

Liberalizing Basic Telecommunications

The Asian Experience

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Despite the move away from traditional public monopolies, most Asian governments are still unwilling to allow unrestricted entry in telecommunications, eliminate limits on private and foreign ownership, and establish strong, independent regulators. But where comprehensive reform has been undertaken—including privatization, competition, and regulation—the availability of main lines, the quality of service, and the productivity of labor are significantly higher.



Summary findings

Fink, Mattoo, and Rathindran examine the liberalization of the basic telecommunications sector in Asian countries with a view to identifying good policy and determining how multilateral negotiations can promote it. They find that most Asian governments, despite the move away from traditional public monopolies, are still unwilling to allow unrestricted entry, eliminate limits on private and foreign ownership, and establish strong, independent regulators. But where comprehensive reform has been undertaken—including privatization, competition, and regulation—the availability of main lines, the quality of service, and the productivity of labor are significantly higher.

Somewhat surprisingly, little unilateral liberalization has occurred since the last round of telecommunications

negotiations under the General Agreement on Trade in Services (GATS). The new round therefore faces the challenge of not merely harvesting unilateral liberalization, as in the past, but of negotiating away existing restrictions.

Since quantitative restrictions on the number of telecommunications service suppliers are pervasive, deepened GATS rules could help ensure transparent and nondiscriminatory allocation of licenses. There may also be a need to sharpen the regulatory principles established in the last round and to create rules that safeguard not only the rights of foreign suppliers but also those of consumers.

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Liberalizing Basic Telecommunications: The Asian Experience

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I. INTRODUCTION

The dynamism of global telecommunications markets is widely attributed to rapid technological development and an increasingly liberal policy environment. Over the past decade, a large number of Asian economies have also embarked on reform paths, and witnessed significant expansion of their telecommunication networks and striking improvements in quality. But neither performance nor policy have been uniform across the region. Countries differ in both the sequence and extent of reform. Furthermore, it is not always apparent where the improved performance is because of specific policy choices rather than in spite of them, and where more could have been achieved had policy been different.

This paper addresses two questions. Is it possible to identify the constituents of good telecommunications policy? And is it possible to further the choice of good policy at the national level through multilateral negotiations? Telecommunications liberalization is a complex and relatively new process. Choices have to be made regarding the privatization of state-owned telecommunications operators, the introduction of competition, the opening of markets to foreign investment and the establishment of pro-competitive regulations. While there is growing consensus that each of these elements is desirable, it is a rare country that has immediately gone all the way on all fronts. In Asia, in particular, governments have differed in their willingness to concede control to the market, and most have a penchant for gradualism. Competition has been introduced, but the number of firms has been fixed by policy; privatization is often partial and there are limits on foreign participation; separate regulators have been created but they are rarely fully independent.

Even though economic theory is bold in its pronouncements on the extremes, it is more tentative in its prescriptions on the transition path. How much greater are the social benefits if privatization is accompanied by competition? How much greater are the benefits if all barriers to entry are removed in markets where some competition has already been introduced? How much competition is desirable—is there no good reason to limit entry? How far should foreign investment be encouraged in concentrated markets? How important is an independent regulator for the emergence of robust competition? What should the regulator regulate? How is any adverse impact of liberalization on income distribution and poverty best addressed? There is a surprisingly long list of questions to which we cannot yet provide definitive answers, though there is no dearth of strong opinions.

Fortunately, the telecom reform process is now old enough to have produced the data needed to analyze the implications of alternative policy choices. In its analysis of policy and performance in the Asian countries, this paper draws upon a database on telecommunications policy and regulation that has been recently created by the World Bank in collaboration with the ITU.¹ While there are numerous valuable case studies of the telecom sector of Asian countries, this

¹ This database combines responses to government surveys conducted by the International Telecommunication Union (ITU) from 1995-1999 with market reports from Pyramid Research, operational documents from the World Bank, information from national regulators, and various other publications.

database makes possible, as far as we know, the first rigorous analyses of the link between policy and performance over time across a number of Asian countries. At the present stage, however, only the most basic hypotheses about policy can be tested.

The General Agreement on Trade in Services (GATS), which emerged from the Uruguay Round, is the first multilateral effort to harness and further the liberalizing trend in services trade. And the results of the basic telecommunications negotiations were perhaps the most important results of the last round of negotiations that ended two years ago. Another round has just begun. So it seems appropriate to raise a number of key questions. What have we learnt about the interplay between reform at the national level and negotiations at the multilateral level? Do the latter simply harvest the liberalization accomplished unilaterally or can they actually help eliminate barriers? What is the value of multilateral rules and commitments? Do they foster good policy and help improve economic performance? How much advantage can be taken of the current round to encourage desirable policy reform? Is there a need to reform the GATS itself to make it a more effective catalyst for reform of national policies? Again we ask more questions than we can answer. But this paper should be seen more as an attempt to provoke discussion at an important juncture rather than as seeking to provide definitive answers.

We begin in the next section with an overview of recent developments in the telecommunications sector in Asian countries. Section III reflects on these developments in light of the current state of understanding of the implications of different policy choices. Section IV attempts to sharpen this understanding through an econometric analysis of the relationship between policy and performance in Asian countries over the last fifteen years. Section V examines how the pursuit of policies that have been identified as desirable can be encouraged in the new round of multilateral negotiations under the GATS. Section VI concludes.

II. OVERVIEW OF BASIC TELECOMMUNICATION SERVICES IN ASIA²

The number of telephone users in Asia is estimated to have tripled between 1990-2000. Despite the financial crises that hit the region in the late 1990s, Asia's share of fixed telephone lines in the world has grown from 23% in 1990 to 33% in 2000. More dramatically, Asia's share of global mobile telephone users has leaped from 13% to 35% over the same time period and is expected to reach 50% by 2010.

The fast-paced evolution of telecommunications technology has arguably been one key driver of services growth throughout the Asian continent. Another has been the general trend towards policy reform to foster network expansion and the introduction of new services. Over the past decade, the vast majority of Asian economies have embarked on a reform path encompassing the privatization of state-owned telecommunications operators, the introduction of competition, the opening of markets to foreign service providers and the establishment of pro-competitive regulations.

² The information provided in this section relies on ITU (2000) as well as various market reports from Pyramid Research.

Fixed-line: policy

Despite this common overall trend in policy, the approach to sector reform and the progress of reform have differed markedly among Asian economies. In fact, it is possible to find almost every combination and sequence of changes in policy in the region. This is illustrated in Figure 1, which depicts the reform path of 13 major Asian economies in the 1990s.³ Countries such as China, India and Korea, for example, have introduced competition in selected fixed-line market segments, while the incumbent operator was under full public ownership. Others have first privatized their state-owned monopolies and deferred the introduction of competition to a future date—sometimes through explicit exclusivity periods granted to private investors. This group of countries includes Hong Kong, Indonesia, Malaysia, Pakistan, and Singapore. Some economies have introduced competition and privatized more or less at the same time (Japan and Sri Lanka) while others have made limited, if any, progress towards private, more competitive market structures (Taiwan and Thailand).

Countries also differed in their choice of the fixed-market segment that was first opened to competition. The region was among the first in the world to open up local markets to competition. Hong Kong, India, and Singapore first liberalized this market segment. Korea, Malaysia and the Philippines first permitted competition in international services, while China started liberalization by introducing a second domestic long distance carrier.

The approach to regulation has also differed across countries. Figure 1 shows when a separate regulatory agency was created in each country. It is striking that in a large number of major economies—including China, Indonesia, Japan, Korea, Malaysia, Taiwan and Thailand—regulatory functions are still exercised by the sector ministry or other government bodies. It is interesting to note that in several of the countries which do have a separate regulator (Hong Kong, Pakistan, Philippines and Pakistan), the responsibility for establishing interconnection rates lies with the dominant operator—though the regulator is responsible for arbitration of disputes.

The picture of the state of fixed-line competition that emerges from Figure 1 must be heavily qualified. Most governments have limited the service segments subject to competition, restricted the number of licenses awarded or have imposed geographic limitations on new market entrants. For example, India divided its markets into separate circles and admitted one private operator in each to compete with the incumbent Department of Telecommunications (DOT). New entrants were allowed to offer intra-circle long distance services, but the DOT maintained its monopoly on inter-circle long distance telephony.

On the other hand, several countries that have retained their public service monopolies allowed private entry through build-operate-transfer (BTO) and related arrangements. In Thailand, for example, fixed-line basic services concessionaires have installed networks with total main line capacity of 4.1 million lines, while the state maintained control over the networks. Similarly,

³ The information shown is based on the recently created World Bank/ITU database on telecommunications policy and regulation.

under Vietnam's Business Cooperation Contracts (BCCs), foreign operators have provided equipment, training, supervision and financing, while the public incumbent supplied the management of the operations.

In comparisons to other regions (e.g., Latin America and Eastern Europe), many countries in Asia maintain substantial restrictions on foreign equity ownership. In China, India, Indonesia, Korea, Malaysia, the Philippines, and Thailand, the foreign equity limit in locally established operators is below 50 percent. Some countries have recently relaxed this limit, seeking greater foreign participation of capital and expertise in the local telecommunications market. For example, Taiwan recently raised the limit on foreign investment stakes from 20 percent to 60 percent. Korea increased its foreign ownership limitation from 33 percent to 49 percent.

Fixed-line: performance

The variations in performance of the telecommunications sector are as great as those in policy. This may be illustrated by a comparison of the region's two most populous countries. While China maintained its state monopoly, an ambitious public investment program led to a more than ten-fold expansion of the fixed network in the 1990s—from 8 million mainlines in 1992 to 109 million mainlines in 1999. By contrast, India initiated reforms in the mid-1990s and decided to open its market for local services to competition—at the time an unprecedented reform initiative for a low income economy. However, a poorly managed licensing process and institutional conflicts between the sector ministry and the newly created regulatory agency caused significant delays in the introduction of competitive local services and has adversely affected the confidence of private investors. Only recently has network growth picked up significantly in India.

International telecommunications traffic has seen rapid growth in the region throughout the 1990s. The average accounting rate with the United States of the 13 countries shown in Figure 1 fell from \$2.13 in 1990 to 57 cents in 2000. However, lower accounting rates have not always translated into lower retail prices and settlement rates are still high compared to other regions and service cost estimates. The most dramatic reductions in accounting rates and retail prices occurred recently in countries that allowed international simple resale (ISR)—one way to bypass the traditional accounting rate system. On traffic with the United States, Bangladesh, Hong Kong, the Philippines, and Singapore have permitted ISR. Forthcoming competition in the provision of fibre-optic undersea cables is also likely to lower the comparatively high costs of international bandwidth on Asian routes and further boost international traffic.⁴

Mobile networks

The exponential growth of mobile telephony in Asia can be attributed to the introduction of digital cellular technology and the opening of mobile service provision to additional operators. Figure 1 documents the increase in the number of mobile operators, particularly in the second half of the 1990s. It is interesting to note that, unlike Europe and the Americas, the Asian region did not adopt one standardized digital mobile technology. For example, while major economies

⁴ The Economist, December 16th 2000.

such as China, India, Indonesia and Malaysia have exclusively opted for GSM technology, CDMA networks can be found in Hong Kong, Korea, the Philippines, Singapore, and Thailand.

Several Asian economies—Cambodia, Hong Kong, Japan, Korea, the Philippines and Singapore—recently registered more mobile than fixed-line telephone subscribers. In richer countries, mobile services are likely to be a complementary services, as most business and households already have access to the fixed network. But in low income countries, mobile can be a substitute to fixed line services, particularly in countries with long waiting lists for fixed line connections. In the Philippines, one of the factors driving cellular growth is the popularity of pre-paid plans. At the end of 1999, over 70 per cent of Filipino mobile subscribers were using these plans.

Partly because there is less need to protect incumbent operators with state ownership, policy for mobile services is typically more liberal than policy for fixed services. Yet in several countries restrictive policies and regulatory shortcomings have adversely affected mobile performance. For example, high import taxes on handsets in India and Pakistan have slowed consumer adoption of cellular technology. High interconnection prices with the fixed-line network have negatively affected mobile operators in several countries. In Bangladesh, the incumbent's lack of responsiveness with regard to interconnection has even led to the operation of a mobile network independently of the fixed-line network.

Asia's mobile market will receive a stimulus from the introduction of third generation (3G) mobile technology. Japan will be the world's first country to launch a 3G network in May 2001. Thailand awarded licenses to the two incumbent companies through a comparative selection procedure. Similarly, Korea granted 3G licenses to the two largest mobile operators, with another license still pending. Hong Kong and Singapore are expected to award licenses in 2001 and have opted for a license auction. Most other countries in the region have yet to announce their 3G licensing plans.

III. IMPLICATIONS OF ALTERNATIVE POLICY CHOICES

From the previous section has emerged a picture of “managed competition” in most of the region. While the traditional public monopoly is becoming a rarity, most governments seem reluctant to forego discretionary policy-making and delegate choices completely to the market. One important battle seems to be largely won: in most cases, privatization has been accompanied by the introduction of some measure of competition. But governments have been reluctant to allow unrestricted entry, and in most cases there are restrictions on the extent of private and foreign ownership, at least in the main incumbent. There is a high degree of variability in the pattern of regulation both in terms of the degree of autonomy and the domain of the regulator. Many governments have also had difficulty in establishing credibility for their reform programs.

Given the current state of understanding of telecommunications markets, what can we say about the implications of these policy choices? We structure our discussion around three general prescriptions. These are based on a number of case studies (see, for example, Smith and Staple,

1994 and Wellenius, 1997), but have not to our knowledge been subjected to rigorous empirical examination—the task of the next section of this paper. We also ask: is there a theoretical and empirical basis to make definitive pronouncements on the implications of deviating from these prescriptions?

(1) Larger welfare gains arise from an increase in competition than from a change in ownership.

A change of ownership, from public to private or national to foreign hands, can bring benefits even in situations where it does not lead to enhanced competition. For instance, private or foreign equity may relax a capital constraint, improve the structure of incentives in the firm and serve as a vehicle for transferring technology and know-how, including improved management. However, private ownership is most efficient in markets where there is effective competition. As well as its direct benefit in promoting allocative efficiency, competition between firms also has the advantage of improving internal efficiency. Where monopoly or oligopoly exists, the case for preferring private ownership to public ownership weakens considerably. Privately efficient profit-seeking behind protective barriers, whether on the part of domestically or foreign-owned firms, cannot be expected to lead to socially efficient results. While much of the theoretical basis for these assertions is in a static context, there is a strengthening presumption that competition also produces significant dynamic benefits through its impact on the incentives to improve performance and innovate.

We have seen that while most Asian countries seem to have accepted the virtues of competition and private and foreign ownership, it is a qualified acceptance. The following questions arise:

(i) Are there any good reasons to limit the number of suppliers?

In some cases there is no choice: there are technical limitations to competition, such as those imposed by the scarcity of radio spectrum needed for the provision of mobile telecommunications services. In other segments, entry restrictions might be justified by the existence of significant economies of scale, for example due to substantial fixed costs of networks. Competitive entry could lead to inefficient network duplication. It is also possible to think of other special models of market and/or regulatory failure where entry barriers enhance welfare (Laffont, 1999).

Notwithstanding these considerations, entry restrictions are becoming harder to justify in the face of technological change and mounting evidence that competition works.⁵ Technological advances have significantly lowered network costs, and vertical separation (also known as network unbundling) has widened the scope for competitive entry (Smith, 1995). Furthermore, inefficiencies introduced by duplication of networks may be small compared to operational inefficiencies that can result from a lack of competitive pressure.⁶

⁵ In Latin America, for example, countries that granted monopoly privileges of six to ten years to the operators of privatized state enterprises saw connections grow at only half the rate observed in Chile, where the government retained the right to issue competing licenses at any time (Wellenius, 1997).

⁶ Interesting evidence in this context is available from the Indian telecommunications sector. Das (2000) estimates a frontier multi-product cost function of the incumbent fixed-line operator, covering 25 years from 1969 to 1994. The

The observed restrictions on entry may well be for more prosaic reasons. First, restrictions may be designed so that incumbent suppliers are only gradually exposed to competition—for infant industry type reasons, to facilitate “orderly exit” or simply due to political economy pressures. This explains, for example, why governments have generally been more willing to liberalize mobile in comparison to fixed-line telecommunications services, because mobile telephony has only been recently introduced and there is thus no incumbent to protect. The entry restrictions sometimes benefit not only national firms but also foreign incumbents, as was the case in the international telephone monopoly in Hong Kong. Other instruments, such as discriminatory subsidies or taxes could be better targeted to achieve protection of the national firm.

Monopoly or oligopoly rents are also sometimes seen as a means to help firms to fulfill universal service obligations through cross-subsidization. However, governments are increasingly devising means of achieving these objectives without sacrificing the benefits of competition – for instance, through the creation of universal service funds which are competitively allocated. In some cases, a form of “investment pessimism” exists, leading to the belief that promises of oligopoly rents are necessary to finance new investment. However, it is not clear why the market structure needs to be determined by policy, unless there are some initial investments the benefits of which may be appropriated by rivals. Finally, governments may seek to raise revenue (or rents for politicians/bureaucrats) by auctioning monopoly or oligopoly rights. This usually explains the promise of exclusive rights prior to privatization. Where competition would be feasible, this amounts to indirect appropriation of consumers’ surplus and may deny important dynamic efficiencies consequent upon competition.

Thus, entry restrictions may often be a second or third-best instrument to achieve the objective in question, but are chosen because of constraints such as the inability to raise revenue without economic or political cost. It will probably be difficult to eliminate completely barriers to entry. But it is important to determine that they are indeed necessary—in the sense that more appropriate instruments are not feasible. We return to this issue in Section V.

(ii) Are there good reasons to limit foreign ownership and what are the implications?

Most countries in the region maintain limits on foreign and/or private ownership but it is not easy to find a sound economic rationale for their existence. In so far as the incentive to transfer technology, improve management, etc. is related to the share in profits of an owner, ownership limitations are bound to dampen the incentive and hence adversely affect firm performance. Why are governments willing to bear this cost? For three types of reasons. If there are rent-generating restrictions on competition, then the observed limitations on ownership may seek to balance the efficiency-

study finds the existence of very high economies of both scale and scope in the technology used - the parameter estimates even suggest that telecommunications in India is a natural monopoly. However, the incumbent operator displays great inefficiency, leading to a 26 percent increase of the operator’s cost of production. Based on these findings, Das concludes that India’s market liberalization program, started in the mid-1990s, is justified, but he argues that there may be a need to regulate entry in order to reduce unnecessary duplication of common costs. Moreover, with continued improvements in technology, the fixed costs of entrants are likely to fall, reducing losses of scale economies and thus increasing the costs of entry restrictions.

enhancing and the rent-appropriation aspects of foreign investment. This argument does raise the question of why rent appropriation cannot be prevented by ex ante auctions of equity or ex post taxation of profits.⁷ And more importantly, why restrictions on competition continue to exist. A second argument is a sort of “infant entrepreneur” argument: foreigners are induced to form equity joint ventures so that local investors can learn by collaborating. As with all such arguments it is difficult to judge whether the costs of protection are likely to be offset by the eventual benefits. The final and probably most important reason is a purely political reluctance to allow foreign control of an essential service. Again, these political concerns should be less strong if it is not one foreign monopolist but a number of competing foreign firms that provide the service. In any case, there is so far no good analytical and empirical basis to evaluate the benefits and costs of ownership restrictions and how they interact with entry restrictions.

(2) Effective regulation is needed to create and safeguard competition.

The terms of interconnection are critical determinants of whether it will be possible to make a successful transition from monopoly to more competitive market structures. This is why the existence of an independent regulator is of such profound importance. However, the role of the regulator is fraught with difficulty. There is a large literature on the problems of determining interconnection rates that adequately reward the incumbent for the creation and the maintenance of the network while ensuring that use of the network by rivals is not foreclosed. And the regulator must accomplish this with the inadequate information that is a necessary consequence of separation from the operator. It is not clear how many of the regulatory agencies in the region have the competence and the political support to carry out their complex functions.

While there is reasonable consensus about the desirability of regulatory oversight of the terms of interconnection, there is less agreement on the regulators role with regard to consumer prices and output decisions. It would seem that at least at an intermediate stage, where public ownership and control have ended but truly competitive conditions have not yet been created, the regulator may well need to defend the interests of consumers. The task of striking a balance between providing adequate incentives to telecommunications firms while preventing excessive profit-making, again in a situation of asymmetric information about variables such as costs, is far from easy. And there is a legitimate fear that the temptation of the first best outcome, could well lead to a third best.

(3) Credibility of policy is critical

Policies that are believed are most likely to succeed. The provision of telecommunications services requires highly specific sunk investments into assets that are not easily deployable for other uses. Investors’ business plans are typically stretched out over long time periods and many operators expect to incur substantial losses in the first years of services operation. Because of these characteristics, it is important that market liberalization programs are credible. Otherwise two sorts of problems can arise. If there is significant uncertainty about policy, there will be fewer investments and service providers will demand a premium to their returns on capital. If

⁷ The fear of creating a disincentive for investors might be a reason to refrain from taxation.

policy can be influenced, then service providers may behave strategically to manipulate policy choices in their favour.

From the viewpoint of governments that seek services liberalization, the importance of credibility poses a dilemma. Factors that strengthen credibility may slow pro-competitive reforms. In some cases, governments made compromises in designing first generation telecommunications reforms, most significantly in the form of exclusive licenses granted to privatized entities. These locked governments into arrangements with private monopolists that proved costly in terms of delayed network roll-out and/or high prices for consumers. But to accelerate the introduction of competition or to impose severe price controls squeezing the profitability of the monopolist could undermine the government's credibility in committing to second generation reforms. The solution may well be to follow the example of Hong Kong and Singapore. Both countries terminated exclusive rights early but compensated the incumbents on commercial terms.

However, the incentive to renege on earlier promises is not a one-way street. At the time governments award service licenses, service providers may promise more than they can deliver in the future. The reason for such over-commitments is founded in operators' expectations that governments are unlikely to terminate network operations to avoid delays or disruptions in the provision of services. The experience of Indian cellular operators pointed out above provides testimony to this problem.

What can governments do to enhance both the credibility of their reform initiatives and the credibility of enforcing obligations in services licenses? First, an independent judiciary can be important in resolving disputes between operators or between service providers and the government. A regulator that is isolated from political discretion and where office terms do not depend on political cycles can be a way to ensure regulatory independence. Competition also reduces the degree to which governments are locked into arrangements with a single operator. Finally, commitments to regional and multilateral agreement can be important means of strengthening domestic reforms. We return to this issue in Section V.

IV. ECONOMETRIC ANALYSIS

Most of the assertions in the previous section were based on evidence from case studies. Can we draw a sharper link between policy and performance through more rigorous empirical methods? This is possible thanks to data contained in the recently created World Bank/ITU database on telecommunications policy. We shall assess econometrically the impact of alternative policy and regulatory reforms in 12 developing Asian economies over the period 1985-1999. We identify for each country and for each year whether the incumbent operator has been corporatized and/or privatized, the state of competition in the various market segments (local, long distance, international, cellular), and whether a separate regulatory agency has been created. Controlling for the level of development and other economic variables, we then analyze how various measures of telecommunications performance are affected by government policy.

One limitation of the present approach is that our measures of policy do not capture the multiple dimensions of a complex reform process. For example, while the existence of a separate regulatory agency is likely to be a useful indicator of a government's overall willingness to commit to pro-competitive regulatory principles, a regulator can be ineffective if key regulatory responsibilities (e.g., interconnection) fall outside its mandate. Similarly, the mere existence of additional licenses in a particular service segment is an imperfect indicator of effective competition—let alone the contestability of markets. Moreover, the overall credibility of a government's reform agenda is not adequately captured by our policy proxies, but is likely to exert an important influence on investment decisions—particularly FDI.

These reservations notwithstanding, an econometric investigation has obvious attractions—especially in comparison to the case study evidence on the impact of policy reforms that currently exists.⁸ We are able to control for a country's level of development. For example, competition in a low income country like India may not lead to the same level of main line penetration present as in a middle income country like Malaysia. In our panel regression, country fixed-effects can capture economy-specific idiosyncrasies that typically complicate cross-country comparisons. In addition, econometric estimates allow an assessment of the relative importance of alternative policy reforms and, in some cases, their interaction with one another.

Table 1 presents the results of our first investigation on the availability of fixed-line services. The dependent variable is the number of mainlines per 100 inhabitants (in natural logs). We expect “better” policy to be associated with greater mainline penetration, especially where public monopolies are unable to meet demand for services. As control variables, we use a time trend to capture reductions in switching and network costs due to technological progress, GDP per capita and population density. To allow for a more flexible impact of these control variables, we include a quadratic term for each of these regressors.⁹

In the first model specification, our policy proxies are a dummy variable that equals one if the incumbent operator has been corporatized and zero otherwise, the private equity share in the incumbent operator, a dummy variable for the existence of a separate regulatory agency, and a dummy variable that equals 1 if there is competition for local services and zero if local services are provided by a monopoly. To capture the interdependence between policies, we also include three two-way interaction terms for the privatization, regulation and competition proxies¹⁰.

⁸ Very few econometric studies have been conducted on the effect of telecommunications reform on sector performance. Wallsten (1999) explores the effects of privatization, competition and regulation in 30 African and Latin American countries. However, his study suffers from an imperfect measure of fixed-line competition (he uses the number of mobile operators not owned by the incumbent). Boyauld and Nicoletti (2000) provide econometric evidence of the impact of telecommunications reform on productivity, prices, and quality of long distance and mobile services for the OECD countries. Their findings generally attribute a positive effect of policy reforms to sector performance. It is not clear, however, to what degree these results apply to developing countries where reforms are introduced in the context of feeble network conditions.

⁹ Mainline penetration as well as all other performance variables used in this study were taken from the ITU's World Telecommunication Indicators Database. Data for GDP per capita and population density are from the World Bank's World Development Indicators.

¹⁰ We also estimated a model where the number of years a certain variable was liberalized was used as a proxy for liberalization of that variable. For example, if privatization of the incumbent occurred in 1991, then, the proxy

The estimated coefficients for the policy variables first suggest that corporatized incumbents are associated with significantly higher mainline penetration. Aside from the direct improvements in efficiency, corporatization is likely to be a broader indicator of the public sector's determination to improve the sector's performance. Among the other policy variables, it is striking that while privatization and competition are not significant by themselves, the variable capturing their interaction yields a statistically significant and positive influence on mainline penetration. This finding may have an interesting implication. Privatization alone may not lead to great strides if the privatized monopoly is not exposed to competition. And without privatization of the incumbent, meaningful competition may be difficult to achieve since the publicly owned incumbent is likely to be shielded by the government. The insignificance of the variable capturing the effect on an independent regulatory as well as its interaction with other policies is a surprise, given our earlier discussion. However, part of the explanation may lie in the crudeness of our measure of regulation.

It would seem that the most comprehensive indicator of reform is the existence of all three, private participation, competition and an independent regulator. It was, however, not possible to include a three-way interaction term in the first model, as this would have led to perfect colinearity among the regressors. In the second model equation (column 2), we dropped the individual and two-way interactive effects of privatization, regulation and competition, but included a three-way interaction term. This latter term, as a general indicator of market liberalization, is positive and significant.

Next, we consider the impact of policy on network quality and labor productivity. In columns 3 to 6 of Table 1, our two dependent variables are the share of digital mainlines in total mainlines and the number of mainlines per telecom worker (both in natural logs). The control variables and policy proxies are the same as before. The estimation results confirm the significant positive contribution of corporatization and the interaction between privatization and competition identified for mainline penetration. Moreover, in the respective second model specifications, the three-way interaction term is positive and significant, suggesting that economies with an advanced degree of market liberalization enjoy better network quality and higher labor productivity. In the first regression on main lines per worker, the estimated coefficient on the share of private equity also shows a significantly positive sign, but the interaction of privatization and regulation a significantly negative impact. This latter counter-intuitive result is again most likely due to the imperfection of our regulation proxy.

Finally, in Table 2 we evaluate the impact of competition in mobile services on the mobile penetration rate (measured by the natural log of the number of mobile subscribers per 100 of the urban population). Our control variables are the same as above. We first proxy competition in mobile telephony by the total number of cellular operators. Column 1 shows that the estimated coefficient on this variable is statistically not significant. The second specification proxies competition by the number of digital operators only. The purpose of focusing on digital operators is the intuitive expectation that it was mainly digital technology, through better quality

would take the value 0 for all years until 1991, 1 in 1991, 2 in 1992 and so on. The results using this approach are similar to those presented in Table 2.

and lower cost services, that provided the main impetus to the growth in mobile telephony. The estimated coefficient is positive and statistically significant at the 5 percent level as seen in column 2. Adding the dummy variable for an independent regulator does not affect the result as seen in column 3. This result is also robust to using the natural log of the number of mobile subscribers per 100 of the total (instead of urban) population.

To sum up, our econometric estimates generally support the positive contribution of liberal policy to the performance of telecommunications services in Asian developing countries. Corporatization, as an indicator of the public sector's determination to improve sector performance, has a significantly positive effect on mainline availability, service quality and labor productivity. Comprehensive reform—as measured by the state of privatization, competition and regulation—is also associated with higher levels of mainline availability, service quality and labor productivity. Mobile penetration is positively affected by competition among digital service providers. Admittedly, our policy indicators are rather crude and we miss important dimensions of both policy and performance. For instance, the insignificance of the regulatory variable maybe surprising, but this may only indicate that the creation of a separate regulator is a necessary rather than sufficient condition for effective regulation. In general, our findings usefully complement the evidence from various case studies, since we are able to control for different levels of economic development and the evolution of technology over time in a way that case studies cannot.

V. DOMESTIC POLICY REFORM AND MULTILATERAL NEGOTIATIONS

We have now identified some elements of a successful reform program, even though there remain certain gray areas. In this section we address the following question: how can the GATS—in its present or improved form—become a more effective catalyst for reform? The Agreement offers:

- a forum for reciprocity based market access negotiations,
- rules that ensure choice of “good” policy,
- a mechanism for lending credibility to current and future policy, and
- the possibility of cooperation on regulation.

Let us consider the relevance of each aspect to telecommunications reform.

1. The GATS as a forum for reciprocity based market access negotiations

A notable feature of the previous negotiations in basic telecommunications is that they did not take place in the usual context of a multi-sectoral and multi-issue round of negotiations. Although this had, of course, been the original intention, failure to complete the negotiations before the end of the Uruguay Round effectively turned basic telecommunications into a single-sector negotiation. Despite the absence of any possibility for cross-sectoral trade-offs, many governments with no export interest in telecommunications chose to make commitments.

However, as is evident from Table 3, most of the Asian governments committed to the policy status quo rather than to new liberalization. Hong Kong, Malaysia, Bangladesh, Pakistan and Sri Lanka were among those whose schedules essentially represented the *status quo*. In fact, several countries bound at less than *status quo*, at least with respect to certain aspects of their regimes. India and Indonesia, for example, did so with respect to foreign equity participation. Only three Asian countries covered made significant liberalization decisions on the altar of the negotiations. Singapore brought forward its commitment to introduce competition by seven years. Japan raised foreign equity limits to 100 percent for suppliers other than NTT and KDD. Korea raised foreign equity limits and brought forward the liberalization timetable.

An important questions in the new round of negotiations is the following: how far has actual policy in different countries become more liberal than their GATS commitments? The wedge between the actual and bound indicates the scope for improving commitments without further changes in national policy. Even though we may not have the most recent data for all countries, the picture is not highly optimistic. Significant liberalization has taken place in relatively few countries. Hong Kong and Singapore have liberalized the international segment, India seems to be on the verge of liberalizing its long distance segment, and both India and Malaysia may further relax foreign ownership restrictions. In most other countries, actual policy seems to have evolved little since 1998.

The new GATS round therefore faces the challenge of actually negotiating away existing restrictions and not merely harvesting unilateral liberalization as in the past. Whether we are going to see a meaningful exchange of market access concessions may well depend on whether countries with a significant export interest in basic telecommunications (which incidentally includes countries like Malaysia and Singapore) are willing to make market opening concessions in other areas, ranging from agriculture and textiles to the movement of individual service suppliers. If this traditional WTO mechanism works, and improved market access in areas of export interest can be used successfully as ammunition against those who block liberalization of telecommunications, then the new round may deliver greater liberalization than has been accomplished unilaterally.

2. The GATS as a means to ensure choice of “good” policy

The domestic political economic forces that lead to protection may also dictate that it is obtained through inefficient instruments. Unlike the GATT, the GATS has created no hierarchy of instruments of protection—although the ranking of instruments in the case of both goods and services is similar. Hence, quantitative restrictions, which have been discredited and outlawed in the case of trade in goods, flourish in the case of trade in services—for instance, in the form of restrictions on the number of telecommunications suppliers. When the rents accrue to foreigners, these quotas resemble voluntary export restraints. For instance, in the last round of negotiations, countries sometimes conceded, and trading partners were content to receive, increased “market access” in the form of increased foreign ownership of existing domestic firms, rather than by allowing new entry.

While it may not yet be politically feasible to impose the same hierarchy of instruments as in goods, an attempt could nevertheless be made to create a legal presumption in favour of

instruments (such as fiscal measures) that provide protection more efficiently. In the case of commercial presence, a number of fiscal instruments are possible, including entry taxes (or auctions of entry licenses), output taxes and profit taxes, each of which would be preferable to an entry restriction. In fact, the auction of a quota is analogous in economic effect to the imposition of a tariff.¹¹

One central issue in the GATS, which has received surprisingly little attention, is how quotas are to be allocated in a manner consistent with the non-discrimination obligation. In the past, this was not a major issue because commitments reflected the status quo and the quotas, particularly with regard to service suppliers, were descriptions of the existing market structure.¹² But in the future, as genuine liberalizing commitments are made, the non-discriminatory allocation of quotas is bound to be an important issue. It may be worthwhile to consider a less elaborate variant of the rules in the WTO Agreement on Government Procurement, which favour competitive tendering on a non-discriminatory basis.

3. Using the GATS to lend credibility to current and future policy

Credibility has two dimensions. One is convincing agents that current reforms will not be reversed. The other is persuading them that future reforms will be carried out.

As noted above, many Asian countries have bound the status quo. In principle, a clear GATS commitment not to restrict entry could add significantly to the contestability of markets. Unfortunately, commitments even in the relatively open markets are sometimes couched in language that diminishes their value. For instance, Korea's schedule says that "a license may be granted" and the Philippines' schedule states that entry is subject to a "Franchise from the Congress of the Philippines" and a "Certificate of Public Convenience". It is far from clear whether such approval is only contingent on transparent and non-discriminatory criteria such as technical or financial soundness, or whether approval is a euphemism either for a restriction on the number of firms or discrimination against foreign entrants. A priority in the next round would be to purge the schedules of such language.

One reason governments may be reluctant to liberalize immediately is a perceived need to protect the incumbent suppliers from competition—either because of infant industry type arguments or to facilitate "orderly exit". One reason for the failure of infant industry policies in the past, and the innumerable examples of perpetual infancy, was the inability of a government to commit itself credibly to liberalize at some future date. The GATS offers a valuable mechanism to overcome the credibility difficulty. Several Asian governments have taken advantage of this mechanism to strike a balance between, on the one hand, their reluctance immediately to unleash competition on protected national suppliers, and, on the other hand, their desire not to be held hostage to these suppliers in perpetuity. However, these precommitments are in most cases (e.g. for

¹¹ Ironically, the legal systems of many countries allow discrimination against foreigners through outright bans and entry quotas but make it difficult to impose discriminatory taxes.

¹² Thus when Bangladesh committed to "four licenses issued" in cellular telephony, the ambiguity in the choice of tense was not an accident: the licenses in question had already been issued.

India, Indonesia, Hong Kong, Singapore, Sri Lanka and Thailand) weak promises to review policy. Clearer commitments were made by Korea to relax ownership restrictions and Singapore to allow new entry. On the whole, the commitments of the Asian countries have made much less use of the precommitment mechanism than countries in Africa, Latin America and the Caribbean.

4. The GATS as a forum for regulatory cooperation

The agreement between a large number of WTO Members to make additional commitments to apply certain regulatory principles contained in a Reference Paper is widely regarded as one of the most significant developments in the telecommunications negotiations.¹³ These principles require that a regulator of the sector will be separate from, and not accountable to, any supplier of basic telecommunications services. Perhaps the most important disciplines of the Reference Paper relate to *interconnection*.¹⁴ It is required that interconnection must be *inter alia* on non-discriminatory, transparent and reasonable terms, conditions (including technical standards and specifications) and rates; of a quality no less favourable than that provided for its own like services or for like services of non-affiliated service suppliers or for its subsidiaries or other affiliates; at cost-oriented rates; and in a timely fashion.

The adoption of the Reference Paper by the Asian participants reveals both the strengths and the limitations of the multilateral route to domestic reform. In some cases, the Reference Paper has undoubtedly provided an impetus to domestic regulatory reform. The issue of interconnection, for instance, has been at the center of a dispute between the Japan and the United States—with the latter claiming that the interconnection rates charged by the dominant incumbent in Japan are excessive. The question does arise whether the regulatory principles are sufficiently precise. For instance, what would a dispute settlement or arbitration panel make of “cost-oriented rates”? But at least the most egregious departures would be prevented.

The manner in which several other Asian countries have adopted the principles in the Reference Paper reveals an interesting pattern of reluctance to assume key multilateral disciplines (Table 4). That independent regulators are not yet securely established in many countries reflects an unwillingness to guarantee the independent action by regulators in countries such as India and Indonesia. Furthermore, a number of countries (India, Pakistan, Malaysia, and the Philippines) have excluded the central commitment to guarantee interconnection at cost-based rates. India, Malaysia and Pakistan have also omitted the Reference Paper requirement to justify the denial of a license. These departures demonstrate that where there is domestic resistance, the wave of a multilateral wand sometimes creates only an illusion of reform.

¹³ Governments had the flexibility to draw selectively from a common text.

¹⁴ Other Reference Paper provisions provide for competition safeguards, greater transparency and require the creation of dispute resolution mechanisms. Competition safeguards oblige Members to prevent a major supplier from abusing control over information, or engaging in anti-competitive cross-subsidization - i.e. to prevent a major supplier from using profits made in one segment of the market to subsidize its *output* sales in another segment and thus drive out rival suppliers.

There is another important respect in which the Reference Paper illustrates reflects the limitations of the multilateral approach. The primary concern of the Reference Paper, as of WTO rules in general, is to ensure effective market access, and hence the focus on the terms of interconnection. Wider concerns about consumer interests and how they may be affected by monopolistic behaviour are not addressed by the Paper. Even though there can be little doubt that price determination is ideally left to competitive markets, and regulatory price setting is fraught with difficulties, regulatory authorities in developing countries where competition is slow to develop need to equip themselves, legally and technically, with the ability to regulate prices.¹⁵ While nothing in the GATS prevents a country from any form of pro-competitive regulation provided it is not discriminatory, the capacity of most developing countries to exercise such regulation is limited. Furthermore, small countries that are supplied entirely by foreign firms may find it difficult to enforce competition policy. How can they be reassured that the gains from liberalization will not be eroded by foreign oligopolies—which may well emerge through the global alliances that are being formed?

The current round of WTO negotiations offers an opportunity not only to negotiate away trade restrictions, but also to develop additional pro-competitive rules. We propose that the weak GATS provision dealing with business practices be strengthened through the creation of two obligations.¹⁶ The first would require an end to the exemption from national competition law of collusive agreements that impact only on foreign markets. The second would create a right for foreign consumers to challenge anti-competitive practices in the national courts of countries whose citizens own or control the offending firms. The second obligation is necessary to deal with the possibility of inadequate enforcement by public agencies, and already has a precedent in the WTO rules on intellectual property and government procurement.

VI. CONCLUSION

Our review of Asian telecommunications reform has revealed a picture of “managed competition”. Traditional public monopolies are now virtually extinct, and governments have introduced both competition and scope for private and foreign ownership. But they are still unwilling to eliminate certain restrictions, particularly on the number of firms and the extent of foreign ownership. The attitude to regulation also remains ambiguous both in terms of the degree of autonomy and the domain of the regulator.

This paper is best seen as a snapshot of a dynamic research program on the implications of these policies. Even though a number of the most interesting questions remain unanswered, some useful results emerged. Corporatization, as an indicator of the public sector’s determination to improve sector performance, was found to have a significantly positive effect on mainline availability, service quality and labor productivity. The implementation of comprehensive reform—measured by the state of privatization, competition and regulation—also led to higher

¹⁵ In many developed country markets where fully competitive conditions have not been established, such as the telecommunications sector in the United Kingdom, the final price itself has been regulated.

¹⁶ Fink et al. (2000) make a similar proposal to deal with the problem of cartels in maritime transport.

levels of main line availability, service quality and labor productivity. Mobile penetration was positively affected by competition, although the effect was only significant when competition was proxied by the number of digital operators.

While these are useful results, some of the more subtle policy questions must remain subjects for future research. Four questions in particular seem important. How much is to be gained from eliminating all barriers to entry when some competition has already been allowed? How great are the gains from eliminating all barriers to foreign investment when some is already permitted? How large are the benefits of strengthening the independence of a regulator? How significant are the benefits of making multilateral commitments with regard to present and future policy? It will become possible to respond to these questions when more detailed data becomes available and more observations are available after the point in time when policy changes were implemented and multilateral commitments took effect.

Somewhat surprisingly, there does not seem to have been a significant amount of unilateral liberalization since the last round of telecommunications negotiations. This might well be because governments feel that most of the gains have been realized already through their limited reforms (hence the importance of finding convincing responses to the questions raised above). The new GATS round therefore faces the challenge of actually negotiating away existing restrictions and not merely harvesting unilateral liberalization as in the past. Much will depend on whether countries with a significant export interest in basic telecommunications are willing to make market opening concessions in areas of interest to developing countries, ranging from agriculture and textiles to the movement of individual service suppliers.

If a constructive negotiating climate is established, then there are three other ways in which the GATS can be used to further domestic telecommunications reform. First, Asian countries could lend greater credibility to their reform programmes by making current and future liberalization commitments, and more fully adopting the principles in the Reference Paper. Secondly, GATS rules could be deepened to encourage the transparent and non-discriminatory allocation of licenses – which is often prevented by domestic political economy constraints. Finally, two improvements in regulatory principles may be worth considering. First, whether the principles in areas such as interconnection can be made more precise so as to increase the predictability of the policy environment, and reduce the difficulty of dispute settlement or arbitration. Secondly, whether there is a need to create rules that safeguard not only the rights of foreign suppliers, but also those of consumers—which would reassure small countries that the gains from liberalization will not be appropriated by foreign oligopolies.

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Figure 1: Sequence of telecommunications reform in 13 Asian countries, 1989-1999

	1989	1990	1991	1992	1993	1994	1995	1996	1997	1998	1999
China											
Privatization											
Fixed competition									LD		
Mobile	1							2			
Regulation											
India											
Privatization											
Fixed competition										Local	
Mobile							8	14	19	19	20
Regulation											
Indonesia											
Privatization							19%		23%		
Fixed competition											
Mobile	1		3		4	6		7			
Regulation											
Korea											
Privatization					10%	20%		29%			
Fixed competition			ILD					LD			Local
Mobile	1							2	5		
Regulation											
Malaysia											
Privatization		25%									
Fixed competition						ILD		Local, LD			
Mobile	2					4	7		8		
Regulation											
Pakistan											
Privatization						12%					
Fixed competition											
Mobile		2					3				
Regulation											
Philippines											
Privatization	100%										
Fixed competition				ILD				Local, LD			
Mobile			2			5					
Regulation											
Singapore											
Privatization					11%			17%			
Fixed competition											Local
Mobile	1								2		
Regulation											
Sri Lanka											
Privatization									34%		
Fixed competition								Local, LD			
Mobile	1		2		3		4				
Regulation											
	1989	1990	1991	1992	1993	1994	1995	1996	1997	1998	1999

Source: World Bank/ITU Telecommunications Policy Database

Notes: The percentage figures indicate the share of private equity ownership in the incumbent operator. Local, LD and ILD refer to the local, long distance and international fixed-line service segments, respectively. The number in the mobile row corresponds to the number of cellular operators in the country. "Regulation" only captures the existence of a separate regulatory agency.

Table 1: Country fixed effects model—Fixed-line availability, Quality, and Productivity

Dependent variable:	Main line penetration		Network digitalization		Mainlines per worker	
	(1)	(2)	(3)	(4)	(5)	(6)
Time	-0.014 (-0.29)	-0.017 (-0.35)	0.446** (2.27)	0.515** (3.27)	0.047 (1.03)	0.042 (0.92)
Time^2	0.011** (7.64)	0.010** (7.43)	-0.016** (-2.89)	-0.018** (-3.92)	0.008** (5.82)	0.008** (6.11)
ln(GDP per capita)	5.582** (5.09)	6.681** (7.43)	5.461* (1.79)	6.486** (2.34)	7.011** (6.71)	7.721** (7.57)
ln(GDP per capita)^2	-0.303** (-4.37)	-0.372** (-5.57)	-0.405* (-1.96)	-0.483** (-2.65)	-0.411** (-6.11)	-0.455** (-6.90)
ln(Population density)	21.348** (6.16)	21.489** (6.22)	1.088 (0.08)	3.123 (0.25)	27.698** (7.40)	29.055** (7.76)
ln(Population density)^2	-1.338** (-6.35)	-1.343** (-6.43)	-0.033 (-0.04)	-0.185 (-0.26)	-1.692** (-7.76)	-1.762** (-8.07)
Corporatization	0.275** (3.92)	0.248** (3.67)	0.412* (2.31)	0.445** (2.66)	0.192** (2.99)	0.168** (2.70)
Privatization	0.064 (0.11)		0.225 (0.26)		1.336* (2.28)	
Regulation	0.027 (0.27)		-0.054 (-0.28)		0.090 (0.99)	
(Local) competition	-0.361 (-1.62)		-0.122 (-0.41)		-0.326 (-1.66)	
Privatization*Regulation	-0.723 (-0.97)		-0.134 (-0.10)		-1.803* (-2.58)	
Privatization*Competition	0.735** (3.34)		0.991* (2.20)		0.671** (3.32)	
Competition*Regulation	0.080 (0.31)		-0.181 (-0.39)		0.241 (1.03)	
Privatization*Regulation*Competition		0.435** (3.05)		0.658** (3.14)		0.558** (4.18)
Number of observations	161	161	100	100	150	150
Number of countries	12	12	12	12	12	12
F-statistic	104.17**	161.45**	14.04**	23.56**	106.02**	163.96**

Notes: Intercept and fixed effects not shown. t-statistics in parentheses. The F-statistic tests the joint significance of all independent variables (except the fixed effects). ** and * indicate statistical significance at the 1 and 5 percent level, respectively.

Table 2: Country fixed effects model—Mobile availability

Dependent variable:	Mobile penetration		
	(1)	(2)	(3)
Time	-.18 (-1.07)	1.018* (2.10)	1.012* (2.10)
Time^2	.019** (3.60)	-.031 (-1.65)	-.031 (-1.68)
ln(GDP per capita)	11.26** (2.91)	5.371 (.40)	5.278 (.40)
ln(GDP per capita)^2	-.359 (-1.50)	-.167 (-.20)	-.162 (-.20)
ln(Population density)	-66.882** (-4.15)	-32.665 (-1.20)	-21.604 (-.76)
ln(Population density)^2	3.765** (4.16)	2.052 (1.50)	1.491 (1.03)
ln(total number of cellular operators)	-.205 (-1.14)		
ln(number of digital cellular operators)		.452* (2.14)	.459* (2.18)
Regulation			.230 (1.172)
Number of observations	113	54	54
Number of countries	12	12	12
F-statistic	246.47**	59.04**	52.38**

Notes: Intercept and fixed effects not shown. t-statistics in parentheses. The F-statistic tests the joint significance of all independent variables (except the fixed effects). ** and * indicate statistical significance at the 1 and 5 percent level, respectively.

Table 3: Actual policies and WTO commitments of 17 Asian economies

“Actual policy” refers to the state of policy in 1999/2000. Changes in policy since 1998 are indicated in bolded letters. “GATS” describes a country’s commitment to the WTO Basic Telecom Agreement.

Country	Local Services	Long Distance	International	Mobile	Maximum FDI	Regulation	Pre-commitment
Bangladesh <i>Actual policy (mid-2000)</i> <i>GATS</i>	Monopoly, Competition in selected rural areas	Monopoly	Monopoly, callback not permitted	Competition (4 licenses)	100%	No separate regulator	
	Monopoly, Competition in selected rural areas	Monopoly	Monopoly, callback not permitted	Competition limited to 4 licenses for private operators	100%		Prospective adoption of regulatory principles
Cambodia /1 <i>Actual policy (mid-2000)</i> <i>GATS</i>	Monopoly	Monopoly	Monopoly	Competition (4 licenses)	100%	No separate regulator	
	N/A	N/A	N/A	N/A	N/A	N/A	N/A
China /2 <i>Actual policy (1999)</i> <i>GATS Accession</i>	Monopoly	Duopoly	Monopoly, resale and callback not permitted	Duopoly	0%	No separate regulator	
	Geographically phased in competition, 2001-2006	Geographically phased in competition, 2001-2006	Geographically phased in competition, 2001-2006	Geographically phased in competition, 2001-2005	25% upon accession, 49% after 5-6 years	Future implementation of regulatory reference paper	Phased in liberalization of FDI, adoption of regulatory principles
Hong Kong <i>Actual policy (mid-2000)</i> <i>GATS</i>	Competition (4 licenses)	N/A	Competition , resale and callback permitted/	Competition (6 licenses)	100%	Separate regulator established in 1993	End of moratorium on new licenses for local services in 2003
	Competition (4 licenses)	N/A	Unbound, but resale and call-back permitted	Competition	100%	Adoption of regulatory reference paper	Future licenses for local services subject to regulatory review
India <i>Actual policy (mid-2000)</i>	Regional duopolies	Competition (between circles)	Monopoly, resale and callback not permitted	Regional duopolies	49%	Separate regulator established in 1997	Government considers opening of international services by 2002

Country	Local Services Regional duopolies	Long Distance Monopoly (between circles)	International Monopoly, resale not permitted	Mobile Regional duopolies	Maximum FDI 25%	Regulation Adoption of regulatory reference paper	Pre-commitment "Review" opening of long distance (1999), international (2004)
Indonesia	Monopoly, joint ventures in selected areas	Monopoly	Duopoly, resale and callback not permitted	Competition (7 licenses)	35%	No separate regulator	Under new legislation, exclusivity for expires in 2003 for international and local services, and 2004 for long distance
<i>Actual policy (mid-2000)</i>	Monopoly, joint ventures in selected areas	Monopoly	Duopoly, resale and callback not permitted	Competition (7 licenses), entry only through joint ventures	35%	Partial adoption of regulatory reference paper	Expiry of exclusivity for local services (2011), long distance (2006), international (2005). "Review" admission of new entrants upon expiry.
<i>GATS</i>							
Japan	Competition	Competition	Competition	Competition	100% (except NTT and KDD)	No separate regulator	
<i>Actual policy (2000)</i>	Competition	Competition	Competition	Competition	100% (except NTT and KDD)	Adoption of regulatory reference paper	
<i>GATS</i>							
Korea	Monopoly	Duopoly	Competition (3 licenses), resale and callback permitted	Competition (5 licenses)	49% for facilities-based operators, 20% for KT	No separate regulator	
<i>Actual policy (early 2000)</i>	Competition	Competition	Competition, resale and callback permitted	Competition	33% for facilities-based operators, 49% for resellers, 20% for KT	Adoption of regulatory reference paper	In 2001, foreign equity limit will rise to 49% for facilities-based operators, 100% for resellers and 33% for KT
<i>GATS</i>							
Malaysia	Competition	Competition	Competition, resale and callback not permitted	Competition (8 licenses)	49%	Separate regulator established in 1987, Com- munications and Multimedia Commission formed in 1999	
<i>Actual policy (early 2000)</i>							

Country	Local Services Competition, but entry only through acquisition	Long Distance Competition, but entry only through acquisition	International Competition, but entry only through acquisition	Mobile Competition, but entry only through acquisition	Maximum FDI 30%	Regulation Partial adoption of regulatory principles	Pre-commitment
Nepal /2 <i>Actual policy (1999)</i> GATS	Monopoly	Monopoly	Monopoly	Not available	50%	Separate regulator established in 1998	
	N/A	N/A	N/A	N/A	N/A	N/A	N/A
Pakistan <i>Actual policy (early 2000)</i> GATS	Monopoly Unbound (for commercial presence)	Monopoly Unbound (for commercial presence)	Monopoly, resale and callback not permitted Unbound (for commercial presence), callback not permitted	Competition (3 licenses) Unbound (for commercial presence)	100% 100%	Separate regulator established in 1995 Partial adoption of regulatory principles	Privatization of PTCL still planned Proposal to sell 26% of PTCL to strategic investor, with 7 year exclusivity for basic services
Philippines <i>Actual policy (early 2000)</i> GATS	Competition (3 local licenses) Competition	Competition Competition	Competition, resale and callback not permitted Competition, resale and callback not permitted	Competition (5 operators) Competition	40% 40%	Separate regulator established Partial adoption of regulatory principles	 No pre-commitment
Singapore <i>Actual policy (mid-2000)</i> GATS	Duopoly Monopoly	N/A N/A	Duopoly , resale and callback permitted Monopoly, resale and callback permitted	Competition (3 licenses) Duopoly	49% direct, 73.9% indirect, 40% for ST 49% direct, 73.9% indirect	Separate regulator established in 1992, Infocom Development Authority formed in 1999 Adoption of regulatory reference paper	Government has announced that foreign equity ceiling will be lifted, further entry of fixed-line operators Two additional fixed-line licenses and "more" mobile licenses in 2000.
Sri Lanka <i>Actual policy (early 2000)</i>	Competition (SLT + 2 WLL licenses)	Competition (SLT + 2 WLL licenses)	Monopoly, resale and callback not permitted	Competition (4 licenses)	100%	Separate regulator established in 1997	

Country	Local Services Competition (SLT + 2 WLL licenses)	Long Distance Competition (SLT + 2 WLL licenses)	International Monopoly, resale and callback not permitted	Mobile Competition (4 licenses)	Maximum FDI 100%, 35% for SLT	Regulation Adoption of regulatory reference paper	Pre-commitment Expiry of exclusivity for international (2000), “review” additional mobile licenses (2000)
<i>GATS</i>							
Thailand	Monopoly	Monopoly	Monopoly, resale and callback not permitted	Competition (5 licenses)	20%	No separate regulator	Creation of new regulatory agency awaits senate approval
<i>Actual policy (1999)</i>							
	Unbound	Unbound	Unbound	Unbound	20%	Unbound	Bind revised policy and regulatory principles in WTO commitment by 2006, conditional upon legislative approval
<i>GATS</i>							
Taiwan-China /2	Competition (3 licenses)	Competition (3 licenses)	Competition (3 licenses)	Competition (6 licenses)	60% (no more than 20% direct)	No separate regulator	
<i>Actual policy (mid-2000)</i>							
<i>GATS</i>	N/A	N/A	N/A	N/A	N/A	N/A	N/A
Vietnam /2	Monopoly	Monopoly	Monopoly, callback not permitted, resale permitted	Competition (3 licenses)	Not available	No separate regulator	
<i>Actual policy (early 2000)</i>							
<i>GATS</i>	N/A	N/A	N/A	N/A	N/A	N/A	N/A

Sources: World Bank/ITU Database, GATS Info-Point, bilateral accession agreement between the U.S. and China, and ITU (2000).

Notes:

The WTO commitments refer to market access and additional commitments for the respective market segments. Only few countries imposed restrictions on national treatment. Bangladesh reserved the right that certain subsidies and tax benefits may only be extended to national operators; Japan and the Philippines imposed restrictions on the nationality of board members of certain telecommunications entities. India and Pakistan left national treatment “unbound”.

/1 Not a WTO member

/2 WTO commitment refers to China’s bilateral accession agreement with the United States.

Table 4: Departures from GATS Telecom Reference Paper in selected Asian countries

Country	Deviation from GATS Reference Paper
India	<p>1. Competitive safeguards: No commitment against cross subsidy.</p> <p>2. Interconnection: No commitment to ensure provision of interconnection under non-discriminatory terms and conditions (including technical standards and specifications). No commitment to ensure cost based setting of rates.</p> <p>3. Licensing criteria: No commitment on time normally required to approve application for license. No justification provided for decision to deny license.</p> <p>4. Independent regulator: No commitment on independence of regulatory authority.</p> <p>5. Spectrum allocation: No transparency and non-discrimination in spectrum allocation.</p>
Indonesia	<p>1. Independent regulator: No commitment on separation of regulatory authority from suppliers of services.</p> <p>2. Spectrum allocation: No commitment to ensure non-discrimination in spectrum allocation.</p>
Malaysia	<p>1. Competitive safeguards: No commitment against cross-subsidy. No commitment on timely provision of technical information about essential facilities and commercially relevant information.</p> <p>2. Interconnection: No commitment to ensure cost based setting of interconnection rates.</p> <p>3. Licensing criteria: No commitment on time normally required to approve license application. No justification provided for decision to deny license.</p> <p>4. Spectrum allocation: No commitment on timeliness, transparency and non-discrimination in spectrum allocation.</p>
Pakistan	<p>1. Competitive safeguards: No commitment on use of information obtained from competitors with anti competitive results.</p> <p>2. Interconnection: No commitment to ensure cost-based setting of interconnection rates.</p> <p>3. Licensing criteria: No commitment on time normally required to approve license application. No justification provided for decision to deny license.</p> <p>4. Spectrum allocation: No commitment on timeliness, transparency and non-discrimination in spectrum allocation.</p>
The Philippines	<p>1. Competitive safeguards: No commitment against cross-subsidy. No commitment on timely provision of technical information about essential facilities and commercially relevant information.</p> <p>2. Interconnection: No commitment to ensure cost-based setting of interconnection rates. No commitment to ensure transparency of interconnection agreements. No commitment to ensure public availability of procedures for interconnection negotiations.</p>

Source: Based on a comparison of the GATS Reference paper with individual country schedules of commitments in telecommunications obtained from the WTO. (http://www.wto.org/english/tratop_e/servte_e/tel23_e.htm)

Note

Bangladesh, China, Cambodia, Nepal, Thailand and Vietnam have not adopted the GATS Reference paper at all, whereas Korea and Sri Lanka have adopted the paper in its entirety.

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