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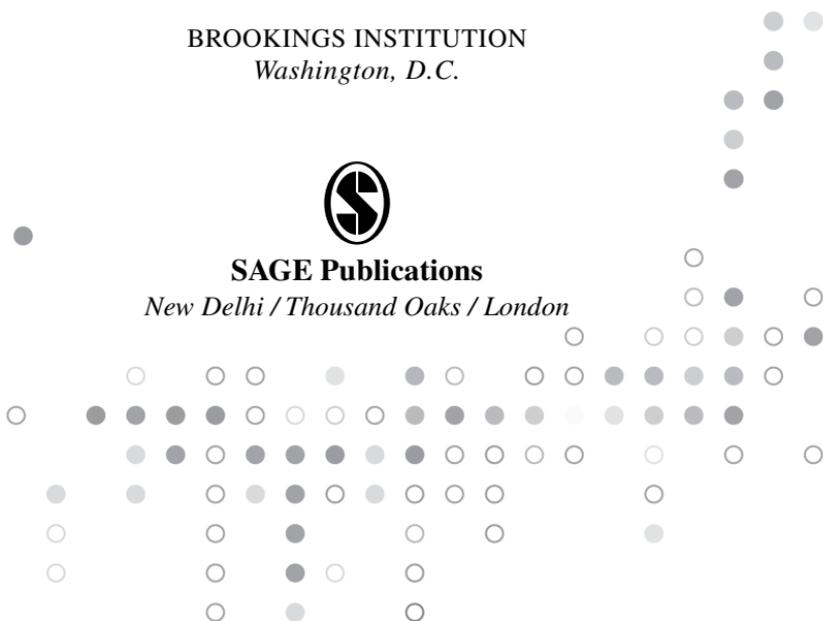
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PURPOSE

India Policy Forum 2005–06 comprises papers and highlights of the discussions from the second India Policy Forum (IPF) conference, held July 25–26, 2005, in New Delhi. IPF is a joint venture of the Brookings Institution and the National Council of Applied Economic Research (NCAER) that examines India's reforms and economic transition using policy relevant empirical research.

The objective of the IPF is to generate theoretically rigorous, empirically informed research on important current and unfolding issues of Indian economic policy. A panel of established researchers has agreed to support this initiative for an initial period of three years. Overall guidance is being provided by a distinguished international advisory panel.

Papers appear in this publication after presentation and discussion at a yearly conference in New Delhi. During discussions at the conference, the authors obtain helpful comments and criticism about various aspects of their papers. These comments are reflected in the journal as discussants' comments. The papers, however, are finally the authors' products and do not imply any agreement by those attending the conference or providing financial support. Nor do any materials in this journal necessarily represent the views of the staff members or officers of the NCAER and the Brookings Institution.

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Editors' Summary

This is the second volume of the *India Policy Forum*. The journal is jointly promoted by the National Council for Applied Economic Research (NCAER) in New Delhi and the Brookings Institution in Washington, D.C., with the objective of presenting high-quality empirical research on the major economic policy issues that confront contemporary India. The forum is supported by a distinguished advisory panel and a group of active researchers who participate in the review and discussion process and offer suggestions to the editors and the authors. Our objective is to make the policy discussion accessible to a broad nonspecialist audience inside and outside India. We also hope that it will assist in the development of a global network of scholars interested in India's economic transformation.

The five individual papers included in this volume were selected by the editors and presented at a conference in Delhi on July 25–26, 2005. In addition to the working sessions, John Williamson, a member of the advisory panel, gave a public address on the topic “What Follows the Era of the USA as the World's Growth Engine?” The papers focus on several issues of great relevance to India's current economic situation. The first three papers involve issues of government fiscal and monetary policy: the implications of a large and sustained fiscal budget deficit, India's experience with tax reform, and the relevance of the inflation-targeting framework for Indian monetary policy. The fourth paper provides a detailed review of developments in labor markets and the distribution of income since the initiation of large-scale economic reforms in 1991. The last paper provides a critical assessment of policies aimed at promoting universal access to telecommunications services.

In their paper, Willem Buiters and Urjit Patel explore the mechanisms by which India's continuing high fiscal deficits (at both the federal and state levels) affect the sustainable growth of the economy. In their view, the abuse of a financial system heavily dominated by the government represents a key channel by which the fiscal position influences economic growth and vulnerability; accordingly, their paper also extends to an examination of the financial system.

Following a crisis in 1991, India has witnessed a turnaround on many indicators of macroeconomic performance. It has transited from an onerous trade regime to a market-friendly system encompassing both trade and

current payments. The sum of external current payments and receipts as a ratio to gross domestic product (GDP) has doubled from about 19 percent in 1990-91 to around 40 percent currently. There has also been some liberalization of cross-border capital account transactions, although significant constraints remain in place on cross-border intertemporal trade and risk trading.

Although average annual real GDP growth over the postreform period has been only modestly higher than in the previous decade (6.2 percent from 1992-93 to 2004-05 compared with 5.7 percent from 1981-82 to 1990-91), India continues to be one of the fastest-growing economies in the world. India's balance of payments has been strong and inflation has been moderate.

After a sharp initial adjustment in the early 1990s, India's net public debt has risen steadily as a share of GDP, although at about 70 percent of GDP, it remains below the levels recorded at the time of the 1991 crisis. Following custom, Buitert and Patel consolidate the central bank into these estimates, but not the publicly owned commercial banks, on the grounds that to do so would be to assume that the (implicit) guarantee of liabilities in such banks is certain to be called. In addition to public debt of this magnitude, recognized and explicit guarantees in 2003 amounted to a further 11.3 percent of GDP.

By the standard of most emerging markets, including several that have experienced crisis, India's public and publicly guaranteed debt is very high. The composition of this debt has changed significantly in the fifteen years since the crisis of 1991. Net external debt has declined sharply, shifting the burden of public debt onto the domestic market. This domestic debt is rupee-denominated. In addition, India continues to maintain selective (discretionary) capital controls, particularly those that keep arbitrage-type flows (external borrowing by domestic financial intermediaries, investment by foreign institutional investors in fixed-income securities, and short-term borrowing by practically anyone) in check. While India faced a combined internal (fiscal) and external (foreign exchange) transfer problem during the years leading up to the crisis of 1991, the weakening of the fiscal position since the late 1990s represents an exclusively internal resource transfer problem.

Given repeated and costly crises in several emerging markets associated with possible public debt default, Buitert and Patel first conduct formal fiscal sustainability tests, revisiting an analysis they undertook a decade earlier. Although their fiscal sustainability tests are not conclusive, they find that government solvency may not be a pressing issue at this juncture. The reason India has been able to remain solvent despite the sustained

fiscal deficits of the past twenty years is the combination of fast GDP growth and financial repression.

They note that globally, the level of risk-free interest rates at all maturities and credit-risk spreads are extraordinarily low at present. Continuation of the pattern of recent years—a steady increase in the debt-GDP ratio—will sooner or later raise the public debt to unsustainable levels. Political pressure to enhance government expenditure on social sectors and improve public (infrastructure or utility) services has increased in the aftermath of the 2004 general election.

Buiter and Patel then examine two potential channels for the impact of the government on the quantity and quality of capital formation in India. The first is financial crowding out—the negative effect of public borrowing on aggregate (private and public) saving. The second is the effect of government institutions, policies, actions, and interventions, including public ownership, regulation, taxes, subsidies, and other forms of public influence on private savers, private investors, and the financial markets and institutions that intermediate between them. A simple growth accounting framework is constructed to compare India's investment efficiency with that of selected large countries. They find Indian investment inefficiency to be relatively high, China's to be even higher.

Across the world, from the European Union's (ill-fated) Stability and Growth Pact to the United Kingdom's Golden Rule and Sustainable Investment Rule, there have been attempts to bind governments to fiscal rectitude through formal legal or constitutional devices. In September 1994 an agreement was reached between the Reserve Bank of India and the Central Exchequer to phase out ad hoc treasury bills, which hitherto facilitated automatic monetization of the budget deficit. The Indian Parliament, in August 2003, voted for the Fiscal Responsibility and Budget Management Act (FRBMA), which required that the central government's fiscal deficit not exceed 3 percent of GDP and that the deficit on the revenue (current) account be eliminated.

The fiscal rules that India has embraced—perhaps in recognition of the serious systemic inefficiency that the fiscal stance has engendered—are evaluated. The requirement that the revenue budget be in balance or surplus is very likely to be the binding constraint on the central government. Even if the gross investment version of the golden rule (limiting debt issues to capital financing) is the operative one, the Indian central government's gross capital formation program amounted to no more than 1.5 percent of GDP in 2003-04. Net central government capital formation is even less than that

and may well be negative in years that economic depreciation is high. The authors judge that a great deal of current expenditure will be reclassified as capital expenditure if the golden rule were ever to be enforced seriously. Regarding the likelihood of the rules being enforced, they point to the absence of any features of the FRBMA that compel governments to act counter-cyclically during periods of above-normal economic activity or (as in India during these past three to four years) exceptionally low interest rates. Furthermore, the fiscal rules under the FRBMA do not address the key distortions imposed by the Indian state on the private sector through financial repression, misguided regulations, and inefficient ownership and incentive structures.

Tax reform has been a major component of the economic reform agenda in India during the last twenty years. In their contribution on this subject, Govinda Rao and Kavita Rao offer a comprehensive treatment of the evolution of the direct and indirect taxes in India, their shortcomings relative to an ideal tax system, the reforms undertaken so far, and their future course. They note that according to the theory of optimal taxation, revenue-raising taxes should consist exclusively of consumption taxes with the rates of taxation being dependent on various demand elasticities. In turn, the ideal consumption tax can be mimicked by a value-added tax (VAT) that taxes output at the desired rate but rebates the tax paid on the inputs, thereby only taxing the extra value added at each stage of production. In practice, the information on the demand elasticities required to implement the optimal VAT is rarely available. Moreover, its variegated structure is administratively complex, gives rise to tax disputes and tax evasion, and results in lobbying pressures becoming the main determinants of the tax structure. Therefore, a system characterized by greater uniformity in tax rates has gained popularity with policy analysts and policymakers in recent years.

Since the 1950s, India has relied on both direct and indirect taxes to raise revenue. Direct taxes include both the personal income tax and corporate profit tax. Indirect taxes include domestic commodity taxation and custom duties. Domestic commodity taxation initially took the form of excise duties that taxed output up to the manufacturing stage with no tax rebates on inputs and the sales tax by the states. In recent years, a modified value added tax (MODVAT) that rebates the tax paid on inputs at each stage of production up to the manufacturing stage has progressively replaced the excise tax. Custom duty revenues have principally been a by-product of import protection, and their share in total revenue increased especially rapidly in the 1980s when the government decided to replace the previous system of import quotas with enhanced input tariff rates. With the decline in protection after 1990, the importance of this source of revenue has been declining.

The reforms during the last two decades have focused on both the design as well as the administration of taxes. Marginal tax rates on personal income, which had reached near 100 percent levels in the early 1970s, have now been brought down to around 30 percent (with occasional surcharges). Simultaneously, the number of tax slabs has been reduced to three, and some progress has also been made toward eliminating numerous ad hoc exemptions. Similar steps have been taken in the area of corporate taxation.

The big push in the area of domestic commodity taxation has been toward the development of a genuine VAT and unification of the tax rates. Considerable success has been achieved in both tasks. Custom duties have been brought down substantially, and their dispersion has been considerably reduced. Improvement in tax administration has been more pronounced in direct than indirect taxation.

Rao and Rao observe that the ratio of personal income tax to GDP has increased from 2.1 percent in 1985–86 to 4.3 percent in 2004–05. Reductions in indirect tax revenues as a proportion of GDP have more than offset this gain, however. Central government domestic indirect tax collection declined by 1.6 percentage points and the custom duty collection by 1.8 percentage points over the same period.

It is tempting to argue that the increase in the income tax–GDP ratio represents the operation of the so-called Laffer curve whereby reduced rates by themselves lead to increased revenue. Rao and Rao offer evidence to the contrary, however, and argue that the increase in the revenues from the personal income tax resulted from a more rapid growth of the organized industrial sector that is covered by the tax net; deepening of the financial sector, which makes transactions easier to track; and administrative measures including the spread of tax deduction at source.

Rao and Rao also find that contrary to suggestions in some of the recent literature, personal income tax reform has resulted in increased equity. Granted, the reduction in the dispersion of effective tax rates has led to the richest individuals being subject to lower tax rates. But the reform has also brought into the tax net many relatively rich individuals who previously did not pay taxes. This is reflected in a significant increase in the number of income tax payers and the doubling of revenues from the personal income tax.

Despite substantial rationalization of various components of the tax system, indirect tax revenues remain highly concentrated in terms of commodities. Just five groups of commodities—petroleum products, chemicals, basic metals, transport vehicles, and electrical and electronic goods—contribute 75 percent of the total central domestic commodity tax revenue.

Petroleum products alone, which have tripled their share over a thirteen-year period, contribute over 40 percent. Almost 60 percent of custom duty is collected from just three commodity groups: machinery (26.6 percent), petroleum products (21 percent), and chemicals (11 percent). This concentration exceeds the concentration of output or of imports across commodities.

Rao and Rao recommend further rationalization of central taxes through a reduction in the number of tax rates and the elimination of exemptions. In the area of corporation tax, they argue in favor of reducing the depreciation allowance to more realistic levels. They also point to a need for aligning the corporate profit tax rate with the highest marginal tax rate on personal income tax. With regard to import duties, the authors recommend a minimum tariff of 5 percent on all imports as a step toward harmonizing duty rates across commodities.

In the area of domestic commodity taxation, the goal must be a single, unified goods and services tax. The achievement of this goal has several components. All specific duties must be converted into ad valorem rates and the tax on services must be widened substantially. The sales tax must be harmonized across states and, for collection purposes, integrated with the central VAT, which should eventually cover all goods and services. This unification will also allow the adoption of the destination-based sales tax on all interstate trade. Keeping in view revenue needs, Rao and Rao recommend that the total burden of taxation on goods and services should be 20 percent. Of this, 8 percent should be borne by the center and 12 percent by the states.

The state of tax administration, resulting partially from the virtual absence of data on both direct and indirect taxes, has been a major reason for low levels and high costs of compliance. The absence of information has also led to the evolution of a compliance system in which tax payments are negotiated between the payer and the government. The recent initiatives for administrative reform that include the development of a computerized information system and procedural changes such as expanded coverage of tax deduction at source and systematized audit procedures have alleviated this problem to some degree. Within direct taxes, efforts include outsourcing of issue of permanent account numbers, a tax information network established by the National Securities Depository Limited with special focus on tax deductions at the source; and the Online Tax Accounting System. Within indirect taxes, a few examples of new information systems are the customs e-commerce gateway, known as ICEGATE, and the Customs Electronic Data Interchange system. Further initiatives are under way, including a systematic approach to compiling relevant data from a variety of relevant

sources. Rao and Rao believe that, as a part of this initiative, it is critical that mechanisms be set up for data sharing between direct and indirect tax authorities, as well as between central and state tax authorities.

Inflation targeting has emerged as one of the most significant developments in the theory and practice of monetary policy. Disenchantment with the outcomes of the activist monetary policies of the 1970s and 1980s led many economists and policymakers to advocate a simplified and more rules-based approach to monetary policy, one in which attaining and sustaining price stability is given a clear priority. Many countries, however, have experienced difficulties in attempting to use the growth in monetary aggregates or the exchange rate as a guide to such a policy. An inflation-targeting framework (ITF), which consists of setting an inflation target and aligning monetary policy to ensure its attainment in a transparent and accountable manner, is increasingly advocated as a best-practice approach to controlling inflation.

In the long run, the inflation rate is the only outcome that monetary policy can influence. However, because there is a short-run cost of disinflation, a trade-off between inflation and unemployment, the optimum path of future inflation implies a gradual return to the desired rate. At the heart of the ITF is a specific view of the inflation-generating process as a largely demand-determined phenomenon, a conviction that the most efficient way of dealing with inflation is through an interest rate rule, and the belief that the public's inflation expectations can be managed. From this follows the prescription that the central bank, as the custodian of interest-rate policy, should play a dedicated and dominant role in promoting the inflation objective. Initially, inflation targeting was adopted by several industrial countries, but it has recently spread to some emerging markets. At present, much of the focus on monetary policy is on credit growth, not interest rates. Is the ITF practical in the absence of a large role for market-determined interest rates?

In their paper, Sheetal Chand and Kanhaiya Singh ask whether such a framework might be applicable to developing economies. In particular, is the ITF suitable for guiding the monetary policy of India? Earlier discussions focused on the difficulties that developing countries would have in adopting a policy rule that assigns absolute priority to the control of inflation. They often have less-developed financial institutions (requiring a more nurturing approach by the central bank), an aversion to large exchange rate fluctuations, or a need to be accommodative of some changes in fiscal policy. Widespread public knowledge of these constraints implies that a policy based on inflation targeting would lack credibility.

Chand and Singh examine the issue from a different perspective, however, arguing that the inflation process in India differs in significant respects

from that commonly assumed to hold for the industrial economies. The paper first tests a standard formulation of the ITF, relying on a paper by Lars Svensson. This formulation explicitly incorporates a short-run trade-off between inflation and the deviation of output from full employment (a Phillips-curve type relationship). In their tests of the Indian experience from 1970-71 to 2002-03, Chand and Singh find that the output gap is not a significant determinant of inflation. Thus, they argue that Svensson's derivation of the optimal policy rule is not satisfactory in the Indian context.

However, this does not necessarily imply that demand factors have negligible effects on inflation. The authors develop an alternative specification that defines excess demand as the difference between the nominal GDP growth rate and the growth rate of potential output valued at the preceding year's rate of inflation. They find that this alternative version accords better with conditions in India. However, the demand-side effects are supplemented by a substantial role for variations in input prices. In the final model, the coefficients on the measures of demand conditions indicate some effect, but the dominant role is that of supply-side factors.

The authors interpret the large role for supply-side shocks in the generation of inflation as arguing against reliance on the ITF approach. In addition, the nominal interest rate appears to be a less powerful instrument with which to influence the inflation rate. They are also concerned about the potential for undesirable side effects that might result from large variations in interest rates, such as large and persistent swings in exchange rates or asset values.

Chand and Singh favor a more balanced approach that employs both monetary and fiscal policy as instruments to control inflation and that is reflective of supply-side phenomenon. The more active role for fiscal policy is justified by their finding of a shorter transmission lag between an expenditure stimulus and the inflation rate than is typical for the advanced countries. However, they agree that more research is needed to establish fully the role that fiscal policy should play.

Within the monetary policy sphere, they advocate the use of multiple instruments rather than relying solely on interest rates. Examples would be adjustments in liquidity requirements to regulate the supply of credit that finances investment expenditures and direct controls on capital inflows. They perceive these measures as having fewer adverse effects on asset valuations. With regard to interest rate policy, the Reserve Bank of India might seek to maintain a desired real interest rate, with the nominal interest rate being adjusted whenever the underlying inflation rate deviates from target. From time to time, shifts in liquidity preference will result in asset transactions that push interest rates above or below the target long-term level.

Accommodating liquidity preference shifts through appropriate open market operations would help keep interest rates stable. All this implies that it may be more prudent and welfare enhancing for India to pursue a strategy other than the standard ITF to control inflation.

The performance of the Indian economy following the initiation of an economic reform program in 1991 has been a subject of intense intellectual debate. There are sharp differences of view on whether the economic situation of Indian workers improved in the postreform years. Some commentators characterize the postreform period as a largely jobless expansion with a marked slowing of real wage growth, particularly in rural areas.

Surjit Bhalla and Tirthatanmoy Das undertake a detailed review of the available survey data on employment, unemployment, agricultural wages, and income inequality over the past thirty years to examine several of these controversial propositions. Much of the evaluation of the effects of the economic reforms is confounded by the low frequency of detailed survey data on the economic situation of Indian workers. The discussion has centered on the results from large-scale quinquennial surveys of their employment status conducted in 1983, 1987-88, 1993-94, and 1999-2000. Bhalla and Das construct a more expansive time series of available data by including two surveys from the 1970s and twelve smaller annual surveys from the 1980s and 1990s. The major advantage of the additional data is that it allows a better alignment of the data on labor market conditions with the initiation of the reforms in 1991. Because 1991 was also a year of economic crisis in India, the precise dating of the end of the prereform period and the beginning of the reform era plays a crucial role.

On the employment front, Bhalla and Das conclude that employment growth slowed between 1991 and 2003 to 1.7 percent a year, compared with a 2.6 percent rate in the 1983-91 period. They attribute a large portion of the slowdown during the 1990s to a slower rate of growth of the population of labor force age and to a decline in the labor force participation rate related in part to a rise in the proportion of persons who remained out of the labor force while enrolled in educational institutions. They argue that the slow employment growth of the 1990s is not therefore a reflection of weak labor market conditions.

Labor market surveys in India produce three alternative measures of employment status. First, usual status classifies individuals among employed, unemployed, and not in the workforce on the basis of the principal activity status of the individuals over the prior 365 days. Current weekly status follows international conventions of classifying those who worked at least one hour in the prior week as employed, and distinguishing between

unemployed and out of the workforce on the basis of whether they were available for work in the prior week. A third concept of "current daily status" is also determined in the quinquennial surveys. Individuals are asked to report their activities over a seven-day period and to distinguish half days in determining the activity status. Those who work four or more hours are considered employed for the full day, and one to four hours is considered a half day. Similarly, persons who did not work but were available for four or more hours are considered to be unemployed for the full day, and those who were available for one to four hours are reported as unemployed for half a day.

Bhalla and Das point to a general perception that unemployment has increased in the postreform years as the primary rationale for a new government program aimed at providing job guarantees for rural families. They argue, however, that the measures of unemployment based on usual and weekly status show significantly lower rates of unemployment in the years after 1991 relative to the experience of the 1970s and 1980s. This conclusion also accords with their earlier interpretation that the slowing of employment growth in the 1990s was not indicative of a weak labor market. They also point out that the educational level of the unemployed is high; this is consistent with a view that much of the unemployment is the result of the more skilled members of the workforce spending longer in search of better job matches.

Third, the authors examine the patterns of real wage change in the post-reform era. That analysis is faced with a severe shortage of high frequency surveys of wage developments. The quinquennial surveys provide the only information on economywide wages, and annual measures are available only for agricultural wages. The quinquennial surveys do suggest an acceleration of real wage growth after 1993, from an annual rate of 2.5 percent between 1983 and 1993-94 to 4.5 percent in the period of 1993-93 to 1999-2000. That pattern is apparent in the wage data for both urban and rural workers.

Bhalla and Das undertake a more detailed analysis of the annual data on agricultural worker wages, a subgroup of the rural workforce. This is also the group for which wage growth is alleged to have slowed sharply after the introduction of economic reforms in 1991. They compare two basic measures: the Survey of Agricultural Wages in India (AWI), and wage data from a lesser-used Survey on the Cost of Cultivation (CoC) of major crops. The AWI survey was terminated after 1999-2000 and the last available year for the CoC is 2000-01. They use a new survey to extend the other wage measures through 2004-05. The measures of real wage growth do grow at

different rates over some subperiods and the year-to-year changes are erratic; but neither the AWI nor the CoC measure supports the notion of significant deceleration of real wage growth after 1991.

Finally, the trend in income inequality during the 1990s is a subject that has generated great controversy among the group of researchers who have written on the subject. The analysis is largely limited to a comparison of data from the quinquennial surveys, and it is complicated by some changes in the survey methodology. Bhalla and Das believe that there may have been some increase in inequality after 1993-94 but that the change is small and largely limited to a widening of inequality at the very top of the distribution. It is also difficult to match the timing of the change with the introduction of economic reforms. In summary, Bhalla and Das maintain that the frequent assertion that the economic reforms have not helped Indian workers is not supported by the data.

Though telecommunications reform in India began in the 1980s, it achieved at best limited success in the initial decade. Beginning in the early 1990s, technological change and new government policies exhibited greater promise, with dramatic gains made in the quality of service as well as its availability in the new millennium. Telecommunications reforms represent a major success of the economic reforms in India in the last decade. Unsurprisingly, however, telecommunications access has increased more rapidly for wealthy and urban consumers than for poor and rural consumers. To address this gap, India has adopted so-called "universal service" policies, especially targeting rural villages. The philosophy behind the desire to spread the service to all is that certain services, such as electricity, water, and telecommunications, should be available to all.

In their paper, Roger Noll and Scott Wallsten remind us that universal service policies are typically justified on three grounds. First, the presence of economies of scale may lead to the underprovision of the service. At best, the firm will price the service at the average cost, which is higher than the marginal cost when scale economies are present. If, in addition, the market turns imperfectly competitive due to a single supplier or a handful of suppliers, the service may be further undersupplied. Second, the government may view some services as "merit goods" that everyone should have, regardless of their willingness to pay. Finally, politics or regional development goals may induce government to transfer resources to rural or low-income constituents.

The "merit good" argument is easier to justify for universal access to some types of infrastructure than to others. Water and sewerage, for example, involve large health externalities, and bringing these services to everyone

can yield large social benefits. The provision of universal telecommunications service is more difficult to justify along these lines. Given the presence of a large proportion of the poor in the population, it can be argued that the government revenues are better spent on direct poverty alleviation programs. The issue of economies of scale points to the need for regulatory measures rather than universal service. It is true that the scale economy may take the form of an externality in the sense that the addition of new customers may lower the cost of supplying the service to the existing customers. But the firms, which are capable of figuring cost at various levels of supply, can readily internalize such externalities. Nevertheless, perhaps because of its political appeal, most countries in the world pursue the goal of universal access to telecommunications services in some form.

Noll and Wallsten also argue that the case for subsidizing the incumbent wire-line carrier, whether privatized or state-owned, to achieve the universal service objective is weak since it offers relatively little service in the poor areas in the initial equilibrium. In the era of state-owned monopolies, the telecom provider had little incentive to invest in telecommunications services in general, as witnessed by the long waiting period to obtain connections and the poor quality of service following installation. Telephone penetration and usage were low, even considering developing countries' low incomes, with service to poor and rural areas virtually absent.

India's first official universal service program was introduced as a part of the 1994 National Telecom Policy. That policy set the goal of providing certain "basic telecom services at affordable and reasonable prices" to all citizens. This policy was revised under the New Telecom Policy of 1999, which made the provision of telecom services in remote rural areas a higher priority and set certain specific goals to be achieved by 2002. When those goals were not met, the Department of Telecommunications adopted two objectives: providing public telephones in villages and providing household telephones in rural areas. The first objective was given higher priority.

A universal service fund was created based on the implicit assumption that competition among private providers would not generate adequate service in rural areas. The government also took the view that it could minimize the magnitude of the subsidy necessary to provide universal service by opting for only one firm in any given area. The government finances the subsidy through two taxes. The first, the universal service levy, which goes into the Universal Service Fund (USF), is a tax of 5 percent of adjusted gross revenues on all telecommunications providers except "pure value added service providers" such as Internet service providers. The second includes access deficit charges (ADCs), which are incorporated into interconnection

charges and are paid directly to the incumbent state-owned enterprise Bharat Sanchar Nigam Limited (BSNL) to compensate it for providing below-cost service in rural areas.

The USF is intended to reimburse the net cost (total cost minus revenues) of providing rural telecom service. Telecommunications firms bid for subsidies to be received in return for providing service in rural areas in an auction. The firm bidding the lowest subsidy, subject to the bid being no higher than a benchmark established by information from the incumbent wire-line monopoly, is eligible to be reimbursed that amount from the fund. Any firm with a license to provide basic or cellular service in the relevant service area is eligible to bid. The winner receives a subsidy for seven years, subject to review after three years.

In nearly all service areas, only one firm bid: the incumbent BSNL. Not surprisingly, the BSNL bid exactly the benchmark amount, which was the maximum subsidy the government was prepared to provide. The failure to create genuine competition for rural public service arose from three problems.

First, the benchmark subsidy was based on data provided by BSNL, whose accounts are aggregated in a way that makes it impossible to separate costs of its various operations. Second, BSNL receives nearly all of the ADC cross-subsidies. The incumbent has potential gains from manipulating how cost information is aggregated across service categories and across high-cost and low-cost areas, because these data not only determine the benchmark subsidy, but also the magnitude of the net deficit for all local access service. Allocating some ambiguous cost elements to subsidized areas can increase both the public telephone subsidy and the ADC subsidy. Third, the auction allowed only basic service operators already providing rural service in the area to bid. Given the existing service was in any case quite limited, there was no advantage to choosing the provider from among the existing operators. Therefore, the exclusion of the firms not already present had detrimental effect on new entry into rural services commensurate advantage of choosing an existing operator.

ADCs, the second major source of universal service, are paid by private entrants to the incumbent based on the premise that basic access providers face unprofitable social service obligations and should therefore be compensated for them by entrants who are free to seek out profitable customers. The assumption underlying the expectation of these losses is that regulated price ceilings on basic monthly access service charges applying to a large number of customers are below the cost of service.

The ADC fee structure is highly inefficient for two reasons. First, the price elasticity of demand is much greater for usage than for access. Hence,

taxing usage to finance access substantially distorts the former for the relatively small gain in the latter. Second, applying the tax to only some calls creates another distortion. The regulatory authority had intended to impose ADC charges for five years and has recently reduced the fee so that it now represents about 10 percent of the sector's revenue rather than 30 percent when it was first introduced

Noll and Wallsten argue that India's universal service policies may unfortunately have had the unintended consequences of deterring investment in precisely the areas they had hoped to target. The subsidies discourage competition, and the most efficient operators are taxed to support the least efficient operator. Fortunately, most of the telecommunications market in India is sufficiently competitive and dynamic that growth may not be hampered significantly by these inefficient policies. Nonetheless, because telecommunications is such an important industry, it is crucial to minimize inefficiencies. Noll and Wallsten conclude that India's best approach for achieving universal service is to ensure that its policies promote competition and do not favor any single firm over another.