

Subnational Fiscal Policy in Large Developing Countries

Some Lessons from the 2008–09 Crisis for Brazil, China
and India

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Abstract

In response to the Great Recession of 2008, many national governments implemented fiscal stimuli packages in 2009 and 2010 to prevent further declines in aggregate demand and to jump start their economic recovery. Where subnational governments responded with fiscal contraction, as in the United States, the impact was muted; where states/provinces also expanded expenditures, as in China and India, the impact was magnified. Increases in recurrent expenditure, which were made in Brazil and India, acted as short-term stimulants; additional public investment, as in China, appears to have had a more lasting impact on growth. Large developing countries typically exhibit high interregional inequality in levels of development and global integration, resulting in differential magnitude and timing of the crisis impact. For example, coastal states in India were affected more severely and quickly

than landlocked states; revenue moved in opposite directions in the two types of state in 2009. Where fiscal stress varies widely across subnational entities, central transfers alone cannot prevent pro-cyclicality of subnational fiscal response to a recession. There is need for flexibility in subnational borrowing within a sustainable fiscal framework. Many Indian states were able to maintain or accelerate their spending thanks to the additional borrowing permitted in 2009 and 2010. In comparison, limited borrowing capacity and lack of flexibility in federal grants restricted the contribution of Brazilian states to fiscal stimulus. Legal prohibition of subnational borrowing induced China's provinces to finance additional investments through extra-budgetary borrowing by nongovernment entities, with significant fiscal risks on account of contingent liabilities.

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Introduction

The global economic crisis of 2008–09, with its epicenter in the United States, has been characterized as “one of the broadest, deepest, and most complex crises afflicting the world since the Great Depression” (Didier, Helvia, and Schmukler 2010). It resulted in a sharp deceleration of economic growth in both developed and developing countries. Between 2008 and 2010, emerging economies suffered declines in gross domestic product (GDP) growth rates that were as steep as in advanced economies; their recovery was quicker and stronger, however. Most low-income countries were less affected (World Bank and IMF 2010).

The crisis fundamentally changed the landscape in the global economy. The immediate outlook is affected by the downside risk that the euro area will fall into recession. Recently released forecasts by the International Monetary Fund (IMF) and the World Bank warn that global recovery remains fragile and that many advanced economies are likely to face a long period of slow growth, high unemployment, and significant excess capacity in key economic sectors as they face large fiscal deficits and high debt levels (IMF 2012; World Bank 2012). At the same time, the world economy is undergoing massive shifts, underpinned by the rapid rise of emerging economies such as Brazil, China, and India.

In 2011, emerging and developing economies as a group accounted for nearly 50 percent of world GDP (in purchasing power parity [PPP] terms), up from 35 percent in the mid-1980s. They accounted for nearly 70 percent of world economic growth. Going forward, their weight in global production, trade, investment, and finance is likely to continue to rise. These economies, including their subnational governments, will play an increasingly important role in the global economy.

National governments in most developed and developing countries responded to the global crisis with *countercyclical* fiscal and monetary policies. They adopted measures to expand aggregate demand for goods and services by increasing net government expenditure, at the cost of higher fiscal deficits and public debt, and kept interest rates in check through accommodative monetary policy, at the cost of increase in inflation in some countries.

However, national efforts at stimulating economic growth were partly annulled by expenditure contraction, tax increases, or both at the subnational level in some federal countries. The negative impact of the crisis on state and local government finances in the United States was large and potentially long lasting (Box 1). In general, subnational fiscal outcomes in large federal countries varied, depending on inherited levels of debt, historically evolved fiscal behavior, and the rules governing borrowing by subnational governments.

Box 1 Working at Cross-Purposes: Intergovernmental Disharmony in the United States

Subnational fiscal policy in the immediate aftermath of the 2008 crisis was pro-cyclical in many advanced economies. The problem was especially pronounced in the United States. While the federal government cut taxes, increased spending, and expanded its deficit to stimulate aggregate demand, states cut a broad range of spending items. Balanced budget rules limited their options when revenues fell, as a result of weaker economic growth, rising unemployment rates, and a sharp decline in housing prices. Total nominal spending by state governments fell by almost 4 percent in fiscal year 2008/09 and by more than 6 percent in 2009/10—the most rapid declines since World War II. California cut spending by about \$31 billion in 2009/10, despite federal stimulus funds providing an additional \$8 billion. There have been some cases of financial distress and subnational government bankruptcy (examples include Alabama; Harrisburg, Pennsylvania; and Vallejo, California), though average default rates for states and municipalities have remained low.

Growing political pressure on the federal government to reduce its fiscal deficit means that states and municipalities will receive less federal financial aid in the future. Moreover, despite some recovery in revenues following moderate economic recovery, state and local tax collections are projected to be weak to moderate due to the lagged response to falling house prices. These trends imply additional discretionary expenditure cuts, particularly as entitlement programs (e.g. Medicare/Medicaid) continue to rise rapidly. Hence the pro-cyclical behavior of sub-national finances is likely to continue.

Source: Jonas 2012 and authors.

Recent research (Canuto and Liu 2010a,b) discusses the pressures on subnational finance arising from the global crisis and from the debt created by subnational units through special-

purpose vehicles (SPVs) to finance infrastructure investments, which carry “inherent” risks as they often circumvent borrowing limits and create contingent liabilities.

Regression analysis using time series data through the 1990s for seven large federal countries (Argentina, Australia, Brazil, Canada, Germany, India, and the United States) reveals that subnational government finance is overwhelmingly pro-cyclical, implying that the behavior of state governments in the United States is not an exception but the general rule (Rodden and Wibbels 2010). Only Canada was found to be engaged in harmonized expenditure smoothing in that decade.

In the recent crisis, other countries also harmonized their policies. China, with its combination of high savings and large fiscal space, provides an important example of a countercyclical subnational response (Ter-Minassian and Fedelino 2010; Fardoust, Lin, and Luo 2012). Expansionary subnational government spending played a key role in strengthening the overall impact of the stimulus and sustaining economic growth. A less dramatic example is India, where the central government eased borrowing constraints on state governments in 2009 and 2010.

Global economic growth recovered in 2010 but slowed in 2011. Serious concerns have emerged that the relatively fast-growing economies are also beginning to experience a downturn. In view of these trends, the IMF’s 2012 assessments recommend a gradual fiscal adjustment, cautioning governments against drastic cuts in their deficits and spending, lest they exacerbate the contraction. This advice is based on the conclusion drawn from empirical studies that the “fiscal multiplier” is especially large during times of crisis.

Over the past decade, subnational spending as a share of government spending increased in many federal countries (Ter-Minassian and Fedelino 2010). The change has important implications for the size of fiscal multipliers and their impact on the national economy and for policy/institutional reform for improved coordination across government levels in implementing a harmonized crisis response.

This paper is a follow-up to a research project carried out at the World Bank on the macroeconomic impact of the Great Recession in developing countries. The results of that project, which focused on the macroeconomic events of the 2008–09 crisis and national

policy responses in 10 developing countries, are reported in Nabli (2010). The focus here is on the policy responses by subnational governments in India and a comparative analysis of the three largest developing economies (Brazil, China, and India). This paper reviews recent research and draws on the lessons learned from practical experience in advising policy makers in subnational governments in developing countries to examine the question of subnational fiscal response to the recent crisis.

Conceptual Framework

The widening of government deficits during a period of economic downturn is generally the result of two sets of factors: (a) automatic effects on revenues and expenditures (known as automatic *stabilizers*, because they counteract the decline in demand) and (b) discretionary countercyclical policy measures including tax cuts and public spending increases to stimulate aggregate demand. Revenues automatically slow down or decline when economic activity slows; some expenditures, such as unemployment benefits and other demand-driven social programs, automatically rise when employment slows or declines. The second set of factors is the outcome of deliberate fiscal policy response on the part of governments at the central, state/provincial, and local levels. The existence of fiscal rules and the stance of monetary policy (high or low interest rates) also affect the size of national and subnational deficits.

The size of fiscal multipliers depends on the composition of fiscal expansion and the initial conditions of the economy (box 2). There is a broad consensus in the literature that fiscal expansion through higher spending has larger multiplier effects than expansion through a tax cut, because additional disposable income from tax cuts may not be fully spent. Some portion is saved, depending on the income level of the beneficiary of the tax cut; the additional saving may not create additional investment demand in a poor investment climate.

An increase in government capital spending tends to have a larger multiplier effect than increases in recurring expenditures (Ducanes and others 2006). Within recurrent government spending, the multiplier effect may be smaller for salary expenditures than for the purchase of goods and services (because employees may save part of their additional income). If a large share of the government wage bill goes to clerical or midlevel staff with a high propensity to spend additional income on consumer durables—as, for example, in India

during 2009—an upward revision of salary scales could have a significant impact on private consumption demand in the short run.

Box 2 How Large Is the Fiscal Multiplier?

The effect of fiscal expansion on output is referred to as the *fiscal multiplier*. It is measured by the unit change in output or GDP per unit change in government expenditure, other determinants of output remaining unchanged:

$$F = \partial Y / \partial G$$

Where F = fiscal multiplier, Y = income or GDP, and G = government expenditure. Large standard errors of estimation have prevented researchers from pinning down precise estimates of the value of F . Recent estimates range from negative to more than one (Spilimbergo and others 2008). Calculating the fiscal multiplier is difficult because there is no simple way to control the “fiscal experiment” (Barro and Redlick 2011; Christiano, Eichenbaum, and Rebelo 2009)—that is, to separate the impact of changes in government spending from changes in other variables that simultaneously affect changes in income, through various channels.

Estimates of fiscal multipliers depend on the methodology, period, initial conditions, and controls applied. Study of the experience in the United States suggests that deficit-financed state government spending has a lower multiplier than windfall-financed spending, because deficit-financed state spending tends to crowd out private consumption and investment (referred to as *Ricardian equivalence*). However, in periods of stagnant or declining consumption and investment demand, deficit-financed government spending does not crowd out private demand. The multiplier is therefore larger than during boom times.

A survey of empirical evidence suggests that for the 2008–09 stimuli by the G20, the low set of multipliers was 0.3 for revenue, 0.5 for capital spending, and 0.3 for other spending; the high set of multipliers was 0.6 for revenue, 1.8 for capital spending, and 1.0 for other spending (Spilimbergo, Symansky, and Schindler 2009). For a sample of 102 developing countries, the one-year government spending multiplier resulting from borrowing from official creditors is estimated to be about 0.4 (Kraay 2012). In emerging markets, where fiscal space is large, the safety net shallow, and infrastructure deficits great, the effects of

fiscal policy are greater than in advanced economies (Aizeman and Jinjara 2010). However, the cumulative (multi-period) multipliers tend to be smaller for emerging markets than for advanced economies as the positive impact of an increase in government expenditures on GDP tends to fall off quickly (Ilzetki, Mendoza, and Vegh, 2011). Also, the size of public spending multipliers tends to be much smaller (zero or even negative) in highly indebted countries due to crowding out of private investment.

Source: Fardoust, Lin and Luo (2012), and review of literature by authors.

Some researchers find that expenditure on infrastructure investment and transfers targeted at the poor have the largest fiscal multipliers among all categories of government spending (Horton, Kumar, and Mauro 2009). Other researchers point to the inherently medium- to longer- term nature of infrastructure investments. Implementation takes time, and due processes need to be followed in appraising and selecting investment projects.

Government revenues at all levels generally follow a procyclical pattern: they automatically grow faster during economic upswings and slower during downturns. For a particular subnational government, revenue growth depends on both (a) its own tax revenue base, related to GDP within its region, and (b) the transfer of resources from the central government, in the form of a share of central taxes, central grants, or both.

The distribution and timing of the impact of the economic slowdown on revenues depends on the division of taxing powers between the levels of government. In countries where states/provinces rely mainly on their own revenues (for example, the United States), subnational government revenues could vary because of differences in regional economic growth. Where subnational governments rely largely on central transfers (for example, Mexico), the revenue impact is more uniform across regions. In this case, subnational government revenues are driven mainly by GDP at the national level and its impact on central revenues.

The situation is more complicated when there is large variation across subnational governments within a country in terms of their dependence on central transfers (for example, Brazil, India, and to a lesser extent, China). In the countries of the Organization for Economic Co-operation and Development (OECD), subnational government revenues react

later to economic cycles than do the revenues of the central government, with a lag of about one year (Blochliger and others 2010).

Total resources available to be spent by a state/provincial government are the sum of its total revenues and net borrowing capacity. Whether a government spends to its full capacity, however, depends on its constitutional mandate to spend on specified goods and services and the incentives governing its spending decisions, including fiscal responsibility laws, borrowing rules, and rewards for fiscal prudence. Although the subnational government

Box 3 What Determines Subnational Government Spending?

The structure and institutional framework of subnational finances differ markedly from national government finance in at least two important ways. First, because expenditures are more decentralized than revenues in many countries, most subnational governments rely on intergovernmental transfers, revenue sharing, or both for a significant part of their total revenues. Second, many subnational governments operate under balanced budget rules and face strict limits on borrowing from domestic or external sources (external sources generally come through the central government). In general, a subnational government spends in pursuit of developmental outcomes in its own jurisdiction and to contribute to national economic growth. It may or may not link its own spending with output growth in its own jurisdiction. Because subnational economies are open to trade within the country, a state/province's own multiplier ($\partial Y_i / \partial G_i$) will not be large, and cross-multipliers ($\partial Y_i / \partial G_j$, where i is different from j) will be significant. Irrespective of the size of its own multiplier, a second-tier government in a large federal country is interested in achieving its targeted ∂G_i for developmental reasons.

Let R denote government revenue, G government expenditure, and FD the fiscal deficit. For a subnational government that faces a limit FD^* on its deficit because of its borrowing constraint and seeks to spend a desired or budgeted G^* ,

$G = G^*$, if $G^* < R + FD^*$ (additional borrowing compensates revenue shortfall)^a

$G = R + FD^*$, if $G^* > R + FD^*$ (expenditure constrained by available financing).

The fiscal policy response of subnational governments will thus be procyclical during a downturn as long as government revenues are procyclical, unless (a) there are additional compensating transfers from the central government, (b) withdrawals from contingency (rainy day) funds, or (c) adequate flexibility in the borrowing rules for subnational governments to respond to cycles within sustainable limits.

a. The condition is that $R^* - R$, the revenue shortfall, is less than $FD^* - (E^* - R^*)$, the additional borrowing capacity, which translates into $R - R^* > E^* - FD^* - R^*$. Dropping R^* and reversing the order yields $E^* < R + FD^*$.

Source: Authors.

budgets a certain level of expenditure based on estimated revenue and a borrowing target, it will not be able to meet its spending target if revenue falls short of the budget estimate by more than the room it has for borrowing in excess of its budget target (Box 3).

Aggregate subnational debt in 2010 was about 16 percent of GDP in Brazil and 27 percent in both China and India. The scope of subnational governments contributing to countercyclical fiscal policy is determined by the level of debt and interest rates facing individual subnational governments. Some governments may be able to contribute more than others to aggregate fiscal expansion. Short-term stabilization as well as the pursuit of medium- and long-term goals require that governments at least avoid unplanned cuts in developmental expenditure—something that could be considered a minimum target for subnational fiscal policy during an economic downturn.

The Global Crisis and Subnational Finances

After a decline of about 4 percent in 2009, real GDP grew in the advanced economies, by 3.0 percent in 2010 and 1.6 percent in 2011 (table 1). Emerging economies, which contracted by more than 5 percent in 2009, rebounded almost to pre-crisis rates of growth in the following two years.

The strong recovery in emerging economies resulted in multiple growth poles, which helped support the global recovery. This rebound in large part reflected these countries' relatively healthy initial economic conditions, which allowed them to implement countercyclical

policies. The impact was magnified in large federal countries where subnational governments were also enabled to enhance their spending.

The crisis hit most developing countries through a decline in demand for exports, a freeze in credit, and a slowing or reversal of capital inflows. The most visible shock to emerging economies was through the export channel. As the U.S. economy came to a standstill, exports in several emerging economies collapsed. In general, tradable goods and services suffered significant deceleration or decline; nontradable commodities were affected much less. As a result, the more integrated the economy of a country with the global market, the greater the negative impact of the crisis on its growth.

The impact on output was most acute in Mexico, which is highly dependent on the U.S. market and has a large share of exports in its GDP. In Brazil, growth rebounded quickly, partly because of its more diversified production base and export destinations and the large share of domestic consumption in aggregate demand. China and India also recovered quickly, assisted by counter-cyclical fiscal and monetary policies. However, the recovery has not been sustained either in advanced or emerging economies, with 2012 growth rates projected well below pre-crisis levels (table 1).

Table 1 Real Annual Change in Gross Domestic Product in Advanced, Emerging, and Low-Income Economies, 2003–12 (percent)

<i>Type of economy</i>	<i>2003–07 average</i>	<i>2008</i>	<i>2009</i>	<i>2010</i>	<i>2011 (estimated)</i>	<i>2012 (projected)</i>
World	3.0 ^a	2.8	−0.7	5.1	3.8	3.3
Advanced economies	2.4 ^a	0.3	−3.7	3.1	1.6	1.3
Emerging economies	6.2 ^a	5.3	0.8	7.9	6.1	—
Brazil	3.8	5.1	−0.3	7.6	2.7	1.5
China	11.0	9.6	9.2	10.4	9.2	7.8
India ^b	8.9	6.7	8.2	9.6	6.8	4.9
Mexico	3.3	1.5	−6.2	5.4	3.9	3.8
Low-income economies	6.8 ^a	6.1	4.5	6.8	7.0	—

Sources: IMF 2012; OECD 2012.

Note: — not available.

a. 2000–07 average.

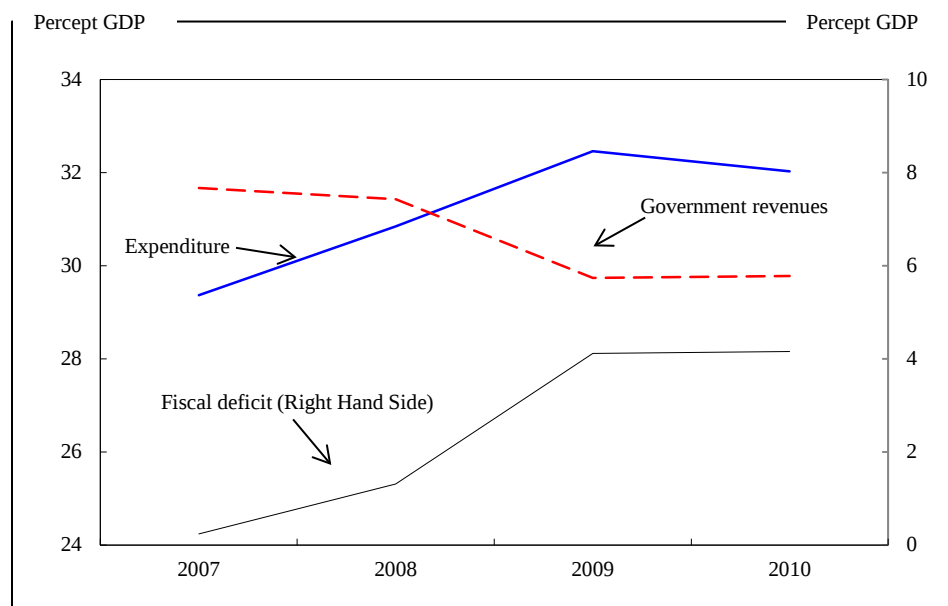
b. Fiscal year starting April 1, 2008.

An empirical exercise undertaken for India by the Reserve Bank of India (2012) estimates that short-term impact multipliers for current and total expenditures are relatively small

(about 0.5). In contrast, the long-term multiplier associated with public infrastructure investment is estimated to be large (about 2.5). These are econometric estimates using the vector auto regression (VAR) methodology². An Inter-American Development Bank study using a multi-country dynamic general equilibrium model simulation suggests that absent the fiscal stimulus, China's GDP would have been 2.6 percentage points lower in 2009 and 0.6 percentage points lower in 2010 (Cova, Pisani, and Rebucci 2010). An input-output analysis shows that the short-term multiplier is 0.84 and the medium-term multiplier 1.1 (He, Zhang, and Zhang 2009). The IMF estimates that fiscal stimulus raised China's GDP 1.5–2.25 percentage points in the first half of 2009 (IMF 2009). Other estimates suggest that it boosted real GDP growth from an annualized low of 6.2 percent in the first quarter of 2009 to 11.9 percent in the first quarter of 2010 (Deng and others 2011).

The international community supported emerging economies' countercyclical policies, the fiscal component of which is captured in figure 1. In 2009 and 2010, the IMF disbursed \$57 billion. The World Bank disbursed \$48 billion during the two-year period.

Figure 1 Countercyclical Fiscal Policy Response by Emerging Economies, 2009–10



Source: Development Committee 2010.

² A VAR model estimates the impact of one variable on another assuming that every variable is a linear function of its own past (lagged values) and the past patterns of all other variables, unlike structural models that are based on the formulation of a specific structure of relationships based on economic theory.

Fiscal deficits widened significantly in almost all countries during 2009, as a result of both automatic effects and countercyclical policy responses. The extent of fiscal expansion was larger in advanced economies than in emerging economies; it was smallest in low-income economies (table 2). However, economic growth in 2010 and 2011 was no stronger in advanced economies than emerging economies, suggesting that fiscal stimuli may have worked more efficiently in emerging economies, in the sense that recovery was accomplished with smaller fiscal expansion than in the advanced economies.

Table 2 General Government Fiscal Balance in Selected Economies, 2007–12
(Percent of GDP)

<i>Type of economy</i>	<i>2007 (precrisis)</i>	<i>2008</i>	<i>2009</i>	<i>2010</i>	<i>2011</i>	<i>2012 (projected)</i>
Advanced economies	–1.9	–3.5	–8.9	–7.8	–6.6	–5.9
Germany	–0.5	–0.1	–3.2	–4.1	–0.8	–0.4
Japan	–2.5	–4.1	–10.4	–9.4	–9.8	–10.0
United States	–2.9	–6.7	–13.3	–11.2	–10.1	–8.7
Emerging economies	0.2	0.0	–4.5	–3.2	–1.8	–1.9
Brazil	–2.5	–1.3	–3.0	–2.7	–2.6	–2.1
China	0.9	–0.7	–3.1	–1.5	–1.2	–1.3
India	–5.2	–8.7	–10.0	–9.4	–9.0	–9.5
Mexico	–1.4	–1.1	–4.7	–4.3	–3.4	–2.4
Low-income economies	—	–1.0	–3.9	–2.0	–1.9	–3.4

Sources: IMF 2009, 2012.

Note: — not available.

The movement in the general government fiscal balance is the result of combined net public spending at the national and subnational levels. The combined deficit peaked in 2009 in almost all countries, after which there was some fiscal contraction. Expansionary fiscal stance could not be sustained in most cases, either because of the pro-cyclical behavior of subnational finances or because of already high fiscal deficit and debt levels before the crisis.

The capacity for further fiscal stimuli is related to the level of public debt and the need to contain it within sustainable limits. Emerging and lower-income countries are less debt stressed than advanced economies, and China is significantly less debt stressed than other emerging economies (table 3). However, this assessment needs to be reviewed in the light of full information, not yet available, on the considerable contingent liabilities of national and provincial governments in China, which are excluded from table 3.

**Table 3 Gross Government Debt, by Type of Economy, 2007–12
(Percent of GDP)**

<i>Type of economy</i>	<i>2007 (precrisis)</i>	<i>2008</i>	<i>2009</i>	<i>2010</i>	<i>2011</i>	<i>2012 (projected)</i>
Advanced economies	74.5	81.5	95.2	101.4	105.5	110.7
Germany	65.4	66.9	74.7	82.4	80.6	83.0
Japan	183.0	191.8	210.2	215.3	229.6	236.6
United States	67.2	76.1	89.7	98.6	102.9	107.2
Emerging economies	35.5	33.6	36.1	40.5	37.0	34.8
Brazil	65.2	63.5	66.9	65.2	64.9	64.1
China	19.6	17.0	17.7	33.5	25.8	22.2
India	75.5	74.1	74.2	68.0	67.0	67.6
Mexico	37.6	43.0	44.5	42.9	43.8	43.1
Low-income economies	44.0	41.1	44.1	42.8	41.1	42.5

Source: IMF 2012.

Comparison of Brazil, China, and India

This section compares the experience of three of the largest developing countries, Brazil, China, and India. It begins with a brief overview of the framework of fiscal federalism. It then describes how the global crisis affected each country and how each country responded to the crisis, focusing on the role of subnational fiscal policy.

Framework of Fiscal Federalism

Subnational governments have significant spending responsibilities in all three countries. However, taxing powers vary a great deal, as does the degree of dependence on central transfers. There are also marked differences in the political framework affecting the relations between the national and subnational governments.

The fact that subnational governments undertake the bulk of consolidated government spending is sometimes mistakenly interpreted as a high degree of decentralization in China. The degree of fiscal devolution depends primarily on taxing powers, which are highly centralized in China, which is a unitary state with some federal features (Bahl and Martinez-Vazquez 2003). In comparison, state governments in Brazil and India enjoy significant

autonomy in raising their own revenues. They are also managed by different parties, elected through multiparty electoral contests, unlike in China.

In China, a first set of reforms in the 1980s cut government tax revenue as a share of GDP and sharply reduced the share of the central government. A second set of reforms, implemented in 1993–94, led to the recentralization of revenue-raising powers. Meanwhile, spending responsibilities were progressively devolved to provincial and municipal governments. In 1978, the central government collected only 15 percent of total revenue while incurring 47 percent of total expenditure; by 2007 these shares had changed to 54 percent and 22 percent, respectively. The ratio of central transfers (both mandatory and discretionary) to sub-national revenue, called the *dependence ratio*, rose to 43.6 percent by 2007³.

States in India have the power to levy and collect a state value added tax (VAT), liquor excise duty, stamp duty on real estate transactions, road transport taxes and registration fees, entertainment taxes, and electric power tax. They are still significantly dependent on central transfers, with the average dependence ratio at 37 percent in 2008. The dependence ratio ranged from 22 percent in the relatively prosperous state of Punjab to 64 percent in the poor state of Bihar. It was less than 30 percent in 7 of the 14 major states.

In Brazil, state governments are less dependent on transfers from above than they are in India or China. The average dependence ratio of Brazilian states is 24 percent. States have the single largest tax instrument at their command, the ICMS (*imposto sobre a circulacao de mercadorias e servicos*), a value added tax. Municipalities have important spending responsibilities and are highly dependent on transfers from higher-level governments, with an average dependence ratio of 77 percent. Municipalities with fewer than 20,000 inhabitants—more than 70 percent of all municipalities—raise less than 5 percent of their expenditure needs from their own taxes.

The 1993–94 reforms in China attempted to move away from ad hoc negotiated intergovernmental transfers toward a more rules-based and somewhat more transparent mechanism. In particular, a system of general purpose grants was introduced aimed at fiscal

³ Based on data provided in Table 3 on page 16, IMF 2009.

equalization, linked to such factors as provincial GDP, the number of civil servants, and population density. However, these general purpose grants make up only 30 percent of total transfers (5.5 percent of GDP). The bulk of transfers remain specific purpose grants, comprising hundreds of earmarked schemes, distributed among the provinces on an ad hoc negotiated basis that makes the transfer system highly nontransparent. The center lacks the ability to monitor actual spending from earmarked transfers.

States in India receive central resource transfers in two forms. They receive mandated shares of total central tax collections (from customs and excise, personal income, and corporate taxes) based on formulas that are preset for five-year periods by the Finance Commission, a constitutional body that is appointed afresh every five years. States also receive central grants, made up of a small mandated portion and a large discretionary portion, distributed mainly according to absorptive capacity and sometimes by partisan political considerations. In 2010, the central government transferred 36 percent of its revenue collections to the states, of which 54 percent was in the form of tax sharing and 46 percent in the form of grants. Typically, different parties are in charge of different state governments; parties close to the party in power at the center derive some advantage in the distribution of some discretionary central transfers.

Brazil's complex system of intergovernmental transfers, accounting for 7.0 percent of GDP in 2010, consists of federal to state (2.3 percent of GDP), federal to municipal (2.6 percent) and state to municipal (2.1 percent) transfers, financed by well-defined revenue-sharing mechanisms. Mandatory unconditional transfers account for the bulk of these (5.1 percent of GDP), followed by mandatory conditional transfers (1.7 percent). Both types of transfers are based on revenue sharing; as a result, they move in tandem with revenue collections and are hence pro-cyclical. Discretionary federal grants, which could potentially play a countercyclical stabilizing role, are only 0.2 percent of GDP, around 3 percent of all intergovernmental transfers.

In China, legal prohibition on borrowing induces provincial governments to resort to extra-budgetary means of financing, which are excluded from official government financial accounts. Extra-budgetary spending by subnational governments is reported to have been Y6.3 billion in 2007, 16.4 percent of subnational government on-budget expenditures that

year. This off-budget spending was carried out by urban investment companies hired by subnational governments and financed largely by domestic bank loans.

India's constitution permits external borrowing only by the central government. As long as a state owes money to the central government, its domestic borrowing requires central approval. Fiscal responsibility legislation enacted by all Indian state legislatures commits them to gradually close the deficit on current account. The national government sets annual borrowing ceilings for each state consistent with a sustainable medium-term fiscal framework. States whose interest burden exceeds 20 percent of revenue are deemed to be "debt-stressed states"; they are subjected to stricter controls and closer monitoring of their new borrowings.

The subnational debt crisis in Brazil during the 1980s and early 1990s resulted in bailout operations from the central government and created a moral hazard. A new framework emerged through debt-restructuring negotiations, resulting in the Fiscal Responsibility Law 2000 and Senate's Resolutions 2001. This new framework mimics market discipline through a rule-based system in controlling subnational government (SNG) indebtedness, insofar as creditors are well aware that bailout operations are no longer possible, and lending to financially weak governments may lead to losses. The Fiscal Responsibility Law sets a limit of 200 percent on the debt to net current revenue ratio (current revenue net of certain national government transfers). There is a legal limitation on the amount of new debt flows and a strict limit of 11.5 percent on the debt service to net current revenue ratio. A loan request from a state or municipality is subject to scrutiny by the Ministry of Finance, to ensure compliance with the limits and conditions set by the Senate; and domestic banks are free to reject any loan request. There are also rules set by the National Monetary Council limiting domestic bank credit to the public sector.

Impact of the Global Crisis

The impact of the crisis in 2008 and 2009 depended on the composition of aggregate demand, especially the share of net exports and the degree of dependence on external capital flows and credit. The financial system was regulated in all three countries to an extent that prevented any significant exposure to toxic assets.

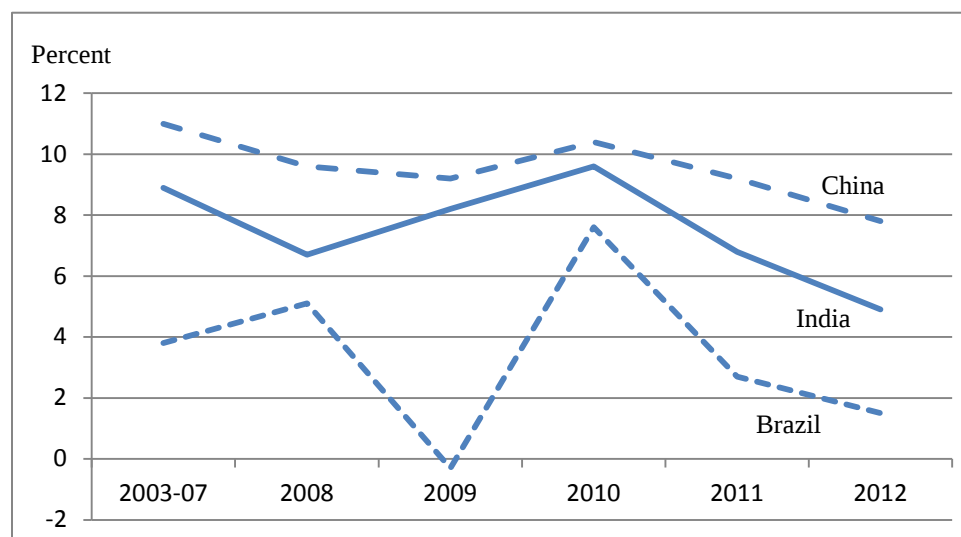
All three countries were initially affected by the collapse in export demand. China was hit hardest, with exports falling 25 percent in the first half of 2009 compared with the same period the previous year, leading to an estimated 20–36 million people losing their jobs. India’s exports, which grew 28 percent in 2007, fell 19 percent between October 2008 and March 2009. Brazil, whose exports grew at an average annual rate of 14 percent during the pre-crisis boom, posted double-digit declines in the months following September 2008.

Foreign direct investment fell in China from \$143 billion in 2007 to \$70 billion in 2009, before recovering to \$186 billion in 2010. In India, portfolio investment flows fell from an annual average of \$45 billion during 2003–08 to \$16 billion in 2009. In Brazil, such flows shifted direction, with an outflow of \$23 billion between September 2008 and March 2009.

Brazil was most affected through the credit channel. The disruption in the international credit markets led to a drop in investment and GDP contracted in 2009. In India, the global crisis occurred after a downturn in the domestic investment cycle had already begun; as a result, the negative impact on growth was magnified.

The immediate impact on growth was most severe in Brazil; the impact over three to four years has been equally severe in India (figure 2).

Figure 2 Real Annual Changes in Gross Domestic Product in Brazil, China, and India, 2003–12



Source: Table 1 above.

The growth deceleration would have been much steeper without any fiscal stimulus, especially in China and to a lesser extent in India. Private consumption demand proved very resilient in Brazil; as a result, aggregate demand was less of a binding constraint than the availability of credit.

During the pre-crisis boom period of 2003–07, economic growth in both China and India was driven largely by investment demand and export demand. By contrast, the leading driver of economic growth in Brazil was private consumption demand. In such conditions, the expansion of public consumption, with increases in salaries of government employees spurring private consumption, was effective in spurring a quick recovery in economic growth.

Table 4 compares real per capita growth in states' own revenues before and after the global crisis. In all three countries, growth seems to have become more volatile, reflected in an increase in the distance between minimum and maximum rates of growth among states/provinces.

Table 4 Annual Changes in States' Own Real per Capita Revenue in China, India, and Brazil, 2003–10 (Percent)

	<i>China</i>		<i>India</i>		<i>Brazil</i>	
<i>Change</i>	<i>2005–07</i>	<i>2008–10</i>	<i>2003–07</i>	<i>2008–10</i>	<i>2005–07</i>	<i>2008–10</i>
Maximum	37	41	15	17	20	25
75th percentile	26	24	10	9	13	15
Median	22	20	8	8	8	10
25th percentile	18	15	6	6	3	5
Minimum	11	5	0	0	–10	–7

Sources: IMF 2012 for China and Brazil; authors' estimates for India.

The median level fell by a few percentage points in China, remained unchanged in India, and rose by a few percentage points in Brazil. Comparison of the interregional distribution hides more than it reveals, however. The distribution may look similar in two periods during which

the identity of the fastest- and the slowest-growing states/provinces may have changed, as is evident in the detailed Indian case study presented below in the next section.

Policy Response

National governments responded with monetary and fiscal policy measures to counter the downturn in aggregate demand. The magnitude of the fiscal response varied according to need as well as capacity. China launched by far the most massive multiyear stimulus, followed by India and Brazil in descending order of magnitude.

The total size of the multiyear stimulus package in China was close to \$600 billion (¥4 trillion), about 12.5 percent of 2008 GDP. The projects and programs underpinned by the stimulus were implemented over a period of 27 months.

Table 5 Real Annual Changes in Expenditure by National and Provincial/Local Governments in China, 2009
(billion yuan, except where otherwise indicated)

	National Government			Provincial/Local Government		
	2008	2009	Real	2008	2009	Real
	< - - Billion yuan -			< - - Billion yuan -		
	- >		Growth a/	- >		Growth a/
National Defence	409.9	482.5	6%	8.0	12.6	42%
Public Security	64.9	84.6	17%	341.1	389.8	3%
Education	4.9	5.7	4%	851.9	987.0	4%
Science & Technology	107.7	143.4	20%	105.2	131.1	12%
Culture, Sports & Media	14.1	15.5	-1%	95.5	123.8	17%
Safety Net & Employment	34.4	45.4	19%	646.0	715.2	0%
Medical & Health Care	4.7	6.4	22%	271.0	393.1	30%
Environment	6.6	3.8	-49%	138.5	189.6	23%
Community Affairs	1.4	0.4	-76%	419.2	510.4	10%
Ag, Water & Forestry	30.8	31.9	-7%	423.6	640.2	36%
Transportation	91.3	106.9	5%	144.1	357.8	123%
All Others	563.6	599.2	-4%	1480.8	1653.8	0%
Total Gov. Expenditure	1334.4	1525.6	3%	4924.8	6104.4	11%
<i>a/ using implicit GDP deflator</i>						

Source: National Bureau of Statistics, China.

Note: Real growth rates were calculated using an implicit GDP deflator.

They included investments of about ¥1.2 trillion by the central government and ¥2.8 trillion of supporting investment projects and programs by provincial and county governments and nongovernmental entities, financed by loans from domestic banks. Infrastructure

development, post disaster reconstruction, and housing guarantees made up almost 75 percent of the stimulus package.

The fiscal balances reflect only transactions on budget; they omit public investments financed by the domestic banking system off budget, a large component in China. The increase in expenditure on budget was heavily concentrated at the subnational level (table 5). Among subnational expenditures, the steepest increase in 2009 was for transport infrastructure, followed by “agriculture, water, and forestry.” The two categories accounted for 36 percent of the increase in subnational expenditures. Health and education spending accounted for 22 percent.

Table 6 Real Annual Changes in Capital Spending in Indian States(percent)

<i>State</i>	<i>Percent of total spending by all states in 2010</i>	<i>2003–07</i>	<i>2009^a</i>	<i>2010</i>	<i>2008–10</i>
Andhra Pradesh	7.8	24.3	5.7	–15.2	–5.3
Bihar	7.1	17.9	9.6	23.1	16.1
Gujarat	5.4	17.5	–25.6	14.2	–7.8
Haryana	2.9	25.2	21.1	–32.9	–9.8
Karnataka	8.2	21.7	2.7	5.2	3.9
Kerala	2.3	14.4	2.0	23.4	12.2
Madhya Pradesh	8.8	15.5	27.9	3.9	15.3
Maharashtra	13.6	15.0	–13.7	–3.2	–8.6
Odisha (Orissa)	2.4	12.3	–15.6	18.2	–0.2
Punjab	1.0	30.9	–70.8	255.9	2.0
Rajasthan	2.7	14.5	–15.9	9.1	–4.2
Tamil Nadu	10.7	27.3	–42.2	111.8	10.7
Uttar Pradesh	11.4	27.3	7.0	–14.0	–4.1
West Bengal	4.6	8.3	–27.8	3.4	–13.6
All states	100.0	19.4	0.0	5.0	2.5

Sources: Reserve Bank of India state finances; individual state accounts; Central Statistical Organization.

a/ 2009 refers to fiscal year beginning April 1, 2009.

In India, pre-crisis fiscal stimulation measures—including increases in the food and fertilizer subsidy, a central pay hike, a farm debt waiver, and a national rural employment guarantee

program—amounted to 1.9 percent of GDP. This stimulus was complemented by three packages in three consecutive months starting in December 2008, each valued at about 0.6 percent of GDP. The aggregate fiscal stimulus amounted to 3.6 percent of GDP, consisting largely of expenditure measures (2.9 percent), including additional borrowing permitted for the state governments. In addition, there was the automatic impact of the decline in government revenues by 1.9 percent of GDP in 2009 and another 0.5 percent in 2010.

Current expenditures accounted for more than 85 percent of expenditure measures in India. Only a minority of the major states also increased capital spending. In all states taken together, real capital expenditure remained unchanged in 2009 and rose by 5 percent in 2010, less rapidly than national GDP (table 6).

In Brazil, fiscal expansion at the national level was partly counteracted by fiscal contraction by subnational governments in 2009. The fiscal deficit of the central government expanded 3 percentage points of GDP, reflecting both the operation of automatic stabilizers and discretionary stimulus measures, including temporary tax reductions and spending increases.

However, in 2009 the fiscal deficit of subnational governments (states and municipalities combined) contracted 1.3 percentage points of GDP, turning into a small surplus. The net effect was a fiscal expansion of only 1.7 percentage points.

Table 7 Real Annual Changes in Subnational Government Expenditures in Brazil, 2003–09 (percent)

<i>Expenditure</i>	<i>2003–07</i>	<i>2008</i>	<i>2009</i>
Education and culture	4.2	10.2	3.6
Health and nutrition	8.7	8.5	9.0
Social programs	8.1	20.0	14.1
Transport	8.1	21.7	15.0
Housing and urban	5.8	22.2	–7.9
Capital investment	7.5	33.8	0.1

Sources: National Treasury Secretariat, Government of Brazil; and authors' calculations.

As part of its policy response to the global crisis, the federal government raised the permissible borrowing limits for those states that met agreed fiscal targets; taken together, the

ceiling for states' borrowing was raised by Real 11 billion in 2008 and by an additional 17 billion in 2009. However, the net outstanding debt of all states combined remained unchanged in 2009, indicating that those states that were permitted to borrow more did not do so. Although spending on social programs continued to grow, housing and capital projects suffered (table 7).

The federal fiscal deficit narrowed in 2010 by 2 percentage points of GDP, while the deficit of subnational governments expanded by only 0.4 percentage point. States' outstanding debt rose but less than the permitted limit due to the time interval needed to contract and disburse a loan after the increase in borrowing room is allowed.

The composition of fiscal stimulus was similar in India and Brazil, dominated by current expenditure, including salary payments. In contrast, infrastructure investment dominated in China.

Economic growth recovered in 2010 in all three countries after having declined in 2009. In Brazil, the uptick was caused largely by the prompt monetary policy response to extend credit through public financial institutions to make up for the collapse in private credit flows. However, the recovery has been short lived, as economic growth decelerated during 2011 and 2012, more steeply in India and Brazil than in China (see figure 2).

The multiplier effect of fiscal expansion was largest in China, where the investment share was highest. This is consistent with the empirical finding that public investment expenditure has stronger and longer-lasting impact on economic growth than recurrent expenditure, as shown by recent estimates of fiscal multipliers for China, India, the G7 and G20 groups of countries (table 8). It should be noted that size of multiplier tends to be sensitive to the level of debt, with fiscal multiplier being close to zero or even negative in highly indebted countries (Ilzetki, Mendoza, and Vegh, 2012).

Recent analysis points to two factors that contributed to the unusually large multiplier effect of China's fiscal stimulus: "(a) the large marginal effects of government spending on investment, consumption, and in medium to long run on net exports and (b) the strong countercyclical nature of subnational government expenditures" (Fardoust, Lin, and Luo 2012, page 12).

Table 8 Estimates of the Size of Fiscal Multipliers in Brazil, China, India, and the G7 and G20 Countries

<i>Entity</i>	<i>Period</i>	<i>Size of multiplier</i>	<i>Source</i>
Brazil	Post 2008 (model simulation)	1.2 (public spending) 0.9 (tax revenue)	Araujo, Azevedo, and Costa (2012)
China	2008 global crisis	Short term: 0.84 Medium term: 1.10	He, Zhang, and Zhang (2009)
India	1980–2010	Short run (total expenditure): 0.55 Long run (capital expenditure): 2.41	Reserve Bank of India (2012)
G7	Since mid-1970s	High set: 0.6 for revenue, 1.8 for capital spending, 1.0 for other spending	IMF (2012)
G20	2008 global crisis	Low set: 0.3 for revenue, 0.5 for capital spending, 0.3 for other spending	Spilimbergo, Symansky, and Schindler (2009)

Source: Authors' compilation.

The overall budget deficit expanded in all three countries during 2009 and 2010 (table 9).

The fiscal expansion took place largely at the subnational level in China and India; subnational fiscal response was pro-cyclical in Brazil.⁴

China financed its stimulus package largely through expansionary monetary policy. A special program of long-term bank loans at concessional interest rates provided capital for investment projects undertaken by public enterprises with subnational government sponsorship. Some World Bank analysts (Vincelette and others 2010) have noted that failure of these capital projects to generate enough revenue could lead to bank failures or impose a heavy fiscal burden on central or provincial governments. The annual reports from the five largest commercial banks show 17.6 percent annual growth in the loan categories used for this purpose (Wolfe 2012). Substantial financing was also made possible by using local land

⁴ This is consistent with findings by Sturzenegger and Werneck 2008. Their results imply that spending of subnational governments in Brazil have been markedly procyclical (1992-2002) and that it can be largely attributed to the highly procyclical pattern of tax revenues directly collected by subnational governments.

as collateral, with the center's permission, raising concerns about the fiscal impact of a real estate bubble.

Table 9 Central and Subnational Overall Fiscal Balance in China, India, and Brazil 2008–10 (as percent of GDP)

<i>(Country/level of government)</i>	<i>2008</i>	<i>2009</i>	<i>2010</i>
<i>China</i>			
Central	6.0	5.2	6.7
Subnational	–6.6	–8.3	–8.3
General	–0.7	–3.1	–1.5
<i>India</i>			
Central ^a	–6.1	–6.6	–6.1
Subnational	–2.5	–3.3	–3.2
General ^a	–8.7	–10.0	–9.4
<i>Brazil</i>			
Central	–0.2	–3.1	–1.3
Subnational	–1.2	0.1	–0.3
General	–1.3	–3.0	–2.7

Sources: Official national data sources; IMF 2012.

a. General government balances are as reported by IMF, with central deficit duly adjusted.

In sum, the experience of China, India, and Brazil in responding to the global crisis of 2008 presents a mixed picture and raises various country-specific concerns. China scores high in terms of the composition of the fiscal stimulus and its multiplier effect on the economy; it scores low in terms of prudent financial management, with excessive reliance on off-budget domestic bank financing. India and Brazil score low in terms of the composition of fiscal stimulus and its (low) investment content. India scores high in enabling state governments to contribute to the stimulus within the limits of a sustainable fiscal framework. Slack credit demand from the private sector was a factor that enabled Indian states to access domestic bank credit, which was a binding constraint for the states in Brazil.

Although Brazil scores high in terms of protecting real spending levels on social programs in 2009, the procyclicality of subnational fiscal response, resulting from procyclical central transfers and limited access to credit, together imply that SNGs faced increasingly tight resource constraints since 2011.

A study by the IMF (2012) compares pre-crisis (2005–07) and post-crisis (2008–10) trends in subnational government finance in Australia, Brazil, Canada, China, Germany, Mexico, and

the United States. It notes that regional variation is greater in the emerging economies than in the advanced economies of North America and Europe, increasing the challenge of enabling a countercyclical subnational fiscal response.

The possibility that different regions experience the growth cycle differently (that is, their troughs and peaks occur at different times) calls into question the conventional wisdom that stabilization, including countercyclical fiscal policy, is best left to the federal government, with central transfers the main instrument for expanding or contracting subnational fiscal space to counter the cycle⁵. Central grants may be used with inter-temporal flexibility, but their movement is generally uniform across subnational entities—that is, they are expansive for all or restrictive for all subnational governments in any particular year. This issue of the unevenness of fiscal stress and the inadequacy of central grants to address the problem is explored in the Indian case study below.

Case Study of Indian States

Annual economic growth in India had accelerated to 8.0 percent during 2002–07, up from 5.5 percent the previous four years. The surge was driven mainly by a boom in private domestic investment (which grew at an average annual rate of 17 percent), accompanied by a sharp rise in corporate profits and a surge in private capital inflows. A cyclical downturn in investment had already begun when the global crisis broke out in 2008⁶. Exports, which had grown by more than 25 percent a year during the boom period, fell dramatically. Bank credit decelerated and external financing dried up, although foreign direct investment remained relatively buoyant⁷.

The pattern of growth experienced by individual states in 2008 and 2009 varied depending on their degree of global integration and differing composition of aggregate demand. Broadly speaking, among the largest 14 states, which account for 87 percent of India’s population and 85 percent of its aggregate GDP, one pattern is evident in the eight major coastal states and

⁵ This recommendation was made, for instance, by the 13th Finance Commission of India, submitted in 2009/10 and covering the period 2010–15.

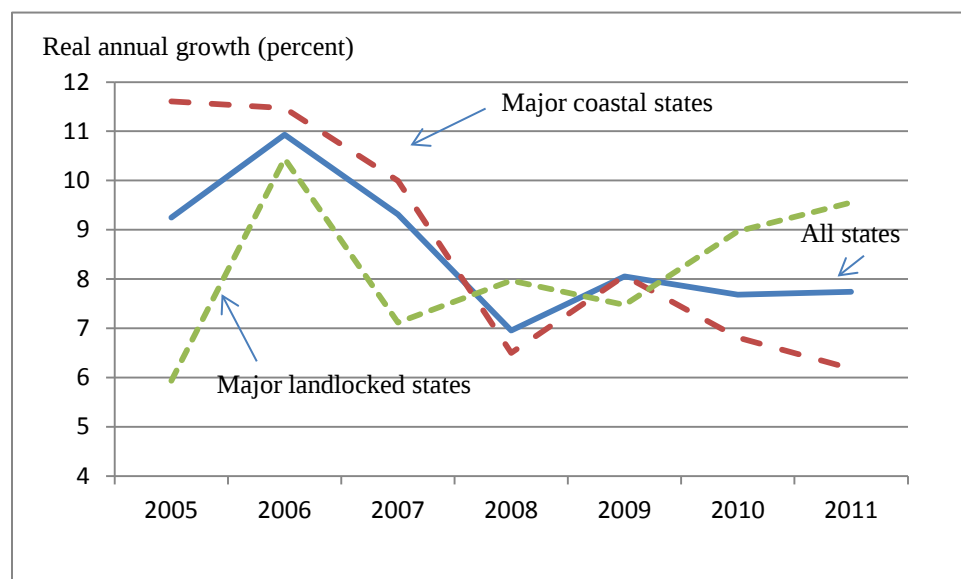
⁶ The Indian fiscal year runs from April to March; 2008 refers to the fiscal year beginning April 1, 2008.

⁷ This summary is based on the detailed analysis by Dipak Dasgupta and Abhijit Sen Gupta in “India: Rapid Recovery and Stronger Growth after the Crisis”, Chapter 6 of Nabli (2010),

another in the six major landlocked states⁸. The difference in the timing of the impact reflects the structure of interstate economic transactions in a country of wide regional diversity (figure 3).

The decline in exports had an immediate negative impact on the coastal states, leading to a sharp deceleration of growth to 6.5 percent from 10.0 percent and higher in the previous three years. Growth deceleration was less steep at the national level, because growth in the landlocked states accelerated in 2008 to 8 percent, up from 7 percent the previous year. The negative impact of the global crisis caught up with these states only in 2009, when growth declined by a relatively mild 0.5 percent.

Figure 3 Economic Growth in Coastal and Landlocked States of India, 2005–11



Source: Central Statistical Organization, Government of India.

Note: Figures are based on gross state domestic product at constant 2004/05 prices.

The landlocked states have a disproportionately large share of agriculture and production of nontradable commodities in their output (where “nontradable” refers to India’s external trade). Growth in these states is driven more by national demand than by export demand.

⁸ The eight major coastal states are Andhra Pradesh, Gujarat, Karnataka, Kerala, Maharashtra, Odisha (Orissa), Tamil Nadu, and West Bengal. They account for 47 percent of the population and 58 percent of national GDP. The six major landlocked states are Bihar, Haryana, Madhya Pradesh, Punjab, Rajasthan, and Uttar Pradesh. They account for 40 percent of the population and 27 percent of national GDP.

They could also be driven more by consumption than by investment demand, a hypothesis that is difficult to test with the available data. In states with large shares of agriculture in output, rainfall and floods also affect growth.

The immediate impact of the global crisis was an absolute decline in labor-intensive exports in the coastal states, leading to significant loss of jobs. The cyclical downturn in domestic private investment further accentuated the impact. Drops in incomes in the coastal states dampened domestic demand and retarded output growth in the landlocked states, to a lesser degree and with a time lag. Although agricultural growth decelerated during 2009 and 2010, rising food prices improved the terms of trade for farmers, muting the impact on farm incomes.

Table 10 Real Annual Changes in Gross State Domestic Product and Own Revenue in Major Coastal and Landlocked States in India, 2007–10 (Percent)

<i>States</i>	<i>Gross state domestic product (GSDP)</i>				<i>Own revenues</i>		
	<i>2007</i>	<i>2008</i>	<i>2009</i>	<i>2010</i>	<i>2008</i>	<i>2009</i>	<i>2010</i>
Major coastal	10.0	6.5	8.1	6.8	9.3	-0.8	16.2
Major landlocked	7.1	8.0	7.5	9.0	-1.8	13.3	13.6
All ^a	9.3	7.0	8.1	7.7	5.0	4.1	14.5

Sources: (i) Central Statistical Organization; (ii) Reserve Bank of India; (iii) Individual state budgets and finance accounts.

a. GSDP growth rate is different from national GDP growth rate in table 1 because defense and central public administration are included there and excluded here.

The movement in states' own revenues reflected the difference in impact in coastal and landlocked states. In the coastal states, economic growth deceleration in 2008 resulted in the deceleration of own revenue growth in 2009. In the landlocked states, growth accelerated in 2008, and revenues rose in 2009. In 2008 and in 2009, states' own revenue moved in opposite directions for these two groups of states (table 10).

Comparing the postcrisis years (2009 and 2010) with the precrisis period (2003–07), annual growth in states' own revenue decelerated only slightly, from 10.2 percent to 9.2 percent. This aggregate picture hides significant variation, however: own revenue growth declined by more than 5 percentage points in some coastal states (Andhra Pradesh, Odisha, Tamil Nadu,

and West Bengal) and rose by more than 7 percentage points in some landlocked states (Bihar, Haryana, and Madhya Pradesh).

Central transfers, state expenditures, and fiscal deficits are not influenced by geographical location; hence the distinction between coastal and landlocked states is not relevant in analyzing the movement of these variables. Central transfers are made up of mandated shares in central taxes and central grants.

Table 11 Real Annual Changes in Central Transfers in India, by State, 2009–10 (percent)

State	Shared central taxes		Central grants		Total central transfers	
					Precrisis	Postcrisis
	2009	2010	2009	2010	2003–07	2009 and 2010
Andhra Pradesh	–4.8	–3.7	10.4	–20.5	12.8	–5.1
Bihar	–3.3	23.7	–10.7	20.4	15.0	7.6
Gujarat	–2.9	6.4	–21.1	6.4	8.7	–2.5
Haryana	–4.3	21.0	65.1	–4.0	10.7	17.4
Karnataka	–4.6	20.5	37.1	–18.7	16.4	6.5
Kerala	–1.5	0.8	–20.4	–15.2	12.5	–6.7
Madhya Pradesh	–4.0	16.0	6.2	17.4	15.9	7.7
Maharashtra	–6.7	33.9	–11.1	–3.4	32.6	1.0
Odisha (Orissa)	0.0	13.6	7.7	9.8	13.0	7.4
Punjab	–2.2	34.5	30.1	–2.3	23.2	13.8
Rajasthan	–5.3	28.2	–15.9	7.8	12.6	4.7
Tamil Nadu	–4.6	20.5	–28.3	19.9	13.9	0.9
Uttar Pradesh	–6.0	29.5	36.2	–14.2	17.3	9.7
West Bengal	–4.3	18.1	–10.9	13.3	10.9	4.3
Small and special category states	–4.5	30.4	20.9	–2.0	16.5	9.8
All states	–4.7	21.2	8.0	–2.2	16.1	5.4
Major coastal states	–4.5	15.6	–4.6	–2.3	14.5	1.4
Major landlocked states	–5.1	25.9	12.7	1.9	17.9	8.6

Sources: Reserve Bank of India state finances; individual state accounts; Central Statistical Organization.

The share of states in aggregate central tax collections remains fixed for five years at a time, as recommended by the Finance Commission. As 2009 was the last year of the award period of the 12th Finance Commission, all states experienced a similar movement in shared central taxes. In 2010, the first year of the new award period, when the formula for interstate distribution is determined afresh, growth over the previous year varied widely across states, ranging from close to zero to 30 percent (table 11).

Central grants are a combination of discretionary grants (for both general and specific purposes) and a small number of mandatory grants. For all states taken together, a real decline of about 4 percent in shared taxes was roughly compensated for by an 8 percent real increase in central grants in 2009, so that total central transfers remained almost constant in real terms. In 2010, the first year of a new award period, shared central taxes rose 20 percent in real terms, reflecting the fact that the 13th Finance Commission raised the states' share. Central grants declined 3 percent; the combined effect was a real increase in central transfers of 9 percent, a larger increase than the change in real GDP. However, the real rate of growth in central transfers slowed, falling sharply from 14.5 percent before the crisis to 1.4 percent after the crisis in the major coastal states (table 11), which are also the states that suffered more from the declines in own revenues.

Eight of India's 14 major states, including both coastal and landlocked states, managed to maintain or accelerate their expenditure growth (table 12). An important factor underlying the growth in states' expenditures was the timing of the adjustment in civil service pay scales, which occurs every 10 years. The award of the Sixth Central Pay Commission happened to be announced close to the time the global crisis broke out, raising the salary scale by about 20 percent on average. The impact on central spending was 0.5 percent GDP⁹. As always, pressure by employees' unions made sure that upward adjustment of central pay was followed by similar hikes in all states. The payments were made in 2009 and 2010, backdated to 2007, resulting in a large lump-sum addition to the disposable income of about 20 million central and state-level public employees, amounting to about 1.5 percent GDP. This adjustment contributed to consumption-led economic growth in the short run.

In Bihar, Madhya Pradesh, Odisha (formerly Orissa), Tamil Nadu, and West Bengal, accelerated total expenditure growth was achieved through significant expansion of the fiscal deficit. These states used the additional borrowing room granted to all states in 2009 and 2010. The 12th Finance Commission had recommended that states contain their deficits to no

⁹ The monthly salary of central and state employees in public administration and publicly funded social services consists of two major parts. "Basic pay" is adjusted once every 10 years; the "dearness allowance" is enhanced annually, linked to consumer price movements and absorbed into basic pay once every decade. The decadal adjustments are based on the recommendations of a central pay commission that is constituted anew every decade. It submits its report to Parliament.

more than 3 percent of GSDP by 2009. Using its power to set annual borrowing ceilings for the states, the federal government effectively raised the states' fiscal deficit ceiling to 3.5 percent in 2009 and 4.0 percent in 2010.

Table 12 Annual Changes in Real Expenditures and Fiscal Deficits in India, by State, 2003–11 (Percent)

State	<i>Expenditure and net loans (real annual change)</i>		<i>Fiscal deficit (percent gross state domestic product [GSDP])</i>		<i>Fiscal correction^a</i>	
	<i>Precrisis</i>	<i>Postcrisis</i>			<i>Precrisis</i>	<i>Postcrisis</i>
	<i>(2003–07)</i>	<i>(2009–11)</i>	<i>(2009–10)</i>	<i>(2010–11)</i>	<i>(2003–07)</i>	<i>(2009–11)</i>
Andhra Pradesh	7.9	–6.5	2.9	2.3	1.7	0.6
Bihar	6.1	12.8	3.0	4.0	4.3	–2.4
Gujarat	5.2	5.5	3.6	3.1	2.0	–0.3
Haryana	7.3	6.8	4.5	3.3	3.0	0.3
Karnataka	12.1	6.9	2.9	2.9	2.1	–0.1
Kerala	3.1	1.8	3.4	2.8	2.9	0.4
Madhya Pradesh	6.9	13.6	2.7	3.3	2.5	–1.1
Maharashtra	6.8	9.9	2.9	2.4	2.4	–0.6
Odisha (Orissa)	5.2	7.9	1.4	2.5	6.5	–2.3
Punjab	2.3	6.7	3.1	3.1	1.8	0.7
Rajasthan	5.4	0.4	3.9	2.3	4.1	0.7
Tamil Nadu	6.9	14.1	2.1	3.2	2.7	–1.1
Uttar Pradesh	10.8	6.6	3.6	3.8	1.5	0.8
West Bengal	4.4	7.7	6.2	4.4	1.9	–0.5
Small and special category states	8.1	14.2				
All states	6.9	7.6				
Major coastal states	6.7	6.3	—	—	—	—
Major landlocked	7.2	7.6	—	—	—	—

Sources: (i) Reserve Bank of India state finances; (ii) individual state accounts; (iii) Central Statistical Organization.

Note: Base year is 2004/05. — not available.

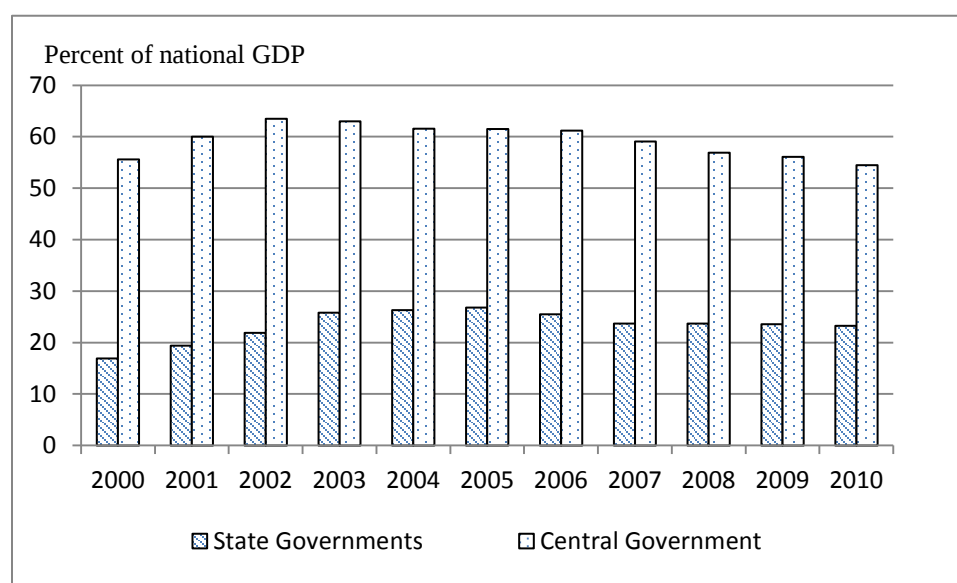
a. Figures show change in fiscal deficit to GSDP ratio; negative values indicate deficit expansion.

A significant number of states made use of the extra borrowing room: 8 of 14 states ran deficits in excess of 3 percent of gross state domestic product in 2009 and 2010 (Table 12). Five states in 2009 and three in 2010 had deficits of at least 3.5 percent. These findings vindicate the policy decision of the central government, in the sense that the states that needed it could and did make use of the additional borrowing room to stimulate aggregate demand and national output. Increases in states' aggregate expenditure between 2008 and

2010 accounted for 44 percent of the increase in consolidated government expenditure at the national level.

The aggregate stock of states' debt is less than half the stock of central debt (figure 4). Despite higher levels of fiscal deficit in 2009 and 2010, the ratio of states' debt to GDP did not rise, thanks to the high nominal growth of GDP; deceleration in real output growth was more than compensated for by acceleration in inflation, which crossed 10 percent in 2010. The debt relief mechanism prescribed by the 12th Finance Commission, conditional on adherence to rule-based fiscal consolidation, helped states contain the ratio of their aggregate debt to national GDP well below the target of 30.8 percent recommended by the 12th Finance Commission for 2009. This ratio peaked in 2005 at 26.8 percent. It has declined to 23.5 percent in 2010.

Figure 4 Outstanding Liabilities of Central and State Governments in India relative to National Gross Domestic Product, 2000–10



Source: Indian Public Finance Statistics, 2011-12; Government of India, Ministry of Finance.

Based on information available for 18 states, the Reserve Bank of India estimates the outstanding guarantees of state governments, the main form of contingent liabilities, at 2.8 per cent of GDP by end-March 2010, only marginally higher than the 2.7 per cent at end-March 2009 (Reserve Bank of India 2012). The 12th Finance Commission had recommended that all states impose a limit on these contingent liabilities through their Fiscal Responsibility

and Budget Management Acts and set up guarantee redemption funds (GRFs). Fourteen states have set up such funds, in which the outstanding balance was Rs 37 billion (\$800 million) by end-March 2011, less than 10 percent higher than at the end of the previous year (that is, almost constant in real terms).

Real growth in the mining and manufacturing sectors turned negative in April–June 2012. Public investment has not offset the decline in the rate of private corporate investment to any significant degree. The fiscal stimulus succeeded mainly in boosting public consumption and contributing to private disposable incomes through tax benefits. Growth in output of consumer durables, which fell from 14 percent in 2010 to 3 percent in 2011, recovered to 7 percent in April–June 2012; the production of capital goods declined by 20 percent that quarter (Reserve Bank of India 2012).

The key findings of this case study can be summarized as follows:

- Coastal and landlocked states in India experienced differential impact of the global crisis, with revenue moving in opposite directions in 2008 and 2009.
- In the coastal states, central transfers did not compensate for the significant deceleration of revenues. Nevertheless, the majority of states were able to maintain or accelerate their spending growth, thanks to the additional borrowing room permitted by the center in 2009 and 2010.
- States contributed 44 percent of the increase in the level of general government spending between 2008 and 2010.
- The increase in public spending, at both the central and state level, was predominantly on current expenditures (salaries, subsidies, and social programs).
- Public investment rose by less than a quarter of the steep decline in private corporate investment.
- The impact of fiscal stimulus on the economy was significant but short-lived.
- National economic growth is estimated to have fallen below 5 percent in 2012, for the first time in a decade.

- Despite a temporary rise in the fiscal deficit of both the center and the states in 2009 and 2010, debt and debt-servicing ratios are falling, thanks to high inflation and negative real interest rates.

Policy Lessons

China and India demonstrate that subnational governments can make a positive contribution to countercyclical fiscal policy where there is room to temporarily loosen their borrowing constraints, on or off budget. Brazil demonstrates the converse—that where subnational governments have limited borrowing room or access to credit, the fiscal response of subnational governments is likely to be pro-cyclical, dampening national attempts to stimulate aggregate demand and economic growth.

An important lesson from the experience of China is that a large fiscal stimulus implemented in a coordinated manner, with all levels of government aligned to a single plan, can have a significant positive impact on both subnational and national economic growth. On the negative side, the financing of subnational spending through off-budget borrowing has raised the fiscal risk associated with inadequately accounted contingent liabilities. The risk would be manageable as long as economic growth remains high but not otherwise. With lending and investment driven mainly by government policy directives, there is also a concern that the economic rationale underpinning investment decisions may be compromised. An important lesson for China is that it is more prudent to rely on budget financing than on off budget loans should another round of stimulus become necessary. There is a case for introducing some room for provincial governments to borrow directly on budget, along with improving financial management and accountability at that level, including adequate monitoring of contingent liabilities.

In India, the fiscal stimulus that was implemented in 2008–10 was less successful than China's, with its impact not extending beyond 2010. The increase in public spending, at both the federal and state level, was predominantly on the current account; public investment rose by less than a quarter of the steep decline in private corporate investment. The multiplier effect was short-lived as a result.

An important policy issue for India is the need to allow greater flexibility in controlling the growth of the public salary bill, in order to create fiscal space for stepping up public investment. There is a need to move away from the archaic system of adjusting civil service salaries once every 10 years, which acts like a periodic exogenous shock that squeezes fiscal space for capital spending and non-salary recurring expenditures.

A deficit-financed fiscal stimulus is not easily implementable in India if such a necessity were to emerge in the near future. The national government is already on a tight fiscal consolidation path, as are the majority of states, in line with the recommendations of the 13th Finance Commission concerning the fiscal framework during 2010–15. Looking forward, the focus has to be on the major pending reforms to expand fiscal space, such as by (i) introducing the proposed goods and services tax (GST), which would expand the tax net, (ii) rationalizing user fees in selected sectors, and (iii) rationalizing expenditures such as subsidies and centrally sponsored programs that have outlived their utility.

In Brazil, the resilience of domestic consumption demand has been a distinct advantage in weathering the global crisis. Fortunately, there was not strong pressure for a fiscal stimulus in 2008–10. However, if conditions are less favorable in the future and the need for countercyclical policy measures greater, Brazil would be hard pressed to implement such a policy, given the present structure of fiscal federalism arrangements, with limited flexibility in central grants to subnational governments and limited capacity of subnational governments to undertake additional borrowing even if permitted.

This paper focuses on the fiscal policy response to the global recession. Subnational governments also have important responsibilities toward medium-term development goals, which need to be protected at all times. China's provinces need to enhance spending on social programs in order to reduce the need for rural households to save for unforeseen shocks, thereby increasing their propensity to consume. Indian states are responsible for a large part of the deficit in irrigation, road transport infrastructure, public health, and education. In addition to infrastructure, human capital, and environmental needs, subnational governments in most developing countries also need to consider demographic factors. In both China and Brazil, the rapid rise in the average age of the population over the coming decades implies additional fiscal pressures over the medium to longer term.

Given the expected increase in subnational spending requirements, it is essential for federal countries to establish mechanisms for periodic review and revision of their systems of intergovernmental resource-sharing and transfers. India's Finance Commission, which is constituted afresh once every five years to assess the situation and recommend the formula for tax-sharing and transfers over the next five years, has some useful lessons for China, where ad hoc earmarked transfers and inadequate fiscal equalization remain major problems. In Brazil the pro-cyclicality of transfers and the constraints on states' access to the credit market together call for a review of fiscal federalism arrangements, so as to refine them to enable SNGs meet their expenditure obligations in the future.

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