

Telecommunications Privatization: evidence and some lessons

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Abstract

The privatization of state-owned telecommunication companies began in Asia in Japan in the 1980s and gathered pace during the 1990s. To judge the results requires a prior understanding of the aims and objectives of privatization and even an agreed definition of privatization. In its widest context, privatization can refer to a range of policies to embrace private sector capital in the development of the industry, everything from outsourcing to full-blown market liberalization. This paper looks at research results of studies of privatization in its narrow sense of full or partial transfer of ownership of a SOE to the private sector, usually by share issue privatization (SIP). Econometric research examines the results of privatization, while non-econometric research tends to study the process and context of privatization. Overall the evidence suggests that while privatization is usually associated with faster fixed line growth, greater profitability and higher productivity, evidence on prices, net employment effects and capital investment is less clear-cut. One thing most studies agree upon is that the effects of privatization cannot be easily isolated from the effects of competitive reforms, changes in market structure and the nature and role of the post-privatization regulatory regime. Taken together these effects almost certainly outweigh the effects of privatization taken on its own.

1. Privatization

The term 'privatization' can have several different meanings.¹ At its most decisive it refers to the 100 per cent transfer of ownership through the sale of a state-owned enterprise (SOE) to private sector equity holders as a publicly listed company by means of a share issue privatization (SIP). But, as cases in post-communist Russia illustrate, sometimes the transfer of ownership can be done as a private transaction and the issue of transparency then becomes especially important. Because telecommunications is usually regarded as being of strategic importance to national economic development and requiring experienced management, or because of limitations in local capital markets, the majority shares may be sold to an overseas company with telecommunications experience. For example, in 1990 New Zealand Telecom was auctioned to Bell Atlantic (USA) and Ameritech (USA) for NZ\$4.25 billion. On the other hand local politics may

¹ The International Finance Corporation (IFC, 1995) states 'A generous stance would admit any transfer of ownership or control from public to private sector. A more exacting definition would require that the transfer be enough to give the private operators substantive independent power.' The IFC lists numerous techniques of ownership transfer including public offer, closed subscription, joint venture, liquidation, concessions, auctions, voucher or certificate based transfers, employee or management buyouts, and combinations of these. Megginson and Netter (2001) provide a similar review, adding that in the USA state outsourcing is also sometimes termed 'privatization'.

rule out such an acquisition, especially in countries where there is nationalist sentiment or a strong sense of nation-state building. The Constitution of the country may actually forbid the foreign ownership of national assets, as was the case in Indonesia, the Philippines and Thailand.

Another consideration is national security as telecommunication networks may carry highly sensitive Government or industrial traffic.² The perception or suspicion that foreign SOEs or private companies closely identified with particular states are security risks may be genuine, or may be politically convenient way to object to the transfer of ownership.³ A heavy SOE debt-burden is a further consideration that may hinder outright privatization. Buyers will be reluctant to take it on, and either the debt has to be rescheduled over a sufficiently long period at low interest rates, or assumed by Government. For example, in the case of telecommunications privatizations, Governments in Argentina, Venezuela and Ghana assumed responsibility for debts of US\$930 million, US\$471 million and US\$6.3 million respectively.

1.1 Stages of Privatization

Privatization can mean much less than the complete transfer of ownership from the state. In the case of very large state monopoly national carriers privatization often proceeds in stages. One reason may be the desire of the Government to retain ultimate control, either because telecommunications is regarded as too important a national asset or as is frequently the case it is regarded as an important contributor to the national budget.⁴ The latter has been especially significant for foreign exchange earnings on international traffic during the era when the international accounting and settlement rates regime was dominant. Today, with various mechanisms for by-pass of these arrangements⁵ the revenue from international call services has fallen dramatically, a fact compounded by

² Privately-owned Hutchison, the Hong Kong telecommunications company, was denied permission to buy a stake in Global Crossing because of concerns in the USA of its close links with China, but partially State-owned Singapore Telecom was given the go-ahead. On the other hand SingTel was rebuffed in its efforts to buy Hongkong Telecom and buy into Time Telekom in Malaysia, while its efforts to purchase Optus from Cable & Wireless in Australia faced a similar uphill battle before clearance was finally given.

³ Problems do not end even when formal privatization has been completed as the cases of Korea Telecom and NTT in Japan illustrate. In 2002 the USA, EU and Canada objected within the WTO to the exemption of KT and NTT from their respective Government Procurement Agreements (GPAs) on suspicion of continuing Government influence over their decision-making. (*The Korea Herald*, 11 October 2002)

⁴ For example, in the 1990s in Indonesia and Taiwan, as much as 60 per cent of annual telecoms revenue went to the treasury during periods of fiscal tightening. See Ure and Vivorakij (1997).

⁵ By-pass can be achieved in various ways. Where it is policy, as in the USA, the UK, Hong Kong and Australia, international simple resale (ISR) is the most effective means. This allows new entrants to lease international circuits from the incumbent and resell at competitive prices. Other forms of by-pass may not all be legal but are very difficult to police, such as callback services, voice-over-Internet Protocol (VoIP) and refile which involves calls being least-cost routed to arbitrage different settlement rate arrangements between countries but without informing the terminating network of what is going on. Arguments rage between incumbents who see this as outright deception and new entrants who see it as a market mechanism, but today it has become standard practice world wide.

the huge overhang of excessive international submarine cable capacity that was built in anticipation of Internet traffic from the dot.com boom. This makes the foreign exchange argument less compelling than in the past.⁶

Even where the State is reduced to a minority stakeholder, it can retain a 'golden share' that gives it a veto on the board of directors, as happened in the early days of British Telecom (BT) and Telecom New Zealand. These safeguards were eventually replaced by rights of veto by the Government over the sale of assets, and as the markets liberalized and opened to competitive new entry so the need for safeguards diminished.⁷ The usual transitional step towards privatization and market opening of the core basic fixed voice services sector is corporatization. It takes the finances of the SOE off the books of the national treasury, and allows the new corporate entity to raise its own capital in the debt market which can have the added advantage of imposing some degree of financial discipline on the SOE, a stepping stone towards the separate identification of costs and services, for the planning of an efficient internal allocation of resources, and for a rational approach to funding uneconomic lines of business where these are seen to be socially desirable.

A further reason for a 'stages' approach to privatization is that the SOE may simply be too large for the local capital market to absorb, and if the Government wishes equity to be owned locally, or wishes to use the public listing as a means to build up the capacity of the local financial market, a staged approach is required. The partial privatization of SingTel is a good example, where local financial market capacity-building was a stated objective of Government.⁸ Another complicating factor is employment. Traditionally telecommunication companies have employed large workforces, from the highly skilled whose skills were tied closely to old analogue technologies to semi-skilled installation, repair and maintenance workers to an army of construction workers employed to dig trenches and lay wires and cables, especially in the customer access network or local loop. This was essentially an engineering utility business. Changes in technologies, in modes of access, for example wireless and cable TV, and in market structure have transformed the operating environment.

Under these circumstances labour union resistance to corporatization and privatization is to be expected unless transitional measures are put in place to compensate the losers out of the gains to be achieved.⁹ Often these are the most difficult issues of all to handle, and in all major privatizations delays are due to the tough negotiations involved. Issues to be considered include the status of employees after a transfer of ownership, who is

⁶ Just opening the international market to competition is sufficient to see prices fall dramatically. Following the privatization of India's international monopolist Videsh Sanchar Nigam Ltd (VSNL) in February 2003, and the opening of the market to competition in April, VSNL's overseas call charges have fallen in the region of 50 per cent.

⁷ Until the end of Hong Kong Telecom International's private monopoly the Hong Kong Government reserved a right of veto over the transfer of ownership.

⁸ Hukill (1994) discusses this.

⁹ Labour union opposition to privatization is almost universal, but the clear distinction needs to be drawn between ideological, that is political, opposition and industrial, that is economic, opposition. The former can only be resolved through elections, the latter by negotiation.

responsible for legacy commitments, including pension rights, pay scales, promotion and seniority, allowances covering health insurance and housing benefits, early retirement schemes, retraining schemes, and so forth. One way in which these issues are finessed is through the setting up of related companies that employ the surplus workers and who contract outsourcing from the main company.¹⁰ This removes some of the financial liabilities from the privatized company, but really only shifts them to other items on the balance sheet. Nevertheless, if the market as a whole grows in consequence of liberalization, and if these related companies can operate flexibly they can end up outsourcing for new entrants as well, for example trenching work or repair and maintenance work. Keeping these overheads off-the-books can work for new entrants as well as for incumbents.

Because of these wider issues, the role of policy and regulation surrounding the privatization process is of crucial importance, especially if the process is not to be endlessly delayed pending the resolution of interminable disputes.¹¹ For example, at one end of the spectrum of possible solutions Government could decide to take back into public ownership the companies spun-off from the incumbent to protect the rights of the otherwise redundant workers, on the grounds that such a step removes an immediate hurdle to privatization and the costs to the national budget are far less than the gains from the privatization sale and the subsequent flow of profits tax revenues from the newly-privatized enterprise. Such a move could have a 'sunset' provision to limit the budgetary liability to workers over a certain age. Alternatively, the Government could agree a subsidy to these spin-offs, again with a 'sunset' provision, or could encourage new entrants to outsource to them, but any such arrangement would have to be seen to be market neutral so as not to advantage the new entrants over the incumbent or vice-versa.

1.2 Private Capital

The loosest meaning of privatization is a reference to the increasing penetration of telecommunication service markets by private capital, the effect of market liberalization.¹² (See Appendix for a review of current levels of capitalization of the major telecom companies in Asia.) This can come about in numerous ways. The most obvious is by issuing operator licences to private sector new entrants. A more restricted way is to permit joint ventures with the incumbent, for example from 1994 Indonesia opened the door to foreign direct investment in the telecommunications sector and did so by using a joint operating scheme or KOS whereby the foreign equity holder was required to partner with PT.Telekom in the province covered by the franchise, as well as employ PT.Telekom staff. Earlier, from 1989 Indonesia had experimented with the more restrictive Pola Bagi Hasil (PBH) model that allowed domestic private capital to revenue

¹⁰ In Asia this approach was first adopted by NTT in Japan following corporatization in 1985 and the beginnings of privatization in 1986. Even so, by 1990 NTT had cut back its 1984 workforce of 310,000 by 50,000. See Takano (1992) for an excellent detailed analysis of a privatization in practice.

¹¹ The timing of an initial public offering (IPO) can be critical. Following the dot.com market crash many IPOs were either put on hold or the price offers substantially lowered. For example, in late 2002 China Telecom was forced to reduce its average offer price by nearly 10 per cent, while in Taiwan the Government's attempts at further divestment in Chunghwa Telecom were again postponed.

¹² Ure J and A.Vivorakij (1997) discuss privatization in Asia from this wider perspective.

share as building contractors and consultants to PT Telekom, an arrangement known as the Build-Transfer (BT) model, an early form of outsourcing.

A Build-Transfer-Operate (BTO) arrangement was adopted in Thailand, whereby the ownership of assets remained with the Thai partner.¹³ A Build-Operate-Transfer (BOT) model was adopted in Macau in 1981 when a twenty year exclusive franchise was awarded to Companhia de Telecomunications (CTM), a joint venture involving CPRM of Portugal and led by the Cable & Wireless company. Under this arrangement remaining asset values are transferred to the Macau Government only at the end of the franchise period. After negotiations in the mid-1990s the franchise was extended for a further ten years but the cellular and Internet markets were opened to competition. Vietnam pioneered the introduction of outside capital from 1988 when a Business Cooperation Contract (BCC) arrangement was started with Telstra, based upon payments from revenues. Mobile operator China Unicom experimented with China-China-Foreign (Zhong-Zhong-Wai) partnerships in the 1990s whereby operating revenues were shared with the local China partner who in turn shared revenues with their foreign partner for management, technology and network consultancy services. The State Council closed down these CCFs when the Ministry of Posts & Telecommunications insisted that revenue-sharing must not involve the sharing of installation fees which ought to be ploughed back into the business to finance growth. The dispute illustrates a wider issue, that various forms and degrees of involvement of 'outside capital', which could be domestic or foreign investment, run up against objections from different interest groups and stake holders within the telecommunications establishment, sometimes from the incumbent operator, sometimes from the regulator, sometimes from policy makers and politicians.¹⁴

2. The Evidence

Studies of privatization abound in the literature. For the purposes of this paper they can be classified into two broad categories. First, econometric studies that attempt to identify the *outcomes of privatization*, successes and failures, and the factors that influence these outcomes. Some studies use firm-level data and measure individual regulatory factors, others aggregate and compare cross-country outcomes.¹⁵ Second, research papers that identify the *process of privatization* in each country, the events leading up to it, the conditions surrounding it, the important environmental factors such as regulation, the state of supply and demand, the status of property rights and their enforcement, and so forth.

¹³ The BTO model was a way around the Constitutional requirement that the assets must be State-owned. The pending privatization of the Communications Authority of Thailand (CAT) and the Telephone Organization of Thailand (TOT) has raised questions about the revenue-sharing arrangements of these schemes as their BTO partners fear they will end up both paying and competing with their newly privatized partners.

¹⁴ For a background account of these early experiments with private capital, see Ure (1995; 1997)

¹⁵ 'Ideally the study of the effects of privatization and competition should be based on firm-level data. But such data are hard to come by . . . The telecommunications sector offers a convenient setting since the industry tends to be dominated by a very small number of players in any given country. As a result, the distinction between country-level and firm-level data in telecommunications industry is not as significant as in many other industries.' Xu (2002) p. 5

2.1 Econometric Studies: outcomes of divestment

Some econometric studies approach the subject of privatization in generic terms applicable to any sector of the economy. One example is the World Bank study by Shirley and Walsh (2000) who review 52 studies of privatization, 32 of which found significant improvements in performance of private and privatized companies, 15 found no significant differences and 5 found superior performances in publicly-owned companies. A theme common to many of these studies is the relative importance of privatization versus competition. Some researchers predict that in a competitive environment there would be little to choose between publicly and privately-owned companies, others suggest that other things being equal privatization always improves performance, yet others stress complementarity between privatization and competition. There is no over-riding evidence to suggest any one of these statements is beyond dispute.

Boubakri and Cosset (2000) examine the post-issue stock price performance of 120 privatization issues in developing countries and find statistically significant abnormal returns over a period of three years after the IPO.¹⁶ Such a study is helpful to financial analysts but only useful to a telecommunications policy maker if the sole objective is to maximize the revenue raised by an IPO, in which case a long period of exclusivity, indeed a private unregulated monopoly, would be the unalloyed answer, a finding supported by Wallsten (2000).¹⁷ There are hopefully more important social and economic considerations involved, in which case studies that focus on the industry itself prove more useful.

The purpose of privatization is presumably to increase the welfare of the community by bringing about a timely shift of gears from a regulated monopoly offering a narrow range of services to an open marketplace of great variety that offers affordable access to all. The assumption that privatization is a necessary or desirable part of the process towards achieving that goal is not a given, as there are many permutations of market structure that can prove effective in different environments. For example, in small city-economies like Hong Kong and Singapore, state-regulated private and state-owned monopolies respectively proved very capable of building cost-effective territory-wide digital networks, becoming world leaders in the 1980s and early 1990s. The economics of a small city-economy of high-rise buildings and short local loops worked in their favour, but so did the simple fact that these were professionally run profitable companies and publicly accountable in a reasonably transparent fashion according to the test of the times. The underlying question here is what are the *necessary* conditions to achieve

¹⁶ In standard economic theory, normal profit equates to the competitive return on capital (the long run rate of return) plus any risk premium the market imputes for innovation. Above that the rate of return is considered abnormal and in competitive markets will be temporary. In cases where privatizations are accompanied by periods of exclusivity, abnormal profits could be expected.

¹⁷ Wallsten (2000) finds that periods of exclusivity can double the firm's sale price 'but at the cost of substantially reducing investment: exclusivity periods are associated with up to 40 per cent reduction in growth in the number of telephone mainlines.' (p.16)

efficiency and fixed line or cellular growth per 100 people and of Internet and broadband connections, and what are the *sufficient* conditions? Market structures can vary from pure monopoly to monopoly competition,¹⁸ and regulation can vary from self-regulation to an independent regulator to general competition policy, and operating environments can vary from small highly developed city economies to large middle-income countries to low-income far-flung archipelagoes, and technologies can vary from state-of-the-art digital equipment and cutting-edge software applications to antiquated and poorly maintained analogue switches.

Each of these factors, market structure, regulation, operating environment, technologies, interact and econometric and other studies have a hard time separating out and isolating their effects. An additional problem is time series data. For example, within Asia before 1990 only Japan had begun the privatization of its telecommunications SOE. The standard method used in studies is to examine the three years pre-privatization and the three years post-privatization and to compare a number of variables, usually prices, profitability, output and labour productivity, employment, cost efficiency, levels of investment and debt-to-equity leverage. Each of these is examined for correlation to a number of measures, usually some measure of regulation, the level of residual state ownership post-privatization, and a measure of how competitive is the environment.¹⁹ Dummy variables may be used to signify these, for example a '1' where an independent regulator is established and '0' where absent. The limitation with this approach is that the time period is too short. Many of the gains may not be picked up, especially where periods of exclusivity or restricted entry are involved, but also because it takes time for a new entrant to build a network, reach interconnection agreements, build a market brand, and so on.

For these reasons it may be expected that profitability of the incumbent should rise immediately following privatization as it responds to the future threat of effective competition with enterprise reforms that cut costs and build out the network to the areas of potentially most profitable customers. The effects on employment are likely to be negative, assuming a previously inefficient employment of staff in the SOE, but accelerated network build out and accelerated investment in new equipment could work in the opposite direction, although the requirements of a digital system would spell technological unemployment for older workers while younger computer-trained staff are being recruited.²⁰ Labour productivity is likely to be a function of the degree of investment in new technology, and an intriguing research question is whether a more or less competitive environment stimulates or retards investment by the incumbent. It is assumed that investment is stimulated if the threat of competition is evident, but the complicating factor is the nature of the regulatory regime. Incentive regulation such as

¹⁸ In economic theory monopoly competition refers to markets occupied by many companies each trying to differentiate their product from the others. For example, in Hong Kong six mobile companies operate eleven networks for a population of just 7 million people, and each tries to market a brand.

¹⁹ Petrazzini and Clark (1996) and Doove et al. (2001) both use the number of non-incumbent related cellular operators in the mobile market as a proxy of competition.

²⁰ Ure (1993b) records exactly this process in the Hong Kong Telephone Company during the 1980s and early 1990s.

price-capping would be expected to accelerate productivity in the incumbent but a heavy-handed form of dominance regulation could act as a break. If tariff rebalancing is permitted, then price comparisons before and after privatization are difficult, but rebalanced tariffs could be expected to encourage rather than discourage investment by the incumbent. The safest presumption is that the incumbent will invest to protect existing profitable markets and to capture the most promising new markets ahead of the competition, but the latter assumes that the capital markets are efficient and competitive, and in low-income developing economies this is far from the case. Capital restrictions and high rates of interest impose high opportunity cost on investment decisions.²¹

Employment and Productivity

Turning to the evidence of industry-specific studies, Xu (2002) for the World Bank uses country-level panel data from 1981-1998 and finds that privatization did result in a significant shedding of labour, output growth, network expansion and to both labour and total factor productivity improvements.²² However the effects of privatization and competition were complementary, accounting for around fifty per cent of the growth, with competition having the greater impact on labour and total factor productivity. The effects on employment are worth quoting:

We find that privatization significantly reduced employment in the telecommunications sector. Moreover countries that transferred more ownership shares to private investors often experienced steeper reductions in employment. In contrast, competitive pressure increased employment. Given the opposite effects that privatization and competition had on employment, it is not surprising that telecommunications employment was stagnant over the past two decades even as output in this sector demonstrated robust growth. (p.25)

By contrast Bortolotti et al. (2002) examine the records of 31 national telecommunications carriers from 14 industrialized and 11 non-industrialized economies that have been fully or partially divested by IPOs between October 1981 and November 1998, and find that employment fell but not dramatically, from 67,000 to 63,000. Counter-intuitively they found that post-privatization employment was negatively related to the size of the Government's continuing stake in the post-privatized company, although an additional 1 per cent Government stake resulted in only an additional 0.1 per cent fall in employment. They speculate that either a Government committed to privatization may be rigorous in restructuring the workforce in order to boost the IPO

²¹ In countries experiencing capital flight restrictions on investment may require high connection charges to fund investment. This is the traditional means of rationing access when the system cannot cope with too much traffic, typical of the early state monopoly model. In developing countries this model has largely failed to solve the universal service issue, and is highly dependent upon Government to encourage the industry rather than to sequester funds from it. The alternative is either to regulate new entrants to keep installation fees high or to operate a universal service fund or develop alternative modes of access.

²² Total factor productivity picks up productivity gains that cannot be easily attributed to increases in the productivity of labour or capital usage alone. This residual productivity is attributed to the combined effects rather than to other factors.

price, or a post-privatization management under heavy Government influence may be less entrepreneurial in grasping new business opportunities that generate employment.

The methodological problems confronting econometric studies are highlighted in the ESCAP (2002) study.

The near absence of empirically rigorous studies on the non-efficiency aspects of privatization highlights the low priority given to these areas by researchers. There are no comprehensive databases or studies on the longer-term evolution of employment pre- and post-privatization... An important weakness of many of the studies is that they look at changes in the level of performance measures before and after privatization, instead of looking at changes in growth rates.' (Part V.)

Prices and Profit, Output and Investment

The weakest link in the data chain is on prices as these are notoriously difficult to know and to compare across economies. As Boylaud and Nicoletti (2000) point out, price discounts across OECD countries can reach up to 25 per cent. Price wars are common when competition for market share is intense, although these are more likely to break out as markets reach saturation levels, and without strong regulation predatory pricing by incumbents, including hidden discounts and discriminatory pricing, are open options post-privatization and liberalization. Privatization and liberalization also imply tariff rebalancing and another difficulty is knowing how to appropriately weigh the resulting price sets or baskets of services to compare with pre-privatization and liberalization. Doove et al (2001) include price effects in their study that applies the methodology and OECD data of Boylaud and Nicolletti (2000) to an additional 23 non-OECD economies, but conclude on an uncertain note. While higher levels of regulatory intervention in non-OECD countries seem to be related to higher telecommunications prices, the same does not always hold in OECD countries, the Scandinavian countries being the case in point, which may well reflect upon not just the quantity but also the quality of regulation in non-OECD countries.

Bortolotti et al. (2002) find no significant effects of privatization on investment levels one way or the other, but they do find some evidence to suggest 'regulation may strongly affect the strategic investment decision of firms' in a negative direction where 'a more competitive environment may crowd out investment by the incumbents, as they will have to share some of the benefits from these investments with their competitors.' (p.264) Unbundling the local loop could fall into this category. They also see problems of attribution when they find sales of fixed lines and profitability generally increase following privatization. Prices tend to be restrained either by competitive entry or by regulation, especially in cases where an independent regulator has been established and introduces incentive regulation,²³ so this implies profits rise because of sale volumes rather than price hikes. But they also find that

²³ Incentive regulation refers to the price-cap model whereby price rises are capped at the level of increase of the retail or consumer price index minus X, where the regulator determines X. Firms are therefore encouraged to lower their unit costs by more than X to boost profits.

Rather than privatization itself, three factors appear to be positively related to efficiency: higher levels of national development, higher salaries and higher labour productivity. The positive coefficient on GDP indicates that output per worker increases more after privatization for telecom employees in economically advanced countries than it does for telecom workers in less developed nations.’ (p.258)²⁴

Competition and Regulation

So output increases and labour productivity increases and profitability increases, and prices are generally restrained, but the factors that account for these changes may have little or nothing to do directly with privatization. According to Boylaud and Nicoletti (2000) in their study of 24 OECD countries 1991-1997 ‘no clear evidence could be found concerning the effects on performance of the ownership structure of the industry’ but the ‘prospect of competition (as proxied by the number of years remaining before liberalization) generally has a strong positive effect on the productivity and the quality of services and a strong negative effect on prices.’ (p.7)²⁵ Other obvious candidates are the state of the general business cycle and the position of demand on the diffusion curve.²⁶ The period 1980s-2000 has seen exponential growth in telecommunications demand for both fixed and mobile connections, and privatization may be responsible for making the supply side more responsive but equally so may the effects of de-regulation and liberalization leading to greater competition.²⁷

Clearly regulation affects market behaviour as well as market structure, although Doove et al (2001) find separating out the effects ‘virtually impossible’ (p.44). Examples of regulation affecting behaviour are incentive ‘price capping’ which encourages output and efficiency; monopoly rent ‘profits capping’ which if the rate base is capital investment as opposed to shareholder funds can lead to the inefficiency of ‘gold plating’; heavy-handed dominance regulation which if it is prolonged will reduce the incumbent’s motive to innovate; light-handed ‘threshold’ regulation which encourages market-led development till a case for regulatory intervention becomes clear-cut. In a post-

²⁴ In a thought-provoking paper Roller and Waverman (2001) seem to show that the contribution investments in telecom networks make to GDP is greater the level of development of the economy, which raises question marks over the efficiency of resource allocations to telecoms in developing countries. One research paper does not prove the case, bottom-up case studies of the economic benefits of telecoms often give circumstantial evidence to the contrary, and as Duwadi (2003) points out new technologies can still offer cost-effective ways for developing countries to achieve universal service. But it is plausible that so-called ‘network effects’ are greater in more developed economies.

²⁵ Boylaud and Nicoletti demonstrate standard econometric procedure by using both random and fixed effects specifications in their estimations. Random effects assume that any differences in cross-country studies (time series panel data) are randomly distributed, while fixed effects assume they are country specific and therefore need to be modelled.

²⁶ ‘Studies that concentrate on the beneficial impact of telecommunications privatization do not provide strong evidence of the transferability of such experiences to other infrastructure services. Growth potential in telecommunications is high because of pent-up demand and a willingness on the part of consumers to bear higher costs.’ ESCAP (2002) Part V.

²⁷ An analysis based upon a period of three years either side of privatization cannot easily pick this up.

privatization period the regulatory environment has to be important.²⁸ The market structure is influenced by it, although influenced also by other factors, such as size of market, ease of entry, availability of technology, capital and staff, and so on.

2.2 Non-Econometric Studies: the process of divestment

One of the best and earliest accounts of an actual privatization process is of NTT in Japan by Takano (1992) for The World Bank. Perhaps one of the key lessons from this experience is the need to be absolutely clear as to the aims and objectives of privatization, for example whether it is primarily a fund-raising exercise or a restructuring exercise or a prelude to full-blown market opening, and especially important 'a country must publicly clarify the decisions on corporate structure, together with how competition should be effectuated, by the time of privatization.' (p.123) Once privatized, a SOE is very difficult to restructure.

The World Bank, the International Finance Corporation (IFC), the OECD, and the International Telecommunications Union (ITU) among others have published a string of working papers and short books on the process and experience of privatization, competition and regulatory reform since the 1980s. For example, Smith and Staple (1994) writing for The World Bank identify three core issues that must be decided prior to divestment: price regulation, network expansion targets and quality of service goals. The importance of getting the price structure right, bringing prices more into line with costs and a timetable for tariff rebalancing is also stressed by Wellenius et al. (1993).

By the mid-1990s privatization defined in its broadest sense was under full steam in the Asia Pacific region. Harrington²⁹ suggests three factors: the evidence of successful reforms of the 1980s, especially the divestments and divestitures in Japan, the UK and the USA, a growing recognition that additional sources of finance were required to promote the growth of national information infrastructures, and the collapse of communism in Eastern Europe and China's experiment with socialist market reforms. Petrazzini (1995) offers the most focused analysis on privatization cases in less developed countries (LDCs) and argues they are most likely to succeed where the relative autonomy of the state insulates it from outside pressure groups and power is highly concentrated within, and most likely to fail where relative autonomy is weak and power widely dispersed.³⁰

An alternative approach is Neo-Institutionalism. This gives pride of place to stakeholder interests and the role of incentives and property rights in the marketplace as an explanatory tool. As Singh (1999) puts it 'In order to better specify the links between telecommunications and development, a case can be made for measuring economy-wide

²⁸ In his study of 30 African and Latin American countries, 1984-1997 Wallsten (1999) finds: 'Privatization by itself does not appear to generate many benefits, and is negatively related with main line penetration. Privatization combined with a separate regulator, however, is correlated with increased connection capacity and payphones per capita.' (p.15)

²⁹ Andrew Harrington 'Companies and Capital in Asia-Pacific Telecommunications' in Ure (1995, 1997). State fiscal crisis during the 1980s was a contributing factor in some cases, and pressure from the USA and other trading partners was also important in East Asia.

³⁰ For a criticism that Petrazzini's emphasis upon power is too much at the expense of the role of an ideology of development within strong governments, see Ure (1993a).

benefits from telecommunications based on which user groups are beneficiaries from telecommunications restructuring.’ (p.5) Privatization is examined within this framework. Noam in Noam et al. (1994) lays the basis for this approach in his essay ‘The Three Stages of Network Evolution’ where he suggests a network progresses from early underdevelopment to high revenue growth concentrated on urban areas to cross-subsidization of universal service to high cost areas. At this point special interest groups emerge opposed to paying more than the incremental cost of supplying them. Pressure then grows to privatize. Singh (2000) applies this thinking to different models of telecommunications development around Asia, arguing that even in the successful cases of state-led or state-directed development such as China, Singapore, South Korea and Japan, where ‘it seems that private property rights are not necessary for infrastructural expansion’ (p.903) there are bound to be growing pressures from within civil society to break down the dominant structures and open markets further.

Our final reference is to another important conceptual approach to understanding what makes a reform process easy or difficult to succeed, transactions cost theory. The theory distinguishes transactions that involve long term assets and relationships and ongoing coordination between transactors which are information rich, in which case transactions are best done *within* the firm. Those which do not have these characteristics and have only simple information requirements are well suited for transactions *between* firms, which implies a liberal market regime. Faulhaber (2001) argues the liberalization and deregulation of customer premises equipment (CPE) was an early success because no long term relationships are involved and the information requirements of the transactions are simple. Basically, ‘where do you want the phone and when do you want the phone?’ In the United States experience, the opening of the long-distance market was not very successful because the switch architecture of the old Bell system integrated many functions of both local and long-distance and the complexity of the engineering and subscriber database and the billing system information required was immense. Also, long term customer relationships and interaction are important, so the regulatory costs of implementing interconnection, unbundling of network elements and so forth are very high. This becomes a framework for designing and thinking about the costs and benefits of different approaches to structural reform and the opening of markets.

3. Conclusion

The term ‘privatization’ has a variety of meanings, but they all involve a degree of entry of private capital and entrepreneurship into the telecommunications business. The main constraint for developed economies is the underdevelopment of local capital markets unless they are willing to see foreign capital enter on a grand scale. There can be many advantages in doing so, but local political considerations and priorities may dictate otherwise, in which case the costs of foregoing foreign capital need to be offset, and therefore to some extent justified, by local reforms. As ESCAP (2002) put it:

Where countries are not yet at a stage where it is politically or economically feasible to embark on a privatization programme, then privatizing management, asset leasing, franchising and management contracts can lead to important economic benefits without having to change ownership. (Section V)

There are various stages privatization can take, and many forms, but equally many interest groups to lobby for and against. The principal stakeholders on the supply side are government and the employees, where government can be motivated by different considerations such as raising funds from an IPO or promoting structural reform and investment in telecommunications, and employees by safeguarding jobs, salary structures, pension rights and other fringe benefits. Clearly many policy trade-offs are involved if the process is to be successful and these need to be clearly identified and made public before privatization is carried out. Restructuring after the event leads to uncertainty and capital flight.

The evidence on privatization is not conclusive one way or the other, and therefore generalizations are difficult. However in their general literature review Megginson and Netter (2001) conclude

Research now supports the proposition that privately owned firms are more efficient and more profitable than otherwise-comparable state-owned firms. There is limited empirical evidence, especially from China, that suggests that non-privatizing reform measures, such as price deregulation, market liberalization and increased use of incentives, can improve the efficiency of SOEs, but it also seems likely that these reforms would be even more effective if coupled with privatization. (p.46)

Efficiency is a dangerous word because it can mask all kinds of bad things, such as declining quality, standards of health and safety, choice, which do not get measured in the econometrics. Studies do tend to show that output (fixed lines per capita) rises along with profitability, but evidence on prices is rather lacking, and complicated by tariff rebalancing where it takes place and which is associated with efficiency. So overall, as Megginson and Netter (2001) also conclude, 'there is little empirical evidence on how privatization affects consumers.' (p.47) Most studies find that employment falls in the incumbent firm as a result of privatization, although there is no consensus whether this is by a large amount or small amount. Where competition is robust jobs tend to be created, and the market grows, the one tendency canceling out the other. There is evidence that where a strong independent regulator is established these effects are greater. Market growth also implies capital investment and this in turn results in rising labour productivity, which some studies find stronger in developed than developing economies.

These results also mean the effects of privatization are either complemented or overwhelmed by the effects of market structure (competition) and/or regulation. Separating out the effects is difficult, but the evidence suggests that competition is the more significant element in driving telecommunications investment and output than privatization. It also suggests that privatization without strong regulatory support is less effective.

Non-econometric research has turned up important lessons as to the process of privatization or divestiture. The nature of the state and its relation to civil society, and

how open it is to manipulation by interest groups has important consequences for the success or failure of the reform process. Three key issues that need addressing when planning to privatize are price regulation, how prices are to be governed, network growth targets including universal service targets and how to pay for them, and quality of service targets, how to measure consumer benefits. The lessons from new institutional economics suggest that incentives, including property rights issues, need to go into the design of reforms, and transactions cost theory raises useful guidelines for working out the costs and benefits of different designs of policy reform, to see just what it takes and costs to create successful reform.

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APPENDIX - Capitalisation of Major Private Telecom Companies in Asia

10/2/2003

<u>Company</u>	<u>Currency</u>	<u>Local price</u>	<u>Mkt cap (US\$ bn)</u>	<u>Date of IPO</u>	<u>Weight in local Index</u>
Cellular carriers					
Pan Asia					
SmarTone	HK\$	11.95	0.9	10/31/96	-
SUNDAY	HK\$	0.37	0.1	3/16/00	-
CMHK	HK\$	20.80	52.4	10/23/97	11.695%
Unicom	HK\$	6.65	10.7	6/22/00	2.375%
SK Telecom	Won	186,000	13.3	11/7/89	5.240%
KT Freetel	Won	21,750	3.5	12/7/99	10.474%
LGT	Won	3,810	0.9	9/20/00	2.662%
MobileOne	S\$	1.42	0.9	12/4/02	0.816%
TAC	US\$	1.48	0.7	10/13/95	0.278%
AIS	Bt	57.0	4.2	8/5/93	-
Digi	RM	3.72	0.7	12/18/97	0.787%
Maxis	RM	6.45	4.2	7/8/02	4.511%
PT Indosat	Rp	9,600	1.2	10/19/94	2.815%
TCC	NT\$	27.00	3.6	9/19/00	1.065%
Far EasTone	NT\$	22.30	1.5	12/10/01	-
Globe Telecom	P	700	1.9	1/2/90	11.620%
Japan					
NTT DoCoMo	Yen	279,000	126.2	10/22/98	0.114%
Integrated carriers					
Pan Asia					
PCCW	HK\$	5.25	3.6	10/18/94	0.801%
China Telecom	HK\$	2.05	19.9	11/15/02	-
SingTel	S\$	1.68	17.4	11/1/93	8.333%
Telstra	A\$	4.83	42.5	11/14/97	4.518%
Telecom NZ	NZ\$	5.10	5.8	7/18/91	22.0%
Korea Telecom	Won	47,350	12.0	12/23/98	4.713%
CHT	NT\$	47.90	13.7	10/27/00	3.938%
PLDT	P	670	2.1	1/2/90	12.764%
PT Telkom	Rp	6,450	7.8	11/14/95	18.229%
Telekom Malaysia	RM	7.45	6.2	11/7/90	6.782%
Telecom Asia	Bt	6.45	0.5	12/22/93	-
Japan					
NTT	Yen	516,000	74.1	1/8/88	0.212%
KDDI	Yen	598,000	22.9	10/1/93	2.404%
Japan Telecom	Yen	353,000	10.2	9/6/94	0.366%

Source: Bloomberg, CSFB estimates

