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ROUNDTABLE ON CONCESSIONS

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ROUNDTABLE ON CONCESSIONS

PUBLIC OR PRIVATE PROVISION OF INFRASTRUCTURE SERVICES? IF PRIVATE, FIXED TERM CONCESSIONS OR FULL PRIVATISATION?*

*by Mr. Alberto Heimler***

1. Introduction

1. While in the past most infrastructure services were provided directly by governments in almost every country, in recent decades, especially because governments did not deliver the required quality and were not quick in adopting up-to-date technologies, there has been a progressive movement towards privatisation. At the same time technical progress and innovation changed the boundaries of natural monopolies, allowing competition in a number of activities.

2. In principle, privatisation¹ pursues productive efficiency, while allocative efficiency is achieved through competition. In practice, privatisation and competition reinforce each other: privatisation is very often necessary for introducing a level playing field among market participants, so that competition could more easily develop. This is the case for telecommunications and electricity where the privatisation of most former State monopolies, coupled with the introduction of independent regulators, contributed to the development of greater competition, leading to a strong improvement of both productive and allocative efficiency. In other industries, because of their natural monopoly characteristics, competition is impossible. The objective of privatisation in these industries is to improve corporate governance and increase incentives for cost minimisation.

3. Privatisation, however, does not eliminate the need to regulate market power. Economists are aware that in principle market power could be regulated directly through some form of price control. However, having developed the theory of regulatory capture², they started to suggest that competition be used also for choosing the single supplier of a natural monopoly market, granting the monopoly for a fixed term. The suggestion, originally made by Chadwick (1859)³ and developed by Demsetz (1968)⁴, was to organize bids by which firms, competing for the right to serve a monopoly market, would compete away all monopoly profits, thus eliminating the need for ex-post regulation.

4. In practice, competition for the market in infrastructure services has never been a substitute of regulation, but has always been introduced in order to choose the most efficient company which would still have to be regulated. Unfortunately the proposition that competition for the market requires nonetheless regulation is rarely made clear to the public, to politicians or to the bidding parties. As a consequence, the simple use of the term “competition” is widely (and unfortunately wrongly) perceived as an alternative to regulation.

5. Economists are now almost all in favour of bidding and auctions. Quite a change from the past! Sixty years ago economists were suspicious when they observed any form of externality or monopoly power, and they invariably thought it necessary for governments to intervene in a very substantial way. In both circumstances, they generally advocated nationalisation and public ownership.⁵ Simons, a U.S. free market economist who nonetheless accepted and promoted public ownership of public utilities, believed that nationalisation would, by itself, eliminate the profit motive from managers' action, turning natural monopolies into companies that would maximize consumer welfare.

6. Economists in the U.S. began to convert to a free market ideology in the mid 1950s, believing that private firms would be more efficient also in circumstances where monopolistic conditions prevailed.

In such cases the solution would be price regulation. In contrast, in Europe, nationalisation continued to be considered the best form of control of market power by natural monopolies for many years. In many countries, this led to a production structure where the role of the State was quite substantial in the provision of both private and public goods. Only with the collapse of the communist economies of Eastern Europe did the case for nationalisation weaken also in Western European countries, and the number of advocates for privatisation of public enterprises has increased geometrically until very recently.

7. The problem with privatisation is that it cannot be a solution for every activity because regulation is not always adequate for disciplining market power. For example, certain public goods (such as roads) clearly facilitate the operation of markets. If roads were private and priced, the economy may suffer. More generally, there is a trade off between private and public ownership in terms of costs and benefits, which depends on the specific characteristics of the product being supplied.

8. For natural monopolies, like for example a highway, should there be State production or a regulated private monopoly? In the case of a private monopoly, how should this private monopolist be chosen? Should the license be fixed term or have an infinite duration? Is the situation different for industries that are not natural monopolies? Taking quite a broad perspective, this paper will try to offer some views on these issues, suggesting a lot of caution with respect to the not always easy competition-for-the-market solution.

9. The plan of the paper is the following. Section 2 will discuss the terms under which a choice between private and public provision should be made. Next, should a decision to grant a concession be made, whether the auction should have a fixed term or an infinite horizon. Section 4 will address the problem of renegotiations in fixed-term auctions, providing some examples taken from the vast Latin American experience. A discussion of the benefits of an auction vis à vis a beauty contest will then follow. In section 6 the problem of technical progress changing the boundaries of existing natural monopolies will be addressed together with the corresponding need that the issue is taken up by proper restructuring in the process of privatisation of infrastructure services. Section 7 concludes.

2. Concessions or public provision?

10. Concessions imply the transfer of a right from the government to a private entity. That right may originate from the fact that a certain activity (for example broadcasting or electricity production) is reserved to the State by the Constitution or that a certain resource (for example a forest or the spectrum) is owned by the State. In both cases the problem is how to choose those that would be entitled to enter that activity or to use that resource. Of course the problem exists only in so far as there is (real not artificially created) scarcity in supply or if there are some externalities associated with the reserved activity or with the use of the State owned resource. If there is no scarcity and there are no externalities then anybody could (and should) enter without any restriction. Otherwise the problem is how to choose the entrants.

11. As for concessions for the right to use a State owned resource, for example the spectrum, if there are no other public interest uses (for example defense), its use can be conceded to a private entrant. The problem is how many entrants should be let in, how to organize the bid, whether the transfer of property rights should only be temporary. The answer to these questions is easy, but only in principle: 1) entry should be allowed until entrants are willing to enter and a price for the State resource should be charged only if there is scarcity; 2) the resource allocated to each market participant should be in proportion to the use it is expected to be put at; 3) in any case firms should not be allowed to purchase multiple licenses so as to reduce competition⁶; 4) the bid should be organized carefully so as to avoid any strategic behaviour on the part of the bidding partners to pay less⁷; 5) the transfer of property right may be temporary only to the extent that there are no substantial sunk costs. In practice, organizing a problem free auction can be very demanding, even for allocating a scarce resource like the spectrum⁸. In many circumstances a similar

difficulty may arise even when the auction is organized for identifying the lowest cost provider in a public procurement setting⁹. There is a huge literature on these issues that shows that auction theory can be very effectively used for identifying the optimal auction-design mechanism¹⁰.

12. With respect to the case of a reserved activity there is a further problem that logically anticipates how to choose a private entrant: it is that in some instances governments are better placed to keep that activity for themselves. For example, the privatisation of local bus transport services may disrupt service regularity¹¹, a negative externality from waste disposal or cemetery services could cause social harm, or universal service may not be guaranteed. In such cases government supply may well be the solution¹². The problem of auctioning out an infrastructure-service activity will be pursued further in section 3.

2.1 Public vs private provision of public services

13. In a world of perfect information and no asymmetries, government provision of public services would lead to the same results as private provision. The government would either enter a contract that fully covers the provision of the service with an outside producer, or instruct the appropriate government branch/State owned company to provide the service. Accordingly, the question of who should provide these services would be irrelevant.

14. Public versus private ownership of assets becomes an important issue when the government is unable to write and enforce a complete contract. The government may know exactly what is needed in general, but it may be very difficult to write down exactly all possible contingencies that the provider might face. Furthermore it may be impossible to verify some dimensions of the quality of the service provisions *ex post*. If contracts are incomplete (which in fact is always the case), the ownership of assets becomes important because it determines who benefits from *ex post* bargaining over situations not covered by the contract.¹³ For example, property rights are important for ensuring that innovation is carried out and that efficient strategies are pursued. As Shleifer¹⁴ notes:

[O]wnership strengthens the owner's incentives to make investments that improve or reduce the costs of using the assets, because the owner has the power to reap more of the rewards on these innovations.

15. The problem of how effectively residual profits are controlled is a key issue for establishing whether incentives for efficiency are sufficiently strong. In particular, in the absence of clear incentives to monitor managers by absent owners, the propensity to innovate and to minimize costs is strongly reduced. In the case of State ownership, citizens and taxpayers are indeed the ultimate owners, but are unable to effectively monitor the managers. As a consequence, the incentives for cost minimisation and innovation are severely weakened in State owned enterprises. This is why State owned enterprises often dissipate rents with other stakeholders, such as workers, managers and suppliers, so that rents do not accrue to the owners (the public) that by the way, contrary to the other possible owners, are much less inclined to compensate. Contracts are often incomplete in that they do not specify an objective and verifiable minimum quality standard. If a contract cannot guarantee a required level of quality, a private firm would have the incentive to cut costs by reducing the quality of service provided. For example, with respect to nursing homes and prisons, private employers subject to price regulation could easily reduce the quality of services, serving food of lower quality or employing personnel that would mistreat the elderly or prisoners. Regulators, because of the difficulty of actually observing such behaviour, would face a lot of difficulties in identifying or punishing strategic behaviour of that sort.

16. One possible solution is to eliminate the private firm's incentive to cut costs through a contract that provides that the firm will be compensated for all its costs. Under such a contract, the firm would have low incentives for both cutting costs and enhancing quality. It would, however, always have the incentive

to increase costs, leading to monopolistic rents. In such circumstances, the government would have the incentive to monitor all expenditure decisions. Private ownership would then acquire most characteristics of public ownership (except for the very relevant fact that government would not directly control supply).

17. It is not always the case that when a contract does not effectively specify a minimum quality standard, a private supplier will provide low quality services. If it is possible to introduce competition in the market, then suppliers will have an incentive to improve quality in order to attract more customers. Thus, competition among private suppliers is one solution to the quality reduction problem. Competition, however, is not possible when natural monopoly conditions prevail¹⁵.

18. Even without direct competitors however, a private firm may be sometimes motivated to maintain or improve quality because this might enhance their reputation as a high quality service provider. If the incentives are correctly established (for example by measuring quality by the number of complaints by unsatisfied customers), firms with a good reputation for high quality services may be in a better position to win additional contracts, or have their contract renewed when it expires.

19. Finally, private provision of services may be preferable because it will enhance the possibilities of innovation. If there is a potential for innovation, a private firm will have the incentive to do so. A government owned firm, in contrast, will be more reluctant, because it will be unable to fully enjoy the As Schleifer has suggested¹⁶, these considerations imply that public provision is superior to private provision only when: a) the opportunity for cost reduction stemming from a decrease in non-contractible quality is high; b) the probability of product or process innovation is limited; c) gaining reputation as an efficient service provider is unimportant; and d) competition is weak and consumer choice is ineffective. Most public services that are sold at market price (in contrast to services that are given away for free or at below-cost prices) do not fulfil these prerequisites, which implies that, in order to increase the efficiency of supply, privatisation (accompanied by regulation) is quite effective. On the other hand, some public services, for example local transport, fulfil these prerequisites and are probably better served by public provision.

20. The problem is that the choice between public or private property is almost always resolved on political grounds and not enough consideration is given to the fact that the structure of managers' incentives is not the same in the two systems. While, at least in principle, public firms are less likely to pursue efficiency while providing quality, private firms are more likely to be efficient but less likely to provide quality. The realism of these trade offs can be judged on a case by case basis and around those a political/regulatory solution could be found.

3. Fixed-term auctions, privatisation and efficiency

21. Once private supply has been found preferable to public provision, auctions for entering into a reserved activity for a pre-determined period of time have been proposed as an alternative to privatisation.

22. One of the differences between the two is that with privatisation the license has an infinite time horizon. In this respect, the crucial issue with fixed term licensing is the extent to which inefficiencies might appear near the end of the license. In particular, such inefficiencies result from a company's failure to make efficiency-improving investments (in capital goods, training, restructuring, etc.) not at the beginning (when the length of the license allows for such investments to be paid back), but whenever necessary throughout its life. Except at the beginning of a license, the incentive to invest (even in maintenance) will be quite low, leading to distortions and disadvantages for consumers. The possibility of a payback by new entrants is generally not sufficient to eliminate the distortions. A new entrant would be unable to pay especially for non-capital investments, which are often even more important than capital investments¹⁷, given the difficulties involved in determining their exact amount. However also for capital

investment their valuation at the time of the transfer may not be easy since the economic value of the assets to be transferred may be then different from its costs. This is why, especially when sunk investments are substantial, permanent licenses (and the possibilities they provide for internal growth, mergers and acquisitions) are more efficient than fixed-term licenses. In such circumstances, that is when sunk investments are substantial, privatisation, accompanied by regulation, is more efficient than a fixed term.

23. In contrast, if there are no substantial sunk investments, fixed term licenses are efficient because the danger of distortions in the propensity to invest around the end of the license term would be minimal. Competition for the market can thus be effectively introduced. For instance, an auction to provide waste removal services would lead to efficient results if the outside contractor required to provide services would take his know-how, equipment and work force to the next town if he does not win the next auction. The possibility of quality reductions due to lack of maintenance at the end of the franchise period would be minimal. The contract could be granted to the bidder that offers to supply the service for the minimum fee, and it should have short time duration. The shorter the license term, the greater the probability that circumstances will not change, which would necessitate a renegotiation of the level of subsidies or the price.

24. The argument that fixed-term concessions are particularly effective when there are no substantial sunk investments is however only a partial one because, especially for essential services, there might be the possibility of hold-ups that is for the provider to blackmail the government or the municipality that it would stop delivery unless tariffs are increased. This is why, for example, in waste collection services the municipality of Phoenix, Arizona, after having split the city in a number of zones each auctioned out to different contactors, assigned one zone to itself, ensuring that the government could resist any possible hold-up by one the private contractors¹⁸. Whether all this created real benefits to tax payers is not clear, however.

25. The possibility of hold-ups is much greater in the case of concessions for infrastructure services where sunk costs are widespread and renegotiations strongly decrease the benefits originated from competitive bidding. A further problem they create is that the existence of hold-ups may strongly undermine the confidence in competition by the population at large.

26. According to a 2001 survey by Latinobarometro¹⁹ “63 percent of people in 17 countries in Latin America and the Caribbean believed that privatisations of state companies had not been beneficial, up from 57 percent in 2000 and 43 percent in 1998. ... To a large extent these negative sentiments are driven by the high incidence of renegotiations and the response to it. ... Renegotiation has occurred if a concession contract underwent a significant change or amendment ... in any of the following areas: tariffs, investment plans and levels, exclusivity rights, guarantees, lump-sum payments or annual fees, coverage targets, service standards, and concession periods”.

27. The major reason for all these renegotiations is that there are widespread hold-up problems: the franchisee threatening the government that it cannot guarantee the quality of services as agreed unless subsidies or prices are increased. Given the essential nature of the services, it is unlikely that a government would decide to re-tender, given the problems that an interruption of such services would cause. The existing pressure to accommodate any request by an incumbent franchisee makes short-term license preferable, a solution however which is not very suitable for infrastructure services, given the high sunk-costs that characterize them.

28. For infrastructure services a well structured regulation reduces the problem of hold-ups. However, for regulation to be beneficial, the auction, as I will argue in the next sections, should be organized around an up-front fee and should not have the objective of minimizing the tariff under which the service will be supplied (with no subsidy).

29. In any case a further argument in favour of privatisation (infinite-horizon concessions) is that the competition for fixed term concessions is strongly reduced the second time the concession is auctioned out because of information asymmetry on the part of potential bidders. Once the first license is expired, the incumbent that bids on a new contract may use internal information on the relevant market's cost structure. Other potential bidders may be unwilling to under-price the incumbent, leading to a structural reduction in the number of participants in the tendering process at the end of a first license, especially for contracts of a special and unique nature. Unfortunately, since infrastructure concessions have all been granted quite recently and for a very long time, there is not much experience with second time auctions²⁰.

30. One solution to favour second time auctions is to create markets that are similar to each other, so that a company operating in one location would have enough information to participate in the tender offer of another location. If scale economies are not important, a solution would be to divide a larger market into smaller sections for which separate tenders could be made. This would increase the number of bidders, because even small companies could take part. Whether this is beneficial or not, will also depend on an evaluation of all costs involved, including transaction and coordination costs.

31. In any case irrespective of the time for which they are granted, where concessions are most efficient is when clear responsibilities, including full property rights, are handed to the concessionaire. For example, a local transport concession might require the concessionaire to come in the municipality with all the necessary buses and all the necessary employees. In this way, a market for concessions might develop nationwide with companies bidding for concessions, while municipalities would only (!) have the duty to write the contract and to regulate. On the other hand, one of the most important characteristic of a fixed-term concession is that very often a concession does not lead to the transfer of ownership of any fixed asset, which continues to remain in government hands, nor to any power with respect to existing employees, who maintain the job they already had when the company was State owned. In such circumstances, which are quite common when local services are tendered out for license, it is not clear what the auction is for, besides leading to a new CEO. Furthermore leaving to the State the property of all assets, the contract of the concession has to introduce some specific incentive for maintaining these assets and some provision in order to account for technical progress. Finally the separation between asset ownership and management of the services that these assets provide leads to a possible conflict of responsibility in the case of accidents. For example would the State as owner of the pipeline or the concessionaire be responsible for a gas leak? Again the concession contract would have to account for all these contingencies. Not an easy task.

4. Concessions, auctions and renegotiations: some practical experience

32. In the past twenty years privatisations and liberalisations have characterized the world economy. In Europe the transition economies of Eastern Europe have undergone significant economic reforms that have led to a strong reduction of the role of the State, opening up domestic markets and relying more and more on indirect government controls, rather than on direct State interventions. Before 1990 also in most EU countries the role of the State was quite significant, with State owned companies operating in most sectors of the economy, including heavy industry (steel and chemicals), car manufacturing, banks, and public utilities. Now companies operating in competitive sectors have almost all been privatized, while the State continues to be present in traditional natural monopolies, like rail, water supply, local services, airports and ports, where competition is almost impossible to introduce. Privatisation has been the solution for competitive sectors, while State owned companies (of course with many exceptions by country and by sector) continue to be present in natural monopoly industries. Again with a number of quite relevant exceptions, concessions have been important for granting access to State owned resources (the spectrum, forests, ports, airports etc.), but not so much for granting access to reserved activities characterized by natural monopoly conditions.

33. In the same period of time also Latin American and Caribbean countries have undergone significant economic reforms, mostly originating from the low quality of government run utility services. As a matter of fact, a significant part of these reforms had to do with allowing the private sectors into the management of public utilities. In the process, the choice between fixed term (concessions) and infinite horizon licenses (privatisations) was not based on the existence of substantial sunk costs as I have argued should be the criterion, but on whether competition in the market could exercise some discipline on the market power of the incumbent operator, privatisation being the preferred option should competition in the market exercise some disciplining effect. Indeed, as Guash (2004) reports, especially in telecommunications, and also in electricity generation and in natural gas, private sector participation was mostly achieved by outright privatisation. On the other hand, in natural monopolies, like rail, ports, airports, roads, water and electricity transmission, fixed-term concessions have been much more frequent.

34. Although concessions have significantly improved infrastructure service in many countries, they have also created quite a number of problems. The most important one has been the fact that renegotiations have been very frequent and most of the times, through these renegotiations, most advantages achieved by competitive bidding have been eliminated. Renegotiations however should not be completely ruled out in concession contracts. In fact one of the characteristic of a concession contract is that it is never complete so that some renegotiations should be expected, although probably not to the extent they have been experienced. The simple fact that renegotiations are the natural consequence of an incomplete contract, leads bidders to bid more aggressively in the hope that governments would bail them out. This is particularly the case when the bid is organized around the lowest possible tariff. In that situation the likelihood is strong that parties would bid low, so that the concession is awarded to them and then recoup profits through renegotiations?

35. Guash (2004) identifies a number of issues that eventually led to the failure of the competitive bidding process for granting concessions: aggressive bidding, faulty contract design, government failure to honour contract clauses, defective regulation. For each of these issues Guash (2004) provides some examples and a few of them will be summarized here²¹.

4.1 Aggressive bidding

36. Aggressive biddings originate from the belief that governments are unable to commit to a policy of no renegotiation. Usually governments renegotiate and the benefits of competitive bidding are eliminated, as, for example, was the case with the Lima Airport.

In early 2001 the concession to operate Lima airport was awarded to a consortium, led by the Frankfurt Airport operator, Bechtel, and a local partner, that submitted the highest bid. The winning bid offered the state 47 percent of gross revenue in addition to a commitment to invest more than US\$1 billion and construct a second landing strip by the 11th year of the 30-year concession. As should have been expected, the concession contract was renegotiated at the end of 2003 reaching much more sustainable conditions.

37. Very rarely, like in the case of Buenos Aires water services, renegotiations were not allowed and, as a consequence the concession was abandoned.

In May 1999 the province of Buenos Aires used competitive bidding to award a concession for the provision of water services. Of the seven firms that pre-qualified for the operation, four submitted bids. The award criterion was the highest (lump-sum) transfer fee to the government of the province. The winning bidder, Azurix, offered 277 million dollars. The other firms bid 15 million dollars, 10 million dollars and 8 million dollars respectively. Azurix, as should have been expected, asked for a renegotiation that was denied and in 2002 the government reassumed responsibility for providing water services.

4.2 *Faulty contract design*

38. The most difficult issue with concessions is that problems emerge ex-post, while solutions have to be identified ex-ante. As a consequence faulty contract designs are the most common problem that emerges in an auction. For example objectives to be pursued have to be clearly defined, especially taking into account the trade-off between the maximisation of economic efficiency and that of the proceeds to be obtained from the concession granting process. When the proceeds are maximized than economic efficiency suffers. For example, in Jamaica's sale of its telecommunications company, the winning bidder was given a 25-year monopoly and a guaranteed 18 percent annual return! Faulty designs can also involve the use of inadequate award criteria, for example minimum prices or tariffs, or direct adjudication. Faulty designs can also be caused by improper regulatory oversight. The impacts of faulty designs vary considerably: they can lead to renegotiation, abandonment of a concession, or other very negative outcomes.

In 1997 the Mexican government launched a 3.3 billion dollars plan to restructure 52 highways built under private concessions in the early 1990s. This renegotiation and bailout of private operators followed a very poorly designed program. First of all the bidding standard under which to award the concessions was the minimisation of the time needed to operate each concession, so that some concessions were awarded for as short a period as eighteen months. Furthermore the government provided extremely optimistic guarantees of traffic volumes and an implicit insurance for construction cost overruns. As a consequence, the system was characterized, as should have been anticipated, by significant cost overruns and by socially unacceptable high tolls to support the short concession periods.

39. A very similar situation occurred in the Dominican Republic that granted road and railway concessions through direct adjudication. The contracts for these concessions provide a risk-free profit guarantee. In fact if costs exceed original estimates then Dominican taxpayers will cover the losses.

In the case of the Samana highway, which is the country's only toll road construction concession as of 2002, the contract stipulates that 6,050 vehicles will use it in its first year of the concession (2001) and that traffic will increase by 5 percent a year thereafter. If traffic does not reach those levels, the government will have to pay the winning bidder the shortfall in toll revenue. The government is also responsible for covering any deficits created by inflation, devaluation of the peso, and other cost-increasing components.

40. Very favourable concession terms originating from faulty contract designs can lead to very strong unexpected increases in prices and violent responses from unhappy consumers.

The water concession in Cochabamba, Bolivia, granted in October 1999, were terminated in April 2000 by the government following violent protests because of high tariffs. Steep tariff increases were necessary to pay for an expensive bulk water scheme chosen by the government over a lower cost option.

4.3 *Government failure to honour contract clause*

41. Very often governments fail to honour the provisions of concession contracts, especially in order to favour domestic groups. Such behaviour creates great uncertainty and enhances risks, discouraging auction participation especially by foreign bidders and sometimes leading the winners to abandon the awarded concessions.

In 1997 the Ukrainian government awarded two sets of frequencies in order to create two competing cellular phone networks. Two consortia were awarded the tender, one led by

Motorola and one by Deutsche Telekom. As soon as the tender was over, the government unexpectedly requested the winning consortia to pay a 65 million dollars annual fee, a very significant amount considering the size of the market. Then, also without notice, the government awarded a third set of frequencies to a domestic company, stopping all frequency allocations for five months, presumably to allow the domestic company to catch up. As a result Motorola abandoned the granted concession.

42. A very similar result occurred with the 1999 concession for the management of Peruvian regional ports, even though in this case the auction was changed just before the opening of the bids, in any case providing an indication to bidders that Government was unreliable.

The contract of the concession of the small port of Matarani in Peru provided for a duration of 30 years. Four firms pre-qualified. Before the opening of the bids, however, the government decided to shorten the concession to 15 years. As a result three of the firms abandoned the auction and the concession was awarded to a local group at about the base price

4.4 Defective regulation

43. Quite often proper regulation has been missing, either because regulatory institutions were not in place at the time the concession was granted, existing regulators lacked enforcement power or were impeded to act by some domestic law. In this respect, the fact that a concession was awarded with a competitive procedure led many jurisdictions to exclude the concessionaire from any regulatory oversight, unless the regulator had already been mentioned in the concession contract. Such shortcomings have been particularly important at the local level, where independent regulators do not exist even in developed countries. It is necessary therefore that the proper regulatory institutions be in place already at the time of the auction.

44. Even if the right institutional structure is in place, regulation is not always effective in disciplining a natural monopolist, because regulators do not have access to all the relevant pieces of information so as to effectively regulate, especially with respect to the assessment of the monopolist production costs. As a consequence, regulators may need to allow regulated firms to reap at least a portion of the benefits expected from their information advantage, for example by introducing some sort of price-cap constraints. Furthermore, whenever significant externalities or information asymmetries exist, regulators should seek adequate public participation in policy formulation, consulting all those who can provide relevant information – particularly when their interests are adversarial to those held by the regulated firms. Finally, parliaments/governments should be capable to intervene upon the horizontal and vertical organisation of the industry, identifying non competitive components of the production process and, when beneficial, separating them out. Indeed when competition is possible, promoting it can significantly reduce the information imbalance faced by the regulator.

5. Auctions or beauty contests?

45. The extent of the problems encountered with auctions for concessions implies that before a concession is awarded tariffs (and the rules and regulations under which they would evolve) should be fully specified, so that the concession is given to the party willing to provide the highest initial payment. Indeed, as Guash (2004) suggests there are some beneficial effect with having the concession awarded to the party willing to pay up front the highest fee. The most important one is that it commits the awarded company to respect the contract and that it grants the government some leverage in the case of non-compliance.

46. Designing the proper auction does not eliminate all problems. As already mentioned, the main weaknesses of a fixed term license are the following: 1) incentives to invest or to improve operations near

the end of the license are reduced; 2) there are not many incentives on the part of new potential entrants to bid at the time of renewal and 3) in the case of separation between assets ownership and their management, there is no clear division of responsibility between the owner and the manager.

47. In this respect full privatisation (of a firm operating in a reserved activity) is preferable to fixed-term concessions. What privatisation does not eliminate is the problem of hold-ups of public administration by monopolies supplying essential services. In this respect infinite-horizon or long fixed-term licenses are not different. Hold-up problems are eliminated with public provision (but in that case government employees instead of the companies may have the power to exercise them instead) or when the license is short term.

48. Should the decision to grant a concession be taken, then auctions over an up-front fee are far more efficient than beauty contests, where the parameters over which the concession is granted are usually not as clearly defined and the scope for bilateral negotiations before the concession is granted greatly enhanced. By the way this lack of transparency strongly increases the possibility of corruption.

49. Guash (2004) reports that, contrary to what has happened with auctions, renegotiations were quite unlikely in the case of beauty contests because bilateral negotiations lead to much more favourable concession terms. Beauty contests are not really an instrument for achieving an effective competition for the market. Indeed the major benefit of an auction, as Klemperer (2003) puts it, is that “rather than relying on government bureaucrats to assess the merits of competing firms’ business plans, an auction forces businesses men to put their *money where their mouths are* when they make their bids”. So if the auction is well organized, there is no question that auctions are far more efficient than beauty contest.

50. In any case auctions are efficient only if the number of participants is sufficiently high. When the investment needed to participate in a bidding is too high, for example because technical details are very complex to disentangle, then participation may be low and the benefits of the bidding process are strongly reduced. There is therefore a trade off between the complexity of auctions and competition that would be very difficult to solve *ex-ante*.

6. Public services and competition

51. Not all public services are natural monopolies. Moreover, within a given public service some activities may be exercised under competitive conditions, while others are intrinsically monopolistic. All these elements have to be taken into consideration at the time of privatisation or when granting a concession.

52. Exclusive franchises are normally granted not only to assure protection to a natural monopolist, since it is extremely rare for a more efficient competitor to enter a market that is “naturally” monopolistic, once an incumbent is already present. They are also granted to ensure that a service provider remains profitable should prices be regulated and service obligations are imposed. If tariffs are not designed to cover the costs of the service being provided, but instead they guarantee the coverage of costs only on average, then it is likely that some services will be priced below and other services above their incremental costs. A new entrant, competing away the profits gained on the most profitable service, might prevent the incumbent from continuing to cover its costs at the given prices. In such circumstances, opening the service to competition without a thorough reform of the tariff structure may disrupt universal service. Such a tariff reform is at times politically and technically feasible. In such cases, while competition could be an efficient solution, should it be politically impossible to rebalance tariffs, the monopolist must be protected from outside entry.

53. Even if the service provider is protected from outside entry for its main mission, some of its activities could well be open to competition. For example, although the distribution of electricity, gas and water cannot be opened to competition (a single pipe enters each residence), supply can easily and efficiently be opened to competition. The identification of potentially competitive activities for each public service must be done on a case-by-case basis. For any identified competitive activity there should be a free entry regime.

54. It is questionable whether a company that has been granted a special and exclusive right should be allowed to continue supplying a complementary competitive activity and, if so, whether separation should be required. Competition law provisions that prohibit abuse of a dominant position are not always effective in eliminating any possible abuse by a vertically integrated firm. A natural monopolist subject to cost-plus regulation might have the incentive to artificially increase costs of the regulated service, in order to cover some of the costs of the competitive activity. The regulated company could thereby supply the potentially competitive activity at prices below average incremental costs, and equally efficient competitors would be kept out of the market. Predation could not always be used to prohibit such practices because the possibility for recoupment, in many jurisdictions a key element in a predation case, would not always be there. The reason is that government owned firms (or firms that are completely dependent on a government decision, such as renewal of a license) very seldom maximize profits. Lott argues that pricing below costs is more likely with government owned enterprises that are not profit maximizing, but output, employment or revenue maximizing²².

55. A company controlling an essential facility may refuse access based on objective reasons (such as the absence of capacity), which would be justifiable from a competition policy perspective. However, such reasons may be the result of strategic decisions by the company controlling the essential facility. For example an electricity transmission company that is vertically integrated with a generation facility may have decided not to enlarge transmission capacity in order to impede entry of more efficient generators. In such cases, only separation can eliminate the anticompetitive exclusion²³.

56. On the other hand, if (vertical) economies of scope are important, then separating the two activities would lead to inefficiencies. Thus, an analysis of the importance of economies of scope is necessary for deciding whether to separate. If significant economies of scope are present, it would be inefficient to separate the competitive activity, and it would be unlikely that a “competitive” activity would indeed exist, since a firm would be unable successfully to compete without being able to exploit those economies. The recent OECD report to Council (REFERENZE) on member countries experience with vertical separation suggests that while there is substantial evidence that separation of transmission is beneficial in gas and electricity, the prospects for competition in rail passenger services are very limited and so the benefits of separating the rail infrastructure are at best unclear.

7. Conclusions

57. Governments supply public and private goods and services, for some of which they operate in competition with private firms, while for others governments are the only suppliers.

58. In the case of natural monopolies, the choice between public or private property is relevant because the structure of managers’ incentives is not the same in the two systems. Public firms are less likely to pursue efficiency, instead favouring political patronage. If governments are interested in efficiency, they should encourage private firms to supply local public services. On the other hand public provision is more efficient when the effect on costs of a reduction of quality is high, quality is non-contractible and users value quality significantly.

59. In many infrastructure services technical progress may reduce the width and depth of natural monopoly. As competition increases, prices have to be structured so as to sustain it. For example, when competition becomes possible in long-distance telecommunications services, the subsidisation of the cost of local calls from long distance revenues may no longer be sustainable. Furthermore, as the scope for competition increases, it may be necessary especially at the time of privatisation to separate the natural monopoly part of the industry from the rest, so as to eliminate even the incentive for all sorts of exclusionary strategies. However the benefits of the separation have to be compared with its costs which in many industries are high.

60. The optimal solution is to:

- Continue with public provision when: a) the opportunity for cost reduction stemming from a decrease in non-contractible quality is high; b) the probability of product or process innovation is low; c) gaining reputation as an efficient service provider is not important; and d) competition is weak and consumer choice is non-existent. Otherwise conditions are appropriate for private provision. In that case one important decision to be made is whether the license should be fixed term (long or short), or have no term. The longer the license, the greater the need for regulation because unexpected events can occur and the firm may need to renegotiate the terms of providing the service. The shorter the license, the more the results of a process of competition *for* the market resemble a competitive system (*in* the market).
- When there are large sunk costs, give the company a permanent license (full privatisation). Otherwise, the incentives to invest and to maintain the efficiency of the firm will be strongly distorted close to the end of the license term and remedies will be difficult to introduce. When sunk costs are not substantial (and contracts are easily written), competition for the market (and short-term licenses) can eliminate the need for regulation.
- Unless there are clear economies of scope to be gained, make sure that monopolists are not allowed to provide any liberalized activity. In fact, when the monopolist objective is not profit, but revenue or employment maximisation, anticompetitive cross-subsidisation becomes more likely. If that is the case more efficient producers may be kept out of the market by having captive consumers pay indefinitely for the difference between costs and revenues in the liberalized activity. Furthermore, a natural monopolist may refuse access to an essential facility based on objective reasons, such as the absence of capacity, that are justifiable from a competition policy perspective. However, such reasons may result from strategic decisions by the company controlling the essential facility. Separation is efficiency enhancing only if the complementary activities do not enjoy significant economies of scope. Otherwise consumers are better off if both activities are supplied by the same concern.
- Should the decision be made to grant fixed medium and long-term concessions, the auction should be organized around a single criterion and in particular around the up-front fee to be paid to the granting government. In this way the awarded company is committed to respect the contract and governments are granted some leverage in the case of non-compliance. Auctions designed to identify the minimum tariff for providing service are inefficient because they inevitably lead to renegotiations. For very similar reasons also beauty contests should be avoided. Furthermore beauty contests enhance the possibilities of corruption.

- If a concession does not lead to the transfer of ownership of the infrastructure but is only a management concession, provide the concessionaire with broad powers over the organisation of the company, including the power to fire existing redundant employees. Otherwise, the benefit of the auction may completely disappear. Furthermore when leaving to the State the ownership of all assets, the concession contract has to contain some specific incentive for maintaining these assets and some provision in order to account for technical progress. Finally the separation between asset ownership and service management leads to a possible conflict of responsibility in the case of accidents that is very difficult to solve *ex-ante* for all contingencies.
- Make sure that the proper regulatory institutional structure is in place at the time the concession is granted. Otherwise, if regulation is introduced after adjudication or after privatisation, the probability of legal disputes strongly increases. Furthermore, since long term contracts cannot contain provisions about future innovation possibilities, regulators need to allow regulated firms to reap at least a portion of the benefits expected from possible future innovations. In any case, whenever significant externalities or information asymmetries exist, regulators should seek adequate public participation in policy formulation so as to identify additional sources of information.

61. With respect to the role and powers of competition authorities all these suggestions relate to advocacy, since the greater concerns with privatisation, concessions and auctions for natural monopoly infrastructure services is that market power of natural monopolists is sufficiently disciplined by regulation and that there are incentives in place to pursue (productive) efficiency. Of course there can be collusion in tendering, but such collusion, as I have briefly argued in the paper, is also addressed by the optimal design of the auction and by making sure that the number of competitors is sufficiently high. Advocacy has an important role to play also into this respect.

62. There are two additional issues that I would like to briefly discuss here as a concluding remark. The first one is that natural monopolies are not stable in time and technical progress is continuously reducing their extent. This is of course very visible in telecommunications, but also in electricity generation, where the average size of a generating plant has strongly decreased in recent years, or in local services, where waste collection is now much more capital intensive than before and the service could easily be auctioned out. The problem with fixed or infinite-term concessions is that the future extent of technical progress is unknown and existing natural monopolies may disappear, opening up many markets to competition. If the concession is short term there is no problem, but long term concessions may introduce unnecessary restraints to competition. The solution is to make sure that the exclusivity period is no longer than necessary.

63. The second question relates to the possibilities that antitrust authorities have in intervening *ex-post* with respect to restrictions of competition in infrastructure services. We all know that there is a lot of room for intervening in infrastructure services in the case of impediment abuses, but I do not see anything special with concessions and privatisation because the antitrust law could be applied, in all jurisdictions I know, also in the case of public provision. Exploitative abuses are much more difficult to address. First of all because the exploitation does not always take the form of high prices (which most of the time are regulated), but much more frequently by reductions of quality. Furthermore the existence of exploitative abuses, in the absence of any yardstick competition as is the case in infrastructure services, are very difficult to identify and regulators are in this respect much better positioned than antitrust authorities.

NOTES

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- ** Director, Research and Institutional Relations, Italian Competition Authority, Rome. (Alberto.Heimler@agcm.it). I would like to thank Ginevra Bruzzone, Sean Ennis, Paolo Saba and especially Sally Van Sieten for very helpful discussions and for their comments to a first draft of this paper. The views expressed in the paper are my own and should not be taken as representing those of the Italian Competition Authority.
1. Throughout the paper by privatisation I mean transferring the control of a State owned firm in private hands. I will not consider partial privatisations of a company's capital (short of losing control) because they are mainly directed to solve budget deficits problems and are therefore outside the scope of the paper.
 2. See G. Stigler, *The Process of Economic Regulation*, Antitrust Bulletin, Spring (1972).
 3. E. Chadwick, *Results of different principles of legislation and administration in Europe; of competition for the field as compared to competition in the field*, Royal Statistical Society Journal, 381-87 and 408-9 (1859).
 4. See H. Demsetz, *Why regulate utilities*, Journal of Law and Economics, 55-65 (1968).
 5. J. Meade, *Planning and social Mechanism: The Liberal-Socialist Solution*, George Allen & Unwin London (1948); H. Simons, "A Positive Program for Laissez Faire", IN *ECONOMIC POLICY FOR A FREE SOCIETY*, CHICAGO UNIVERSITY PRESS (1948); M. Allais, "Le Problème de la Planification Economique dans une Economie Collectiviste", 2 *Kyklos* 48 (1947).
 6. In practice it is not always clear how can the Government assess scarcity *ex-ante*, nor is it always fair that first comers pay nothing and late comers, when the resource becomes scarce, pay
 7. On this see P. Klemperer, *Auctions: Theory and Practice*, Princeton University Press: Princeton, N.J. (2003).
 8. In the case of the spectrum allocations for the 3G mobile service, the aim of all governments was to assign the spectrum efficiently, to promote competition (given that the spectrum to be allocated allowed for multiple service providers) and to realize the full economic value. As a consequence, governments fixed the number of licenses to be issued according to engineering considerations (otherwise leaving the number of licenses being endogenously determined would have required a very complex auction design) and did not allow bidders to hold more than one license. The product to be sold, the spectrum, was clearly identified; the use to which the spectrum was going to be put to was also identified; prices of the 3G services were to be freely set; there were no universal service obligations, except that the service to the public had to be initiated at a given date, common to all license holders. The question was only what type of bidding design to choose in order to minimize the possibility that incumbents in 2G mobile service would threaten new entrants not to bid or that bidders would collude in order to share the market among them at the minimum cost. Nonetheless a number of mistakes were made in auction design and the proceedings of the auctions were manipulated in many countries by the strategic behavior of bidders, as Klemperer (2003) shows.
 9. The problem with auctions is not only that bidders may collude or behave strategically in order to threaten other potential bidders. Sometimes markets are two sided, further complicating the auction design. For example in Italy in the auction for purchasing vouchers for restaurant services for government employees, the design of the bid did not sufficiently address the issue that in order for the vouchers to have any value at all for the users, enough restaurants had to be on board (for example by imposing a stricter required

number of associated restaurants). As a consequence competition among issuers reduced the price of the vouchers so much that the number of vouchers accepting restaurants was much lower than expected. Angry, and hungry, government employees strongly protested.

10. See P. Klemperer, *Auctions: Theory and Practice*, Princeton University Press (2003) and P. Milgrom *Putting Auction Theory at work*, Cambridge University Press (2004).
11. As a UK regulator once told me during an OECD meeting on competition and regulation on local transport, privatisation does not necessarily operate to the benefit of consumers: a profit oriented supplier tries to run buses as full as possible (maximising revenues given costs), while consumers like buses to be frequent and half empty (but cannot compensate suppliers for the lost revenue). In such circumstances how can privatisation with a proper regulation be the solution in local transport?
12. For a more detailed analysis of these issues with respect to local public services in Italy, see A. Heimler, *Local Public Services in Italy: Make, Buy or Leave it to the Market?*, in *The anticompetitive impact of regulation*, Edward Elgar; Cheltenham (G. Amato and L. Laudati (Eds) 2000).
13. O. Hart, *Firms, Contracts and Financial Structure* (1995); G. Grossman & O. Hart, *The Cost and Benefits of Ownership: A Theory of Vertical and Lateral Integration*, 94 *Journal of Political Economy* 691 (1986).
14. See Shleifer, A.
- 15.. See C. Henry, "Competition and the Regulation of Public Utilities in the European Union", *Laboratoire d'économétrie, École Polytechnique, Paris Working Paper No. 469* (1997), Henry cites the report by the Transport Committee of the House of Commons on "The consequences of bus deregulation" in support of his claim that the effects of competition between bus companies were not satisfactory.
16. A. Shleifer, "State versus Private Property", 12 *Journal of Economic Perspectives* 133 (1998).
17. See R. Nelson & H. Pack, "Asian Miracle and Modern Growth Theory", 109 *Economic Journal* 416.
18. See OECD ...
19. Reported in L. J. Guash *Granting and Renegotiating Infrastructure Concessions. Doing it Right*, The World Bank: Washington D.C. (2004).
20. Klemperer (2005) reports of an auction once the first licence expired: in the case of the UK lottery auctions there were six bidders the first time, only two the second, but in any case the incumbent won.
21. For greater detail see Guash (2004) from page 44 onwards.
22. J. Lott, *Are Predatory Commitments credible? Who should the Courts Believe?* (1999).
23. On this see OECD *Recommendation of the Council concerning structural separation in regulated industries*, Paris (2001).