Structural Challenges and the Search for an Adequate Policy Mix in EU accession Countries:

The case of privatisation of network utilities

Willem Buiter* and Maria Vagliasindi**

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* Chief Economist, European Bank for Reconstruction and Development.

** Principal Economist, European Bank for Reconstruction and Development.

1. Introduction

The sale of state-owned enterprises to private investors during the past two decades represents a political, social and economic phenomenon of the first order. It has been associated with major redistributions of wealth, power and influence - economic as well as political. It also has had important social consequences, both through the reduction in (and often the complete ending of) the role of the privatised enterprises in the provision of the social safety net and of other public goods and services, and through the large-scale redundancies often associated with the restructuring that preceded or followed privatisation. These privatisations were part of a broader reversal of public policy - a withdrawal by the government from direct economic engagement in many industries that had become to be regarded as "strategic". The financial consequences of these privatisations have also been significant. The financial impact of the privatisation of network utilities, in terms of market capitalisation, trading volumes and investor participation, has been remarkable. In particular, telecom share issues often accounted for 30% of total capitalisation and even a greater share of total trading value.

As the experience of the western and eastern European countries demonstrated, in order to be effective, privatisation should be complemented by reforms stimulating competition and by broader regulatory reforms. For instance, public policy should take into account the fact that a privatised monopoly will often attempt to use its money and political influence to stifle reforms, especially ones that threaten to introduce greater competition.

This paper analyses the choices made by eastern European countries in the domains of competition policy and regulation in the network utilities, focusing on EU accession candidates, documenting their progress to date and the remaining challenges.

The structure of the paper is as follows. Section 2 reviews the dominant theoretical approaches towards the privatisation of network utilities, deriving conditions under which privatisation is welfare enhancing. Section 3 considers alternatives strategies that have been adopted to meet the sometimes-conflicting objectives underlying network utilities privatisation,

with a focus on the EU accession countries belonging to Eastern Europe. Section 4 provides some empirical evidence on the impact of privatisation at the sectoral and economy-wide levels. Section 5 considers the privatisation process in a broader policy framework, where the other network industries reforms -- including the introduction of competition and of an effective legal and regulatory framework -- interact and affect the privatisation process itself. Section 6 concludes.

2. Privatisation of network utilities: the theoretical approach

Full privatisation of network utilities implies that the state withdraws from the direct economic engagement involved in public ownership. The state can, of course, remain involved with the industry as regulator. The government's complete withdrawal, as owner and regulator, is appropriate if and only if unregulated markets and/or private bargaining bring about socially desirable results. As the utility markets in question often are, to varying degrees, natural monopolies, the Smithian invisible hand of competition is unlikely to lead decentralised, unco-ordinated private action to efficient allocations. Instead the Coasian invisible mediator/arbitrator of sequential bilateral or multilateral negotiation would have to be invoked. Apart from the microeconomic efficiency arguments for privatisation, there is often a public finance rationale. Privatisation revenues can be a superior means of raising government revenues from taxation or borrowing (deferred taxation). This is likely to be the case if the present value of current and future profits under private ownership and management exceeds that under public ownership and management. Below we incorporate all relevant dimensions of the privatisation decision to evaluate them through the simple arithmetic of cost-benefit analysis.

Let n be the period growth rate of real GDP, r the period real interest rate and $\tilde{r} - \tilde{n}$ the '*permanent* discount rate net of the *permanent* growth rate'.[1] For any flow variable, such as consumer surplus as a share of GDP, s, its permanent value, $\tilde{s}$, is that constant value of the variable

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[1] $\tilde{r}(t) - \hat{n}(t) \equiv \left(\int_t^\infty e^{-\int_t^v [r(u) - n(u)] du} dv \right)^{-1}.$

whose present discounted value over an infinite horizon is the same as the present discounted value of the actual variable.[2] The present discounted value of any infinite sequence of a flow variable, say consumer surplus, s , is denoted *S*. Note that this present value can be written as $S \equiv \dfrac{\tilde{s}}{\tilde{r} - \tilde{n}}$.

The change in *W,* the net present value of social welfare due to privatisation can then be decomposed as a weighted average of the net present value of the change in consumer surplus, ΔS, the net present value of the change in producer surplus, as captured by the profits of privatised enterprises, $\Delta \Pi$, and the net present value of the resources transferred to the government (the reduction in *D*, the net present value of the government financial deficit): [3]

$$\Delta W \ = \ \Delta S \ + \ (1+\boldsymbol{f})\Delta \Pi \ - \ (\boldsymbol{1} - \boldsymbol{f})\Delta D \tag{1}$$

The weight attached to profits (the shadow price of profits), *1+ f,* may be greater than *1* if the shadow price of resources in the corporate sector exceeds the shadow price of resources in the household sector. This will be the case if the social rate of return to additional business investment exceeds the social opportunity cost of reduced household consumption. The weight attached to additional resources for the government, *1+l,* will be greater than *1* if taxes are distortionary, in which case it is also likely that the shadow price of government resources exceeds the shadow price of private corporate resources $(\boldsymbol{l} \ ^{\mathbf{3}} \ \boldsymbol{f})$. [4]

Hereafter, the superscripts *p* and *g* refer respectively to the valuation under private ownership and under public ownership and $\boldsymbol{t}$ is the corporate income tax rate. Let *A* denote the price for which the public enterprise is sold. Since $\Delta D \equiv \Pi^g - \boldsymbol{t}\Pi^p - P$, the change in social welfare given in (1) can also be written as the difference between the social value generated by the

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[2] That is, $\tilde{s}(t) \equiv \left(\int_t^\infty e^{-\int_t^v [r(u)-n(u)]du} dv \right)^{-1} \int_t^\infty e^{-\int_t^v [r(u)-n(u)]du} s(v)dv = [\tilde{r}(t) - \tilde{n}(t)] \int_t^\infty e^{-\int_t^v [r(u)-n(u)]du} s(v)dv$.

[3] $\Delta S = \dfrac{\Delta \tilde{s}}{\tilde{r} - \tilde{n}}$, $\Delta \Pi = \dfrac{\Delta \tilde{p}}{\tilde{r} - \tilde{n}}$ and $\Delta D = \dfrac{\Delta \tilde{d}}{\tilde{r} - \tilde{n}}$. Note that we assume that privatisation does not affect the discount rates and economy-wide growth rates.

[4] This analysis implicitly assumes privatisation implies the establishment of a long-term commitment between owners and privatised companies, or the existence of efficient secondary markets for corporate ownership and control**.**

firm that is being considered for privatisation when it is operated in the private (V^p) or in the public (V^g) sector, plus the social value of the transfer of the privatization revenues from the private to the public sector - the price for which the enterprise is sold, A times the difference between the shadow price of public and private funds, $l - f$.

$$\Delta W = V^p - V^g + (l - f)A \qquad (2)$$

where

$$V^p = S^p + (1+f)(1-t)\Pi^p + (1+l)t\Pi^p \qquad (3)$$

and

$$V^g = S^g + (1+l)\Pi^g \qquad (4)^5$$

Let A^g denote the minimum issue price above which the government should be willing to sell the enterprise (the lowest price for which the change in social welfare is positive):

$$A^g = (V^g - V^p)/(l - f) \qquad (5)$$

Also, let A^p be the maximum issue price above which no investor would be willing to make an offer. This is given by the present value of net (after-tax) expected profits:

$$A^p \equiv \Pi^p(1-t) \qquad (6)$$

Privatisation will go ahead if the issue price is within the range set by A^p and A^g

$$A^p \geq A \geq A^g \qquad (7)$$

The analysis implies that, different from the usual claim that privatisation will (or should) reduce pressure on the budget, welfare-enhancing privatisation may increase or reduce budgetary pressures. There are cases in which the government might want to subsidise the privatisation, because of the enhancement in the efficiency with which the privatised assets will be managed.[6]

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[5] Note that $\Delta D \equiv -(P + t\Pi^p - \Pi^g)$

[6] A higher issue price A improves social welfare if and only if the incremental social cost of government funds is greater than the shadow price of private profits (that is, $l > f$). When the cost of social funds is equal to the weight on profits ($l = f$) and $V^p > V^g$, privatisation should go ahead regardless of the issue price that can be obtained. Finally, if l is less than f, the government should pay the private sector for the privatisation to go ahead.

If the government sells at a price equal to the value of the enterprise according to the calculation of the private sector (that is, A^p as given in equation (6)), the government would appropriate the entire increase in net present value of the expected increase in profits brought about by the privatisation.[7] Since equation (2) can be rewritten as:

$$\Delta W = S^p - S^g + (1+\boldsymbol{l})(\Pi^p - \Pi^g) + (\boldsymbol{f}-\boldsymbol{l})\big((1-\boldsymbol{t})\Pi^p - A\big) \tag{8}$$

the social net benefit of the privatisation is given by

$$\Delta W = S^p - S^g + (1+\boldsymbol{l})(\Pi^p - \Pi^g) + (\boldsymbol{f}-\boldsymbol{l})\big(A^p - A\big) \tag{9}$$

The value of the private sector's evaluation of the public enterprise A^p depends on several factors, including its level of technology and efficiency. Increasing the number of potential buyers (for instance by also permitting foreign investors to bid) will increase the price at which state-owned-assets can be sold (and the budget revenue) which, for instance, under a second price auction is equal to the evaluation of the second-most efficient firm bidding (assuming the second-most efficient bidder offers the second-highest price).

For many utilities, privatisation is likely to result in higher prices for consumers. Apart from government revenue considerations, social welfare is improved if privatisation increases productive efficiency and as a consequence the increase in the net present value of the expected profits outweigh the net present value of the expected reduction in consumer surplus that will occur if the privatised utility raises its tariffs. That is, if $(1+\boldsymbol{l})(\Pi^p - \Pi^g) > -(S^p - S^g)$.

Further complications may arise depending on the underlying market structure in which the public enterprise was operating. If the public enterprise was operating in a competitive market, consumer surplus does not change as a result of privatisation, but profits will increase if average costs are reduced and output increased. Let t denote the tariff of price of the output of the utility, c the average cost and q the quantity produced and sold. The change in period consumer plus producer surplus can be written as $(t^p - c^p)q^p - (t^g - c^g)q^g = (t^p - c^p)\Delta q + q^g \Delta(t-c)$.

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[7] When the issue price is lower, there is a loss in social welfare due to the transfer from the government budget to the private sector given by $(\boldsymbol{l}-\boldsymbol{f})(A^p - A)$ as shown in equation (8).

When the market is competitive and the price does not change as a result of privatisation, this simplifies to $(t^p - c^p)\Delta q - q^s \Delta c$ and the change in social welfare resulting from privatisation is given by:

$$\Delta W = (1 + \textbf{\textit{l}})\left(-\tilde{q}^s \Delta \tilde{c} + (\tilde{t} - \tilde{c}^p)\Delta \tilde{q}\right)/(\tilde{r} - \tilde{n}) + (\textbf{\textit{f}} - \textbf{\textit{l}})(A^p - A) \qquad (10)$$

If the pre-privatisation public monopoly had been maximising social welfare, taking into account externalities that characterise network public utilities, privatisation could bring about allocative inefficiencies (if regulation does not ensure the continued internalisation of these externalities under private ownership and operation) and could even lead to a net reduction in social welfare.[8]

Additional complications can arise in the presence of distortionary taxes. In this case, variations in public sector privatisation revenue will affect social welfare. Under an oligopolistic market structure, the behaviour of the privatised enterprises might also affect the profit (and other activities) of other (private and public) enterprises, which may have further implications for the government budget.[9]

The quality of the good/service can change and affect the allocative efficiency of the industry; e.g. in many cases privatisation aims to raise service quality to the levels of advanced market economies. The overall impact of privatisation (and the associated regulation) in terms of social welfare depends on the extent to which average costs are reduced, output is brought closer to the social optimal level (allowing for network and environmental externalities), quality is enhanced and affordability objectives are met.[10]

Interesting issues arise when an output is an intermediate good used as input in other productive processes, as tends to be the case in the vertically integrated structures that characterise

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[8] Especially in transition economies prices often do not reflect production costs and cross-subsidisation for social and/or political reasons is common.

[9] A number of studies examined the differential impact of competition in terms of allocative efficiency on public and private ownership in a Stackelberg duopoly framework. See among others, De Fraja ad DelBono (1986).

the initial conditions of the to be privatised network industries. Here the government should decide whether to privatise the entire vertically integrated sector to one investor. By offering the industry for sale as a single vertically integrated unit, the maximum achievable sale price is likely to be higher, both for good reasons (economies of scale and scope) and for bad reasons (greater monopoly and monopsony power in the market for outputs and inputs respectively if the national monopoly did not encounter effective competition in the world market).[11] However, there may be fewer potential investors capable of managing a vertically integrated industry (or of profitably unbundling the industry following the initial privatisation as a vertically integrated unit), and the process of negotiating an attractive sale price for the government may be more complicated.

When privatisation aims to enhance competition throughout the sector, it requires vertical disintegration and specialisation in certain parts of the supply chain, i.e. production, distribution, trade and special services. With more potential investors for the smaller sub-units, more aggressively competitive bidding could generate a higher total sales revenue. Other advantages of such an unbundling process would be enhanced transparency, identification of where regulation and subsidies are required, and lower prices, enhanced innovation and service improvements for consumers due to competitive pressures.[12] We will examine these issues in more detail when we consider the interaction between privatisation and competition in Section 5.

For network public utilities, regulation is normally recommended as, at least, an intermediate step in the move from government control to the governance of markets, since the state was originally acting both as an owner and a regulator. Effective regulation should establish a

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[10] An additional policy issue to be explored is whether to regulate before or after privatisation and the choice of the exclusivity period and terms.

[11] There are additional considerations that play a role, such as the presence of synergies between the other assets of the investor and of the public sector. Whereas some synergies (which make for higher values of V^g and A^g) can be lost after privatization, new private or public synergies can arise, increasing respectively the values of A^p and V^p.

[12] In the European Union more than 50% of utility companies are being exposed to competition, allowing customers to choose alternative suppliers. In the electricity market Germany, the UK, Norway, Sweden and Finland are fully open to competition. In 1999 German prices decreased by 40%.

situation in which the outcome that is socially optimal also generates the highest profit for the firm, so that the firm is provided with the right incentives to choose it voluntarily. Regulation affects the expectation of future profits (and hence the social value of the enterprise given privatisation, V^p, and (if there is regulation also under public ownership public and private value of the enterprise) given continued public ownership, V^g. Network industries are typically capital intensive and the needed investment is sector specific, that is, it cannot easily re-allocated and can be viewed as 'sunk'. As a consequence, a fair return on capital is guaranteed only if the private investment plan for the utility is successfully implemented over sufficiently long time horizons that permit the private owner to recoup the sunk investment. This requires as a precondition the existence of a stable regulatory framework. The investor makes its decisions based on the announced regulatory policy and its credibility. Insecurity, lack of transparency and predictability represent critical problems that could potentially deter investment. A regulatory risk premium is required in order to attract private finance into the sector.[13] This can be very harmful for the whole economic system, since network industries are crucial for economic growth.

However, price regulation of a fully privatised firm is different in spirit from price regulation of a public enterprise. In the public firm pricing and profitability are directly relevant for the government budget. They determine the government's revenue from the firm, though the financial deficit (surplus), which must be covered by taxes or by public debt issuance. In other words, pricing relates to the opportunity cost of the activities of the public firm. In the case of regulated private ownership (without transfers to cover fixed costs)[14] the price constraint refers only to the protection of consumers against monopolistic exploitation.[15]

Hence, there is also a connection between (post-privatisation) price regulation and the

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[13] In transition economies the importance of legal and institutional framework has been often underestimated. Even in the advanced transition countries (those anticipating early EU accession), the appropriate legislative and regulatory framework, as well as the institutions to implement it, are not always in place.

[14] In the presence of transfers, the value of λ is exogenous, whereas in the absence of transfers a participation constraint (implying non negative profits) must be added.

magnitude of the privatisation revenues the government can expect to obtain. Lower privatisation revenues must be expected if a strong, independent regulator is being planned for the privatised industry. Likewise, expectations about the future tax regime for the profits earned by the privatised utility will affect the privatisation price. Since governments cannot credibly commit themselves not to use the future profits tax instrument, this will limit the amount of privatisation revenue that can be obtained 'up front'.

This brief introduction to the cost-benefit analysis of network utility privatisation suggests that public ownership can be preferred to private ownership only under a restricted set of conditions.

For competitive industries free of significant market failures, both the theoretical and empirical evidence support the conclusion that private ownership is more efficient than public ownership. In industries with market power and/or market failures, such as network utilities, irrespective of ownership incentive for efficiency, the efficiency of the industries' performance depends crucially on the regimes of competition and regulation in which the industries operate. This is true whether the industries are publicly owned or whether they are privately owned. Of course, this does not imply that ownership does not matter – only that ownership, competitive and regulatory regime have to be considered jointly in determining the optimal configuration for any particular network utility.

Even for so-called advanced market economies the process of privatisation in many cases took place only recently (and in a number of important cases still has not even begun). Everywhere it has been a challenging process closely linked with the establishment of regulatory agencies to implement the newly adopted legal and regulatory reforms.[16] Privatisation has proved to be even

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[15] Under both public and private ownership, affordability issues beset the pricing rule.

[16] Only at the end of last century these industries ceased to be considered natural monopolies, and accordingly they were privatised and exclusive rights were abolished. Privatisation, liberalisation and globalisation caused deep changes in the organisation along horizontal and vertical lines. Global markets for these industries require operating on a global scale. Typically this involves mergers and take-overs, leading to an equilibrium with a small number of internationally operating firms.

more difficult in transition economies, requiring the creation of newly legislation and regulatory framework, sometimes from scratch.

The main arguments against privatisation are based upon the presence of market power, externalities, regulatory problems, public interest considerations and public choice complications. A publicly owned industry run by benevolent, credible, well-informed and competent managers could fully take into account externalities and optimise social welfare. The words 'benevolent', 'credible' (that is, capable of commitment), 'well-informed' and 'competent' serve as warnings as to the likely magnitude of the gap between ideal and reality. The alternative of private ownership with regulation and Pigovian taxes and subsidies raises similar issues about the motivation, informedness and competence of the private managers, the public regulator and the politicians and officials determining and administrating taxes and subsidies.

Public ownership (or public funding of certain goods and services) can be called for on efficiency as well as on equity grounds, when there is significant non-rivalness in use and there are high marginal excludability costs. Public ownership as well as public management and provision are called for when direct public control is necessary for effective delivery. This will be the case when the pursuit of profitability is at odds with a broader view of the public interest (as in the case of defence and law and order) or when the cost of monitoring cost-efficient management are very high (as in the case of decommissioning obsolete nuclear plants). State ownership may at times be the most efficient means of providing subsidies to promote the public interest when socially valuable businesses are making losses (e.g. the case of rural postal offices, and other agencies providing 'universal access' services deemed to be of high social value.

How exactly does ownership matter for performance? First, there is a change in the objective(s) of the firm and in the structure of principal(s)-agent(s) relationships determining its governance structure; private managers acting as agents for the shareholders in the case of privately owned firms; public managers acting as agents (probably at more than one remove) for heir ultimate principals, the citizens and voters of the polity, in the case of a publicly owned firm. Second, there

is a change in the arrangement for monitoring the performance of management (meeting the requirements of the capital markets and shareholder annual meetings and facing threats of takeover and bankruptcy).

Three main approaches have been used by the economic literature to compare public and private ownership and to assess the desirability of (alternative types of) privatisation. One set of theories argues that differences in ownership, property rights and corporate governance legal settings do not have a major impact on efficiency and that instead competition is the primary determinant of enterprise performance. A second line of literature emphasises the differences in the objective functions of public and private enterprises, highlighting that state-owned enterprises (SOEs) are likely to be less efficient than private firms, because they tend to be used for purposes other than maximising social welfare. A final approach focuses on the different abilities of public and private enterprises to address problems of corporate governance that ultimately affect their performance.

A number of studies examined the differential impact of competition in terms of allocative efficiency on public and private ownership in a duopoly framework. There is also an extensive literature on the incentive and informational effects of competition. The conclusion of these studies is that competition affect SOE behaviour and private enterprises in a similar way. The issue that remains to be tackled is whether SOEs perform as well as private firms.[17]

Overall, the degree to which market structure influences efficiency depends on the relative vulnerability of public and private firm to political interference and the degree of success in creating effective corporate governance. Boycko, Shleifer and Vishny (1996) argued that even in fully competitive market structures, SOEs would be inefficient because politicians force them to pursue political goals, such as over-employment.[18] According to Boardman and Vining (1992) the market

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[17] Privatisation can increase efficiency and provide effective restructuring if the government has no longer incentives to provide subsidies. On information issues, see also Holmstrom (1982).

[18] SOEs have been blamed for efficiency losses due to misallocation of resources, the exploitation of monopoly power and their tendency of over-production aimed at maximising employment for

for public managers is distorted and SOEs are not exposed to the threats of takeovers. Sappington and Sidak (1999) extended the analysis emphasising SOEs' incentives to engage in anticompetitive behaviour, so that competition can hamper rather than improving market performance.

On the other hand, Sappington and Stiglitz (1987) argue that public ownership reduces the cost of government involvement in markets and that such involvement is beneficial in addressing market failures. However, it is controversial that public ownership is the best solution to market failure, since these can be solved through other interventions/measures and governments tend to use public ownership to address distributional concerns, even at significant costs to efficiency.[19] Governments may attach more weight to consumer surplus rather than producer surplus because consumers have more voting power, or because transfers to low income consumers are deemed politically desirable for other reasons. Against this, governments and political parties rely on donations to fund their activities, and enterprises may be easier sources of political contributions than private individuals. Privatisation programs can also enhance efficiency through the reduction of government interference, the exposure to market discipline, the development of capital markets and the promotion of widen share ownership. These objectives have been only partially achieved, due to trade-offs with revenue maximization and political and social compromises.[20]

In many cases the privatisation of "strategic companies", enjoying a monopolistic position or playing a key economic role, such as firms operating in telecommunications, media, postal services, public transport, airport administration and air traffic control, the energy sector, gas and oil industry (as well as financial institutions) has proven to be difficult. There are several reasons why

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political reasons, however, Megginson et al. (1994) showed increases in firm's post-privatisation employment levels.

[19] Hart, Schleifer and Vishny (1997), Schleifer (1998) using a contractual framework conclude that when contract are incomplete public ownership is preferred to private ownership only when quality is not contractible and cost cutting will lower quality.

[20] For recent theoretical models that incorporates the costs and benefits of privatisation cf. Errunza and Mazumdar (2001), and previous papers by Cornelli and Li (1997) that examined the trade-off between revenue maximization and economic efficiency. Megginson and Netter (2001) present some empirical evidence that privately-owned firms outperform SOEs and divested firms' financial performance improved considerably.

such assets have been kept in public ownership, including political parties' interests and management opposition. Finally, the opposition might come from the governmental bodies (at central, state and local levels) and other players involved in the privatisation process (and regulation of network industries) that might have different interest and views on the privatisation process or methods.

The third approach on corporate governance suggests that despite the fact that the underlying agency problems of the separation of ownership and control are qualitatively similar regardless of the ownership structure, the corporate governance mechanisms to control managers, such as internal monitoring, threat of take-overs and bankruptcy are substantially weaker for SOEs. Public ownership, exercised through a collective political process and administrative procedures, offers wide opportunities for politicians, bureaucrats and other 'insiders' to negatively affect public enterprises' performance and to pervert the privatisation process for insider gain at great social loss. This issue usually was not dealt with appropriately in our earlier cost-benefit analysis.

Public companies often stay without proper management for extended periods of time. The representatives in the boards of these companies are top officials or experts from ministries, with (party-) political agendas who are eventually replaced when a new government is established. Enterprise behaviour is often dictated by the aim of securing the outcomes of the next elections or of using budget revenue to buy political support from cronies, clans or other political groupings.[21] Without strategic owners and effective corporate governance, necessary restructuring is delayed.

Most of the literature assumes that the government desires to maximise social welfare and that there are well functioning economic institutions permitting these objectives to be achieved to a significant extent. Particularly for transition economies these underlying assumptions are not met. State and public enterprise budgets can be manipulated, regulation can be distorted and perverted; corruption is widespread and product, labour, capital and financial markets often work very

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[21] Other parties, such as investors, management, municipalities act according to their own aims. E.g. public managers try to find ways how to control the company and to become independent on the state decisions.

imperfectly with considerable risk of 'tunnelling'.[22]

Moreover, transition economies present special challenges, because there are many different privatisation methods (including a variety of voucher schemes, various forms of insider privatisation, auctions and direct sale to a strategic outside investor) and there is ample evidence that the modalities of the initial privatisation can have a lasting influence on the performance of the privatised industry. The notion that it does not matter (from the point of view of efficiency) how firms are privatised, because any inefficient initial match of assets and owners will soon be remedied by subsequent trading in the ownership claims to the enterprises or in the underlying assets themselves, has turned out to be wishful thinking. The manner of the original privatisation interacts in a complex and imperfectly understood way with product market, factor market and financial market structures (including the markets for corporate control and for managerial skills) to produce economic success or failure.

In addition, the modalities of the privatisation process can have a powerful and lasting influence in the political domain. This occurs through a variety of mechanisms, including the creation and fostering of clientelist and other corrupt relationships, the damage flawed privatisations can do to the fledgling respect for the rule of law, and the lack of perceived security of title by those who acquired public assets through non-transparent, dubious transactions. The distributional consequences of different privatisation methods are important both in their own right and because distributions of wealth and income that are perceived as unfair or illegitimate are likely to be contested through political at other means that can be harmful to economic efficiency. For instance, the extremely unequal distribution of wealth and income in Russia is in part the result of the often corrupt and anarchic privatisations of the 1990s. The social, political and economic consequences of extreme inequality are bound to be damaging.

The role that the State and policy makers can play in designing appropriate privatisation

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[22] Tunnelling is the transfer of assets and profits out of firms for the benefit of their controlling shareholders.

methods can be crucial, although it is, of course, dependent on the specific institutional setting under which firms operate following privatisation. Privatisation methods and design play a primary role in a successful privatisation policy, because, the processes determining the initial private ownership structure crucially affect future corporate governance (and financial structure) and the effective role played by shareholders and other stakeholders.

3. Privatisation of network utilities: objectives and progress across EU accession countries

The brief review of the literature carried out in Section 2 suggests that public ownership can be preferred to private ownership only under a restricted set of conditions.

In practice, privatisation tends to have multiple objectives which may have to be traded off one for the other. Specific efficiency objectives include increasing productivity, raising service quality to best-practice international levels, and assuring sufficient investment to permit sustained growth of the network and the associated infrastructure. Social objectives include universal access - guaranteeing that remote or unprofitable customers have access to key infrastructure services. Other objectives improving the public finances through privatisation revenues and through the revenues obtained by direct and indirect taxation of the privatised public utility.

If the sector is both large and strategic, privatisation may make a positive contribution to aggregate economic growth, through increases in productivity associated with the diffusion of new technology and management techniques. Better network utilities may help improve the quality and accessibility of social services. These benefits may be greatest in the poorest areas.

Telecommunications and transport are typical of network industries whose physical infrastructure generates pervasive economy-wide spillovers. Hence the benefits of more competition at the upstream level are likely to be greater than in most other sectors. Specifically, not only do telecom services offer good opportunities for substantial cost reductions and improved performance by downstream users, they also increase access to information by all participants in the supply chain. For instance, increased availability and affordability of data and information services

such as Internet, call centres, tele-conferencing, high-speed data provision and collaborative working help new and more efficient rivals to enter the market and enable efficient incumbents to grow at faster rates. By reducing economy-wide transaction costs, these infrastructure services have the potential to affect the interactions of downstream firms in a comprehensive manner. As a practical illustration, the introduction of electronic commerce has changed the way business is done in many areas, by lowering transaction costs (e.g. reducing the number of intermediaries required to complete a transaction), by reducing barriers to entry and by improving access to information to consumers.

We noted in Section 2 that there are many different ways in which the government can sell public enterprises. Examples include various forms of voucher privatisation, sale through a public offering (the sale of shares to the public at a fixed tendered price), and privatisation through a trade sale to another company/ investor or through a management/employee buy out. To be successful in enhancing efficiency, privatisation requires a number of complementary institutional changes, including restructuring to create scope for competition and/or to enhance the commercial viability of the privatised utility. Network utilities privatisation has proven to be an effective means of attracting private investors and, importantly, a way of attracting foreign direct investment (FDI), particularly when privatisation has occurred through the selection of a strategic investor by open international auctions. In general, informed external investors with a strategic share have turned out to possess both stronger incentives and greater ability to identify and bring in appropriate agents with industry-specific knowledge and the necessary finance. We will analyse in turn the challenges for the main network utilities and the progress to date across those 10 transition countries that are also EU accession candidates.

Telecommunications: In the advanced market economies, a privatising government has tended to divest all or part of its ownership stake of the dominant telecom operator through an initial public offering (IPO). This leaves the existing management team in place and relies primarily on domestic

suppliers of capital and technology for all needed system upgrade and expansion. In contrast, across transition economies, telecom privatisation has typically involved selling controlling stakes to a western operating company, usually in exchange for a large up front payment plus obligations to update and expand the network and services. This allows national governments lacking the managerial and financial resources to "import" the needed capital and expertise to implement the major technological and service upgrades. Subsequently, the government tends to sell some or all of its residual holdings through IPOs thereby helping to jumpstart development of the national stock market and to spread ownership of the firms' equity as broadly as possible throughout the citizenry. The financial impact of telecom privatisation can be quite remarkable. The privatised telecom often accounts for 30% or more of total stock market capitalisation and for an even greater share of total trading volume.

The wave of telecom privatisation across the East European EU accession countries is summarised in Table 1, which reports, in addition to the privatisation date, the stakes acquired by the private strategic investor and the amount raised by the privatisation process. To date, eight of the ten East European EU accession countries have privatised the dominant telecom operator. Note that, in the case of Czech Republic, the strategic investor has withdrawn from the company. In the remaining countries privatisation is still underway, with Bulgaria having made the most significant progress towards privatisation, with the sale of a majority stake of BTC officially launched in April 2002 through a two-stage, publicly-announced tender. The package also includes a third GSM licence. In Slovenia the dominant state-owned telecom company has been partially privatised, with the state owning some 67% of shares in 2000, with the remaining shares having been floated to private shareholders and funds. The government plans to disburse an initial tranche of a further 16% of its shares, reducing its holding to 51%. This tranche is likely to be floated, as it is too small to interest a strategic investor. Further floatation of stock are expected thereafter, although it is unlikely the government would pull out of the company altogether in the foreseeable future.

Table 1 Telecom Privatisation across EU accession countries

	DATE	AMOUNT (US$ million)	PRIVATE BUYER
Estonia	1992	27	49% (Telia/Sonera)
Hungary	1993	875	30% (Ameritech/DT)
	1995	852	37% (Ameritech/DT)
	1997		27% IPO
Latvia	1994	160	49% Cable&Wireless/Sonera
Czech Rep	1995	1,576	27% Swiss Telecom/KPN
	2001		withdrawn
Lithuania	1998	510	60% (Sonera/Telia)
	2000		30% IPO
Romania	1998	695	35% (OTE)
Poland	1998		15% (IPO)
	2000	850	35% (FT)
Slovak Rep	2000	1000	51% (Deutsche Telekom)

Until recently, telecom privatisation has been an effective means of attracting private investors and FDI. In the East European EU accession countries, outside investors, especially foreign, can bring new techniques and establish new standards of corporate governance, while having less of an incentive to loot the company.[23] Privatisation through sale to strategic outsiders has promoted higher corporate governance standards and a better financial structure and performance. Unfortunately, privatisation to a strategic investor is now particularly difficult in this sector, as the major global telecom operators themselves face increasing debt burdens, most notably in Western Europe, in part due to their acquisition of extraordinarily expensive third generation (3G) cellular UMTS (universal mobile telecommunications system) licences. This can have significant repercussion on the EU accession countries, as illustrated by KPN's withdrawal from the Czech Republic.

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[23] In fact, outsiders have incentives for appropriate conduct due to reputation concerns (it would be costly if a wider regional or even global reputation became tarnished through local malfeasance), and because they often lack the established insider network connections that facilitate effective looting.

Electric Power: The electricity sector is capital intensive and is characterised by typical peak-load problems. There are also specific challenges facing transition economies, where installed generation capacities were designed to meet energy requirement prior to the transition. Central planning encouraged wasteful consumption of electricity by pricing power at a small fraction of its long-run incremental cost. As a result, installed capacity exceeds the present requirements. In addition, the electric power systems are inefficient (given current input and output prices) and suffer from severe underinvestment and lack of maintenance. Additional problems derive from the fact that not all electricity is billed or paid for on time. Non-cash payments account for a large proportion of billed electricity resulting in low cash collections. Privatisation can be designed so as to encourage payment discipline through appropriate sequencing. In particular, privatisation of distribution should occur prior to privatisation of generation to boost cash collection rates and effective tariffs. Without this, potential bidders for power sector assets will be deterred and necessary capital investment by the new owners will be not be forthcoming.

Table 2 Privatisation of other network utilities across EU accession countries

	ELECTRIC POWER	RAILWAYS	ROAD	WATER/WASTE WATER
Hungary	1995 Gen 1997 Distr	Planned	1989	1998
Estonia	2000 Gen	1998	2001	2000
Slovenia	Planned	Planned	1992	Planned
Lithuania	Planned	Planned	1993	Planned
Latvia	2000 Gen	Planned	1995	1995
Poland	Gen	Planned	1995	1999
Romania	Planned	2001	1996	1993
Czech Rep	1999 Distr	Planned	1998	1999
Bulgaria	Planned	Planned	Planned	1998
Slovak Rep	2001 Distr	Planned	Planned	1999

Privatisation in the electric power sector across the East European EU accession countries has often involved strategic investors to secure finance for necessary investment and to strengthen incentives for improved efficiency of operations and in the investment programme. Most accession countries have begun radical reform of their power sectors. Unbundling has generally taken place, with different industry functions (generation, transmission, distribution) being separated into subsidiaries of a holding company or totally separated legally. Privatisation has occurred in a number of countries (e.g. distribution in Hungary, Czech and Slovak Republic), as reported in Table 2. Privatisation of distribution and – more so – generation remains a challenge throughout the region.

Transport: Transport networks in transition economies tend to have relatively well developed railways but only limited road systems. The intensive use of railways under central planning reflected the emphasis on primary and heavy industries, which created a transport requirement for bulk commodities. Rail networks are extensive and heavily staffed while road networks remain inadequate. Even if railways successfully restructure, road transport can be expected to carry an increasing share of total freight transport due to the shift in composition of output away from lower to higher value products. Major investments are required to maintain and upgrade the quality of existing infrastructure in line with market demands and more effective management is required.

There are alternative ways in which railways can be restructured. One is to put the railway infrastructure under the direct managerial responsibility of the main passenger or freight operator and to charge other operators which might also use it for access. The second is to establish infrastructure as a separate internal business within an integrated railway and then to create an internal market with the freight and passenger divisions. Another alternative is to establish the infrastructure business as a separate corporation, so that commercial relationships with freight and passenger operating companies are formalised in legal contracts.

Most countries in transition have recognised the need to adopt such reforms. Bulgaria, the

Czech Republic, Hungary, Poland, Romania and Slovenia have begun the process of vertical unbundling. If railway reform is advanced (as, e.g., in Romania and Poland) the challenge is to privatise freight services, to commercialise passenger services (including inviting private sector participation with, for example, management contracts). If railway reform is lacking or lagging (as, e.g., in the Czech Republic) the challenge is to jumpstart it. The financing of new rolling stock and the rehabilitation of track and rolling stock require substantial amounts of financing. Spin-off companies resulting from restructuring exercises (e.g., railway workshop companies) do not have a credit history to borrow on their own.

Water and Waste Water: One of the key challenges in the water and waste-water sector is to corporatise municipal companies to unlock access to corporate finance. As shown in Table 2, this has been done already in most of the EU accession countries. However, no further progress in commercialisation has been made. The next steps are to increase efficiency through better business planning and operational improvements, and to strengthen financial incentives. Regarding the latter, this can be done in a public sector context through the introduction of a service contract between the municipality (the principal) and the municipal company (the agent), laying out targets for operating performance and rewards for meeting these targets. Possibly the strongest incentives for efficient performance and the deepest commercialisation result from the introduction of the private sector. There are examples to draw on here, notably concessions in Bulgaria, Estonia and Czech Republic.

In what follows, we choose Estonia, Hungary and the Czech Republic as the leading examples of successful privatisation experience in the telecom sector and we attempt to evaluate the impact that privatisation had in terms of the main objectives. Hungary has generally been referred to as *the* model of privatisation. In Hungary concessions to provide local services were awarded via separate local monopoly franchises. In 1993, 7 partly foreign-owned consortia received concessions for local telecommunications services in 18 telecommunications districts (the

remaining 36 concession areas are still directly controlled by the dominant operator Matav). The concession option involves competition *for* the market -- namely competition for the right to operate a concession -- rather than competition *in* the market. Hungary was also the first country in CEECs to introduce cellular services. In October 1990 Westel Radiotelephone Ltd. began providing analogue service and in 1993 two digital services were introduced.

4. Impact of privatisation at the sectoral and economy wide level

Despite significant achievements during the past years, there remains a critical shortage of telecommunication services, as indicated by the low penetration of telephone lines, long waiting lists and a shortage of non-basic telecom services. For instance, the average basic fixed line penetration rate (the basic telephone lines per 100 inhabitants) for East European EU accession countries in 2001 was just above 30%, compared to the EU average that is well above 50%. Similarly, the average value of the cellular penetration rate is below 40%, compared to the EU average of well above 70%.

This section analyses the impact of privatisation on key performance indicators for the Czech Republic, Estonia, and Hungary. The choice of countries is motivated by the fact that all three privatised early in the transition process so that we have a sufficient time horizon in terms of years to evaluate what impact privatisation has had.

In the following figures we report on the x-axis the time dimension, where 0 indicates the time at which privatisation took place and/or competition was introduced (see Table 1). Where available, performance for the four preceding years (to the left of 0) and following years (to the right of 0) is also shown. As indicators of the achievement of social objectives we use the increase in access to fixed lines (as indicated by the fixed line penetration rates in Figure 1) and the reduction in waiting lists, shown in Figure 2.

Both indicators of course also have economic significance, the first as an indicator of the stock of infrastructure capital and the second as in indicator of efficiency.

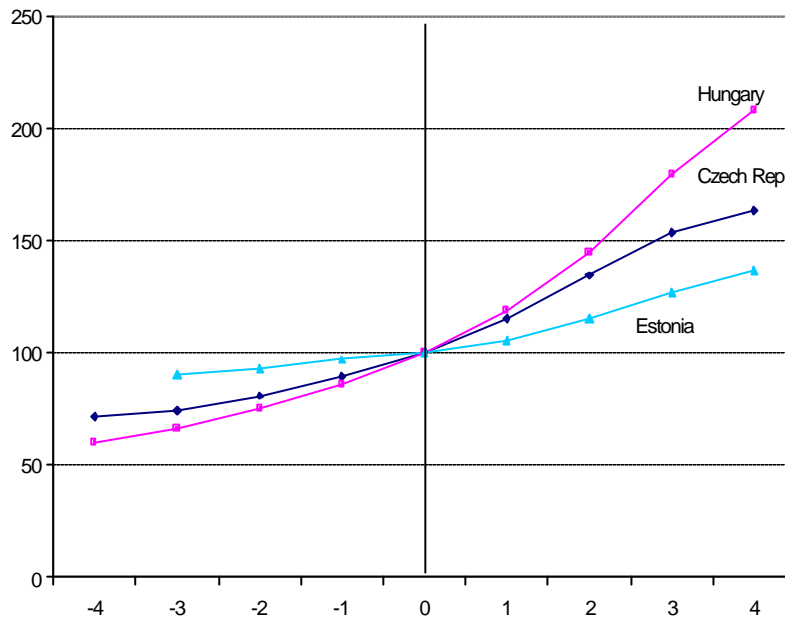**Fig. 1 Impact of privatisation on fixed line penetration rates**

Fig 1 shows dramatic increases in penetration rates, leading Hungary to more than double its pre-privatisation level. Very substantial increases also characterise Estonia and the Czech Republic. Overall the post-privatisation annual rate of increase is significant higher than the pre-privatisation rate. Similar considerations apply to the reduction in waiting lists, where in the case of Hungary and the Czech Republic the waiting lists four years after privatisation and the introduction of competition fell to 5% and 10% respectively of their levels four years earlier.

Fig. 2 Impact of privatisation on waiting lists
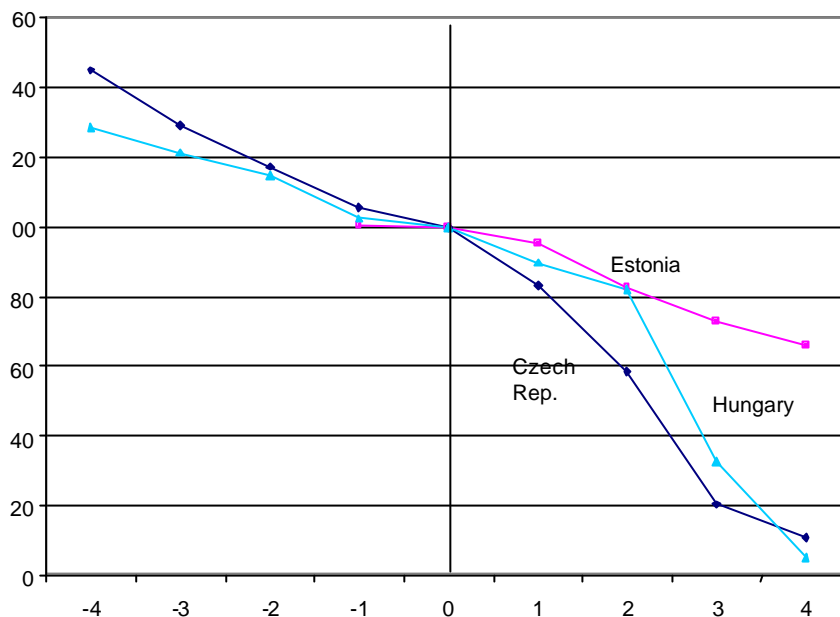
As indicators of the achievement of specific sectoral efficiency and investment objectives we choose the increase in the efficiency (as measured by main lines per employee) and network investment (measured as the annual expenditure associated with acquiring ownership of property and plant used for telecommunication services), as reported in Fig. 3 and 4 below.

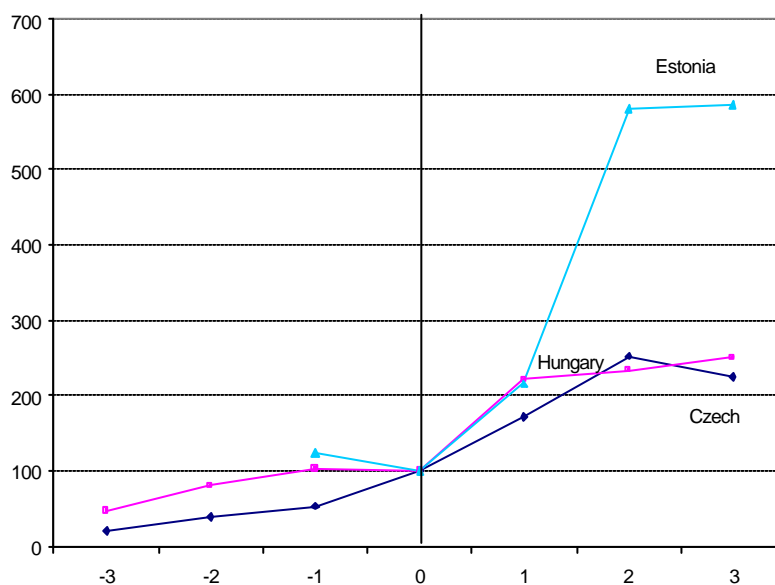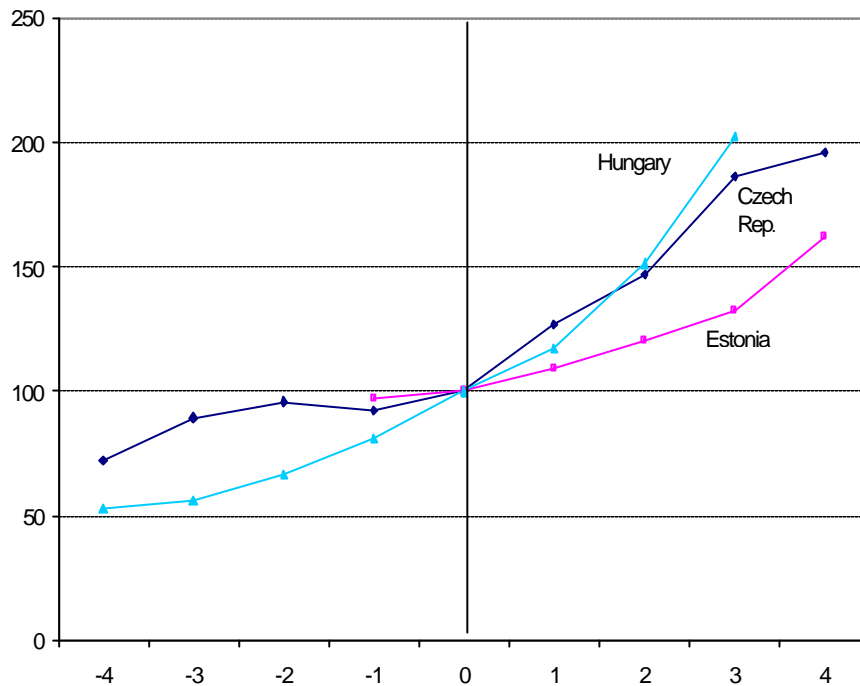**Fig. 3 Impact of privatisation on efficiency**

Fig. 4 Impact of privatisation on network investment

Privatisation has in all three cases involved a strategic investor, each of which was a major operator in its own home country. This brings the benefits of management know how transfer and the accelerated introduction of advanced technology as well as the financing to support the necessary investment programmes required by the licence. It speeds up achievement of global best practice standards by the industry. Experience shows that early entry of a strategic investor can indeed bring the necessary investment and management skills, and that this can greatly accelerate the growth of access to the network. Figures 3 and 4 provide strong evidence in support of this. In Figure 3, efficiency increases substantially, reaching twice the pre-privatisation levels within four years. Network investment increases substantially, particularly so in the Estonian case, where network investments almost reaches six times the pre-privatisation level within four years.

Pre- versus post-privatisation comparisons show how operating efficiency and capital investment increase significantly after privatisation. However, these univariate comparisons do not account for separate regulatory effects.

Empirical studies have been undertaken both at the country and enterprise levels. Cross-

country evidence generally indicates that the combination of privatisation and liberalisation is associated with significant improvements in the performance of the telecommunications sector, on any of a range of indicators, whereas privatisation on its own has only limited impact.[24]

A second major stream of privatisation research focuses on he performance of a single firm or a small number of firms. Galal et al (1992) document net welfare gains in 11 of the 12 cases considered in Britain, Chile, Malaysia and Mexico. Newbery and Pollitt (1997) conclude that restructuring and privatisation of the UK's Central Electricity Generating Board (CEGB) was worth it but could have been implemented more efficiently and with greater concern for the public's welfare.

Extending the analysis to 31 telecom companies from developed and developing countries, Bortolotti et al. (2001) find that the financial and operating performance of telecommunication companies improves significantly after privatisation but that a sizeable fraction of the observed improvements results from regulatory changes – alone or in combination with ownership changes – rather than from privatisation alone. Since in almost all cases new regulatory regimes and market structures are introduced around the time of privatisation, we also need to disentangle the separate effects of competition, regulation and ownership structure.

5. The adequate policy mix: privatisation versus other network industry reforms

5a. Privatisation and competition.

Private ownership and competition are the two essential ingredients of a market economy. The order in which they are introduced in the state-owned network utilities, however, is very important. Allowing private companies to compete with a monopoly state-owned enterprise can put pressure on the public enterprise to become more efficient and eventually could lead to its privatisation. But while *competition may well lead to privatisation, the opposite is not true*. To the

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[24] Ros (1999) and Boylaud and Nicoletti (2000).

contrary, a privatised monopoly will often attempt to use its money and political influence to stifle reforms, especially ones that threaten to introduce greater competition.

However, privatisation policies can be used in creative and challenging ways to create desirable (or at least acceptable) market structures. In an oligopolistic market with few public enterprises, it may be possible to privatise one enterprise leaving the rest in public ownership. The result is a mixed public-private oligopoly where the social welfare-oriented public enterprise constrains the profit-oriented pricing policy of the privatised firm, and the privatised firm exerts pressure on the public enterprises to boost their productive efficiency. Another approach to is to divest a public enterprise of some production units to introduce direct or indirect (yardstick) competition where prior to privatisation no competition existed. Vertical separation of upstream and downstream production could also be imposed.

When privatising network industries specific issues arise, as the final product (say, electric power supplied to a given locality) is produced by means of at least two intermediate goods. Typically, one of the intermediate goods can be supplied competitively (e.g. power generation in the case of the electricity sector). The other intermediate good is supplied monopolistically (e.g. power transmission and, for any given locality, distribution). If the supplier of the monopolised good or service is allowed to enter the market for the competitive good he will typically try to deter competition in that market also. This can be avoided through enforced vertical separation or by regulation of a vertically integrated firm. A policy of vertical separation was use to break up AT&T. British Telecom serves as an example of a regulated vertically integrated firm.

Opposition to the break-up of a vertically integrated industry tends to come from insider stakeholders (management and workers) and from customers who fear higher prices because the unbundled components of the formerly vertically integrated industry would have less power to lobby for government subsidies or to resist the introduction of effective tariffs that cover long-run incremental cost. In addition, the unbundled industry would have less aggregate monopoly power than the vertically integrated industry. The maximal privatisation revenue that can be obtained for

the industry as a whole is therefore likely to be lower with unbundling. The failure to break up a number of these large corporations has meant that even if, from a legal and regulatory point of view competition is permitted, the dinosaurs are likely to continue to dominate the industry. It also reduces the competitive pressures for greater efficiency.

Arguments against vertical separation and in favour of a vertically integrated and regulated monopoly are based on three arguments, already encountered earlier. First, network utilities are considered a natural monopoly (i.e. average costs decline with increasing scale of production, say increasing number of lines). The presence of massive economies of scale in many of the utilities might make monopoly preferable to competition. Indeed, it would be the ultimate outcome of competition. Monopolistic competition or even oligopolistic rivalry would imply duplication of costs and clearly would imply a waste in the resources, because the scale of individual production units would be sub-optimal. Hence a monopoly might be preferred, especially if it were regulated. Public ownership is one means of achieving such regulation. Second, entry restrictions allow the monopolist to apply non-cost based pricing and investment decisions that would permit him to achieve social objectives such as universal service, without fear of cream-skimming entry. Finally, it was though that a single entity should control the entire network to ensure that technical standards are met and that all part of the network inter-operate properly.

For most of the twentieth century the public policy consensus -- even for the case of telecommunications, the most dynamic of the network utilities -- was that (natural) monopoly was an appropriate, even optimal market structure. This monopoly was not simply a result of market forces leading to one efficient supplier. It was put in place by a law granting exclusivity for telephone service while imposing price-quality – investment regulation.[25] Regulation was focused on protecting the monopoly by keeping potential entrants out of the market to ensure that the

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[25] In many countries, similar laws gave the postal service a monopoly of mail delivery. New technologies for moving documents and exchanging messages (telex, fax, e-mail, texting, chatrooms etc.) have undermined this monopoly everywhere. Easier entry into the old core mail monopoly by courier services has created additional competitive pressures for the former mail monopoly.

monopoly had adequate economic returns to meet its social obligations and cover its investment needs.

This consensus turned out to be faulty. Technological progress is rapidly eroding monopolistic practices and "protected markets" even for fixed line local providers. This is true even for the local loop because of the variety of potential service providers. Cable and electricity networks are potential competitors of traditional telecommunication service providers. As an illustration, virtual private networks, the Internet and satellite communications -- and the dramatic reductions in prices -- are creating growing opportunities for business users to bypass the dominant operator.

Monopoly is, of course, not necessary to provide implicit or explicit subsidies to meet social objectives. Non-commercial objectives could instead be achieved through explicit interconnection agreements or other means, financed through a transparent budgetary line item.

Monopoly is also not necessary to maintain network interoperability (although it may help). When there are multiple interconnecting network operators, each one has an incentive to maintain interoperability with the others. However, the social benefit of an operator adopting a common standard will in general exceed the operator's private benefit, since his adoption of the standard makes that standard more valuable to others – the classic network externality. When there are multiple proprietary standards (as with computer operating systems such as Microsoft Windows, Apple OSX and the various Unixes) or when individual operators have sunk serious amounts of money in a given standard (even it is not proprietary), it may be quite some time before a common standard emerges, and when it does, there is no guarantee that the common dominant standard will be the optimal one. While having a single standard would be optimal in a static world, in a dynamic sector with potentially rapid innovation and technical change, a single monopoly standard could be stifling to innovation. Some sacrifice in interoperability today may be a price worth paying for improved technologies for interoperability in the future.

The empirical evidence for the network utilities supports the view that, while privatisation

has yielded significant benefits, allowing entry and competition appears to bring far greater benefits. [26]

Telecom: Liberalisation is currently in various stages of implementation throughout the East European EU accession countries, with Estonia topping the league in terms of early implementation, as well as having an independent regulator to ensure the smooth running of the process. Hungary is also a front runner in terms of liberalisation; although yet to be formerly implemented, the framework is already in place to ensure that the ending of Matav's monopoly and entrance of competition into the market should be a relatively painless process. In the Baltics, as well as in Poland and the Czech Republic, liberalisation of the telecoms industries has not proceeded so smoothly. Romania and Bulgaria have the furthest to go in terms of liberalisation, with investment needed in their incumbent providers to enable them to withstand the competition full liberalisation would bring. These countries are not due for liberalisation until around 2003. Competition also comes indirectly through the introduction of a second GSM operator. Generally, the dominant operator owns one of the mobile operators, so that the underlying market structure opens up to competition only with the introduction of the second GSM operator.

Electric power: The most common pattern of liberalisation in the electricity market begins with attempts to introduce competition in generation by unbundling generation from transmission and expanding legal access to the transmission network. The most far-reaching reforms also create spot markets for wholesale trade in electricity and allow consumer choice of supplier for some consumers. The efficient price level is the system marginal price, which could be computed as the avoidable cost of the marginal unit, plus the extra costs of start-up spread over the hours needed. The argument for having an efficient wholesale price is that it gives clearer signals for generation, which is discouraged by a lower price level. One natural way to make the wholesale price

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[26] Ros (1999) and Boylaud and Nicoletti (2000).

approximate the efficient price more closely is to liberalise the wholesale market, and allow it to be set by competition.

The practical issue is then whether it is possible to create a wholesale market that is sufficiently competitive to avoid inefficient dispatch, excess entry, and excessive prices, all of which are more likely with too few competing generators. This in turn will depend on the size of the market compared to the minimum efficient scale of generation. The advantages of the pool model include the fact that generators bid against each other in a pool and accept the full risk of making the entry decision. It allows for a faster transfer of cost reductions to final customers, provided the pool is adequately competitive. It also facilitates supply competition, which in turn aligns prices with costs and encourages cost reductions in metering and billing. Disadvantages include the fact that prices would move up to the system marginal price, which might give windfall gains to existing generators and raise prices to consumers, especially to domestic consumers, raising affordability issues. This can be avoided by ensuring that existing generators continue to honour existing power purchase agreements, which could be transferred to a holding company that receives the profits of the power generators in the pool and pays the final customers according to the existing power purchase agreement terms. Competitive pools appear to experience difficulties in ensuring adequate margins for infrequently run plant. This again can be avoided by charging the independent system operator to contract for such plant and including the costs with other ancillary charges. A pool may or may not be perceived as more risky by customers than contracting with a single buyer. If the contracts with a single buyer are considered secure and enforceable, then the risks should be less than with a pool, which, as a competitive market, suffers both from price and demand uncertainty, and also regulatory risk from possible intervention.

Transport The scope for competition in transport depends mainly on the specific characteristics of individual modes of transport and in particular on the existence of alternative modes which can provide scope for competition. Competition can take place between firms in the same mode of transport (intra-

modal competition) or between firms in different modes (inter-modal competition) in the same segment of the market. In transition economies there has been extensive privatisation and liberalisation of road haulage as a part of a process of divesting vertically integrated enterprises. There has been little progress in introducing competition in the railways sector.

Water and Waste Water: Of all the infrastructure sectors, water and waste water is the one where there is the least scope for competition *in* the market due to the significant scale economies and economies of density in building pipelines as well as in the construction of other forms of water storage and transmission. Competition *for* the market can be implemented through concession contracts (service prices or quality standards) awarding the right to supply the market.

5b. Privatisation and regulatory reforms.

The specific regulatory regime that is adopted for the privatised telecom sector encompasses several forms of regulation. The establishment of an independent regulator is a key regulatory challenge vital for the settling of market disputes and policy and other regulatory issues. *If the regulator is not independent, the government is still able to interfere even if the network utility is privatised.* Even with an independent regulator the difficult challenge facing the national government is to endow it with technically competent people and give them the authority and budget needed to implement its mandate effectively.

Two key decisions for the newly established agency are the establishment of pricing rules and the choice between rate of return regulation and price cap regulation. Fixed rate of return or cost plus contract offers no incentives to the firm to reduce costs, because any variation in cost is appropriated by the regulator (and via the regulator, the government) rather than by the firm. A fixed price contract induces the right amount of effort, because any reduction in cost is appropriated by the regulated firm. The enterprise is the residual claimant for cost savings.

Another important regulation involves designing rules to ensure the emergence of effective

competition, by providing third party access to the incumbent's network. In a multi-operator environment interconnection ensures any customer of one network can call any customer of another network. Call termination (i.e. the delivery of a completed call over the interconnected fixed network) is the essential interconnection service - it cannot be feasibly replicated and there is no market in call termination (there is no make or buy decision as the local loop involves high fixed costs and is unlikely to be duplicated by alternative network). It is frequently described as an enduring bottleneck.[27] Depending on market power this may lead to an abusive situation by operators withholding call termination or setting onerous terms.

Interconnection is critical in providing efficient investment and effective competition. If the regulator fails to understand interconnection it can distort market entry signals, invalidate investments and allow/encourage the abuse of dominant positions to the detriment of consumers. Hence, those operators with the ability to abuse their market power should be subject to special rules (*ex ante* regulation) to ensure that they do not abuse their dominance. These include a requirement to meet all reasonable demands for interconnection services from other network operators, transparent and cost based interconnection, unbundling of interconnection charges, non discrimination and publication of interconnection offers (terms and condition of contract and prices). Any other interconnecting operator without market power should be obliged to interconnect their network. From a public policy viewpoint the resulting price of call termination needs to be economically efficient, guarantee fair recovery of costs for all operators and provide the right entry signals.

Long run incremental cost methodologies meet these criteria. Its advantages include that it: (1) is open and transparent as it is based on business decision costs that are the same for any operator of a similar network; (2) is forward looking, avoiding inefficiencies and relating equipment costs to unique cost drivers; (3) incorporates a reasonable rate of return so ensures a fair reward. Note that (1) implies that it is verifiable and should ensure the most efficient outcome, including the

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[27] See Li and Xu (2001), Petrazzini (1996), Ros (1999), Wallsten (2001).

correct make/buy decisions. The disadvantages are mainly related to the fact that it is not a simple rework of existing figures, but needs relevant up-front effort. This can lead to common or fixed cost being apportioned in an arbitrary way that does not guarantee that the network operator will implement the efficient investment programme.

From society's point of view in a first best setting the regulator should set access pricing equal to the long run incremental cost of providing access. This assumes it is always possible to cover the losses that will characterise a decreasing cost industry under this pricing rule using lump sum taxes and subsidies. Unfortunately, such first best outcomes are not normally available. For instance, the presence of a binding budget constraint and the impossibility of financing subsidies through lump sum taxes creates serious problems. According to the Baumol-Willig rule, within non perfectly contestable industries access charges should be set equal to the incremental cost of access plus a term which reflects the opportunity cost of entry.[28]

In most cases, access liberalisation has taken the form of regulated Third Party Access (TPA); that is, a legal obligation to provide network access under non-discriminatory conditions. Regulated TPA is necessary to allow entry of new generators into a competitive market, as well as to allow consumer choice of producer/ supplier. Without regulated TPA, liberalisation of entry and termination of legal monopoly status is unlikely to lead to actual entry as potential entrants face hold-up costs. Hold-up costs may be discriminatory rates or contracting hurdles directed at entrants by incumbents. Similarly, without regulated TPA, legal provision for consumer choice of supplier will not result in actual consumer choice; the lack of entry by new generators means that consumer options are not expanded; even legally unconstrained consumers will continue to contract with incumbent suppliers. Additionally, the largest consumers who most often qualify to choose their supplier may wish to contract directly with third party generators, by-passing distribution utilities, but without TPA, they will be unable to do so.

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[28] According to the Baumol-Willig rule the access charge should be equal to the direct long run marginal cost of providing access plus the opportunity cost of providing access (i.e. the incumbent's

Table 3 Legal and Regulatory Reforms

Indep. Regulator	Telecoms	Electricity	Railways	Roads	Water
Romania	Planned	1999	3	1996	Planned
Bulgaria	2001	1999	3		Planned
Lithuania	2001	1997	3		Planned
Czech Rep.	1992 (semi)	2001			Planned
Estonia	1998	1998	3		2001 (semi)
Latvia	2001	2001	3	2001	2001
Hungary	1994	1994	3	1991	Decentralised
Poland	2001	1997	3	1991	Decentralised
Slovenia	2001	Planned	3	1994	Planned
Slovak Rep	1993 (semi)	Planned	3	Planned	Planned

Telecom: The legal regulatory framework is considered adequate (or almost adequate) and new legislation has been adopted for all East European EU Accession countries, as summarised in Table 3. However, implementation is still lagging behind, particularly as regards tariff rebalancing and cost-oriented interconnection rules. Estonia and Hungary emerge as the front runners in terms of their telecoms regulatory bodies. Poland, Lithuania, Slovenia, the Czech Republic and Romania have either just completed the process of setting up independent regulators (which now require strengthening) or are in the process of doing so. The Czech Republic's regulatory environment is thought to still allow government interference, because despite having a regulator (the CTU), too much power is still wielded by the Ministry of Transport and Communications.

Electric Power: Independent regulators have been set up in most of the East European EU

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reduction in profit caused by the provision of access. The optimality of the Baumol-Willig rule is discussed in Laffont and Tirole (1993) and Vagliasindi and Waterson (2001).

accession countries. Development of secondary legislation (tariff methodologies, grid codes) remains a major challenge.

Transport: As shown in Table 3, transport departments (at the federal level – e.g., road agencies) or transport companies (at the federal –e.g. railways- or local government levels – e.g., urban transport companies) have been established in most East European EU accession countries. Most still lack the institutional strength to plan, select and implement the capital expenditures they require to anticipated future demands on transport infrastructure. For road investment and for most investment in most urban transport systems, revenues come to a large extent from the central budget or from municipal subsidies.

Water and Waste Water: The local nature of the benefits derived from these services argues for placing primary responsibilities at the local government level. Some countries have decentralised most of the regulatory functions to the local government. However, there is still the need for regulators to scrutinise the cost of service providers and consequently for a degree of financial, economic and administrative expertise and independence that is still lacking even in the East European EU accession countries.

6. Conclusions

As the experience of western and eastern European countries demonstrates, to be effective network utilities privatisation should be complemented by measures stimulating competition and broader regulatory reforms. Otherwise, it risks allowing the newly privatised monopoly to use its resources and political influence to stifle reform, especially those that threaten to introduce greater competition.

This paper analyses the choices made by eastern European countries, focusing on EU

accession candidates, documenting their progress to date and the remaining challenges, focusing on the network utilities and especially on the telecommunication sector. We report strong evidence of a significant impact of privatisation at the sectoral and economy-wide levels. However, we also found regulatory challenges, mostly due to the fact that, in contrast to western Europe, regulatory agencies were not in place before privatisation. Having been created late in the game, the east European regulators have had their task complicated by the economic and political clout of the newly privatised utilities.

This is in line with recent findings in empirical literature. Wallstein (2002) found that establishing a regulatory authority before privatising the dominant telecom firm is correlated with the increase in sector performance. It is also consistent with the theoretical argument that it is important to build the institutional and regulatory framework first and then to privatise, as opposed to simply creating a private monopoly. The presence of a strong and independent regulator may also increase the value of the firm to investors, even though the such a regulator may will (or should) constrain the firm's ability to extract monopoly rents. The reason is that an effective regulator will bring something akin to a floor as well as a ceiling for profits. Investors face less uncertainty and are willing to pay a premium for legal certainty and security. An effective legal and regulatory framework is essential to attract private investment and to ensure that the country as a whole benefits from an effective set of network utilities.

7. References

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