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Foreign Inflows and Macroeconomic Policy in India

How should macroeconomic policy in India respond to the dramatic strengthening of the balance of payments in the current decade? This controversial subject of contemporary Indian debate is addressed below. The paper begins with an assessment of the external aspects of India's macroeconomic management in the 1990s. It proceeds to examine the sources of the recent balance-of-payments improvement, then to analyze various relevant policy alternatives, and finally to delineate the contours of the optimal policy mix. We argue that the appropriate response to the strength of the balance of payments is a judicious combination of policies rather than a "corner solution," particularly one in which appreciation of the real exchange rate is used exclusively. In particular, we recommend accelerated import liberalization and fiscal consolidation accompanied by monetary expansion. Such a strategy would achieve the needed adjustment without undermining the competitiveness of the export industries, which is essential for rapid growth.

Management of the Balance of Payments in the 1990s

The decade of the 1990s began with a balance-of-payments crisis caused primarily by weak fundamentals, in particular large fiscal and current account deficits throughout the second half of the previous decade. The trigger for the crisis was the brief spike in oil prices that followed the Iraqi invasion of Kuwait, combined with an unsettled political situation in India.

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TABLE 1. Major Macroeconomic Indicators, India, Fiscal Years 1990-91 to 2003-04^a

Annual percent increase unless otherwise specified

<i>Fiscal year</i>	<i>GDP (overall)</i>	<i>GDP (industry)</i>	<i>Broad money</i>	<i>Reserve money</i>	<i>Wholesale prices</i>	<i>Fiscal balance (percent of GDP)</i>	<i>Current account (percent of GDP)</i>
1990-91	5.6	7.7	15.1	13.1	10.3	-9.4	-3.1
1991-92	1.3	-0.6	19.3	13.4	13.7	-7.0	-0.3
1992-93	5.1	4.0	14.8	11.3	10.1	-7.0	-1.7
1993-94	5.9	5.2	18.4	25.2	8.4	-8.3	-0.4
1994-95	7.3	10.2	22.4	22.1	12.5	-7.1	-1.0
1995-96	7.3	11.6	13.6	14.9	8.1	-6.5	-1.7
1996-97	7.8	7.1	16.2	2.9	4.6	-6.4	-1.2
1997-98	4.8	4.3	18.0	13.2	4.4	-7.3	-1.4
1998-99	6.6	3.4	19.4	14.5	5.9	-8.9	-1.0
1999-00	6.4	6.4	13.9	8.2	3.3	-9.4	-1.0
2000-01	5.2	6.6	16.2	8.1	7.0	-9.1	-0.5
2001-02	5.6	3.2	14.2	11.4	3.6	-9.9	0.1
2002-03	4.3	6.2	12.8	9.2	3.4	-10.1	0.7
2003-04	8.1	6.6	16.4	18.3	5.4	-9.5	[0.8]

Sources: Government of India, Ministry of Finance, *Economic Survey* (various years); Reserve Bank of India, *Handbook of Statistics on the Indian Economy 2002-03*; Reserve Bank of India website.

a. The fiscal balance figures relate to the central and state governments combined. The numbers for GDP, fiscal balance, and current account balance in 2003-04 are provisional.

When the crisis broke, there was an outflow of nonresident deposits and a cut-off of short-term loans, and for a time the country teetered on the edge of default. The crisis was resolved fairly rapidly (fiscal years 1991-92 and 1992-93) and in an orthodox manner by a combination of devaluation, deflation, and borrowing from the International Monetary Fund. Simultaneously with this stabilization effort, the government embarked on a policy of economic reform.¹

During the rest of the decade, India's GDP grew at the very respectable rate of 6 percent a year without any major crisis. Even so, there remained a sense that economic growth was lower than it might be. In this section, we critically examine the external aspects of macroeconomic management during the decade and assess their influence on economic performance. Some relevant macroeconomic data are given in tables 1, 3, and 4.

1. For an analysis of the causes of the 1991 crisis, see Joshi and Little (1994), and for an account of its resolution, Joshi and Little (1996). For a critical evaluation of India's reforms, see Joshi and Little (1996), Joshi (1998a), and Ahluwalia (2002).

External Payments Regime

A convenient starting point for an analytical review of the decade is March 1993, when, as part of economic reform, the Indian government inaugurated what was officially called a “market-determined unified exchange rate.” “Market-determined” should not be understood to mean a clean float. The Reserve Bank of India (RBI) intervened actively, often heavily, in the foreign exchange market. In practice, exchange rate management appears to have been guided by the aim of keeping the nominal exchange rate reasonably stable vis-à-vis the U.S. dollar but with occasional bouts of crawling depreciation to correct overvaluation of the real effective exchange rate. In other words, the authorities certainly had exchange rate targets in mind though the targets shifted from time to time. One could call this arrangement a “managed float,” but “dirty crawl” would be more accurate. The smooth management of this system was greatly helped by capital controls. India’s payments regime was thus firmly in the “intermediate exchange rate with capital controls” category.²

DISCRETIONARY CRAWL OF THE EXCHANGE RATE. How dirty was India’s dirty crawl? Casual eye-balling is sufficient to reveal that the rupee-dollar rate was rather stable or, more accurately, that there were extended periods of stability, punctuated by crawling depreciations. For example, the rate barely moved between mid-1993 and mid-1995, mid-1996 and mid-1997, mid-1998 and mid-1999, and December 2000 and September 2001. The impression of a “dirty crawl” is confirmed by statistical measures of exchange rate volatility, given in table 2. The table shows that the rupee’s volatility was significantly lower than that of the currencies not only of the G-3 countries but also of relevant emerging markets. The table also indicates that India exhibited higher volatility of interest rates, monetary base, and foreign exchange reserves than the G-3 countries and relevant emerging markets. This evidence strengthens the presumption that India’s exchange rate regime was de facto toward the fixed rather than the floating end of the spectrum of regimes.

2. Note that the IMF’s *Annual Report on Trade and Exchange Restrictions* classified India’s exchange regime as an “independent float” rather than a “managed float” throughout the 1990s. This was a patently inaccurate description. The strong version of the “bipolar view” says that with financial globalization any country is restricted to the following choice: exchange rate stability by fixing the exchange rate or monetary policy autonomy by floating the exchange rate. See Eichengreen (1994). Fischer (2001) takes a more moderate position. India’s experience has shown that it may be feasible and desirable for an emerging country to adopt an *intermediate* exchange rate regime buttressed by selective capital controls.

TABLE 2. Measures of Exchange Rate Volatility, Various Countries

Country	Regime description ^a (IMF)	Probability of monthly changes within +/- 1 percent			Probability of monthly change in interest rate being less than 50 basis points
		Exchange rate (against U.S. dollar)	Foreign exchange reserves	Monetary base	
United States, 1973-99 (\$/DM)	Float	26.8	28.6	42.1	80.7
Japan, 1973-99	Float	33.8	44.8	22.7	86.4
India, 1993-99	Float	82.2	21.6	27.4	15.9
Mexico, 1994-99	Float	34.6	13.2	5.7	9.4
Philippines, 1988-99	Float	60.7	9.7	12.5	38.9
Chile, 1982-99	Mgd Float	45.5	21.3	29.2	11.1
Korea, 1980-97	Mgd Float	80.1	16.1	12.3	51.9
Malaysia, 1992-98	Mgd Float	59.4	34.3	24.3	83.3
Indonesia, 1978-97	Mgd Float	96.4	22.8	16.9	46.8
Brazil, 1994-98	Mgd Float	64.3	22.2	16.7	20.4
Argentina, 1991-99	Fix	97.9	15.3	14.3	31.6
Thailand, 1970-97	Fix	93.6	21.3	19.8	41.2

Source: Calvo and Reinhart (2002).

a. The regime description is that given by the IMF in its *Annual Reports on Trade and Exchange Restrictions*. It should not be read as a description of the de facto regime.

The natural next question is what were the objectives of exchange rate policy? Though the Indian authorities were at pains to stress that the exchange rate was "market determined," they also articulated other objectives that were incompatible with clean floating. These were to iron out day-to-day volatility to prevent disorderly markets and to maintain a competitive exchange rate.³ The desire, on prudential grounds, to accumulate

3. The authorities were careful not to define an explicit numerical target for the real effective exchange rate though it is pretty clear that the 1993-94 level was used as the implicit target. The RBI's *Annual Report* for 1995-96 states, "The broad objective of

**TABLE 3. Nominal and Real Exchange Rate, India,
Fiscal Years 1990–91 to 2003–04**

Base: 1993–94 = 100

<i>Fiscal year</i>	<i>Rupees per U.S. dollar</i>	<i>NEER^a</i>	<i>REER^b</i>
1990–91	17.94	175.0	147.7
1991–92	24.47	131.5	116.5
1992–93	30.65	117.8	112.3
1993–94	31.37	100.0	100.0
1994–95	31.40	96.1	105.8
1995–96	33.45	87.7	102.3
1996–97	35.50	86.4	103.4
1997–98	37.17	86.4	105.8
1998–99	42.07	76.5	97.8
1999–2000	43.33	74.2	96.7
2000–01	45.68	73.8	100.8
2001–02	45.69	73.2	102.1
2002–03	48.39	68.8	97.9
2003–04	45.60	67.4	99.6

Source: Reserve Bank of India (May 2004), *Bulletin*.

a. NEER: nominal effective exchange rate. NEER is a five-country export-weighted index. The countries in the index are United States, Japan, United Kingdom, Germany, and France.

b. REER: real effective exchange rate. REER is a five-country export-weighted index. The countries in the index are United States, Japan, United Kingdom, Germany, and France.

sizable foreign exchange reserves was also clearly discernible. Evidence in support comes from the following points. First, the objective of preventing excessive short-term volatility is evident in the low volatility of the rupee-dollar rate. Second, as regards “competitiveness,” the rupee-dollar rate and the nominal effective exchange rate followed a depreciating trend, so as approximately to maintain the real effective exchange rate at the 1993–94 level (see table 3).⁴ Third, in general, during the decade, market pressure was toward nominal rupee appreciation. Moderate trade deficits were

exchange rate policy will be to ensure a reasonably stable real effective exchange rate.” The objectives of exchange rate policy were frequently articulated in speeches of high officials of the RBI (for example, see Reddy 1997). The approach of the authorities with regard to the external payments regime as a whole originated in the landmark Rangarajan report (see Government of India 1993).

4. This is based on a five-country index, which we believe was used in making policy. The ten-country index reported in the *Economic Survey* of the Government of India shows a real appreciation of about 5 percent from 1993–94 to the end of the decade. So does a broader thirty-six-country index reported in the *RBI Bulletin*.

outweighed by a combination of invisible inflows (mainly private remittances) and capital account surpluses. As table 4 shows, reserves increased substantially, from \$5.8 billion in March 1991 to \$42 billion in March 2001 (eight months import cover). And, fourth, notwithstanding the previous point, there was significant downward pressure on the exchange rate from time to time. The authorities resisted such pressures; their intention, largely successful, appears to have been to allow nominal depreciation but no more than to correct any previous real overvaluation.

Thus the exchange rate was heavily managed. With what instruments? Apart from conventional methods, namely, market intervention and monetary policy, India was notable for using capital controls, or more accurately, for not dismantling them when that was fashionable. The purpose of controlling capital flows was (a) to make it possible to target the exchange rate and (b) to reduce vulnerability to exchange rate and macroeconomic crises.

CAPITAL CONTROLS. Capital account controls were imposed in the late 1950s and became comprehensive and draconian in 1973. The controls were *selectively* liberalized during the early 1990s, when the reform process began. (The word *selectively* must be stressed. In the 1980s, controls on external borrowing, including short-term borrowing, were relaxed to finance current account deficits. In the 1990s, controls on debt-creating inflows, particularly short-term inflows, were tightened while those on non-debt-creating inflows were liberalized.) These controls acquired their bite not so much from variations in their intensity as from the limits they set on activity and expectations in the foreign exchange market. The highlights of the system are given below.

Foreign direct investment. Before 1991, restrictions operated on a case-by-case basis and were so strict that inflows of direct foreign investment (FDI) were reduced to a trickle. In the reforms of fiscal year 1991–92, automatic approval of foreign investment of up to 51 percent of shareholding was allowed for a wide range of industries. Proposals for a higher share of foreign ownership were considered by a Foreign Investment Promotion Board. In 1996 the list of industries in which FDI is permitted was further widened, with foreign equity up to 74 percent allowed in a few.⁵

5. In practice, however, the system was more restrictive than it sounds, because there still remained numerous hurdles to jump, erected by state governments if not by the center. FDI inflows rose from an annual average of about \$150 million in the 1980s to about \$3 billion in the late 1990s. The latter figure is still very small compared with the inflow into East Asian countries. The cumulative inflow of FDI in the 1990s was about \$19 billion but its “bolted down” nature meant that it was not a source of crisis vulnerability.

TABLE 4. Balance of Payments, India, Fiscal Years 1990–91 to 2003–04

Percent of GDP at current market prices

<i>Item</i>	1990– 91	1991– 92	1992– 93	1993– 94	1994– 95	1995– 96	1996– 97	1997– 98	1998– 99	1999– 2000	2000– 01	2001– 02	2002– 03	2003– 04 ^a
Exports, f.o.b	5.8	6.9	7.3	8.3	8.3	9.1	8.9	8.7	8.2	8.3	9.5	9.3	10.4	9.3
Imports, c.i.f.	8.8	7.9	9.6	9.8	11.1	12.3	12.7	12.5	11.4	12.3	12.5	12.0	12.8	12.2
Trade balance	-3.0	-1.0	-2.3	-1.5	-2.8	-3.2	-3.9	-3.8	-3.2	-4.0	-3.0	-2.7	-2.4	-2.9
Invisibles, net	-0.1	0.7	0.6	1.1	1.8	1.6	2.7	2.4	2.2	2.9	2.5	2.8	3.1	3.7
Current account balance	-3.1	-0.3	-1.7	-0.4	-1.0	-1.7	-1.2	-1.4	-1.0	-1.0	-0.5	0.1	0.7	0.8
Capital account surplus	2.3	1.5	1.6	3.5	2.8	1.3	3.0	2.4	2.0	2.3	1.9	2.2	2.3	3.6
Foreign investment	0.0	0.1	0.2	1.6	1.5	1.4	1.6	1.3	0.6	1.2	1.2	1.5	0.9	2.0
External assistance	0.7	1.1	0.8	0.7	0.5	0.3	0.3	0.2	0.2	0.2	0.1	0.2	-0.5	-0.4
Commercial borrowing	0.7	0.6	-0.2	0.2	0.3	0.4	0.7	1.0	1.1	0.1	0.9	-0.3	-0.5	-0.7
Nonresident Indian deposits	0.5	0.2	0.8	0.4	0.1	0.3	0.9	0.3	0.2	0.3	0.5	0.6	0.6	0.8
IMF, net	0.4	0.3	0.5	0.1	-0.4	-0.5	-0.3	-0.2	-0.1	-0.1	0.0	0.0	0.0	0.0
<i>Memo items</i>														
Foreign exchange reserves, year end (billions of U.S. dollars)	5.8	9.2	9.8	19.2	25.2	21.7	26.4	29.4	32.5	38.1	42.3	54.1	75.4	111.0
Foreign exchange reserves (months of import cover)	2.5	5.3	4.9	8.6	8.4	6.0	6.5	6.9	8.2	8.2	8.6	11.3	13.8	18.0
Net foreign investment inflow (billions of U.S. dollars)	0.1	0.1	0.6	4.2	4.8	4.8	6.2	5.4	2.4	5.2	5.9	6.7	4.5	12.6
Direct	0.1	0.1	0.3	0.6	1.0	2.0	2.9	3.6	2.5	2.1	3.3	4.7	3.6	3.4
Portfolio	0.0	0.0	0.3	3.6	3.8	2.8	3.3	1.8	-0.1	3.1	2.6	2.0	0.9	9.2

Sources: Reserve Bank of India, *Handbook of Statistics on the Indian Economy 2002–03*. Reserve Bank of India, *Annual Report* (various years).

a. Estimated.

Foreign portfolio investment. Before 1991, foreign portfolio investment was not allowed, apart from some trivial exceptions. In 1992, foreign institutional investors (FIIs) such as pension funds and mutual funds were permitted to invest in listed securities in primary and secondary markets in equities and bonds (other than government bonds), subject only to some regulatory requirements. In 1997 investment permission was extended to cover government securities and treasury bills. Repatriation of capital, income, and capital gains was freely allowed at the market exchange rate.⁶

External commercial borrowing. Offshore borrowing by Indian companies (commercial bank loans, Eurobonds, and the like) was under the jurisdiction of the Ministry of Finance, which exercised careful control on a case-by-case basis. Controls governed not only the amount of each loan but maturity and end-use (priority was given to projects in the energy and infrastructure sectors).⁷ Short-term borrowing apart from normal trade credit was strongly disfavored. There was also an overall annual ceiling on approvals for external commercial borrowing.

Bank deposits of nonresident Indians. Conscious efforts had been made during the 1980s to attract bank deposits from nonresident Indians (NRIs) by offering both higher interest rates and exchange rate guarantees. These deposits proved to be highly volatile in the crisis of 1991, so the exchange guarantee was withdrawn and interest rate incentives were progressively reduced.

Commercial banks and financial markets. Banks were not allowed to accept deposits or extend loans denominated in foreign currencies, and controls on their foreign asset and liability positions were strict. It goes without saying that this was a critical element of the system of capital controls. Internationalization of the currency was strongly discouraged. Offshore trading of the rupee was not permitted (though a limited offshore market did exist). There were restrictions on domestic currency lending to nonresidents, so opportunities for direct short-selling of the rupee were very limited. The swap and forward markets were also tightly controlled because these markets could be used to speculate against the rupee by circumventing the restrictions on direct lending in rupees to nonresidents. Thus the overall policy thrust was to limit forward trading in foreign exchange to hedging current account transactions. Of course, there was a price to pay: the forward market lacked adequate liquidity and depth.

6. The cumulative book value of foreign portfolio investment from 1991 to 2001 was about \$21 billion. This stock is potentially more volatile than FDI.

7. In some years, borrowed funds were required to be kept outside the country until they were committed to a specific investment use.

Capital outflows. Repatriation was freely permitted for foreign institutional investors and nonresident Indian investors who had invested in the country under recognized schemes. But capital outflows by residents were *prohibited, apart from some minor exceptions.*

In sum, India had a comprehensive system of capital controls that was *selectively* liberalized in the 1990s. The liberalization was focused on direct and portfolio investment by nonresidents. In these areas, free entry and exit was the normal rule. Debt-creating external borrowing was tightly controlled (indeed more tightly controlled than during the 1980s), particularly if it was short-term. Banks and money markets generally faced significant restrictions on their foreign operations. Capital outflows by residents were forbidden.

Regime Performance in the 1990s

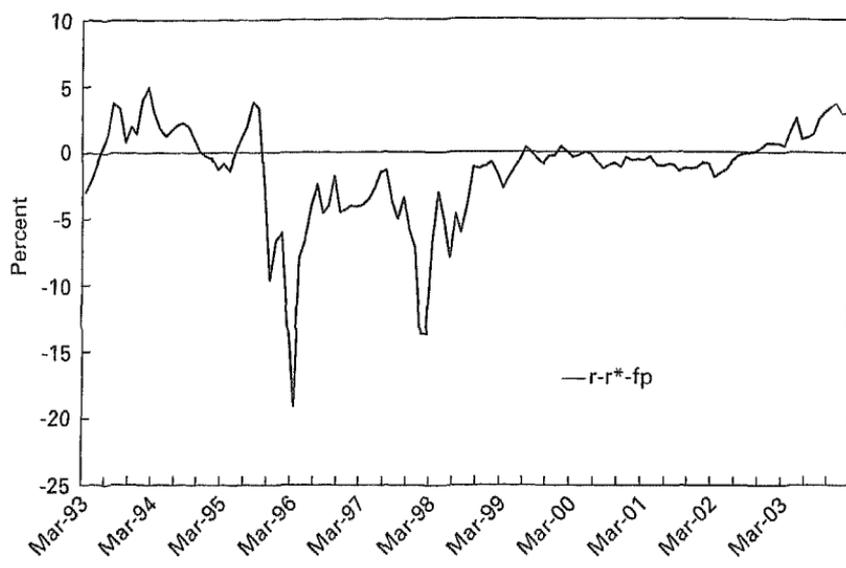
The above regime enabled India to moderate a capital-inflow surge from 1993 to 1995, *avoid contagion from the East Asian (1997) and other currency crises (Brazil and Russia in 1998 and 1999)*, and attenuate an industrial slowdown toward the end of the decade. These shocks were handled by a mixture of monetary policy (including sterilized and unsterilized intervention) and moderate exchange rate changes. This tightrope walk would not have been possible without capital controls. They enabled the authorities to pursue a flexible monetary policy, geared to low inflation and internal balance, while simultaneously targeting the exchange rate to preserve international competitiveness.⁸ It is suggestive in this context that over much of the decade the covered interest differential between India and the United States was large and varying (see figure 1).

The performance of India's external payments regime has been examined in some depth by Joshi, who concludes that it was, on balance, very satisfactory.⁹ We do not repeat that analysis here. We concentrate instead on two relevant issues. First, we examine the apparent puzzle of why India, unlike many emerging countries, did not succumb to contagion from the East Asian crises. This is an issue that is clearly relevant to judging regime performance. Second, we analyze in some detail the strong claim made by

8. Note that in India monetary policy autonomy was critically important because the flexibility of countercyclical fiscal policy was limited by high fiscal deficits.

9. Joshi (2003) considers counterfactual scenarios and argues that the payments regime actually adopted in the 1990s produced better economic performance than alternative regimes.

FIGURE 1. Covered Interest Rate Differential, India, January 1993 to January 2004



r: yield on three-month Indian treasury bills (percent per annum)

r*: yield on three-month U.S. treasury bills (percent per annum)

fp: three-month forward premium on the U.S. dollar (percent per annum)

Sources: Reserve Bank of India, *Handbook of Statistics on the Indian Economy 2002-03*; IMF, *International Financial Statistics*.

Deepak Lal, Suman Bery, and Devendra Pant that India's payments regime and the manner of its operation (specifically, exchange rate targeting and accumulation of foreign exchange reserves) led to a substantial *reduction* in GDP growth.¹⁰

WHY DID INDIA ESCAPE THE EAST ASIAN CRISIS AND CONTAGION? A comparison of India and the East Asian countries in 1996, just before the East Asian crisis of 1997, is highly instructive and indicates why India escaped crisis and contagion during that crisis (see table 5). It is clear from the first six columns of the table that in most respects, India's "fundamentals" (fiscal balance, inflation, current account balance, nonperforming assets, debt-exports ratio, and debt-service ratio) were worse or no better than the crisis countries'. Exchange rate policy too was not a distinguishing feature. All these countries were on a loose dollar peg, though the precise mechanism, whether band, crawl, or crawling band, varied. India's

10. Lal, Bery, and Pant (2003).

TABLE 5. Indicators of Crisis Vulnerability, Various Countries, 1996
Percent

Country	FB/GDP ^a	$\Delta P/P^b$ (percent a year)	CAB/ XGS ^c	NPA ^d	NCEDT/ XGS ^e	TDS/ XGS ^f	SDT/ EDT ^g	SDT/ RES ^h
India	-9.0	9.0	-11.7	17.3	103.6	21.2	5.3	27.1
Indonesia	-1.0	8.0	-13.0	8.8	180.5	36.6	25.0	166.7
Korea	0.0	4.9	-14.6	4.1	82.0	9.4	49.4	192.7
Malaysia	0.7	3.5	-6.4	3.9	40.4	9.0	27.9	39.7
Philippines	0.3	8.4	-9.9	n.a.	80.1	13.4	19.9	67.9
Thailand	0.7	5.8	-19.5	7.7	110.9	12.6	41.5	97.4

Sources: FB/GDP, NPA: Bank of International Settlements, *Annual Reports, 1997-98 and 1999-2000*, and Government of India, *Economic Survey, 1999-2000*; CAB/XGS, NCEDT/XGS, TDS/XGS, SDT/EDT, SDT/RES: World Bank, *Global Development Finance, 1999*; $\Delta P/P$: IMF, *International Financial Statistics*.

a. FB/GDP: fiscal balance as a proportion of GDP.

b. $\Delta P/P$: rate of consumer price inflation.

c. CAB/XGS: current account balance as a proportion of exports of goods and services.

d. NPA: Nonperforming assets of commercial banks as a proportion of total advances.

e. NCEDT/XGS: Non-concessional external debt as a proportion of exports of goods and services.

f. TDS/XGS: Debt service as a proportion of exports of goods and services.

g. SDT/EDT: Short-term external debt as a proportion of total external debt.

h. SDT/RES: Short-term external debt as a proportion of foreign exchange reserves.

exchange rate was no more volatile than those of the crisis countries, so the incentive for unhedged borrowing was similar.¹¹

The critical difference between India and the crisis countries can be seen in the last two columns of table 5. India managed to keep short-term debt under control, in relation both to total debt and to foreign exchange reserves. Thus India avoided the crisis by avoiding an unstable debt structure, an outcome that was the direct result of controls on debt-creating short-term inflows.

A relevant political-economy question is why India was able to resist the concerted pressure (until 1997) on emerging countries to adopt capital account convertibility (CAC). One reason is that the ideology of *laissez faire* did not have a constituency in India, and economic reform was quite explicitly of the gradualist variety. It is important also that foreign banks, normally a strong pressure group in favor of CAC, had a very small presence in the country. Last but not least, India was "too big to be bullied" into adopting CAC by Wall Street, the IMF, and the U.S. Treasury.

11. See Joshi (2003). India's exchange rate policy was, however, better in one respect. When the dollar began to appreciate in 1995, the Indian authorities allowed the rupee to depreciate against the dollar. So, unlike the crisis countries, India's real effective exchange rate did not appreciate in 1996.

DID INDIA SACRIFICE GROWTH BY ACCUMULATING FOREIGN EXCHANGE RESERVES IN THE 1990S? In a recent article D. Lal, S. Bery, and D. Pant argue that India paid a heavy price in terms of investment and growth by accumulating foreign exchange reserves in the decade of the 1990s.¹² Indeed, they make the strong claim that India's growth rate during that decade could have been up to 2.7 percent a year higher if the foreign exchange inflows had been fully absorbed.¹³ If true, this would be a truly remarkable finding. But their argument is deeply flawed, indeed wholly incorrect.

Absorbing net inflows means increasing domestic spending rather than accumulating foreign exchange reserves. Reserves as a proportion of GDP rose over the decade of the 1990s by an average of about 1.2 percent a year. If the entire increase in reserves had been absorbed into investment each year, the ratio of investment to GDP averaged over the decade would thus have been 1.2 percent higher than it actually was. The incremental net capital output ratio (ICOR) in the 1990s was 2.8. This implies, assuming a constant ICOR, that the increase in India's growth rate of GDP would have equalled $1.2/2.8$, or 0.4 percent a year (approximately) over the decade, a far cry from the Lal, Bery, and Pant estimate of 2.7 percent. India's actual growth rate during the 1990s was 5.8 percent. The above argument shows that if reserves had been fully absorbed into investment, India's growth rate would have been at most 6.2 percent, not 8.5 percent as the authors conclude.¹⁴

This commonsense argument is enough to knock down the authors' claim. How then did they arrive at their extraordinary conclusion? The answer is that their theory and econometrics are based on a simple but devastating analytical error. The underlying fallacy is contained in their assertion that "If the capital inflows had been fully absorbed, the trade deficit and hence the $S - I$ gap [in each year] would have increased by B [where B equals $K + R$, namely, the net inflow of capital (K) and private remittances (R) in that year]. Hence, assuming unchanged domestic

12. Lal, Bery, and Pant (2003).

13. See Lal, Bery, and Pant (2003), p. 4968, table 3, cols. 1 and 2. The authors also claim that there would have been a further 1 percent boost to the rate of growth over and above the 2.7 percent if, in addition to absorbing foreign exchange inflows, bond-financed fiscal deficits had been eliminated: see table 3, col. 3. We do not examine this further claim here.

14. The argument in this paragraph is elaborated in Joshi (2004). The ICOR referred to is the average incremental net capital-output ratio in the 1990s, leaving out the outlier year 1991–92 (when growth fell sharply and the ICOR was 10.7). Lal, Bery, and Pant define investment as net investment and output as GDP at factor cost, both at constant prices. The ICOR is thus the ratio of these two magnitudes. We follow the same (odd) definition of ICOR to stick as closely as possible to their methodology.

savings, and no sterilisation of the capital inflows, an upper bound of the estimate of the investment foregone, by not absorbing the inflows, will equal B ."¹⁵ This is nonsense. Capital and remittance inflows *were* absorbed, except to the extent of foreign exchange accumulation. It is precisely through the absorption of these inflows that India's current account deficits and the corresponding investment-saving gaps were covered.¹⁶ So if the balance of payments had been differently managed, by floating the exchange rate or by unsterilized intervention with a fixed exchange rate, the maximum potential increase in investment would have equaled the reserve accumulation that took place instead. Hence the forgone investment, as stated above, was at most equal to 1.2 percent a year. In contrast, Lal, Bery, and Pant's estimate of forgone investment is huge. They claim that maximum forgone investment was equal to B . In their table 2, B averages 4.3 percent of GDP a year during the decade.¹⁷ In their calculations, they use an even higher figure for B , namely, $(I/Y - I/Y)$ in their table A-3, which averages 5.7 percent of GDP a year.¹⁸ Thus they overestimate the upper bound of investment sacrificed by a massive $(5.7 - 1.2) = 4.5$ percent of GDP a year.

The authors' fallacy can be pinpointed with the aid of their equations and notation. Denote output by Y , total expenditure or absorption by E , domestic saving by S , domestic investment by I , exports of goods and services by X , imports of goods and services by M , increase in reserves by ΔNFA , capital inflows by K , and inflows of remittances by R . Domestic investment equals domestic saving plus the current account deficit; and the current account deficit is covered by capital and remittance inflows, net of reserve accumulation.

$$(1) \quad \begin{aligned} I - S &= E - Y = M - X = (K + R) - \Delta NFA \\ &\rightarrow I = S + (M - X) = S + (K + R) - \Delta NFA. \end{aligned}$$

Assume, as the authors do, that Y , S , K , and R in any particular year are given. It then follows that the upper bound of I sacrificed in any year

15. Lal, Bery, and Pant (2003), p. 4969.

16. Note that Lal, Bery, and Pant define the current account deficit as exclusive of remittances. They treat remittances as a financing item, along with net capital inflows.

17. Lal, Bery, and Pant (2003), p. 4967.

18. $I/Y - I/Y = B = (K + R)/Y$, where I/Y is hypothetical investment with full absorption of inflows and the other items are as defined earlier. Note that while estimating B in this manner, Lal, Bery, and Pant follow, without mention let alone explanation, the illegitimate procedure of dividing $(K + R)$ at current prices by Y at constant prices. This naturally inflates B and compounds the upward bias in the estimate of maximum forgone investment. Lal, Bery, and Pant (2003), p. 4974.

is simply ΔNFA in that year. If foreign inflows were fully absorbed into investment and net imports, I would rise to $(I + \Delta NFA)$, E would rise to $(E + \Delta NFA)$, and $(M - X)$ would rise to $(M - X) + \Delta NFA$, and we would have

$$(2) \quad \begin{aligned} (I + \Delta NFA) - S &= (E + \Delta NFA) - Y = (M - X) + \Delta NFA = K + R \\ \rightarrow I + \Delta NFA &= S + (M - X) + \Delta NFA = S + (K + R). \end{aligned}$$

Investment would now be $(I + \Delta NFA)$, and the new current account deficit $(M - X) + \Delta NFA$ would be covered by the continuing inflow $(K + R)$. Lal, Bery, and Pant argue, instead, that investment could rise to $I + (K + R)$. But if that were so, the left-hand side of equation 2 would have to increase by $(K + R - \Delta NFA)$. To make that possible, the current account deficit in equation 2 would have to widen by $(K + R - \Delta NFA)$, covered by an *extra* inflow of $(K + R - \Delta NFA)$ *over and above* the existing inflow of $(K + R)$. But this cannot happen since K and R are given. That means there would be an *unfilled* current account gap of $(K + R - \Delta NFA)$, clearly an impossible outcome. By the same argument, no increase in investment greater than ΔNFA can be sustained. On the stated assumption that Y , S , K , and R are given, investment therefore *cannot* rise by more than ΔNFA . We conclude that the upper bound of investment sacrificed each year is ΔNFA . The authors' claim that the upper bound is $(K + R)$ is based on false reasoning.¹⁹

We have shown above that 1.2 percent of GDP a year is the correct maximal estimate of the investment sacrificed by accumulating foreign exchange reserves, with an implied growth sacrifice of at most 0.4 percent a year, not 2.7 percent as Lal, Bery, and Pant claim. But the *actual* sacrifice of growth was surely much less than 0.4 percent. Indeed, it is highly likely that there was gain rather than sacrifice of growth. In other words, India's growth rate would probably have been *lower* than the actual 5.8 percent if reserves had been fully absorbed. The substantive reasons are as follows.

First, even our estimate of 0.4 percent a year as the upper bound of for-gone growth is excessively generous to Lal, Bery, and Pant, since it is based

19. The wild exaggeration of investment sacrificed is not the sole reason for Lal, Bery, and Pant's incredible result. It is also based on a highly implausible implicit assumption that the ICOR of the extra annual investment of 5.7 percent of GDP would have been 2.1. (They estimate growth sacrificed as 2.7 percent a year and investment sacrificed as 5.7 percent of GDP a year. So the implicit ICOR is $5.7/2.7 = 2.1$.) They must surely open their econometric black box and explain why the ICOR of the extra investment made possible by absorbing the inflows would have fallen to 2.1 from its decadal average of 2.7 in the 1980s and 2.8 in the 1990s.

on the assumption of a constant ICOR. The normal assumption of diminishing returns to capital accumulation would produce a much lower estimate of growth sacrificed.²⁰

Second, there is no good reason to think that reserve accumulation could have been fully absorbed into domestic investment, whatever the exchange rate regime. Part of the extra absorption, arguably most of it, would have resulted in an increase in aggregate consumption. There is some presumption that inflows of direct foreign investment lead to higher domestic investment overall. With other types of inflow, the outcome is more indirect and more uncertain.

Third, accumulating reserves was in fact a wise policy choice, given their rock-bottom level in 1991. In the absence of reserve accumulation, India would have been highly vulnerable to adverse external shocks. Though, in general, market pressure during the decade was for appreciation, the rupee was under severe downward pressure during several episodes, such as late 1995 and early 1996, late 1997 and early 1998 (the East Asian crisis), and late 1998 and early 1999 (India's nuclear tests followed by currency crises in Brazil and Russia). Without the cushion of adequate reserves, the shelter of capital controls, and the reassurance they provided to the authorities and the market, the exchange rate could have spun out of control and caused severe damage to companies and the financial sector. In principle, a clean float of the exchange rate can enable a country to do without reserves. But the price to be paid is the possibility of a highly unstable or inappropriate exchange rate. India's policymakers were wise to reject this regime and opt for managed floating combined with selective controls on capital flows. It is relevant also that India's float was managed so as to keep the rupee mildly undervalued in real effective terms. There is plenty of empirical evidence that undervaluation boosts growth of GDP through growth of exports, though the exact mechanism is imperfectly understood. Appreciation of the exchange rate would have discouraged the growth of exports in the vital early years of reform. It would have also made it politically more difficult to liberalize imports and to achieve the consequential gains in productivity.²¹

In sum, India sacrificed little, if any, growth of income and output as a consequence of its exchange rate policy in the decade of the 1990s. Indeed,

20. This is so a fortiori, because Lal, Bery, and Pant assume that labor force growth fell in the course of the 1990s. (See their table A.3, p. 4974.)

21. This argument is elaborated in Joshi (2003).

absorbing net inflows fully could well have made the economy unstable and *reduced* growth. This is not to deny that the appropriate response to inflows is currently a tricky issue. Since 2000, the balance of payments has strengthened significantly. Reserves are now at a very comfortable level but are continuing to rise at a rapid pace. The question of whether and how to absorb foreign inflows is far more pertinent now than it was during the 1990s.

Balance-of-Payments Policy, 2001–04

Since 2000, India's external macroeconomic policy has maintained a continuity with the past, despite changed circumstances. This is particularly true of the exchange rate regime, which continues to be a "dirty crawl." Table 3 shows that since 2000, despite the large changes in the nominal and real exchange rates of the currencies of the major countries, the real exchange rate of the rupee has been broadly constant.²² Moreover, the authorities have clearly resisted market pressures for an appreciation, as evinced by the rapid accumulation of foreign exchange reserves. Between March 2001 and March 2004, India's reserves rose nearly \$70 billion (see table 4).

Despite the continuity, there have been two dissimilarities in the external payments regime in comparison with the previous decade. First, the capital account has been selectively further liberalized. Restrictions on inward FDI, portfolio equity inflows, and external commercial borrowing have been diluted. Resident banks are also now allowed to borrow abroad subject to individual bank ceilings of \$25 million. There has also been some capital outflow liberalization. Outward FDI by Indian companies and portfolio investment by domestic mutual funds are now permitted subject to individual and aggregate ceilings. Resident banks too can invest in overseas money markets subject to individual bank ceilings. Resident and nonresident individuals have been allowed limited facilities to transfer their Indian wealth abroad. Despite these changes, the new arrangements fall far short of capital account convertibility. Quantitative restrictions on debt-creating inflows (particularly short-term) remain in force. Banks continue to be severely restricted as regards foreign borrowing and lending; and bank deposits and other domestic assets remain

22. Note, however, that the RBI's thirty-six-country index (base 1985) shows a real appreciation of about 8 percent from 2001–02 to 2003–04.

**TABLE 6. Sources of Reserve Money Growth, India,
Fiscal Years 1990-91 to 2003-04**
Billions of rupees

<i>Fiscal year</i>	ΔRM^a	ΔNFA^b	ΔNDA^c	<i>NDA/RM (Percent)</i>
1990-91	101.9	19.1	82.8	90.9
1991-92	117.3	108.6	8.7	81.1
1992-93	112.7	38.1	74.6	79.6
1993-94	278.9	287.8	-8.9	62.9
1994-95	306.1	233.0	73.1	55.9
1995-96	251.8	-6.3	258.1	61.9
1996-97	55.2	207.3	-152.0	52.6
1997-98	264.2	210.7	53.5	48.8
1998-99	328.2	220.6	107.6	46.8
1999-2000	213.0	279.0	-66.0	40.8
2000-01	227.0	313.0	-86.0	35.0
2001-02	347.0	668.0	-321.0	21.9
2002-03	309.0	942.0	-633.0	2.9
2003-04	673.7	1261.7	-588.0	-11.0

Sources: Reserve Bank of India, *Handbook of Statistics on the Indian Economy 2002-03*; Reserve Bank of India (May 2004), *Bulletin*.

a. ΔRM : increase in reserve money.

b. ΔNFA : increase in net foreign exchange assets of RBI.

c. ΔNDA : increase in net domestic assets of RBI.

largely inconvertible into foreign currency, notwithstanding some limited relaxation.²³ The implication is that although capital mobility has to be factored into macroeconomic policy decisions to a greater extent than hitherto, it is still possible to combine exchange rate targeting with monetary autonomy.

The second dissimilarity with the previous decade is that reserve accumulation since 2000 has been sterilized to a substantial degree. During the 1990s, there was net sterilization in only three out of ten years (see table 6). The cumulative increase in the RBI's net foreign exchange assets in the 1990s was 79 percent of the increase in reserve money. In contrast, since 2000, the same ratio is 205 percent. In the decade of the 1990s taken as a

23. For further details on Indian capital controls, see Jadhav (2003). Recent liberalization of the capital account has been generally in line with that suggested by the Tarapore Committee (see Reserve Bank of India 1997). The recommendations of the Committee were shelved in the immediate aftermath of the East Asian crisis but were later revived.

whole, net sterilization was probably negative.²⁴ In the current decade, it has been positive and very substantial: 51 percent of reserve accumulation was sterilized from April 2000 to March 2004.

Should external payments policy depart from its current stance of resisting exchange rate appreciation and sterilizing the accumulation of reserves? This is one of the burning questions facing Indian macroeconomic policy-makers today.

Sources of the Recent Balance-of-Payments Improvement

Since 2001, there has been a dramatic improvement in the balance of payments. In 2001–02, the current account, traditionally in deficit, moved into surplus. In the same year, foreign exchange reserves began to rise significantly faster than before. We now examine the evolution of the balance of payments in the past three years (beginning fiscal year 2001–02), to identify the sources of strength, and to assess their durability. This is obviously pertinent to deciding the policy response. Tables 4, 7, and 8 contain the relevant data. Balance-of-payments figures are available until December 2003, or the first nine months of fiscal year 2003–04. We have estimated the annual figure for 2003–04 as a whole. The salient points are as follows.

Merchandise trade. The trade deficit fell from 2000–01 to 2002–03 but not significantly. The decline appears to be largely cyclical, related to lower-than-trend growth of national income. Nothing in the export data of the past few years suggests a sustained boom in visible exports. (The dollar value of Indian exports grew at about 10 percent a year in the 1990s. The growth in the current decade is not much higher.) The recent recovery in 2003–04 has increased the trade deficit sharply, as one would expect.

Invisibles. The rapid rise in invisible earnings jumps out of the tables. Two components are particularly important: private remittance inflows and earnings from software services. Remittances were about \$15 billion in 2002–03 and even higher in 2003–04. But they were virtually flat at about \$12 billion a year from 1996–97 to 2001–02. The recent increase may have been caused by an expectation of rupee appreciation and a “feel-good” factor. Software exports are quantitatively smaller than remittances

24. Table 6 shows that over the decade of the 1990s as a whole, domestic assets of the RBI rose. So, there was no net sterilization by this measure. However, there may have been some sterilization caused by a rise in the cash reserve ratio (and a corresponding fall in the money multiplier). In the present decade, the cash reserve ratio has fallen, so that source of sterilization is absent.

TABLE 7. Balance of Payments, India, Fiscal Years 2000–01 to 2003–04
Billions of dollars

Item	2000–01	2001–02	2002–03	April–	April–Dec.	2003–04 ^a
				Dec. 2002	2003	
Exports, f.o.b.	44.9	44.9	52.5	38.4	43.2	57.6
Imports, c.i.f.	59.2	57.6	65.4	48.2	58.2	75.6
Merchandise trade balance	-14.3	-12.7	-12.9	-9.8	-15.0	-18.0
Invisibles	10.8	13.5	17.1	12.6	18.2	23.0
Software	5.8	6.9	8.9	5.8	9.1	12.4
Private remittances	13.0	12.1	14.8	10.8	14.5	17.9
Income	-4.8	-3.6	-5.0	-2.7	-5.2	-7.0
Current account	-3.6	0.8	4.1	(2.9)	3.2	5.0
Foreign investment	5.9	6.7	4.6	3.1	10.1	12.6
Direct	3.3	4.7	3.6	2.7	2.5	3.4
Portfolio	2.6	1.9	0.9	0.4	7.6	9.2
Loans	4.3	-1.4	-3.8	-2.9	-3.0	-3.7
External assistance	0.4	1.1	-2.5	-1.3	-1.7	-2.4
External commercial borrowing	3.7	-1.6	-2.3	-2.0	-3.7	-4.1
Short-term capital	0.1	-0.9	1.0	0.4	2.4	2.9
Banking capital	0.8	5.6	8.4	6.8	5.6	7.5
Nonresident Indian deposits	2.3	2.7	3.0	2.4	3.5	4.7
Other net assets of banks	-1.5	2.9	5.4	4.4	2.1	2.8
Rupee debt service	-0.6	-0.5	-0.5	-0.4	-0.3	-0.4
Other capital	-0.3	0.2	3.4	3.0	5.1	6.4
Capital account	10.0	10.6	12.1	9.7	17.5	22.4
Errors and omissions	-0.6	0.4	0.7	0.1	0.3	0.2
Overall balance	5.9	11.8	17.0	12.6	21.0	27.6
Valuation change	-1.7	0.0	4.3	3.7	5.4	8.0
Increase in reserves	4.2	11.8	21.3	16.3	26.4	35.6

Sources: Reserve Bank of India, *Currency and Finance Report* (various years); Reserve Bank of India website.

a. Estimated.

(\$8.9 billion in 2002–03), but they are growing much faster, at about 30 percent a year in the current decade. Other evidence also suggests that this is a dynamic export sector that has discovered the secret of capturing foreign markets. This improvement is almost certainly durable.

Current account. The current account improved by \$7.7 billion from 2000–01 to 2002–03; the current account surplus was \$4 billion in 2002–03, or 0.7 percent of GDP. But, as explained above, the trade deficit has started to rise. The current account surplus is expected to be about the same in 2003–04. Part of the current account surplus is undoubtedly spurious, caused by leads and lags in response to the possibility of rupee appreciation.

Foreign investment. Despite much loose talk about buoyant capital inflows, foreign investment actually *fell* from some \$6 billion in 2000–01 to some \$4.5 billion in 2002–03 as a result of a flat trend in FDI and a decline in portfolio investment. Thus the strength of the capital account in these two years lay elsewhere, as explained below. In 2003–04, however, foreign investment rose very sharply, largely because of portfolio equity inflows. Foreign direct investment showed little change. Net portfolio equity inflows amounted to some \$9 billion in the year as a whole.

Medium- and long-term loans. Net inflows of official and private medium- and long-term loans turned into net outflows in 2001–02 and 2002–03. The outflow increased in 2003–04, because the government decided, in view of the strong balance of payments, to prepay some past international borrowing.

Short-term loans, “banking capital,” and “other capital.” Despite capital controls, recorded short-term debt inflows rose in 2002–03, and rose even faster thereafter. They were estimated to be about \$3 billion in 2003–04. Inflows classified under “banking capital” increased sharply from 2001–02 onward, with roughly one-third of the increase due to NRI deposits. “Other capital” inflows also rose in 2001–02, rose sharply in 2002–03, and continued to rise rapidly thereafter. Notably, short-term loans, “banking capital,” and “other capital” together constituted 75 percent of the capital account surplus in 2002–03. These are all short-term and highly reversible inflows. Some of the inflows may decelerate: for example, banks will now have exhausted their foreign borrowing limits, and arbitrage funds disguised as trade credit may also slow down. But obviously, the incentive for short-term inflows will remain as long as the covered interest differential in favor of India is significantly positive. The latter was about 3 percent a year in 2003–04.

Accumulation of reserves. As a consequence of the above developments (and the policy of managing the exchange rate), reserve accumulation accelerated. In the ten years from March 1991 to March 2001, foreign exchange reserves increased \$35 billion. Roughly the same increase took place in *two* years from March 2001 to March 2003, when reserves reached \$75 billion, and in *one* year to March 2004, when they reached \$111 billion (about eighteen months import cover).

The Sources of Inflow Acceleration

In examining the character of inflows, it is illuminating to focus on the share of the *increase* in various inflows in the *increase* in reserve

**TABLE 8. India: Increase in Foreign Exchange Inflows,
Fiscal Years 2000–01 to 2003–04^a**
Billions of dollars

	<i>Increase 2000–01 to 2002–03</i>	<i>Increase 2002–03 to 2003–04^a</i>	<i>Increase 2000–01 to 2003–04^a</i>
Trade balance	1.4 (12)	-5.1 (-48)	-3.7 (-17.1)
Net invisibles	6.4 (57)	5.9 (56)	12.2 (56.2)
Software	3.2 (29)	3.5 (33.0)	6.6 (30.4)
Remittances	2.0 (18)	3.1 (29)	4.9 (22.6)
Current balance	7.6 (67)	0.9 (9)	8.6 (39.6)
Foreign investment	-2.0 (-18)	8.0 (75)	6.7 (30.9)
Direct	0.5 (4)	0.0 (0)	0.0 (0.0)
Portfolio	-1.9 (-17)	8.3 (78)	6.6 (30.4)
Loans	-8.4 (-75)	0.0 (0)	-8.0 (-36.9)
External assistance	-3.0 (-21)	-0.4 (-4)	-2.8 (-12.9)
External commercial borrowing	-6.0 (-53)	-1.8 (-17)	-7.8 (-35.9)
Short-term loans	1.0 (9)	1.9 (18)	2.8 (13.0)
Banking Capital	7.0 (62)	-1.1 (-10)	6.7 (30.9)
NRI deposits	0.8 (7)	1.7 (16)	2.4 (11.1)
Other net assets of banks	6.2 (55)	-2.6 (-24.5)	4.3 (19.8)
Other capital	3.8 (34)	3.0 (28)	6.7 (30.9)
Capital account	2.0 (18)	10.3 (97)	12.4 (57.1)
Errors & omissions	1.2 (12)	-0.4 (-4)	0.8 (3.7)
Overall balance	11.2 (100)	10.6 (100)	21.7 (100.0)

Source: Table 7.

a. Figures in parentheses are percentage shares of the increase in the balance-of-payments surplus (overall balance).

accumulation. This perspective is somewhat different from that in the standard RBI calculation of the “sources of accretion of reserves,” which emphasizes levels rather than rates of change (see table 8).

It is clear from column 1 of table 8 that the trade balance was a very minor element in the acceleration of reserves during 2001–02 and 2002–03. The acceleration was driven by invisibles (remittances and software exports), “banking capital,” and “other capital.” Notably, the latter two items taken together were even more significant than invisibles. Other components of the capital account were either stagnant (for example, foreign direct and portfolio investment) or falling (for example, medium- and long-term loans). As column 2 of the table indicates, the pattern changed somewhat in 2003–04. The contribution of the trade balance became significantly negative, and that of invisibles remained high. There was a sharp rise in the contribution of portfolio investment and to a lesser extent of short-term loans.

Overview

The balance of payments has strengthened significantly since April 2001, manifested by the increase in reserves by about \$70 billion in the ensuing three years. The evidence in column 3 of table 8 inclines us to the following three conclusions about the nature of the increased inflows from 2000–01 to 2003–04.

First, the inflows were partly real (invisible receipts, especially software exports) and partly financial (especially “banking capital” and “other capital”), but the latter were quantitatively much more important. (The distinction between “real” and “financial” inflows should be understood to turn on whether the increase in inflows directly affects the goods, or “real,” market or the money and securities, or “financial,” markets.) If we count the entire change in the trade balance, software exports, and FDI and two-thirds of the change in remittances as “real” and the rest of the change in the balance of payments as “financial,” then real inflows comprised 28 percent and financial inflows 72 percent of the increased inflows.

Second, the inflows have mostly not been of a kind that would directly increase real investment, because FDI has been stagnant.²⁵ Software exports could, however, provide some boost to investment in the information technology sector. There is some evidence that remittances boost investment in construction activity, but they also flow into increased consumption and acquisition of financial assets.²⁶ External commercial borrowing, which is mostly for real investment, has fallen but may rise in the future. Items in the capital account that have been buoyant, such as inflows of portfolio equity and short-term loans, have an indirect and uncertain connection with real investment.

Finally, as regards the *durability* of the inflows, only the increase in software exports can be confidently classified as durable. If we reckon that, in addition, half of the increase in remittances and half of the increase in portfolio equity inflows are “permanent,” we arrive at a figure of 55 percent as

25. International evidence suggests that FDI is strongly associated with an increase in domestic investment. That is not the case with inflows of portfolio equity or short-term debt. See Bosworth and Collins (1999) and World Bank (2001). Note that even FDI does not necessarily give additionality of real investment since it may consist simply of foreign acquisition of domestic companies.

26. Not much is known about the disposition of remittances. International evidence indicates that they go largely into consumption and financial assets. See Chami, Fullenkamp, and Jahjah (2003).

the share of durable inflows.²⁷ A sizable but unquantifiable portion of the remaining inflow acceleration can be attributed to arbitrage activity arising from a covered interest differential in favor of India. It is likely that this will now unwind as interest rates rise in the advanced countries. The stock market boom of 2003–04 has probably run its course, and portfolio equity inflows are now likely to slow down.

In sum, we guess that up to three-quarters of the recent acceleration has directly affected the financial rather than the goods markets; only a minor part of the acceleration has contributed directly to increasing real investment; and about half of the acceleration was of a durable character.

Macroeconomic Policy Options

This section on policy options should be read along with the appendix, which contains some relevant theory, based on the simplest version of the Mundell-Fleming model, well-known even to beginners in economics. The model is distant from reality; nevertheless, it identifies some essential points. Here, we go beyond the appendix model and make judgments that are likely to be controversial.

We begin by identifying policy objectives. It would be widely agreed in India that macroeconomic policy should aim to keep current output close to capacity, keep inflation low (say, at or below an annual rate of 5 percent), insure against the possibility of financial and currency crises, and increase the rate of growth of national income by stepping up investment and productivity.

The first objective, keeping output close to capacity, is noncontroversial. The second, low inflation, has traditionally had and continues to have very high salience in India's democratic politics because a large part of the economy is non-indexed. The third objective, avoiding crises, points to erring on the side of caution as regards the size of foreign exchange reserves and the advance toward capital account convertibility. The fourth, raising investment, is crucial. The rate of investment in India (about 25 percent of GDP) is low compared with that of the successful performers among developing countries and must evidently be increased if the growth rate is to rise. Macroeconomic policy has to be consistent with this objective. If produc-

27. Arguably, in a crisis, outflows of portfolio investment should be deterred by falling bond and equity prices, but this *a priori* argument is not entirely supported by the East Asian experience in 1997 and 1998.

tivity is to rise, it must also be consistent with the agenda of economic reform. Two aspects of reform are particularly germane in the context of increasing investment while responding to foreign inflows, namely, fiscal consolidation and import liberalization.

Alternative responses to (an increase in) foreign inflows can be usefully classified into those that allow the inflows to enter the economy but block balance-of-payments adjustment; those that allow the inflows to enter the economy and enable balance-of-payments adjustment; and those that repel the inflows by direct measures. We term these categories "sterilization," "adjustment," and "capital controls," respectively.

Sterilization

This option describes India's present policy. It consists of fixing the nominal exchange rate or managing it to resist a market-driven exchange rate appreciation and preventing the consequent reserve accumulation from increasing the supply of money. The classic technique of sterilization is open-market operations: the central bank sells government bonds to mop up (or "sterilize") the increase in base money caused by reserve accumulation. But sterilization can also be pursued by changing the money multiplier: for example, the central bank can increase the cash reserve ratio of the banking system.

Sterilization has been the principal response to foreign inflows in the current decade. Table 6 shows that in every year since 1999, growth in the RBI's net foreign exchange assets has exceeded the increase in reserve money. Correspondingly, the RBI's stock of salable domestic assets has fallen; indeed, as of December 2003, it was completely exhausted.

Sterilization can be contrasted with adjustment and increased absorption. Adjustment involves reallocation of resources and changes in the composition of output, with concomitant frictional costs (for example, *transitional unemployment or inflation*) and *unpredictable effects on expectations*. Sterilization can therefore be beneficial if the inflows are judged to be temporary, that is, likely to reverse; in that instance, sterilization not only enables the reversal of the inflows to be financed but makes it possible to avoid the costs of unnecessary adjustment and readjustment. Note, however, that sterilization may have some role to play even in the case of durable inflows since it can help with the optimal timing of adjustment. The authorities may be able to influence the outcome of adjustment better if it is gradual; sterilization may be useful in slowing down the adjustment when inflows accelerate rapidly. (Arguably, a gradual adjustment increases

the chances of the inflows ending up in extra investment rather than in extra consumption.)

But sterilization has costs. These do not principally relate to the technical difficulty of continued sterilization. Though the RBI has exhausted its stock of salable government bonds, it would be technically possible for it to issue its own bonds (though that would require an amendment of the RBI Act) or for the government to manufacture another security that the RBI could sell to soak up reserve money. Indeed, the latter alternative has recently been put into effect. In March 2004, the government created new "market stabilization bonds" that can be sold by the RBI. (Interest on these bonds will be a charge on the budget.)

The true costs of continued sterilization are of two kinds: economic and quasi-fiscal. (These costs are not additive.) The economic cost pertains to domestic consumption and investment forgone by tying up resources in reserves. The quasi-fiscal cost relates to the adverse impact of sterilized reserves on the fiscal position of the government and the central bank as a combined entity. Each has a *stock* and a *flow* aspect. Back-of-the-envelope reckoning of these costs is given below. We assume the following ball-park figures for India circa December 2003: GDP, \$600 billion; foreign exchange reserves, \$100 billion; rate of return on investment, 10 percent; government's borrowing rate, 5 percent; rate of return on foreign exchange reserves, 2 percent. Therefore, national income forgone by the stock of sterilized reserves is $100 (.1) - 100 (.02) = 100 (.08) = \8 billion a year, or 1.3 percent of current GDP a year, with a present value of \$80 billion at a 10 percent discount rate.²⁸

But the *net* economic cost is surely much lower as a result of the offsetting benefits of reserve accumulation. Old benchmarks such as "reserves should equal three months imports" have been rendered irrelevant in a world of high capital mobility. Recent emerging-country experience indicates that a reserve this size would be too small to ensure against the risk of substantial volatility of the exchange rate (including the possibility of large exchange rate changes with destabilizing effects)

28. A more sophisticated treatment would ask whether the opportunity cost of reserve accumulation is forgone consumption or forgone investment. Suppose the marginal social value of investment is twice that of consumption. (In other words, the rate of return on investment is 10 percent but the social discount rate is 5 percent.) Then the economic cost of sterilization would have a present value of \$80 billion if reserve accumulation led to a sacrifice of consumption, \$160 billion if it led to a sacrifice of investment, and somewhere in the range of \$80–\$160 billion for intermediate cases. Note that the economic cost of *unsterilized* reserves would be lower. Unsterilized reserves will be expected to be documented over time, in tandem with real exchange rate appreciation. To that extent, absorption is not forgone; it is postponed.

or lengthy periods of exchange rate misalignment. As for capital mobility, this could in principle reduce the need for reserves. But again, recent experience indicates that developing countries cannot borrow when they most need to (in a crisis) and can suffer harmful economic and political consequences thereby. Once we accept that an intermediate exchange rate regime suits India's interests for the near-term future, we must also accept the corollary that the country must maintain a cushion of high reserves (and, in addition, some focused capital controls). In practice, there is no "scientific" way of estimating the optimum reserve level. In our judgment it would not be excessively risk averse, in the light of emerging-country currency crises in the past ten years, to maintain the ratio of reserves to GDP or imports at around the current level. Reserves are now about 16 percent of GDP and cover about eighteen months of merchandise imports.

At the same time, further large increases in these ratios on grounds of precaution and safety would surely be unwise. There is such a thing as being over-insured! India's reserves are now approximately equal to its total external debt; well above 50 percent of total external liabilities (including the accumulated stock of foreign direct and portfolio equity investment); fifteen times the stock of short-term debt; larger than base money; and around 25 percent of broad money. Even if we assume that half the accumulation of reserves in the current decade is caused by potentially volatile inflows, the reserve cushion is clearly perfectly adequate. We assume below that maintaining the present ratio of reserves to GDP would satisfy all reasonable canons of prudence.

The implication of the above argument is that carrying the current stock of reserves does not impose a net economic cost. There remains, however, the future flow cost of continued sterilization. Annual reserve accumulation is now about \$30 billion, or about 5 percent of GDP. If we assume that the dollar value of GDP will grow at 6 percent a year, then an addition to reserves of 1 percent of GDP would be required to maintain the ratio of reserves to GDP. That implies "excess" reserve accumulation of around 4 percent of GDP if inflows continue at today's rate. The cost of sterilization in the first year would then be $(.04)(.08) = 0.32$ percent of GDP. But this cost would cumulate rapidly. In the second year it would be 0.64 percent, in the third year 0.96 percent of GDP, and so on. This is clearly not a recipe for a sensible economic policy.

We now turn to the quasi-fiscal flow cost of sterilization. (It is assumed that the quasi-fiscal cost of the present stock of reserves is worth bearing in view of the offsetting benefits outlined above.) The interest

differential between the government's borrowing rate and the yield on reserves is 3 percent. If excess reserve accumulation is 4 percent of GDP in the first year, the quasi-fiscal cost is $(.04)(.03) = 0.12$ percent of GDP. But this too can cumulate rapidly if reserves continue to rise at the same rate. In the second year the cost is 0.24 percent of GDP, in the fourth year it is 0.48 percent of GDP.²⁹

A word must be said about sterilization by changing the money multiplier, say by raising the cash reserve ratio. In this case, the quasi-fiscal cost of open market operations is substituted by a tax on the banking system. This may lead to disintermediation from the banking system; it may also reduce private savings through a reduction in deposit rates offered by the banking system. Another method of sterilization is to require government-controlled institutions to switch their deposits from commercial banks to the central bank. But this does not avoid the quasi-fiscal cost if the central bank deposit rate is equal to the government's borrowing rate; and if it pays a lower deposit rate, it shifts the costs to savers. There is not much mileage in substituting the above techniques of sterilization for open market operations.³⁰

The upshot of the above discussion is as follows. We think that it would be sensible on prudential grounds to maintain the current rather generous reserves to GDP ratio. But if reserves continue to increase at today's rate, they would be excessive to requirements and increasingly expensive to hold. Thus, even if we allow that the present level of reserves in India is optimal, future sterilized reserve accumulation at the present rate would be unwise. India's policymakers must urgently consider how to utilize the continuing "excess" foreign inflows productively. This takes us naturally to various options of adjustment.

Adjustment

The main general point we wish to make about adjustment is that the usual discussion of methods of adjustment is too narrow in its scope and focuses only on adjustment through real appreciation. Adjustment could also be

29. Calculations of both the economic and quasi-fiscal costs must in principle allow for expected exchange rate changes (and expected changes in interest rates). We do not pursue the matter here.

30. The RBI may be tempted, at the margin, to use the cash reserve ratio (CRR) for sterilization in preference to open market operations because bank profits have increased in the recent past. But this is only a short-term tactic. The RBI has announced its intention to bring the CRR down over time to 3 percent, as part of the program of financial liberalization. It now stands at 5 percent.

undertaken, wholly or in part, by the use of other methods. The main adjustment options are as follows.

NOMINAL EXCHANGE RATE APPRECIATION. One option is to allow the rupee to appreciate. A free float is theoretically possible.³¹ (Note that it would have to be accompanied by full or near-full capital account convertibility if it is to make any sense. A float cannot operate satisfactorily in a thin foreign exchange market.) But a free float is not a relevant alternative in practice. India has not reached the stage when such a regime could be safely adopted. So appreciation should be taken to mean a controlled nominal appreciation, within the context of India's "intermediate exchange rate plus capital controls" regime. The consequent real appreciation would absorb the inflows and promote the transfer of foreign resources by squeezing out net exports. But it may also contract output. This suggests that monetary policy would have to be simultaneously deployed to reduce interest rates. With an active monetary policy, a recession could be prevented. At the same time, the composition of national income would change toward higher consumption, investment, and imports, as well as lower exports.³²

What if the inflows have a substantial "temporary" component? Adjustment through appreciation involves a significant reallocation of resources away from the tradable sector. If the inflows stop, the process would have to be reversed. Export markets, once lost, are not easy to recapture. In other words, if the inflows are temporary, the costs of adjustment may outweigh the benefits of a temporary increase in absorption. It could be argued that a temporary appreciation would be correctly forecast to be temporary by rational agents, so there would be no significant effects on resource allocation or investment in the tradable sector. But it is surely unwise for policy-makers to act on the *assumption* that expectations are rational, if the consequences of the assumption being false would be seriously adverse. In practice, whether inflows are temporary or durable is a hard judgment to make for both public and government. One possible rule of prudence is that

31. If the exchange rate is allowed to float freely, the level to which it would appreciate is bound to be a matter of some uncertainty. Models that incorporate exchange rate expectations work out the short-run dynamics by tying down the long-run exchange rate (say, by purchasing power parity). But this is a theoretical construct. During a time-horizon relevant for policy, the exchange rate can settle for substantial lengths of time at misaligned levels. The danger of prolonged excessive appreciation is thus a danger. This suggests that the authorities should manage the appreciation. That is difficult without some capital controls. Fortunately, India has them in place.

32. In the adjustment outlined, *private* investment increases. One could alternatively envisage adjustment through higher *public* investment. But that would increase the fiscal deficit, which is already excessive.

policy should be biased toward treating positive shocks as temporary and negative shocks as permanent unless proved otherwise.

If the inflows are judged to be durable, there is a case for nominal appreciation and, on the orthodox view, a very good case. We disagree. Mild undervaluation may be good for growth. Our view is that there should be a policy bias against exchange rate appreciation, even in responding to inflows judged to be “permanent,” because of the close connection between the level of the real exchange rate and the rate of growth of output through the growth of export demand.

Historically, super-fast growth has been based on harnessing a labor surplus to produce labor-intensive manufactured goods for the world market. This was true of Japan in the 1950s and of several countries in East and South-East Asia, including China, since then. The basic reason goes back to Sir Arthur Lewis’s famous closed economy model of a growing economy with “unlimited supplies of labor.”³³ In the Lewis model, the modern (mainly industrial) sector can grow rapidly because labor is available at a constant real wage, so capital accumulation is not subject to diminishing returns. The share of profits, and therefore of saving and investment in national income, rises continuously, and growth accelerates until the labor surplus is exhausted. This tendency is reinforced by the fact that all the fruits of technical progress add to profits.

The main problem with the Lewis scenario is that the presence of “surplus labor” in the traditional (mainly agricultural) sector is not enough to ensure the constancy of the real wage. If (food) production in the traditional sector is inelastic, the terms of trade will turn against the modern sector, raising the real wage. (In practice, this may take the form of an “inflation barrier” to industrial expansion.) A further consequence of this tendency would be that in the modern sector the incentive to save and invest would be impaired.

In this context, openness of the economy can dramatically alter the picture. If a growing country can export labor-intensive industrial products at roughly constant terms of trade, the real wage constraint is lifted and the incentive to save and invest is restored. Labor-demanding growth would also reduce poverty directly without having to rely on “trickle-down.”

If rapid export growth is important for the above reasons, it makes sense to err on the side of undervaluation of the exchange rate because growth of export demand is related to the level of the real exchange rate. An undervalued exchange rate enables a country to capture a larger share of world

33. Lewis (1954).

markets. (If world markets are growing at x percent, then the country's exports can grow faster than x percent during an adjustment period that can be quite long.) Growing exports, in turn, raise the incentive to invest. Extra domestic savings come from the rise in profits in export activities and the rise in incomes of the recruits to the industrial labor force. An undervalued exchange rate is likely to boost saving by raising the share of profits in national income. (Note that if investment demand outruns available domestic and foreign savings at the target exchange rate, the government would have to restrain consumption by fiscal policy in order to maintain internal balance.) This argument should not be read as implying that unlimited real depreciation is feasible or desirable. It clearly is not. What is being claimed is that there should be a bias toward mild undervaluation because it can play a supportive role to complementary outward-oriented trade policies in generating a virtuous circle of higher saving, investment, and growth. Thus the motivation of this export-led strategy is not mercantilism or "exchange rate protection" but moving the economy to a higher growth path. Import demand would grow concomitantly, and there may or may not be a current account surplus.³⁴

How do these considerations bear on Indian macroeconomic policy? It is obvious that if India is to reduce poverty rapidly, it is imperative to raise the rate of growth from 6 percent a year to 8 percent or more. In addition to the existing potential reserve of "surplus labor," India also faces another potentially favorable development, namely, the "demographic bonus." India's working-age population is due to rise sharply over the next two decades in absolute terms and as a share of total population. This will help keep real wages down and also raise the rate of private saving. It is clear, however, that this opportunity can be exploited only if the growing labor force is productively employed and the inducement to invest is maintained at a high level so that the potential savings do not run to waste. In this context, it will be important both to lower real interest rates and to ensure that labor-intensive exports grow rapidly.³⁵

34. We think this argument could be formalized but have not yet done so. See Little (1981, 1996) and Bhagwati (1996) for illuminating interpretations of the East Asian "miracle" as export-led growth. For an early, forceful advocacy, in a different context, of export-led growth through a competitive exchange rate, see Kaldor (1971). For an insightful model of exchange rate policy and export-led growth, see Williamson (2003). For an empirical cross-country demonstration of the link between undervaluation and growth, see Bhalla (2004).

35. We must note also that if the economy starts to grow at 8 percent rather than 6 percent, the safe limit for monetary expansion will increase, so unsterilized intervention in response to balance of surpluses can play a larger role.

Rapid export growth is necessary not only to sustain the inducement to invest but also to ensure that India's growth is *labor demanding*. This is crucially important. India's recent employment record has been dismal. In the organized sector (even in the organized manufacturing sector), employment barely changed between 1991 and 2001; since 1997 it has actually fallen. Data from the National Sample Survey indicate that total employment (organized and unorganized) is growing at about 1 percent a year, half the projected growth rate of the labor force.

In some quarters, it is thought that employment could grow rapidly on the back of exports of software services. But current employment in that sector is about 700,000; on optimistic assumptions, it may rise to 2 million by 2010. But India's labor force is set to grow by about 8 million per annum for the next twenty years. Thus, it is most unlikely that India could grow fast without rapid growth in exports of labor-intensive manufactured goods. Maintaining a competitive exchange rate is one of several policy measures that are relevant for this purpose (others include trade liberalization, labor market reform, abolition of small-scale industry reservations, and provision of primary education).³⁶

FIXED (OR TARGETED) NOMINAL EXCHANGE RATE WITH UNSTERILIZED INTERVENTION. Another policy option is to fix or target the nominal (effective) exchange rate (say, to keep the real effective exchange rate at today's level) and allow the accumulation of reserves to increase the money supply. This would be a continuation of India's present exchange rate policy but with unsterilized intervention.

There may now be some scope to pursue such a policy and enjoy a Keynesian "free lunch." The economy has grown strongly in 2003–04, largely because of a rebound in agriculture, but there is probably still an output gap in the industrial sector since industrial growth has been below trend in the past five years. (The extent of the gap is hard to pin down because estimates of capacity utilization in India are unreliable.) The RBI has permitted both reserve money and broad money to accelerate in 2003–04, which seems sensible given the existence of slack and the comfortable food and foreign exchange position. Even so, although there may be some further room for experimentation to test the margin of slack, the

36. Note that the share of industrial output in GDP is extraordinarily low in India (around 25 percent) and has not increased much in the past forty years. In the fast-growing countries (for example, China, South Korea, Malaysia, Indonesia, Thailand) it has doubled or more over the same period and is now around 40 percent. The view that India can skip the stage of rapid export-led industrial growth is a dangerous illusion. For a similar view, see Acharya (2003).

scope for noninflationary increases in money supply growth is likely to be limited. In our judgment, India's policymakers would rightly be unwilling to undertake inflationary policies on the dubious ground that a highly elastic supply response would eradicate inflation within a reasonably short span of time.

In the absence of output slack, the real effects of a nominal fix are in abstract theory exactly equivalent to those of a nominal exchange rate appreciation. Adjustment and resource transfer are brought about by a rise in prices that leads to a *real* appreciation and widens the current account deficit. Even so, this option is not in practice likely to be quite the same as nominal appreciation. The dynamics may work in a variety of ways. Prices may rise slowly. It may be that the slow transfer of foreign resources has a greater chance of being translated into domestic investment than the rapid transfer engineered by appreciation. But the danger is that what should be an "equilibrium" rise in prices may set off an inflationary spiral, which may be hard to extinguish. If that happens, the real effects would be unpredictable, possibly highly adverse. As with appreciation, if the inflows are temporary but perceived to be permanent, the real adjustment that takes place would have to be reversed; and there may in addition have to be a painful disinflation. If the inflows are "permanent," the above problem does not arise. But a long-lasting real appreciation, as argued earlier, could have adverse growth effects.

We note here that given India's intermediate exchange rate-cum-capital controls regime, it would be possible to combine both options, in other words, to obtain real appreciation partly by nominal appreciation and partly by higher inflation. But there are severe constraints in India on the acceptable rate of inflation. So in practice this compromise is likely to be heavily biased toward nominal appreciation. Moreover, a substantial real appreciation would be undesirable, whichever way it is obtained.

IMPORT LIBERALIZATION. Import liberalization would absorb foreign inflows through an increase in the current account deficit but, unlike appreciation, it would do so without reducing the incentive to export. In common with appreciation, it would reduce aggregate demand, so it would have to be combined with monetary expansion to stabilize output and encourage investment. It would also put particular pressure on industries that produce import-substitutes. But it is a declared objective of Indian reform to reduce tariffs significantly. India's average tariff rate of around 25 percent on industrial goods is still among the highest in the developing world. The current inflows thus provide a window for pursuing a policy that is beneficial in its own right for increasing productivity.

Two other concerns about import liberalization are more pertinent but are based on assuming that the tax structure cannot be rationalized. First, tariff reduction would have a negative impact on government revenue.³⁷ Import liberalization would thus have to be accompanied by measures to offset the revenue impact. But there is plenty of scope for desirable widening of the tax base and reduction in dysfunctional exemptions. (For example, services are virtually untaxed.) Second, in addition to a central value added tax, India has state taxes that are not rebated on exports. If tariffs were drastically reduced, there is a danger that domestic industry would receive negative effective protection. But state taxes are not an impediment to a substantial reduction of import duties from the current average of 25 percent to (say) 10 percent. Further import liberalization would require a move to an integrated center-state VAT.

FISCAL CONSOLIDATION. A tighter fiscal policy can promote adjustment to foreign inflows in two ways. First, it can create space in the economy to accommodate the increased pressure of demand resulting from inflows that have a direct impact on the goods market (for example, exports, FDI). Second, when combined with monetary expansion, it can reduce interest rates while maintaining output constant. The interest rate reduction would reduce the incentive for interest-sensitive capital inflows, while simultaneously changing the composition of output toward private investment. The critical point is that both these aspects of fiscal contraction promote adjustment *without* significant exchange rate appreciation. (Another way of putting this point is that increased foreign inflows permit fiscal contraction and monetary expansion to crowd in investment *without* the large, and possibly destabilizing, exchange rate depreciation that would otherwise be required to achieve the same result in the absence of inflows.) Adjustment with exchange rate appreciation is likely to result in a lower rate of investment than adjustment with fiscal contraction and monetary expansion with a competitive exchange rate.

The need for fiscal consolidation is not in dispute. The small reduction in the fiscal deficit in the first half of the 1990s was lost in the ensuing years, and the deficit has averaged roughly 9.5 percent of GDP since then. The public debt-GDP ratio has risen about 20 percent (from about 65 percent to 85 percent of GDP) in the past eight years. (External public debt has fallen, so *domestic* public debt as a proportion of GDP has risen by even more over the same period.)³⁸ Without fiscal consolidation, there is a serious risk of

37. But import liberalization is no worse than sterilization in this respect. Both involve a fiscal cost.

38. See Kapur and Patel (2003), Pinto and Zahir (2004).

lower growth through crowding out of private investment. Indeed, this may already be happening.³⁹ Fiscal consolidation (like import liberalization) thus has special significance in the context of responding to foreign inflows, since it is independently highly desirable, even essential.

Of course, fiscal consolidation should consist not only of reducing the volume of the deficit but also of improving its quality. What is required is an increase in public investment (especially in infrastructure) and in social sector expenditures, combined with a reduction in unproductive public consumption and subsidies that is big enough to reduce the overall deficit.⁴⁰ Such a program would be fully consistent with what we propose. Admittedly, it could not be implemented without political will, which may be hard to muster in an atmosphere of complacency generated by strong foreign inflows.

THE ROLE OF MONETARY POLICY. It is clear from the above discussion that monetary policy is an essential ingredient of optimal policy. With a floating or managed exchange rate, an active monetary policy is required to maintain internal balance and increase the share of investment in national income, while achieving external adjustment.

Capital Controls

This option consists of repelling capital inflows by direct measures, thus avoiding the need for sterilization or adjustment.

This is not the place to rehearse the costs and benefits of capital controls save to note that the academic consensus no longer supports a doctrinaire position in favor of capital account convertibility.⁴¹ India already has capital inflow controls, though they have been diluted in recent years. The practical question is whether to tighten them in response to the current "problem of plenty."

In the present context, the argument for tightening is as follows. If inflows continue at the current rate, or grow even faster, sterilization will become technically more difficult and cumulatively more expensive, and the pressure for adjustment will grow. Adjustment through fiscal consolidation

39. Note that corporate investment *halved* as a proportion of GDP in the second half of the 1990s. Public sector investment also fell. A fall in aggregate investment was avoided by rising household investment. See table 2.7 in Reserve Bank of India (2004).

40. There is plenty of scope for carrying out such a program, see Joshi (1998a, 1998b). Only the nature of the political system and the balance of forces prevent India from achieving it. The future of reform will be endangered, indeed brought to nought, unless the fiscal deadlock is broken.

41. See Williamson (1993), Bhagwati (1998), Cooper (1999), Prasad and others (2003).

and import liberalization can proceed at only a moderate pace. If the inflows are large, the government would therefore be forced willy-nilly to allow real appreciation. But a sizable real appreciation would have adverse consequences for growth for reasons advanced earlier.

Thus, a case can be made for intensification of controls, especially if they are of a market-oriented variety (for example, a tax on capital inflows, Chilean-style). Even so, we think the government should be wary of tightening controls, because the financial markets may interpret the move as a signal that the government is diluting its commitment to reforming the financial sector and integrating with the world economy. Moreover, we doubt such a measure is necessary. It is likely that capital inflows will slow down naturally with the recent turn in the interest-rate cycle in the advanced countries. It is also likely that if the government undertakes the measures we suggest, the expectation of exchange rate appreciation will abate and moderate inflows. Even so, the possibility must be faced that we *could be wrong*. *The weapon of capital controls must therefore be kept in the armory of policy instruments, to be used in extreme circumstances.*

Finally, a word is necessary about the suggestion sometimes heard that the right response to the acceleration of inflows is to liberalize controls on capital *outflows* by residents. We do not agree. Capital outflow liberalization could *increase* net inflows and the “embarrassment of reserves” in the short-term. But if there are adverse shocks, confidence could seep away. In that case, an open capital account would be dangerous. The government could face strong competition in the market for funds and may have to borrow in foreign currency. The banks would have to compete for deposits with overseas banks. Given India’s unsound fiscal position and weak banking system, this could be a recipe for a fiscal, financial, and currency crisis.

Optimal Policy

We now draw the threads of the argument together and consider the nature of the optimal policy response to the acceleration of foreign inflows. Each policy alternative has its strengths and weaknesses in relation to policy objectives and constraints. It would therefore be sensible to think in terms of policy packages. Different adjustment packages can be envisaged that can give internal balance and balance-of-payments equilibrium but with different effects on the *composition* of output and the balance of payments. (This point is made in the simple appendix model, but it applies more generally.) Policy packages weighted toward fiscal contraction and monetary

expansion would tend to produce relatively lower interest rates. Those *weighted toward real exchange rate appreciation would involve relatively larger current account deficits*. Real appreciation, in turn, could be secured by nominal appreciation or by permitting higher inflation. Policy packages that use import liberalization would, like real appreciation, permit higher absorption through higher current account deficits but without penalizing exports. The optimal package is a judicious combination of these various policies. But what is “judicious” in the Indian context? We think that for reasons already given, the policy package should be biased toward fiscal consolidation and import liberalization, rather than real exchange rate appreciation through nominal appreciation or inflation. Our policy recommendations are thus significantly different from those of Lal, Bery, and Pant (see section IV of their paper).

Our views on future policy can be further amplified as follows. Sterilization has outlived its usefulness. Some sterilized reserve accumulation can continue to maintain the present ratio of reserves to GDP. Further increases in the ratio should be avoided except as a purely short-term response to manifestly short-term inflows. The normal response should be to adjust to the “excess” inflows in the manner described above. Our favored policies have the advantage that in addition to promoting balance-of-payments adjustment, they are also desirable independently of the balance of payments and of the “temporary” or “permanent” character of the inflows. Naturally, because of political and other constraints, these policies could be pursued only at a moderate pace. That leaves the question how policymakers should react in the (in our view unlikely) event of a continued acceleration of inflows, despite the inauguration of the suggested strategy. We think that in such a situation, the government should be prepared to tighten capital inflow controls (for example, by a Chilean-style tax) so that the strategy is not derailed.

We are not arguing that India should resist an exchange rate appreciation forever. After the completion of economic reform and a decade or two of super-fast growth, India would reach the stage at which both a floating exchange rate (accompanied by inflation targeting) and capital account convertibility could be contemplated.

Concluding Remarks

In this paper, arguments have been advanced to support the following propositions.

First, India's policymakers score high marks for their conduct of the external aspects of macroeconomic policy in the 1990s. The "intermediate exchange rate plus capital controls" regime was the right one to adopt and served the country well. It enabled policymakers to combine exchange rate targeting with some monetary autonomy. It also reduced India's vulnerability to currency crises in the decade. Contrary to Lal, Bery, and Pant, there is no evidence that the external payments regime reduced the growth rate of the economy.

Second, the stance of policy so far in the current decade has been more questionable but can nevertheless be defended. The balance of payments has strengthened significantly, but policymakers were understandably uncertain of the durability of the inflows and wished to accumulate reserves up to a manifestly safe level.

Third, if the surge in foreign inflows continues, it would now be wise to depart from the strategy of accumulating and sterilizing foreign exchange reserves on the basis of sterilized intervention. Sterilized intervention would in the future be increasingly costly, in both fiscal and broader economic terms.

Fourth, the options for moving away from the strategy of sterilized intervention should not be formulated as a choice between floating the exchange rate on the one hand and fixing the exchange rate without sterilization on the other hand. Adjustment to foreign inflows can be secured with different policy packages incorporating different combinations of monetary fiscal, trade, and capital account policies.

Finally, in the current situation, the policy response to balance-of-payments surpluses should be biased in favor of fiscal consolidation and import liberalization and against real exchange rate appreciation through nominal appreciation or inflation.

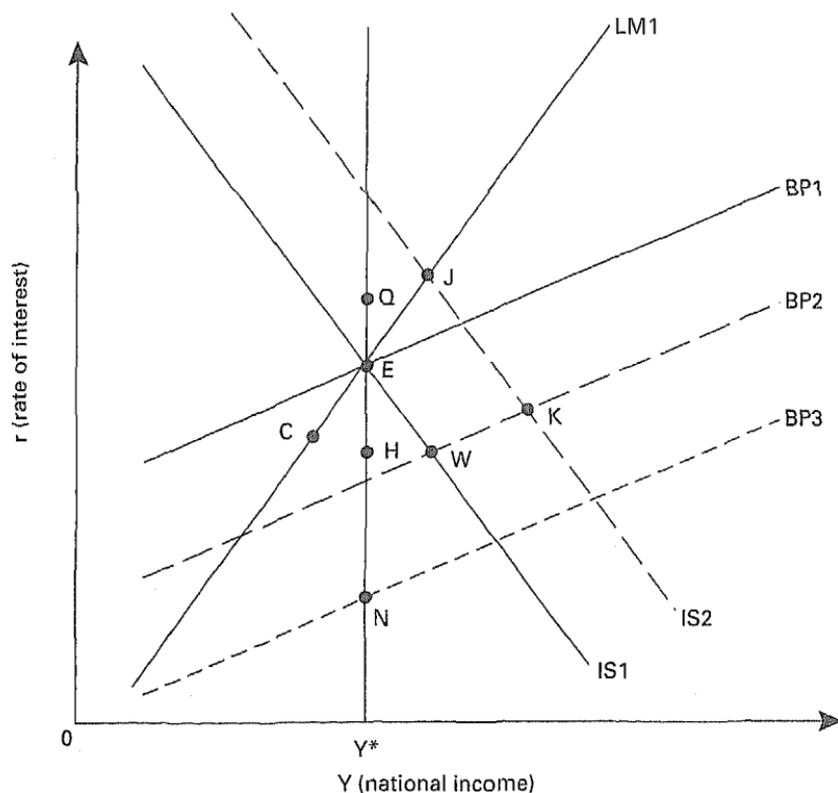
APPENDIX

External Shocks and Policy Response: Analytical Notes

Policy responses to positive balance-of-payments shocks can be analyzed using the Mundell-Fleming model (*IS/LM/BP*).⁴² See figure A-1. We assume, realistically, that capital mobility is fairly high but less than perfect, so the *BP* curve is upward sloping and relatively flat but not horizontal;

42. The model is expounded in all standard textbooks. It has deficiencies, in particular its assumption of static exchange rate expectations, but it nevertheless remains the basic "workhorse" model in international economics.

FIGURE A-1. Mundell-Fleming Model: Effects of Positive External Shocks



in particular, it is flatter than the LM curve.⁴³ Two kinds of shocks are analyzed: a goods-market shock, such as a boom in exports or foreign direct investment (FDI), and a shock in the market for bonds.⁴⁴ In this simple model, “bonds” include all financial assets such as bills, bonds, and equities. A goods-market shock is a simultaneous rightward shift in the IS curve and downward shift in the BP curve. A bond-market shock is a downward shift in the BP curve. It could be caused, for example, by a fall in world interest rates.

43. The assumption of moderately high but less-than-perfect capital mobility is representative of the current Indian situation. Capital mobility is less than perfect because risk makes Indian securities imperfect substitutes for foreign securities, and India has capital controls. The LM curve is steep since the interest elasticity of the demand for money is low. For a brief survey of the empirical studies on the demand for money in India see Kulkarni (1999). The analysis would remain relevant *mutatis mutandis*, even if the BP curve were steeper than the LM curve.

44. It is assumed that FDI has a direct link with domestic real investment. See, however, note 25 above.

We first examine the effects of these shocks in the following policy regimes: a floating exchange rate, a fixed exchange rate with unsterilized intervention, and a fixed exchange rate with sterilized intervention. We then consider the consequences of the application of discretionary policies, in particular, monetary policy, fiscal policy, import liberalization, and capital controls. Two possibilities are allowed as regards the initial preshock equilibrium of the economy: Keynesian excess capacity (hereafter “unemployment”) and Keynesian full capacity (hereafter “full employment”).⁴⁵ We make the simple Keynesian assumption that as long as output is below or at full employment, money wages and prices are constant. Beyond full employment, money wages and prices rise, but output does not.

The initial equilibrium is at E (income Y^*) where IS_1 , LM_1 , and BP_1 intersect.

Positive Goods Market Shock

Consider first a positive external shock in the goods market, for example, an increase in foreign demand for exports or an increase in inward FDI. Such a shock can be represented by a rightward shift in the IS curve from IS_1 to IS_2 and a simultaneous downward shift in the BP curve from BP_1 to BP_2 .

Floating Exchange Rate

If the exchange rate is floating, the supply of money is exogenous. So LM remains at LM_1 . Suppose export demand (for example, for software exports) increases. The exchange rate appreciates, which offsets the expansionary effect of the shock. The IS and BP curves move back from IS_2 and BP_2 to their original positions, and the initial equilibrium E is re-attained. Net exports (other than software exports) are fully crowded out. In the final equilibrium, national income, the interest rate, and the trade deficit are unchanged. If the shock is increased FDI, the consequences for national income and interest rate are exactly the same as above. But aggregate investment will rise and the trade deficit will widen by the full extent of the extra FDI.

45. Strictly speaking, the IS , LM , and BP curves do not exist at levels of output beyond full employment. This does not matter for our analysis. In the “overfull employment” region, prices rise, so the IS , LM , and BP curves shift. Thus the entire analysis could be carried out with IS , LM , and BP curves drawn only up to and including full employment income.

Note that the above analysis is unaffected by the initial position of the economy. The analysis is the same, whether there is "full employment" or "unemployment" at Y^* in the pre-shock equilibrium.⁴⁶

Fixed Exchange Rate plus Unsterilized Intervention

Consider the effects of the same shocks with a fixed exchange rate regime in which the central bank allows balance-of-payments imbalances to affect the money supply. In this case, the outcome depends greatly on the starting position.

If there is "unemployment" in the initial equilibrium at Y^* , an increase in exports or FDI is expansionary, indeed highly expansionary. We may think of the economy moving first to J , but here there is a balance-of-payments surplus. Consequently, the money supply increases (the LM curve shifts to the right) endogenously, and the economy ends up at K . The effects on aggregate investment and the trade deficit would depend on whether the shock is increased FDI or increased exports.

If there is "full employment" in the starting position at Y^* , the final outcome is exactly the same as with a floating exchange rate. The expansionary effect of the shock goes wholly into a rise in prices, so the real money supply is constant, that is, LM remains at LMI . The rise in prices causes a real exchange rate appreciation, so the IS curve moves back to $IS1$ from $IS2$, and the BP curve moves up to $BP1$ from $BP2$, exactly as with a floating rate. The economy returns to E . Of course the process takes time; foreign exchange reserves rise at first and then decline.⁴⁷ In the final equilibrium, national income is unchanged, prices are higher, and the other effects on investment and the trade balance are exactly as with a floating exchange rate.

Fixed Exchange Rate Plus Sterilized Intervention

With a fixed exchange rate and sterilized intervention, the money supply is kept constant (by the sale of government bonds) despite the increase in reserves that results from the favorable external shock. So LMI does not move.

46. Even if there is unemployment, an equilibrium between E and J is not possible. At any such point there would be an incipient balance-of-payments surplus, so the exchange rate would appreciate further, returning the economy to E .

47. In practice, there may be also some output expansion beyond "full employment" in the short run, which is later undone.

If there is “unemployment” at Y^* , the economy moves to J . National income is higher, but the expansion is limited by the increase in the interest rate, which crowds out some pre-existing domestic investment. If there is initial “full employment” at Y^* , national income remains unchanged in the final equilibrium. Despite a constant money supply, prices will rise because of the higher pressure of demand in the goods market. This moves LM to the left from $LM1$. The real exchange rate appreciation moves IS to the left from $IS2$ and BP upwards from $BP2$. The economy will end up at a point such as Q (national income constant, interest rate higher). The higher interest rate crowds out some investment, so aggregate investment could fall if the shock was increased exports. The domestic-foreign interest rate differential rises because Q is above the BP curve (which will end up somewhere between $BP1$ and $BP2$). This means there will be a persistent incentive for inflows into the domestic securities markets, and foreign exchange reserves will continue to rise.

Positive Shock in the Bond Market

Consider now a positive external shock in the bond market caused, for example, by a decline in world interest rates. This leads to an inflow of portfolio capital into the domestic bond market. Such a shock is depicted by a downward movement in the BP curve from $BP1$ to $BP2$.⁴⁸ IS stays put at $IS1$.

Floating Exchange Rate

The exchange rate appreciates because of capital inflows. This worsens the trade balance and moves the IS curve to the left from $IS1$ and the BP curve upward from $BP2$. With a floating exchange rate, the money supply is constant, so LM remains at $LM1$. The IS and BP curves now intersect at a point such as C on the $LM1$ curve. Thus the capital inflow is *contractionary*. There is a fall in income and employment.⁴⁹

48. Alternatively the shock could arise from an increase in expected returns in domestic securities. In this simple model, this is equivalent to the shock discussed here.

49. If the government wanted to preserve full employment, it would have to ease monetary policy, as discussed below. That capital inflows can be contractionary if the exchange rate is floating is a standard result in international economics, but it is often ignored in Indian policy discussions.

Though national income is lower at C , the interest rate is also lower, so investment should rise.⁵⁰ The trade balance worsens (the appreciation effect outweighs the effect of the fall in national income) but is of course covered by capital inflows.

Fixed Exchange Rate Plus Unsterilized Intervention

If there is Keynesian unemployment at Y^* , the inflow creates a balance-of-payments surplus. So the supply of money rises endogenously and the economy ends up at W with a higher national income, a lower interest rate, and a higher trade deficit (financed by capital inflows). If there is “full employment” initially at Y^* , the eventual effect will be as with a floating exchange rate. Balance-of-payments surplus followed by monetary expansion raises prices, so the real money supply is constant ($LM1$ does not move), and the real exchange rate would appreciate (so IS moves left from $IS1$, and BP moves up from $BP2$). The economy ends up at C , with a reduction in income and employment.⁵¹

Fixed Exchange Rate Plus Sterilized Intervention

In this case, the money supply is constant, so LM does not move from its initial position of $LM1$, though BP moves to $BP2$. National income, investment, and the interest rate stay unchanged. Reserves continue to rise because there is a “permanent” rise in the interest differential. This result obtains in both the “unemployment” and “full employment” situations. Note that while the *interest differential* rises, the *level* of the home interest rate is unchanged.

The Case of Increased Remittances

What happens in the case of a favorable shock in the form of increased inward remittances is complex. The remittances could increase real investment, increase consumption, or increase demand for financial assets. The

50. Note, however, that the interest rate effect may be outweighed by the effect of recession-induced adverse expectations.

51. It is possible that if prices do not initially rise as fast as the money supply, there would be some increase in the real money supply and the new IS and LM curves could intersect at say H , thus maintaining full employment but with a higher price level. But in a dynamic process, this could only happen by fluke.

effects of increased remittances will vary depending on how the recipients dispose of them.⁵²

Simultaneous Positive Shocks in Goods and Bond Markets

We now consider the consequences of positive external shocks to goods and bond markets simultaneously. (As explained in the text, this is representative of the current Indian situation.) We assume that there is “full employment” in the initial equilibrium at Y^* . (As above, the analysis can easily be extended to cover the case of initial unemployment.) The goods market shock moves the IS curve from $IS1$ to $IS2$ and the BP curve from $BP1$ to $BP2$. In addition, the bond market shock moves the BP curve further to $BP3$.

If the exchange rate is floating, the appreciation has to go far enough to burn out *both* the shocks. So the economy will end up at a point such as C with lower income and employment. We have the same result if the exchange rate is fixed and intervention is unsterilized.⁵³ If the exchange rate is fixed but intervention is sterilized, the economy will end up at a point such as Q but with a larger interest differential than in the initial situation, and persistent capital inflows. (The BP curve will be somewhere between $BP1$ and $BP3$.) It is noteworthy that with both a float and a fix (with unsterilized intervention), the bond market shock dominates the overall result, though there are simultaneous shocks in goods and bond markets.

Discretionary Policies, Internal Balance, and Balance-of-Payments Equilibrium

Now consider how full employment and balance-of-payments equilibrium can be attained with discretionary macroeconomic policy. We assume ini-

52. Consider situations where the initial position is one of “full employment” and the exchange regime is either a clean float or a fixed exchange rate with unsterilized intervention. If remittances flow entirely into investment, then their impact will be similar to that of increased FDI, discussed under “goods market shock” above. Investment rises and net exports are crowded out. If the increased remittances flow entirely into consumption, then the effects on net exports are the same as above, but the composition of output will be different. Increased consumption will crowd out net exports, and investment is unchanged. If remittances flow entirely into the bond market, then the effects will be as discussed above under “bond market shock.” In practice, the impact of remittances is likely to be felt partly in the goods market and partly in the bond market, and in the goods market, partly on consumption and partly on investment.

53. As before, this assumes that prices rise immediately, so LM does not move. The dynamic process may or may not lead to a more favorable result.

tial full employment Y^* and a simultaneous favorable shock in the goods and bond markets as in the previous section. The essential point can be briefly stated: macroeconomic equilibrium can be achieved by different policy combinations.

One such combination is a floating exchange rate with an active monetary policy (this moves the LM curve). We saw that a float on its own will lead to unemployment (a move to C). This can be avoided by a simultaneous monetary expansion.⁵⁴ If the authorities get it right, the economy will end up at a point such as H where there is full employment and balance-of-payments equilibrium. The interest rate will be lower than at C or E , so the share of investment in output will be higher than in the pre-shock situation. How the extra absorption is divided up between investment and consumption will depend on the relevant interest elasticities.

But appreciation with an active monetary policy is not the only policy combination that can achieve full employment and balance-of-payments equilibrium. Many other policies can be brought into play, such as fiscal policy, trade policy, and capital account policies. Fiscal policy moves the IS curve. For example, fiscal retrenchment moves the IS curve to the left. Trade policies affect both the IS and the BP curves. For example, import liberalization moves the IS curve leftward and the BP curve upward. Capital account policies affect the BP curve. For example a tax on capital inflows moves the BP curve up. In the presence of capital account restrictions, an intermediate exchange rate regime is feasible. This means that the government can have an independent exchange rate policy (which moves the IS and BP curves) and an active monetary policy (which moves the LM curve). For example, exchange rate appreciation moves the IS curve to the left and the BP curve up; an expansionary monetary policy moves the LM curve to the right. Many different policy combinations can be envisaged which would give full employment and balance-of-payments equilibrium (intersection of IS , LM , and BP somewhere along EN , vertically above Y^*). But they would imply different combinations of the interest rate and the exchange rate and therefore different effects on the *composition* of output and the balance of payments.

Choosing the *optimal* policy mix requires going beyond the above model to bring in policy preferences pertaining to the composition of output and the balance of payments, derived from wider considerations. Moreover, policy formulation has to take place in a dynamic setting, with due regard to expect-

54. It could be argued that a central bank that targets inflation (say, follows a Taylor rule) would do this automatically. But it is a point worth making in the Indian context.

tations effects and to political constraints. The above rudimentary model is nothing more than a starting point for policy analysis, but we believe that it nevertheless usefully identifies the range of relevant policies and makes the basic point that the menu of policy options for adjustment to positive balance-of-payments shocks is much wider than a simple choice between a fixed and a floating exchange rate. A qualitative analysis of the optimal policy mix is attempted in the latter part of the paper.

Comments and Discussion

John Williamson: Vijay Joshi and Sanjeev Sanyal present an admirable survey of balance of payments developments in India since the great reform initiative of 1991, and of the policy issues currently confronting India in this field. They use the most standard workhorse models available, notably the Domar model of growth and the Mundell-Fleming model of the macroeconomics of an open economy, and combine them with sensible quantitative estimates to generate judgments on policy issues. I have a great deal of sympathy for both the methods and the conclusions of the paper.

First, I agree with Joshi and Sanyal's critique of Lal, Bery, and Pant, who argued that India had paid a steep price in terms of 2.7 percent a year foregone growth for its reserve accumulation of the 1990s. Joshi and Sanyal note that India's sterilized reserve accumulation averaged 1.2 percent of GDP each year. If all those resources had instead been funneled into investment, they estimate that growth would have been 0.4 percent higher, that is, 6.2 percent instead of 5.8 percent, as opposed to Lal, Bery, and Pant's estimate of 2.7 percent higher. But, of course, part of the addition to absorption—the greater part, according to the standard finding—would have been devoted to additional consumption rather than additional investment.¹ Moreover, if growth is in reality better described by the neoclassical model than by the Domar model, then the marginal return would be less than the average return, and once again one would get a lower estimate of the growth sacrifice implied by reserve accumulation. The only reason I can see for questioning the Joshi-Sanyal conclusion that the growth sacrifice is a *maximum* of 0.4 percent is that they calculate the investment loss as a maximum of the *sterilized* intervention of 1.2 percent of GDP. I would argue that the *entire* reserve buildup preempted real resources that could potentially have been funneled into investment, because the money supply increase that was “bought” by the unsterilized reserves could perfectly well have been provided by bigger domestic credit expansion instead.

1. Joshi and Sanyal note that the funds might all have flowed into investment if the capital inflow had taken the form of FDI. Empirical evidence is also fairly clear that inflows of portfolio equity serve to increase investment.

But Joshi and Sanyal argue not only that Lal, Bery, and Pant are in error quantitatively, which seems to me incontrovertible, but also that Indian growth may in fact have been aided rather than depressed by the reserve buildup. One argument is that the reserve accumulation (along with capital controls) served the economic function of protecting India from the East Asian crisis, and that had India got sucked into that maelstrom it could well have ended up with a lower growth rate than the 5.8 percent it actually had. I imagine most people would find that convincing. Maybe their other argument, that a mildly undervalued exchange rate is good for growth because it stimulates investment desires, is less widely accepted, but my own view is that they are completely right in this argument too. Indeed, it is precisely this point that I develop in the 2003 paper that they cite. In that paper I built a model that seeks to investigate the impact of the exchange rate on the growth rate. I argue that one needs to incorporate two factors. One is the impact that a competitive exchange rate has in motivating entrepreneurs to want to go and sell on the world market, and therefore to invest to make that possible. Historically, the economist who most emphasized this consideration was Bela Balassa, although in the last few months Michael Dooley, David Folkerts-Landau, and Peter Garber have made waves by using the argument to defend the undervaluation of the renminbi.² If this demand factor were the only consideration, then the more undervalued the exchange rate, the faster would be the rate of growth (which is precisely what Dooley and his coauthors argue, since they do not acknowledge supply constraints, just like other ultra-Keynesians). But while the *desire* to invest is magnified by a more undervalued exchange rate, the resources to make investment *possible* are diminished when a country runs a larger current account surplus (or a smaller deficit), which is the result of a more undervalued rate. (This is the factor that lay behind Lal, Bery, and Pant's analysis). The growth rate is maximized when this supply-side consideration is balanced at the margin against the demand-side impact of a more competitive exchange rate in motivating increased investment. Joshi and Sanyal are arguing that India would probably have suffered from lower rather than higher investment if it had allowed the reserves it sterilized to appreciate the exchange rate instead, because the desire to invest would have been reduced by more than the ability to invest would have been increased.

A second strategic point made by Joshi and Sanyal is that the dilemma identified by Lal, Bery, and Pant, although a mirage so far as the past

2. Dooley, Folkerts-Landau, and Garber (2003).

decade is concerned, has now become a reality. Additional reserves added to the Indian hoard now really do have a low productivity. Unless India wants to depress its growth rate below what is potentially possible, it needs to allow an expansion of absorption ("adjustment") and to stem the reserve increase. Personally, I would have judged that this became a reality several years ago; that is, that Indian reserves are already excessive, rather than that the present level can reasonably be considered optimal, but the point that it is time to contemplate adjustment remains valid.

Joshi and Sanyal go on to argue that the right response to this is a judicious combination of policies rather than a corner solution, particularly one that involves strong appreciation of the real exchange rate, and that also seems to me convincing. Specifically, they argue for a strategy that includes accelerated import liberalization and strong fiscal consolidation. This would permit additional absorption without undermining the competitiveness of the export sector. Once again, I am in complete sympathy with their argument. Perhaps the argument that in these circumstances it would be good for growth can add weight to our longstanding advocacy of fiscal consolidation on the grounds that it will diminish the likelihood of a crisis and thus help make the political case for the drastic reorientation of Indian fiscal policy that most of us believe to be essential.

In sum, I find much to agree with in this paper. If the India Policy Forum maintains this standard of policy relevance and good sense, it deserves to be listened to by Indian policymakers.

Arvind Virmani: The Joshi-Sanyal paper covers a very diverse set of issues. One of the novel topics is the discussion of basic macroeconomic theory in the context of actual balance-of-payments developments in India, a discussion that would be useful for many readers. Given the diversity of topics, however, the interlinkages between the topics is not clearly spelled out. A more explicit discussion of how they all fit together would have been helpful.

In my comments, referring largely to the version presented at the conference, I address some important issues raised in the paper. These are the evolution and performance of the payment regime, the effect of reserve accumulation on growth, and recommended policy approach. There were three important milestones in the evolution of the policy on external commercial borrowing. Until 1980 virtually all external borrowing was related to foreign aid. During the 1980s the policy was gradually liberalized to allow borrowing by companies from foreign private sources (for

example, banks). There was consequently a substantial increase in public sector and government-guaranteed debt, whose productivity is questionable.³ The problems to which this gave rise were clearly recognized in the report of the Eighth Plan Working Group on Balance of Payments (1989), which noted that the ratios of external debt to GDP and of the short-term to total debt were too high. It recommended that the country's ratio of external debt to equity be raised through greater flow of foreign direct investment (liberalization of FDI) and that short-term debt be lowered. Unfortunately, no further action was taken on the report because the new government that came to power after the election disowned the earlier plan approach.

Even though external and internal shocks triggered the crisis of 1990–91, subsequent analysis shows that the current account deficit was rising and reserves had been declining since the mid-1980s. The shocks accentuated the problem by giving rise to adverse expectations among nonresident Indian depositors, resulting in net outflows. One of the lessons learned by the new government in 1991–92 was that timely depreciation was a solution to negative balance-of-payment shocks. Subsequent analysis of the crisis confirmed that the fiscal deficit played a key role in raising current account deficits and that exchange rate rigidity was also an important factor.

The Mexican, Brazilian, and Russian crises also taught us the role of monetary tightening and interest rate increases in stabilizing exchange rate expectations. In my view, however, the wrong lessons were learned from the Asian crisis, as controls regained respectability in India and exchange rate management again veered toward excessive use of controls on exchange futures and forwards, nonresident Indian deposits, and external commercial borrowings. Such controls are a bad idea, except under crisis conditions, which have not occurred in India since 1990–91 and will not happen as long as the exchange rate is allowed to depreciate in response to negative shocks.

If the exchange rate had been depreciated in 1990, the crisis could have been prevented.⁴ The surge in equity inflow (stock adjustment) during 1993–93, after foreign institutional investor (FII) entry was allowed in 1991–92, also provided lessons. The analytical approach recommended for managing these flows was to deal with the (estimated) temporary and permanent components differently. The former should be dealt with through sterilized intervention (purchase), and the latter through acceleration of trade and current account liberalization and

3. Virmani (2001).

4. Virmani (2003).

through unsterilized purchase. I argued that in contrast to the policy of nominal appreciation (full employment, rational expectation model), this would result in lower real interest rates and higher investment and growth in India (labor surplus, dual economy). The operational and management rules that emerged were also conditioned by political sensitivity and fear of destabilizing expectations. These were to reduce volatility in the rupee-dollar exchange rate in the short term by immediate purchase or sale of foreign exchange (very short term) and tightening or loosening monetary policy thereafter. The medium-term goal was to sustain exports through a stable real exchange rate (subject to data lags). In this policy, reserve accumulation is an outcome of an asymmetric exchange rate management policy in which the nominal exchange rate is allowed to depreciate over the medium term in response to adverse trends in balance of payments, but nominal appreciation in response to favorable balance-of-payments trends is resisted. This view is in consonance with the conclusions of the Joshi-Sanyal paper on the effect of reserve accumulation on growth.

In recommending a policy approach, I note some recent developments, including an appreciation of the real effective exchange rate and a fall in the inflation differential (India-U.S.) since 1999–2000, as well as a narrowing of the real interest differential (U.S.-India three-month t-bills) and a reduction in its volatility. A study by the Indian Council on Research for International Economic Relations has also shown that tariff reductions during the 1990s have had positive effects on net exports in many three-digit manufacturing industries, while the overall impact has been mildly positive. In the light of these observations, I would recommend the following policies. First, accelerate the tariff reduction to achieve a 5 percent peak rate by 2007–08, instead of in 2011–12, as recommended in an earlier planning commission working paper. Second, pursue further current and capital account liberalization, excluding short-term debt (below one year) for the time being. Third, pursue interest rate decontrol and flexibility, through an active search for hidden controls. Fourth, privatize a few public sector banks (as a start) to break the public sector bank oligopoly (coordinated by the RBI for the government). Finally, pursue unsterilized intervention in response to continued high inflows, followed by nominal appreciation only if inflation rises sharply (from 4–5 percent) and the underlying growth trend goes well above the twenty-four-year average of 5.8 percent.⁵

5. *Postscript.* Inflation has now gone above 8 percent as a result of a sharp rise in prices, and allowing nominal appreciation must be among the policies followed if capital inflows continue strongly.

General Discussion

A large portion of the general discussion focused on the question of whether the exchange rate was currently undervalued. Montek Singh Ahluwalia argued that perspectives on the exchange rate were often asymmetric in that it is easier to obtain a consensus in favor of a more flexible exchange rate regime when the rate is thought to be overvalued. A depreciated exchange rate was viewed as positive from a growth perspective, and policymakers would be unwilling to risk appreciation. Several persons expressed the view that the exchange rate was likely to be determined by developments in the capital account, but because the exchange rate would affect the current account, the authorities should have a clear notion of a target or desired exchange rate.

Surjit Bhalla suggested that the risks of a financial crisis also were asymmetric: the probability of a crisis is high in the presence of an overvalued rate, but undervalued exchange rates seldom result in sudden reversals. Thus he thought that India should follow China in targeting an undervalued rate. Vijay Joshi pointed out, however, that a sustained capital inflow could lead to excessive monetary growth and inflation, and ultimately to an overvalued real exchange rate.

John Williamson expressed concern over the notion of a fully flexible exchange rate. He believed that India was still in a transitional phase in which foreign exchange markets and institutions were not sufficiently developed to support a move to a fully flexible exchange rate regime. In particular, it would be some time before residents should be allowed to freely move capital in and out of the country. He worried about a sequence in which large capital inflows led to exchange rate appreciation and a severe contraction of the tradable goods industries. Such damage cannot be easily undone, even if the capital inflows subsequently reversed. Emerging markets were seen as particularly vulnerable to this type of adverse cycle.

Montek Singh Ahluwalia questioned the sustainability of a pegged exchange rate policy and argued that India was basically moving in the right direction, toward a more flexible regime. However, he wondered how to establish priorities. He favored the liberalization of capital outflows as a response to increased inflows, and he thought it would be a good idea to allow a limited amount of foreign investment by resident individuals and mutual funds. In response, Sanjeev Sanyal noted that foreign investment was now permitted but that with a strong domestic equity market, no one was interested in investing abroad.

Several participants spoke in favor of the authors' suggestion of a mixed strategy but wondered how far to pursue some of the policy measures. Would the authors favor tariff cuts even if the cuts could not offset the fiscal revenue loss? Could the reserve bank engage in less sterilization, allowing faster growth of the money supply? Was there adequate capacity to avoid any inflationary consequences?

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