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**TELECOMMUNICATIONS REFORM IN
CENTRAL AND EASTERN EUROPE**

Jay Pil Choi

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Telecommunications Reform in Central and Eastern Europe

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Abstract

The economic and technological features of telecommunication systems in Central and Eastern European (CEE) countries raise a host of challenging issues for public policy analysis. With the aid of theoretical developments in industrial organization and regulation literature, this paper examines an appropriate framework in which the telecommunications industry in CEE can be privatized and regulated. It also assesses the recent reform effort in CEE and draws some lessons for further effort to fulfill the goal of basic telephone services for all.

Comments

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1. Introduction

A vastly inadequate telephone system with shortage of lines and antiquated equipment was one of the many legacies left behind after more than 50 years of communist regime in Central and Eastern European (CEE) countries. The telecommunication system in the former communist regime was controlled by an inefficient state-owned monopoly whose main objective may be more aptly described by hindrance and tapping of communication rather than free flow of it. Unlike Western societies, in the closed system of Communist rule, communication was not considered as a basic human right. The primary purpose of communication networks was to facilitate coordination of planned economies. Free communication among masses was politically "suspect." As a result, there was no major incentive to link up people in the former socialist countries. Not surprisingly, the outcome was an extremely low penetration rate of telephone lines and a long period of waiting for the service.

With the fall of communist regimes and the subsequent opening of these closed economies came more than \$4 billion foreign investment (as of April 1995) into the telecommunication industry in CEE, which promised basic phone services for all. Recognizing the importance of telecommunications as a core element of infrastructure for the long-term growth of the economy, policy-makers in this region also set out ambitious plans to modernize telecommunications up to the level of the Western countries.¹ Indeed, significant progresses have been made with the realization that access to reliable communication services is a prerequisite for the burgeoning enterprises to thrive.² In Hungary alone, for instance, there are three cellular services providing direct access to global communication.³ However, the main beneficiaries of these developments have been confined to business customers in major cities. Once this emergent "stop-gap" measure of connecting important business players has been applied, the second phase of reform which extends network to the population at large needs to take off. However, the second phase of modernization that was expected to follow is under way at snail's pace (see Figure 1). What came out of this process is a so-called "two-class system" in which the new services are affordable only for the *neuvo* rich and foreigners.⁴ The reluctance of foreign investors to commit to the second phase of the developments is also reflected in a precipitous drop in foreign investment following initial

¹The World Bank estimates that each dollar invested in telecommunications generates up to \$10 in spillover benefits (Chalmers et al. (1994)).

² Doyle (1993) cites the results of surveys conducted by the management consulting firms of Deloitte & Touche and Coopers & Lybrand. According to these surveys, 78.4% of the U.S. companies considered the availability of telecommunications services as an important or very important factor in business location decisions. In a survey of 396 US and European multinationals contemplating investment in the CEE countries, 45% of respondents considered the telecommunications problems as a very important factor in investment decisions.

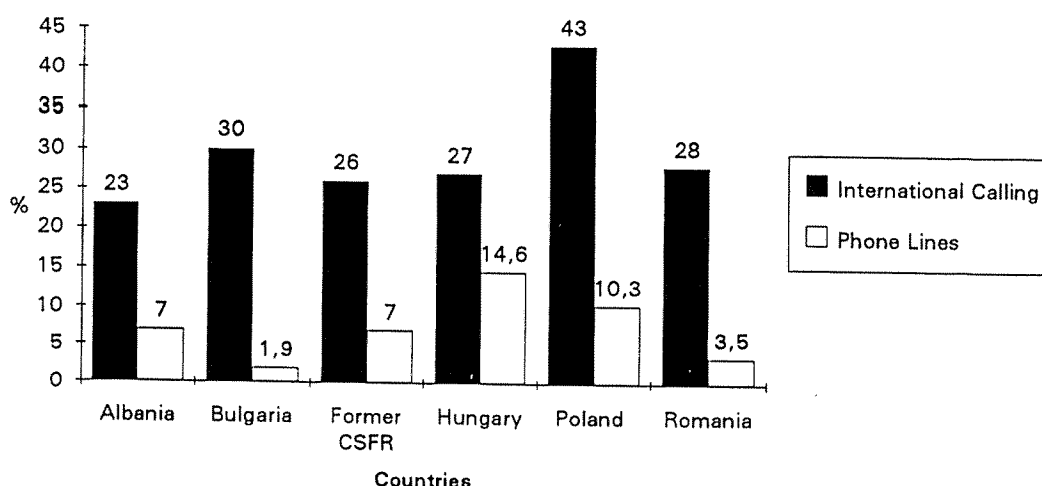
³There were 110,995 subscribers to cellular telephone services in CEE at the end of 1993 as a result of connecting 62,458 subscribers during 1993, which represents growth of 129 per cent over the figure of 48,537 subscribers at the end of 1992 (Financial Times Business Enterprises Ltd, March 3, 1994).

⁴A quick fix and band-aid approach in the first phase of reform also produced a perverse system where international calling which bypasses old system is more reliable than cross town communication via old network.

capital commitment. In 1994, Western investment by the top ten investors in this region increased by \$300 million, which amounts to only 13% of the group's cumulative investment of \$2.6 billion (Hudson, 1995).

Figures for "Telecommunications Reform in Central and Eastern Europe"

Figure 1: Annual Growth Rate in International Calling (1989-1992) and Phone Lines (1990-1993).



Source: International Telecommunications Union

The economic and technological features of telecommunication systems in CEE raise a host of challenging issues for public policy analysis. Of particular concern in the specific context of CEE are: (1) enormous amount of investment required for modernization coupled with inadequate domestic capital, (2) regulatory commitment in relation to long digestion period of investment (3) technology exhibiting natural monopoly, (4) highly integrated industry structure, horizontally and vertically, (5) network externalities, (6) cream-skimming, and (7) switching cost.

With the aid of theoretical developments in industrial organization and regulation literature, this paper examines an appropriate framework in which the telecommunications industry in CEE can be privatized and regulated. It also assesses the recent reform effort in CEE and draws some lessons for further effort to fulfill the goal of basic telephone services for all.

The rest of the paper is organized in the following way. Section 2 deals with the question of ownership structure of previously state-owned telecom provider in CEE. After concluding the necessity of privatization of this enterprise, an appropriate framework of regulatory and competition policies is discussed in Section 3. In Section 4, case studies of specific reform

efforts in CEE are provided in light of a set of principles derived from our theoretical framework. Concluding remarks follow.

2. Public vs. Private Ownership

The telecommunications reform in CEE countries, in general, strives to achieve the following broad main objectives:

- (1) incentive for provision of basic telephone services for all in a reasonable time framework;
- (2) restraint of the monopoly power and consumer protection (static efficiency);
- (3) the incentive to adopt the right technologies (dynamic efficiency);
- (4) preparation for the upcoming liberalization of telecoms industry in Europe.

To achieve these goals in the reform process, the first fundamental decision to be made is on the ownership structure of telecom enterprises. Despite the tendency to presume that every state-owned assets in these post-socialist economies should be privatized and is in the process of being on sale or given away via voucher program, privatization of large enterprises, especially ones operating in the natural monopoly industries such as telecommunications, cannot be taken for granted. Even in market-based Western economies, telecommunications service is still predominantly provided by state-owned enterprises.⁵

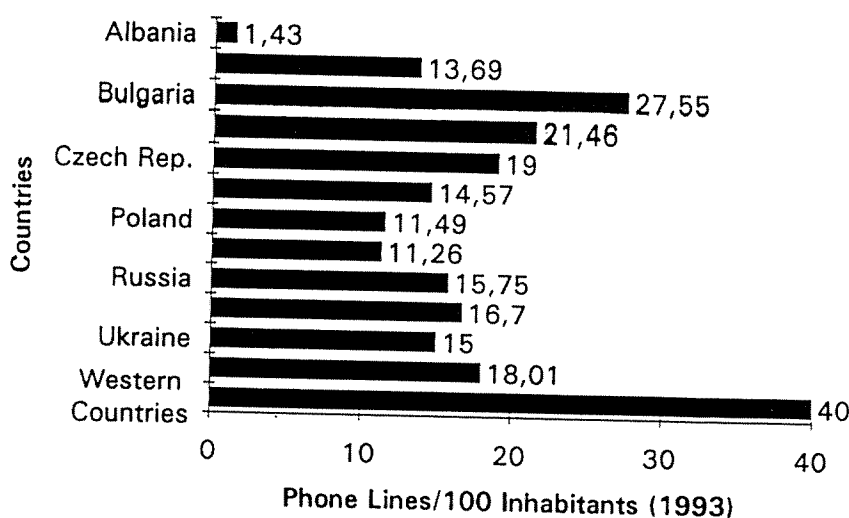
The decision on ownership structure is complicated because privatization of a natural monopoly industry often requires regulation. This implies that the merits of privatization vis-à-vis public ownership will be crucially dependent on the regulatory environment under which the privatized firm will operate. As Vickers and Yarrow (1991) argue, in the case of natural monopoly, the distinction between public and private ownership can be blurred and can become a matter of degree. With this caveat in mind, I propose two reasons to support (at least partial) privatization of telecommunications in the post-socialist economies.

First, privatization may be the outcome of necessity. The conditions CEE economies inherited from the Communist regime are well below those of Western countries whereas the

⁵Exceptions include the U.S. and U.K. Even for these economies, privatization and deregulation of telecoms industry is a fairly new experience. In the U.K., British Telecommunications was privatized in November 1984 by selling 50.2 percent of its shares to the public (Vickers and Yarrow, 1988). In the case of the U.S., AT&T was required to divest itself of its local network operations in the antitrust suit that was brought by the Department of Justice and ended in 1982. However, the landscape in the telecom industries is rapidly changing with most industrial countries set to privatize telecommunications in the near future.

investment in this industry is highly capital-intensive. The majority of these countries have telephone line penetration rates (phone lines/ 100 inhabitants) of less than 20% and none above 30 % while the Western standard is 40 % (see Figure 2). For instance, Romania currently has a 12% penetration rate. The country's phone monopoly, Rom Telecom, plans to increase its current rate to 25% by 2005. The estimated cost amounts to \$6-7 billion (see King (1995)).⁶ Maintenance and modernization of existing equipment have been also neglected for an extended period of time which left physical assets of state-run firms almost obsolete.⁷

Figure 2: Telephone Line Penetration Rates (Phone Lines/100 Inhabitants) in CEE.



Source: International Telecommunications Union

With the staggering amount of capital required for the modernization of telephone systems, the merit of state ownership crucially depends on the ability of the government to raise money without selling assets. As elaborated below, however, state-owned enterprises are more susceptible to political pressure and more likely to pursue noneconomic objectives with non-transparent price setting, which further requires heavy subsidy from the government. Without a built-in mechanism to ensure a drastic departure from the habitual *mode di operandi* in the state-owned enterprises, the ability to attract fresh capital to the telecommunications industry would be quite limited; the outlook of future subsidy that strains the already budget-crunched government will discourage foreign investment. The problem of raising capital is further handicapped by the political uncertainty and less developed financial markets in these economies. As a result, for the debt-ridden and cash constrained CEE economies, privatization may be the only option to induce the infusion of the necessary foreign capital.

⁶ Estimates of the total financial requirement for CEE over the next decade are in the range of \$80-150 billion (Chalmers et al. (1994)).

⁷ In Romania, telephone "connections are still made manually by an army of 15,000 operators." See King (1994).

Second, privatization may also be optimal for efficiency reason. As convincingly argued by Willig (1993), the critical role of privatization is to free the enterprise from arbitrary and self-serving political intervention in its operation by placing residual control and cash flow rights in the hands of private sectors. This insulation from political influences enables the enterprise to focus on economic efficiency. At the same time, the weaning of the firm from the state treasury will harden soft-budget constraints and expose the enterprise to the market pressure, which make it imperative for the firm to heed to market signals. A study by Galal *et al.* (forthcoming) on the performance of four privatized telecommunications firms also shows that privatization invariably led to improvement in performance, which further strengthens the case for privatization.⁸

As alluded before, however, caution should be exercised against a tendency to assume that privatization is an end in itself. It should be realized that privatization is only a part of a long process and the successful implementation of privatization requires a carefully crafted regulatory environment in which the market power of the natural monopoly can be checked, the recoupment of investment can be guaranteed and the incentive to ensure efficiency by the firm can be preserved. As Levy and Spiller (1993) correctly point out, "the benefits of privatization are not automatic but are dependent on the regulatory and competitive environment in which the newly privatized firms operate." Vickers and Yarrow's (1991) study of British privatization experiences also echoes this view.

Perhaps the only sound conclusion at this stage, therefore, is that the British evidence is consistent with the view that competitive conditions and regulatory environments (in the broad sense) are key determinants of performance.

Ownership structure with market power, therefore, cannot be analyzed in isolation of competition and regulation policies because the success of privatization depends crucially on the effectiveness of these policies, which I now turn my attention to.

3. Appropriate Framework of Regulation and Competition Policies

Given the inevitability of telecoms privatization for the infusion of foreign capital, this section concerns the appropriate framework of regulation and competition policies in the specific context of CEE economies. Unlike a small scale privatization of state assets operating in competitive markets, which is considered relatively simple and efficiency-enhancing without any further government involvement, the economic and technological features of

⁸ Ordover, Pittman and Clyde (1994) also argue for privatization of natural monopolies in post-socialist economies on the ground of superior ability and incentive of privatized firms to (1)raise tariff rates, (2)raise capital, (3)utilize the efficient mix of inputs, and (4)adapt to change in the future.

telecommunication systems pose a number of challenging issues for privatization. This section examines the ways in which the main objectives of reform can be achieved by judicious choice of regulation and competition policies. When there is conflict between these objectives, the trade-offs involved are evaluated.

3.1. Restructuring and Sequencing

The state-owned telephone enterprise in the former socialist countries was a multi-product monopolist which controlled all facets of telecommunications encompassing wiring, local network operations, long distance services, equipment production, etc. Given a highly integrated structure of state-owned monopoly in telecommunications industry, one important issue to be answered in relation to privatization is one of restructuring and sequencing; whether the firm should be divested into several pieces and, if the answer is affirmative, whether restructuring should precede privatization.

To answer this question, it is useful to make a distinction between *competition*- and *efficiency*-oriented restructuring as in Tirole (1991). Competition-oriented restructuring is one whose primary purpose is to obstruct collusion and vertical foreclosure in the industry whereas efficiency-oriented restructuring is one intended for improving firm management and seeking synergies across firms through economies of scale or scope. Tirole (1991), then, goes on to argue for a sequencing in which competition-oriented restructuring precede privatization for industries that is potentially non-competitive. The reason is that the private sector will not have any incentive to *voluntarily* promote competition that will enhance social welfare but only at the expense of its own profit. Moreover, Western experiences tell us that attempts to break up firms in the courts on the basis of antitrust laws have proved to be difficult, expensive, and time-consuming⁹.

In the specific case of telecommunications in CEE countries, there is a fundamental trade-off between competition- and efficiency-oriented restructuring. The efficiency consideration calls for keeping the firm in one piece. This is due to two (related) reasons. First, integration in telecommunications is mainly of vertical and/or complementary nature. In this case, separation of stages of production can only contribute double marginalization and will only exacerbate monopoly distortion unless adequate competition is not ensured in each stage of production (Spengler, 1950). Second, in network industries like telecommunication, it is imperative for a smooth operation that network be placed in an integrated fashion, which requires central planning.¹⁰ Fragmented industry structure can contribute to either a lower overall quality when two rival networks are involved (Economides, 1994) or it can lead to

⁹ Consider, for instance, the case of U.S. vs. I.B.M. which was brought in January 1969. It went trial in 1975 and the trial transcript contained over 104,400 pages. It ended when the Antitrust Division of the Department of Justice dismissed the case in 1982, stipulating that the case was "without merit" (Fisher et al. (1983)).

¹⁰ Consider, for example, the delay and inconvenience caused by different width of rail gauges when one crosses the border between Spain and France by railway.

incompatibility if rival firms strategically pursue incompatible technologies.¹¹ Rostelcom, Russia's long-distance and international carrier, for instance, initiated the formation of the "50x50" project in 1993, which intends to overlay Russia's long-distance network with 50,000 kilometers of fiber-optic cable between 50 digitalized switching centers by the year of 2005. The project immediately ran into problems as Rostelcom realized that "50x50" was unworkable without the cooperation of the local carriers in Russia's regions (oblasts).¹²

In contrast, the concern for market power and its abuse, in general, favors divestiture and dispersed ownership. In the case of telecommunications, however, the case for competition-oriented divestiture is less compelling. Once again, this is due to the vertical and tiered nature of integration in the telecommunications industry. The procompetitive effect of separated ownership would be most conspicuous if the divested companies would be direct competitors after divestiture. This would be true if the integration were mainly of horizontal nature. Still, vertical integration in the telecommunications sector may have anticompetitive implications to suppliers or of sellers to downstream buyers although the net effects may be smaller. For instance, an integrated firm in telecoms can forestall competition in the long distance service by foreclosing access of rival operators to local telephone network. In this case, divestiture can have a potentially procompetitive effect if it can lead to the prevention of supplier or buyer foreclosure and ease the process of entry in each stage. However, if divestiture does not lead to any entry and provide any subsequent market discipline, the net effect of divestiture of vertically related firms could lead to the replacement of one monopoly with two monopolies in the worst case.

In the specific context of CEE countries, it is reasonable to assume that even after divestiture local network operation would remain as a natural monopoly in the foreseeable future, given the need to install new lines available to hitherto unserved customers; it would be absurd to lay two cables in face of such an excess demand for lines. However, it is well known that in the provision of complementary system goods that should be used in fixed proportions, monopoly power in one component is sufficient for the full exploitation of monopoly power in the system goods market through a perfect "price squeeze" (Ordover, Sykes, and Willig, 1985). This implies that in the complementary goods market it is of no use to have competition only for a subset of goods that constitute a systems good. Therefore, to reap any benefits of divestiture and competition in the provision of complementary goods (such as long distance/ international service and local network access), it is necessary for the local network to be regulated to contain its monopoly power.

When the ability to price squeeze is limited by regulation, the incentive for the local operator to invest in new line installation depends critically on its ability to recoup its cost by tariffs.

¹¹ For example, in Britain, British Telecom introduced a range of mobile phones that had special features that can be operative only on its own network.

¹² See 1994 Financial Times Business Enterprises Ltd.

This requires tariffs higher than operating cost to cover the large sunk cost of providing telephone service. However, it will be argued below that maintaining rational tariffs structure may not be politically feasible.

3.2. Commitment to the Rationalization of Tariff Structure and Political Constraint

The most serious problem thwarting foreign investment in telecommunications in CEE countries is unreasonably low tariff structure inherited from the previous regime. Despite inefficiency induced by the distortionary price system, these countries were unwilling to raise tariffs in fear of political backlash. The people who used to talk without paying may resent the idea of having to pay for each call they make. Politicians may also be reluctant to raise phone charges because it can contribute to the overall inflation rate. Without rationalization of the tariffs, however, it would be impossible to recoup the investment.¹³ As a back of envelope calculation, it is estimated that installing a new line costs between \$500-1,000. In Russia, the monthly payment for the line is about 50 cents whereas it runs around \$12 in the U.S. If this rate is continued, it would take more than 83 years even if we take the lower bound of the estimated cost of \$500 and ignore the discount rate.

More importantly, the rationalization of current tariff alone would not guarantee an adequate level of investment. It should be reasonably assured that the rationalized tariff structure would be maintained for a sufficient period. This is due to the fact that development of communication networks involves short-term costs while the recoupment of these costs can be only realized in a long span of time periods. It has been well recognized among economists that the lack of commitment and opportunistic behavior can induce underinvestment in a dynamic relationship (Williamson, 1985). In a regulatory context, this translates to an underinvestment by the regulated firm unless there is a built-in commitment mechanism to bind the regulator to a rational tariff structure.¹⁴ With many countries still in political turmoil, it may be too optimistic to expect the future government to honor the promises made by the current government. Once sunk investment is made, keeping tariffs high is not *ex post* optimal and therefore, is not time-consistent. This will be especially true

¹³ The importance of tariff structure for investment incentive is also corroborated by industry participants and observers alike. For instance, Andrei Chirica, Director of Rom Telecom, says "privatization will not solve the system's problems. What will eventually bring about the necessary change is our ability to invest by slowly raising tariffs. That's the key point, whether you're Rom Telecom or any other telecommunications company." (quoted from King (1995)).

¹⁴ The situation can be exacerbated when the possible sources of foreign capital (most likely telecoms companies in Western countries) are pressured by the stock market. Then the managers would behave myopically in pursuit of short-term profits and will not have the luxury of investing in the long-term projects (Stein, 1989).

when the profits accrue to foreigners. In this situation, the holding back of investment we observe in these countries is a natural and rational response that we can expect.¹⁵

Even if investment is made, the possibility of *ex post* expropriation of investment can exert negative influences on the choice of technologies. The reason is that the extent to which the investment can be protected will depend on the *ex post* bargaining power of the regulated firms. For the regulated firm, one way to increase the bargaining power vis-à-vis the regulator is to choose a proprietary technology which makes the asset more difficult to transfer to a third party, thereby making the investor firm indispensable to the relationship. This may have grave consequences in the future if having a closed system prevents its integration with other systems and forestalls competition from other firms.

Providing the incentives to choose the right technologies takes an added importance in face of the looming opening of the European market in 1998. The reason is that the challenge of modernizing the telecommunications sector in CEE can be used as a platform to overtake and export telecoms services to the Western counterparts. Starting afresh with state-of-the-art networks and low labor costs can provide CEE a strategic advantage to better exploit the opportunities created by the telecoms liberalization in the European Union.

3.3. Cross-subsidization and Competition Policy

When the political constraint makes it infeasible to rationalize the tariff structure and the government itself lacks the resources to subsidize, one way to provide the incentive to invest in the provision of basic telephone lines is to keep the firm integrated and allow it to cross-subsidize across services. For cross subsidization to be feasible, it may be necessary to limit entry to the lucrative long-distance and international markets for a limited time to prevent the firm's profit margins from being dissipated by "cream-skimming." In this case, to ensure that industry profits are reinvested into basic phone services for all, monopoly position in the long distance market should be contingent on a well-specified provision regarding basic service.

One concern with allowing monopoly position to the incumbent for a limited time is the possibility that the regulator is captured by the incumbent and the legal barrier to entry is never lifted up. However, the opening of European market scheduled to start in 1998, will make the timetable for the limited-time protection more credible and will promote internal efficiency of the incumbent in expectation of future competition. Another concern with allowing monopoly position in the long distance market, albeit for a limited time, is the possibility of the incumbent entrenching itself as a monopolist even after the market is liberalized in the future. For instance, when the market is open for new entry, the incumbent may engage in predatory pricing to prevent any entry to the market. However, the threat of

¹⁵In this respect, Newbery's (1994) assessment that huge investment needed for telecoms reform in CEE can be readily supplied by western companies, seems to underestimate the importance of transparency, commitment and predictability of the regulatory direction.

predatory pricing does not seem to be serious. The reason is that with the consolidation and strategic alliances undergoing in the telecommunications market, the potential entrants will also tend to be multinationals with deep pockets.

Switching cost along with network externalities can potentially be the most serious obstacle in thwarting competition *ex post* liberalization (Klemperer, 1992). The existence of switching cost can give insurmountable advantage to the incumbent who already captured a sizable market share especially when network externalities are present. Or, with the influx of new consumers, switching cost may aid as a market sharing mechanism between the incumbent and the entrant. Since switching cost intensifies price competition for new consumers who do not yet have any allegiance to either firm, the incumbent may prefer not to compete in the new consumer market if it cannot price discriminate across the captured and new consumers. The result is that incentive for competition is dulled due to market segmentation. The regulator, therefore, should be weary of any business practices of the incumbent that may create switching cost in the future and forestall any competition from potential entrants. One such practice would be installation of a proprietary and incompatible technology.

3.4. Summary

To sum up, I propose that the state-run telecom enterprises be privatized on the necessity to raise the revenue required for capital intensive infrastructure investment. It is also recommended for the ownership of local networks and long distance parts not to be separated. Given the nature of natural monopoly in local networks, break-up inevitably requires regulation of local tariffs. Although it is necessary to rationalize tariffs to induce investment at the local network, political constraint may make it infeasible; local tariffs may be determined by political expediency rather than economic rationale, especially once the investment is sunk. Keeping the firm integrated allows the firm to cross subsidize between divisions and price discriminate between business and residential users.

However, I do not propose that the multi-product telecoms enterprise be left completely unscathed. There are some components of the firm that are relatively independent of the operation of other components. One prime example may be terminal equipment manufacturing. In this segment of the industry, the beneficial effect of synergies from keeping it with the rest of industry under one roof seems be relatively minor. Due to a fairly competitive international market structure, I expect that trade liberalization in this sector can have an immediate impact on welfare gains from a significant drop in the price. Liberalization in this sector can have an additional benefit of safeguarding against any effort to introduce proprietary equipment in the system for the purpose of creating switching costs, which can

entrench the firm with temporary monopoly power and render future competition ineffective.

¹⁶

4. Experiences of CEE

This selection provides a few case studies of telecommunications reform efforts in CEE in light of the theoretical discussions.¹⁷

4.1. Romania

Romania plans to install more than two million new telephone lines by laying more than 4,000 kilometers of fiber optic cable, which will increase the penetration rate up to 25 % by 2005 from the current level of 12 %. Romania opted to fulfill this objective with the state-run Rom Telecom. Fifty percent of the estimated cost of \$6-7 billion is to be financed internally while the rest of them is coming from outside sources. Considering the thin capital market in Romania, the most likely source of external financing would be from foreigners.

The ability to raise capital internally and to attract foreign capital will crucially depend on the tariff rate allowed by the government. Since a state-run enterprise can be more susceptible to political pressure, it is doubtful that the Rom Telecom can rationalize the tariff structure and can further hold on to it. The reason is that raising tariffs is an extremely unpopular political move, especially for the people who used to talk without paying during the socialist regime. Fundamental change in the pricing structure can also add to officially measured inflation, which further undermines the credibility of high tariffs. Even though Rom Telecom raised tariffs by 30% in June 1994, followed by another 30% increase in March 1995, these increases could barely even keep up with the inflation rate, which runs approximately 70% a year. Given the nature of capital intensiveness for the telecoms infrastructure, it would be impossible for Rom Telecom to finance such a large sum of money when it runs a chronic deficit in the revenue side.

4.2. Poland

Telecoms reform in Poland is mainly driven by competition policy which allows local private companies to set up operations and compete with the state monopoly, Telekomunikacja Polska SA (TP SA). Even though setting up a phone network is possible by applying for a license, the competition has not been effective because of a flawed competition policy.

¹⁶A recent announcement by AT&T to split itself into three separate companies (communications services, communications equipment and computers) is illuminating in this respect and can be a evidence of "negative synergies." See New York Times, September 21, 1995.

¹⁷The details of reform efforts in this section draw on Beck (1995), King (1995) and Michaels (1995).

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The main problem is that Poland has not yet established an independent regulatory agency for telecoms. As a result, the Ministry of Communications takes a dual role of the owner of TP SA and the regulator of the telecoms industry. Under this circumstance, it would be difficult to expect regulatory policies that safeguards against abuse of TP SA's monopoly power. Without any privatization of TP SA's assets, the regulatory policy will tend to serve only TP SA's interests and to shield TP SA from any competitive pressure.

For instance, in network industries such as telecommunications, the effectiveness with which potential competitors can compete will depend crucially on the terms of the interconnection between the networks of rival firms. In Poland, this means that access to the state monopoly TP SA's network by competitors should be guaranteed at a competitive term for any reasonable level of competition to occur. However, TP SA predictably refused to establish transparent guidelines for revenue sharing with independent operators (as of February 1995). As a result, independent operators need to engage in lengthy negotiations with TP SA to reach an agreement on the terms of interconnection. Since the independent operator's investment plans and the financing ability from outside sources depend on the terms of interconnection, the uncertainty and delay associated with the negotiation can have a harmful effect on the early arrival and viability of competitors that can provide market discipline to TP SA. It is even possible that they reach a stalemate and cannot make an agreement on the terms of interconnection. In this case, the Ministry of Communications, however, cannot be relied upon to deliver a fair ruling on the matter due to conflicts of interests stemming from its status as the owner of TP SA.

In this respect, it is illuminating to recall the British telecoms experience regarding the interconnection issue. Like TP SA, British Telecommunications (BT) was a state monopoly having exclusive right to run telecommunications systems in Britain until it was privatized in November 1984. Mercury Communications as the other national telecommunications network operator in competition with BT, asked BT to enter into a connection agreement. Not able to reach an agreement with BT, Mercury asked for a ruling by Director General of Telecommunications (DGT) on this matter in 1985. It was ruled that the two networks have full interconnection for both domestic and international calls and the interconnection charges be based on BT's costs. As a result, Mercury ended up paying substantially less than BT's normal charges for the use of its lines, which set the table for future competition between Mercury and BT (see Vickers and Yarrow, 1989, for more details). The British experiences suggest a need to establish an independent agency that oversees conditions of interconnection. A clear-cut stipulation on interconnection charges from the beginning will enable the industry to avoid unnecessary delay and uncertainty, thereby fostering competition.¹⁸ In the absence of an independent regulatory agency with competitive stance,

¹⁸Even in Great Britain, there was a delay in the ruling on the interconnection issue since BT challenged in the court whether the DGT indeed had a power to make such a ruling. Vickers and Yarrow (1989) argue that such a delay could have been avoided if the DGT's responsibility were clearly stipulated at the outset of privatization process.

the natural outcome would be perpetuation of inefficiency and delay in the telecoms service. Even though such an agency is created, one could question the credibility of independence with one of the regulated competitors owned by the state.

4.3. Hungary

In its reform process, Hungary first restructured Matav, its state phone company, into several pieces before privatization. In the dissolution process, Matav whose 30 percent stake was sold to a joint venture between Deutsche Telecom AG and Ameritech Corp for \$875 million, received the right to handle long-distance services, trunk lines and the regional market of Budapest. The rest of the country was divided into 54 regions. Each regional operator then had an option to choose between Matav and outside bidders. Matav was chosen by 29 local telephone operators. Already guaranteed monopoly status in the 29 regions that did not qualify for a concession, Matav bid on 13 of the 25 remaining regions and acquired an additional 10 through bidding.¹⁹ The remaining 15 regional franchises were sold to foreign private ventures (Telecommunications Development Report, January 1994).

The main problem with the Hungarian privatization process was that the local operators had to acquire the existing regional assets from Matav and the terms of acquisition were to be determined by a negotiation between them. This created an unfortunate situation of bilateral monopoly. Theory tells us that there would be no delay and inefficiency in the bargaining process if there were no incomplete information (Rubinstein, 1982). However, the situation in CEE countries is far from the ideal world of perfect information. First, CEE countries lack rigorous and well-established accounting procedures. As a result, the value of assets in the book contains very limited information and is grossly overestimated due to the absence of limited historical accounts of value. Second, the assessment of asset values is further complicated in network industries because the value of an asset cannot be valued in isolation from the usage of other complementary assets. Finally, there is so much uncertainty regarding regulatory direction, technological change, industrial alliances, etc., which affect the expected value of assets. Unless every party in the negotiation shares the same expectation, it would be difficult to expect an immediate resolution of bargaining. Out of fifteen foreign ventures who bought regional franchises in Hungary, five companies are still negotiating with Matav one year after regional privatization of local operators.

Considering the need for coordinated approach to telecommunications reform, Hungary may have created too many local operators resulting in a highly fragmented structure. Even in the U.S., only 7 Regional Bell Operating Companies were created when the local operation of AT&T network was separated from the long-distance division. In case of Hungary, one rationale for its decision may have been to induce more active participation by small bidders. This strategy, however, also had an undesirable side effect of attracting underfinanced firms

¹⁹In five of these regions, Matav was the sole bidder.

who are driven by short-term goals (Beck, 1995). This may have a grave long-term consequence of adopting inefficient technologies in industries of rapidly changing technologies such as telecommunications. For instance, the strategy of laying soon-to-be-obsolete copper cable and of gradually upgrading capacity later to carry future traffic will prove to be much more costly in the long-term due to lumpiness in investment. Installing fiber-optic cable, in preparation for the so-called information superhighway to carry vast quantities of information such as voice, data and picture images, would be a rational response even though it may be more costly now.

4.4. Czech Republic

Overall, the reform strategy in the Czech Republic seems to be closest to the one suggested in this paper. In contrast to Hungary, which dissolved its monopoly enterprise before privatization, The Czech Republic kept its phone company intact and put a 27 percent stake in the Czech telephone company, SPT Telecom AS, on an auction block. Five international telecoms groups participated in the bidding. The winning bid was made by a consortium (TelSource) of Royal Nederland NV and Swiss Telecom at the price of \$1.45 billion (Financial Times, June 29, 1995).²⁰

The criteria for the choice included not only the price but also the quality of proposal such as plans for modernizing SPT's network and the operational experience of the bidders.²¹ As a result, Stet SpA of Italy lost out in the bidding despite the fact that it made the highest offer of more than \$1.5 billion. The choice of TelSource based on the best overall quality rather than just price alone is consistent with the objectives of telecom reform specified in Section 2. In return, STP is guaranteed monopoly position in the lucrative long-distance and international telephony market until 2000. This temporary protection of monopoly position will enable the firm to recoup the investment expenditures for installing new local lines by cross-subsidization.

5. Concluding Remarks

Applying insight gained from recent developments in industrial organization and regulation literature, this paper assesses the recent reform effort in CEE telecommunication industries and lays out some implications for a successful transition to the goal of basic telephone services for all. Despite impressive strides made in the first phase of reform, the progress in reaching the general public has been disappointing so far. This slow progress can be mainly attributed to uncertainty regarding regulatory and competition policies in these countries.

²⁰ Other bidders for the stake were Telfar, a joint venture between Bell Atlantic and France Telecom, Cetel, a joint venture between Deutsche Telekom and Ameritech Corp., and Tel Danmark, the Danish phone company and Stet SpA of Italy.

²¹ TelSource, the winner consortium, has technical support from AT&T of the U.S.

Foreign investors lacked confidence in the regulatory framework for setting tariffs. The investment for the services provided in the first phase of reform - mobile communications for wealthy and business communities in the city area, for instance - can be recouped quickly and considered to be a sure bet. The second phase of reform process, however, requires a long period of payback for investment. Without assurance of long-term profit, it would be impossible to attract new foreign capital for the investment in installing new lines, perpetuating the current situation of shortage of lines and long waiting period, which would invite rent-seeking behavior by parties concerned in the form of bribery.²² This will only add to the cost of opening-up new business and could contribute to political instability, which further inhibits foreign investment, trapping the economy in a vicious cycle.

The rationalization of tariff structure and reasonable assurance to keep it that way may not be credible due to its politically unpopularity especially for those people who were accustomed to below average and marginal cost tariffs. To relax this political constraint, I propose keeping the firm in one piece and allowing the integrated firm to cross subsidize across units by charging higher prices for long-distance and international calls which are mainly used by big business communities.

²² In Romania, small businesses routinely pay bribes of \$500 to have a line telephone connection. See King (1994).

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