March 2005
IMF Country Report No. 05/87

India: Selected Issues

This Selected Issues paper for India was prepared by a staff team of the International Monetary Fund as background documentation for the periodic consultation with the member country. It is based on the information available at the time it was completed on January 7, 2005. The views expressed in this document are those of the staff team and do not necessarily reflect the views of the government of India or the Executive Board of the IMF.

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International Monetary Fund
Washington, D.C.

INTERNATIONAL MONETARY FUND

INDIA

Selected Issues

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Approved by the Asia and Pacific Department

January 7, 2005

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OVERVIEW

1. **The five papers presented here paint a picture of an Indian economy that has made great strides, but has more to do to accelerate growth and reduce poverty**. The papers focus on a number of the reforms required to ensure that needed high growth can be achieved on a sustained basis. To a large extent, these reforms are a priority of the new Indian government, and implementation is now the key.

2. **Growth has been solid for a number of years, but a move to a permanently higher growth path—as envisaged by the Indian authorities—is not yet assured**. Chapter I establishes that there is little evidence of a rise in trend growth in recent years. The analysis points to declines in investment in manufacturing and agriculture as key reasons, suggesting that the government's focus on enhancing infrastructure and improving the investment climate is the right one. Developments during 2004–05 give grounds for optimism: the corporate sector appears to be embarking on a new investment cycle; and India is integrating rapidly into global production chains. An expanding labor force can provide further impetus for growth over the medium term, if sufficient job opportunities can be created.

3. **The service sector has led India's growth, and its success provides valuable lessons for economic policy more generally**. Chapter II examines the long-term growth in services, and concludes that policies—in particular, the opening of services to FDI, trade and private ownership—have played a key role. Most recently, the phenomenal success of the IT sector highlights the potential of an Indian economy freed of heavy regulatory burden and high marginal tax rates.

4. **India is poised to become a major destination for foreign direct investment, but broad reforms are needed**. While recent surveys point to India as a future "hot spot" for FDI, it still lags well behind most emerging markets in actual performance. Chapter III provides evidence that this seeming paradox reflects the need for broad improvements in the business climate—and not simply more favorable policies toward FDI in particular—to unleash India's full potential.

5. **Tax reform can help generate needed fiscal adjustment, while contributing to higher growth**. Chapter IV examines India's current tax system, and finds that revenue intake is low, and the combination of high marginal effective tax rates and numerous tax exemptions may be constraining and distorting investment. The government's planned tax reform would, by broadening the tax base and lowering statutory rates, move the tax system in the right direction.

6. **Finally, for the recent recovery in private investment to take hold, the financial sector will need to play more fully its key intermediation role**. One factor inhibiting the full development of the financial sector has been the large financing need of the government, which has crowded out private sector credit and investment. Chapter V looks at one aspect of this problem—the sizable interest rate risk for banks with large holdings of government securities. While the authorities' are addressing this risk in a broadly appropriate manner, the response could be strengthened by a more rapid convergence to best international practices.

I. Has India Entered a New Phase of Higher Trend Growth?[1]

A. Introduction

1. **Real GDP growth accelerated in 2003/04 to its highest level in over a decade leading many to speculate that India had scaled new heights in terms of its trend growth**. At 8.2 percent, real GDP growth[2] in 2003/04 was double that recorded in 2002/03 when India suffered from its most severe drought in over 15 years. The rebound in activity was led by agriculture where growth reached 9.1 percent, the highest level recorded since 1996. Non-agricultural growth was also robust with industry growing by 6.7 percent, and services growing by 8.7 percent.

2. **The remainder of this chapter assesses empirically whether India entered has entered a new phase of higher trend growth**. Two alternative methodologies are used to disentangle underlying structural growth trends from shorter-term cyclical fluctuations around this trend. The first recognizes the large role monsoons still play in the Indian economy (via their impact on agriculture and consumption) by correcting growth trends for deviations in rainfall from their normal level. The second utilizes the more traditional methods of estimating underlying trend growth using well known statistical filters. Both approaches indicate that, while trend growth accelerated in the 1980s and early 1990s, there is little evidence to suggest that underlying growth accelerated in recent years. The final section puts forward some explanations for this and concludes by reviewing more recent indicators that suggest grounds for optimism regarding India's growth prospects.

B. When it Rains it Pours: Rainfall Adjusted Estimates of Underlying Growth

3. **Agricultural growth remains vital to overall economic performance in India**. Although the share of agriculture in the economy has fallen from over half of GDP in 1950 to less than one quarter today, the share of the population dependent on agricultural income has fallen by far less, from 77 percent in the early 1950s to about 62 percent today. As a result, fluctuations in rainfall are magnified through their impact on rural incomes and consumption, and the correlation between agricultural growth and overall GDP growth while decreasing, remains high (Table I.1).

Table I.1. Correlations with Agriculture Sector Growth

	1950/51-2003/04	1970/71-2003/04	1990/91-2003/04
GDP growth (at market prices)	0.83	0.80	0.52
Private consumption growth	0.51	0.38	0.54
Private fixed investment growth	0.14	0.29	-0.08
GDP growth (at factor cost)	0.88	0.85	0.66
Industrial sector growth	0.27	0.31	0.06
Service sector growth 1/	0.16	0.18	-0.14
Government services growth	-0.12	-0.20	-0.27

Source: Staff estimates.

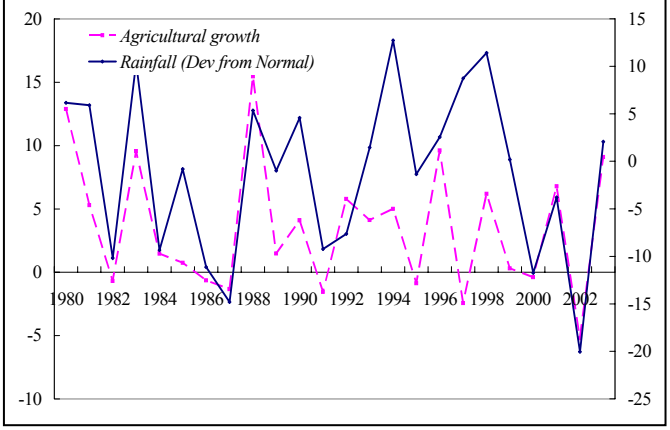
1/ Excluding construction and government services.

[1] Prepared by Catriona Purfield.

[2] At factor costs. Expenditure-based GDP data are not yet available.

4. **Agriculture in India remains largely rain fed**. Only 40 percent of the net sown area in India is under irrigation (Planning Commission, 2000) which leaves the main agricultural season (June-September) highly dependent both on the timely arrival and widespread dispersion of the summer monsoons. Moreover, the lack of irrigation restricts the share of the country that can take advantage of the second agricultural season (October-December). The high correlation between agricultural growth and rainfall in India (about 0.65), illustrates dependence of growth on rainfall (Figure I.1). Salgado (2002) found rainfall to be a significant explanatory variable driving agricultural growth.

Figure I.1. Agricultural Growth and Rainfall



5. **Growth in 2003/04 benefited from two weather-related factors**. In the preceding year India experienced its most severe drought in 15 years which caused agricultural growth to contract by 5.2 percent, while overall growth fell to twelve year low of 4 percent. The recovery in agricultural production from the drought contributed to a large base effect in 2003/04. In addition, rainfall in 2003/04 was about 2 percent above normal. These two factors helped boost agricultural growth to an eight-year high.

6. **Adjusting GDP for the impact of rainfall helps disentangle the role of cyclical and structural factors in the 2003/04 pickup in growth**. The relationship between GDP growth and rainfall is modeled using annual data from 1970/71–2003/04. The general-to-specific methodology of Hendry and Doornik (HD) is used to determine the lag with which rainfall impacts growth.[3] A rain-adjusted GDP growth series is then calculated by taking the coefficients from the model and substituting the normalized rainfall series for actual rainfall.[4]

[3] The procedure begins with a general unrestricted model containing three lagged values of rainfall and GDP. It uses both a top-down and bottom-up approach to recursively eliminate insignificant variables. At each stage mis-specification tests are re-computed, and if any test fails that particular reduction it is disregarded as invalid until a parsimonious model is identified where all the remaining variables are significant. The dependent variable, GDP, is non-stationary and so is specified in growth rates. The final model specification, with all variables significant at the 1 percent level, is:

$$LNGDP_t = -1.7 + 0.008t + 0.17LNRAIN + u_t,$$

(continued…)

7. **The uptick in 2003/04 growth was cyclical as underlying growth appears to have slowed after the fluctuation in rainfall levels is taken into account**. Rain-adjusted GDP growth averaged 4.3 percent in 2003/04, well below the headline growth rate of 8.2 percent and its recent five-year average of 5 percent.[5] However, the rainfall-adjusted series suggests that underlying growth in 2002/03 was in fact quite robust, despite the drought.

C. Estimates of Trend Growth

8. **Various studies find that India transitioned to higher level of trend growth in the early 1980s but has since made little progress in improving its growth performance**. Virmani (2004), and Rodrick and Subramanian (2004) find that trend GDP growth in India rose from a rate of 3½ percent (the so-called Hindu rate of growth) that prevailed during the 1960s and 1970s, to 5–6 percent in the 1980s. Surprisingly, these papers find no evidence of trend growth increasing in the 1990s when India liberalized its economy.

9. **We also examine the acceleration in growth in 2003/04 using an alternative methodology**. Trend GDP growth is estimated by smoothing the underlying rain-adjusted GDP series for the 1970–2003 period using the Hodrick-Prescott Filter.[6] Correcting for deviations in rainfall from its period average by using the rain-adjusted series should also help control for years in which India was impacted by severe weather conditions, particularly at the end of the sample when India experienced various natural disasters including earthquakes and droughts.

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where t is time, $LNRGDP_t$ is real GDP growth (all variables in logarithms), and $LNRAIN_t$ is rainfall. The R-squared is 0.46.

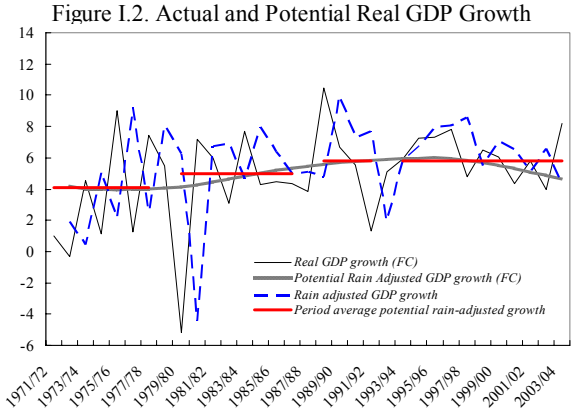
[4] The normalized rainfall series is calculated by the Indian Metrological Department as a long-run moving average of actual rainfall.

[5] It may also be optimal to include a measure of the dispersion of rainfall across Indian states in the model to capture the fact the distribution of rainfall can have differential impact on growth depending on the importance of agriculture and irrigation in each state. However, preliminary investigations found the measure of dispersion across India's metrological districts (calculated using the standard deviation or the coefficient of variation) turned out to be insignificant and was rejected in the general-to-specific modeling process. Future work will examine the potential of this, and the possibility of an interaction rainfall-time variable that captures the structural decline of the importance of agriculture in the Indian economy in recent years.

[6] A difficulty with this approach is that the trends tend to become poorly defined at the sample end-points. To cross-check the robustness of the results, trend real GDP growth, in levels and adjusted for rainfall, is also estimated by extending the sample period using staff forecasts of GDP for 2004/05–2009/10 period. The results are broadly similar.

10. **Underlying trend growth does not appear to have accelerated in recent years**. The plot of trend GDP growth confirms that growth in India has undergone several distinct phases, accelerating sharply in the early 1980s to between 5 percent and 6 percent (Figure I.2). While conclusions drawn for the period since the late 1990s are more circumspect owing to problems with end-points under the HP filter approach, the data suggest that trend growth has been on a decelerating path since the late 1990s.[7] More formally, Chow tests applied to an ARIMA (2,1,2) model of trend rain-adjusted GDP growth identified two periods of increased trend growth. These tests confirm the acceleration in trend growth starting in 1980s.[8] Trend growth rose to 5 percent, an increase of one percentage point over the 1971–79 period. In contrast to the earlier findings, the tests identify two additional breaks in the series, in 1989 and in 1992. While the statistical evidence of a break in 1989 is somewhat weaker,[9] the evidence that trend growth accelerated in 1992 is quite robust to whether growth is measured using real GDP or rain-adjusted real GDP. While trend growth averaged 5.8 percent between 1992-2000, trend growth in more recent years has fallen to an average level of five percent.

Figure I.2. Actual and Potential Real GDP Growth



[7] The deceleration in trend growth from the late 1990s onwards was also found when the sample for the HP filter was extended outwards by including staff forecasts of GDP growth for the 2004/05–2009/10 period.

[8] Applying Chow tests to a Hodrick-Prescott real (non-rain adjusted) GDP series yielded similar results, with the exception that it identified an additional structural break in 1995/96 when underlying trend growth accelerated to its highest level (just over 6 percent).

[9] F-tests on the rain-adjusted HP filtered real growth series and on the HP filtered real GDP series are significant at the 5 and 10 percent confidence levels. The corresponding log-likelihoods tests are each significant at the 5 percent level of significance.

11. **The leveling-off in trend growth most likely reflects a decline in investment**. Since the mid-1990s, total investment in India has declined from 26 percent of GDP to under 22 percent of GDP, reflecting in part fiscal crowding out. The rate of public investment almost halved over the 1990s, as rising interest and recurrent outlays took an increasing share of government revenues. Private investment has also declined by about 1.6 percentage points of GDP from its mid-1990s peak. Earlier work found that about 70 percent of the decline in private investment reflected the shift in public spending away from investment and infrastructure spending (Salgado, 2002).

12. **The decline in trend growth is primarily concentrated in the industrial and agricultural sectors, where investment was sharply curtailed**. Until recently, growth in private fixed investment and capital per worker in the manufacturing sector was negative (Figure I.3). Agricultural trend growth fell from about 3¾ percent in the early 1980s to about 2½ percent in recent years reflecting falling public and private investment in the sector (Figure I.4). The potential of both these sectors is also hampered by restrictions on the size of investments in certain sectors (small-scale industrial reservations), labor regulations, and continuing constraints on internal and external trade, especially for agricultural produce.

Figure I.3. Capital Investment and Growth in the Industrial Sector

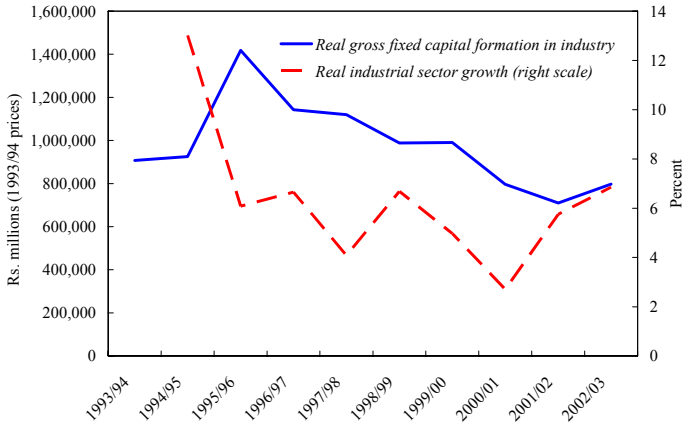
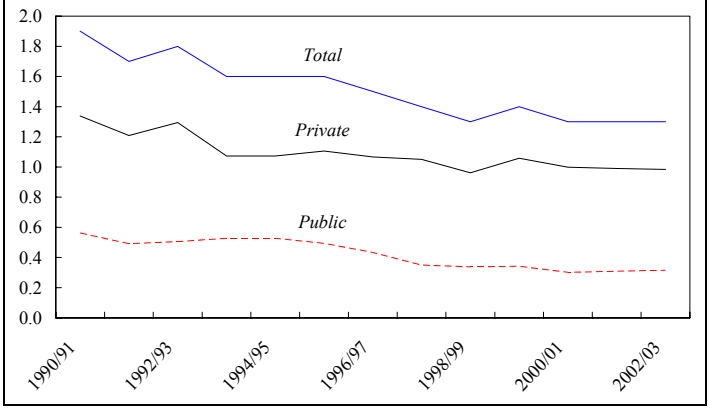


Figure I.4. Gross Fixed Capital Formation in Agriculture
(In percent of GDP)



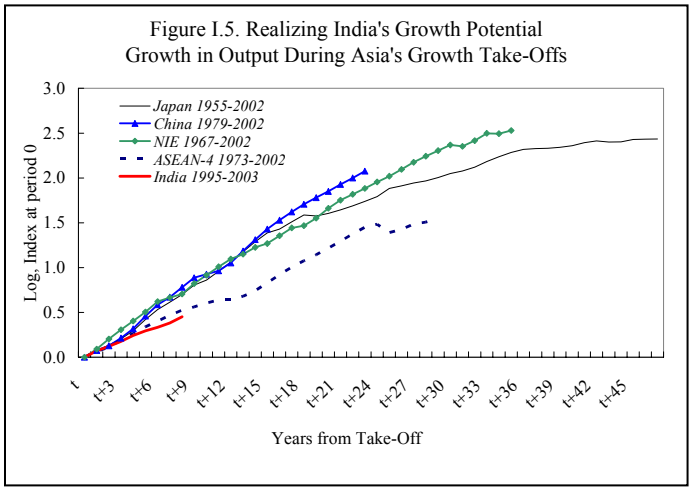
D. Outlook

13. **Nevertheless, recent indicators suggest there are reasons for optimism regarding India's ability to move to higher trend growth in the near future**.

- **The corporate sector appears to be embarking on a new investment cycle**. High frequency expenditure-based GDP data are not available. However, various business surveys show capacity utilization at record levels, while monthly data show both the import and domestic production of capital goods sustaining double digit annual growth rates for over one year. FDI flows have also perked up, rising by over 70 percent in the first quarter of 2003 after years of lackluster performance.

- **India is rapidly integrating into global and regional production chains**. Growth in Indian merchandise exports has exceeded 20 percent per annum in three of the last four years. Software service exports have expanded by almost 30 percent per annum over the past two years. Comparing India's nascent integration with that of China, Japan, the NIEs and the ASEAN-4, when their output and growth first started exhibiting sustained growth highlights a number of similarities as well as challenges.[10] India's growth rate is just below that experienced by other Asian economies in the initial phases of take-off (Figure I.5). However, India's share of world trade, at 0.8 percent, is still well below that of the other Asian economies at corresponding phases of their integration process when their share of world trade ranged from 1 percent (China) to an about 2 percent (Japan, NIEs, ASEAN-4).[11]

Figure I.5. Realizing India's Growth Potential
Growth in Output During Asia's Growth Take-Offs

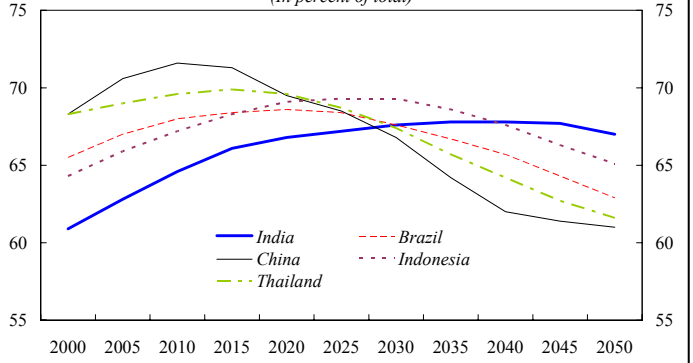


[10] For China integration is defined as starting in 1979 when major economic reforms began. For India and all other regions, integration is defined as starting when the three-year moving average of constant price export growth first exceeded 10 percent: 1955 for Japan, 1967 for the NIEs, 1973 for the ASEAN-4 and 1995 for India. The NIEs consist of Hong Kong SAR, Korea, Singapore and Taiwan Province of China. ASEAN-4 consists of Indonesia, Malaysia, the Philippines, and Thailand.

[11] IMF, 2004.

- **The labor force is forecast to expand rapidly**. Estimates point to between 75-110 million entrants to the labor force over the next decade, and India is one of the few countries forecast to sustain a growing population over the next 40 years (Figure I.6). Because the working age population has a relatively high propensity to save, India should benefit from highly favorable saving trends that will help fuel rapid growth. This large pool of skilled and unskilled workers should also help underpin India's competitiveness. However, it also implies that India will have to generate upwards of 145 million jobs to keep the unemployment rate from rising. The employment elasticity of growth is currently only about 0.2 percent and would need to be raised substantially if India is to realize its potential.

Figure I.6. Forecasts of Working Age Population
(In percent of total)



Source: United Nations, *Population Database* .

14. **The challenge ahead will be to capitalize on this promising start and to create the conditions to make this take-off self-sustaining**. Fiscal adjustment will help keep interest rates low and limit crowding out of private investment. Maximizing the return on new investments, expanding exports and generating job intensive growth will require advancing the structural reform agenda, including through trade tariff liberalization, improving business regulations, increasing labor market flexibility, unshackling manufacturing, and creating fiscal space for much needed infrastructure investment.

E. Conclusion

15. **India's economic performance in 2003/04 placed it amongst the fastest growing countries in the world**. Growth accelerated to a decade high and was broad-based across all sectors. However, conventional measures of trend growth and estimates of rain- adjusted GDP suggest that the acceleration in growth was mainly cyclical, led by the rebound in agriculture from drought, and good rainfall, and there is little evidence to suggest that India has yet moved into a new phase of higher trend growth. Nevertheless, more recent indicators provide ground for optimism, and suggest that more rapid sustainable growth is within reach, especially with progress on advancing structural reforms.

16. **There are reasons for optimism that India could be poised for sustained take off in growth**. For the first time in many years, there are signs of a recovery in domestic and external investment in India, and exports of goods and services are growing rapidly as it becomes more integrated into the global economy. India is also set to benefit from a rapid expansion in its labor force. The challenge ahead will be to capitalize on these promising beginnings by accelerating the structural reform process.

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II. Understanding the Growth Momentum in India's Services[1]

A. Introduction

1. **A striking feature of India's growth performance over the past decade has been the strength of the services sector**. The most visible and well-known dimension of the take off in services has been in software and IT-enabled services. However, growth in services in India has been much more broad-based than IT. The pickup in growth in the 1990s was the strongest in business services (which includes the IT sector), communication, and financial services, followed by community services (such as education and health services) and hotels and restaurants.

2. **This chapter shows that important roles have been played by economic reforms, and growing external demand for services exports in explaining the growth momentum of the services sector**. The chapter also discusses the growth potential in the IT sector, and the challenges India faces in realizing this potential.

B. Sectoral Growth Rates

3. **The growth of services picked up sharply in the 1980s, and accelerated further in the 1990s when, at an average rate of 7.5 percent per annum, it grew faster than industry** (Table II.1). Growth in the services sector has also been less cyclical than the growth of industry and agriculture, as it has the smallest coefficient of variation.

Table II.1. Sectoral Growth Rates

	Average Growth (In percent per annum)		
	1951-1980	1981-1990	1991-2000
Agriculture	2.1	4.4	3.1
Industry	5.3	6.8	5.8
Services	4.5	6.6	7.5
GDP	3.5	5.8	5.8

Source: Staff calculations using the *Central Statistical Organisation* (CSO) data.

4. **Rapid growth of the services sector is not unique to India**. The literature shows that as an economy matures, its sectoral growth pattern typically evolves in two stages. In the first stage, both industry and services grow faster than agriculture, and consequently the share of industry and services in output increases. In the second stage, services grow faster than the rest of the economy, and its share in GDP continues to increase, accompanied by a stagnant or declining share of the industrial sector. Though the Indian experience fits in this pattern well, the sectoral transformation in the last decade was more rapid, and occurred at a lower level of income, than in other countries. Consequently, India's services share of GDP is now higher than the average for other low-income countries. Among the reasons cited for relatively better performance of the services sector as compared to industry are that the labor

[1] Prepared by Poonam Gupta.

restrictions and small-scale reservations have disadvantaged industry more than services; and that the service sector has received more generous tax incentives.

Table II.2. Share of Service Sector in Employment and Capital Formation

(In percent of total)

	Employment	Gross Capital Formation
1965-66	18.1	46.1
1970-71	20.0	43.7
1980-81	18.9	44.0
1990-91	24.4	41.2
1999-2000	23.5	39.6

Source: *Hansda (2002).*

5. **In contrast to the substantial rise in the share of services in GDP, there has been rather little change in the share of employment (Bhattacharya and Mitra, 1990)**. Although services rose from 42 percent to 48 percent of GDP during the 1990s, the employment share of services actually declined by about one percentage point during the decade (Table II.2).[2]

C. Which Services Have Grown Rapidly?

6. **The acceleration in services growth in the 1980s and 1990s was not uniform across activities**. Several activities exhibited an increasing trend in their growth rates through the 1980s, but no sharp acceleration or break in their growth series over time. These include, trade (distribution) services, real estate, legal services, transport, storage, personal services, and public administration and defense (PAD). However, in other activities, growth accelerated sharply in the 1990s**.** These include business services, communication, financial services (acceleration started in mid eighties), hotels and restaurants, and community services (Table II.3).

7. **Acceleration in services growth in the 1990s was primarily due to the growth acceleration in business services, communication, banking and hotels and restaurants**. These activities contributed about 1.5 percentage points of extra growth to services sector in the 1990s. Business services were the fastest growing sector in the 1990s, with growth averaging nearly 20 percent a year. However, the sector was growing off a low base and its contribution to GDP growth was quite modest. Communication grew at 14 percent annually in the 1990s, mostly due to telecom, and made a significant contribution to services growth. Community services increased at the trend growth rate through the early 1990s, and experienced a pickup in growth in the latter part of the decade, which was due to both education and health services growing at 8 percent annually in 1990s.[3]

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[2] Some observers have stressed that Indian employment data are not high quality. Even so, anecdotal evidence suggests that employment growth in some of the fast growing services subsectors has been quite modest.

[3] The growth of PAD in the 1990s was similar to the growth experienced in previous decades. Growth spiked in response to the Fifth Pay Commission awards to government employees in the late 1990s, but this did not substantially increase average PAD growth for the decade as a whole.

Table II.3. Growth Rates and Sectoral Shares

Sector	Activities Included	Average Growth in 1950s-1970s (Share in GDP in 1980)	Average Growth in 1980s (Share in GDP in 1990)	Averge Growth in 1990s (Share in GDP in 2000)
Trade (distribution services)	Wholesale and retail trade in commodities both produced at home (including exports) and imported, purchase and selling agents, brokers and auctioneers.	4.8 (11.7)	5.9 (11.9)	7.3 (13.7)
Hotels and restaurants	Services rendered by hotels and other lodging places, restaurants, cafes, and other eating and drinking places.	4.8 (0.7)	6.5 (0.7)	9.3 (1.0)
Railways		4.2 (1.5)	4.5 (1.4)	3.6 (1.1)
Transport by other means	Road, water, air transport, services incidental to transport.	6.3 (3.6)	6.3 (3.8)	6.9 (4.3)
Communication	Postal, money orders, telegrams, telephones, overseas communication services, and miscellaneous.	6.7 (1.0)	6.1 (1.0)	13.6 (2.0)
Banking	Banks, banking department of RBI, post office saving bank, nonbank financial institution, cooperative credit societies, and employees provident fund.	7.2 (1.9)	11.9 (3.4)	12.7 (6.3)
Insurance	Life, postal life, nonlife.	7.1 (0.5)	10.9 (0.8)	6.7 (0.7)
Business services		4.2 (0.2)	13.5 (0.3)	19.8 (1.1)
Public administration, defence		6.1 (5.3)	7.0 (6.0)	6.0 (6.1)
Personal services	Domestic, laundry, barber, beauty shops, tailoring, and others.	1.7 (1.6)	2.4 (1.1)	5.0 (1.1)
Community services	Education, research, scientific, medical, health, religious and other community.	4.8 (4.0)	6.5 (4.3)	8.4 (5.5)
Other services	Recreation, entertainment, radio, TV broadcast, and sanitary services.	3.4 (1.1)	5.3 (1.0)	7.1 (0.7)

Source: Staff calculation from CSO data.

D. Explaining Services Sector Growth

8. **The growth of services sector in recent years reflects a number of factors**. Those include a switch to a more service-input intensive method of organizing production, i.e., splintering (see Bhagwati, 1984); rapid growth in the final demand for services from domestic and foreign consumers; and technological advances, whereby new activities or products emerge. Important policy reforms were also made in the 1990s, such as

deregulation, privatization and opening up to FDI, which were also conducive to the growth of services sector.

9. **Using the input-output coefficients and sectoral shares in output, it is possible to illustrate that splintering has had only a modest impact on services growth in India**. The matrices for different years show that the use of service sector inputs in industry increased by about 40 percent between 1979–80 and 1993–94 (the latest available). The use of services inputs into agriculture almost doubled during this period, but still remained low (at 5 percent of the gross output). The input-output coefficients for services input in agriculture and industry increased by 0.03 and 0.04, respectively, during the 1980s. These coefficient changes would have increased demand for services (as a first round effect) by:

$$\Delta Y_S = 0.03 Y_A + 0.04 Y_I \qquad (1)$$

Dividing through by total output Y and evaluating at the average sectoral shares during the 1980s (0.35, 0.25 and 0.40 for agriculture, industry and services, respectively), yields:

$$\Delta Y_S / Y_S = ((0.03*0.35) + (0.04*0.25)) /0.4 = 0.051 \qquad (2)$$

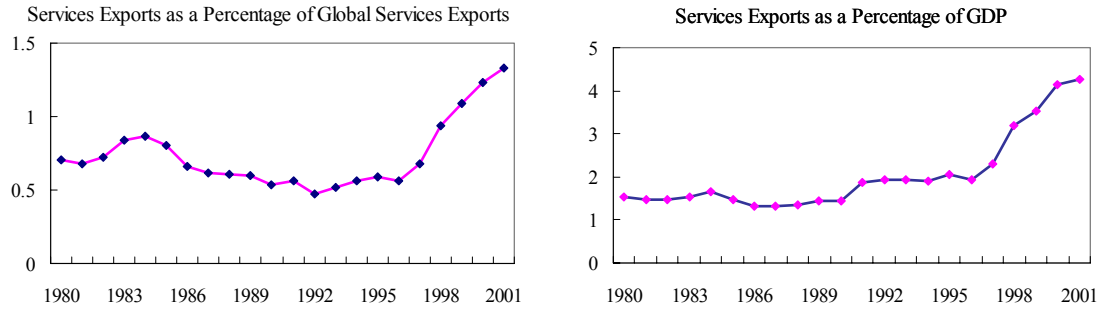
i.e., 5.1 percent over the decade. This would suggest that splintering may have added about ½ percentage point to annual services growth during the 1980s. A similar calculation for the period 1989/90–1993/94 yields a splintering effect on growth of about ¼ percentage point per annum.

10. **A rise in domestic demand for services may have played some role in the structural shift of the economy, but likely not a dominant one**. While the available data do not permit a precise split of private final consumption expenditure into a goods and a services component, it seems likely there was rise in the growth of final demand for services in the 1990s. However, for increases in final demand to explain the rapid growth in the 1990s would imply a huge increase in the elasticity of final demand for these activities, and there is no a priori reason to expect this kind of behavioral change. In addition, as shown in Gordon and Gupta (2004), the relative price of services declined, implying that the growth in services output was not merely a demand side phenomenon.

11. **Technological advances appear to have played an important role**. Due to the revolution in IT and telecommunication sectors it has become possible to deliver services over long distances at a reasonable cost, increasing trade in services. India has been a particular beneficiary of this trend. In India, the exports in services (in U.S. dollars) grew on average at 15 percent a year in the 1990s (21 percent a year in the second half of the 1990s), compared with 9 percent in the 1980s. Cumulatively, services exports increased four-fold in the 1990s and reached US$25 billion in 2002—35 percent of total exports—about one third of which was software exports. The increase in exports has been most dramatic in software

and other business services and services exports have continued to grow rapidly into the 2000s (Figure II.1).

Figure II.1. India: Services Exports



12. **Finally, policy changes appear to have been a significant factor behind the growth in services sector activity in India**. We empirically test for the significance of different factors in explaining services growth by utilizing a panel of various service activities. The time period used is 1970–2000, and the observations are averaged over 1970s, 1981–1985, 1986–1990, 1991–1995, and 1996–2000. Thus there are five observations for each service activity. The following regression equation is estimated:

$$GSER_{it} = C_i + \alpha\, GInd_{it} + \beta\, GAgr_{it} + \eta GTG_{it} + \gamma\, GTS_{it} + \delta\, RSer_{it} + \varepsilon_{it} \qquad (3)$$

The dependent variable is average growth in activity *i* in period t. The right hand side variables are average growth in industry (GInd), average growth in agriculture (GAgr), average growth in external volume of trade in goods (GTG), average growth in the export of services (GTS), in period t. A dummy variable accounts for the fact whether reforms were carried out in each segment of services (RSer).[4]

13. **The reform dummy has a positive, and the most significant, coefficient in the regressions** (Table II.4). Services growth is also significantly correlated with the growth in the industrial sector. As a robustness test, we check whether a dummy for the 1990s yields a

[4] The dummy variable for reform measures is based on information provided in other studies and is assigned a value 1 if the activity was opened up for FDI, external trade, or private ownership. The following observations were assigned a value of 1: hotels 1991–1995, 1996-2000, transport other means 1996–2000, Communication 1991–1995, 1996–2000, banking 1986–1990, 1991–1995, 1996–2000, insurance 1996–2000, business services 1991-1995, 1996–2000, community services 1996–2000. The dummy was created using information in Mattoo et al and information provided by Arpita Mukherjee of ICRIER.

significant coefficient after controlling for the reform-specific dummy. The coefficient for dummy for the 1990s is not significant, suggesting that it is liberalization per se that is contributing to growth.

Table II.4. Explaining Services Growth Using Panel Data, 1970–2000 1/

	I	II
Average growth rate of agriculture in period t	.99 1.1	.07 .20
Average growth rate of industrial sector in period t	1.33 ** 2.12	.82 * 1.88
Average growth of external trade (exports + imports) of merchandise in period t	.45 1.1	
Average growth of exports of services in period t	.15 * 1.7	.13 1.5
Reform dummy variable	5.7 *** 3.6	5.7 *** 3.6
Dummy for the 1990s		-1.1 -1.0
R2, adj. R2	.65, .53	.65, .53
F test for equality of intercept across units	2.8 (F-Stat) .00 (p value)	2.8 (F-Stat) .00 (p value)

1/ Number of observations is 65 in each regression. ***, **, * indicate significance at 1 percent, 5 percent, and 10 percent levels respectively. T values are given below the coefficients in each cell.

E. Growth Experience and Key Challenges in the IT Sector

14. **The IT sector grew rapidly, at an annual rate of about 28 percent between 1998 and 2003, and its turnover was estimated to be about US$17 billion in 2003**.[5] The exports market grew much more rapidly than the domestic market, with average respective growth rates of 42 percent and 16 percent, respectively, during 1998–2003. Growth was most rapid in the exports of ITES, which grew at an average annual rate of 62 percent in 2001–2003. Consequently, the share of ITS and ITES exports in the IT sector increased from 35 percent in 1998 to more than 60 percent in 2003; and the share of domestic market for ITS and ITES

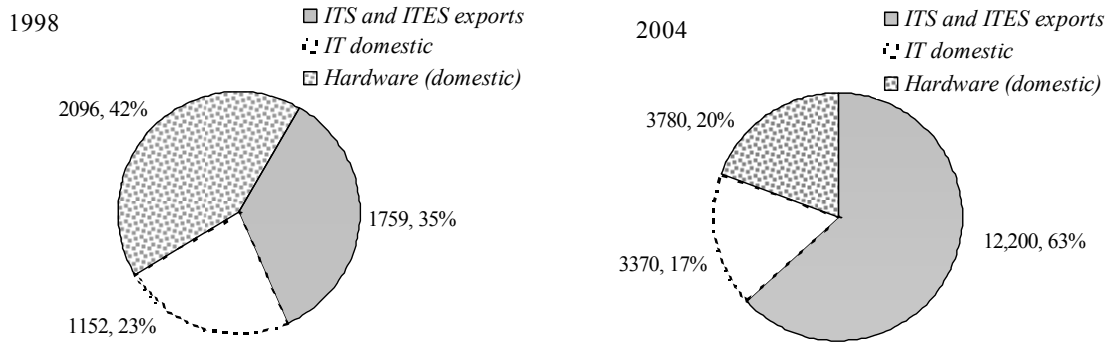
[5] The IT sector broadly encompasses software and services (ITS—systems integration, packaged software support and installation, application outsourcing, custom application development etc), IT enabled services (ITES—human resources, customer care, payment services, finance, etc.), and hardware.

came down to 20 percent in 2003. The hardware segment grew at a slower pace, and its share in IT halved to 20 percent over the same period.

15. **The composition and mode of delivery of IT exports has changed overtime**. In 1997–98, nearly 96 percent of all software exports from India were in the form of ITS; and the rest were BPO services (Figure II.2). In 2001–02, BPO activities increased to about 24 percent of total IT exports. There has been a commensurate shift in the mode of delivery of IT exports. In 1993–94, nearly 62 percent of all IT exports from India were carried out at the clients' location, i.e., "onsite." By 2002–03, offshoring became the dominant mode of delivery of software exports, accounting for almost 58 percent of total exports.

Figure II.2. Composition of the IT Sector in India

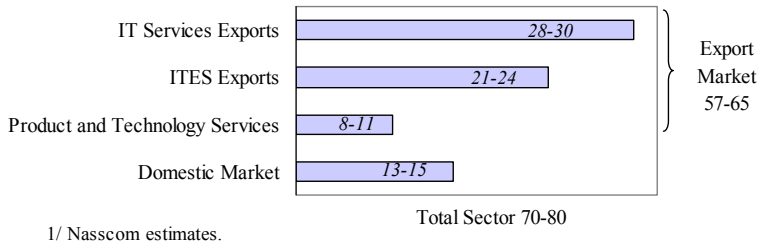
(In millions of U.S. dollars, and in percentage)



16. **The National Association of Software and Service Companies (NASSCOM) has set ambitious targets for the industry**. Turnover is projected to reach about US$75 billion, and export earnings to reach about US$60 billion by 2008 (Figure II.3). These targets imply that the ITS and ITES exports would have to grow at an annual rate of about 45 percent and the domestic market would have to grow at 17 percent during 2005–2008. Based on the past growth rates, these targets, though ambitious, do not look unattainable. In line with these medium term targets, for FY 2005, overall exports are expected to grow by about 30 percent, reflecting growth of about 26 percent in exports of IT services and 40 percent in ITES BPO. The domestic market is expected to grow by 24 percent. Despite the rapid growth in IT exports in recent years, India accounts for a miniscule percentage of the total ITES-BPO spending worldwide—NASSCOM reports that India's contribution to Global IT is

Figure II.3. Projected Size of the Indian IT Sector in 2008 1/

(In billions of U.S. dollars)



1/ Nasscom estimates.

less than 2 percent. Based on estimated growth in the total size of the market, various estimates signal bright prospects for Indian ITES sector.[6]

17. **The rise in ITES services in total exports and the increasing share of these services provided offshore has led to some increased employment opportunities in India, but its contribution to total employment remains modest**. NASSCOM estimates that the ITES segment provided additional employment to 74,400 people in 2003–04, taking the total number of employed people in the ITES/BPO segment to 245,500 by March 2004. NASSCOM, McKinsey (2002) have estimated that by 2008, this segment would employ about 1 million people, and that significant employment opportunities would also be provided in the other segments of the IT sector, taking the total number of people employed in the sector to about 2 million by 2008. However, given India's need to generate employment for some 100 million new job entrants in the coming decade, its contribution to total employment is likely to remain small.

18. **Several reasons have been put forward for the phenomenal success of the sector**. These include the availability of highly qualified professionals and people proficient in English; low labor costs; and conducive policies of the government, especially with respect to FDI, taxation, and external trade.

19. **However there are a number of external and domestic constraints that India may face in realizing the growth potential of the IT sector**. The external factors include nontariff barriers such as visa restrictions, and the negative publicity in importing countries affected by outsourcing, including in the Unites States. These measures may make it more difficult to lend onsite support to the clients and affect adversely total IT exports from India. The IT sector may also be challenged in the future by shortages of skilled labor as the sector advances; a loss of cost advantage either because of the increase in the demand for skilled IT personnel or an appreciation of the Indian rupee; infrastructure constraints; and internal issues within the industry such as rapid turnover of employees.

[6] For example, a study by Deloitte Research has shown that the global market in offshore financial services could grow to US$356 billion by 2008/09, of which a large share would go to India.

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III. Foreign Direct Investment In India: How Can It Be Increased?[1]

A. Introduction

1. **Foreign Direct Investment (FDI) is favored over other capital flows by emerging markets**. FDI is not debt creating, is less volatile than portfolio flows, and relatively resistant during financial crises (Albuquerque, 2003). FDI has also been associated with positive spillovers through technology transfer and training to local industry (Blomstrom and Kokko, 2003), and may lead to enhanced export performance and growth (Borzenstein, DeGregario, and Lee, 1998).

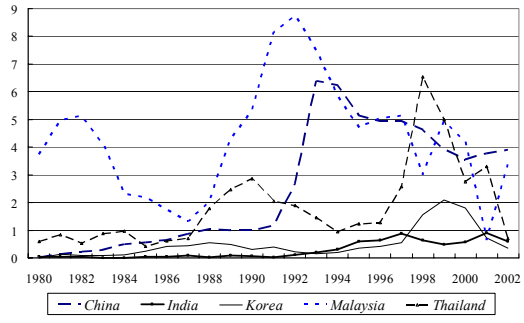
Table III.1. Foreign Direct Investment in Selected Countries, 2002

Country	Net Foreign Direct Investment	
	In percent of GDP	In billions of U.S. dollars
Vietnam	4.0	1.4
China	3.7	46.8
Brazil	3.1	14.1
Chile	2.4	1.6
Singapore	2.3	2.0
Mexico	2.1	13.5
Sri Lanka	1.4	0.2
Argentina	1.4	1.4
Malaysia	1.4	1.3
Pakistan	1.3	0.8
Philippines	1.3	1.0
Thailand	0.7	0.8
India	0.6	3.2
Bangladesh	0.1	0.0
Indonesia	0.1	0.1
Nepal	0.0	0.0
Korea	-0.1	-0.7
Venezuela	-0.3	-0.2

Source: *World Development Indicators.*

2. **FDI flows into India have risen since the 1990s but remain low, compared to other emerging markets** (Table III.1, Figure III.1).[2] In 2002 India received FDI inflows of less than 1 percent of GDP whereas China received FDI worth 3.7 percent of GDP. In dollar terms, China received 15 times the FDI than India in 2002.

Figure III.1. Foreign Direct Investment as a Percent of GDP for Selected Asian Economies (1980–2002)



3. **At the same time, investor surveys point to a strong interest in India as a destination for FDI**. Surveys by UNCTAD and AT Kearney in 2004 place India as the second and third most attractive destinations for FDI respectively. This indicates that while India is on investors' radar screens, the interest has not yet translated into actual FDI.

4. **The bullishness regarding India implies that further reform could have a significant impact**. Recently a number of steps have been taken to simplify and liberalize

[1] Prepared by Sonali Jain-Chandra.

[2] The Indian authorities revised the FDI data to conform to international standards by including reinvested earnings. The data used here is the revised FDI data net of outflows.

the FDI regime in India. In 2004, the FDI caps on civil aviation and petroleum subsectors, among others, were raised. The transfer of equity shares between residents and non-residents does not now require approval.

5. **This chapter studies the reasons for the underperformance of FDI in India and examines potential measures to enhance it**. Utilizing panel data for a number of emerging market countries, the chapter concludes that the most important factors affecting FDI are not FDI-specific policies but, rather, broader economic policies including corporate taxes, trade openness, and other business climate issues, such as regulatory quality and burden. This chapter also looks at differences across Indian states in attracting FDI and concludes that broad business climate issues largely determine FDI.

B. Foreign Direct Investment Regime in India

6. **India's regulatory regime for FDI has been gradually liberalized since 1991, and, as a result, the regime is no longer particularly restrictive by international standards**.[3] The pre-1991 policy considered all FDI proposals on a case-by-case basis with FDI capped at 40 percent of total equity investment. In 1991, the policy was amended to allow automatic approval of up to 51 percent ownership in 34 sectors. This list was expanded to cover 111 sectors in 1997. In 2000, the policy was altered to one using a "negative list" approach. Since then, 100 percent FDI is permitted in most sectors via the automatic route, with the requirement that the RBI be notified within 30 days. There are important exceptions to this general policy for which FDI approvals are routed through the Foreign Investment Promotion Board (FIPB). These *exceptions* include: industries subject to licensing, the acquisition of an existing Indian company under certain conditions,[4] industries where the foreign investor has a presence in the same field, and industries where sectoral policies apply (Table III.2).[5]

[3] India ranks 41st of 102 countries in terms of the restrictiveness of foreign ownership (*Global Competitiveness Report 2003–04*). Most other emerging markets fare worse: China (81), Indonesia (95), Korea (68), Malaysia (67), Philippines (83), Thailand (75), Vietnam (84), Brazil (42), while Mexico fares better with a rank of 26.

[4] For the acquisition of existing Indian companies (with an equity expansion), approval is required if the following conditions are *not* met: (i) the equity level of the company should increase without the acquisition of shares by foreign investors, (ii) funds should be in foreign exchange, and (iii) the sector should be under the automatic route.

[5] FDI is not permitted in retail trading, lottery business, gambling and betting, housing and real estate business, and agriculture and plantation.

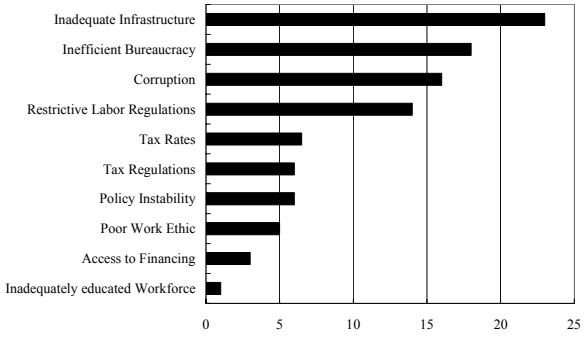
Table III.2. Sectoral Caps and Controls on Foreign Direct Investment in India

Sector	Cap	Specifics
Private sector banking	49	Automatic route available. A ceiling of 10 percent on voting by a single or group of related foreign entities in private sector banks.
Nonbanking financial companies	100	Various minimum capitalization norms for fund-based NBFCs.
Insurance	26	Automatic route available, subject to obtaining license from the regulatory body. 2004/05 budget proposed raising it to 49 percent; however, this is not yet operational.
Domestic airlines	49	Automatic route not available. Subject to no direct or indirect equity participation by foreign airlines.
Telecom	49	For basic, cellular, value added services, subject to licensing requirements, and a lock in period for transfer of equity. 2004/05 budget proposed raising it to 74 percent; however, this is not yet operational.
	100	For email, voice mail, ISPs not providing gateways. Restrictions include licensing, FDI beyond 49 percent needs approval from FIPB, and divestiture of 26 percent in 5 years.
	74	For ISPs with gateways, radio-paging and end-to-end bandwidth. FDI beyond 49 percent needs approval from FIPB
Petroleum (refining)	26	Cap applies to public sector units. Automatic route not available.
	100	Cap applies to private Indian companies. Automatic route available.
Petroleum (other than refining)	100	Automatic route available. FDI of 100 percent is possible in oil exploration in small- and medium-size fields, petroleum product marketing, natural gas/ LPG (approval required).
Housing and real estate	100	Applies to the development of integrated townships, with prior government approval. No FDI allowed in other real estate sub sectors.
Coal and lignite	100	For most activities in this sector.
	74	For coal exploration or mining.
Venture capital	Sectoral caps apply	Automatic route available. Subject to SEBI regulations.
Trading	51	Automatic route available. Meant for export activities.
Atomic minerals	74	For sub sectors, mining, seperation, value addition and integrated activities.
Defense and strategic industries	26	Automatic route not available. Subject to licensing and security requirements.
Agriculture	0	No FDI is permitted, with some exceptions.
	100	Tea, including tea plantations. Restrictions apply, including approval from government, divestiture of 26 percent in five years, and approval in case of change in land use.
Print media	100	Automatic route not available. FDI allowed in publishing/printing scientific and technical magazines, periodicals and journals
	26	In newspapers and periodicals dealing with current events, subject to editorial control by Indian residents.
Broadcasting	100	In TV software production.
	49	In cable networks, direct to home.
Drugs and pharmaceuticals	100	Automatic route available in the manufacture of drugs and pharmaceuticals.
Roads, highways, ports, harbor, and metro	100	Automatic route available.
Mining	74	Automatic route available in the exploration and mining of diamonds and precious stones.
	100	Automatic route available in the exploration and mining of gold, silver and other metals.
Postal services	100	FDI of 100 percent in courier services, with prior approval. No FDI allowed in the distribution of letters.
Establishment and operation of satellites	74	Automatic route not available.

C. FDI Inflows into Selected Countries: Is India an Outlier?

7. **As India's FDI regime is relatively unrestrictive, the key question is what other factors could explain the underperformance of FDI**. Some papers emphasize macroeconomic stability and openness, while others the quality of institutions.[6] The standard determinants of FDI include labor market conditions, the quality of infrastructure, corporate taxation, inflation, trade openness, market size, corruption and administrative procedures and bottlenecks. Existing qualitative work on India emphasizes factors limiting FDI such as, relatively high tariffs, and limited scale of Export Processing Zones, stringent labor laws, high corporate tax rates, exit barriers, a restrictive FDI regime, and the lack of transparent sectoral policies for FDI.[7] The Global Competitiveness Report 2004, based on investor surveys, lists key constraints to doing business in India (Figure III.2).

Figure III.2. India: The Most Problematic Factors for Doing Business



Source: World Economic Forum, *Global Competitiveness Report 2004.*

8. **The investment climate in other emerging markets in Asia appears to be more conducive to attracting FDI inflows** (Table III.3). Compared to selected Asian countries, India's overall infrastructure quality ranks low (Global Competitiveness Report 2004). The significant burden of bureaucratic red tape and regulation in India further worsens the investment climate. For instance, it takes 89 days to start a business in India, whereas for the sample average is 43 days. The enforcement of contracts takes longer in India (425 days) than average (286 days). Also, once in business, firms find it difficult to exit.[8]

9. **We estimate the following reduced form equation using a fixed effects model**:

$$FDI_{i,t} / GDP_{i,t} = \alpha_i + \beta X_{i,t} + \varepsilon_{i,t}$$

where, α_i is the country specific effect, the matrix $X_{i,t}$ contains the lagged independent variables (to alleviate the simultaneity bias), including standard determinants of FDI and

[6] For details, please see Mercereau (2004), Dollar et al (2004), Hines (1996), Javorcik and Spatareanu (2004), Wei (2000), Wheeler and Mody (1992).

[7] See Bajpai and Sachs, 2000. Progress in the liberalization of the FDI regime has taken place since this paper was written.

[8] Gorg (2002) examines U.S. investment in 33 countries to conclude that exit costs are more important than incentives to attract FDI.

institutional quality variables.[9] All indicators used in Table III.3 are not included in the panel due to insufficient data. The variables used here include the marginal statutory corporate tax rate, proxy for infrastructure development (the number of telephone lines per 1000 inhabitants), inflation, and openness (trade as a percent of GDP). Institutional quality is measured by the World Bank governance indicators (voice and accountability, political instability, government effectiveness, regulatory burden, rule of law, corruption). These variables are highly correlated and are therefore included in the regressions one at a time to avoid multicollinearity. To check for robustness, we also include alternative measures of institutional quality.

10. **We find that marginal corporate tax rates, trade openness and institutional factors, and to some extent, the quality of infrastructure are significant determinants of FDI** (Table III.4).[10] While the results are sensitive to the specification, they are nevertheless indicative of the potential for a large response of FDI to reforms:

- A decrease in India's marginal corporate tax rate to that of China would increase FDI by one percentage point of GDP.
- An increase in trade openness in India to China's level would garner another 0.6 percentage points of GDP.
- Improving regulatory quality in India to the level of Thailand would add another percentage point of GDP.
- If India halves the number of days to needed to start a business or halves the years to resolve insolvency, FDI could rise by 0.7 percentage points and 1.4 percentage points of GDP respectively.

[9] Data sources include *World Development Indicators*, the IMF's *International Financial Statistics*, *RBI Annual Reports*, OECD *FDI database*, *World Investment Report*, *World Bank Governance Database* (Kaufmann, 2004), and PRS Groups' *International Country Risk Guide*. The countries in the sample are the ones listed in Table III.1. The estimation is done using an unbalanced panel from 1980–2002.

[10] Regressions using the between panel estimator conclude that the quality of infrastructure is a determinant of FDI.

Table III.3. Snapshot of the Investment Climate in Selected Asian Countries

	China	India	Korea	Malaysia	Thailand	Average
Macroeconomic environment						
GDP per capita (constant 1995 US$, 2003)	1,023.6	525.2	15,290.8	4,964.8	3,182.0	4,997.3
GDP growth (2003)	9.1	8.0	3.1	5.2	6.7	6.4
Gross capital formation (current US$, 2003)	594.4	143.1	177.9	22.5	33.1	194.2
Inflation	1.2	3.8	3.6	1.1	1.8	2.3
Openness (trade in goods as a percent of GDP, 2002)	49.0	20.8	66.0	182.4	105.6	84.8
Governance indicators (2002) 1/						
Voice and accountability	-1.4	0.4	0.6	-0.3	0.2	-0.1
Political stability	0.2	-0.8	0.5	0.5	0.5	0.2
Government effectiveness	0.2	-0.1	0.8	0.9	0.3	0.4
Regulatory quality	-0.4	-0.3	0.9	0.6	0.3	0.2
Rule of law	-0.2	0.1	0.9	0.6	0.3	0.3
Control of corruption	-0.4	-0.3	0.3	0.4	-0.2	0.0
Infrastructure						
Overall Infrastructure Quality (rank out of 102 countries)	55.0	70.0	21.0	12.0	29.0	37.4
Electric power consumption (kwh per capita, 2001)	893.4	364.7	5,288.4	2,731.0	1,508.4	2,157.2
Internet users (per 1,000 people, 2003)	46.0	15.9	551.9	319.7	77.6	202.2
Roads, paved (percent of total roads, 1999)	91.0	45.7	74.5	75.8	97.5	76.9
Telephone mainlines (per 1,000 people, 2002)	166.9	39.8	488.6	190.4	105.0	198.1
Bureaucratic red tape and corporate taxation						
Number of start-up procedures to register a business (2004)	12.0	11.0	12.0	9.0	8.0	10.4
Time to start a business (days, 2004)	41.0	89.0	22.0	30.0	33.0	43.0
Time to enforce a contract (days)	241.0	425.0	75.0	300.0	390.0	286.2
Time to exit a business (years, 2004)	2.4	10.0	1.5	2.3	2.6	3.8
Protection against dismissal 2/	0.4	0.9	0.3	--	0.3	0.5
Difficulty in firing index (2004)	40.0	90.0	30.0	10.0	20.0	38.0
Efficiency of legal framework (rank out of 102) 3/ 4/	50.0	35.0	41.0	19.0	32.0	35.4
Burden of regulation (rank out of 102) 3/	21.0	67.0	23.0	16.0	25.0	30.4
Transparency of government policymaking (rank out of 102) 3/ 5/	33.0	41.0	25.0	14.0	31.0	28.8
Efficiency of the tax system (rank out of 102) 3/	29.0	59.0	37.0	5.0	27.0	31.4
Highest marginal tax rate, corporate rate (percent, 2003)	30.0	36.8	27.0	28.0	30.0	30.4

Sources: *World Development Indicators, World Bank Governance Database, Global Competitiveness Report 2004. World Bank Doing Business Database 2004.*

1/ Higher values correspond to better outcomes.
2/ Methodology: Protection against dismissal is measured by the taking into account whether an employer has to notify a third party before firing one worker, whether the employer needs the approval of the third party, if the employer must provide retraining before dismissal among other factors.
3/ A higher rank implies a better outcome.
4/ Defined as the legal framework for private businesses to settle disputes and challenge the legality of government actions and/or regulations.
5/ Defined as to what extent firms are usually informed clearly and transparently by the govvernment on changes in policies and regulations.

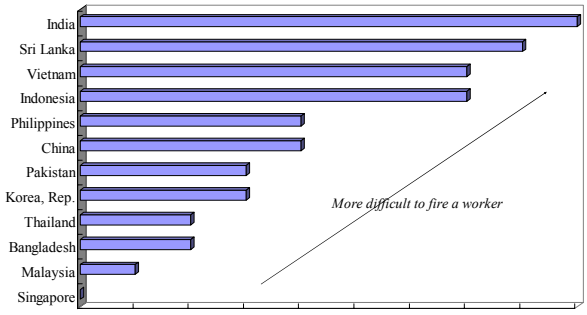
Table III.4. Results of the Panel Estimation of the Determinants of Foreign Direct Investment 1/

Openness	0.022	0.025													
	(2.94)*	(3.60)**													
Corporate tax	-0.176	-0.157	-0.172	-0.062	-0.067	-0.101	-0.082	-0.033	-0.176	-0.195	-0.179	-0.158	-0.191	-0.181	-0.191
	(2.27)*	(2.22)*	(2.07)*	-0.88	-0.9	-1.25	-1.01	-0.43	(1.87)+	(2.08)*	(1.95)+	(1.74)+	(2.24)*	(2.26)*	(2.24)*
Inflation	-0.033	-0.036	-0.016	0.031	0.027	0.003	0.03	0.013	-0.02	-0.025	-0.03	-0.024	-0.013	0.018	-0.013
	-0.88	-1	-0.49	-1.04	-0.88	-0.09	-0.98	-0.42	-0.55	-0.67	-0.8	-0.64	-0.34	-0.47	-0.34
Telecommunication		18.4	10.81	6.379	6.067	6.337	9.307	9.461	3.293	6.25	6.056	7.827	2.506	2.115	2.506
		(1.91)+	-1.18	-0.79	-0.72	-0.7	-1.1	-1.13	-0.3	-0.57	-0.55	-0.74	-0.23	-0.21	-0.23
Voice and accountability			-1.096												
			-1.41												
Government stability													0.521		0.521
													(2.58)**		(2.58)**
Law and order														1.278	
														(3.55)**	
Corruption (PRS)												0.786			
												(1.90)+			
Days to startup											-0.015				
											(1.73)+				
Years to resolve insolvency										-0.25					
										(1.83)+					
Days to enforce a contract									-0.006						
									(2.12)*						
Corruption								2.016							
								(3.41)**							
Rule of law							1.993								
							(2.99)**								
Regulatory quality						1.45									
						(2.21)*									
Government effectiveness					2.188										
					(3.42)**										
Political stability				2.145											
				(3.98)**											
Constant	7.075	5.494	7.662	4.413	4.008	5.24	4.601	3.519	8.93	9.292	8.896	5.754	4.079	3.787	4.079
	(2.90)*	(2.33)*	(2.95)*	(2.02)*	(1.68)+	(2.04)*	(1.81)+	-1.46	(3.03)*	(3.15)*	(3.10)*	(1.85)+	-1.3	-1.35	-1.3

1/ Absolute value of z statistics in parentheses; + significant at 10 percent; * significant at 5 percent; ** significant at 1percent.

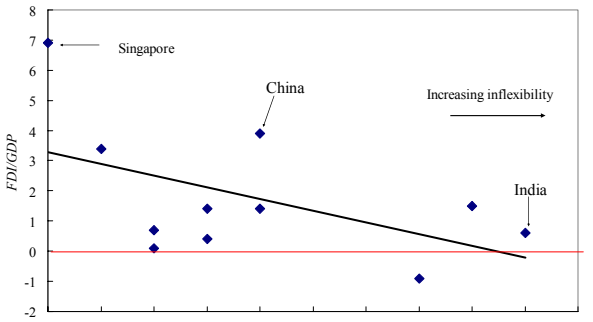
11. **Labor market flexibility also appears to be an important factor determining FDI, and India has a relatively inflexible labor market**.[11] Protection against dismissal is stringent in India (Table III.3) as in downturns it is exceedingly difficult to fire workers (Figure III.3). Correlation between the labor market flexibility and FDI across countries suggests that countries with inflexible labor markets receive less FDI (Figure III.4).[12]

Figure III.3. Labor Market Flexibility: Difficulty in Firing Index



Source: World Bank, *Doing Business Database.*

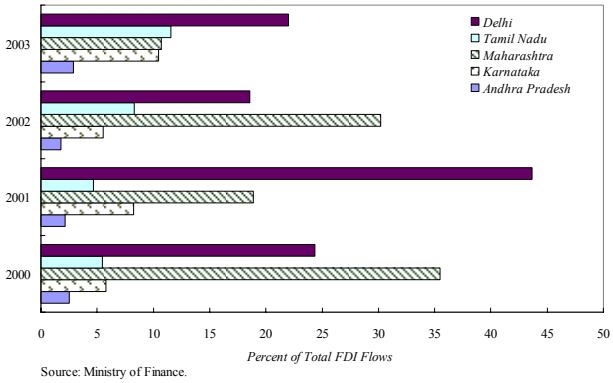
Figure III.4. FDI and Labor Market Flexibility



D. Indian States: Differences in Investment Climate and FDI

12. **FDI has been concentrated in a few Indian states**. During 2000–03, five (of twenty-nine) rapidly growing states received 60–70 percent of FDI inflows into India: Andhra Pradesh, Delhi, Karnataka, Maharasthra, and Tamil Nadu (Figure III.5). Even among these states, there is considerable heterogeneity. Maharasthra received more than ten times the amount of FDI per capita than Andhra Pradesh in 2000 (Table III.5). It is also these very states that are most successful in converting FDI approvals into actual inflows.[13]

Figure III.5. India: FDI Flows by State, 2000–2003



Source: Ministry of Finance.

[11] However, for emerging markets data on labor costs are generally not available over time for a number of countries and therefore not included in the above regression.

[12] Javorick and Spatareanu (2004) also find that, for a sample of 25 European countries, increased labor market flexibility is associated with larger FDI inflows.

[13] This analysis includes data for only 2 years, and it is possible that it takes longer for approved FDI to translate into realized inflows.

Table III.5. Approvals and Inflows of Foreign Direct Investment into Indian States

	FDI Inflows (2000-02) (In billions of rupees)	FDI Approvals (2000-02) (In billions of rupees)	Realization Ratio	FDI/ State Domestic Product		FDI/Population
				2000	2001	2000
Andhra Pradesh	8.8	17.0	51.9	0.2	0.3	3.3
Assam	0.1	0.0	--	0.0	0.0	0.0
Bihar	0.0	0.3	5.0	0.0	0.0	0.0
Gujarat	4.3	24.2	17.7	0.0	0.1	0.6
Haryana	0.0	6.7	0.0	0.0	0.0	0.0
Himachal Pradesh	0.0	8.1	0.0	0.0	0.0	0.0
Karnataka	27.9	42.8	65.1	0.6	1.3	11.0
Kerala	1.8	7.2	24.7	0.1	0.1	1.7
Madhya Pradesh	0.2	4.0	5.6	0.0	0.0	0.1
Maharashtra	114.4	103.0	111.0	1.7	1.2	37.0
Meghalaya	0.0	0.0	--	0.0	0.0	0.0
Orissa	0.0	2.4	0.0	0.0	0.0	0.0
Punjab	0.0	0.4	0.0	0.0	0.0	0.0
Rajasthan	0.1	5.6	1.5	0.0	0.0	0.0
Tamil Nadu	26.4	61.9	42.6	0.4	0.6	8.9
Uttar Pradesh	0.0	11.2	0.0	-0.1	0.0	-1.2
West Bengal	2.3	12.5	18.6	0.2	0.0	2.9
Chattisgarh	0.0	0.2	0.0	0.0	0.0	0.0
Chandigarh	10.1	0.5	2,003.6	4.0	0.1	181.2
Dadra & Nagar Haveli	0.0	0.0	500.0	--	--	0.9
Delhi	123.7	63.5	194.7	4.7	--	178.3
Goa	1.9	4.7	41.0	--	--	22.8
Pondicherry	3.0	8.5	35.3	0.0	8.8	0.0

Sources: Ministry of Finance; and *CEIC Asia Database*.

13. **Investor surveys of business climate are consistent with the observed patterns of FDI flows**. A survey of foreign investors (FICCI, 2002) puts Maharasthra in the clear lead in terms of investor perception. In the 2002 CII-World Bank survey of investment climate of Indian states, Maharasthra and Gujarat are classified as the best investment climate (IC) states while Kerala, West Bengal and Uttar Pradesh are classified as poor IC states. While the perceptions of business climate in states are appropriately correlated with the inflows of FDI, there are outliers. For example, Delhi gets much more FDI than would be indicated by an assessment of its business climate.

14. **Differences in FDI appear to be explained by differences in the functioning of labor markets, regulatory burden, and infrastructure quality**.[14] Labor market flexibility appears to be important in determining FDI as states with the most man-days lost due to strikes fare worse in terms of FDI inflow (Figure III.6).[15] There is some evidence that

[14] The absence of consistent time series data for Indian states precludes a rigorous econometric investigation.

[15] While there are national labor laws, states do have the power to amend national legislation. According to an assessment of the investment climat*e* by the World Bank (2002), the best

(continued…)

infrastructure is also a determinant of FDI location. Specifically, states with higher teledensity attract more FDI (Figure III.6). Finally the burden of regulation also influences the location of FDI. States where it takes longer to enforce contracts and clear customs are also states with lower FDI (Figure III.7).

Figure III.6.Indian States: FDI and Infrastructure and Labor Markets

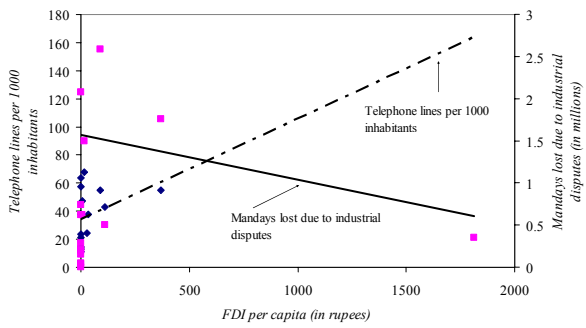
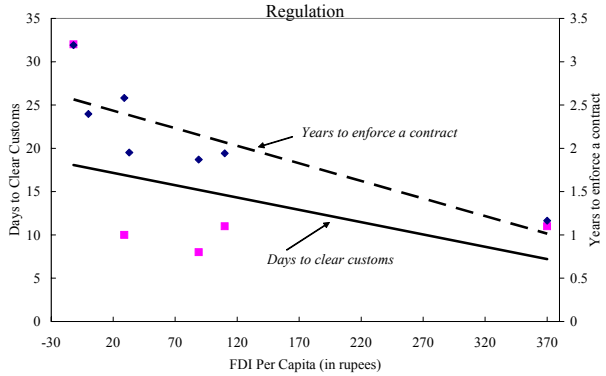


Figure III.7.Indian States: FDI Inflow and the Burden of Regulation



15. **State specific policies and incentives to attract FDI are not a substitute for improving the overall business climate**. The federal structure in India empowers the states to design their own investment policies to attract FDI, along with instituting specific incentives for certain sectors. A one-stop clearance window is now available in most states to for investors to meet all regulatory requirements and obtain all approvals. In addition, some states have offered tax concessions, capital and interest subsidies, and reductions in power tariffs. For instance, Karnataka has been aggressive in attracting FDI and has outlined a series of policies, such as investment subsidies, exemptions for export-oriented units, refunds and fiscal incentives for specific industries such as information technology, biotechnology and BPOs. While incentives make it easier to conduct business, they are unlikely to be the main determinant of the location of FDI.[16] This is borne out by the experience of states such as Haryana, Himachal Pradesh and West Bengal, which offer incentives, but attract little FDI.

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investment climate (IC) states in India have on average 11.9 percent of over staffing, while this number rises to 15.5 percent in poor IC states.

[16] Most studies conclude that tax incentives neither affect significantly the amount of direct investment nor usually determine the location to which investment is drawn. (Wells and Allen, 2001; Chang and Cheng, 1992; FIAS, 1999; IMF, 2003; Tanzi and Shome, 1992; UNCTAD, 2004). In fact, Lim (1983) finds a negative relationship between incentives and investment, as the latter compensate for an otherwise unfavorable business climate. A survey of ASEAN firms also shows that the removal of incentives will not have a great impact on investment decisions (Mirza et. al, 1996).

E. Conclusion

16. **The most important factors influencing FDI into India are not FDI-specific policies but, rather, broader economic policies including corporate taxes, trade openness, and other business climate issues, such as regulatory quality and burden**. India has made considerable progress in liberalizing its FDI regime, which is a necessary but not a sufficient condition to attract significant FDI inflows. The differences across Indian states in attracting FDI further underscore the importance of business climate in determining FDI rather than FDI-specific incentives. With the current international attention on India's tremendous potential for FDI, it would be an opportune time to push for rapid progress on structural reform to drastically increase FDI inflows.

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IV. THE TAX SYSTEM IN INDIA: COULD REFORM SPUR GROWTH?[1]

A. Introduction and Overview

1. **While the average tax intake in India is low by international standards, marginal rates are high**. High tax rates are thought to depress employment, investment, and growth. The empirical evidence is mixed. Cross-country studies generally confirm the negative impact of taxation on economic activity, but results are not robust. Firm-level evidence and simulation results are more conclusive, supporting the view that high tax rates have an adverse effect on growth and distort financing and investment decisions (Box IV.1). High tax rates may also contribute to the growth of the "shadow economy," carrying costs in terms of foregone tax receipts and lower productivity growth (Farrel, 2004; Schneider and Klinglmair, 2004).

2. **To improve the tax intake and savings and investment rates, which are low by regional standards,[2] a series of tax reforms have been considered in India**.[3] Their main thrust is to combine lower statutory rates with base broadening, to realize more revenues while lowering the marginal tax burden and removing distortions. This in turn should foster growth, leading to an "expansionary" fiscal adjustment.

3. **This chapter assesses the potential impact of India's tax system on growth**. Section B establishes stylized facts about the tax system: (i) a high dependence on indirect taxes, (ii) low average effective tax rates (AETRs) and tax productivity, and (iii) high marginal tax rates and tax-induced distortions on marginal investment and financing decisions. Section C finds that the proposed tax reforms would improve tax productivity and lower the marginal tax burden and tax-induced distortions. But firms that rely on internal sources of funds or face problems borrowing would continue to face high marginal tax rates.

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[1] Prepared by Hélène K. Poirson.

[2] National savings during 1999–2004 in India reached 24 percent of GDP on average annually, compared to 43 percent in China, 34 percent in Malaysia, and 32 percent in Korea.

[3] For a history of reforms, see Ministry of Finance (1982, 2001, and 2004), Patel (1995), Mulheisen (1998), Burgess, Howes and Sterne (1997), and Shome (2004).

Box IV.1. Empirical Evidence on Taxation and Growth

High labor taxation can negatively impact employment and growth by pushing up labor costs. In the presence of strong and decentralized labor unions, labor taxes are shifted into real wages, reducing labor demand; this in turn leads to substitution away from labor and downward pressure on the marginal product of capital, reducing investment and growth. Empirical evidence for European Union (EU) countries confirms this view.[1] High marginal effective tax rates (due to the combination of tax and benefit systems) can also affect labor supply decisions by affecting the choice between additional work and leisure.[2]

Consumption taxes do not affect savings and investment decisions since future and current consumption are treated equally, and they remain neutral with respect to various sources of income. Empirical evidence is mixed, however. Some studies find that such taxes indeed have no impact on employment and growth,[3] but others find that—like income taxes, although to a lesser extent—they have a negative impact on growth by distorting the choice between labor and leisure, and also could depress savings.[4]

Corporate taxes raise the required rate of return on investment and depress investment. In addition corporate taxes tend to favor debt over equity financing or retained earnings, potentially leading to an inefficient allocation of resources, higher insolvency risks, and discrimination against smaller companies that face more difficulties borrowing. Corporate taxes are also non-neutral given the widespread use of rebates, exemptions and special regimes for specific sectors or regions. This also benefits large companies which can bear a lower tax burden through tax planning and fiscal engineering.[5] Cross-country studies confirm a negative link between the tax burden and growth for high-income countries. However, the result does not hold for low- and middle-income countries, perhaps reflecting measurement problems.[6] Firm-level empirical results, as well as simulation results using computable general equilibrium models, in contrast support the view that higher taxes negatively affect growth.[7]

Taxation of capital income—even when at a low level—as is the case in most EU countries, appears to have a distortionary effect on savings. Although there is little evidence for the EU that taxes affect the aggregate level of savings, they appear to influence its composition and location. Many EU countries tend to grant favorable treatment to specific savings instruments, such as retirement schemes and housing investment. Moreover, they generally apply a preferential treatment to non-residents, thus distorting saving flows and potentially enhancing tax evasion possibilities associated with cross-border investment.[8]

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[1]See Daveri, F., and G. Tabellini, 2000, "Unemployment, Growth, and Taxation in Industrial Countries," *Economic Policy,* Vol. 30, pp. 48–104.

[2]For example, see OECD, 2001, *Tax and the Economy: A Comparative Assessment of OECD Countries*, (Paris: Organisation for Economic Co-operation and Development).

[3]See Daveri and Tabellini, 2000; and Kneller, R., M. F. Bleaney, and N. Gemmel, 1999, "Fiscal Policy and Growth: Evidence from OECD Countries," *Journal of Public Economics*, Vol. 74(2), pp. 171–190.

[4]For example, see Milesi-Ferretti, G. and N. Roubini, 1995, "Growth Effects of Income and Consumption Taxes: Positive and Normative Analysis," NBER Working Paper 5317; and Tanzi V. and H. Zee, 2000, "Taxation and the Household Saving Rate: Evidence from OECD Countries," *Banca Nazionale del Lavoro Quarterly Review*, Vol. 53, pp. 31–43.

[5]See Rao, S., and J. Lukose, 2002, "An Empirical Study of the Determinants of the Capital Structure of Listed Indian Firms," unpublished (Mumbai: Indian Institute of Technology); OECD, 2001; and Joumard, I., 2001, "Tax Systems in European Union Countries," *OECD Economic Studies*, Vol. 34, pp. 91–151; and Nicodeme, G., 2002, "Sector and Size Effects on Effective Corporate Taxation," Economic Papers No. 175 (Brussels: European Commission).

[6]See Blankenau, S., S. Nicole, and M. Tomljanovich, 2004, "Public Education Expenditures, Taxation, and Growth," unpublished (Kansas: Kansas State University). Such studies typically use the tax revenue to GDP to proxy for the tax burden instead of the marginal or effective tax rate on corporates, which ideally should be used.

[7]See Fishman, R. and J. Svensson, 2000, "Are Corruption and Taxation Really Harmful to Growth? Firm Level Evidence," unpublished (New York: Columbia University); and Feltenstein, A. and A. Shah, 1995, "General Equilibrium Effects of Investment Incentives in Mexico," *Journal of Development Economics,* Vol. 46, pp. 253–69.

[8]See OECD (2001).

B. The Indian Tax System: Stylized Facts and Issues

The Tax System[4]

4. **India has a well developed tax structure, with the authority to levy taxes divided between the central government and the state governments**. The central government levies direct taxes such as personal income tax (PIT) and corporate tax (CIT), and indirect taxes such as customs duties, excise duties, and central sales tax. The states levy state sales tax and various local taxes. Since 1991, the tax structure has been substantially rationalized. Changes include reducing customs and excise duties, lowering CIT rates, extending a form of VAT to some industries, and broadening the tax structure to some services.[5]

5. **The principal direct taxes include PIT and CIT, state taxes on agricultural income, wealth tax, and various withholding taxes**. The PIT is levied on non-agricultural income at rates of 10 percent–31.5 percent. It applies to Indian residents and foreigners, on income earned in India. The exemption threshold of Rs. 50,000 (US$1,111) results in a relatively narrow tax base of about 34 million taxpayers.[6] States levy some taxes on agricultural income (land revenue tax and agricultural income tax), but their combined incidence is considerably less than that of the PIT. A wealth tax is levied on net assets in excess of Rs. 1.5 million. The corporate income tax (CIT) is levied at a basic rate of 35 percent, but with significant exemptions. Other corporate taxes include a dividend distribution tax (DDT), a minimum alternative tax on profits, and various withholding taxes on interest, royalties, etc.

6. **The main indirect taxes are the sales tax, custom and excise duties, and service tax**. A state sales tax is levied on intrastate trade and a central sales tax (CST) on interstate trade, at a rate that varies depending on the type of transaction and the rate of the state sales tax. The center also levies custom duties and a basic excise duty (modified VAT or CENVAT) on goods manufactured or produced in India. The CENVAT base is truncated to manufacturing and eroded by a complex and extensive system of exemptions, including for small-scale industries and Special Economic Zones. Special excise duties are levied on specific items. In 1994, a selective turnover tax on services was introduced on three specified services. The base was gradually widened to cover 58 services.[7] Other minor taxes and duties

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[4] As of June 2004. See Annex IV.1 for detailed provisions of the tax system.

[5] The budget 2004/05 imposed a 2 percent education surcharge on all taxes.

[6] The exemption threshold was raised to Rs. 111,250 (US$2,472) in the 2004/05 budget. An estimated 14 million taxpayers are expected to benefit, further narrowing the base.

[7] The service tax net has been further widened in the 2004/05 budget to cover 71 services. The service tax rate was raised to 10 percent. Credit of service tax and excise duty was extended across goods and services.

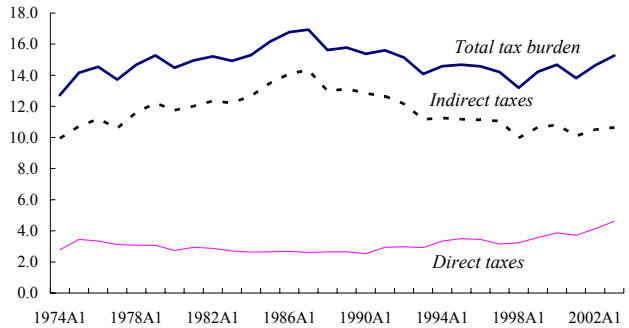
imposed at both center and state level include stamp duty, taxes on land and buildings, and taxes on motor vehicles.

7. **As in other developing countries, tax incentives feature prominently in India**. They are used to encourage new industry to locate in "backward" regions; to promote exports; and to promote investment in sectors including hotels, power, telecommunications, and infrastructure. The question remains whether tax incentives are decisive factors in the decision to invest. They may be important for some companies to offset other costs of doing business in India—such as still relatively high import duties, cascading sales taxes, and inadequate public infrastructure—but an unfortunate outcome has been to thin out the overall direct and indirect tax bases (Shome, 2004). Tax holidays, which are the preferred form of incentives in India, have the most serious shortcomings (Tanzi and Zee, 2001).

Stylized Facts

8. **India's general government tax revenue has declined since the 1990s, to under 14 percent of GDP in 2002/03**. This is more than 5 percentage points below the average for selected non-OECD countries and 2 percentage points below the Asian average. The decline in revenue during 1992–2002 contrasts with the increase in tax intake observed in other large Asian countries (Indonesia, China, and Korea) over the same period. It occurred as major tax reforms were implemented, aimed at improving the buoyancy of revenues and increasing the share of direct taxes in total revenues. Direct tax revenues increased, but indirect tax collections declined, mainly due to tariff reductions (Figure IV.1).

Figure IV.1. India: Tax Burden, 1974/75-2003/04
(In percent of GDP)



Sources: Indian authorities; and staff projections.

9. **The most recent reforms (2002-04) were moderately successful in reversing the declining trend of revenues**. The peak tariff reduction for non-agricultural imports advocated by the 2002 Kelkar committee reports (Box IV.2) was fully implemented and the revenue loss was more than offset by buoyant corporate tax collections. However, excise and PIT revenues rose only marginally, reflecting the extension of further exemptions, deductions, and rebates (against the recommendation of the Kelkar reports). The states succeeded in raising sales tax collections, but the introduction of a VAT was postponed.

Box IV.2. Kelkar 2002 Reports Proposals

As part of its overall reform agenda, the government in 2002 set up a tax reform task force (Kelkar task force) to propose a far-reaching reform agenda for direct and indirect taxes. [1] Proposals centered around the following elements:

- **A change in the exemption level and rate structure of the personal income tax and broadening of the base, as well as minimizing exemptions and replacing allowances by credits**. A constitutional device would allow the government to tax agricultural income. The general exemption would be increased, the number of brackets reduced, and the highest marginal rate reduced to 30 percent. A range of special deductions would be eliminated and some would be converted into credits. The report also proposed changes to the taxation of capital income, specifically exempting dividends from Indian companies and long-term capital gains on equity.
- **A reduction in the rate and in the large number of deductions and exemptions of the corporate income tax**. The rate would be reduced to 30 percent for domestic companies and 35 percent for foreign companies. The minimum alternate tax would be eliminated.
- **A rationalization of the import tariff structure and export promotion schemes**. The existing 20 tariff rates, ranging up to 182 percent, were to be reduced to a range of 0 percent-20 percent for most goods, with higher rates—up to 150 percent—for certain agricultural products and "demerit" goods, with the new schedule to be adopted as of 2004/05. Exemptions would be significantly narrowed.
- **Broadening the base of the central excise tax (CENVAT) and moving it further toward a VAT**.

[1] See Ministry of Finance, 2002a, *Report of the Task Force on Indirect Taxes,* (New Delhi: Government of India); and Ministry of Finance, 2002b, *Report of the Task Force on Direct Taxes,* (New Delhi: Government of India).

10. **Despite reforms, the tax structure remains dominated by indirect taxes**. State taxes on commodities and services are the prominent source of general government revenue (representing more than a third of the total tax intake), followed by central government excises (one-fifth of the total) (Table IV.1). The share of revenue from indirect taxes is more than three quarters, compared to half in the average non-OECD country (Table IV.2).

Table IV.1. India: Structure of General Government Tax Revenue, 2003/04

	Billions of Rupees	Percent of GDP	Percent of Total
Central government	2,544.4	9.2	61.0
Corporate tax	636.1	2.3	15.2
Income tax	414.4	1.5	9.9
Excises	907.6	3.3	21.8
Customs	486.3	1.8	11.7
Other 1/	100.0	0.4	2.4
States and union territories 2/	1,626.7	5.9	39.0
Taxes on income	25.7	0.1	0.6
Taxes on property and capital transactions	177.5	0.6	4.3
Taxes on commodities and services	1,423.4	5.1	34.1
Total	4,171.0	15.0	100.0

Sources: Indian authorities; and staff estimates.

1/ Mostly service tax.
2/ Staff estimates based on projected GDP growth and historical elasticities.

Table IV.2. Non-OECD Countries General Government: Tax Revenue, 2001

(In percent of total)

	Taxes on Payroll or Workforce	Taxes on Social Security Contributions	Taxes on International Trade and Transactions	Indirect Taxes on Domestic Goods and Services	Taxes on Property	Direct Taxes on Corporates	Direct Taxes on Individuals	Total
Albania	...	...	...	...	...	...	...	...
Argentina	...	15.1	2.8	23.8	11.2	8.3	15.2	100.0
Azerbaijan	...	...	...	...	...	...	...	...
Belarus	2.2	26.3	4.2	44.1	3.3	6.6	...	100.0
Bolivia	...	10.4	5.0	58.0	9.6	6.9	...	100.0
Brazil	...	...	...	...	...	...	...	...
Bulgaria	...	27.1	2.3	42.3	1.2	8.6	12.5	100.0
Chile	...	7.3	6.0	55.8	3.7	...	...	100.0
Croatia	...	32.3	6.3	45.0	1.3	3.0	10.4	100.0
Estonia	...	33.8	0.1	39.4	1.4	2.4	22.9	100.0
India	**...**	**...**	**12.8**	**60.3**	**4.2**	**11.6**	**11.1**	**100.0**
Israel	2.8	16.9	0.7	33.4	...	10.2	32.5	100.0
Kazakhstan	...	...	...	...	...	...	...	...
Kyrgyz Republic	...	...	...	...	...	...	...	...
Latvia	...	31.2	1.1	37.4	3.3	7.0	20.1	100.0
Lithuania	0.1	27.2	1.0	41.5	2.1	1.9	26.1	100.0
Moldova	...	27.5	4.9	48.8	4.1	2.5	7.2	100.0
Mongolia	...	18.3	8.1	49.4	0.5	8.3	6.2	100.0
Peru	0.1	9.2	10.2	58.3	...	13.2	11.3	100.0
Romania	...	39.6	2.9	35.8	1.8	6.9	11.8	100.0
Russia	...	21.3	11.4	35.2	3.8	7.4	8.8	100.0
Slovenia	4.6	34.8	1.6	37.3	1.8	3.8	10.4	100.0
South Africa	1.0	1.8	2.9	33.5	5.1	...	...	100.0
Thailand	...	3.3	11.3	52.6	1.6	17.0	11.8	100.0
Unweighted average	2.4	23.3	4.2	41.7	2.9	6.6	14.5	100.0

Sources: *Government Finance Statistics* (IMF); and *International Financial Statistics* (IMF).

11. **The tax system is characterized by extremely low AETRs**. The AETR on labor, at 2 percent in 2001, is much lower than in the European Union, United States, or Japan, which range from 21–36 percent (Table IV.3). This reflects India's narrow tax base and the lack of social security system.[8] The AETR on capital income is also low, reflecting the wide

[8] Estimates for non-OECD countries are not publicly available.

Table IV.3. India: Average Effective Tax Rates Comparison, 1990-2000

(In percent)

	Average Effective Tax Rate			Total Tax Wedge
	Labor	Capital	Consumption	on Labor 1/
India 2/	1.6	5.2	15.0	15.9
Australia	20.9	30.7	12.1	30.5
Austria	39.6	24.3	16.2	51.2
Belgium	41.3	32.7	15.0	51.7
Canada	29.6	36.8	13.9	39.4
Czech Republic	41.5	21.6	13.0	47.2
Denmark	39.9	39.5	20.6	56.0
Finland	45.0	26.0	18.7	58.0
France	40.5	33.2	15.1	51.3
Germany	35.0	21.2	13.4	44.9
Greece	34.9	12.9	15.5	46.5
Hungary	...	14.7	22.2	...
Ireland	26.3	...	21.2	41.9
Italy	37.7	31.0	13.9	47.9
Japan	24.1	27.9	6.4	29.4
Korea	9.9	16.7	15.8	24.2
Netherlands	36.4	32.7	18.0	47.9
New Zealand	25.1	...	18.5	38.9
Norway	36.2	24.7	25.7	52.5
Poland	...	20.9	17.1	...
Portugal	23.9	17.6	19.9	39.0
Spain	30.7	20.0	14.5	40.8
Sweden	49.6	35.7	19.8	59.6
Switzerland	30.9	27.1	9.3	37.3
United Kingdom	22.6	34.0	15.7	34.8
United States	23.4	27.3	6.4	28.3
Unweighted average	32.4	26.5	15.9	43.4
EU15 average	38.0	28.7	17.8	48.9

Sources: Carey and Rabesona (2002); and staff estimates for India.

1/ Combined effective tax rate on labor and consumption.
2/ Average 1993-2000, based on data availability.

coverage of tax incentives, low personal taxes on capital income, and a large informal sector.[9] Korea in the mid 1970s had similar low AETRs, but they have since risen significantly (Figure IV.2). Finally, the AETR on consumption is broadly average despite a tax base that largely excludes services. As in Korea, it has declined over time.

12. **Reflecting the low AETRs, India's tax productivity is also low relative to both OECD and non-OECD countries**.[10] For example, CIT tax productivity is much below average (Tables IV.4a and IV.4b).[11] While this is unwelcome in a static sense, it is attractive if considered dynamically: by expanding the taxpayer net, broadening the tax base, or stepping up tax administration, revenue can be raised without rate increases. During the period 1993-2001, India increased AETRs on labor and capital despite reductions in statutory rates and a declining CIT tax base.[12] This suggests that improved tax administration and compliance was the main factor underlying the improvement in tax productivity.

Table IV.4a. India: Revenue Productivity of the Corporate Tax, 2001

(In percent)

	Statutory CIT Rate	Effective CIT Rate	Revenue Productivity 1/
India	35.9	3.5	9.7
France	33.3	8.9	26.8
Germany	38.9	2.1	5.3
Italy	37.0	6.7	18.2
Japan	40.9	8.7	21.2
Korea	29.7	9.6	32.4
United Kingdom	30.0	9.9	32.9
United States 2/	45.8	5.3	11.6
OECD average	32.3	9.6	29.7

Sources: Standard & Poor's; and staff estimates for India and Korea.

1/ Ratio of effective CIT rate to statutory CIT rate.
2/ As of 2000.

The Burden of Taxation on Investors

13. **This section assesses to what extent the Indian income tax code affects incentives to invest**. We calculate two standard indicators, the marginal effective tax wedge (METW) between the pre- and post-tax return on capital, and the marginal effective tax rate (METR),

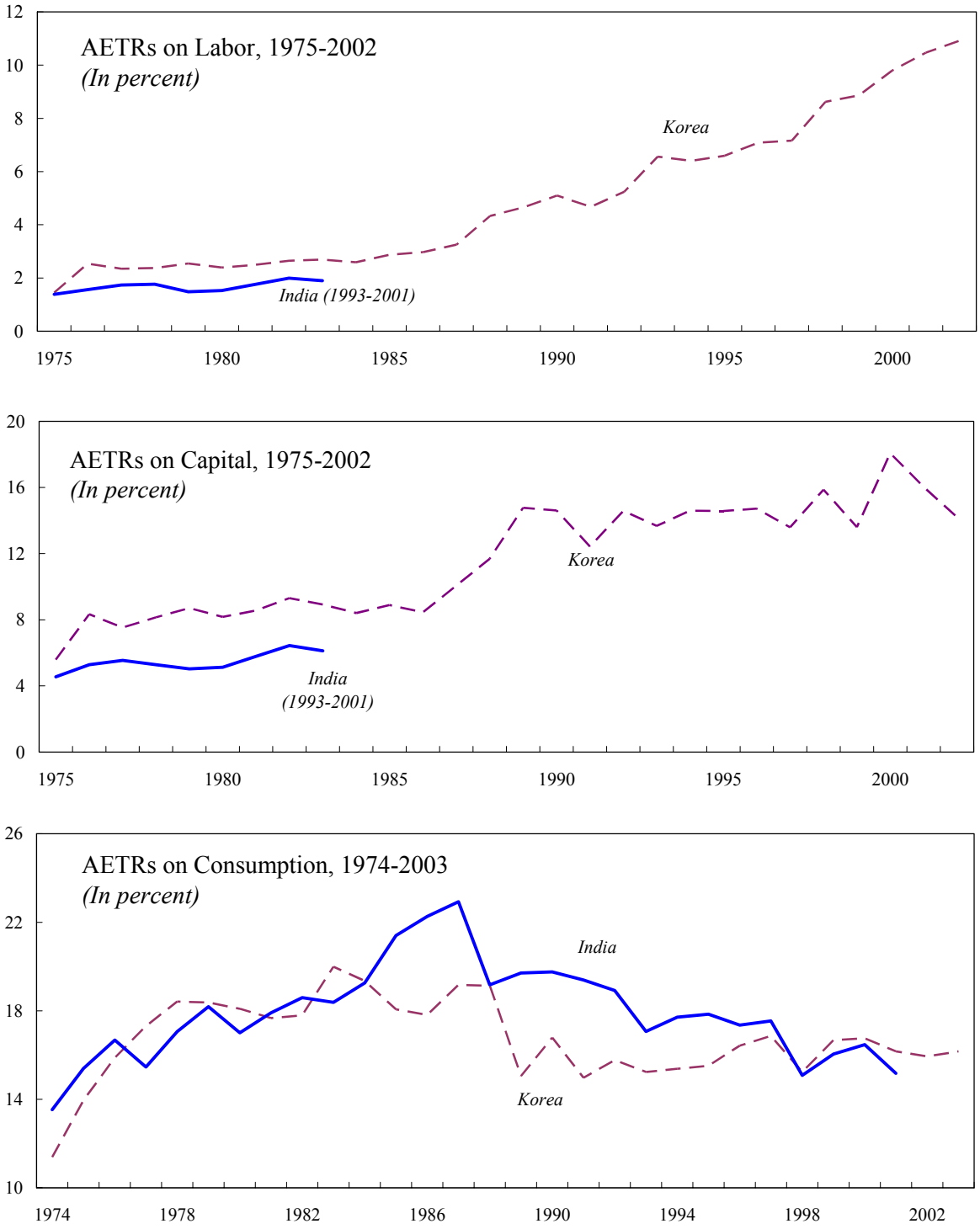
[9] The operating surplus of unincorporated enterprises (a proxy for the share of the informal sector) accounted for three quarters of the operating surplus of the economy in 2000/01.

[10] Tax productivity measures the extent to which revenues that should be received—given the rate and base of the tax—are actually being realized. It is measured as the ratio of the effective to statutory tax rate (Kraemer and Zhang, 2004).

[11] In Table IV.4a, following the Kraemer-Zhang approach, we use the operating surplus of the economy (from national accounts) as the potential tax base. In Table IV.4b, in the absence of such data for non-OECD countries, we use nominal GDP.

[12] The operating surplus of the economy declined by 2.7 percent of GDP during 1993–2001.

Figure IV.2. India and Korea: AETRs on Labor, Capital, and Consumption



Source: Staff estimates.

Table IV.4b. India: Revenue Productivity of the Corporate Tax, 2003

(In percent)

	Statutory CIT Rate 1/	Corporate Taxes/GDP 2/	Revenue Productivity 3/
India	35.9	2.3	6.4
Argentina	35.0	2.7	7.7
Bolivia	25.0	1.8	7.2
Chile (2001)	17.0	4.6	27.2
China	33.0	2.5	7.5
Colombia	35.0	4.7	13.4
Hungary	16.0	8.0	49.8
Indonesia	30.0	1.7	5.5
Mexico (2000)	33.0	5.0	15.3
Pakistan	35.0	3.6	10.2
Peru	30.0	3.4	11.4
Philippines	32.0	2.6	8.2
Poland	19.0	4.9	25.6
Russia	24.0	4.0	16.6
Singapore (2001)	22.0	8.0	36.5
South Africa	37.8	5.5	14.4
Thailand	30.0	3.0	10.0
Turkey	33.0	2.5	7.6
Ukraine	25.0	5.0	20.0
Uruguay	35.0	2.6	7.4
Venezuela	34.0	14.7	43.1
All: Mean	29.0	4.5	17.2

Sources: KPMG; *Government Finance Statistics* (IMF); and *International Financial Statistics* (IMF); and various country databases.

1/ As of January 1, 2004.

2/ Used as proxy for the effective CIT rate. For 2003, unless otherwise indicated.

3/ Ratio of corporate tax/GDP to statutory CIT rate.

defined as the ratio of the METW to the real required pre-tax rate of return.[13] By summarizing various tax effects, including the statutory CIT rate, depreciation allowances, inventory valuation method, and personal taxes, the METW measures the potential cost of taxation to investors, which in turn affects their decision to invest.[14] Comparable estimates have been published for OECD countries.

14. **The total tax wedge on capital income in India is broadly average, but tax-induced distortions tend to be high**. Firms that rely on internal financing are particularly penalized (Tables IV.5a, IV.5b, and IV.6):

- **The tax wedge on capital (1.4 percent) is slightly lower than the OECD average**. This reflects low personal taxes and the indexation option available for long-term capital gains.

- **The standard deviation of the tax wedge across investment assets is three times higher than the OECD average**. Inventory investment is treated more harshly than investments in machinery and buildings, so that firms that need to carry more inventories are penalized, more so than in other countries.[15]

- **The standard deviation of the tax wedge across financing sources is twice as high as the OECD average**. The large negative tax wedge enjoyed by debt financing means that the government is effectively subsidizing marginal debt-financed investments, more so than in other countries. Investments financed by new equity face a below average tax wedge, thanks to low dividend taxation. However, investments financed by retained earnings face a tax wedge of nearly 3 percent (compared to the OECD average of 2 percent). Smaller firms that face problems in borrowing and tend to be more dependent on internal sources of funds are thus

[13] See Annex IV.III for tax parameters used. See OECD (1991) and Poirson (2004) for further details on the methodology and parameters. Indirect taxes impose additional costs on investment, but the METR approach focuses on direct taxation, thus understating the tax burden on investors.

[14] The AETR, although commonly used for this purpose, does not accurately reflect incentives, as it is backward looking. Moreover, international comparisons using this indicator are difficult to interpret due to differences in accounting definitions and the timing of tax payments. Further, it does not incorporate personal tax provisions.

[15] The use of the FIFO method (first in first out) for inventory valuation also entails a higher tax burden, as increases in the value of inventories due solely to inflation are taxed.

Table IV.5a. India: Marginal Effective Tax Wedge by Investment Type 1/

(In percent)

	Standard Deviation 2/	Weighted Average	Investment Type		
			Machinery	Building	Inventories
India	1.5	1.4	0.7	0.5	3.2
Canada	1.0	3.6	2.7	4.1	5.1
Germany	0.4	1.2	0.9	1.4	1.9
Japan	1.0	2.0	1.0	3.1	2.8
United Kingdom	0.5	2.2	1.9	2.2	3.1
United States	0.4	1.9	1.5	2.5	2.0
OECD average	0.4	1.6	1.2	1.7	2.3

Sources: Dalsgaard (2001) based on OECD calculations; and staff estimates for India.

1/ These indicators show the degree to which the personal and corporate tax systems scale up (or down) the pre-tax real rate of return that must be earned on an investment, given that the representative investor can earn a 4 percent real rate of return on a demand deposit. The estimates shown refer to 2004 for India, 1999 for other countries.
2/ The standard deviation across investment vehicles provides an indicator of the neutrality of the tax system towards corporate investment decisions. The lower the standard deviation, the more neutral the tax system.

Table IV.5b. India: Marginal Effective Tax Wedge by Financing Source 1/

(In percent)

	Standard Deviation 2/	Sources of Financing		
		Retained earnings	New equity	Debt
India	2.0	2.9	2.8	-0.6
France	2.9	3.6	7.7	0.7
Germany	0.7	0.9	2.5	1.3
Italy	0.4	1.3	1.3	0.4
Japan	2.3	3.3	5.5	-0.1
Korea	0.5	0.6	1.6	1.6
United Kingdom	0.5	2.9	2.4	1.6
United States	1.5	1.7	4.8	1.4
OECD average 3/	0.9	2.0	3.2	1.0

Sources: Joumard (2001) based on OECD calculations; and staff estimates for India.

1/ These indicators show the degree to which the personal and corporate tax systems scale up (or down) the pre-tax real rate of return that must be earned on an investment, given that the representative investor can earn a 4 percent real rate of return on a demand deposit. The representative investor is supposed to be a resident person, taxed at the top marginal income tax rate (see OECD, 1991). The estimates shown refer to 2004 for India, to 1999 for other countries.
2/ The standard deviation across financing instruments provides an indicator of the neutrality of the tax system towards corporate financing decisions. The lower the standard deviation, the more neutral the tax system.
3/ Weighted average across available countries (weights based on 1995 GDPs and PPPs).

Table IV.6. India: Statutory and Effective Tax Rates on Corporations

(In percent)

	Statutory Corporate Tax Rate, 2004 1/	Statutory Corporate Tax Rate, 1999	Marginal Effective Tax Rate 2/
India	35.9	...	26.1
Australia	30.0	...	...
Austria	34.0	34.0	17.4
Belgium	34.0	40.2	25.6
Canada	36.1	34.6	24.0
Czech Republic	28.0	...	...
Denmark	30.0	...	...
Finland	29.0	29.0	19.5
France	34.3	36.4	29.9
Germany	38.3	38.3	28.3
Greece	35.0	37.5	27.7
Hungary	18.0	...	...
Ireland	12.5	10.0	6.6
Italy	37.3	40.3	9.2
Japan	42.0	40.9	31.8
Korea	29.7	...	...
Luxembourg	30.4	...	...
Netherlands	34.5	35.0	24.3
New Zealand	33.0	...	...
Norway	28.0	...	...
Poland	19.0	...	...
Portugal	27.5	35.2	20.3
Spain	35.0	35.0	29.5
Sweden	28.0	28.0	16.1
Switzerland	24.1	...	...
United Kingdom	30.0	30.0	20.3
United States	40.0	39.3	23.8
Unweighted average	30.3	33.6	22.0
EU15 average	32.2	34.4	22.3

Sources: KPMG for 2004 statutory tax rates; staff estimates for India; Devereux, Griffifth and Klemm (2002) for 1999 statutory; and effective tax rates for other countries.

1/ As of January 1, 2004.

2/ Based on investment in plant and machinery, financed by equity or retained earnings (but not debt). Taxation at the shareholder level is not included (hence no distinction between new equity and retained earnings). Other assumptions: real post-tax required rate of return fixed at 10 percent. The estimate is for the current tax system for India, the 1999 tax system for all other countries.

disadvantaged compared to larger firms (Rao and Lukose, 2002; Joseph et al., 1998). The relatively large tax advantage of debt finance may also have contributed to relatively high financial leverage in India, exacerbating firms' vulnerability.[16]

15. **A related result is that corporates that rely mainly on internal financing face a high marginal tax rate**. The METR for investments financed by retained earnings is 26 percent, compared to the OECD average of 22 percent, reflecting a relatively high CIT rate.[17]

C. Priorities for Reforms

16. **The facts highlighted above suggest that a tax reform combining lower statutory rates with base broadening is likely to enhance growth prospects in India**. AETR and tax productivity estimates suggest ample scope for raising revenue through base-broadening and improved tax administration. These measures in turn would create room for lowering statutory rates, reducing the METR and raising investment. These broad directions for tax reform were highlighted in the FRBMA roadmap (Ministry of Finance, 2004).

An Assessment of the FRBMA Roadmap Tax Proposals

17. **The roadmap proposes the introduction of a national VAT on goods and services and a number of changes to corporate and personal income taxation**: reduction of the statutory CIT rate to 30 percent and elimination of the surcharge; reduction of the general depreciation rate to 15 percent; elimination of the withholding tax on distribution of dividends; and elimination of the long term capital gains tax. The reforms also envisage lifting most exemptions and incentives to expand the tax base and increased reliance on IT to improve tax administration and compliance.

18. **The proposals implemented as a package would imply a significant increase in tax productivity**. For example, the corporate tax to GDP ratio is projected to nearly double from 2.3 percent of GDP in 2003/04 to 4.2 percent of GDP by 2008/09, despite a lower CIT rate (Ministry of Finance, 2004). CIT tax productivity would more than double to 14 percent by 2008/09 (nearing the non-OECD average). The proposed extension of the CENVAT to services should also help enhance its revenue productivity.

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[16] The average debt-to-equity ratio for Indian companies is high relative to their counterparts in Asian countries and elsewhere, and has risen recently to 1.4 in 2002 from a low of 1.2 in 1996 (Topalova, 2004).

[17] The METR calculated here follows the methodology of Devereux, Griffith, and Klem (2002) and ignores any personal taxes, focusing on the marginal tax burden at the firm level.

19. **The reforms would also decrease the METW on capital income and reduce tax-induced distortions**. The METW would be nearly halved thanks to lower personal taxes (Table IV.7). Neutrality with respect to sources of financing would improve, but firms that rely on internal finance would remain relatively penalized.[18] Neutrality with respect to investment patterns would improve by a third, thanks to the lower depreciation rate, but remain more than double the OECD average, suggesting scope for further improvements. Replacement of the sales taxes and excise duties by a national VAT should also help reduce distortions, with favorable effects on investment and exports (Ministry of Finance, 2004).

20. **To mitigate potentially excessive reliance on debt finance and help further improve the neutrality of the tax system, additional tax measures can be considered**. These include (IMF, 2004): limiting the deductibility of interest to a percentage of net taxable income; limiting debt for the purposes of income tax (e.g., debt-to-equity ratios in Canada are limited to 2, in Germany to 1.5, and in Japan to 3); limiting interest to a referential rate (e.g., in Portugal, the 12-month Euribor plus 1.5 percent); or introducing an allowance for corporate equity.[19]

[18] The METR on retained earnings (ignoring any personal taxes) would increase by 3 percentage points to 29 percent following reforms, due to the lower depreciation rate.

[19] The notional rate of return on invested equity is deductible under the CIT in Croatia (1994–2001), and imputed equity return is taxed at a reduced rate in Austria and Italy (until 2001).

Table IV.7. India: Tax Wedges Under Current Tax System
Versus Reformed Tax System

(In percent)

Type of Investment	Mode of Financing				Standard Deviation 1/
	Retained earnings	New equity	Debt	Weighted average	
			Tax System, 2003/04 2/		
Machinery	2.2	2.1	-1.1	0.7	1.9
	41.2	*40.0*	*-56.8*	*18.5*	
Buildings	2.1	1.9	-1.4	0.5	2.0
	39.8	*38.5*	*-82.1*	*14.2*	
Inventories	5.0	4.9	0.9	3.2	2.3
	61.8	*61.2*	*22.3*	*50.6*	
Weighted average	2.9	2.8	-0.6	1.4	2.0
	48.6	*47.6*	*-25.0*	*30.3*	
Standard deviation 1/	1.7	1.7	1.3	1.5	
			Tax System, FRBM Roadmap 2/		
Machinery	2.1	1.8	-0.2	1.0	1.3
	39.7	*36.1*	*-8.0*	*24.4*	
Buildings	1.2	0.9	-1.0	0.2	1.2
	27.6	*22.5*	*-47.5*	*5.6*	
Inventories	3.4	3.1	0.8	2.2	1.4
	52.0	*49.4*	*21.2*	*41.6*	
Weighted Average	2.3	2.0	-0.1	1.2	1.3
	41.9	*38.4*	*-3.0*	*27.4*	
Standard deviation 1/	1.1	1.1	0.9	1.0	

Source: Staff estimates.

1/ The standard deviation measures the neutrality of the tax system with respect to corporate financing and investment decisions. The lower the standard deviation, the more neutral the tax system.
2/ Corresponding marginal effective tax rates are reported in italics.

India: Main Features of the Tax System (June 2004) 1/

Tax	Nature of Tax	Exemptions and Deductions	Rates
1. Direct Taxes			
1. 1. Taxes on Income and Profits: 1.1.1. Business income 1.1.1.1. Corporate income tax (CIT):	Companies are taxed based on the residing principle. CIT applies to net profits determined after business expenses and depreciation allowances. Inventories are generally valued at the lower of cost or market price. Normally, there is conformity between tax and book reporting. FIFO and average cost are acceptable, provided they are consistently applied. Short-term capital gains are taxed at the CIT rate. They arise on the sale of an asset within three years of its acquisition (one year in the case of shares). Other capital gains (called long-term gains) are determined after increasing the cost by prescribed inflation factors. Short-term capital losses can be set off against any capital gains. Long-term capital losses can be set off only against long-term capital gains during the year. Gains and losses (computed under "Depreciation") arising on the sale of depreciable assets are classified as short-term capital gains/losses. Stock dividends may be distributed and are not taxed at the time of receipt in the hands of the recipient equity shareholders.	*CIT exemptions*: (a) agricultural income (b) foreign companies and nonresident individuals under an agreement between the central government and a foreign government or an international organization; (c) business income arising from specified sources (see "Tax Incentives"); (d) undistributed foreign income of a nonresident subsidiary; (e) long-term capital gains on sales of shares in a government approved enterprise wholly engaged in specified infrastructure sectors, subject to fulfillment of prescribed conditions. Double taxation of foreign income is avoided through treaties that generally provide for deduction of the lower of foreign tax or Indian tax on the doubly taxed income from tax payable in India in the case of residents. Similar relief is allowed unilaterally where no treaty exists. Net operating losses may not be carried back. Loss carry forward is allowed as follows: Unabsorbed depreciation — unlimited Other business and capital losses — 8 years	*CIT* (including surcharge of 2.5 percent): - firm — 35 percent - domestic company — 35.875 percent - co-operative societies Rs. 0 – Rs. 10,000 — 10.25 percent Rs. 10,000- Rs. 20,00 0 — 20.5 percent Rs. 20,000-above — 35.875 percent - foreign company — 41 percent *Tax on capital gains :* - short-term — CIT rate - long-term — 20.5 percent

India: Main Features of the Tax System (June 2004) 1/

Tax	Nature of Tax	Exemptions and Deductions	Rates
1.1.1.1. Corporate income tax (CIT) (Continued):	*Depreciation*: depreciable assets are grouped in blocks, and each block is eligible for depreciation at a prescribed rate on the opening written-down value plus acquisitions less deletions during the year (declining-balance depreciation). Power generating or distributing companies can opt for straight-line depreciation.	*Deductions:* Allowed under general rule: accountancy fees and costs, legal expenses, guarantee payments, and partially deductible expenditures (e.g., entertainment, travel, advertising, head office expenses). Allowed under specific rule: scientific research expenditure; payments for intellectual property; bad debts; exchange rate fluctuations; rents, rates, taxes, repairs and insurance for buildings; repairs and insurance of machinery, plant and furniture; bonus paid to employee; premiums for covering risks to stocks and stores of the business; interest; employer contributions to provident funds; medical insurance premiums; payments made to approved organizations for approved projects, rural development programs and conservation projects; promotion of family planning among employees; allowance in respect of an animal used for business purposes which has died or become useless; expenditure incurred in 1999/2000 in respect of a non-Y2K compliant computer system to make it compliant. All taxes relating to business (other than income and wealth tax) incurred during the fiscal year are deductible in that year, provided they are paid by the following October 30. Otherwise, they are deductible in the year of payment. Intercompany dividends can be deducted for domestic companies that receive dividends from other domestic companies, to the extent, such dividend is redistributed by the recipient domestic company on or before the due date of filing the return of income.	*Depreciation rates:* Buildings - residential 5 percent - non residential 10 percent - hotels/units 20 percent - temporary structures 100 percent Furniture 10–15 percent Machinery and plant - general 25 percent - some sub-items 20–100 percent Intangible assets 25 percent Additional depreciation of 15 percent on new machinery and plant (other than ships and aircraft) acquired and installed after March 31, 2002, is allowed to a new industrial undertaking in the year of manufacture and to existing industrial undertakings which achieved an increase in installed capacity of 25 percent or more in that year (Finance Act 2002).

India: Main Features of the Tax System (June 2004) 1/

Tax	Nature of Tax	Exemptions and Deductions	Rates
1.1.1.2 Minimum alternative tax (MAT)	Both resident and nonresident companies are liable to pay tax on their book profits where the tax liability of the year is less than 7.5 percent of the adjusted book profits.	(a) sick companies (b) export profits of undertakings set up in free-trade zones and 100 percent export-oriented undertakings (during the tax holiday period) (c) nontaxable profits from the export of goods and software.	7.688 percent (including 2.5 percent surcharge)
1.1.2. Withholding taxes 1.1.2.1. Residents	Income earned from designated sources (including dividends, interest, royalty, rent, and capital gains) is subject to withholding tax at a variety of rates. The tax is withheld by the person making payments to the recipient of the income.		*Residents (in percent):* Interest domestic company 21 other residents 10.5 Income from: lottery, crossword puzzles 31.5 horse races 31.5 insurance commission 10.5 fees for selected services 5.25 mutual funds and UTI units 10.5 Lottery ticket sales commissions 10.5 Non insurance commissions 10.5 Dividends 10.5 Payment to contractors: 1–2 Rent 15.75–21 Any other income 21

India: Main Features of the Tax System (June 2004) 1/

Tax	Nature of Tax	Exemptions and Deductions	Rates
1.1.2.2. Nonresidents	Income earned from designated sources (including dividends, interest, royalty, and rent) is subject to withholding tax at a variety of rates. The tax is withheld by the person making payments to the recipient of the income.	Some tax treaties provide for lower withholding rates from certain types of income (dividends, interest, royalties, technical service fees).	*Nonresident company:* General rates (in percent): Royalties from an agreement concluded between 1961–1976 52.5 Technical service fees from an agreement concluded between 1954-1976 52.5 Other income 42 Specific rates (in percent): Dividends other than dividends from Indian companies 21 Interest on foreign currency loans 21 Long term capital gains 21 Income distributions from foreign currency units held in approved mutual funds or the UTI 10.5–21 Income distributions from bonds or Global Depository Receipts purchased in foreign currency 10.5 Income received by specified foreign financial institutions from listed securities: Short-term capital gains 31.5 Long-term capital gains 10.5 Other income 21 Royalties/technical service fees in respect of an approved agreement concluded between: 1976-1997 31.5 After 1997 21 *Other nonresidents:* Interest 21 Long term capital gains 21 Income distributions arising from Global Depository Receipts 10.5 Rent 15.75 Any other income 31.5

India: Main Features of the Tax System (June 2004) 1/

Tax	Nature of Tax	Exemptions and Deductions	Rates
1.1.3. Individuals 1.1.3.1. Individual income tax (IIT)	Residents are taxed on their worldwide income, except for those who are not ordinarily resident in India. Such a resident is taxed like a nonresident but is also liable to tax on income accruing abroad if it is from a business controlled or a profession set-up in India. Nonresidents are taxed only on income that is received in India or that accrues or is deemed to accrue in India. *Employee gross income* An individual's entire remuneration (including benefits in kind valued as per the tax rules) received from an employer is taxable. Income tax is withheld from salaries. *Capital gains and investment income:* Short-term capital gains are aggregated with taxable income, which is taxed at the applicable rates. Long-term capital gains are determined after adjusting costs by prescribed inflation factors. Long-term capital losses can be set off only against long-term capital gains. Short-term capital losses can be set off against long-term as well as short-term capital gains.	*Exemptions:* Employee gross income: a. The tax paid by the employer on nonmonetary perquisites provided to the employee in the hands of the employee (Finance Act, 2002). b. Regarding employees stock option plans or schemes, if the plan/scheme is in accordance with government guidelines, the taxable event will occur only at the time of sale of shares. Any gains are taxed as capital gains at the time of exercise. c. leave passage within India, reimbursement of medical expenses and certain retirement benefits. d. foreign employees of a foreign enterprise who are not present in India for more than 90 days in a year for remuneration received from the foreign employer for services performed in India, provided the foreign enterprise is not engaged in any trade or business in India and provided the remuneration is not deductible in computing the employer's taxable income in India. e. Specified income of a foreign citizen and a person who is not ordinarily resident, if he/she is engaged with the approval of the prescribed authority to render technical services under an agreement entered into by an international organization with the government of India and funded by the government of a foreign state. f. agricultural income Capital gains and investment income: Income from specified investments is exempt, up to certain limits.	*Income brackets and IIT rates*: Rs. 0–Rs. 50,000 Nil Rs. 50,000–Rs. 60,000 10 percent Rs. 60,000–Rs. 150,000 Rs. 1,000 plus 21% of income in excess of Rs. 60,000 Rs. 150,000–and above Rs. 19,000 plus 31.5% on income in excess of Rs. 150,000 The highest marginal rate for individuals with agricultural income however can differ. However, if an individual has agricultural income exceeding Rs. 5,000 in addition to total income, and total income excluding agricultural income exceeds the annual exemption, agricultural income is taken into account to determine the highest marginal rate. A 5% tax surcharge of the tax liability applies for residents whose taxable income exceeds Rs. 60,000. *Tax on capital gains:* - short-term IIT rate - long-term 21 percent

India: Main Features of the Tax System (June 2004) 1/

Tax	Nature of Tax	Exemptions and Deductions	Rates
1.1.3. 1. Individual income tax (IIT) (Continued)	Deductions are allowed up to certain limits.	*Deductions:* a. Business-connected expenses, depending on salary drawn: less than Rs. 150,000 33.33 percent of the salary or Rs. 30,000, whichever is less Rs. 150,000–Rs. 300,000 Rs. 25,000 Rs. 300,000–Rs. 500,000 Rs. 20,000 Rs. 500,000–above Nil b. approved charitable contributions, medical insurance premiums, and to a limited extent, children's' education/hostel allowance received from the employer (up to certain limits). c. certain allowances in connection with a posting in specified hilly, border, remote, or tribal areas (up to certain limits). d. professional taxes imposed by certain states.	
	Tax rebates are allowed on specified investments from the gross tax up to a maximum of Rs. 20,000 (Rs. 15,000 if gross total income is between Rs. 150,000 and Rs. 500,000), out of which the rebate in excess of Rs. 14,000 (Rs. 10,500 if gross total income is between Rs. 150,000 and Rs. 500,000) must be out of investment in infrastructure.	Specified investments include: amounts paid for life insurance premiums, specified schemes, contributions to specified provident funds, long-term investments, amounts spent on construction/purchase of a residential house, or repayment of certain loans, and subscriptions to specified infrastructure bonds.	*Tax rebate rates:* Gross total income Rs. 150,000 or less 20 percent Rs. 100,000 or less in specified circumstances 30 percent Rs. 150,000–Rs. 500,000 15 percent
1.1.3.2. Local taxes on income	Professional taxes imposed by certain states are minimal and are deductible in computing taxable income.		

India: Main Features of the Tax System (June 2004) 1/

Tax	Nature of Tax	Exemptions and Deductions	Rates
1.2. Tax incentives: 1.2.1. Inward investment	An initial period of tax holiday, followed by rebates at a decreasing percentage in later years, is allowed to Indian companies. The full tax exemption period, as well as the number of initial and later years varies from sector to sector. Export concessions are also granted to specified companies.	a. New industrial undertakings located in specific "backward" states and districts. Districts are classified in category A or B depending on level of infrastructure development. b. Hotels satisfying prescribed conditions. c. Undertakings engaged in developing and building a housing project, scientific research, commercial production, or refining of mineral oil or setting up and operating a cold chain for agricultural produce or engaged in the integrated business of handling, storage, and transportation of food or grains, subject to fulfillment of prescribed conditions. d. Undertakings engaged in building, owning, and operating a multiples theater or convention center satisfying prescribed conditions (extended under the Finance Act, 2002) e. Power generating or distributing companies, enterprises providing telecommunication services, or developing or operating and maintaining a notified infrastructure facility or an industrial park or special economic zone f. Export profits of new industrial undertaking satisfying prescribed conditions established in a free-trade zone, software technology park, or electronic hardware technology park, or 100 percent export-oriented undertaking g. Exports of new undertakings engaged in the manufacture or production of articles or computer softwares in any special economic zone.	*Share of profits exempt from tax (in percent):* a. for companies: Category A districts: First 5 years of operation 100 Next 5 years 30 Category B districts: First 3 years of operation 100 Next 5 years 30 b. Same as a. c. First 5-10 years 100 Following years 30/50/100 Later years 30 d. First 5 years 50 e. Any 10 consecutive years falling within the first 15 years of operation (20 years in the case of infrastructure projects except ports, airports, inland waterways, and inland ports) 100 f. First 10 years 90 This exemption is only available until taxpayer's financial year 2008–09 g. First 5 years 100 Following 2 years 50

India: Main Features of the Tax System (June 2004) 1/

Tax	Nature of Tax	Exemptions and Deductions	Rates
1.2.2. Other tax incentives	Other exemptions and deductions are allowed to Indian companies and other residents.	*Exemptions:* a. Export of goods (other than mineral oils, specified minerals, and ores) and computer software (including technical services provided outside India for its development or production), where proceeds are received within a specified time in convertible foreign exchange or exports of film, television, music, television news, software or telecasting rights, subject to fulfillment of prescribed conditions. b. Profits of new industrial undertakings set up in notified development centers located in the North-East region *Deductions:* c. Income received in convertible foreign exchange from foreign governments or foreign enterprises for the use outside India of any patent, design, or registered trademark. d. Profits derived from the construction of any building, dam, road, bridge, or other structure outside India, or the assembly or installation of machinery or plant outside India, if the proceeds are received in convertible foreign exchange within a specified time. In the case of approved hotels, profit from services to foreign tourists that are earned in convertible foreign exchange, subject to prescribed conditions.	*Exemption rates (in percent):* a. These concessions are only available until financial year 2003-04 in a phased-out manner: prior to FY2000–01 100 FY2000–01 80 FY2001–02 70 FY2002–03 50 FY2003–04 30 Following years Nil b. First 10 years 100 *Rates of deduction (in percent):* c. FY2002–03 20 FY 2003–04 10 Following years Nil d. Same as c.
1.3. Other taxes on capital and property			
1.3.1. Land tax	Imposed by the states on the value of land. The local authorities can impose a surcharge ("land cesses").		Methods of valuation and rates vary from state to state.
1.3.2. Tax on land and buildings	Imposed by the local authorities based on the annual rental value.		

India: Main Features of the Tax System (June 2004) 1/

Tax	Nature of Tax	Exemptions and Deductions	Rates
1.3.3. Betterment taxes	Imposed by local authorities based on increases in land values caused by town planning and town improvement.		
1.3.4. Taxes on the transfer of immovable property	Levied by local authorities based on the value of property.		
1.3.6. Tax on motor vehicles	Imposed by the states		
1.4. Wealth tax	Based on the residing principle.	The first Rs. 1.5 million of net wealth is exempt.	1% of the value of specified net assets exceeding in the aggregate Rs. 1.5 million.
2. Indirect Taxes			
2.1 Customs duty	Specific rate and/or ad valorem duties are imposed on exports and imports. Import duties: - basic customs duty, levied on items listed in the First Schedule of the Customs Tariff Act 1975. - additional duty of customs ("countervailing duty"), equivalent to the excise duty imposed on goods produced or manufactured in India. - other duties (anti-dumping, safeguard duty to restrain excessive imports that may affect local industries) Export duties: - custom duty, levied on items listed in the Second Schedule of the Customs Tariff Act 1975.	*Exemptions*: (a) Goods in transit or being transshipped via India (b) Warehousing facility (allows imported goods then used in the manufacture of export goods to be exempt for a specific period of time) (c) Export promotion schemes (allow for goods which will be used in a manufacturing activity to be imported free from customs duty, provided the manufactured product is exported).	*Basic customs duty* : varying rates for different goods *Additional duty of customs*: same as corresponding excise duty rate The customs value is the transaction value.

India: Main Features of the Tax System (June 2004) 1/

Tax	Nature of Tax	Exemptions and Deductions	Rates
2.2. Excise tax	Levied on goods produced or manufactured in India as: - a basic excise duty known as the central value added tax (CENVAT); and - a special excise duty, in addition to CENVAT, on specified goods. The tax is administered by the central government, via the Central Board of Excise and Customs. The duty must be paid by the manufacturer at the time of removal of goods from his factory premises or warehouse, the taxable base being the wholesale price of the goods manufactured. *CENVAT credit:* A modified value added tax (MODVAT) was introduced in 1986 to prevent cascading of excise duty and double taxation. Under this scheme, a manufacturer of excisable goods receives a credit for the duty paid on specified inputs and capital goods under conditions specified in CENVAT Credit Rules 2002. Credit is also available for additional customs duty (countervailing duty) paid on imported capital goods and inputs.	*Exemptions:* (a) Small scale industries up to the specified value of goods cleared. (b) Goods produced or manufactured in Special Economic Zones. No credit of excise tax is available on inputs if the related final products are exempt unless they are exported.	Basic excise duty (items listed in the First Schedule of the Central Excise Tariff Act 1986): General 16 percent Specified items "Nil" or 8 percent Special excise duty (levied on items listed in the Second Schedule of the Central Excise Tariff Act 1986): General 8 percent Separate rates are applicable for petrol, diesel, and tobacco products. Cess (surcharge): varying rates
2.2. Sales tax	All states impose sales tax on virtually all sales of goods. Each state has its own sales tax act. State sales taxes are generally single-point taxes. In most states, the tax is imposed on the first point of sales. In certain states, the tax is levied at the point of last sale of goods. In certain other states, the	*State sales tax:* (a) export sales (b) goods specified under the local Act of the state *CST exemptions:* (a) goods unconditionally exempt from tax under the local Act of the state.	*CST rates*: *(a) Sale to the government*: the lower of 4% or the prevailing state sales tax *(b) Sale to registered dealers of goods included in the registration certificate*: the lower of 4 percent or the prevailing state sales tax rate

India: Main Features of the Tax System (June 2004) 1/

Tax	Nature of Tax	Exemptions and Deductions	Rates
	tax is a multi-stage tax. The central government imposes a central sales tax (CST) on interstate sales, which is levied in the state in which the movement of goods commences (CST Act, 1956). The revenue is administered by the state in which it is levied. Every dealer liable to pay tax under the CST Act must be registered. The CST payable is determined by applying the appropriate tax rate to the dealer's turnover.	(b) any subsequent sale (after a taxable interstate sale) of the same goods during the movement in interstate trade. (c) consignment/branch transfers. (d) sales of immovable property, newspapers, shares, stock, securities, and actionable claims. (e) sales of goods from domestic tariff area to units located in special economic zones.	*(c) Sale of declared goods to unregistered dealers*: double the rate of state sales tax applicable to similar goods *(d) Sale of goods, other than declared goods to unregistered dealers*: the higher of 10 percent or the prevailing state sales tax.
2.3. Service tax	Service tax is levied on certain types of services rendered (year when the tax became applicable in brackets): (a) brokerage fees (1994) (b) insurance premiums (1994, 2001 for life insurance) (c) telecommunications (1994) (d) advertising, pagers, and couriers (1996) (e) customs house agents (1996) (f) air travel agents (1997) (g) real estate agents (1998) (h) engineering consulting (1997) (i) management consultants (1998) (j) banking and other financial services (2001) (k) broadcasting (2001) (l) ports (2001) (l) ports (2001) (m) beauty, health and fitness	Indian states of Jammu and Kashmir are exempt. Other exemptions: (a) services paid for in convertible foreign exchange (b) broadcasting services provided by cable TV operators (c) consulting engineer services in respect of computer software (d) video tape production (e) life insurance services other than premiums (f) specified insurance schemes (g) specified accounting and auditing services (h) various services rendered to diplomatic missions, the UN, international organizations. The Service Tax Credit Rules 2002 allow the utilization of credits within the same category of services.	A uniform 8 percent.

India: Main Features of the Tax System (June 2004) 1/

Tax	Nature of Tax	Exemptions and Deductions	Rates
	(2002) (n) dry-cleaning (2002) (o) storage and warehousing (2002) and so forth.		
2.4. Expenditure tax	Levied on hotel accommodation on payments made to the hotel in respect of food, drinks, or any other services.	Expenditure of less than Rs. 3,000 is exempt.	10 percent of chargeable expenditure.

Sources: IBFD (2004); PriceWaterHouseCoopers (2002a, 2002b, and 1996); Deloitte Touche (1999); and information provided by the Indian authorities.

1/ Taxes are administered and levied by the Central government, unless otherwise specified.

Average Effective Tax Rates (AETRs) Based on Macroeconomic Data

1. The **AETR on labor** is derived in two steps. First, the effective tax rate on total household income is calculated as the ratio of individual income tax and household income. including: operating surplus of unincorporated enterprises (OSPUE), property income (PEI), and wage income (CE). Second, the AETR on labor is calculated by dividing the sum of taxes paid on labor income (tax on wages and salaries—calculated by applying the household income AETR to wage income—,[1] social security contributions, and other payroll taxes) by the sum of wages and salaries and employer-paid social security contributions.

2. The **AETR on capital** is obtained by dividing the sum of taxes paid by capital (corporate income tax, household taxes on capital income, and various property taxes) by the net operating surplus of the economy.

3. The **AETR on consumption** is calculated as the sum of domestic taxes on goods and services, export, and import duties, divided by the sum of private and government nonwage consumption, net of indirect taxes. Indirect taxes are excluded in the denominator to reflect the common practice of expressing indirect tax rates as a percentage of the price before tax.

4. More recent studies however have argued that it is preferable to express the consumption tax base in gross terms (i.e., including indirect tax rates in the denominator), to improve comparability with the tax ratios on labor and capital and facilitate calculating a combined AETR on labor and consumption (Carey and Rabesona, 2002). We therefore also present this alternative (revised) estimate together with the original Mendoza et al estimate.

[1] Labor and capital income of households are assumed to be taxed at the same rate.

Tax Parameter Data, June 2004

(In percent)

A. Corporate Tax System

Corporate tax rate on retained earnings	35.875
Inventory valuation	FIFO
Long term capital gains tax rate	21
Dividend distribution tax rate	12.81

B. Personal Tax System

Interest income tax rate	21
Dividend income tax rate	0
Short-term capital gains tax rate	31.5
Long-term capital gains tax rate	21
Proportion of assets realized each period	10

C. Tax Depreciation Rates

	Machinery	**Buildings**
Depreciation method	Declining balance	Declining balance
Rate for declining balance	25	10

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V. The Interest Rate Risk Management of Banks' Government Securities Holdings in India[1]

The large holdings of government securities by banks entail some risk as interest rates are at historical low levels. This paper first measures the interest rate risk associated with such holdings and then assesses its management by banks. Finally, it identifies key issues that could mitigate banks' vulnerability to interest rate risk.

A. Banks' Government Securities Holdings as a Source of Risk

1. **Banks in India invest heavily in government securities, compared with other countries** (Table V.1). Such investments grew by 25 percent in 2003–04 to reach Rs. 6.4 trillion, or 24 percent of GDP at end March 2004.[2] They represented one third of total banking system assets at end-March 2004. As a result, Indian banks have some of the highest holdings of government securities relative to their assets when compared to other countries. Furthermore, government securities holdings are well in excess of the statutory reserve requirements. The ratio of statutory liquid securities (SLR)—mainly government securities—reached 41 percent of net demand and time liabilities by end-March 2004, well above the required 25 percent.

Table V.1. International Comparison of Banks' Holdings of Government Securities, 2003 1/

(In percentage)

	Number of Banks	Government Securities to Total Assets	Government Securities/ Total Securities
Argentina	66	19.1	85.2
Australia	30	1.4	10.3
Canada	26	2.8	9.9
Colombia	34	20.6	72.6
Costa Rica	31	9.5	46.7
Germany	79	5.6	19.9
Hungary	10	9.7	95.9
India	**93**	**32.4**	**79.7**
Indonesia	13	30.9	83.0
Korea	19	0.8	4.9
Lebanon	6	21.3	93.4
Malaysia	34	7.2	36.7
Mexico	40	8.8	47.9
New Zealand	6	4.9	38.1
Norway	45	24.5	85.5
Panama	67	1.2	23.0
Philippines	21	11.0	80.4
Singapore	8	7.8	74.8
South Africa	20	7.4	66.2
Spain	22	18.7	76.7
Sweden	21	3.2	25.3
Thailand	19	15.4	63.0
Turkey	31	37.2	91.6
United States	7,770	12.3	64.8

Sources: Bankscope; FDIC; RBI; and staff calculations.

1/ Data for commercial banks for Germany, Spain, and Japan and for public sector banks for India.

2. **With declining interest rates in recent years, banks have earned substantial profits through interest and trading income on government securities**. Interest income on these investments represented 35.8 percent of banking system interest income at end-March 2004. Similarly, trading income accounted for 49 percent of the banking system noninterest income at end-2004. Trading income has become one of the main drivers of banking system profitability, accounting for 37 percent of operating profit at end-March 2004.

[1] Prepared by Amadou Sy.

[2] Based on a nominal GDP of US$603 billion and an exchange rate of Rs. 43.6/U.S. dollar at end 2003/04.

3. **However, the holdings of government securities by the banking system entail risk as interest rates have reached their historical low levels**. Most government securities held by banks are long-term fixed-rate government bonds which are sensitive to changes in interest rates. Fixed-rate government securities with a 5–30 year tenor account for 58.2 percent of banks' total investment portfolios. In contrast, investments with a maturity less than one year represent only 10.4 percent of total as of end-March 2004. At the same time, inflationary pressures have prompted the RBI to raise interest rates in 2004. Further increases in the yields of government securities are a significant risk to the profitability and capital adequacy of the banking system.

B. Measuring the Risk from Government Securities Holdings

4. **Given their significant share in the assets of commercial banks in India, it is important to measure the risk of government securities holdings**. Gauging the likely reduction in the market value of banks' government securities holdings and the associated reduction in capital adequacy and profitability can guide banks in managing these risks. In addition, identifying banks most vulnerable to the risks can be useful to supervisors.

Duration Method

5. **First, we use a duration/convexity method to estimate the government securities portfolio interest rate risk**. From the price-yield relationship for bonds, this method estimates bond price changes for a change in yields. The duration of a bond is a linear approximation of a bond price change. The longer the duration of a bond—measured in years—the more interest rate sensitive it is. Since the price-yield relationship for bonds is not linear but convex, a measure of convexity is also used to account for small changes in yields. Convexity is a second order effect that describes how duration changes as yields change. Mathematically, the duration/convexity method uses a Taylor expansion to approximate the relative change in government securities price, *dG/G*, following a small change in the yields of government securities *dy*. *D** and *C* denote the government securities modified duration and convexity, respectively (Jorion, 1997).

$$\frac{dG}{G} = -D^* dy + \frac{1}{2} C (dy)^2 \text{ where } D^* = -\left(\frac{1}{G}\right)\frac{dG}{dy} \text{ and } C = -\frac{dD^*}{dy}. \quad (1)$$

6. **The interest rate risk sensitivity of banks' government securities portfolio has increased over time, with public sector banks (PSBs) and old private sector banks the most exposed to a rise in yields**. Our estimates (Table V.2) are that, as of end-March 2004, the average duration of the government securities portfolio of scheduled commercial banks (SCBs) was 5.8 years. Public sector banks (PSBs), which account for about 75 percent

Table V.2. India: Interest Rate Risk of Banking System's Government Securities Holding

(In billions of rupees as of end-March 2004, unless otherwise indicated)

	SCBs	PSBs	Old Private Banks	New Private Banks	Foreign Banks
Banking indicators					
Total assets	19,750.2	14,714.3	1,207.0	2,465.8	1,363.2
Deposits	15,751.4	12,683.8	1,053.3	1,632.2	797.6
Net worth	1,165.9	792.2	72.9	152.3	148.4
Net profit	222.7	165.5	14.46	20.35	22.4
Capital adequacy ratio (CAR), in percent	12.9	13.2	13.7	10.2	15.0
Investment in government securities (G-Sec)					
Total investment portfolio	8,020.7	6,256.8	474.6	873.4	415.9
G-Sec holdings	6,391.4	5,102.3	352.9	609.5	326.7
G-Sec in AFS and HFT categories	5,093.8	4,023.4	293.1	474.3	302.2
Duration method					
Modified duration (in years)	5.8	6.3	6.1	3.3	2.9
Convexity	63.9	70.8	68	26.4	20.7
Average coupon	9.3	9.1	9.4	10.3	10.4
Losses					
Loss from 100 bps parallel shift in yield curve	297.1	253.7	17.8	15.5	8.8
Loss as percent of portfolio value	5.8	6.3	6.1	3.3	2.9
Loss as percent of net profit	133	153	123	76	39
Loss as percent of net worth	25.5	32	24.4	10.2	6
New CAR	9.6	9	10.4	9.2	14.1
Value-at-risk method					
Value-at-risk (1-month, 99 percent) 1/	320.0	252.8	16.1	26.0	12.0
Investment fluctuation reserve (IFR)					
Actual IFR (in percent of AFS + HFT)	3.0	3.1	2.8	2.3	2.8
Actual IFR in billions of rupees	189.2	151.9	11.1	15.6	10.6
IFR shortfall	-107.9	-101.8	-6.7	0.1	1.8

Sources: Reserve Bank of India; National Stock Exchange; and staff estimates.

1/ Value-at-risk for a one-month holding period and a 99 percent confidence interval using a variance-covariance (or normal) method.

of total banking system' holding have the highest duration with 6.3 years. Similarly, old private banks have a duration of 6.1 years. In contrast, the Government securities portfolio of foreign banks has the shortest duration with 2.9 years compared to 3.3 years for new private sector banks. The average duration for all banks has increased from 4 years in 1999 to 5.8 years at end-March 2004, pointing to potential increased risk.

Scenario Analysis

7. **In order to approximate interest rate risk to the banking system, we consider both the direct effect on banks' securities portfolio as well as how banks can manage such a shock to attenuate its effects**. As a base case we consider a one percentage point rise in the benchmark government bond rate. This is similar to the increase experienced between mid-April and mid-July 2004, when the benchmark 10-year bond rose from 5.07 percent to 6.26 percent. This scenario can also be seen in the context of the worst-case increase in Government securities yields over 90 days.[3] [4]

Portfolio Losses

8. **In the absence of any interest rate risk management by banks, potential portfolio losses from a hike in interest rates would be significant**. A one percentage point increase in interest rates would result in losses worth 133 percent of net profit (Table V.2). The market value of banks' government securities holdings would be reduced by about Rs. 300 billion or 6 percent of portfolio.[5] Some public sector and old private banks would be the most exposed with average portfolio losses worth 153 percent and 123 percent of net profit, respectively, as of end-March 2004. Foreign banks and new private sector banks would be the least vulnerable to such a shock, with losses worth 39 percent and 76 percent of net profit, respectively. However, as discussed below, any such losses would be cushioned by gains previously earned, but not booked under India's conservative accounting rules, and

[3] Using five years of monthly data on government securities yields, Sarkar (2003) estimates the 99 percent confidence level to range from 103 bps to 127 bps for maturities of 1-10 years.

[4] We also consider two additional scenarios. Scenario 2 simply assumes a shock double the size of that in Scenario 1. Scenario 3 assumes a 320 basis points increase, the worst-case increase in government securities yields over one year with a 1 percent probability, assuming that yields are normally distributed (the standardized interest rate shock recommended by the BIS (2003)). Given the strong linearity of equation (1), portfolio losses under these scenarios would be approximately proportional to losses obtained under the base scenario.

[5] A similar approach finds market losses in Japanese banks' portfolio of Japanese government bonds equivalent to 208 percent of net profit or 14 percent of Tier 1 capital (see Nemoto, 2004).

by an investment fluctuation reserve, and could also be offset by higher income from other sources.

Capital Adequacy

9. **Such losses would represent about 26 percent of total capital and a drop in the capital adequacy ratio (CAR) to 9.6 percent from 13 percent (Table V.2)**. A similar exercise using 1999 data finds that banks would have lost 18.3 percent of total capital and their CAR would have fallen by 2 percent in 1999, suggesting that the exposure to interest rate risk has increased over the years. The capital adequacy of public sector banks would be the most exposed, with their average CAR falling to about the level of the 9 percent regulatory minimum (from 13.2 percent).

10. **Our results are consistent with previous findings**. For instance, Sarkar (2003) estimates the worst-case loss at end-2002 (for a 90 days horizon and a 99 percent confidence level) for a sample of 51 Indian banks at around Rs. 265 billion or almost 5 percent of their holdings of government securities. Similarly, private banks are found to be the least exposed to interest rate risk and public sector banks the most exposed. No foreign banks (out of 9 banks) would erode more than 25 percent of net worth while, among private banks, the proportion with such risk was around 47 percent (out of 15 banks) and, among public sector banks, 85 percent (out of 27 banks). Sarkar (2003) finds that Indian banks are not uniform in their interest rate risk exposure and there is no clear relationship between their capital adequacy ratio and the market risk they take.

Value-at-Risk (VAR) Approach

11. **The duration/convexity approach has well-known limitations, as it measures exposures only for parallel shifts of the yield curve**. The Value at Risk (VAR) approach offers a complementary method to measure the interest rate risk of bond portfolios. VAR is the measure of the maximum (worst case) market loss for a given portfolio, for a certain holding period, and for a given confidence interval (see also Patnaik and Shah, 2004). VAR is a measure of the rupee loss on the government securities portfolio that will be exceeded by the end of the chosen time period with the specified confidence level. Duration is directly linked to value at risk and the worst case rupee loss calculations in Scenario 3 can be seen as a VAR estimation at a 99 percent level of significance for a one-year horizon.

Value-at-Risk Estimation Results

12. **Using a variance-covariance (or normal) method, we find results that are comparable to the duration method's estimates**.[6] We find that the maximum (worst case)

[6] We use a duration mapping method with linear interpolation using information from zero-coupon government securities (ZCYC) from NSE. Since the NSE database does not provide the correlation of zero-coupon bonds for different maturities, our estimates measure

(continued…)

market loss for scheduled commercial banks' portfolio for a one month holding period, and for a 99 percent confidence interval is Rs. 320 billion (Table V.2). This figure is close to the portfolio loss resulting from a 100 basis points increase in the yield curve obtained using the duration approach (Rs. 300 billion). We also use alternative value-at-risk methods, including historical simulation methods together with weighted normal, weighted historical simulation and extreme value methods. Although the results—not reported here—are sensitive to the choice of methods, policy conclusions are qualitatively similar.

C. Interest Rate Risk Management

13. **While rising interest rates makes banks vulnerable to treasury losses, banks in India have a number of lines of defense**. First, banks have, in recent years, realized substantial profits from their holdings of government securities, thanks to the soft interest rate environment. Banks are required to follow conservative accounting practices in respect of unrealized capital gains on their investment portfolio and have constituted latent reserves.[7] Moreover, banks in India have been encouraged to build up investment fluctuation reserves as a cushion against interest rate risk (Gangadhar, 2001). Finally, banks can adjust their behavior to offset treasury losses by adequately managing their asset-liability mismatch.

Basel Core Principles

14. **The Basel Committee on Banking Supervision (BCBS) has issued principles regarding the supervision of the interest rate risk management of banks, which can be used as a benchmark for the Reserve Bank of India (RBI)**. Investment portfolios are bifurcated into a banking book, which includes securities that banks intend to hold to maturity, and a trading book. Since 1996, Basel I regulation requires banks to set aside capital to cover their market risks, where the latter includes the interest rate risk in the trading book, but not the banking book (BIS, 1996). Pillar II of Basel II advises bank regulators to control the level of the interest rate risk in the banking book. It urges supervisors to identify banks that are "outliers," i.e., those that would lose more than 20 percent of their Tier 1 and Tier 2 capital due to a specific stress scenario (see BIS, 2003).

15. **The RBI is moving gradually towards Basel I principles for managing interest rate risk**. In 1995, the RBI introduced asset liability management guidelines and in 1999 guidelines for risk management. To measure liquidity risk, banks are required to submit

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the *undiversified* portfolio VAR of Indian banks. As a result, our estimates assume perfect correlation across all zero-coupon bonds and ignore possible diversification benefits, which may overestimate the diversified VAR.

[7] The RBI conducts periodic sensitivity analyses of banks' investments portfolio and estimates the cushion available in terms of unrealized gains on banks' investment portfolio.

periodic reports to the RBI. More recently, the RBI is phasing in the implementation of Basel norm for capital charge for market risk over a two year period.[8] In addition, since 2000, banks are required to use a 2.5 percent risk weight for their portfolio of government securities in order to determine their capital adequacy ratio, as compared to zero under Basel I. The RBI also advised banks advised to examine the soundness of their risk-management systems and draw up a road map by end-December 2004 for migration to Basel II. In addition the RBI has initiated in 2004 pilot program for risk-based supervision.

Investment Fluctuation Reserves (IFR)

16. **As an alternative to Basel I, the RBI currently uses the investment fluctuation reserve (IFR) as the main line of defense against a potential reversal of the interest rate environment**. Given, the large holdings of government securities, the IFR can be seen as a reserve to guard against possible reversal of interest rate environment. In 2002, banks were advised to build up an IFR of a minimum of 5 percent of the investment in HFT and AFS categories within a period of five years. Banks were also advised to achieve the goal earlier and are encouraged to reach a 10 percent ratio. Transfer to IFR is as an appropriation of net profit after appropriation to statutory reserve.

17. **Basel I can be viewed as a more efficient approach to interest rate risk**. This is because it recommends capital charges commensurate with the risk exposure of banks, whereas IFR requirements are uniformly applied to banks with no consideration as to the level of interest rate risk and its associated management. As a result, banks with low exposure to interest rate risk bear a regulatory cost if they comply with the advised IFR level. In contrast, the advised uniform level of IFR may not be sufficient to protect some banks from their high exposure to interest rate risk. Furthermore, a number of banks may not have sufficient profitability and capital to build the advised level of IFR. As the RBI moves to international standards, it is expected that the current system will be replaced by Basel I principles.

18. **The current aggregate level of IFR is about half that needed to absorb market losses resulting from a one percentage increase in government bonds yields**. The aggregate banking system's IFR stood at 3.0 percent of eligible government securities at end-March 2004, just over half the 5.8 percent needed to absorb a one percentage increase in the benchmark 10-year government bond (Table V.2). The shortfall would be from public sector banks and old private sector banks. In contrast, new private banks and foreign banks have IFR levels sufficient to absorb the shock.

[8] The RBI announced in 2004 that banks would be required to maintain capital charge for market risk in respect of the securities included under the Held For Trading (HFT) and Available for Sale (AFS) category by 2005 and 2006, respectively.

19. **Moreover, the required IFR level would not be short of adequate for public sector and old private banks but too high for new private and foreign banks**. In contrast to the advised 5 percent, PSBs and old private banks would require IFR levels of about 6.3 percent and 6.1 percent of eligible securities. However, foreign and new private banks would need only about 2.9 percent and 3.3 percent of eligible securities to absorb a one percentage point shock.

20. **Individual bank data show a wide dispersion of IFR suggesting that the RBI should scrutinize closely the most exposed banks, as their IFR could be insufficient to cushion them against large interest rate increases and they could need capital injections**. The IFR level of public sector banks ranges from zero percent for two small PSBs to 5.21 percent of eligible securities, with a median of 3.13 percent. All public sector banks have an IFR level below the minimum needed to absorb the *average* 6.3 percentage-point reduction in the value of government securities holdings following a one percentage point increase in interest rates. After using their existing IFR as a cushion to absorb their portfolio losses, the average CAR of PSBs would fall to 10.4 percent from 13.1 percent, and six out of the 27 PSBs would require capital injection as their CAR would fall below the minimum regulatory level of 9 percent.

Mark-to-Market Requirements

21. **The RBI has introduced conservative mark-to-market requirements**. Since 2000, banks are required to classify their investment portfolios into three categories with progressively mark-to-market norms: (i) Held to Maturity (HTM); (ii) Available for Sale (AFS); and (iii) Held for Trading (HFT). While investments under the HTM category are not marked-to-market, those under AFS and HFT are to be marked-to-market at year-end and monthly, respectively or at more frequent intervals. Guidelines were also issued for the classification of investments, shifting of investments among the three categories, valuation of the investments, and a conservative methodology for booking profits and losses on sale of investments as well as providing for depreciation. In particular, while net depreciations are recognized and fully provided for, net appreciations are ignored.

22. **As a one-time measure in September 2004, the RBI allowed banks to shift securities to HTM, after immediately providing for transfer losses**. Prior to September 2004, banks were allowed to classify a maximum of 25 percent of their total investments in government securities in the held-to-maturity category (HTM) category when calculating their IFR. Since September 2004, banks are allowed to hold up to 25 percent of their demand and time liabilities (DTL) in the held-to-maturity category (HTM). However, upon shifting additional securities to HTM, a bank would incur accounting losses equal to the difference between their prevailing market value and acquisition cost or book value. Under both regulations, the advised IFR is worth 5 percent of banks' government securities in the AFS and HFT categories.

23. **The RBI explains the measure—which is consistent with international standards that do not place limits on HTM category—as a regulatory response to concerns about**

the impact of the rising interest rates on banks' investment portfolios.[9] Banks that choose to apply this measure will reduce their exposure to interest rate risk but will have to incur the cost upfront of transferring more securities to the HTM category. In contrast, banks that decide not to hold more securities to maturity will be exposed to potential future mark-to-market losses if interest rates increase further. Such banks would be particularly at risk if they currently lack the capital to absorb the cost of shifting securities to the HTM category, should interest rates rise in the future. Market participants note that very few banks have chosen to shift more securities to the HTM category in part due to concerns about the immediate impact on their net profits.

Other Aspects of Bank Asset Liability Management

24. **Offsetting potential treasury losses, higher interest rates on loans can positively affect the net interest rate income of banks**. Banks can take advantage of rising short-term rates as loans re-price quicker than deposits, hence widening spreads in an environment of increasing loan-to-deposit ratios. Such higher spreads may attenuate the effect of holding fixed rate government securities in a rising interest rate environment. However, the volatility of deposits needs to be considered as well, as they could be withdrawn in case of a significant interest rate shock. The RBI conducts periodic sensitivity analyses of banks' balance sheets and found a 4.9 percent positive impact on net interest income (NII) following a 200 basis points increase in interest rates at end-March 2003. This analysis does not, however, incorporate the depreciation of banks' holdings of government securities.

25. **Banks could also manage interest rate risk through a number of measures**. Banks could (i) reduce the duration of their assets by selling long-dated government securities; (ii) reduce their holdings of government securities and increase their loan books building on the recent high growth in consumer credit and infrastructure; and (iii) increase the contribution of fee-based income to operating income.

Government Policies to Limit Interest Risk

26. **Over the medium-term, a stronger fiscal policy and enhanced opportunities for lending would reduce banks' reliance on government paper**. A reduction of the fiscal deficit would reduce the supply of government securities to the banking system. At the same time, continued structural reforms will make lending to domestic enterprises more attractive, allowing banks to bring their government securities holdings down to the legally required level.

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[9] See RBI (2004a), page 171. The RBI has also noted that banks are required to hold 25 percent of their DTL in the form of approved securities—mostly government securities—as statutory reserves and argued that at least this level should be eligible as HTM.

27. **Increasing the issuance of short-dated or floating rate government securities—in line with sound debt management practices—would also help banks manage their interest rate risk**. The Indian authorities have initiated the sale of floating rate government securities and as of 2003, 3 percent of the total stock of outstanding Government securities was in the form of floating rate instruments. Increasing this proportion could provide banks with an additional tool to manage their interest rate risk. Capital market development could also ensure a better functioning of markets for hedging instruments such as interest rate swaps and forward rate agreements (FRAs), and interest rate futures (see Sarkar, 2003).

28. **Widening the investor base for government securities could also help reduce the reliance on banks as the main investors in this market**. Commercial banks held 61 percent of the outstanding stock of government securities at end-March 2002. The next most important investor was the state-owned Life Insurance Corporation of India (LIC). Other investors included provident funds, mutual funds, other financial institutions, and retail investors. In order to widen the investor base for government securities, the authorities have allowed FIIs to purchase government securities since February 2004 (see also Arvai and Heenan, 2004). From a systemic perspective, the transfer of long-dated government securities from the banking system to institutional investors would shift the interest rate risk outside the banking system. However, given the long-dated nature of their obligations, non-banks may well be better armed to manage their interest rate exposure than banks.

D. Conclusion

29. **This paper measures and assesses the management of, the interest rate risk of banks' government securities portfolios in India, which it identifies as a key risk for the banking system**. We find that the current aggregate level of investment fluctuation reserves (IFR) in the banking system would be insufficient to compensate from market losses resulting from a one percentage point parallel shift in the yield curve. However, while some public sector banks and old private banks are vulnerable, foreign banks and new private banks have built an adequate cushion. Moreover, opportunities exist to offset these losses with higher earnings from lending to the private sector and higher fee-base income. A key priority for the Indian authorities is to scrutinize the risk management practices of individual banks. Given the potential for interest shocks higher than the one percentage increase studied in the paper, an accelerating convergence towards Basel I risk-weighted capital charges and the adoption of the Basel II, Pillar II approach for interest rate risk supervision, especially for those banks most vulnerable to a reversal of the interest rate cycle, could help ensure the stability of the financial system.

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