequilibria in the long-run supply equation are corrected through changes in the interbank rate only. All in all, monetary policy plays an important role in restoring equilibrium in the credit market in a situation of excess supply of loans by affecting the borrowing rates faced by banks to raise non-deposit funds. The adjustment coefficients of the other variables are insignificant in the long-run loan supply.

Table 2.A1.3. **Loading matrix**[1]

	Demand (α_1)	Supply (α_2)
Δy	0.036	0.007
	(2.749)	(0.595)
Δc	0	0
	(–)	(–)
Δl	–0.043	0.009
	(6.049)	(1.430)
Δr_b	–4.412	–5.085
	(2.898)	(3.600)
Δr_l	–6.544	–0.961
	(3.491)	(0.552)
$\Delta \pi$	0	0
	(–)	(–)

1. Absolute t-statics in parentheses.
Source: Data available from the Central Bank of Brazil, and OECD estimations.

Summary of the empirical findings

- The long-run demand for credit is positively related to activity and negatively related to the pre-set lending rate (averaged across a host of credit modalities) and inflation. The long-term supply of loans is negatively associated with the borrowing rate faced by banks to raise external funds, suggesting that banks do not have unlimited access to non-reservable sources of finance, and positively related to the lending rate, bank capital and inflation.
- The stock of outstanding loans offers limited information about the future trajectory of inflation. This is because inflation, as well as bank capital, was found to be weakly exogenous in the cointegrating vectors. This finding therefore casts doubt over the relevance of regular monitoring of credit aggregates for the conduct of monetary policy in an inflation-targeting setting.
- Changes in the monetary stance play an important role in restoring short-term equilibrium in the supply of bank loans. This is because loan supply is equilibrium-correcting in the interbank deposit certificate rate, but not in the stock of loans. On the other hand, excess demand for loans is self-correcting, albeit slowly.

Notes

1. The multivariate LM tests with the null of no serial correlation of orders one and five were not rejected (*p*-values of 0.235 and 0.163, respectively). The multivariate LM tests for ARCH effects were rejected, but the rank test is robust to moderate ARCH effects. Also, including additional lags did not produce error terms free of ARCH effects. For this reason, we kept the more parsimonious specification including five lags.
2. We experimented with including dummy variables to identify the abandonment of the exchange-rate regime in January 1999 and a sharp monetary tightening in the run-up to the presidential election of October 2002. Neither dummy was found to be statistically significant at classical levels.
3. This finding is consistent with the existence of bank capital channel as proposed by Van de Heuvel (2002 and 2006): when the value of bank capital falls, the bank will decrease lending due to either capital adequacy requirements or the cost of issuing new capital.

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Chapter 3

Reforming indirect taxes and labour levies

The complexities and fragmentation of Brazil's tax system make it particularly onerous to enterprises, making it a priority for reform. The state-level VAT has often been used as an industrial policy instrument, resulting in predatory tax competition among the states. Remaining federal levies on enterprise turnover are detrimental to the competitiveness of Brazilian exports. The burden of payroll taxes and social security contributions encourages labour informality. A reform package is under discussion in Congress. The draft legislation is well thought-out; it proposes to unify the state-level VAT, to replace federal levies on enterprise turnover by a federal VAT and to alleviate the tax burden on labour income. Options for compensating those states that are expected to lose revenue as a result of the VAT reform include an overhaul of the country's regional development programmes. The authorities' main policy challenge in this area is to secure political support for reform, especially among the state governments, in a manner that is revenue-preserving, efficiency-enhancing and consistent with ongoing fiscal-adjustment efforts.

There is widespread recognition that several aspects of Brazil's tax system need to be reformed and that the tax burden on labour income needs to be alleviated. The complexity and fragmentation of state-level VAT legislation encourages its use as an industrial policy tool, leading to predatory tax competition among the states. The federal government also relies on revenue from taxes on enterprise turnover, which are detrimental to the competitiveness of Brazilian exports. Moreover, a heavy tax burden on labour income through payroll levies and social security contributions discourages job creation in the formal sector, especially for lower skilled individuals. Tax reform efforts since the mid-1990s have focused on strengthening direct taxes by aiming at fully integrating the personal and corporate income taxes. But attempts to overhaul indirect taxation, especially the state-level VAT, have yet to bear fruit.

It is difficult to compare the complexity of different tax systems and to ascertain the costs facing enterprises and individuals to comply with tax legislation in the absence of detailed taxpayer surveys. But, on the basis of the *Paying Taxes* indicators calculated by the World Bank and PriceWaterhouseCoopers, Brazil is among the countries with the most onerous tax systems in the world. According to the latest indicators, it takes enterprises an average of nearly 1 400 hours per year to file their ICMS returns, the highest among the countries surveyed.

The government submitted a tax reform package to Congress in February 2008. The draft legislation proposes to unify the state-level VAT code and shift most collection from origin to destination; to replace a number of federal levies by a federal VAT; and to reduce the tax burden on labour income by reducing the employers' social security contribution rate and eliminating one of the existing payroll taxes. Although the reform strategy is well thought-out, congressional approval has so far been held back by concern about further increases in the overall tax take and a loss of funding for the social security system, as well as by calls for compensation by those states that expect to lose revenue as a result of the reform.

Trends in tax policy and revenue

Brazil's revenue-to-GDP ratio rose to close to 36% in 2008 according to OECD estimates, a high share in comparison with emerging-market economies (Table 3.1 and Figure 3.1). This ratio has risen steadily over time, especially since the mid-1990s, and is now approaching the OECD average. As discussed in previous *Surveys* and in Chapter 2, this upward trend in revenue owes much to ongoing fiscal consolidation, which has been pursued predominantly on the back of tax hikes, rather than a retrenchment of expenditure commitments.

The federal government accounts for the bulk of revenue collections.[1] The main federal taxes are the income tax (personal and corporate), social security contributions, a levy on industrial goods (IPI) and a number of specific-purpose levies (*contribuições*) on enterprise turnover/VAT and profits, whose revenue is not shared with the sub-national

Table 3.1. **Trends in revenue, 1990-2008**

In % of GDP

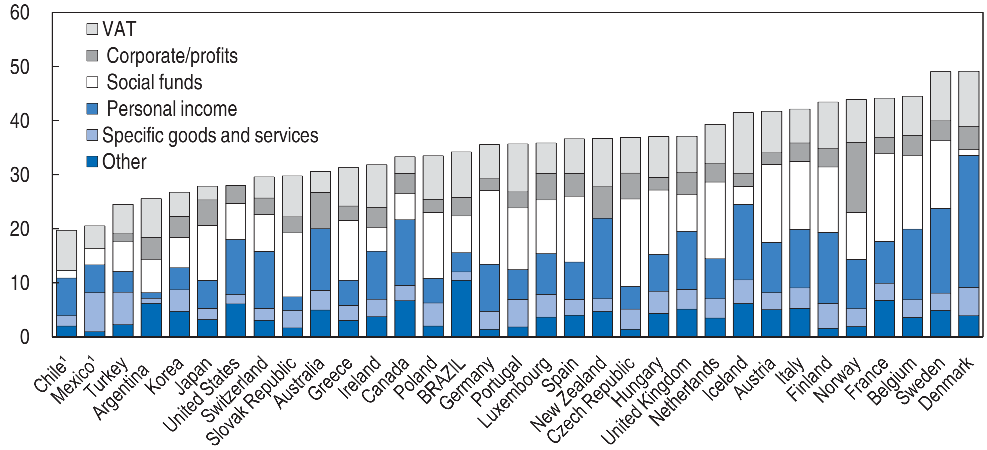
	1990	1995	2000	2005	2006	2007	2008[1]
Total	**30.5**	**27.3**	**30.4**	**33.4**	**33.5**	**34.8**	**35.9**
Federal levies on:	**20.5**	**18.3**	**21.0**	**23.2**	**23.2**	**24.4**	**24.8**
General budget	9.3	7.5	7.7	7.7	7.7	8.2	9.4
Income (IR)	4.8	4.4	5.1	5.8	5.8	6.2	6.7
Industrial products (IPI)	2.6	1.9	1.6	1.2	1.2	1.3	1.3
Financial operations (IOF)	1.4	0.5	0.3	0.3	0.3	0.3	0.7
Imports (II)	0.4	0.7	0.7	0.4	0.4	0.5	0.6
Social security system	9.2	8.7	11.2	13.1	13.1	13.6	12.9
Social security contributions	5.4	4.6	4.7	5.0	5.2	5.4	5.7
Enterprise turnover/VAT (Cofins)[2]	1.6	2.1	3.3	3.9	3.8	3.8	4.1
Bank debits (CPMF)	0.0	0.0	1.2	1.4	1.4	1.4	0.0
Net profits (CSLL)	0.6	0.8	0.7	1.2	1.1	1.3	1.5
Enterprise turnover/VAT (PIS, PASEP)[2]	1.2	0.8	0.7	0.9	0.8	0.8	0.9
Soc. sec. contributions (civil service)	0.1	0.3	0.3	0.5	0.5	0.6	0.6
Other levies	0.3	0.1	0.1	0.1	0.1	0.1	0.1
Other	2.1	2.1	2.1	2.4	2.5	2.5	2.5
Severance insurance fund (FGTS)	1.5	1.4	1.6	1.5	1.5	1.6	1.6
Excise on fuels (*CIDE-Combustíveis*)	0.0	0.0	0.0	0.4	0.3	0.3	0.2
Specific levies	0.1	0.1	0.1	0.1	0.1	0.1	0.1
Salário-Educação	0.2	0.3	0.2	0.3	0.3	0.3	0.3
"S" system	0.2	0.3	0.2	0.2	0.2	0.3	0.3
State levies on:	**9.0**	**7.6**	**8.0**	**8.7**	**8.8**	**8.9**	**9.4**
VAT (ICMS)	8.5	6.7	7.0	7.2	7.2	7.2	7.7
Vehicle registration (IPVA)	0.2	0.3	0.4	0.5	0.5	0.6	0.6
Inheritance (ITCD)	0.0	0.0	0.0	0.0	0.0	0.0	0.1
Non-taxes	0.1	0.1	0.1	0.2	0.2	0.2	0.2
Social security contributions	0.1	0.4	0.4	0.7	0.7	0.7	0.7
Other	0.1	0.0	0.0	0.2	0.2	0.2	0.2
Municipal levies on:	**0.9**	**1.3**	**1.4**	**1.4**	**1.5**	**1.5**	**1.6**
Services (ISS)	0.3	0.5	0.5	0.6	0.7	0.7	0.8
Real estate (IPTU)	0.2	0.4	0.4	0.4	0.4	0.4	0.4
Transfers (ITBI)	0.1	0.1	0.1	0.1	0.1	0.1	0.1
Non-taxes	0.2	0.2	0.3	0.1	0.1	0.1	0.1
Social security contributions	0.0	0.1	0.1	0.1	0.1	0.1	0.2
Other	0.1	0.0	0.0	0.0	0.0	0.0	0.0
Memorandum items:							
Taxes	18.8	15.6	16.2	21.5	21.5	22.1	24.2
of which: VAT (or VAT-type taxes)[3]	8.5	6.7	7.0	12.0	11.9	11.9	12.6
"Contributions"[4]	9.4	9.2	11.7	9.6	9.7	10.2	9.2
Para-fiscal levies[5]	2.0	2.0	2.0	2.0	2.1	2.1	2.2
Non-taxes	0.3	0.4	0.4	0.3	0.3	0.3	0.4

1. OECD estimates.
2. PIS and Cofins were converted into VATs in 2002 and 2004, respectively.
3. Includes PIS/Cofins from 2005.
4. Includes social security contributions (all levels of government), and excludes PIS/Cofins from 2005.
5. Includes FGTS, *Salário-Educação* and "S" system.

Source: Federal Revenue Service and OECD estimations.

Figure 3.1. **Government revenue: International comparisons, 2006**

In % of GDP



1. Personal income tax collections include revenue from taxes on corporate income/profits in Mexico and Chile.

Source: OECD (*Revenue Statistics*), SII (for Chile) and SRFB (for Brazil); and OECD calculations.

StatLink http://dx.doi.org/10.1787/652326531880

governments but is earmarked to finance social security and health care (discussed below) (Box 3.1). The states enjoy full autonomy to collect and administer the ICMS, the country's main VAT, and levy their own social security contributions. Taxes on local property and services that are exempt from ICMS taxation account for the bulk of municipal revenue.

Inter-governmental revenue-sharing arrangements are complex, involving primarily the income and federal industrial goods taxes. These taxes are collected by the federal government, and their revenue is shared with the states and municipalities through two constitutional revenue-sharing funds: the State Participation Fund (FPE) and the Municipal Participation Fund (FPM) (Box 3.2). Reliance on formula-based, constitutionally-mandated revenue sharing reduces the scope for discretion, although it increases rigidity in a budget that is already characterised by widespread earmarking of tax revenue (discussed in Chapter 4). Also, the scope for equalising expenditure needs among the states through revenue sharing is limited, because most revenue is shared on a derivation basis (*i.e.* based on the location of collection). As a result of an agreement reached among the states in 1989, 85% of the revenue included in the FPE is transferred to the poorer states of the North, North-East and Centre-West, with the more prosperous states in the South and South-East relying to a much lesser extent on revenue sharing.[2] In addition, the states are required to share one-quarter of their VAT revenue and one-half of revenue from the vehicle registration tax (IPVA) with the municipalities in their jurisdictions, but transfers are calculated on a derivation basis, which often exacerbates differentials in revenue capacity and expenditure needs within the states.

Most of the increase in the tax take since 2005 has been due to rising VAT collections, including those from the federal "contributions" that were converted into VAT-type taxes in 2003-04 (PIS and Cofins). Greater reliance on VAT revenue is a positive development, because it has reversed a trend of gradually rising receipts from federal levies on enterprise turnover that started in the early-to-mid-1990s. Emphasis on collections from federal contributions was essentially due to the fact that it is constitutionally easier to introduce new contributions than taxes, and because the revenue from contributions can be earmarked and do not need to be shared with the sub-national governments. As a result,

Box 3.1. **The federal indirect taxes and "contributions": A summary**

The **Industrial Products Tax (IPI)** is a value-added-type tax levied on the basis of the invoice-credit method at each stage of production of industrial goods. But, unlike most VATs, the distributive margin is not taxed. The statutory rate structure ranges from 0 to nearly 365.6% for certain excisables, although effective rates are lower. Most essential goods are zero-rated. The IPI is often used as an industrial policy tool through the zero-rating or exemption of IPI-liable goods.

The **Financial Operations Tax (IOF)** is levied on selected financial transactions, such as bank loans, foreign-exchange transactions, insurance contracts and securities transactions. The rates vary considerably and change frequently (see, for example, Chapter 2 for information on recent changes in response to the global crisis).

Import duties are levied on a specific or *ad valorem* basis on the c.i.f. value of imports. Some imports are valued according to minimum valuation or base-price criteria.

The **Social Assistance Contribution (Cofins)** is now levied on value added (on turnover until 2004) on the basis of the invoice-credit mechanism, except for a number of sectors, including most services and public utilities, where it is still levied on enterprise turnover. The statutory rate is 7.6%. The interest spread of financial institutions is also taxed. Revenue from exports, the sale of fixed assets and international freight are exempt, as well as sales by cooperatives and non-profit organisations. The base of the tax excludes payments of IPI, PIS/PASEP and, in some cases, the ICMS. All other taxes (ISS and ICMS) are included in the tax base. Special rates apply to most excisable goods (tobacco, fuels, cosmetics). Small enterprises may opt for paying Cofins as part of a presumptive tax regime (SIMPLES) based on gross sales.[1]

The **Social Contribution on Net Profit (CSLL)** is levied on corporate profits with essentially the same tax base as the corporate income tax. The statutory rate is 9% in most sectors.

The **Contribution for the Employees' Savings Programme (PIS/PASEP)** is now levied on value added (on turnover until 2002) in the case of private-sector firms (PIS) and on the turnover of public-sector enterprises, agencies and funds (PASEP). The tax rate is 1.65% for PIS and 1% for PASEP. As in the case of Cofins, PIS is still levied on enterprise turnover in a number of sectors, including most services and public utilities. It is estimated that about one-third of revenue from PIS and Cofins is collected on the basis of enterprise turnover. Special rates apply to producers/importers of excisable goods (tobacco, fuels and cosmetics). Presumptive taxation schemes are in place for small firms (SIMPLES) based on gross sales.

There are additional **levies on enterprise payroll**, including a mandatory saving scheme (FGTS,[2] at 8% of payroll); para-fiscal contributions to finance educational/cultural activities for employees, labour training and apprenticeship programmes (*e.g.* the so-called "S" system), small-business support (SEBRAE) and agricultural development (INCRA), at 3.3% of payroll; and a specific levy to finance education (*Salário-Educação*), at 2.5% of payroll.

The **excise tax on fuels (CIDE-*Combustíveis*)** is a nominal excise (introduced in 2001) levied on the domestic sales or imports of selected fuels.

1. SIMPLES is a presumptive tax regime for micro and small enterprises. Micro (small) enterprises are defined as those with annual gross sales of up to 240 thousand reais (between 240 thousand and 2.4 million *reais*). Payment of the corporate income tax, CSLL, PIS/Pasep, Cofins, IPI, ICMS, ISS and the employers' social security contribution is replaced by a single levy on gross sales. Statutory rates vary from 4 to 11.6% of gross sales, depending on enterprise size.
2. FGTS is a privately run fund of individual accounts for formal-sector workers financed through employers' contributions (8% of employees' monthly earnings). In the case of "unfair" dismissal, the balance accumulated during the employment contract is paid to the employee, together with an indemnity equal to 40% of the accumulated balance.

Box 3.2. **Inter-governmental transfer arrangements: An overview**

There are four main inter-governmental revenue-sharing funds:

- The **States' Participation Fund (FPE)** is made up of 23.5% of IPI and income-tax collections. Allocations are shared on a derivation basis, but 85% of receipts are allocated to the poorer states.
- The **Municipalities' Participation Fund (FPM)** is made up of 22.5% of IPI and income-tax collections. Allocations are shared on a derivation basis, but 10% of receipts are set aside for the state capital cities (the remainder is shared among the other municipalities on the basis of population).
- The **Export Compensation Fund (FPEx)** is made up of 10% of IPI collections. Allocations are shared in proportion to the value of exports of industrialised goods. The share of revenue allocated to any single state is capped at 20% of total allocations from the Fund.
- The **Regional Fundsfor the North (FNO), Centre-West (FCO) and North-East (FNE)** are made up of 3% of IPI and income-tax collections.

In addition to these arrangements, the states and municipalities are entitled to the following revenues collected by higher levels of government:

- The states and municipalities are entitled to keep the **income tax collected at source** on payments they make or on payments made by their agencies or foundations.
- The municipalities are entitled to 50% of the **rural property tax (ITR)** and the **vehicle registration tax (IPVA)** collected in their jurisdictions. They are also entitled to 25% of the **state value-added tax (ICMS)** on a derivation basis.
- The states and municipalities receive, respectively, 30% and 70% of **IOF collections on transactions involving the purchase of gold as a financial asset (IOF-Gold)**.
- The sub-national governments receive **royalties** for the exploration of natural resources (oil and gas, water and minerals); two-thirds of the revenue from ***Salário-Educação*** (at least 50% of the states' allocations are redistributed to the municipalities in their jurisdictions on the basis of the number of students enrolled in pre-primary, primary and lower-secondary education), discussed below; and 29% of the revenue from ***CIDE-Combustíveis*** (25% of the states' allocations is shared with the municipalities and earmarked for spending on transport infrastructure), discussed below.
- The states and municipalities receive transfers under **FUNDEB**, a fund for financing spending on education (up to lower-secondary level), accounting for 20% of FPE and FPM allocations and 20% of revenue from ITR, ICMS, IPVA and the inheritance tax (ITCD). These funds are shared on the basis of the number of students enrolled in the public school network (up to lower-secondary education).

the federal government had resorted to the introduction of these levies in support of fiscal consolidation, while preventing the revenue accruing from its additional fiscal effort from being shared with the states and municipalities, which would be difficult to achieve in the case of new taxes. Nevertheless, contributions are levied on enterprise turnover, which has a deleterious impact on the efficiency of the tax system and on the competitiveness of Brazilian exports.[3] These levies are also earmarked to finance specific programmes, especially those in the social area, which may not necessarily be the most cost-effective. As discussed in Chapter 4, this budgetary rigidity makes it difficult for the authorities to reallocate scarce resources towards cost-effective programmes in pursuit of efficiency in government operations.

Effort has been made to raise revenue from direct taxes. Personal income tax receipts rose in the course of fiscal consolidation, including through bracket creep. With regard to corporate income taxation, the base of the federal contribution on net profits (CSLL) was broadened in the 1990s to include the financial income of non-financial enterprises. An increase in corporate income tax revenue in 2008 owes much to the taxation of capital gains following a substantial increase in enterprise listings on the stock exchange, as noted in Chapter 2. But the increase in collections from direct taxes has been outpaced by that of indirect taxes. Greater reliance on indirect taxation is a trend in the OECD area as well, essentially due to the greater mobility of income and wealth, which contributes to the erosion of the income tax base in heavily taxed jurisdictions.

Main policy considerations

Predatory tax competition among the states

Several features of Brazil's main VAT, the ICMS, encourage predatory horizontal competition among the states. The ICMS is levied on goods and selected services,[4] and the states have full autonomy to administer the tax, as well as to set rates and, to a lesser extent, bases.[5] In principle, intra-state rates can be set within a range determined by the Senate, with a minimum rate of 12%. But multiple rates are not uncommon on intra-state transactions, rendering the legislation overly complex and fragmented. For example, most goods/services are taxed in the 12-18% range, although basic necessities are typically exempt, zero-rated (which generates a credit) or taxed at 7%, while utilities and oil/fuels are taxed at 25%. Luxury goods, as well as typical excisables, such as tobacco and alcoholic beverages, tend to be taxed at a higher rate of 30-35%.

Because of the fragmentation and complexity of the tax code, and due to the autonomy enjoyed by the states in tax matters, the ICMS has been used extensively as an industrial policy instrument. State tax authorities have often used the ICMS to offer incentives in the form of tax holidays and deferrals to attract investment to their jurisdictions. In doing so, they have encouraged other states to follow, which has contributed to the erosion of part of the ICMS base and to predatory horizontal competition among the states. The empirical evidence reported in Annex 3.A1 based on the estimating of "tax reaction functions" for the states supports the hypothesis of horizontal tax competition in the VAT. It shows that the states respond to policy changes in neighbouring jurisdictions, and that there appears to be a leader among the states: a jurisdiction whose tax policy moves elicit comparable responses by other jurisdictions.

Efforts to curb predatory tax competition have been by and large unsuccessful. According to current legislation, tax breaks can be granted only by unanimous decision within CONFAZ, a forum for discussion of tax policy matters among the state finance secretaries. However, in the absence of legal mechanisms for monitoring and enforcing compliance with CONFAZ resolutions, there is limited scope for credible horizontal co-operation in this area. Tax matters among the states are therefore often settled through litigation, which is time-consuming and generates uncertainty among taxpayers. Also, despite several attempts, and widespread recognition of the detrimental impact of predatory tax competition on the public finances and on the allocation of investment, it has been difficult for the federal government to secure congressional approval for legislation to harmonise ICMS rates and bases among the states.

The taxation of interstate trade is complicated by the collection of ICMS at origin (except for petroleum derivatives). Revenue accrues to the state where the good/service is produced, rather than consumed. Poorer states, typically net importers of ICMS-liable goods and services from other states, have called for a shift in collection to destination, which would result in a redistribution of the ICMS tax take in their favour. A compromise was reached through the use of different rates on intra- and interstate trade. Accordingly, trade between a rich state (*i.e.* those states located in the South, South-East and Centre-West) and a poor state (*i.e.* those located in the North and North-East, as well as the state of Espírito Santo) is taxed at 7%; otherwise, interstate trade is taxed at 12%, the lowest rate applicable in principle to intrastate trade in any state.[6] Although these differentiated rates for interstate trade result in some horizontal revenue sharing between net importers and exporters while keeping collection at origin, they have encouraged "invoice sightseeing" and, to a lesser extent, cross-border shopping, which increases compliance costs and hinders tax harmonisation. The option of shifting collection to destination would simplify the taxation of interstate trade, but faces particular opposition from net exporters, who would have the largest potential revenue losses in the absence of compensatory measures.

Collection at origin has encouraged the proliferation of presumptive tax regimes. The invoice-credit mechanism is used for collection, as in most VATs. But, as in the case of the federal indirect taxes, many states collect the ICMS at the production, rather than the retailing, stage on the basis of an estimated tax liability for an average production chain in different sectors (*substituição tributária* or *cobrança monofásica*). This method simplifies tax administration, especially in sectors with relatively few producers and multiple retailers, such as motor vehicles, beverages and tobacco. But it tends to tax more heavily those goods whose production chains are shorter, which discourages efficiency.

The ICMS tax burden is heavier than implied by statutory rates. This is because the tax liability is calculated on a tax-inclusive basis. For example, for a rate of 15%, the tax liability for a transaction worth 100 *reais* would be calculated as $T = 100*[0.15/(1 – 0.15)]$, resulting in a tax liability of 17.65 *reais*, as opposed to 15 *reais*, which would be the tax-exclusive liability. In addition, in the case of some taxes, the tax liability is calculated including other taxes. For example, the tax liability of PIS/Cofins and IPI is calculated for the value of purchases including the ICMS, which in turn includes the IPI.

Reliance on cascading taxes and an accumulation of unpaid VAT refunds

Reliance on turnover levies and presumptive taxation regimes has a bearing on the competitiveness of Brazilian exports. The cascading nature of turnover levies, which are applied on successive stages of the production chain, increases the cost of exports. The conversion of selected federal contributions, such as PIS and Cofins, into VATs in 2003-04 has only partially solved the problem. This is because the new collection method does not apply in the case of enterprises that pay their taxes under the presumptive tax regime for smaller enterprises (SIMPLES). This accounts for a large number of enterprises, because the turnover threshold for participation in SIMPLES (2.4 million *reais*) is relatively high. Enterprises in several sectors, such as banking, telecommunications and health insurance, for example, also still pay PIS and Cofins on the basis of turnover, rather than value added. The authorities estimate that revenue accruing from remaining cascading taxes accounts for nearly 2% of GDP (Ministry of Finance, 2008).

Failure to refund tax credits in a timely manner imposes a cost on Brazilian exporters and investors. In the case of ICMS, the problem is that collection at origin discourages exporting states from refunding VAT credits accumulated in different jurisdictions. These refunds would lead to revenue losses in the states from which VAT-liable goods/services are exported, without a corresponding transfer of revenue from the states where the credits were accumulated. Initiatives to deal with this issue have focused on federal compensation to the exporting states. Through legislation issued in 1996 (*Lei Kandir*), the federal government started to transfer to the exporting states the full amount of ICMS refunds. The same law allowed purchases of machinery and equipment to be credited against ICMS liabilities, so as to reduce the user cost of capital and therefore encourage investment. But budgetary allocations for these compensatory transfers are negotiated every year. They have been reduced over time, from about 4.5% of ICMS revenue in 1999 to about 0.7% in 2007 (IEDI, 2007).

Another consideration is that the timeframe for processing and refunding tax credits is too long. This applies not only to ICMS, but also IPI, PIS and Cofins. It currently takes up to 48 months for ICMS credits to be refunded and 24 months for PIS/Cofins credits in the case of purchases of machinery and equipment. For all other purchases, the timeframe for refunds is 12 months. According to a recent survey conducted by the National Confederation of Industry (CNI, 2008), over two-thirds of exporters believe that the existing mechanisms for refunds are inadequate due to the cascading nature of several taxes and because of a long timeframe for processing refunds. In addition, about 20% of survey respondents declared that they were unaware of existing refunding instruments, especially among small and medium-sized enterprises. An accumulation of tax credits is considered an important factor to be taken into account when enterprises decide to export, especially among enterprises that export a large share of their output.

A heavy tax burden on labour income

The tax burden on labour income is particularly onerous. Employers bear the cost of social security contributions (20% of payroll, on average) and insurance for workplace accidents (at 0.5-6.0% of payroll, depending on risk type and experience rating), in addition to contributions to a mandatory saving scheme (FGTS, at 8% of payroll) and the para-fiscal levies listed in Box 3.1 (at 5.8% of payroll). The employees' social security contribution rate ranges between 8-11% of earnings depending on the level of compensation. A special regime was introduced for own-account workers in 2007, allowing them to contribute 11% of earnings, instead of 20%. The total tax burden on labour income therefore varies between 42.3 and 50.8%, excluding paid annual leave, as well as other entitlements provided for in the labour code. The tax burden is lower for smaller enterprises that pay their taxes under SIMPLES.

A heavy tax burden on labour income creates incentives for informality, as discussed in previous *Surveys* (OECD, 2006). The wedge driven by a high tax burden between the marginal productivity of labour and the reward for work is detrimental to formalisation. There is limited empirical evidence on the strength of the disincentives for formality arising from the tax burden on labour income. But it is likely to be stronger for workers on low pay. In any case, it is important to recognise that informality also depends on enforcement, social attitudes to tax evasion and the quality of services financed through taxes and social security contributions.

Limited scope for income redistribution through the tax system

Brazil's tax system is not very progressive. This is because of its reliance on indirect taxation, which tends to be regressive.[7] For example, Zockun (2008) estimates that payment of indirect taxes (IPI, ICMS, PIS and Cofins) accounted for about 46% of income for those households earning up to twice the minimum wage in 2004, against less than 16.5% in the case of households earning more than 30 times the minimum wage. As a result, and as discussed in previous *Surveys*, government spending, especially through targeted income transfers, is a much more powerful redistributive tool than the tax system. In the case of indirect taxes, exemption of basic staples and pharmaceuticals reduces the regressivity of the ICMS in many states. But because the ICMS legislation varies among the states, it is often the case that the ICMS is more regressive in poorer states, where the scope for foregoing revenue through exemptions is more limited, than in more prosperous ones.

With regard to regional redistribution, the scope for equalising revenue capacity among the states through existing intergovernmental transfer arrangements is limited. The sharing of revenue from the income tax and the federal tax on industrialised goods (IPI) through the revenue-sharing funds allows for some equalisation to the extent that 85% of resources are allocated to the poorer states. But the share of state-level revenue from VAT (ICMS) and the vehicle registration tax (IPVA) is allocated to the municipalities in a state's jurisdiction on a derivation basis. As a result, richer municipalities end up receiving the bulk of the municipal allotment of the states' share of FPE resources. Instead, regional income redistribution efforts tend to rely on regional development programmes financed through the federal budget. As discussed in Chapter 4, the sharing of revenue from hydrocarbon royalties and related levies also leads to a concentration of revenue in a handful of jurisdictions. In the absence of changes to the mechanism for sharing these revenues, there will be greater disparities in revenue capacity among the states and municipalities when the new offshore fields come on stream.

The government's reform proposal

Main lines of reform

The government's draft proposal, submitted to Congress in February 2008 (Constitutional Amendment Proposal No. 233), focuses on initiatives to mitigate predatory competition among the states in the ICMS, to convert the remaining cascading federal contributions into a federal VAT and to reduce the tax burden on labour income. In particular, and taking into account the changes made to the original proposal during the legislative process thus far, the government aims to:

- Unify the intrastate ICMS rates across the states, while maintaining a uniform tax base throughout the country. Changes to state-level legislation would require approval by the Senate and a majority of other state governors. The Senate would set the standard rates and allow for at most five rates for different goods and services. Exemption of basic goods could be considered for income redistribution purposes. Tax liabilities would be collected predominantly at destination: interstate trade would be taxed at 2% at origin and at the intrastate rate of the destination state (for goods and services taxed at a rate above 2%). Adoption of the destination principle for collection would be phased in over a 12-year period, given the need to gradually adjust the sub-national finances to the ensuing substantial redistribution of revenue across the states. CONFAZ would be responsible for setting the conditions for the states to grant tax breaks, which would require agreement by all CONFAZ members; penalties for non-compliance would include the withholding of constitutional transfers to non-compliant jurisdictions by the federal government.

- Merge three federal contributions (PIS, Cofins and *Salário-Educação*) into a single federal VAT (IVA-F), whose revenue would be earmarked to finance the programmes currently funded through these levies and the mandated revenue-sharing arrangements with the states and municipalities.[8] While PIS and Cofins are already levied on value added, *Salário-Educação* is levied on enterprise payroll. IVA-F would be collected at origin on the basis of the invoice-credit mechanism, and liabilities would be calculated on a tax-inclusive basis. The tax base would be broad (production, import and retail trade of goods and services) and shared by different levels of government. The federal tax on industrial goods (IPI) would be maintained essentially as an excise tax and as an industrial/regional development instrument. Based on the revenues reported in Table 3.1, IVA-F would need to yield about 5% of GDP for the reform to be revenue-neutral.
- Merge the federal contribution on net profits (CSLL) and the corporate income tax (IRPJ). Both CSLL and IRPJ are levied on essentially the same base, although there is some sector-specific differentiation of tax rates. This is currently the case of the financial sector, which is taxed more heavily under CSLL than are other sectors.[9] For the reform to be revenue-neutral, collections from the new corporate income tax would need to rise by an additional 1.5% of GDP, which corresponds to CSLL receipts in 2008.
- Create a Revenue Equalisation Fund (FER) to compensate those states that will lose revenue as a result of the partial shift in collection from origin to destination. The FER would be financed through the revenue currently allotted to FPEx (a fund that compensates exporting states for the loss of ICMS revenue associated with the refund of tax credits accrued in different jurisdictions). These revenues are estimated at about 1.8% of the combined base for the IVA-F, IRPJ/CSLL and IPI. As in the case of FPEx, 25% of FER funds would be transferred to the municipalities.
- Reduce gradually the employers' social security contribution rate from 20 to 14% over six years (2010-15). The associated revenue loss would be compensated by the earmarking of revenue from IVA-F, whose rate would need to be calibrated to ensure adequate funding for the social security system. Coupled with the elimination of *Salário-Educação*, the tax burden on labour income would be reduced by 8.5 percentage points after full implementation of the reform. To ensure revenue neutrality, the authorities propose to recalibrate the IVA-F rate to compensate for the reduction in employers' social security contributions.
- Shorten the timeframe for credit refunds for ICMS and the federal taxes (IPI, PIS and Cofins) due on capital goods. For example, credits for the purchase of machinery and equipment would be refunded automatically when the reform is fully implemented, instead of in 48 months as in the current system. The transition would be gradual during implementation of the reform. The timeframe for credit refunds would also be reduced for PIS and Cofins under IVA-F.
- Merge the revenue-sharing funds for the regional development banks that finance loans to enterprises located in the North-East, North and Centre-West (FNE, FNO and FCO, respectively) and the additional regional investment promotion funds for the North-East and the Amazon region (FDNE and FDA) to form a single Regional Development Fund (FNDR). The fund would continue to be financed through the earmarking of federal

taxes, but appropriations would be increased. In addition, eligibility would be extended to the poorest areas in the South and South-East, which would receive up to 5% of FNDR resources.

The impact of reform

The impact of the tax reform on growth could be large. Simulations reported by the government based on computational general-equilibrium modelling suggest that the tax reform could raise the level of GDP by about 11-12% over the long term (in steady state). Most gains would arise from a reduction of the tax burden on labour income, followed by the elimination of cascading taxes and a reduction of the tax burden on investment (Ministry of Finance, 2008). The results of these simulations need to be interpreted with caution, but they illustrate the scope for raising potential growth by enhancing efficiency through a less distorting tax system. In addition, a rebalancing of the tax burden towards indirect taxes that do not distort labour and investment decisions is consistent with OECD policy advice for making tax systems pro-growth.

The reform proposal would also affect the price level. Changes in the ICMS would affect the prices of different goods and services, which would have a one-off impact on prices. But it is difficult to estimate these price effects before the actual rates are set and interstate trade flows are re-estimated.

Policy recommendations

The government's tax reform proposal aims to tackle a number of deficiencies of Brazil's tax system. The reform initiative is laudable. It seeks to make the tax code less complex and further reduce reliance on levies on enterprise turnover, which are inefficient and detrimental to the competitiveness of Brazilian exports, by replacing these levies by a federal VAT. It also aims at mitigating predatory tax competition among the states by unifying ICMS bases and rates across the country, largely shifting collection from origin to destination and eliminating a number of distortions, including an anti-export bias due to the accumulation of unrefunded credits. Finally, it seeks to reduce the tax burden on labour income, which encourages labour informality.

While there is little dispute over the objectives of the reform, concern over revenue losses associated with collection of the new ICMS at destination and an increase in the overall tax take arising from the creation of the a federal VAT (IVA-F) has undermined support for the reform package. The need to find alternative sources of finance for the social security and health systems to compensate for an alleviation of the tax burden on labour income has also underpinned discussions. A number of policy issues need to be addressed as regards the implementation of several elements of the proposed tax reform, if approved by Congress. As in other countries, it is often difficult to secure consensual agreement for tax reform, especially when it involves different levels of government. But the current reform initiative offers an invaluable opportunity to make headway into a policy area where gains in terms of economic efficiency and horizontal equity are potentially large.

Calibrating the new tax rates so as to ensure revenue neutrality and strengthen tax administration

Brazil's already high tax take calls for caution in the calibration of the rates of the new ICMS, the IVA-F and the new corporate income tax that would result from the merger of

IRPJ and CSLL. Experience with the conversion of two federal contributions (PIS and Cofins) into VAT-type taxes in 2003-04, which resulted in a sharp increase in collections, has raised concern about a possible increase in the overall tax take as a result of the proposed reform. The introduction of a safeguard mechanism, whereby tax rates would need to be recalibrated should government revenue rise by at least 5% in real terms as a result of the reform, goes in the direction of preventing further increases in the tax burden. But the fact that the taxes to be reformed account for the bulk of federal and state-level revenue also calls for careful analysis and simulations of the new taxes' revenue yield so as to avoid revenue losses. Gradualism in implementation, which is proposed over several years, is therefore advisable. The interim period would allow for a recalibration of rates, should the need arise, in light of projected changes in the level and composition of tax revenue. For example, the simulations reported in the government's draft legislation refer to 2006, a year of robust economic growth. *It would be important to test the sensitivity of the simulations to changes in the base year, including for different periods over the business cycle, given the different income elasticities of the taxes included in the reform.*

Making compensation for revenue losses an effective instrument for regional development

The reform package endorsed by the authorities proposes to shift most ICMS collection to destination. The states will be allowed to tax their ICMS-liable exports to other states at 2% at origin. Some states have even proposed a higher rate for this residual taxation at origin as a means of retaining a larger share of ICMS revenue after reform. While the option of maintaining some collection at origin arises from a political compromise to secure support for the reform, there are no theoretical grounds for a hybrid system. *It would be desirable to shift all collection to destination, so that no ICMS-liable goods and services would be taxed at origin.*

The authorities intend to take steps to limit the scope for the states to grant tax incentives, including stronger sanctions for non-compliance with CONFAZ resolutions. But several such incentives are still currently in place, despite having been ruled illegal. The reform proposal maintains those incentives that were granted before the cut-off date of 5 July 2008, while allowing for arrangements introduced thereafter (until approval of the reform) to be maintained, only if they are endorsed by CONFAZ. While the removal of tax incentives granted before 5 July 2008 would be legally difficult, *any tax incentives granted during Congressional deliberations on the reform should be annulled.*

In the case of the new ICMS, a partial shift to destination in collection will result in a significant reallocation of the tax take among the states. The main losers are likely to be the more populous, richer states of the South and South-East, which are net exporters to other states of ICMS-liable goods and services. The government reform proposal addresses this issue through the creation of an equalisation fund (FER) and by strengthening its regional development policies through the creation of a regional development fund (FNDR). These instruments are important not only to secure political support for reform, but also because they constitute a sea change in Brazil's regional development policies in recognition of the fact that prosperous states may also include economically lagging areas. This is in contrast to the current regional development instruments that are based on regional funds to finance development programmes in the less developed states in the country's North, North-East and Centre-West (discussed in Chapter 4). Nevertheless, it is not yet clear how these funds will operate, including the mechanisms for sharing resources among the beneficiary states. *The authorities are advised to set clear, transparent rules for allocating regional development funds to the states in a manner that encourages contestability.* This is essential for ensuring that compensation for revenue losses arising from the reform becomes an effective instrument for regional development. Initiatives in this area should be guided by technical analysis and should not create disincentives for tax effort by the states.

Reducing reliance on cascading and payroll taxation

Efforts to reduce further the burden of federal levies on enterprise turnover are welcome. Initiatives in this area would complement the initial steps taken in 2003-04 to convert two federal contributions into VATs. But the current tax reform proposal will not affect the enterprises that currently pay their taxes under SIMPLES and other presumptive tax regimes. Their tax burden will continue to be calculated on the basis of turnover. To a certain extent, simplified and presumptive tax regimes are desirable to facilitate compliance in the case of small enterprises, for which the disincentives for compliance arising from a complex tax system are strongest. But a broadly recognised problem of presumptive taxation is that it creates perverse incentives, including the case where enterprise growth is stunted to avoid crossing the enrolment threshold and incurring the costs associated with a change in tax regime. This perverse incentive is mitigated only partially under SIMPLES as a result of the introduction over the years of different rates and turnover brackets for taxation. A more important problem is that the threshold for enrolment in SIMPLES is fairly high, at up to 2.4 million *reais* in annual turnover for enterprises to be considered small. As a result, about 70% of enterprises, accounting for nearly 7% of enterprise turnover, currently pay their taxes under SIMPLES. Therefore, *it would be desirable to lower over time the threshold for eligibility for SIMPLES so as to reduce the tax burden on enterprises producing ICMS-liable goods and services*.

Although the proposal to phase out *Salário-Educação* is welcome, more can be done to reduce the tax burden on labour income. For example, contributions to the "S" system and INCRA cost employers 3.3% of payroll in para-fiscal levies. *These contributions could be eliminated over time; at a minimum, as argued in previous* Surveys, *contributions to the* "S" *system could be converted into user fees.* This would allow for a better match between the services currently provided by the affiliated institutions and market demands. It can also be argued that, should contributions continue to be compulsory, initiatives could be designed to enhance contestability in the provision of labour training and services by the affiliated institutions. Different design options could be considered, including by replacing transfers to service providers by vouchers that could be granted to individual workers and redeemed against training received from accredited institutions.

The reduction of the employers' social security contribution is also welcome. Recent initiatives have sought to lower the tax burden on hard-to-tax groups, such as own-account workers. A Simplified Social Security Plan (PSPS) was introduced in 2007 allowing self-employed individuals to reduce their social security contributions from 20 to 11% of earnings; these workers are entitled to a minimum pension upon retirement and cannot take early retirement. But additional measures could be considered, budget conditions permitting. In the government's reform proposal, the revenue losses associated with the reduction in employers' contributions would be compensated by a recalibration of the new IVA-F and the earmarking of the corresponding funds to finance the social security system. But, as discussed in previous *Surveys*, social insurance could be made more affordable to those with low incomes. *An option would be to reduce employers' social security contributions on low-paid workers.* This would lower the cost of employing them without reducing their wages.[10] It is difficult to estimate the overall impact of these measures on revenue, given their concomitant effect on labour formality. In any case, at a time of continued need for fiscal adjustment, the cost-effectiveness of these policy options would need to be carefully assessed. International experience shows that average direct tax wedges on very low labour income have trended down in the OECD area as a result of the introduction or reinforcement of explicit "making-work-pay" policies.

Strengthening tax administration

The proposed mechanism for collecting state-level VAT will put additional strain on the poorer states, whose tax authorities are likely to be ill-equipped to administer the new ICMS. In particular, a well-functioning electronic invoicing system, which has yet to be introduced in some states, will be essential for making the new ICMS collection mechanism fully operational. To a certain extent, the scope for raising revenue through ICMS taxation may create incentives for those states to strengthen their tax administrations. *But there is a role for the federal government in this area, especially by providing technical assistance to the states with weakest administrative capacity.* Effort to strengthen coordination among the federal and sub-national tax authorities, especially through the exchange of information, would also be important for full implementation of the new ICMS.

A well-functioning credit refund system is essential in a modern VAT. In the case of federal taxes, there is an accumulation of credits related to PIS and Cofins, as noted above. In the case of ICMS, tax credits go unrefunded predominantly because of the unwillingness of exporting states to honour credits accrued in different jurisdictions. To a certain extent, this perverse incentive will be eliminated by a shift to destination in the collection of the new ICMS. But, *a more frontloaded reduction in the timeframe for processing refunds, including for the purchase of capital goods, than envisaged in the government's tax proposal could be considered.*

Using the tax system as a redistributive tool

It is not advisable to make extensive use of indirect taxation for income redistribution. A case might be made for exempting a limited number of goods that account for a large share of the consumption basket of low-income households. Nevertheless, the VAT code should be as uniform as possible. Zero-rating should also be avoided, given that it generates a credit, which needs to be refunded. *Should the ICMS legislation be unified among the states, the list of exemptions for distributive purposes should be very short.* The affordability of exemptions by poorer states, where the revenue foregone could be particularly high in relation to their local collection capacity, should also be taken into consideration. In addition, as argued in previous *Surveys*, well-targeted transfers to individuals and households are much more powerful instruments for redistribution than the tax system.

Brazil has a wealth tax, a surcharge to the personal income tax for very high-income individuals. This tax was legally created but has never been implemented. International experience shows that such taxes are poor instruments to redistribute income, because they tend to encourage tax evasion among increasingly mobile taxpayers. In doing so, they contribute to the erosion of the income tax base without making the tax system effectively more redistributive. *The wealth tax could therefore be eliminated.*

Box 3.3. **Summary of recommendations: Tax reform**

General recommendation

- Move forward with tax reform on the basis of the government's draft legislation.

Calibrating the new tax rates so as to ensure revenue neutrality

- Test the sensitivity of the simulations of the new ICMS, the IVA-F and the new corporate income tax rates to changes in the base year (2006), including for different periods over the business cycle.

Making compensation for revenue losses an effective instrument for regional development

- Shift all ICMS collection to destination, rather than allowing taxation at 2% at origin.
- Annul the ICMS incentives granted after 5 July 2008 and during Congressional deliberations on the tax reform proposal that are not approved by CONFAZ.
- Set clear, transparent operating rules for FER and FNDR in a manner that encourages contestability in the use of funds.

Reducing reliance on cascading and payroll taxation

- Reduce the threshold for eligibility for SIMPLES.
- Eliminate gradually all para-fiscal levies on labour income; at a minimum, convert the contributions for the "S" system into user fees.
- Reduce employers' social security contributions on low-paid workers.

Strengthening tax administration

- Strengthen co-ordination between the federal and state-level tax administrations so as to facilitate a timely implementation of electronic invoicing throughout the country.
- Shorten the timeframe for processing ICMS refunds, especially for the purchase of capital goods.

Using the tax system as a redistributive tool

- Make the new ICMS rates as uniform as possible by avoiding exemptions, even for redistributive purposes.
- Eliminate the wealth tax, which has been authorised but never implemented.

Notes

1. See Afonso and de Mello (2002) for a description of Brazilian tax system and inter-governmental fiscal arrangements.
2. The 15% ceiling on revenue-sharing transfers to the more prosperous states in the South and South-East replaced a revenue-sharing formula previously used according to which revenues had been shared in direct proportion to the resident population and the inverse of income per capita.
3. The detrimental impact on competitiveness can be large. Depending on sector of activity, PIS/PASEP, Cofins and the bank debit tax (CPMF) were estimated to raise the prices of Brazilian goods in relation to similar imported goods by 6-10% (FIESP, 2002). These effects are stronger the longer the production chain and the larger the share of value added at the beginning of the production chain. See also Varsano (2001) for more discussion.
4. Services that are exempt from ICMS taxation, such as inter-municipal transport, are taxed by the municipalities. The municipal tax on services, the ISS, is not creditable against state or federal tax liabilities. The ISS paid on inputs is not creditable either.
5. See Afonso and de Mello (2002) for an overview of inter-governmental fiscal relations in Brazil.

6. Registered traders in an importing state are allowed to credit their taxes paid on interstate imports against their ICMS liabilities in the importing state. As a result, the lower rate levied on trade with the less prosperous states allows them to collect more revenue by levying their own intrastate rates on shipments from more prosperous states and refunding registered traders for the ICMS paid on these transactions at a lower rate. There is an exception in the case of petroleum derivatives, which are taxed entirely at destination.
7. Brazil's personal income tax is fairly progressive in comparison with OECD countries due essentially to a high exemption threshold, which compensates for lower marginal tax rates (de Mello and Moccero, 2008).
8. See Ministry of Finance (2008) for more information and simulations to ensure revenue neutrality and Zouvi *et al.* (2008) for a summary of the main items of the reform proposal.
9. A comprehensive reform of the country's direct tax system, carried out in 1997, aimed at full integration of the personal and corporate income taxes. Accordingly, dividends are exempt from the personal income tax, but interest paid on own capital is taxed.
10. In this regard, in 2006 the government allowed the employer's social security contribution due on the first minimum wage paid to domestic workers to be deductible from his/her personal income tax liabilities. This measure, coupled with a reduction in the statutory rate to 12% created short-run costs for the budget, which were compensated in part by an increase in the pool of contributors through a reduction in informality.

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ANNEX 3.A1

Testing for horizontal tax competition in the VAT among the states

This Annex uses annual state-level data on VAT (ICMS) revenue to estimate a tax reaction function in an error-correction set-up over the period spanning 1985 through 2005.*

The methodology

The hypothesis of horizontal tax competition, or the presence of strategic tax interdependencies among same-level jurisdictions, is conventionally tested by estimating the following level equation:

$$\tau_{it} = \alpha_0 + \alpha_1 \sum\nolimits_{j \neq i} \zeta_{ij} \tau_{jt} + \alpha_2 \tau_{L,t-1} + \alpha_3 X_{it} + e_{it} \,, \qquad (3.A1.1)$$

where τ_{it} is the tax rate levied by jurisdiction i at time t; $\sum_{j \neq i} \zeta_{ij} \tau_{jt}$ is the tax rate prevailing in competing jurisdictions in a Nash game, based on a given aggregation matrix ζ_{it}; τ_L is the tax rate levied by the leader in a Stackelberg game; X_{it} is a vector of control variables; and e_{it} is an error term.

The parameters of interest in Equation (3.A1.1) are the slopes of the reaction function: α_1 and α_2. If $\alpha_1 \neq 0$, for a given weighting matrix, the states compete among themselves in a Nash game, and $\alpha_2 \neq 0$ suggests the states respond to changes in tax policy in a given jurisdiction that acts as Stackelberg leader (Altshuler and Goodspeed, 2003).

To distinguish the short- and long-term effects of tax competition, as well as those of other determinants of tax setting at the state level, Equation (3.A1.1) can be estimated in an error-correction set-up by defining the tax reaction function in levels to capture long-term effects and with first-differenced data to model the short-term dynamics in tax setting in each state:

$$\Delta \tau_{it} = \beta_0 + \beta_1 e_{i,t-1} + \beta_2 \sum\nolimits_{j \neq i} \zeta_{ij} \Delta \tau_{jt} + \beta_3 \Delta \tau_{L,t-1} + \beta_4 \Delta X_{it} + u_{it} \text{, with } \beta_1 < 0, \qquad (3.A1.2)$$

where Δ is the first-difference operator and u_{it} is an error term.

Equations (3.A1.1) and (3.A1.2) can be estimated jointly as:

$$\Delta \tau_{it} = (\beta_0 - \beta_1 \alpha_0) + \beta_1 \tau_{i,t-1} + \beta_2 \sum\nolimits_{j \neq i} \zeta_{ij} \Delta \tau_{jt} - \beta_1 \alpha_1 \sum\nolimits_{j \neq i} \zeta_{ij} \tau_{jt-1} + \beta_3 \Delta \tau_{L,t-1} - \beta_1 \alpha_2 \tau_{L,t-2} + \beta_4 \Delta X_{it} - \beta_1 \alpha_3 X_{i,t-1} + u_{it} \qquad (3.A1.3)$$

Data

The tax revenue data are available on an annual basis from the federal Treasury for the 27 states and the Federal District for the period 1995-2005. ICMS rates are defined as average effective rates, computed as tax revenue divided by value added in each state.

* This Annex updates the estimations reported in de Mello (2008).

Data on the control variables included in the regression are available from IPEA. Controls include the labour formality rate, defined as the share of the labour force that is employed with social security coverage, to proxy for the underutilisation of tax bases, which could be tapped to compensate for the loss in ICMS revenue due to horizontal competition. Current government spending is included to proxy for the extent to which state governments are prepared to forego current revenue through tax competition in exchange for future gains in economic activity. A measure of vertical imbalances in inter-governmental relations, defined as the percentage in revenue of mandated revenue-sharing transfers from the central government, is also included among the regressors to proxy for interdependencies in tax setting, because it allows the states to export the cost of provision to other jurisdictions instead of internalising them through higher tax rates to be borne by the state's residents.

The results

The baseline error-correction regression focuses on a simple Nash specification where the parameter of interest is the sensitivity of the state's own tax rate to the level of taxation in competing states, and the Stackelber leader is dropped. The neighbours' average ICMS rate is treated as endogenous in all model specifications and instrumented by its lagged values (2 lags) and spatially-lagged controls (formality, government size and vertical imbalances). Three options are considered for the definition of the level of taxation in competing states: *i*) the unweighted average of the tax rate applied in all states (excluding the reference state to avoid endogeneity), *ii*) the unweighted average (excluding the reference state) of the tax rate in contiguous states (*i.e.* those states that share a border with the reference state), regardless of the fact that these states may be located in different geo-economic regions (*i.e.* the states are conventionally, not administratively, grouped in five regions – North, North-East, South, South-East and Centre-West – reflecting broad common socio-economic characteristics), and *iii*) the unweighted average (excluding the reference state) of the tax rate in contiguous states that belong to the same geo-economic region.

The results of the baseline estimation of Equation (3.A1.3) are reported in Table 3.A1.1. The coefficient of the average tax rate in competing states is positive and statistically significant in all models, regardless of how the weighting matrix is defined. The magnitude of the estimated coefficient in Model 1 indicates that a 10% reduction in the tax rate levied on average by competing states reduces the reference state's own tax rate by 8% in the short term. The results also suggest that the reaction function is steeper in the short term with regard to tax changes in contiguous states (Model 2) and when they belong to the same geo-economic region (Model 3). The result of the overidentification test suggests that the instrumentation strategy is appropriate in Models 1 and 3 at the 5% level of significance. The Hausman test supports the estimation of Model 1 by fixed effects and Models 2-3 by random effects.

The additional regressors are signed as follows. Vertical imbalances in rival states are positively signed in Model 1: a 10% increase in the share of grants and transfers from higher levels of government in rival states' revenue increases the reference state's ICMS rate by about 4% in the short run and 27% (0.7 divided by 0.25) over the long run. Labour formality is negatively related to own tax rates in both the short and long terms, but is only statistically significant in the regression with the broadest definition of competing states

(Model 1). Government spending was found to affect the reference state's ICMS rate in the long term in Models 2 and 3, underscoring the importance of fiscal sustainability as a determinant of tax setting over longer periods of time.

Table 3.A1.1. **Horizontal tax competition: Nash game**

Dep. Var.: Own ICMS rate (first difference)[1]

	1	2	3
	Long-run effects (variables in lagged levels)		
Own ICMS rate	–0.25 ***	–0.04 **	0.01
	(0.037)	(0.021)	(0.026)
Neighbours' vertical imbalance	0.68 ***	0.00	–0.03
	(0.126)	(0.017)	(0.018)
Formality	–0.14 **	0.02	0.02
	(0.066)	(0.029)	(0.030)
Government spending	0.02	0.05 **	0.06 **
	(0.037)	(0.019)	(0.023)
	Short-run effects (variables in first differences)		
Neighbours' ICMS rate	0.82 ***	0.94 ***	1.27 ***
	(0.081)	(0.139)	(0.176)
Neighbours' vertical imbalance	0.39 ***	0.06	–0.03
	(0.106)	(0.047)	(0.059)
Formality	–0.10 *	0.01	0.01
	(0.056)	(0.050)	(0.055)
Government spending	0.07	0.10 *	–0.02
	(0.049)	(0.059)	(0.073)
Definition of neighbours	All other states	Border-sharing states	Border-sharing states in the same region
Estimator	FE-IV	RE-IV	RE-IV
No. of observations	319	319	319
No. of cross-sectional units	27	27	27
R-squared (overall)	0.50	0.52	0.48
Prob > chi-sq. (*p* value)	0.00	0.00	0.00
Hausman: Prob > chi-sq (*p* value)	0.00	0.09	0.47
Over-identification test (*p* value)	0.48	0.02	0.05

1. FE-IV and RE-IV refer respectively to the fixed- and random-effects estimators with instrumental variables. Standard errors are reported in parentheses. All models include an intercept (not reported). Statistical significance at the 1, 5, and 10% levels is denoted by respectively (***), (**), and (*). Neighbours' ICMS rate is instrumented by its lagged values (2 lags) and the spatially-lagged controls.

Source: Data available from the federal Treasury and IPEA (IPEADATA), and OECD estimations.

Is there a Stackelberg leader in the ICMS tax war?

The slope of the policy reaction function with respect to a Stackelberg leader can be estimated using Equation (3.A1.3). Several potential leaders have been experimented with, including the states of Bahia, Paraná, Minas Gerais and Rio Grande do Sul. The results reported in Table 3.A1.2 suggest that the state of Bahia, which is among the country's poorer states located in the North-Eastern region, has acted as a leader in the tax war. The parameter estimate for Bahia's ICMS rate is statistically significant in levels, suggesting the presence of long-term effects on other states' tax policy.

Table 3.A1.2. **Horizontal tax competition: Stackelberg game**

Dep. Var.: Own ICMS rate (first difference)[1]

	Baseline	1
	Long-run effects (variables in lagged levels)	
lagged levels)		
Own ICMS rate	–0.25 ***	–0.27 ***
	(0.037)	(0.039)
Neighbours' vertical imbalance	0.68 ***	0.44 **
	(0.126)	(0.200)
Formality	–0.14 **	–0.11 *
	(0.066)	(0.068)
Government spending	0.02	0.01
	(0.037)	(0.037)
	Short-run effects (variables in first differences)	
Neighbours' ICMS rate	0.82 ***	0.91 ***
	(0.081)	(0.106)
Neighbours' vertical imbalance	0.39 ***	0.35 ***
	(0.106)	(0.135)
Formality	–0.10 *	–0.07
	(0.056)	(0.058)
Government spending	0.07	0.08
	(0.049)	(0.049)
	Stackelberg leader	
Leader's ICMS rate (lagged, diff.)		0.16
		(0.160)
Lagged leader's ICMS rate (twice lagged level)		0.44 **
		(0.107)
Leader		BA
Sample	Full	Full
Estimator	FE-IV	FE-IV
No. of observations	319	319
No. of cross-sectional units	27	27
R-squared (overall)	0.50	0.49
Prob > chi-sq. (*p* value)	0.00	0.00
Hausman: Prob > chi-sq (*p* value)	0.00	0.00
Over-identification test (*p* value)	0.48	0.24

1. FE-IV refers to the fixed-effects estimator with instrumental variables. Standard errors are reported in parentheses. All models include an intercept (not reported). Statistical significance at the 1, 5, and 10% levels is denoted by respectively (***), (**), and (*). Neighbours' ICMS rate is instrumented by its lagged values (2 lags) and the spatially-lagged controls.

Source: Data available from the federal Treasury and IPEA (IPEADATA), and OECD estimations.

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Chapter 4

Making government operations more cost-effective

Despite considerable progress in many areas, there remains substantial scope for making government operations more cost-effective. Brazil spends a high share of GDP on selected government-financed programmes in relation to many OECD countries and its emerging-market peers, but outcome indicators are often comparatively poor. As a result, in the absence of efficiency gains, further increases in spending would need to be financed through additional tax hikes and, most importantly, would likely fail to deliver commensurate improvements in outcomes. Initiatives to enhance the efficiency of government operations are therefore necessary and call for concerted action in many policy areas. The largest payoff would most probably come from greater emphasis on longer-term budget planning to facilitate the identification of, and secure adequate funding for, cost-effective programmes. At the same time, enhanced budget flexibility would make it easier for policymakers to shift budgetary resources towards the programmes that are most cost-effective. Options are being considered for developing the recently discovered offshore oil fields and to ensure that the revenue accruing to the budget is saved or allocated to programmes with the highest returns for future generations.

There is fairly broad consensus that, despite progress in many policy areas, especially since the mid-1990s, government operations need to become more efficient at all levels. Brazil fares comparatively poorly in relation to the OECD area on the basis of various indicators, especially in education, despite a relatively high ratio of publicly financed spending to GDP. This suggests ample scope for improving efficiency in a number of policy domains, including budget planning, expenditure management and service delivery. Further expenditure hikes would probably be wasteful, because they may fail to yield a commensurate improvement in outcomes. At the same time, unless efficiency gains can deliver budgetary savings, the financing of additional spending would also require the tax take to rise further, despite the fact that, as argued in previous *Surveys* and in Chapter 3, it is already high for a country of Brazil's income level.

Policy initiatives over the last 10 to 15 years have delivered considerable efficiency gains in several areas, such as public procurement, tax administration and service delivery. Improvements in social indicators have also been commendable; they have taken place on the back of successful policies to improve access to services and to strengthen social protection for the needy. But deficiencies remain in the existing institutional mechanisms for budget planning and evaluation, which make it difficult for policymakers to identify the most cost-effective programmes. At the same time, the reallocation of resources in favour of cost-effective programmes is constrained by budget rigidities, arising from widespread revenue earmarking, for example.

This chapter argues that policy action to improve the efficiency of government operations should be two-pronged. The largest gains would probably come from greater outcome-orientation in budget planning and expenditure management, which would facilitate the assessment of cost-effectiveness. At the same time, efforts to make the reallocation of budgetary resources more flexible would help to favour cost-effectiveness and to strengthen a culture of planning and evaluation in government operations.

Efficiency in selected policy areas

Overall government spending

Due to a ratcheting-up of government spending over the years (discussed in Chapter 2), Brazil is now a relatively big spender in relation to emerging-market economies. Excluding social protection, which accounts for a larger share of government spending in OECD countries owing predominantly to more generous entitlements, Brazil's spending on other functional areas (in relation to GDP) is on a par with the OECD average (Figure 4.1). As in the OECD area, outlays on education and health care alone account for a higher share of spending than any other area, except for social protection. The cost of service delivery, measured by the share in GDP of intermediate government consumption, compensation for civil servants and social transfers in kind financed by the government, is also comparatively high in Brazil. This underscores the scope for efficiency enhancement, given that outcomes are often sub-par in comparison with OECD benchmarks.

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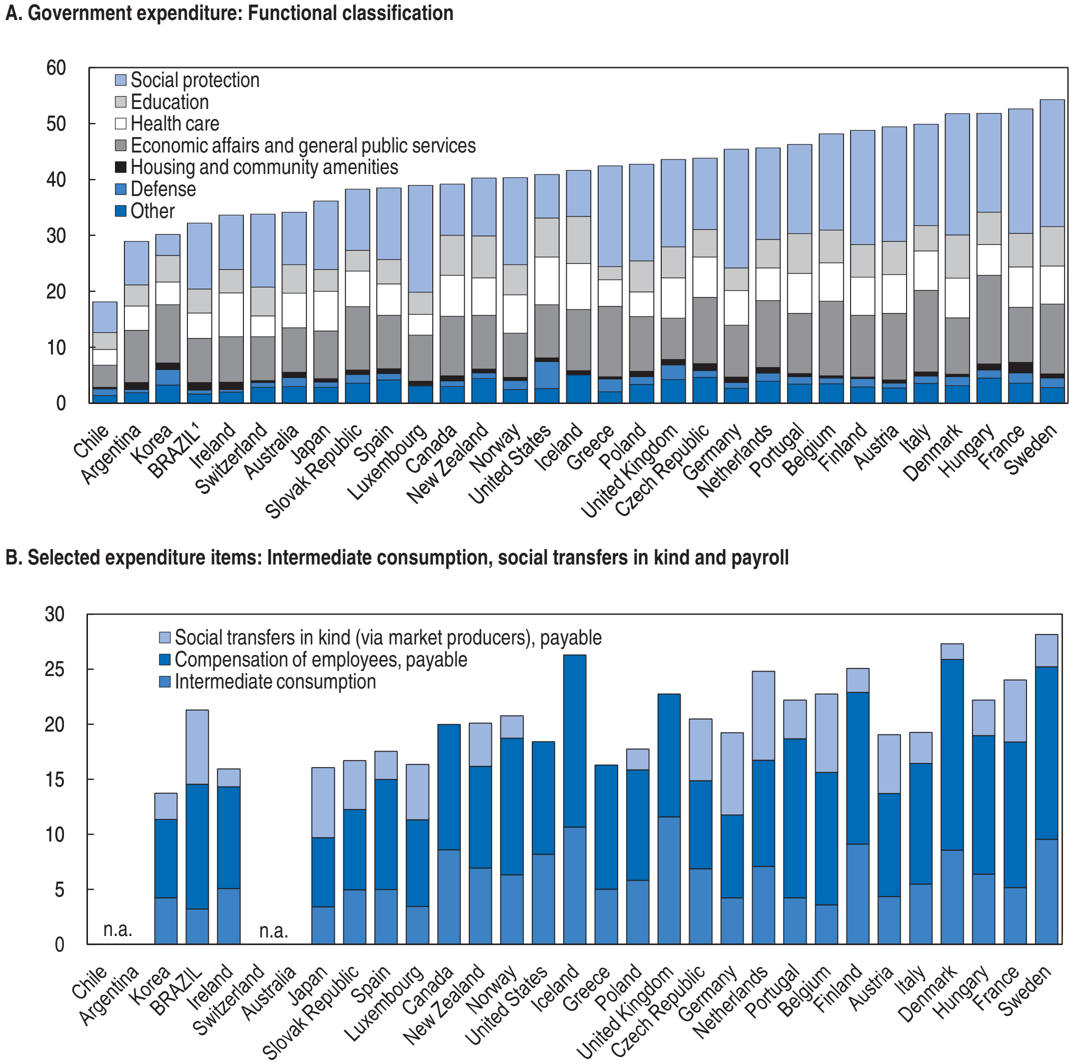
Figure 4.1. **Government expenditure by function: International comparisons, 2006**

In per cent of GDP



1. Excludes outlays on debt service.

Source: IMF (*GFS database*), OECD (*National Accounts database*) and STN (for Brazil).

StatLink http://dx.doi.org/10.1787/652358378414

Service delivery in education and health care

In the case of education, cross-country evidence suggests considerable room for increasing the efficiency of government spending (Box 4.1). Brazil's indicators of student performance measured by scores in PISA, the standardised international test for 15 year-old students, and educational attainment are comparatively poor (Figure 4.2). This is despite a level of government spending in relation to GDP that is not out of step with the OECD average (Figure 4.3), although government spending is lower in Brazil on a per-student basis. Attainment indicators have risen over time, especially among the younger cohorts, suggesting that progress has been made over the years. But there is plenty of room for Brazil to catch up with best performers. To illustrate the scope for further improvement, on the basis of recent analysis for selected Latin American and OECD countries, Brazil's

Box 4.1. **Estimating efficiency in service delivery and tax administration**

Gauging efficiency

A number of techniques are available for gauging the efficiency of government spending on the basis of "production functions", which can be estimated parametrically or computed non-parametrically. In any case, the basic idea is that the production of outputs, which can be measured in terms of conventional indicators, such as scores in standardised education tests, for example, requires the use of inputs, which can be monetary (*e.g.* aggregate government spending) or non-monetary (*e.g.* number of teachers or doctors in relation to population).

Parametric techniques, such as cross-sectional regression analysis, have the advantage of allowing for stochastic elements in the production function but depend on specific functional specifications for the function to be estimated, which may be arbitrary. These techniques are also constrained by the number of indicators that can be used to measure output. By contrast, non-parametric methods do not require a specific functional specification for the production frontier, which can be constructed for several output and input indicators. But, because they are deterministic, non-parametric techniques are particularly sensitive to the presence of outliers in the sample, as well as measurement errors and omitted variables, which alter the shape of the production frontier. An alternative class of parametric techniques use latent variable estimation methods in recognition of the fact that it is difficult to identify a single indicator that captures all relevant aspects of service delivery. The population's health or education status, for example, is recognised to be unobservable; available indicators can therefore be used in the estimation of these unobservable variables when estimating the production frontier.

Cross-country evidence for Brazil: Non-parametric techniques

There is a large body of cross-country evidence for Brazil based on the computation of non-parametric production frontiers. Moccero (2007) uses data envelopment analysis (DEA) for Brazil and other selected Latin American and OECD countries to gauge the efficiency of service delivery in education and health care. He shows that Brazil is close to the technical efficiency frontier (under the assumption of non-increasing returns) in the provision of health care, but far from it in the case of education. Herrera and Pang (2005), who also construct non-parametric frontiers for a much larger set of countries, show that there is considerable room for raising Brazil's efficiency in the provision of education and health care. The evidence reported by Afonso *et al.* (2006) and Ribeiro and Rodrigues (2007) also point in this direction.

Evidence for Brazilian sub-national jurisdictions: Non-parametric techniques

Efficiency scores are also available, especially for education and health care, for samples of Brazilian states and municipalities. Most studies use expenditure data available from sub-national budgets, and output/input indicators from standardised student tests, household surveys and population censuses. Empirical analysis is motivated by the fact that sub-national governments account for the bulk of service delivery in the social area, while enjoying considerable autonomy in policymaking.

In the case of education, Brunet *et al.* (2008) construct efficiency frontiers for the provision of primary and secondary education through the public school network using state- and municipality-level data in 2005 and 2007. The authors show that there does not appear to be a strong association between spending and performance at the level of the states, since the best-performing jurisdictions of the South do not spend as much as their counterparts in the South-East, whose performance is lower. Boueri (2007) uses municipal

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Box 4.1. **Estimating efficiency in service delivery and tax administration** *(cont.)*

data on outcomes in health, education and urbanisation and suggests the presence of considerable inefficiency in spending. Sampaio *et al.* (2005 and 2008b) estimate a non-parametric frontier using municipal data on education and health indicators and show that size, measured by the resident population, is a powerful determinant of expenditure efficiency. The cost of public services tends to be higher in smaller jurisdictions, possibly due to their inability to exploit economies of scale.

Empirical evidence is limited for other functions of government. Brunet *et al.* (2007) use indicators of criminality and deaths caused by road accidents as outputs and government spending on law and order as an input for the computation of a production frontier for the states in 2005. The authors show that higher spending is associated with worse performance, a finding that can be associated with a concentration of criminality in the more populous, often more prosperous states of the South-East.

Sampaio *et al.* (2008a) use data envelopment and quantile regression analysis to gauge the efficiency of municipal tax administrations. The authors find that efficiency is negatively correlated with grants received from higher levels of government, suggesting that a sizeable gap between local expenditure and locally raised revenue discourages tax effort. Municipalities located in large metropolitan areas tend to be more efficient, probably due to tax spillover effects. Smaller municipalities tend to be less efficient, possibly due to their inability to reap the benefits of economies of scale in tax administration.

Evidence for Brazil: Parametric studies

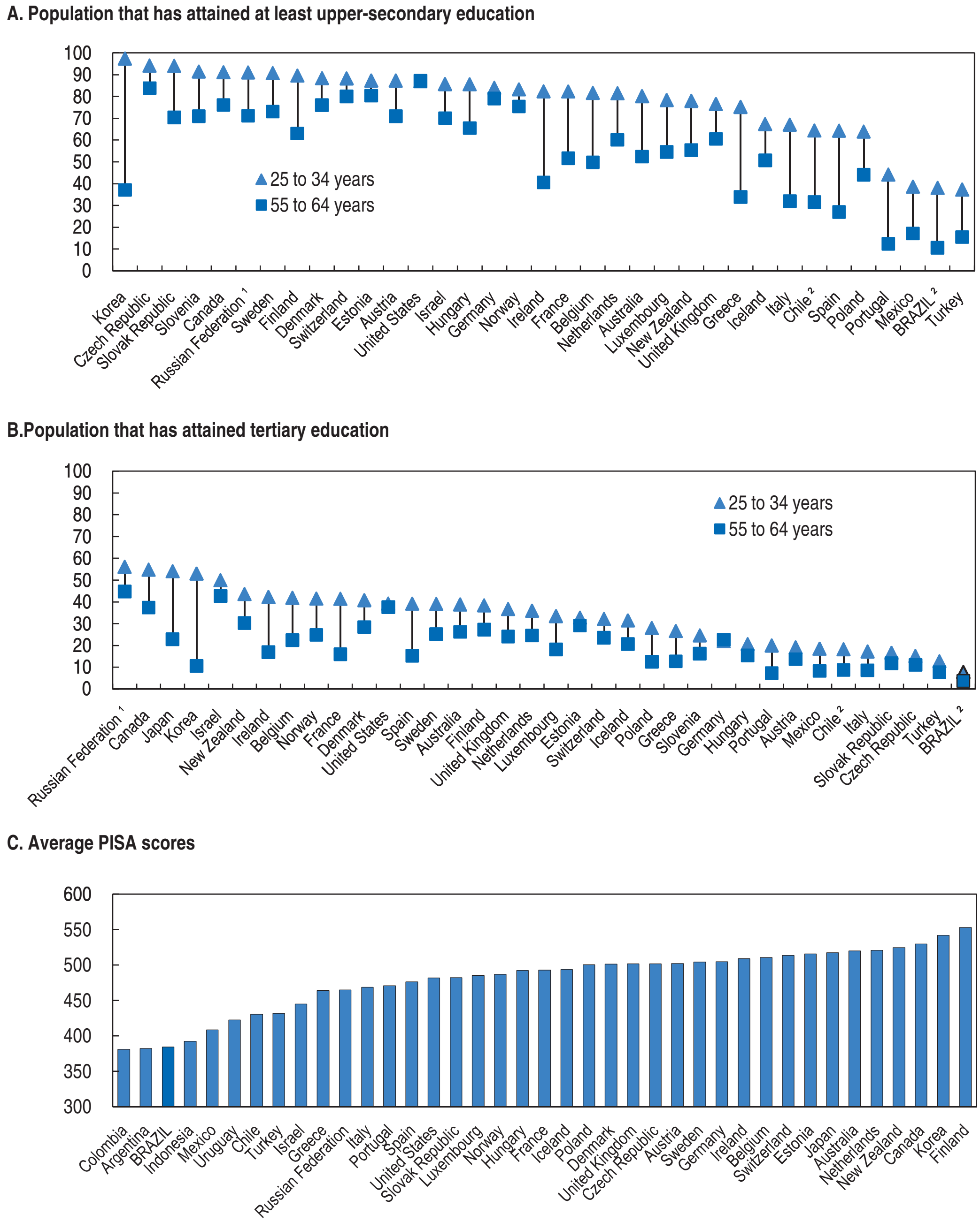
Sa (2005) estimates a two-equation system by 3SLS for the demand and supply of health care using municipal data. The author finds a negative relationship between government spending and health outcomes, measured by the infant mortality rate, while controlling for urbanisation, schooling and regional effects. The results cast doubt over the benefit of higher spending on the health status of the population.

PISA score could be raised by about 20% for the same level of teaching staff per student in secondary education, if these inputs were to be used as efficiently as the most efficient countries in the sample (Moccero, 2007).[1]

Brazil appears to be more efficient in providing health care than education services. Again, recent empirical evidence on the basis of cross-country comparisons is instructive: Brazil's health outcomes (measured in terms of a composite indicator of life expectancy at birth, under-five mortality and one-year-old immunisation rates) could be raised by about 1.4% for the same level of medical staff and hospital beds per 1 000 population (assuming non-increasing returns in production), if these inputs were to be used as efficiently as in the case of the countries that are on the production frontier (Moccero, 2007).[2] This does not mean that Brazil's health indicators are on a par with those of most OECD countries (Figure 4.4). They are lower than the OECD average in the case of life expectancy, for example. But these outcomes could be achieved in Brazil using a lower level of inputs than in the OECD area on average.

Efficiency tends to vary considerably among Brazilian states and municipalities, which are at the forefront of service delivery in education and health care. More prosperous

Figure 4.2. **Human capital indicators: International comparisons, 2006**



1. The year of reference is 2003.
2. The year of reference is 2004.

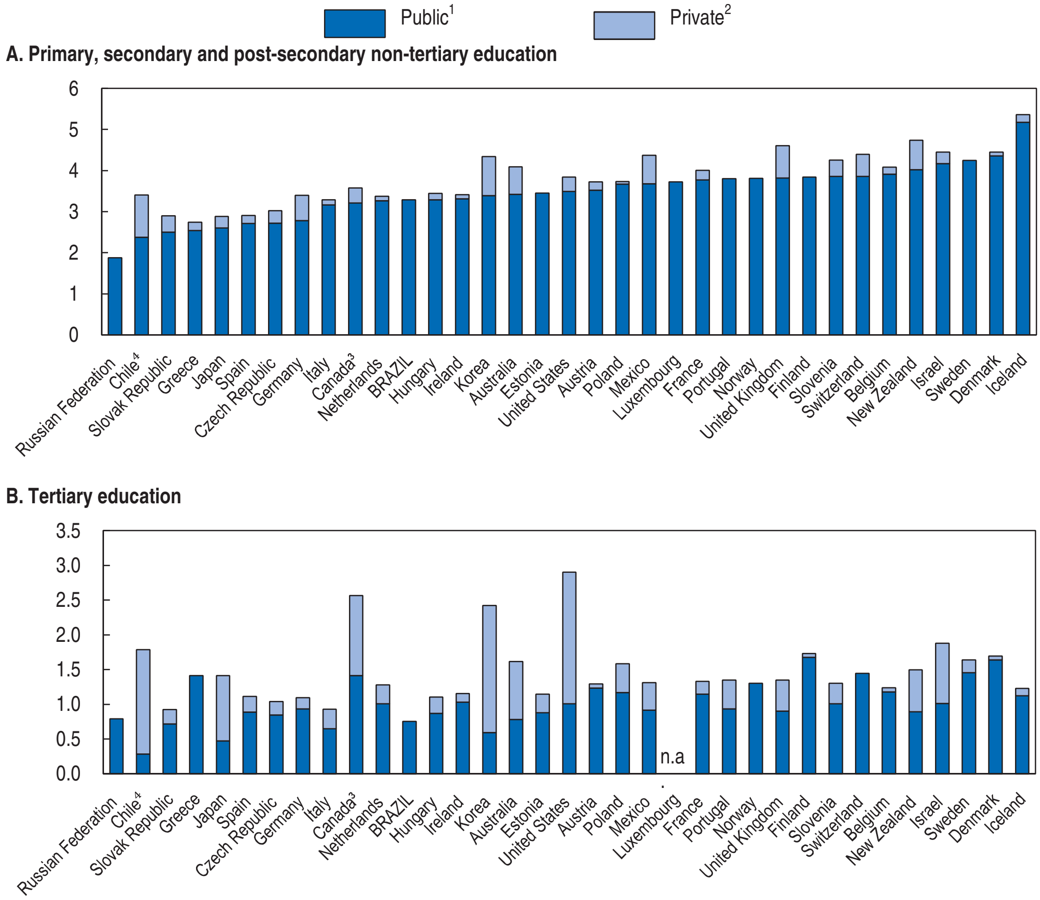
Source: OECD, *Education at a Glance*.

StatLink http://dx.doi.org/10.1787/652416078463

jurisdictions are not necessarily more efficient, despite often having better social indicators, because they tend to spend more on service delivery. But provision costs also tend to be high in small local governments, suggesting the presence of unexploited economies of scale. The estimation of stochastic production functions for a sample of municipalities shows that more populous local governments tend to be more efficient in service delivery than smaller jurisdictions (Seroa da Motta and Moreira, 2007). This finding,

Figure 4.3. **Expenditure on education: International comparisons, 2005**

In per cent of GDP



1. Includes public subsidies to households attributable to educational institutions, as well as direct expenditure on educational institutions from international sources.
2. Net of public subsidies attributable to educational institutions. Information on private spending on education is not available for Brazil.
3. The year of reference is 2004.
4. The year of reference is 2006.

Source: OECD, *Education at a Glance*.

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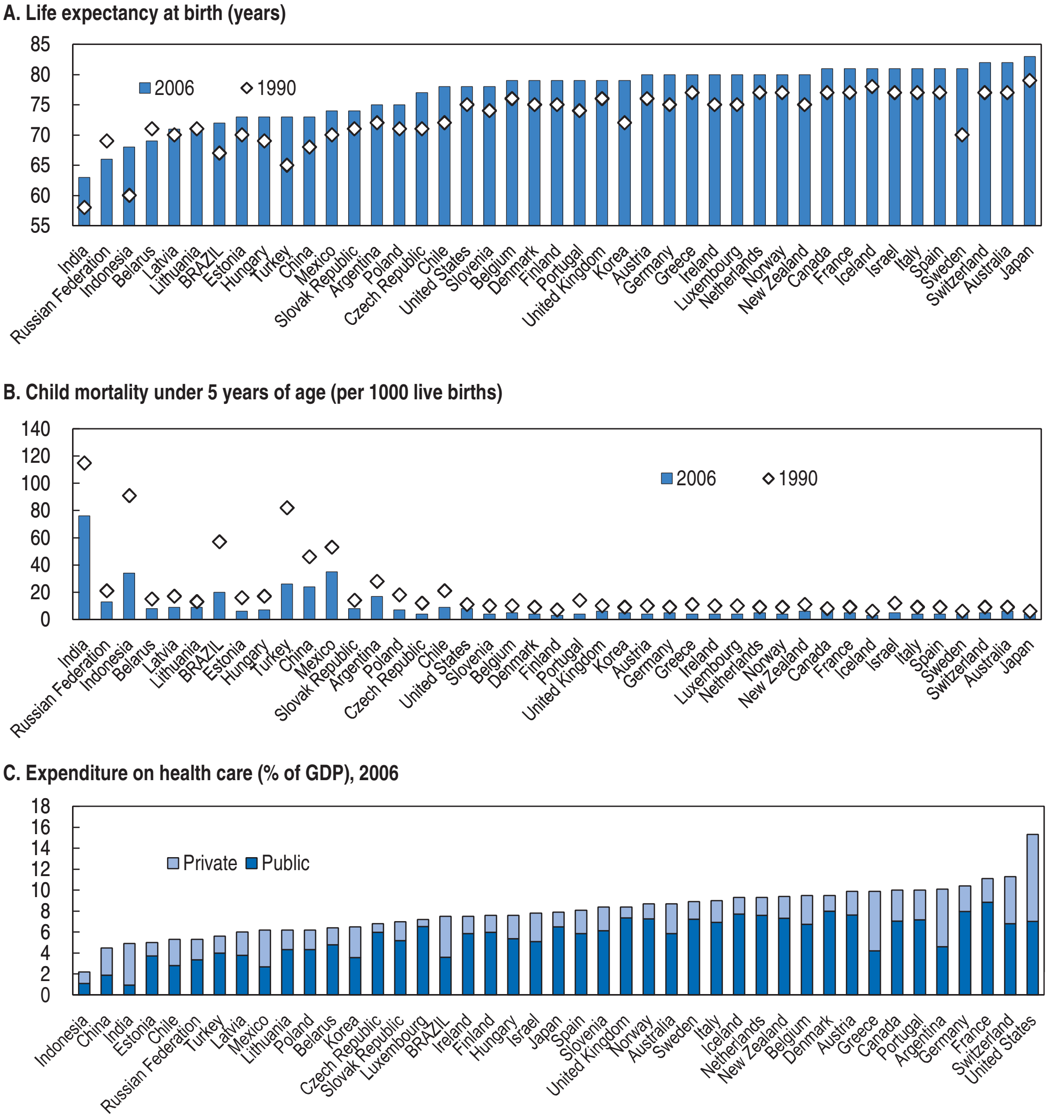
which is corroborated by the computation of non-parametric frontiers by Sampaio *et al.* (2005, 2008a and 2008b), is important, because most of Brazil's over 5 500 municipalities are relatively small: according to the population census, 75% of the population lives in municipalities of no more than about 21 000 inhabitants.

Mechanisms for financing local government spending have a bearing on efficiency. Empirical evidence shows that those municipalities that are more reliant on grants and transfers from higher levels of government and those that receive substantial royalties for the exploration of natural resources tend to be less efficient in service delivery (Seroa da Motta and Moreira, 2007; Sampaio *et al.*, 2008b). They also tend to make less effort to collect their own taxes (Sampaio *et al.*, 2008a), as discussed below. To a certain extent, this finding reflects administrative deficiencies in poorer jurisdictions, which are most dependent on grants and transfers from higher levels of government. But it may also be due to the design of inter-governmental transfer arrangements, which often

Figure 4.4. **Health outcomes and expenditure: International comparisons, 1990 and 2006**



Source: World Health Organisation and OECD calculations.

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discourages efficiency.[3] This is the case, for example, of transfers financed through a common pool of sharable funds, which drives a wedge between the costs and benefits of public provision. These disincentive effects are likely to be strong, given that the bulk of transfers to lower levels of government are of the common-pool, revenue-sharing type in Brazil.

The intra-sectoral composition of government spending also affects efficiency. The empirical evidence reported in Annex 4.A1 and summarised in Box 4.2 for a sample of Brazilian municipalities shows that local governments that spend relatively more on investment than on current outlays, such as the wage bill, tend to perform better. This is consistent with cross-country evidence, which suggests that countries that allocate a

Box 4.2. **Local government efficiency in education and health care: The main findings of the analysis reported in Annex 4.A1 and policy implications**

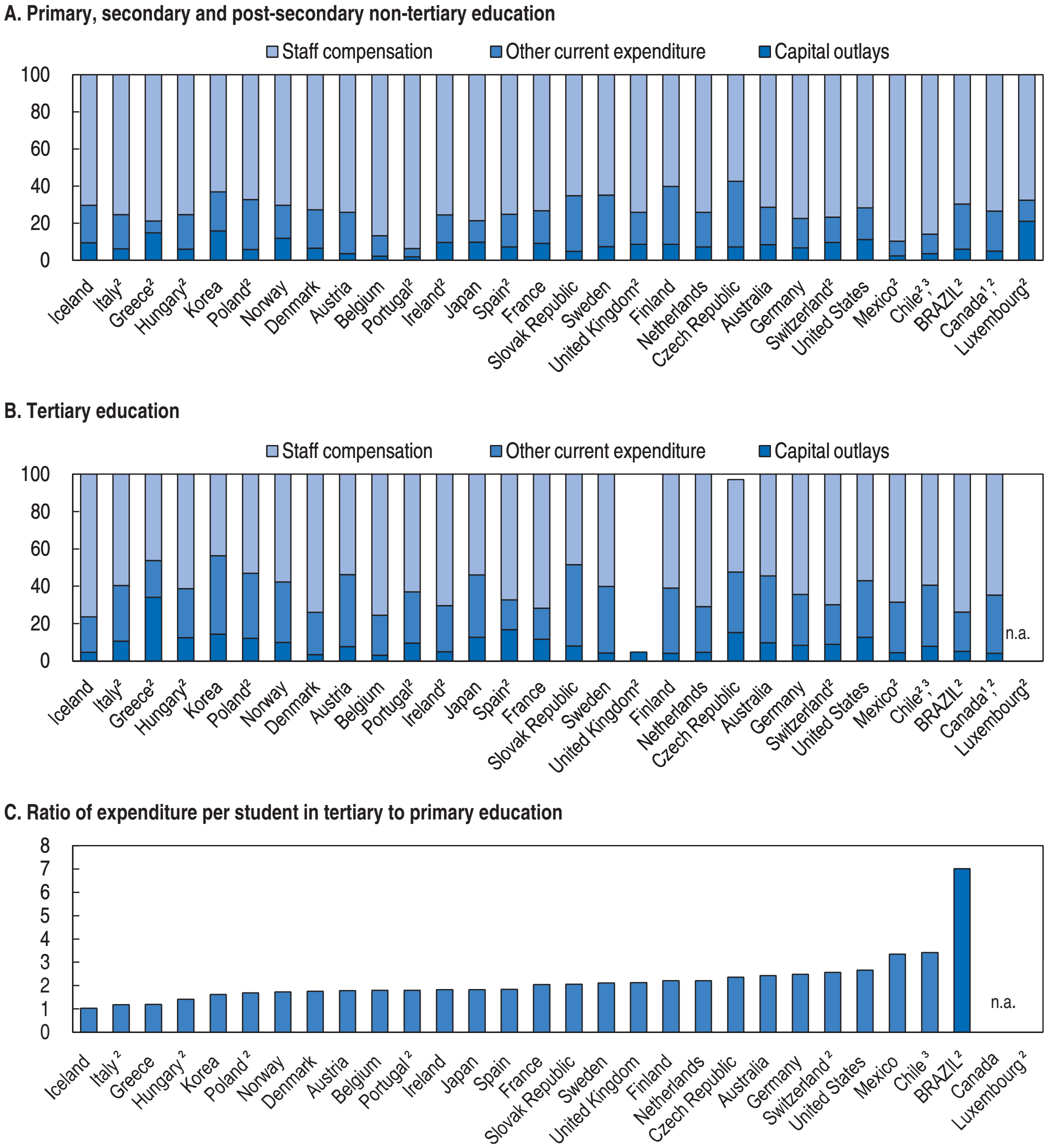
The main findings of the empirical analysis reported in Annex 4.A1 on the basis of the estimation of semi-parametric social production functions for education and health care for a sample of Brazilian municipalities are as follows:

- There is a role for government action to improve social outcomes, despite the fact that income is the most powerful determinant of differences in status in health and education among the municipalities. At least in the case of education, an increase in government spending is likely to lead to improvements in social outcomes, especially for the worst performing municipalities.
- The composition of spending has a strong bearing on social outcomes. Local governments that spend a higher share of their budgets on capital than on current outlays tend to have better social indicators, at least for jurisdictions with the lowest conditional education status and for selected segments of the conditional distribution of health outcomes. This suggests that efforts to reallocate budgetary appropriations within the same expenditure envelope are likely to improve social outcomes.
- The worst-performing municipalities are unable to reap the benefits of economies of scale in the delivery of education services. There is therefore room for policy action in this area.
- There appear to be strong complementarities between education and health outcomes. This is especially so among the poor performers. Therefore, policy initiatives in the areas of education (or health care) that seek complementarities in health care (education) are likely to enhance the effectiveness of government action in support of social development.

higher share of spending to public investment tend to fare better in international comparisons of social outcomes (Baldacci, Guin-Siu and de Mello, 2003). This finding is important in view of the authorities' efforts to boost investment on infrastructure development and upgrading, including through PAC, the Growth Acceleration Programme that was launched in 2007. To the extent that they favour investment programmes in the social area, these initiatives may therefore have a payoff in terms of greater efficiency in the delivery of social services.

A focus on programmes with high social rates of return is associated with better social outcomes. In the case of health care, increasing emphasis on preventive care appears to be bearing fruit.[4] Experience with the Family Health Programme (*Programa Saúde da Família*, PSF), launched in 1994 and now the main instrument for government action in the area of preventive care, suggests that municipalities participating in the programme have better indicators of mortality, immunisation and hospitalisation than a control group of comparable jurisdictions that did not participate (Cruz, 2005). But public spending on education continues to be tilted towards higher levels (Figure 4.5), despite the fact that private returns are likely to far outweigh social returns in the case of post-secondary education. Comparison with the OECD area is striking: spending per student on tertiary education (excluding R&D) is about 30% higher on average than on primary education in OECD countries, but about seven times higher in Brazil.

Figure 4.5. **Composition of spending on education: International comparisons, 2005**



1. The year of reference is 2004.
2. Includes public institutions only.
3. The year of reference is 2006.

Source: OECD, *Education at a Glance*.

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E-government

There has been increasing emphasis on the use of e-government for service delivery. Brazil's performance in this area is commendable. The country is in the top quartile of the distribution of countries on the basis of the United Nations e-government readiness index (United Nations, 2008), and the share of transactions conducted through e-government is close to the OECD average. In addition, Brazil is a pioneer in the use of ICT tools in areas ranging from tax administration to elections. In education, e-government tools are being used in a variety of distance-learning programmes. Emphasis is now shifting from the use of e-government for efficiency enhancement by improving internal operational and organisational practices towards greater emphasis on the gathering of information on user needs. Increased focus is also being placed on ensuring accessibility to e-government tools by the population and on raising transparency, so as to foster social control over government operations. This is important, because the evidence reported by Sampaio *et al.* (2008b) for a sample of municipal government shows that utilisation of ICT tools in public administration does increase efficiency in the provision of education and health care, at least for the most inefficient jurisdictions.

Public procurement

Brazil's procurement legislation is comprehensive.[5] Procurement is carried out predominantly electronically through e-auctions, which accounted for nearly 85% of purchases in 2007, against less than 1% in 2003. Several states and municipal governments are conducting their procurement activities through their own e-government platforms or through the federal government's. But experience with these initiatives at the sub-national level varies considerably across jurisdictions.

Increased competition appears to be lowering procurement prices. About one-half of purchases are supplied by SMEs, which are provided a number of incentives to participate in procurement activities. For example, legislation enacted at end-2006 stipulates that 25% of purchases in a given year should be supplied by micro and small enterprises. In addition, all purchases of goods and services worth up to 80 000 *reais* is procured from SMEs, so long as there are at least three bidders in the electronic auction. Official sources suggest that increased participation of SMEs is likely to have contributed to the fall in average procurement prices by about 15% during 2005-06. Savings to the budget have been particularly large in contracts for telecommunications services. In the state of Rio de Janeiro, for example, competitive bidding reduced spending on telecommunications from 80 million *reais* to about 10 million *reais* in 2008, leading to an overhaul of the state government's telecommunications infrastructure.

Nevertheless, in areas where competition is less fierce among suppliers, there tends to be more limited scope for the government to exert downward pressure on prices through competitive procurement. This is the case for school books, for example, where competition is constrained by intellectual property rights, and order prices are negotiated between the government and publishers, once teacher preferences have been taken into account (Soares, 2007). In this area, economies of scale, which can be sizeable in the case of large orders, tend to be the main instrument for the government to cut procurement costs. But, even where the scope for cutting costs through competitive bidding is limited, the government may use its monopsonist power to influence the quality of the goods and services procured. This is especially the case in sectors, such as education and health care, where the government is a large purchaser. Again, school books are a good example. The government currently purchases about 90% of the books used in the public school network for primary and secondary education. Systematic evaluation of these books since 1996 appears to have increased their quality, including through the exclusion of sub-par publications from the catalogues available to teachers for orders at the beginning of the school year.

Development financing

It is difficult to assess the efficiency of government action in the area of development financing. Brazil has a number of such programmes, including those funded by the National

Development Bank (BNDES), which is the main provider of long-term financing for the enterprise sector. As discussed in previous *Surveys*, BNDES has traditionally been funded through FAT, a compulsory saving scheme, financed by levying a para-fiscal contribution on enterprise turnover (discussed in Chapter 3), and more recently through loans from the federal Treasury (Chapter 1).[6] As such, the use of budgetary resources to fund BNDES operations calls for an evaluation of the efficiency with which these resources are used. It has often been argued that the implicit subsidy associated with BNDES lending, arising in part from the fact that FAT resources are remunerated at below-market rates, represents a cost to the budget, and that these funds could instead be allocated to more cost-effective programmes. But it is difficult to be definitive in the absence of appropriate benchmarks for the cost of long-term financing for the enterprise sector, given that BNDES dominates this market segment.[7] Therefore, as discussed in Chapter 2, the question of whether the Bank is correcting a market failure or inhibiting the development of private sector-led long-term lending remains open.

The cost-effectiveness of the existing regional development funds also merits careful assessment. Brazil's regional development policy has relied on the earmarking of federal revenue to finance investment programmes in the country's less prosperous regions through development funds, as well as on tax incentives for enterprises to set up operations in selected areas.[8] The institutional architecture of the regional development funds has changed over the years; there are currently three such funds in operation with a focus on the states in the North (FNO), North-East (FNE) and Centre-West (FCO). Again, as in the case of BNDES financing, it is difficult to evaluate the efficiency of these programmes on the basis of plausible counterfactuals.[9] With regard to tax incentives, there is no systematic evaluation of the use of federal revenue forgone in the Manaus Free Zone, an initiative put in place in the 1970s to encourage firms producing essentially electronic goods to operate in this Amazon-basin port city.

Tax administration

Brazil's federal tax administration is reasonably efficient. At the federal level, the ratio of administrative costs to net revenue collection, a conventional – albeit crude – indicator of technical efficiency, compares favourably with the OECD area (Figure 4.6). Low administrative costs stem in part from a fairly lean organisational structure and extensive use of e-government tools for tax filing and payments. Virtually all personal and corporate income tax, as well as state-level VAT (ICMS), returns are filed electronically. Several features of the Brazilian tax system, discussed in Chapter 3, also facilitate tax administration, despite the complexities of the tax code. This is the case, for example, of the presumptive regimes for collection of indirect taxes at the manufacturing stage of production in sectors with a small number of producers.

The consolidation of responsibility over the administration of federal taxes and social security contributions is likely to have resulted in efficiency gains. The federal tax authority (SRFB) is now responsible for collecting not only federal taxes, but also social security contributions for workers enrolled in the private-sector regime (RGPS), a task that until 2007 had been shared between the federal tax authority and the Ministry of Social Security. This consolidation is believed to have reduced the enforcement and administration costs borne by the government, as well as facilitating the filing of tax returns by taxpayers. As in the case of taxes, administrative efficiency also arises from the extensive use of e-government for processing applications and payments of social security and assistance benefits. For example, the use of debit cards has become the main

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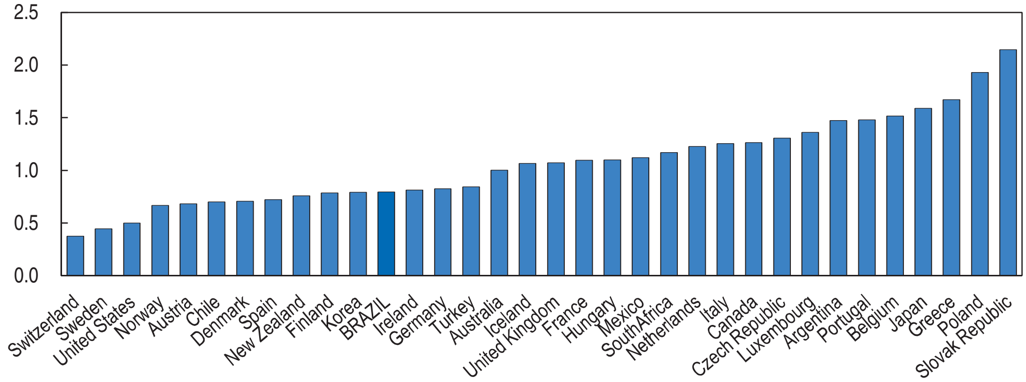
Figure 4.6. **Tax administration efficiency: International comparisons**

Ratio of administrative cost to net revenue collection (in %), 2004-07 averages[1]



1. Refers to the 2000-04 average for Brazil, Greece and Iceland.

Source: OECD (*Tax Administration Database*).

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mechanism for the payment of social assistance benefits, including *Bolsa Família*. More recently, considerable progress has been made in reducing the timeframe for handling applications for a number of social security benefits, including old-age pensions.

Efficiency varies considerably among the state and municipal governments, which enjoy full autonomy to collect their own taxes. Empirical analysis reported by Sampaio *et al.* (2008a) for local governments suggests that the efficiency of municipal tax administrations depends a great deal on scale effects: larger jurisdictions tend to be better at collecting their own taxes, controlling for other determinants of efficiency. In addition, there appears to be moral hazard in local tax administration, because reliance on grants and transfers from higher levels of government appears to discourage local tax effort (noted above). This effect is most probably due to the fact that the bulk of transfers to local governments is related to the sharing of revenue with the states and the federal government. These transfers are unconditional, which creates an incentive for the recipient jurisdictions to shift the burden of financing the provision of local goods and services to taxpayers residing in other jurisdictions, while internalising the benefits of government provision to residents.

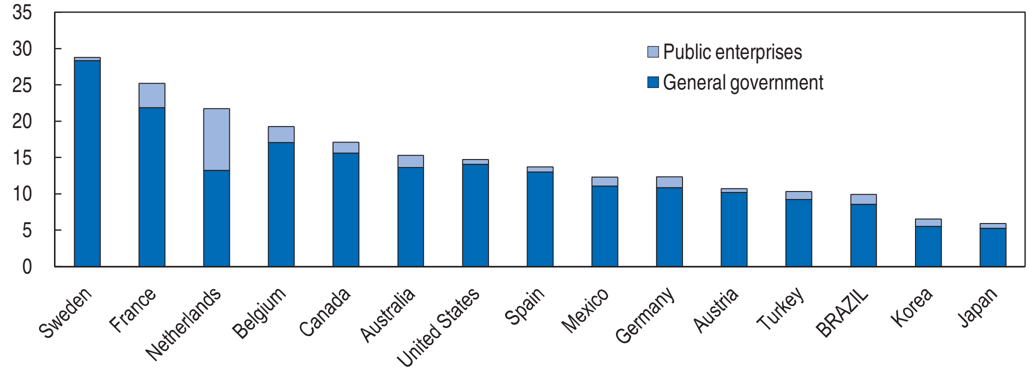
Progress has also been made in reducing the average length of time taken to settle tax disputes. Because Brazil's tax code is complex, well-functioning tax courts are important for setting jurisprudence and guiding taxpayers and tax auditors. These courts typically include government officials and representatives from the private sector. Federal tax courts have also undergone important changes in recent years, with efforts in the direction of expediting deliberations. At the state level, São Paulo's Tax Court (TIT) is among the most active in the country. More recently, the state of Rio de Janeiro has also overhauled its tax court. The state has managed to reduce the time taken for rulings to about 18 months on average, including the usual appeal procedures, which is among the swiftest in the country.

Human resource management

Efforts have been placed over the years on enhancing human resource management, although Brazil does not have a large civil service by comparison with OECD countries (Figure 4.7) (Pessoa *et al.*, 2009). The federal government engaged in a number of initiatives in this area in the early 1990s as part of more comprehensive reforms that also involved the

Figure 4.7. **Public-sector employment: International comparisons, 2005**

In per cent of labour force



Source: OECD (*The State of the Public Service*) and IBGE.

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public enterprise sector, where managerial control had been lax. Efforts focused on the consolidation and rationalisation of career streams and compensation. Although special provisions remain for civil servants in core government functions, there has been increasing reliance on more flexible arrangements, such as through the use of sub-contracting and temporary or fixed-term contracts. This is not unlike recent trends in OECD countries, where a shift from statutory towards contractual or managerial governance is an integral part of "normalisation" of human resource management in the public sector (OECD, 2008). At the same time, pension arrangements have been reformed to align entitlements and to facilitate portability between the public and the private sector systems. As discussed in previous *Surveys*, a ceiling has been set for pension benefits in the civil service in line with private-sector provisions, although complementary pension funds for government employees have yet to be created.

More recently, human resource management has focused on the introduction of performance assessment, rather than performance-related compensation at the federal level. A recent initiative that has yet to be legislated proposes to create institutional performance bonuses (*Bônus de Desempenho Institucional*, BDI) for federal government agencies that meet performance targets set in management contracts to be signed with the government in exchange for greater managerial autonomy. Introduction of similar bonuses for participating agencies that meet targets for the reduction of current expenditure (*Bônus por Economia Institucional*, BEI) is also being considered. These institutional bonuses might well be allocated at least in part to reward the civil servants working in the recipient agencies. Bonuses could also be allocated to finance training programmes and the upgrading of equipment and management systems, among other uses. Initiatives in this area can do much to contain operations and maintenance costs and therefore contribute to cost-effectiveness in government operations.

Budget institutions

Brazil already has a number of budget instruments that would allow for greater forward-looking orientation in government operations and coordination of policy actions across levels of government and with the private sector. The four-year budget envelope (PPA) has a clear multi-year, output-oriented focus and complements the annual budgets and the three-year budget guidelines law (LDO) by setting out government priorities for the longer term. The PPA contains explicit targets and indicative budgetary appropriations for each programme; it makes for a better coordination of policy initiatives at different levels of government and including the private sector, especially in the areas of infrastructure and social development. A Management Information System (SIG) has been created to consolidate information on budget allocations, performance targets and managers for the individual programmes; it is fully integrated with other information systems in a manner that contributes to enhancing expenditure management and control. Experience to date has been positive, particularly as a means of contributing to changes in managerial practices and strengthening a culture of output orientation in the design of government policies. Efforts in this area are ongoing, including through the creation in 2007 of a Committee for Budgeting and Financial Management aimed at improving medium-term fiscal management, strengthening the link between long-term planning and budgeting and enhancing information management and accounting systems, among other objectives. But, because the PPA is an indicative budget, whose appropriations can be changed in line with the annual budget laws, constraints arising from short-term financial management often take precedence over longer-term planning.

Expenditure management and long-term planning have often suffered from regular sequestrations of budgetary appropriations for discretionary programmes. These programmes account for about 10% of the federal budget, given that outlays on personnel, social security benefits and inter-governmental revenue-sharing transfers are mandatory. Discretionary spending includes capital outlays (except for those included in programmes such as Pilot Investment Programme (PPI) created in 2005 and the Growth Acceleration Programme (PAC) launched in 2007) and a number of non-compulsory items of operations and maintenance. The sequestration of budgetary appropriations has not been uncommon, because Brazil's annual budget law is authoritative, in the sense that Congress sets budgetary appropriations for discretionary programmes, and the Executive branch has the prerogative to set lower execution ceilings through ministerial decrees (Tollini, 2009). This prerogative makes fiscal policy particularly flexible in periods of financial stress, because the submission of and legislative deliberations on revised budgets may be lengthy and politically challenging. But it has also created uncertainty in budget and financial programming, and complicates expenditure management and long-term planning, especially in the case of the investment programmes whose appropriations have been sequestered.

Rigidity in the allocation of budgetary resources to specific programmes, especially in the social area, militates against efficiency. As noted in previous *Surveys*, there is extensive earmarking of revenue; for example, all levels of government are constitutionally required to allocate at least 25% of their tax revenue to education. In addition, minimum spending floors have been introduced over the years as a means of safeguarding budgetary allocations from cuts in periods of fiscal adjustment, as in the case of health care, for example.[10] It is true that compliance has not often been fully enforced at the state level.[11] Nevertheless, taken together, nearly 90% of spending is affected by revenue earmarking and mandatory allocations (World Bank, 2006), a share that is high, but not out of step with Latin American comparators. These rigidities are pernicious for two main reasons. *First*, they perpetuate the practice of budget-making on the basis of historical costing, which discourages efficiency gains through cost-cutting measures. *Second*, rigid budget-making prevents the reallocation of budgetary appropriations to the programmes that are assessed to be most efficient and associated with improvements in social indicators. This is particularly important in light of empirical evidence suggesting that an increase in spending following the 2000 constitutional amendment requiring the states and municipalities to earmark 12 and 15% of their tax revenue, respectively, to finance the provision of health care services has so far had a negligible impact on health outcomes, at least as measured by infant mortality (Sa, 2005).

Internal and external control mechanisms

There has been increasing reliance on performance targets linked to expenditure programmes. Brazil already fares rather well in comparison with OECD countries in this respect. For example, on the basis of the 2007 *OECD Budget Practices and Procedures* database, over 90% of government spending is subjected to performance targets, a level that is matched by fewer than one in six of the countries included in the database. As in most OECD countries, the line ministries in charge of service delivery are responsible for meeting the performance targets, which are often set by the ministries of finance/economy. Brazil also fares comparatively well in transparency and accountability, because programme execution reports are in general available to the public and submitted to the legislature, a requirement that exists in less than one-third of the countries included in the database. State-level initiatives are also instructive. In Rio de Janeiro, for example, information on state-level disbursements (except for public security programmes) is available on the internet, allowing for social control over payments to suppliers and the time lag between payments and service delivery.

Nevertheless, evaluation of government operations on the basis of performance targets rarely leads to the discontinuation of programmes. Although failure to meet performance targets sometimes calls for more intensive monitoring of non-performing programmes, it does not generally result in their termination or the application of penalties for poor performance on programme managers. This suggests that, although a culture of systematic programme evaluation appears to be in the making, Brazil is a relatively long way from using the evaluation instruments available as a means of strengthening the accountability of programme managers. Moreover, the fact that quantifiable indicators are required for most government expenditure programmes facilitates the *ex post* assessment of performance. Traditionally, internal and external control have focused on legal and procedural compliance in expenditure management, rather than on the evaluation of government programmes against performance criteria.[12] But there appears to be increasing emphasis on more comprehensive assessments of performance, at least at the federal level.

User satisfaction surveys are seldom used to assess the quality of service delivery. There is significant disparity among the different levels of government and across the country, but several government agencies already have instruments for users to express grievances about the quality of services and about public officials for negligence or misconduct. But the information collected through the existing vehicles is not used systematically to gauge the quality of service delivery or to produce indicators that could be standardised and subsequently used as targets in the budget-making process. This would be particularly useful in the areas of health care and education, for example, where there is ample scope for efficiency gains in service delivery.

A new regulatory framework for the oil and gas sector

Options are being discussed to deal with the expected increase in oil and gas revenue, once production begins in the recently discovered fields off the country's south-eastern coast. The size of these new reserves has yet to be announced officially, and no decision has been taken on the regulatory framework for exploration of the new fields (Box 4.3) or the sharing of future hydrocarbon-related receipts among the different levels of

Box 4.3. **The regulatory regime for developing Brazil's hydrocarbon reserves**

The regulatory framework for the oil and gas sector was reformed in 1997, when Petrobras's monopoly in production was abolished, and a concessionary regime was put in place for development and production. The sectoral regulator (ANP) is responsible for organising the bidding process for new exploratory blocks and for signing the corresponding concession contracts. The current regime is working well. Petrobras still enjoys a dominant position in upstream activities, but a number of companies have entered the market through deals/farm-ins with Petrobras or licensing agreements. Downstream markets, including refining and distribution, have attracted fewer entrants relative to the upstream segment, as discussed in the 2005 *Survey* (OECD, 2005). Since reform, production has expanded at a fast pace, and Brazil is no longer a net importer of crude oil.

Recent discoveries of sizeable offshore reserves of oil and gas along the country's south-eastern coast have prompted discussions on the appropriateness of the current concessionary regime for developing the new oil fields. These new reserves are located in deep waters, below a thick salt layer at about 2 500-5 000 metres below the seabed, which renders production technologically complex and costly. The reserves are also distant from the coast, which poses logistical challenges. No official estimate of the size of these new reserves has been announced. But, on the basis of estimations for two fields (Tupi and Iara), they would nearly double Brazil's registered oil reserves (currently about 14 billion barrels). The main policy issue to be considered in the design of a new regulatory framework for developing these oil fields is that, despite their high production costs, reserves are sizeable and exploration risks are considered to be low.

A final decision on the new regulatory regime has yet to be taken. Several proposals were put forward in 2008, and draft legislation is expected to be submitted to Congress by end-2009. Two options are being considered: extension of the current concessionary regime to the new oil fields or introduction of production-sharing contracts (PSCs) for developing these fields. In the latter case, the government would decide when to concede new exploration blocks and whether or not to participate in production. Production-sharing arrangements are already possible according to the current legislation, but the necessary regulations have never been issued. These arrangements work as follows: an oil company is hired to explore and develop an oil field or block, the government covers the exploration/development costs incurred by the contractor using production proceeds (the oil cost), and the remaining oil (profit oil) is split between the government and the contractor as specified by the production contract (the government's share is usually 60% of profit oil by international experience). This hybrid regime therefore broadens the current framework by including production sharing as an alternative arrangement. The government is committed to maintaining the current regime for the blocks that have already been conceded.

The main argument in favour of production sharing is that, contrary to concessions, the government retains ownership over the country's natural resources. Unlike concessions, whereby the government transfers the ownership of reserves and risks of exploration and production to the concessionaire, PSCs are particularly suited for low-risk ventures. In any case, regardless of the new regulatory arrangement, the issue of unitisation of exploitable fields (*i.e.* setting production rights in fields adjacent to areas that have not been conceded), arising from the fact that production agreements need to be reached between the government and concessionaires in the case of oil fields that go beyond currently conceded areas, needs to be addressed.

government (Box 4.4). It is therefore difficult to gauge the exact impact of this new source of revenue on the federal budget, especially if most of the additional revenue accrues to the federal government, rather than the states and municipalities.

Box 4.4. **BTaxation of the oil and gas sector: The current regime**

Brazil's current tax regime for the oil and gas sector is in line with international practices. Oil companies are liable for corporate income taxation and are required to pay bonuses upon signature of concession contracts, rents linked to the surface to be exploited, royalties and a "special participation" levy in the case of the largest fields. The last two items, as well as the corporate income tax due by oil companies, account for most of the revenue accruing to the government, which amounted to about BRL 22.6 billion in 2008. Royalty rates vary between 5-10% of gross value of production, whereas the special participation levy is progressive, with rates in the range of 10-40% of the difference between revenue and operating and development cost deductions, depending essentially on field location, production volume and years of production.

Oil and gas revenue is currently shared among the federal government, the states and the municipalities on a derivation basis (*i.e.* revenue accrues to the jurisdiction where the fields are located). As a result of the geographical distribution of production, revenue is concentrated in the state of Rio de Janeiro and in its municipalities, which together accounted for about 45% of royalty and special participation revenue in 2008 (Table 4.1). Only a small percentage of these revenues (4%) is shared among non-producing states and municipalities through a Special Fund. Another policy consideration is that these revenues, which arise from the exploitation of non-renewable resources, are used to finance expenditures, often of a recurrent nature, instead of being saved or allocated to programmes that could generate revenue for future generations.

Table 4.1. **Oil and gas royalties and special participation revenue, 2008**

In BRL billions

	Royalties	Special participation	Total
Total	10.9	11.7	22.6
Federal government	3.1	5.9	8.9
States	3.3	4.7	8.0
o/w Rio de Janeiro	2.3	4.5	6.7
Municipalities	3.7	1.2	4.9
o/w Rio de Janeiro municipalities	2.5	1.1	3.6
Special Fund	0.9	0.0	0.9

Source: Ministry of Budget and Planning.

Several options could be considered for making good use of the additional revenue accruing from the exploitation of the new oil fields, which are expected to come on stream during 2011-16. Options could include the allocation of revenue from the new fields to the federal government or an increase in the corporate income tax due by the oil companies. These options have advantages and disadvantages. For example, tensions may arise with the states and municipalities, if the federal government retained all the additional revenue. On the other hand, an increase in the corporate income tax burden would be shared with the states and municipalities, as noted in Chapter 3, in a manner that does not allow the federal government to introduce conditionality on the use of funds. To avoid

Box 4.4. **BTaxation of the oil and gas sector: The current regime** *(cont.)*

sharing this revenue, emphasis could instead be placed on the social contribution on net profit (CSLL), whose revenue is not shared with the sub-national governments but is earmarked to finance social security and health care. In this case, the additional revenue would be allocated to the federal government, but it would be channelled to sectors that may not be the most appropriate for generating revenue for future generations. In any case, should the CSLL be merged with the corporate income tax, as envisaged by the government's tax reform package (discussed in Chapter 3), it would be difficult to avoid sharing the additional revenue with the sub-national governments.

State-level initiatives could also be considered for reducing the concentration of revenue in a small number of municipalities and for making better use of oil and gas revenue. The experiences of the states of Espírito Santo and Rio de Janeiro are instructive in this regard. The state government of Espírito Santo allocated 30% of its royalty and special participation revenue to a fund that finances regional development programmes within the state in the areas of sanitation, housing, education and health care, among others. It excludes municipalities that receive at least 2% of hydrocarbon royalties or that account for more than 10% of the share of revenue from the state-level VAT that is shared with the municipalities. In the case of Rio de Janeiro, the revenue accruing to the state government is allocated to the state's Environment Protection Fund (5% of revenue) and its civil servants' pension fund.

A sovereign wealth fund (SWF) was created at end-2008 (Box 4.5). An initial injection into the SWF, equivalent to 0.5% of GDP, corresponded to part of the difference between the actual primary budget surplus achieved in 2008 and the target. The SWF is to be used as a counter-cyclical policy instrument, allowing the government to save revenue windfalls associated with fluctuations in the business cycle. Likewise, reverse transfers from the SWF back to the Treasury would be possible if the primary budget surplus were to fall short of the target of 2.5% of GDP in 2009 as a result of cyclical revenue losses associated with an economic slump.

Box 4.5. **Brazil's Sovereign Wealth Fund**

Brazil's Sovereign Wealth Fund was created at end-2008 to save primary budget surpluses that may exceed the yearly targets as a result of cyclical revenue windfalls. These funds may be used as a counter-cyclical instrument in periods of below-potential growth. The SWF may also be used to save, at least in part, the revenue accruing to the government as a result of the development of recently discovered oil and gas reserves in the pre-salt area off the country's south-eastern coast (Boxes 4.3 and 4.4).

Brazil's SWF differs from similar funds in resource-rich countries in that the Brazilian public sector still runs an overall budget deficit. Stabilisation funds are a useful instrument for governments to save budget surpluses in good years and to finance budget deficits in periods of below-trend growth and/or when the price of natural resources falls below a long-term level. In doing so, the impact on the budget of short-term fluctuations in commodity prices and/or the business cycle can be smoothed. The experience of Norway and Mexico in the OECD area are illustrative of the use of such funds for counter-cyclical purposes and for saving revenue derived from non-renewable resource for future generations.

Policy recommendations

There is considerable scope for enhancing the efficiency of government operations through action in several policy domains. Cross-country empirical analysis highlights functional areas, especially education, where Brazil lags the most in terms of performance in relation to OECD countries, and potential efficiency gains are therefore likely to be particularly large. Evidence based on state and municipal data underscores considerable heterogeneity among the sub-national governments in the provision of public services. Several initiatives, including in the areas of public procurement and e-government, are allowing for cost saving and increased social control over government actions. But increased effort is needed in other areas, especially budget planning and evaluation, to make sure that the allocation of scarce budgetary resources is guided by efficiency considerations, rather than historical costing and fluctuations in revenue collections.

Making service delivery and procurement more cost-effective

Empirical analysis, despite its limitations and methodological shortcomings, suggests that there is ample room for improving Brazil's social indicators, especially in education, to the level of international best performers. This is in spite of the achievements of the last 10 to 15 years, which have been laudable, especially in terms of increasing enrolment in primary and secondary education. *Brazil's main policy goal in this area should therefore be to improve the quality of services for those levels of education where full or near-full coverage has already been achieved*, so as to raise the performance of Brazilian students, which is comparatively low on the basis of standardised international tests, such as PISA. The authorities concur with this assessment and are working towards this end.

At the same time, an increase in attainment in lower-secondary education is creating a bottleneck at the upper-secondary and higher education levels. The implementation of FUNDEB in 2007, a fund that extends FUNDEF (an initiative put in place in 1997-98 to encourage local governments to strengthen their primary and lower-secondary school network through federal grants to equalise expenditure capacity among the municipalities) to upper-secondary and pre-school education is an important step forward.[13] It has the scope for removing constraints on child care and pre-school education for working mothers, making labour-force participation easier for prime-age females, as discussed in the 2006 *Survey* (OECD, 2006). International experience also suggests that enrolment in pre-school education is associated with improved performance later in life. It is too soon to evaluate the impact of this initiative, but it appears to be working well. For example, the share of children aged 5 to 6 years attending pre-school education rose from less than 13% in 2003 to over two-thirds in 2007. Increases in coverage for children aged 0-3 years have also been large. *It is advisable to continue to assess the cost-effectiveness of FUNDEB and to strengthen the programme's administration, so as to make sure that enrolment targets are met and maintained over time*.

Spending is tilted towards higher education, where social returns tend to be lower than those associated with lower levels of education. This is essentially due to the fact that cost recovery at the tertiary level is negligible. The scope for efficiency gains through a change in the composition of public spending could therefore be considerable, especially against the background that public spending on higher education is estimated to be among the most regressive (OECD, 2005a). *A move from direct public financing for institutions towards the introduction of tuition fees could therefore be considered as a means of releasing public funds that could be allocated to more equitable uses in the education sector*. It would be advisable to complement initiatives in this area by an expansion of existing student loan programmes coupled with income-contingent repayment to ensure that the introduction of tuition fees does not pose an obstacle to the participation of students from disadvantaged backgrounds. Design options are numerous and could also include drop-out risk to be borne by the government. Of course, initiatives to enhance cost recovery should be pursued in parallel with efforts towards efficiency gains through systematic evaluations of the performance of higher-education institutions and their teaching staff. The option of linking funding to universities to performance on the basis of existing standardised student evaluations (ENADE[14]) could be considered.

The maximisation of economies of scale could create savings to the budget. Brazil's federalist tradition and the autonomy enjoyed by the sub-national governments in policymaking and service delivery should not preclude initiatives to maximise the exploitation of such economies. But local jurisdictions may not always have the institutional vehicles for doing so. Experience with inter-municipal consortia for hospital management and procurement, which are widespread in some parts of the country, is by and large positive. This is also the case of flexible arrangements for hospital administration through social health organisations (OSSs), following the initiative of the state of São Paulo.[15] *These initiatives could be disseminated more broadly among the sub-national levels of governments*. Dissemination of information on successful initiatives would also be likely to encourage the municipalities to organise themselves into micro-regional entities to pool resources and share facilities.

Brazil's inter-governmental transfer system provides limited incentives for efficiency enhancement. The bulk of transfers to lower levels of government are in the form of block grants related to the sharing of revenue collected by the federal government. Sub-national governments have full autonomy to use these resources, despite some earmarking in the cases of education and health care (discussed below). Voluntary grants, which may be conditional, account for a small share of inter-governmental transfers. The federal government therefore has limited scope for using the transfer system to reward performance. It would be difficult to make increased use of conditionality in revenue sharing without curtailing the autonomy of the states and municipalities in the use of funds, a prerogative that is granted to them by the Constitution. But initiatives in education, for example, such as the introduction in 1997-98 of conditional transfers under FUNDEF, have yielded very positive results in terms of increases in enrolment in the municipal school network. *The federal government could strengthen incentives for efficiency enhancement by making more extensive use of conditionality in voluntary transfers to lower levels of government and by introducing rewards for strong performance*. The finding that reliance on royalty revenue from the exploitation of natural resources may discourage efficiency, essentially by creating an incentive for municipalities to hike spending in response to revenue windfalls, rather than seeking efficiency gains, suggests caution in the design of sharing schemes for natural resource-related revenues. This is particularly important, as discussed in Chapters 2 and 3, because of the expected increase in revenues when production begins in the newly discovered offshore oil and gas fields.

Brazil is already well advanced in the use of e-government for a host of interactions with the government, including procurement, taxpayer services, elections and payments of social security and assistance benefits. Progress in this area has been considerable, especially in terms of enhancing transparency and encouraging social control over government operations. *Emphasis should now be shifted towards greater disclosure of information on government expenditure, the collection of information on user satisfaction and the use of such information for the construction of performance targets that could be used in the budget-making process*. To the extent that performance indicators can be standardised, they would allow for more effective comparisons of performance across and within jurisdictions. An increasing focus on user satisfaction in performance evaluation, where appropriate, would also contribute to boosting accountability.

Making the most of regional development financing

Government action in the area of development and long-term financing for enterprises needs to be assessed from the point of view of credit market development. This is a considerably more complex task than that of comparing the performance of firms that have access to public funds and those that do not. There is no obvious counterfactual that could be used in empirical analysis to assess the scope for market creation or destruction in segments currently dominated by government-owned or controlled institutions. Therefore, evaluations are often blurred by judgement. But, over time, and as macroeconomic stability and financial deepening deliver sustained reductions in intermediation costs, the private sector will likely be increasingly active in long-term financing. *It is therefore important to continue to assess the cost-effectiveness of government programmes, including the regional development funds, enterprise financing by BNDES and the revenue foregone through tax incentives for the Manaus Free Zone, especially against alternative uses of scarce budgetary resources.*

Improving human resource management

Efforts have been made over the years to improve human resource management in the public sector. They include initiatives to strengthen performance assessment, to rationalise career streams and to review compensation. Measures to introduce bonuses for performance and for cost-effectiveness in service delivery, essentially through efforts to reduce recurrent spending, are in the pipeline. *But for enhanced human resource management to complement ongoing initiatives towards greater cost-effectiveness of government operations, focus should be placed on better integrating human resource management into the budget-making process and long-term budget planning.* Experience with the PPA (the four-year budget) is instructive in this regard. It shows that the identification of programme managers and performance targets in budget documentation may well fail to boost efficiency because of the difficulty that currently exists in integrating long-term planning, expenditure management and annual budget-making, discussed above.

Brazil's experience with performance-related compensation for civil servants is still in its infancy. Recent initiatives, such as those related to the introduction of performance and cost-saving bonuses, have yet to be legislated and implemented. But the emphasis placed in the proposed design of these programmes on institutional, rather than individual, rewards for performance is interesting. This is essentially because international experience on the effectiveness of performance-related pay in boosting performance is fairly mixed. It suggests that the impact of these programmes on employee motivation and efficiency should not be overestimated. A lack of transparent, quantifiable criteria for assessing performance and setting objectives, an unwillingness of managers to differentiate their subordinates' performance, and a managerial culture that does not encourage performance assessment are among the main drawbacks to the implementation of effective performance management (OECD, 2005b). Against this background, *gradualism in implementation and thorough follow-through would be advisable, especially with regard to the extension of institutional bonuses to government officials working in recipient agencies.*

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Making budget formulation and planning efficiency-enhancing

Brazil already has a number of budget instruments needed for performance-oriented, forward-looking policymaking. But the longer-term orientation of the PPA (the four-year budget envelope) is often thwarted by the short-term priorities set in the annual budget law. This tension is especially acute in periods of financial stress, when short-term imperatives associated with financial management naturally take precedence over longer-term expenditure goals. However, as macroeconomic stability is consolidated and planning horizons are lengthened, the importance of long-term planning comes to the fore. But for this change in culture to translate itself into palpable improvements in performance, *more effort is needed to improve the integration and consistency of the policy priorities set in the PPA and the targets included in the LDO and in the annual budget law*. This should go beyond formal reporting and budget-making requirements. A need for action in this direction was already identified in the assessment of the 2000-03 PPA (*Avança Brasil*). Progress in this area is also needed as a means of improving performance in programmes that require the involvement of sub-national governments and the private sector, given that the coordination is likely to be even more challenging in these cases.

There has been limited progress to date in alleviating expenditure rigidity. It was argued in previous *Surveys* and in Chapter 2 that budgetary flexibility is an important pre-requisite for successful expenditure containment and that greater flexibility in expenditure management would allow for the reprioritisation of budgetary allocation in favour of cost-effective programmes. As a result, *the existing revenue-earmarking requirements and aggregate spending floors could be phased out gradually*. This would allow budget-making to be guided by efficiency considerations and the government's policy priorities, rather than historical costing and the business cycle. It is important to take decisive action to address this policy issue, because previous attempts have failed to address the root causes of budget rigidity. For example, a mechanism was created for withholding part of the earmarked spending at the federal level (DRU) in support of fiscal adjustment in the mid-1990s. This mechanism, which is still in place, has been instrumental in facilitating fiscal management in the absence of structural reform, but it does not offer a long-term solution to the problem.

The sequestration of budgetary appropriations for discretionary programmes poses problems for expenditure management and budget planning. It should also be recognised that, to a certain extent, this prerogative of the executive branch has motivated the introduction of mandated spending floors and widespread earmarking of revenues, which make for considerable rigidity in the budget, as a means of preserving appropriations from being sequestered. In recent years, nevertheless, sequestrations have focused predominantly on appropriations proposed by state constituencies during budget deliberations in Congress, rather than on well-established programmes and those related to operations and maintenance at the federal level. *The option of making discretionary budgetary appropriations mandatory, rather than authoritative, could be considered in the longer term, once existing rigidities, such as mandated spending floors and revenue-earmarking provisions, which also complicate financial programming, have been eased (see above). The authorities are also advised to work closely with the legislature to ensure realism in revenue and expenditure projections, both in the draft budget law and in the budget approved by Congress*. Reassessments of revenue projections by the legislature, often based on optimistic assumptions, are frequently used as a means of creating artificial room in the budget for accommodating an expanded expenditure envelope, thereby creating the need for sequestering appropriations by the executive branch.

Focusing control mechanisms on performance assessment

Brazil's expenditure control mechanisms appear to be working well. Recent initiatives to increase emphasis on comprehensive performance assessments, rather than the more traditional focus on compliance with procedural requirements, are a welcome development. So is a growing focus on the systematic evaluation of programmes that are more closely related to the government's longer-term priorities. To build on these achievements, *the internal control authorities are advised to emphasise assessments of outcomes of government actions in their performance-oriented audits*. By identifying cost-effective programmes, these evaluations would provide additional guidance for the allocation of resources in the budget-making process.

Preparing for the expected increase in oil and gas revenue over the coming years

Several options are being discussed for dealing with the expected increase in revenue associated with the extraction of oil and gas in the recently discovered offshore fields along Brazil's south-eastern coast. Because production costs are high and exploration risk is considered to be relatively low, despite technological challenges, the authorities are considering the use of production-sharing arrangements to develop these new oil fields, while maintaining the current concessionary regime for the blocks that have already been auctioned. *It would be advisable to define the new regulatory framework to ensure that development of the new fields is not delayed by regulatory uncertainty. Of particular importance is the role of the sector regulator in the new legal framework.*

The use of the revenue that is expected to accrue to the budget once production comes on stream depends on how these resources are distributed among the different layers of government. In the current regime, a large share of revenue is allocated to the sub-national governments because of constitutional requirements on the sharing of corporate income tax revenue with the states and municipalities, as well as the payment of royalties and the special participation levy on a derivation basis, which benefits the coastal municipalities/states with jurisdictional rights over the offshore fields. Maintenance of the current regime could exacerbate the concentration of a much larger stream of revenue in a handful of local governments. *It would be advisable to introduce a new mechanism for sharing the revenue associated with the new oil fields to ensure that it is saved and or spent on investment programmes that would generate returns for future generations.* The experiences of the states of Rio de Janeiro, where part of the oil and gas revenue accruing to the state government is allocated to environment protection programmes, and Espírito Santo, where mechanisms are in place to reduce the concentration of revenue among the municipalities, merit further consideration.

Use of the recently created Sovereign Wealth Fund (SWF) to save the offshore oil/gas revenue that is expected to accrue to the federal government is a commendable policy move. But *for the SWF to be fully operational as a counter-cyclical policy instrument, a number of conditions will need to be satisfied. For example, the fiscal target would need to be redefined to take account of the long-term prices of oil and gas and the effect on the public finances of fluctuations in the business and commodity-price cycles.* The government currently does not report budget aggregates on a cyclically-adjusted basis. A methodology will therefore need to be devised for making the necessary adjustments, which requires a definition of the new regulatory regime for the exploration of oil and gas in the pre-salt area, as well as of the rules governing the sharing of oil and gas revenue among the different levels of government.

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Box 4.6. **Summary of recommendations: Government efficiency**

Making service delivery and procurement more cost-effective

- Focus efforts to improve the quality of educational services on those levels where full coverage has already been assured (primary and lower-secondary education).
- Continue to assess the cost-effectiveness of FUNDEB financing and to strengthen the programme's administration, so as to make sure that the enrolment targets are met and maintained over time.
- Consider the introduction of tuition fees for higher education combined with a satisfactory loan system with income-contingent repayments as a means of releasing public funds that could be re-allocated to other levels of education.
- Make greater use of inter-municipal consortia for management and service delivery.
- Introduce greater conditionality in discretionary federal transfers to lower levels of government, as well as rewards for performance.
- Make better use of e-government instruments to collect information on user satisfaction and for disclosure of information on government expenditure.

Making the most of regional development financing

- Assess the cost-effectiveness of government spending through the regional development funds and BNDES financing to enterprises, as well as of the revenue foregone through the tax incentives for the Manaus Free Zone.

Improving human resource management

- Better integrate human resource management into long-term budget planning.
- If approved, implement gradually the institutional performance bonus programmes so as to allow for thorough follow-through, especially with regard to the extension of institutional bonuses to government officials working in recipient agencies.

Making budget formulation and planning efficiency-enhancing

- Improve the integration and consistency of the policy priorities set in the PPA, the targets included in the LDO and in the annual budget law.
- Gradually ease revenue-earmarking requirements and eliminate aggregate spending floors.
- Consider the option of making discretionary budgetary appropriations mandatory, rather than authoritative, in the longer term, once existing rigidities, such as mandated spending floors and widespread revenue earmarking, have been eliminated.

Focusing control mechanisms on performance assessment

- Emphasise the assessments of outcomes of government actions in performance-oriented audits.

Preparing for the expected increase in oil and gas revenue over the coming years

- Clarify quickly the new regulatory regime for development of the new oil and gas fields in the pre-salt areas, including the role of the sector regulator in the new legal framework.
- Introduce a mechanism for sharing the revenue from the new offshore oil and gas reserves among the different levels of government.
- Introduce a new mechanism for allocating the revenue associated with the new oil fields to ensure that it is saved and/or spent on investment programmes that would generate returns for future generations.

Notes

1. This calculation assumes non-increasing returns in production. The scope for efficiency gains is greater, at close to 30%, under the assumption of increasing returns.
2. The scope for efficiency gains is greater, at 5.7%, under the assumption of increasing returns in production.
3. See de Mello (1999) for discussion and cross-country empirical evidence on how the design of inter-governmental fiscal relations affects local government behaviour.
4. There are three main preventive care programmes: PAB (*Piso Assistencial Básico*), PSF (*Programa Saúde da Família*) and PACS (*Programa Agentes Comunitários de Saúde*). PAB is a block grant from the federal government to the municipalities based on estimated per capita spending needs. PSF provides every 1 000 families with a team comprising a physician, a nurse, one or two nurse assistants, and six community agents. The programme was originally implemented in poorer regions, especially in areas not covered by the SUS network. PACS focuses on maternal and child care.
5. See IMF (2001) for more information.
6. FAT finances a number of programmes, including unemployment insurance, salary-bonus payments, labour training and job creation initiatives. Also, 40% of FAT assets are earmarked for BNDES. See the 2005 *Survey* (OECD, 2005a) for more information.
7. One option for evaluating the efficiency of BNDES lending is to compare the performance of borrowing firms relative to enterprises that do not rely on BNDES financing, while controlling for firm- and market-specific characteristics that impinge on enterprise development. On the basis of the analysis reported by Ottaviano and de Souza (2008) for the period 1995-2003, it appears that employment and productivity grew faster in enterprises that receive BNDES financing than in comparable enterprises that did not borrow from it.
8. A third pillar of the regional development policy until 2001 was the investment funds, such as those for the North (FINOR) and the Amazon Basin (FINAM). Support used to take the form of equity participation by the government in beneficiary enterprises, rather than the financing of development programmes through the general budget.
9. A comparison of the performance of firms that borrowed from the regional funds against those that did not during 2000-03 suggests that employment rose faster among beneficiary firms in the case of FNE, while no discernible effect was found for the other funds (da Silva *et al.*, 2007). These findings cast some doubt over the use of earmarked federal funds as a cost-effective regional development tool.
10. According to a constitutional amendment enacted in 2000, federal spending on health care must be maintained at least constant over time as a percentage of GDP. The same constitutional amendment earmarked 12% of state-level tax revenue (15% in the case of the municipalities) to finance spending on health care.
11. The states and municipalities have not always complied with the mandatory spending requirements. In some cases, non-admissible expenditure items have been taken into account, and state-level Courts of Accounts often differ in their interpretation of admissible spending. More recently, the federal Treasury has begun to tighten enforcement, including through the withholding of voluntary transfers.
12. Internal control is carried out by the General Comptroller's Office (*Controladoria Geral da União*) through inspections and audits. Inspections emphasise the physical verification of how funds are used against deliverable targets and procedural requirements. Audits may be more comprehensive and include an assessment of results and outcomes of government action. External control is carried out by the federal and sub-national Courts of Accounts, which focus on compliance with budget procedures and regulations, rather than an evaluation of the impact of government actions and the use of budgetary resources against pre-set performance criteria.
13. FUNDEF is a fund for financing sub-national spending on primary and lower-secondary education. It was created in 1996 and implemented in 1997-98. Through FUNDEF, a national floor was set on a per student basis for government spending on primary and lower-secondary education at all levels of government. The federal government is required to top up spending in those states/municipalities that cannot afford the national spending floor. See de Mello and Hoppe (2005) for more information.

14. ENADE is carried out for different areas of higher education; each area is assessed every three years. The test focuses on the assessment of student performance on the basis of competencies included in national curricula.

15. The OSS model introduces a more flexible regime for the administration of public hospitals by allowing managers greater autonomy in human resource management, procurement and financial management than in the case of traditional government agencies. It also introduces performance contracts. See Costa and Ribeiro (2004) for a comparison of performance between traditional hospitals and OSSs in the state of São Paulo in 2003. The authors provide evidence in favour of greater efficiency in OSSs.

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ANNEX 4.A1

Estimating the determinants of efficiency in the provision of education and health care services among the Brazilian municipalities: A quantile regression approach

This Annex reports the estimation of "social production functions" for education and health care on the basis of a sample of nearly 4 000 Brazilian municipalities using information available from municipal budgets, household surveys and population censuses. To deal with heterogeneity among the municipalities, the empirical analysis is based on the instrumental-variable quantile regression technique developed by Chernozhukov and Hansen (2005, 2006 and 2008).

The technique

The Chernozhukov and Hansen estimator is computed as follows. Define the quantile regression for a given quantile τ as $y_i = \alpha(\tau)\, d_i + \beta(\tau)\, x_i + e_i$ and $Q_\tau(y_i \mid x_i) = \alpha(\tau)\, d_i + \beta(\tau)\, x_i$, where $Q_\tau(y_i \mid x_i)$ denotes the conditional quantile of the response variable (y), and d and x are the endogenous and exogenous variables. Quantile regressions leave the distribution of the error term unspecified; therefore, the methodology is essentially semi-parametric.

For a given quantile τ, estimation of an instrumental-variable regression involves two steps. *First*, the grid of possible values of parameter α (α_j, $j = 1,2,\ldots J$) is defined, the τ-quantile regressions are run for $y_i - \alpha_j\, d_i$ on x_i and ψ_i (where ψ_i is either z_i or the least square projection of d_i on x_i and z_i, where z_i is the set of excluded instruments), and the parameter estimates $\hat{\beta}(\alpha_j, \tau)$ and $\hat{\gamma}(\alpha_j, \tau)$ are recovered. *Second*, among the different values for α_j ($j = 1,2,\ldots J$), a given $\hat{\alpha}(\tau)$ is selected as a consistent estimate of α for which the value of $W_n = \hat{\gamma}(\alpha_j, \tau)' A \hat{\gamma}(\alpha_j, \tau)$ is closest to zero (A is the inverse of the asymptotic variance-covariance matrix of $\hat{\gamma}(\alpha_j, \tau)$).[1] A consistent estimate of β is $\hat{\beta}(\hat{\alpha}(\tau), \tau)$.

For both the education and health sector models, the regressions in step one of the procedure were run for a range of parameter values for the endogeneous variable set between 2 and –2, with a 0.01 interval.[2] The significance level of the parameter of the endogeneous variable is based on the dual-inference procedure suggested by Chernozhukov and Hansen (2008). Following their methodology, the 95% confidence interval of the parameter of the endogeneous variable can be obtained by inverting W_n, which involves finding the range of values of $\hat{\alpha}(\tau)$ for which W_n is below its 5% critical value.[3] Confidence intervals for the other parameters were retrieved through bootstrapping the regression at step one 1 000 times, setting $\alpha_j = \hat{\alpha}(\tau)$.

Data

Municipality-level data are available from IPEA. The data set covers Brazil's 5 591 municipalities, although the actual sample size used in the regressions was reduced to at most 4 000 observations due to data omissions. Descriptive statistics are reported in Table 4.A1.1.

Table 4.A1.1. **Descriptive statistics**

Variable	Mean	Median	Min.	Max.	Standard deviation	Kurtosis
			Education indicators			
Years of schooling (2000)	4.04	4.07	0.81	9.65	1.29	2.76
HDI index (educational attainment) (2000)	0.78	0.80	0.42	0.98	0.09	2.55
			Health indicators			
HDI index (longevity) (2000)	0.71	0.72	0.49	0.89	0.08	2.47
Resident doctors per population (2000)	0.27	0.00	0.00	7.27	0.52	21.67
Under-5 mortality rate (2000)	44.72	33.07	6.16	134.84	29.72	2.60
			Health and education determinants (in log)			
Income per capita (1991)	4.64	4.67	3.22	6.37	0.58	2.17
Transport cost to São Paulo (1995)	7.11	7.08	2.30	9.26	0.82	4.21
Ratio of current to capital spending (2000)	1.97	1.93	0.00	6.46	0.70	6.66
Resident population (2000)	9.36	9.25	6.68	16.16	1.11	4.54
Education spending (1995)	13.46	13.27	5.00	20.43	0.99	7.63
Non-education spending (1995)	14.52	14.27	12.11	22.35	1.02	7.49
Health spending (1995)	12.75	12.59	6.19	20.60	1.18	6.33
Non-health spending (1995)	14.66	14.43	12.28	22.32	1.00	7.37

Source: IPEA (IPEADATA).

The social indicators used as outputs in the regressions include the Human Development Indicator (HDI) sub-indices for longevity and educational attainment calculated by IPEA for Brazil's municipalities in 2000 (when the most recent population census was conducted) following the UNDP methodology. The average years of schooling of the resident population and under-5 mortality (all for 2000) are also used. The number of resident doctors per 1 000 population is included as a technical input in the regressions.

Government spending data are available from municipal budgets. Budgetary data on total expenditure, compiled and disseminated by the federal Treasury, are available for all municipalities in the sample. Information on outlays according to a functional classification, thereby disaggregating expenditure on health care and sanitation, and education and culture, from other expenditure items, is available for a smaller set of jurisdictions. Budgetary data are also reported according to an economic classification for a subset of municipalities, from which information on current and capital outlays can be extracted. Data on transfers received from higher levels of government, which can be disaggregated into current or capital, are also used in the estimations.

Because the social indicators are available for 2000 (discussed below), budgetary data for 1995 are used to allow for lagged effects in the relationship between spending and social indicators. Additional variables are used to control for differentials among the municipalities in living standards (income per capita in 1991, so as to ensure exogeneity) and to proxy for scale effects (resident population in 2000) and market potential (transport cost from the municipality to the city of São Paulo, the largest municipality in the country, in 2000).

Main findings

The dependent variable in the education equation is the HDI sub-index for educational attainment. The indicators used to instrument health status are the number of doctors in relation to population and the child mortality rate. The regression results, reported in Table 4.A1.2 for the education model, show that outcomes depend positively on income, the population's health status, government spending on education and government size (measured as government spending on programmes other than education).[4] The effects of health status, income and government spending on education appear to be stronger in the municipalities with lower conditional education status. The relationship between education status and municipality size is negative and significant, except at the bottom tail of the conditional distribution of education outcomes. The effect of the composition of spending between current and capital outlays is negative and significant only for municipalities with low conditional education status. Municipalities that allocate a larger share of spending to investment tend to have better education outcomes than their counterparts that spend comparatively more on operations and maintenance and payroll, for example. Finally, market potential, captured by transport costs, does not seem to affect education outcomes.

The results of the health status equations are reported in Table 4.A1.3. The dependent variable is the HDI sub-index for longevity. The indicator used to instrument education status is the population's average years of schooling. Education status and income have a positive bearing on the population's health status, especially among the municipalities with low conditional health status. The effects of transport costs and the current-to-capital spending ratio are significant only for some segments of the conditional distribution of the dependent variable. In addition, unlike the findings for education outcomes, the size of the municipality, government outlays on health care and non-health government spending do not have a statistically significant association with health status for most segments of the distribution of health outcomes.

Table 4.A1.2. **Instrumental-variable quantile regressions: Education outcomes**[1]

	10th percentile	25th percentile	50th percentile	75th percentile	90th percentile
Health status	0.2300*	0.2700*	0.2000*	0.1900*	0.2000*
Income per capita	0.06113*	0.05567*	0.05302*	0.05078*	0.05091*
Transport cost	–0.00186	–0.00352	–0.00283	0.00095	0.003
Current-to-capital spending	–0.00304*	–0.00217	–0.00194	–0.00175	–0.00024
Resident population	–0.01451	–0.02129*	–0.02727*	–0.02564*	–0.01965*
Population squared	0.00006	0.00057	0.00076*	0.00073	0.0005
Education spending	0.01393*	0.00961*	0.00526*	0.00498	0.00611
Non-education spending	0.0106*	0.01039*	0.01732*	0.01659*	0.01317*

1. Statistical significance at the 5% level is denoted by (*) based on bootstrapped 95% confidence intervals (not reported). The HDI sub-index for educational attainment is the scale (dependent) variable. Health status is proxied by the HDI sub-index of longevity and instrumented using the mortality rate and doctors per population. All regressions include metropolitan region and state dummies. The number of observations is 3 927.

Source: Data available from IPEA (IPEADATA), and authors' estimations.

Table 4.A1.3. **Instrumental-variable quantile regressions: Health outcomes**[1]

	10th percentile	25th percentile	50th percentile	75th percentile	90th percentile
Education status	0.3500*	0.3100*	0.3600*	0.3300*	0.2800*
Income per capita	0.05325*	0.05481*	0.04535*	0.035*	0.03729*
Transport costs	–0.01427*	–0.00695*	–0.00726*	–0.00574	–0.00378
Current-to-capital spending	–0.00408*	–0.00253	–0.00448*	–0.00319*	–0.00341
Resident population	–0.00163	–0.00108	–0.00788	–0.01065	–0.01518
Population squared	–0.00026	–0.00034	0.00014	0.00014	0.00029
Health spending	0.00183	–0.00177	0.00011	–0.00056	0.00112
Non-health spending	–0.00464	–0.00068	–0.00646*	–0.00078	–0.00086

1. Statistical significance at the 5% level is denoted by (*) based on bootstrapped 95% confidence intervals (not reported). The HDI sub-index of longevity is the scale (dependent) variable. Education status is proxied by the HDI sub-index of educational attainment and instrumented using average years of schooling. All regressions include metropolitans region and state dummies. The number of observations is 3 927.

Source: Data available from IPEA (IPEADATA), and authors' estimations.

Notes

1. W_n is a Wald statistic to test the null hypothesis that $\hat{\gamma}(\alpha_j, \tau) = 0$. It has a χ^2 distribution with dim(γ) degrees of freedom (*i.e.* the number of variables in z_i). This is particularly useful in those cases where there is more than one endogenous variable.
2. For both the education and health models, the series of parameter estimates for the endogenous variables were found to have a global minimum within the range of values considered. We used the least square projection of d_i on x_i and z_i as ψ_i in the first-step regressions.
3. Chernozhukov and Hansen (2008) show that inference based on this inverse statistic is robust to weak and partial identification and remains valid even if identification fails completely.
4. The regressions include two sets of dummy variables (estimated parameters not reported) to identify the municipalities located in one of Brazil's 23 metropolitan regions and the states in which the municipalities are located (the reference state is São Paulo).

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List of acronyms

BCB	Central Bank of Brazil *Banco Central do Brasil*
BNDES	National Development Bank *Banco Nacional de Desenvolvimento Econômico e Social*
CMN	National Monetary Council *Conselho Monetário Nacional*
Cofins	Social Assistance Contribution *Contribuição para o Financiamento da Seguridade Social*
CONFAZ	National Fiscal Policy Council *Conselho Nacional de Política Fazendária*
CPMF	Bank debit tax *Contribuição Provisória sobre a Movimentação ou Transmissão de Valores e de Créditos e Direitos de Natureza Financeira*
CSLL	Social contribution on net profit *Contribuição Social sobre o Lucro Líquido*
ENADE	Student Performance Examination *Exame Nacional de Desempenho de Estudantes*
FAT	Workers' Fund *Fundo de Amparo ao Trabalhador*
FER	Revenue Equalisation Fund *Fundo de Equalização de Receitas*
FGC	Deposit Insurance Fund *Fundo Garantidor de Créditos*
FGTS	Severance Insurance Fund *Fundo de Garantia por Tempo de Serviço*
FNDR	Regional Development Fund *Fundo Nacional de Desenvolvimento Regional*
FPE	States' Participation Fund *Fundo de Participação dos Estados*
FPEx	Export Compensation Fund *Fundo de Compensacão de Exportações*
FPM	Municipalities' Participation Fund *Fundo de Participação dos Municípios*
FUNDEB	Basic Education Fund *Fundo de Manutenção e Desenvolvimento da Educação Básica e de Valorização dos Profissionais da Educação*
FUNDEF	Primary and Lower-Secondary Education Fund *Fundo de Manutenção e Desenvolvimento do Ensino Fundamental e de Valorização do Magistério*

IBGE	Brazilian Institute of Geography and Statistics *Instituto Brasileiro de Geografia e Estatística*
ICMS	State-level VAT *Imposto de Circulação de Mercadorias e Serviços*
INCRA	Land Reform Institute *Instituto Nacional de Colonização e Reforma Agrária*
IOF	Financial Transactions Tax *Imposto sobre Operações Financeiras*
IPEA	Institute for Applied Economic Research *Instituto de Pesquisa Econômica Aplicada*
IPI	Industrialised Products Tax *Imposto sobre Produtos Industrializados*
LDO	Budget Guidelines Law *Lei de Diretrizes Orçamentárias*
PAC	Growth Acceleration Programme *Programa de Aceleração do Crescimento*
PIS	Contribution for the Employees' Savings Programme *Programa de Integração Social*
PPA	Four-Year Budget *Programa Plurianual de Ação*
PPI	Pilot Investment Programme *Projeto Piloto de Investimentos*
RGPS	Social-Security Regime for Private-Sector Workers *Regime Geral da Seguridade Social*
RPPS	Social-Security Regime for Public-Sector Workers *Regime Próprio de Previdência Social*
SIMPLES	Presumptive tax regime for smaller enterprises *Sistema Integrado de Pagamento de Impostos e Contribuições das Microempresas e das Empresas de Pequeno Porte*
SRFB	federal tax authority (SRFB) *Secretaria da Receita Federal do Brasil*
TLJP	Long-term interest rate *Taxa de Juros de Longo Prazo*

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