II. INFRASTRUCTURE FACILITIES AND SERVICES: ECONOMIC REFORM, COMPETITION POLICY AND REGULATION

A. Introduction

Infrastructure facilities and services, in recent years, have increasingly been provided within competitive markets. This has required many countries to introduce economic reforms and competition laws that have involved privatization, demonopolization and regulatory reform. It must however, be recognized that such initiatives can be ineffective and conflicting unless they are implemented within the framework of sound competition policies. Competition policy provides the framework within which regulatory institutions operate. This chapter examines the context within which regulatory reform has to be designed and implemented in the infrastructure industries, and specifically:

- The rationale for the economic reform of the infrastructure industries
- The aims of competition policy
- The key elements of a liberalization programme, including:
  (a) depoliticization;
  (b) The commercialization of operational management in state-owned enterprises;
  (c) The selection and detailed design of an appropriate competitive market form;
  (d) The development of effective competitors;
- The implications of economic reforms for the design and development of regulatory institutions

B. The economic reform of the infrastructure industries and its rationale

Traditionally infrastructure facilities and services have been provided on a monopoly basis, either by state-owned enterprises or by regulated private enterprise. The provision of infrastructure facilities and services by state-owned enterprises, with restricted entry to the market, was widely believed to facilitate the achievement of multiple government objectives, by increasing government leverage in enforcing its policies.

By way of example, governments have often attempted to secure one or more of the following objectives simultaneously in the infrastructure sectors:

- Service coordination
- Centralized information systems
- Safety
- Environmental protection
- Cost and price minimisation
- Service quality improvements
- Affordability

However, it has become increasingly recognized that monopoly per se is unlikely to contribute to ensuring that there is sufficient, low cost and "affordable" provision of
infrastructure facilities and services. Further, state-owned operators, in most sectors, are now widely regarded to have failed for a number of reasons, including:

- **Misguided intervention** – whereby governments, for example, have often imposed unsustainable price and service conditions, on providers of infrastructure services, overestimating what can be accommodated through internal cross subsidy

- **Excessive operating costs**

- **Perverse management incentives** – where, for example, entry to markets is restricted, prices are usually controlled to limit the rate of return on capital. This has lead to the "padding out" of costs by: excessive capitalization; the unwillingness to pool resources such as terminals; an unwillingness to lease; the use of more expensive equipment and earlier capital replacement than a competitive market would support; and excessive vertical integration

- **Lack of dynamism** – for example, strict entry regulation excludes or limits the possibility of providing innovative forms of low-cost facilities or services which meets the demands of the poorer groups or higher quality alternatives meeting the needs of those willing to pay

In response, private sector provision of infrastructure has increased significantly in the 1990s in all regions and all sectors. Table 2 provides details of the investment in infrastructure projects with private participation, in developing countries, by sector and region, in the 1990s.

**Table 2. Investment in infrastructure projects with private participation in developing countries, by sector and region, 1990 to 1999**

<table>
<thead>
<tr>
<th>Infrastructure project</th>
<th>(billions of US dollars)</th>
</tr>
</thead>
<tbody>
<tr>
<td><strong>Sector</strong></td>
<td></td>
</tr>
<tr>
<td>Telecommunications</td>
<td>249.1</td>
</tr>
<tr>
<td>Energy</td>
<td>192.8</td>
</tr>
<tr>
<td>Transport</td>
<td>106.1</td>
</tr>
<tr>
<td>Water and sanitation</td>
<td>31.4</td>
</tr>
<tr>
<td><strong>Region</strong></td>
<td></td>
</tr>
<tr>
<td>East Asia and Pacific</td>
<td>168.6</td>
</tr>
<tr>
<td>Europe and Central Asia</td>
<td>62.5</td>
</tr>
<tr>
<td>Latin America and the Caribbean</td>
<td>285.6</td>
</tr>
<tr>
<td>Middle East and North Africa</td>
<td>15.3</td>
</tr>
<tr>
<td>South Asia</td>
<td>33.5</td>
</tr>
<tr>
<td>Sub-Saharan Africa</td>
<td>13.6</td>
</tr>
<tr>
<td><strong>Total</strong></td>
<td><strong>579.3</strong></td>
</tr>
</tbody>
</table>

It should be noted that there remains considerable scope for private sector participation in infrastructure provision. In the leading region, for example, private sector investment accounted for less than half the total investment in infrastructure during the 1990s.

The provision of infrastructure facilities and services by private firms in competitive markets is, therefore, now widely seen as a means of reducing costs and hence the fiscal burden imposed by the infrastructure sector, while at the same time increasing the dynamism of supply. Simultaneously however, governments need to recognize that any intervention must become much more explicit, thereby reducing the scope for, and probability of, misguided government intervention.

Economic reform of the infrastructure industries requires a clear understanding of the nature of these industries and the scope for competition.

C. The nature of the regulated infrastructure industries

The major infrastructure industries such as electricity, gas, telecommunication and railways display a number of characteristics which have to be considered in designing policies to create or increase competition.\textsuperscript{12}

Their key characteristics are that:

- They are usually essential to the economy and in state ownership
- They are subject to significant sunken costs
- They are subject to elements of natural monopoly
- They are experiencing rapid technological change

The first key characteristic of these industries is that they are essential to the economy and are, therefore, traditionally state-owned in many countries. In addition, they often have public service obligations that have to be provided even if it is not economic to do so. As a result such industries are often highly politicized.

The second key characteristic that has a bearing on regulation and competition is that many of the costs of these industries are sunk and are, therefore, irrecoverable once they are committed. The implications of this are that investment needs are usually considerable and the revenues to cover such costs, and hence the returns to investors, are received over many years. This means that investors will require a stable competition and regulatory environment.

A third characteristic of these industries is that some parts are probably best provided by monopolies while others are potentially competitive. For example, there is usually only one electricity transmission network, whereas electricity generation can be competitive. Similarly, there is usually only one gas transmission network but gas supply can be organized competitively. A monopolist usually provides railway tracks and infrastructure, whereas rail services can be provided competitively. It is normal, therefore, when examining possible competition in public utilities, to distinguish between

\textsuperscript{12} S. Van Siclen, “Privatization and deregulation of regulated industries and competition policy”, The Fifth International Workshop on Competition Policy, November 2000 (Seoul, Organisation for Economic Cooperation and Development).
“natural monopoly” and “potentially competitive” activities. The diagram below shows, by way of example, elements of the electricity industry that are either monopolies or potentially competitive.

**Figure 3. Competition in the electricity industry**

Output is defined in terms of production and transmission, or supply and distribution. In the above diagram, supply, that is billing, customer service and bulk purchase of electricity, is potentially competitive, as is the activity of generation. The ‘wires’ or network activity, high voltage transmission and low voltage distribution are natural monopolies. The operation of the market, known as “pooling and dispatch” are also shown as monopolies, but some believe that they can become potentially competitive through decentralized trading. Similar classifications can be made in most network industries when assessing the infrastructure provided and services offered.13

The fourth key characteristic is rapid technological change, which can generate changes in the level of demand in related markets.

**D. Separating out the natural monopoly**

Competition is not always efficient or effective. Similarly monopoly regulation is not appropriate in all circumstances. To illustrate this point Figure 4 distinguishes between whether competition is desirable from whether it is feasible.

In most industries (top-left box) competition is certainly beneficial and circumstances are such that it flourishes naturally or at least with the safeguards of normal competition policy. However, this cannot be said of many utilities, where various combinations of circumstances are found. In extreme cases of natural monopoly (bottom-right box) competition is inefficient, and even if liberalization did occur, it is unlikely that

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any competition would result. In these circumstances, regulation, and in particular price control, are definitely necessary. Alternative policy measures such as competitive tendering and franchising may offer some scope to introduce market forces in such circumstances.

Figure 4. The desirability and feasibility of competition

<table>
<thead>
<tr>
<th>Is competition desirable?</th>
<th>Yes</th>
<th>No</th>
</tr>
</thead>
<tbody>
<tr>
<td>Yes</td>
<td>Usual case</td>
<td>“Cream-skimming”</td>
</tr>
<tr>
<td>No</td>
<td>Entry deterrence</td>
<td>Severe natural monopoly</td>
</tr>
</tbody>
</table>

However, there are major parts of utilities, and indeed whole industries, where competition is probably desirable, but where a dominant incumbent firm may thwart potential rivals by anti-competitive practices, unless prevented from doing so (bottom-left box). In these cases laissez-faire does not imply effective competition, and there is an important role for pro-competitive regulation, as distinct from monopoly regulation, such as, price control.

Finally, the top-right box depicts a situation which may be described as “cream-skimming”. This exists when there is a danger that liberalization will lead to too much competition whereby the most profitable sections of the business are won by new entrants which undermines the business as a whole.

The scope for competition depends upon a number of considerations, but in particular cost factors. The distribution networks that characterize the utilities generate significant economies of scale, which give firms with large numbers of customers cost advantages over their smaller competitors. Typically, it is the local distribution networks of pipes, wires and rails that constitute the natural monopoly assets in the water, gas, electricity, telecommunications and transport industries. The role of potential competition in disciplining an incumbent firm with a monopoly distribution network is very limited. A clear trend, in many countries, has been to separate out the operation, and increasingly the ownership, of these assets from the upstream or downstream activities where competition might be possible. Some regard this separation as a necessary condition for the development of competition. The classification of an activity as a natural monopoly is dynamic and activities can become potentially competitive as demand grows or
technological advances occur. These technological considerations are not the only factors influencing the scope for competition. Many utilities have pricing structures that contain a high degree of cross-subsidization. This stems from the historical development of public utilities, such as energy, water, telecommunications and transport, and the impact they have on economic and social development and on income distribution. The provision of networks with uniform tariffs for low-cost urban and high-cost rural customers often leads to cross-subsidization. When competition is introduced in such circumstances, there is a danger that new entrants will focus only on the profitable high-density areas of the market. This leads to the risk that the profitability of the incumbent will be threatened and its ability to serve all its customers, including those in low-density areas, will be undermined. If social considerations, such as network coverage and essential services, are important then it will be necessary to find ways to guarantee these when introducing greater competition into the market. Although the primary pre-condition for regulation is the existence of monopoly this may not always be the case. Occasionally free entry into an industry, such as the urban bus sector, can be ruinous and lead to dangerous operating practices – this form of market failure will also require a degree of economic regulation.

Table 3 below describes the scope for competition in the major utilities. The table shows how the potential for competition in each industry varies with each stage of the production process under consideration.

### Table 3. The scope for competition

<table>
<thead>
<tr>
<th>Industry</th>
<th>Competition feasible?</th>
<th>Competition desirable?</th>
<th>Scope for competition</th>
</tr>
</thead>
<tbody>
<tr>
<td>Electricity</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Generation</td>
<td>Yes</td>
<td>Yes</td>
<td>Good</td>
</tr>
<tr>
<td>High-voltage transmission</td>
<td>No</td>
<td>No</td>
<td>Nil</td>
</tr>
<tr>
<td>Regional distribution</td>
<td>No</td>
<td>No</td>
<td>Nil</td>
</tr>
<tr>
<td>Supply</td>
<td>Yes</td>
<td>Yes</td>
<td>Good</td>
</tr>
<tr>
<td>Gas</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Extraction</td>
<td>Yes</td>
<td>Yes</td>
<td>Good</td>
</tr>
<tr>
<td>National/regional distribution</td>
<td>No</td>
<td>No</td>
<td>Nil</td>
</tr>
<tr>
<td>Supply</td>
<td>Yes</td>
<td>Yes</td>
<td>Good</td>
</tr>
<tr>
<td>Railways</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Track, stations &amp; signals</td>
<td>No</td>
<td>No</td>
<td>Very limited a</td>
</tr>
<tr>
<td>Train services</td>
<td>Limited</td>
<td>Yes</td>
<td>Moderate b</td>
</tr>
<tr>
<td>Telecommunications</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Local network</td>
<td>Limited</td>
<td>Limited</td>
<td>Moderate</td>
</tr>
<tr>
<td>Long-distance network</td>
<td>Yes</td>
<td>Yes</td>
<td>Good</td>
</tr>
<tr>
<td>International services</td>
<td>Yes</td>
<td>Yes</td>
<td>Good</td>
</tr>
<tr>
<td>Water and sewerage</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Infrastructure</td>
<td>Nil</td>
<td>No</td>
<td>Nil c</td>
</tr>
<tr>
<td>Supply</td>
<td>Limited</td>
<td>Yes</td>
<td>Moderate</td>
</tr>
</tbody>
</table>

**Notes:**

(a) There may be competition between different routes.

(b) There may be inter-operator competition on very high demand routes.

(c) Except at the geographic boundary of different company’s service areas.
E. Competition policy and its aims

In general, the goal of competition policy is to promote, protect and preserve competition as the most appropriate means of ensuring the efficient allocation of resources. When competition exists in market-based economies, two or more different suppliers contend with each other to sell their goods or services to customers. Competitive suppliers may offer lower prices, more or better quality of service to attract customers. In a competitive market, individual suppliers lack “market power”. They cannot dictate market terms, but must respond to the rivalry of their competitors in order to stay in business. The existence of competitive threats and rivalry among both existing and potential suppliers will increase the contestability of a market across all its dimensions including price, quality and innovation.

The degree of competition or rivalry in a market or sector will depend on various factors including its structure and the behaviour of firms. At one extreme, highly competitive markets are characterized by a multiplicity of small firms competing on all aspects of price and quality. At the other extreme, monopolistic markets exist when production is concentrated in a few firms with the possibility of open or tacit collusion among them on matters such as price, output and the quality of provision.

Beesley argues that competition is the most important mechanism for maximizing consumer benefits and for limiting monopoly power. Its essence is rivalry and freedom to enter a market. Competition serves the public interest by inducing suppliers to become more efficient and to offer a greater choice of products and services at lower prices. Annex I provides an overview of the main economic concepts underlying competition policy.

Despite the evidence that substantial cost savings can be achieved by creating competition and private participation in the supply of infrastructure facilities and services there are many areas where it is still not happening. This can be attributed to resistance by the government or the private sector as follows:

(a) Government resistance when it is believed that:

- Strategic issues are at stake requiring state ownership of basic infrastructure or basic capacity; or
- State ownership is necessary to guarantee the provision of unremunerative services for social or distributional reasons; or
- Private monopoly would exploit users.

(b) Private sector resistance when market entry is unattractive because:

- There is no apparent revenue flow, as with toll-free roads; or
- There is a high probability of uncompensated government intervention, for example, insistence that uneconomic services be continued; or
- Sunk capital is not recoverable.

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14 ‘Market power’ is generally defined as the power to unilaterally set and maintain prices or other key terms or conditions of sales; that is, without reference to the market or to the actions of competitors.

Designing an economic reform or liberalization programme requires these impediments to be overcome. For infrastructure, the incidence of these impediments to private sector participation varies substantially by sub-mode. For example, it is inherently very difficult to attract private participation in rural road finance, but relatively straightforward for rail or port infrastructure.

In contrast to the provision of infrastructure facilities, there appears to be a very large number of infrastructure services that can be provided by the private sector under competitive market conditions. Given the potential for efficiency gains arising from private participation, the challenge is to devise arrangements that will protect users against the exploitation of monopoly power by the private sector. At the same time the arrangements must reconcile the non-commercial objectives of government with the need for a predictable and potentially profitable environment for the private sector supplier of services. The need for regulation arises from the need for government to undertake the reconciliation.

The primary issue is now seen as that of designing forms of private participation in the supply of public utilities, such as energy, water, telecommunications or transport services, which offer incentives to the economical achievement of broader objectives. It is in this context that the need for, and role of, regulation has to be determined. There are, however, many sectors and countries where private sector participation on the one hand and regulation on the other are still resisted, either by government or by the private sector.

The first step, in introducing or increasing competition in the provision of services previously provided either directly by the state or by state-owned enterprises, is to design and implement a “liberalization programme”.

**F. Elements of a liberalization programme for infrastructure**

The main elements that are necessary in a liberalization programme for any infrastructure sector are:

- Depoliticization;
- The commercialization of operational management;
- The selection and detailed design of an appropriate competitive market form;
- The development of effective competitors;
- The development of regulatory institutions appropriate to the market form.

Any liberalization programme for any infrastructure industry must address all these issues simultaneously since failure on any individual element may prejudice the success of the entire liberalization programme. Given the complexities involved it can take a long time to successfully complete a comprehensive liberalization programme as in the case of regulatory reform of public transport in London which took over ten years.16

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G. Depoliticization and commercialization in the infrastructure sectors

Depoliticization is desirable in order to create a stable and credible basis for the commercial operational management of infrastructure facilities and services, thereby improving managerial efficiency. In addition, without depoliticization private sector funds will not flow into the provision of infrastructure facilities and services. The requirements of depoliticization will depend on the form of competition that is to be created. The main prerequisite, however, is the commercialization of the operational management of service providers by undertaking the following steps:

Step 1: Corporatization

The first step towards depoliticization and hence commercialization, in the infrastructure sector is the corporatization of parastatal supply agencies. This involves creating independent legal entities that are subject to commercial law, commercial accounting and commercial reporting practices. Such corporate entities should be responsible for all the normal commercial liabilities and bankruptcy constraints, and should not be underwritten by government. In addition, labour should be employed under normal commercial rules and should not be burdened with any special privileges or constraints. Corporatization normally requires the government to make clear and unambiguous statements about the legal status and obligations of former state enterprises upon their incorporation.

Step 2: Separation of system management and operations

The separation of system management from service provision requires the creation both of independent, commercial operations management and independent quality monitoring and control.

Independent, commercial operations management requires that enterprises entering into a competitive process, whether “in the market” or “for the market”, are both totally responsible for their own commercial and financial outcome and totally free to make the necessary commercial decisions required for survival in a commercial market. The first aspect of this implies that the enterprises should be fully commercialized, and should not have any possibility of support other than that secured by their performance in the market. The second aspect implies that they should be free to determine what they shall produce and to enter into contractual arrangements with public agencies or with other firms. It also implies that they should not be subject to any special constraints by virtue of their ownership. For example, the conditions and terms of employment of staff should be determined by negotiation, as for any other commercial enterprise, and subject only to the legal constraints, which commonly and equally affect all enterprises within the market.

Independent quality monitoring and control means that, where there are sector specific requirements of a qualitative kind (for example, conditions applying to the state of vehicles or the quality of staff employed), this shall be the function of an independent agency. It is essential that such requirements are not vested in one of the competitors within the market. The obligations of the independent quality regulator should be to act in a way that does not discriminate between competitors in the market on the basis of ownership or status. In order that the functions of quality management and economic
management are not confused, it is desirable that the quality and safety regulations should be undertaken by a separate agency from that responsible for the procurement of services.

**Step 3: Public procurement through independent agencies**

The system for managing the public procurement of infrastructure facilities and services, such as public transport, needs to be depoliticized. This may be achieved by establishing a quasi-independent agency to act for the national or local government in performing its functions. Where there are few economies of scale it is possible to increase the effectiveness of competition by designing franchising arrangements for relatively short periods and for relatively small packages of service. However, the design and management of such a system is itself a substantial administrative task and it may be sensible to have a professional management agency to act on behalf of the political authority as the procurer of services. The specialist agency will require a clear and explicit division of powers and responsibilities between itself and the other institutions involved.

Where entry to the market is totally deregulated, the residual responsibilities of government become limited to the enforcement of legal conditions in respect of service quality and safety, control of monopolization, cartelization and predatory practice by incumbent or dominant operators. In all of these respects the processes should become judicial, or quasi judicial, rather than political. Clear terms of reference are also necessary for the planning agent, especially if that function is also contracted out to the private sector.

Where an agent acts as an intermediary between the political authority and the operators there will be two different contracts to design, namely:

- The performance agreement between the political authority and its agent;
- The contract between the agent and the operators.

The agreement between the political authority and its agent will normally be a performance agreement if both entities are in the public sector. It is possible, although rare, that the agency is itself put out to tender as a management contract. In either event the agency agreement will need to specify the objectives of the agent, the means of operation, and the sources of finance or financial limits within which it will operate. Within these terms of reference the agent will then have a clear responsibility to obtain the best service that is possible.

It is often the case that the starting point is the existence of a government enterprise or department that combines the planning role with operational responsibilities. This, however, is no reason for continuing with such arrangements. For example, in the case of the deregulation of the bus industry in the major cities in the United Kingdom the existing metropolitan Passenger Transport Executives, which combined both roles, were first divided into totally independent planning and operational agencies. The planning agency, which had the responsibility for service planning and procurement, was prohibited by law from giving any special preference to the public operating company. In practice, this made it less attractive for local politicians to be directly responsible for the operation of a company which might be seen to fail in the competitive process and contributed significantly to the decision of many municipalities to privatize their operating companies.
Step 4: The creation of an independent regulator

The fourth step involves the creation of an independent regulator. The type of regulatory functions that remain to be performed and the appropriate form of regulatory structure will depend on the form of the competitive markets created by a programme of liberalization. This is discussed in more detail later in this chapter.

H. Alternative competitive market forms for infrastructure provision and operation

There are a number of ways in which the private sector can be involved in the provision of infrastructure facilities and services, ranging from direct government provision to total privatization. In broad terms, in most infrastructure sectors there are three main types of arrangement:

1. Corporatization and performance contracts

Under this type of arrangement, the primary ownership and control of say the transport infrastructure lies with government. However, the public enterprise(s) is corporatized to look and behave like a private commercial company. The private sector is used to supply services to the state-owned company. Since the enterprise is owned and directed by the state, which is also responsible for transport strategy and policy, there is little or no role for regulation.

Corporatization is a first step to the increased commercialization of infrastructure facilities and services and is intended to put the enterprise at arms length from the political process by the introduction of performance agreements between the political authority and the corporatized supplier. Such agreements typically require the operating unit to commit itself to certain output and productivity targets in exchange for an annual revenue payment.

Performance agreements, however, are often unsatisfactory in a number of respects. First, governments often fail to honour their payment obligations with the consequence that the operating unit, starved of cash, fails subsequently to meet its output or quality targets. Second, because both parties to the agreement are in the same ownership and control, the agreement typically lacks teeth. Despite these limitations the combination of corporatization and performance agreements can be a useful preparatory step in the process of developing a more competitive arrangement, preparing both parties for a more formal and contractual structure. This approach has been used in railway reform in Africa and is presently being developed in the urban public transport sector in some of the Central Asian republics.

The main requirements for a performance agreement are as follows:

- Output measures;
- Required performance standards;
- Payment conditions;
- Penalties;
- Complaints procedures.
An extension of the performance agreement is the management contract whereby a private management company is awarded a contract to manage the publicly owned assets in order to achieve certain government determined objectives. All revenues and costs, other than those of management, remain public. Management contracts are extensively used for public utilities and for urban public transport in France and have been extensively employed in the management of ports and airports.

The advantages of this method are that it harnesses external management expertise and formalizes the requirements of management. The contract will also typically involve incentive payments for good performance. The disadvantage of the private management contract is that the enterprise is still essentially a monopoly supplier, with all of the traditional public sector employment practices, over which the managers have relatively little influence. There is also a substantial danger of regulatory capture and corruption. In France, concerns about the scope for corruption in the assignment of management contracts by negotiation led to a law (Loi Sapin) specifically directed to ensuring more competition.

The contract requirements for management contracts are very similar to those for a performance agreement, except that the payment is usually in the form of a fixed fee to the managers together with a performance-based bonus, the details of which must be included in the contract terms.

2. **Affermage contracts, concessions and franchises**
   
   ("competition for the market")

Affermage contracts, concessions and franchises are an attempt to combine the discipline of private sector operation in a situation where government retains either a strategic role or a degree of public ownership. Under such arrangements the government grants specific exploitation rights to a private company for a defined period of time, usually between 5 and 30 years. The contracts, concessions or franchises normally have clearly defined objectives, are geographically delimited, and, implicitly or explicitly allocate risk between the parties involved. Such arrangements can be positive where a firm pays the government for operating rights, or negative where the government pays the firm for operating services on its behalf. Clearly the nature of the contract has a major influence on the role and function of any regulatory body. The main forms of agreement are as follows:

(a) **Affermage contracts or system concessions**

Affermage contracts or system concessions are an extension of the management contract. They involve the award of a concession (by competitive tender or by negotiation) to a private enterprise to run a system for a period of years. They differ from the management contract insofar as the concessionaire receives all the revenue and costs of the operation, and usually has a greater degree of freedom to determine the commercial strategy.

System concessions are usually for long terms (up to 30 years). They are consistent with the continued public ownership of assets and with public quality and price regulation. They do give the concessionaire a high incentive to generate and secure revenue. However, with long-term concessions, concerns may arise about the degree of
monopoly power that is assigned, the continued public role in asset provision, and the adequacy of the incentive for concessionaires to minimize costs.

The main provisions in the contracts for system concessions should include:

- The definition of output requirements;
- The specification of prices;
- The provisions for inflation adjustment of prices;
- The performance monitoring arrangements;
- The arrangements for contract renegotiation.

In summary, under such arrangements operators lease both the physical infrastructure and the operating equipment, and are required to take some of the commercial risks and make most of the marketing decisions.

(b) Franchises

In general, franchising involves operators providing infrastructure services, such as transport, that are fully specified by the government or its franchising authority, covering from its revenues or contract price all operating and investment costs, and accepting some of the commercial risks. The franchising authority may retain responsibility for some functions, such as marketing. There are two main types of franchise, namely “gross service cost” and the “net service cost” franchises.

(i) Gross cost service franchises

In gross cost service franchises all revenue accrues to the government and the contracts are usually let on the basis of the lowest cost supplier. The franchisees carry cost risk but no revenue risk. Competitive pressure can be increased by reducing both the size of the packages and the duration of contracts. Instead of concessioning whole systems, individual facilities or services can be franchised, usually by competitive tender. Competition is based on the cost at which bidders offer to supply the required service. The payment for the contract period is determined by the bid cost.

This form of franchise permits consistency with any government pricing scheme or policy (because revenue accrues to the franchiser), and with any requirement for service integration. It is capable of generating substantial competition and reducing operational costs. The limitation is that the operator has little incentive either to generate or to secure revenue.

There are a number of requirements for gross cost service franchising, on the basis of competitive tendering, to work effectively, namely:

- The industry structure needs to be prepared so that there are a number of potential bidders. Where the initial situation is that of a publicly owned monopoly, it will be necessary either to phase the introduction of competition so that small operators can establish a foothold or to restructure the public enterprise as a number of independent competing companies;
An efficient way of securing revenues must be devised. This may involve the inclusion in the contract of an obligation to use a selected method of secure revenue collection and recording;

Performance must be carefully monitored to ensure that operators provide all the services for which they have been contracted. This implies that the franchising authority will need to have a monitoring unit independent of, and separate from the dispatching and inspection arrangements of the franchisee;

Collusion in bidding must be made illegal and be controlled.

(ii) Net cost service franchises

Net cost service franchizes involve the franchisee retaining all fare revenues. The franchise may be let on the basis of the highest premium bid or on the basis of the lowest required subsidy from government. Such franchises provide an incentive to generate demand and the franchisee has to accept both revenue and cost risks. Associated with that increased incentive to generate demand is a high incentive to engage in predatory practices against competitors. Thus although the increased incentive to attract revenue may imply less need for monitoring the quantity of service provided there will be a countervailing need to monitor the behaviour of the firms.

The main requirements for net cost contracting are as follows:

- The industry structure must be prepared as for net cost contracting;
- There must be careful monitoring of firm behaviour.

Because the franchisee carries both the cost and revenue risk, the evidence in some countries suggests that net cost franchises attract fewer bidders and particularly fewer small bidders than gross cost franchises. The consequence of that is that the net cost to the franchising authority may actually be higher with net cost franchises than with gross cost franchises for a given service specification.

(c) Infrastructure concessions

Infrastructure concessions are agreements whereby operators construct or refurbish infrastructure and then operate a facility or provide a service for a fixed period. Normally operators cover investment costs and carry the commercial risks.

3. Privatization ("competition in the market")

Under full privatization with open competition “in the market”, ownership and control is transferred to the private sector, and operators are subject to the prevailing commercial laws. In its extreme form the only regulation which applies relates to the general legislation on monopolies and restrictive practices.

The most complete form of private participation occurs when the private sector enjoys total freedom of entry into the sector, owning all the assets and carrying all of the risks of a normal commercial enterprise. It is the form that gives the greatest scope for
private initiative and is the arrangement that is appropriate to any sector in which there were no extensive economies of scale or scope, and no non-commercial objectives which the government wishes to superimpose over the normal commercial outcome. These conditions hold extensively in road haulage, inter-city bus and taxi markets in most countries, and they apply generally to the operations of the informal transport sector. Whether they apply to international air and maritime transport depends very much on whether governments wish to maintain a national flag carrying fleet for strategic reasons.

Where freedom of enterprise is permitted, it is normally assumed that such freedom will be constrained by general economy-wide limitations on monopolization, predatory and restrictive practices, without which private enterprises may be able to exploit their freedom at the expense of the customer. Where such general laws and institutions exist, enterprises should normally be subject to them.

Even where they do exist, however, there are some characteristics of some infrastructure sectors - particularly the very local nature of the markets - which may make it very difficult for the economy-wide institutions to exercise effective control on commercial behaviour. It may, therefore, be necessary for sector specific administrations to exist, either in parallel with, or as specialist local administrators of, the national economic regulatory mechanisms.

Where there is an existing basis for potential competition, that potential should be mobilized at the earliest possible opportunity. For example, many countries will possess some scope for competition in the inter-city bus sector. Competitors can be created by allowing freedom of entry to this market for vehicles (and by implication enterprises) which have previously been engaged in the charter bus business either for carriage of workers to enterprises or in the non-scheduled leisure activity markets. In such cases, however, it is important to ensure that there are no important residual barriers to entry associated with vertical integration (for example, dominant operators being sole owners of monopoly urban terminal rights). Such associated barriers to entry should be addressed at the outset in the design of any liberalization programme. It is essential that steps be taken to ensure that new entrants comply with quality and safety standards.

I. Regulatory institutions

The specific form of any economic reform or competitive market structure in the infrastructure industries has a significant impact on the role that government should play in its implementation and regulation. The main regulatory requirements and institutions associated with the various competitive market forms in the infrastructure industry, are as follows:

1. Regulatory requirements for infrastructure concessions

The public sector has a number of important roles to perform in the establishment and implementation of a successful infrastructure concession, including:

- Monitoring contract conditions. The infrastructure concession will typically impose on the concessionaire some obligations with respect to the quality of the facility or service provided. In road concessions, for example, this will typically include road capacity and service quality. In the case of the Argentine freight railway concessions, it included the requirement to implement an investment...
programme. The public sector must be able to monitor such conditions in the concession contracts.

- **Price control.** The general case for controlling prices is that a concession confers some long-term monopoly power on the concessionaire. In the transport sector, for example the extent to which the public sector will need to control prices will vary from one subsector to another depending on the degree of competition which the concessionaire faces in the market. In the case of the Argentine and Brazilian freight railways the market share was sufficiently small and the market power of the rail enterprise sufficiently weak for it to be assumed that market forces were adequate. Only in cases where there is a captive customer should it be necessary to exercise fare control in such markets. Road concessions, for example, often involve rather more monopoly power, especially where there is no untolled alternative. In such cases tariffs may be set in real terms, with provision for tariff modifications spelled out in the contract. The public sector will need to have an institutional locus for this function.

- **Maintaining quality standards.** This is mostly approached as part of the monitoring of contract performance. Where technical standards are concerned this function may be allocated to a specialist agency. For example, it is common for road design standards to be reviewed by an independent engineering consultant.

- **Defining access rules.** Where there are more extensive economies of scale or scope in infrastructure provision than in provision of services on the infrastructure there are potential benefits of competition in service provision that will be foregone if the infrastructure concessionaire is permitted to be the sole service provider on the infrastructure. This is a particular problem in rail transport, but may also arise in some aspects of port or airport activities. In these cases, the contracts will need to specify the conditions under which access must be provided to competing operators and also the charges structure to be applied.

- **Health, safety and environmental rules.** These must be specified either by law or within concession contracts. In either case they must be enforced and institutional provision must be made for their enforcement. Usually this is done through an independent, specialist agency as far as economy-wide regulations are concerned. In some areas, such as rail safety, there may be a specialist regulatory arrangement.

An important issue that needs to be considered in the design of contracts is that of how much discretion to allow for renegotiation after the award of the contract. For example, where it is the intention to ensure a minimum level of new investment as part of a concession agreement, it may be necessary to specify the investment precisely in order to ensure that bids are made on a common basis. However, almost inevitably, the optimal programme of investment will turn out to be different from that incorporated in the contract documents. This may be due either to the fact that conditions have changed (for example, demand has grown more quickly than anticipated) or because the private sector management has a different perspective from that of the public agents who drew up the concession contract. For these reasons some ability to renegotiate may be inevitable and desirable. Franchisees may also wish to renegotiate the length of the concession or the price schedules. Where such renegotiation is envisaged, there needs to be a clearly designated point of responsibility in the public sector, some general rules and limits for
what can be modified by negotiation and some clear specification of what is a matter for arbitration, or indeed for the courts of law.

The issues discussed above highlight some important institutional requirements for a successful concessioning arrangement:

- **First**, there must be an **expert concession design team**. Where the contract either fixes the tariffs to be charged or provides for any form of public intervention in tariffs, the arrangements for price formation and payment adjustment should be clearly stated in contracts.

- **Second**, there must be an **independent regulatory agency**. The functions and powers of the regulatory agency must be clearly defined by law. It must have clear rights to monitor the terms of concession contracts, including the right to receive specified operational and financial information. Any other modification of the terms of concession contracts should be negotiated, not enforced.

- **Third**, an **effective legal basis** is necessary as a basis for the attraction of international capital into national infrastructure markets. Provision for recognized international arbitration of disputes may be extremely important.

2. **Regulatory requirements for service franchising arrangements**

The public sector also has a number of important roles in the establishment and implementation of a competitively tendered franchising system, including:

- **Creating a competitive market structure**. Developing a successful service franchising arrangement requires the establishment of a competitive structure in the industry. Sometimes this will necessitate the fragmentation and corporatization of an existing parastatal monopoly, which will usually require legislation;

- **Franchising arrangement design**. Selecting the form of franchising arrangement to be employed and designing the contracts appropriately is an important residual role of government;

- **Procuring services, and monitoring contract performance**. Procuring services and monitoring contract performance is usually undertaken by a specialist professional agency working on behalf of the franchising authority;

- **Contract enforcement**. Enforcing contracts, which may mostly be through persuasion, negotiation and discussion between the procuring agency and the service supplier, must ultimately be a matter of law. The right of the procuring agent to terminate a franchise on the basis of properly specified performance criteria is an important element in the smooth and non-litigious operation of a franchising regime;

- **Policy coordination**. Policy coordination may be necessary, especially where there is significant interaction between sectors or other external effects.
A number of critical issues affect the regulation of franchises and these need to be provided for in the institutional arrangements. The issues include:

(a) For long duration franchises, it is usually the case that either the price or the remuneration to the franchisee (or the payment by the franchisee) must be adjustable in order to account for inflation. This can usually be done by reference to some index of relevant input costs. Where the political authority retains the power to determine prices, any franchising arrangement will also have to include a procedure for re-determination whenever prices are changed. The establishment of a clear and explicit way of handling this, together with the establishment of confidence in the institutions undertaking any revision, is essential for success;

(b) There is a case for separating the functions of monitoring performance (clearly a matter for the procuring agency) and enforcement of contracts (sometimes assigned to a separate legal or quasi-legal process). However, where contracts are short and small, and the procuring agency is acting in a continuously proactive way, the combination of the functions within the procuring agency can work well;

(c) The more precisely the specification is designed, the more transparently fair and objective the tendering process will be. However, on the contrary, the more narrowly defined the product or service the less the scope for commercial initiative by the operator. For example, in bus franchising setting average headways rather than a precise timetable on a route allows the operator to exercise initiative in vehicle and crew scheduling. Similarly, specifying major points to be served rather than the precise route may give operators scope and incentive to identify routes that maximize patronage. A compromise used in London was to invite bids on a very narrowly defined specification, which allows objective comparison of bids, but then to allow bidders to propose modifications, which may be accepted from the successful bidder;

(d) The working of the system may also depend significantly on the degree of discretion allowable in enforcement. The more successful systems, such as bus franchising in London, have been based on the ability of the procuring agency to warn suppliers of identified defects in performance and to discuss acceptable remedial measures. There is an important balance to be struck here between the advantage of such flexibility with the danger of regulatory capture associated with too continuous a relationship.

The issues discussed above highlight some important institutional requirements for a successful franchising arrangement:

- First, operations and franchise management must be completely separated. Where both remain in public ownership they should be organized in parallel and not hierarchically. Where enterprises remain in public ownership, and especially where they are involved in some activities which are directly subsidized on negotiated contracts, there must be a procedure for independent auditing of their
bids to ensure that they are not using cross-subsidy to support their activities in the competitive markets.

- Second, **restructuring should be undertaken prior to franchising**. Even if it is not possible to move to complete privatization of an existing parastatal, it is necessary to find some institutional basis for competition. This might involve:
  
  (a) The corporatization of the parastatals into a number of legally separate profit centres;
  (b) The removal of any legal barriers to the establishment of private enterprises in the sector;
  (c) Positive action to create associations of private operators capable of participating in competition;
  (d) The vertical separation of state operators from any ancillary activities in which a monopoly remains.

- Third, the **managing agency should be placed at arm’s length from local government**. This is necessary to both increase the professionalism of the procurement process and to generate confidence in the commercial nature of the competition for franchises. This will usually require the creation of a concessioning agency at arm’s length from political control, but acting as the agent of the procuring authority. The agency could have a performance agreement with the political authority, or could itself be contracted out on the basis of a management contract.

- Fourth, there should be a **separation of technical regulation from economic regulation**. Technical quality control should normally be vested in an agency independent of either the operators or the franchising agency.

3. **Regulatory requirements for liberalized markets**

Where entry is completely liberalized, there remains the need for some regulation by the public sector, of both a physical and economic kind. The main roles include:

- **Safety and environmental monitoring**. Safety and environmental monitoring should preferably be undertaken by a specialist agency. In most countries vehicle safety inspection is the responsibility of a specialized agency (sometimes contracted out to the private sector);

- **Economic regulation**. Economic regulation needs to be concerned with three issues, namely predatory economic practices (including both pricing and operational practices such as frequency swamping in the transport sector), collusive practices (including operational agreements and price agreements), and monopolization (including merger and acquisition) policy.

The major issues which have to be addressed in managing market competition include:

  (a) **The degree of control**. The free market normally works best where government intervention is restricted to that of ensuring a level playing field among participants in the market. Controlling prices within free
market systems has the common, but frequently unrecognized, consequence of limiting the quality and/or quantity of service that it is possible for the private sector to supply. Therefore, price controls should normally only be imposed in the context of a comprehensive policy within which other arrangements (for example, permission to supply premium services freely at premium prices) are in place to relax the constraints on total supply;

(b) The role of the legal system Where the role of the government is restricted to ensuring fair competition, it is desirable that any qualitative or behavioural constraints (for example, vehicle quality and driving standards) should be clearly specified in law and subject to legal enforcement. For commercial behaviour this may be best achieved through multisector or economy-wide institutions;

(c) Monitoring Only in the case where there are industry specific issues involved (such as vehicle construction and use regulation in the transport sector) is this likely to be best handled at an industrial sector level. Even then, because the technical skills for vehicle inspection and enforcement are common to haulage and public transport, it may be most appropriate for the institution to have a responsibility for technical and safety regulation of all road transport.

It is possible to make a number of general recommendations about the institutional requirements for a liberalized, but managed market, as follows:

- First, there should be local-level technical inspection. Quality regulation should include both safety and environmental impact. It has to be implemented locally by an independent and secure regulator to legally established (preferably national) standards. Regulation should as far as possible be of outputs, not inputs;

- Second, there should be categories of unacceptable operational and commercial behaviour identified by law. The enforcement agency may be sector specific or industry wide, but specialist sector staff will usually be required. Decentralized monitoring/enforcement will be necessary at the local level;

- Third, there should be monopoly and merger control. Service franchising requires some supervision of the market structure, and particularly of acts of monopolization. There is an advantage of this function being undertaken within a multisector national agency.

J. Maintaining competition in the infrastructure industries

Competition policy and regulatory agencies should not only create competition but also maintain it. Maintaining competition in regulated industries is primarily concerned with the regulation and control of:

(a) Anti-competitive behaviour by dominant firms;
(b) Mergers, acquisitions and other corporate combinations.
1. Anti-competitive behaviour

The “abuse of dominance” is a concept that refers to anti-competitive behaviour by firms whereby a firm uses its dominant market position to engage in conduct that is harmful to competition. Remedying such behaviour is an important part of the remit of the competition authorities and regulators. National and international laws and treaties include prohibitions against abuse of dominance. Some are general and some are specific.

The main types of abuse of dominance are set out in Table 4 below.

Table 4. Examples of abuse of dominance

<table>
<thead>
<tr>
<th>Examples of abuse of dominance</th>
</tr>
</thead>
<tbody>
<tr>
<td>➢ Refusal or delay in providing essential facilities to competitors</td>
</tr>
<tr>
<td>➢ Provision of services or facilities to competitors at excessive prices or on discriminatory terms</td>
</tr>
<tr>
<td>➢ Predatory pricing and/or cross-subsidization of competitive services with revenues from activities that are subject to less competition</td>
</tr>
<tr>
<td>➢ Bundling of services to provide the dominant firm with exclusive advantages</td>
</tr>
</tbody>
</table>

Any investigation of anti-competitive behaviour by a firm usually commences with defining its market and an assessment of the degree of dominance. The evaluation of whether a firm possesses a dominant position will depend on (a) its market share, and (b) the extent of barriers to entry. Circumstances vary, but a market share greater than 35 per cent could indicate dominance if this is associated with high entry barriers where price increases or output decreases do not stimulate additional competition. If a firm is deemed to occupy a dominant position, it is then necessary to determine whether it is abusing its position. Abusive conduct is sometimes divided into “exploitative abuses” where excessive prices or poor service occurs, and “exclusionary abuses” such as predatory pricing or the refusal to supply essential services. The former is aimed at reducing consumer surplus and the latter are attempts to limit market entry or force market exit. Table 5 sets out the different approaches that are usually taken to prevent, correct or punish abuse of dominance.
Table 5. Remedies for abuse of dominance

<table>
<thead>
<tr>
<th>Remedies for the abuse of dominance</th>
</tr>
</thead>
<tbody>
<tr>
<td>➢ Enforcing orders against the dominant firm:</td>
</tr>
<tr>
<td>▪ To cease abusive behaviour</td>
</tr>
<tr>
<td>▪ To prescribe specific behaviour</td>
</tr>
<tr>
<td>➢ Revoking operating licences</td>
</tr>
<tr>
<td>➢ Imposing fines for firms and individual employees</td>
</tr>
<tr>
<td>➢ Providing compensation for customers and competitors</td>
</tr>
<tr>
<td>➢ Restructuring the dominant firm by vertical separation or divestment</td>
</tr>
</tbody>
</table>

In addition, to the above types of abuse of dominance by individual firms there is often concern over two types of restrictive agreements between firms, namely:

➢ “Horizontal agreements” among competitors – which will cause concern to the extent that they restrict the ability of competitors to compete independently;

➢ “Vertical agreements” among upstream or downstream participants in the same or related markets – which can restrict competition and harm consumer welfare. Problematic vertical agreements include those that fix retail prices or grant exclusive distribution rights in a particular geographic area.

Table 6 below describes a number of examples of restrictive agreements.

Legal and regulatory approaches to restrictive agreements vary. In some countries, restrictive agreements are prohibited outright, whereas in others a test of reasonableness is applied to determine whether they lessen competition.
Table 6. Examples of restrictive agreements

<table>
<thead>
<tr>
<th>Examples of restrictive agreements</th>
</tr>
</thead>
<tbody>
<tr>
<td><strong>Price fixing</strong></td>
</tr>
<tr>
<td>Price-fixing agreements among competitors are designed to manipulate prices by: fixing charges to consumers; jointly implementing price rises; resisting price reductions; jointly agreeing formulas for calculating uniform prices; or, jointly removing low-price products from the market in order to shift demand to higher priced products.</td>
</tr>
<tr>
<td><strong>Bid-rigging</strong></td>
</tr>
<tr>
<td>Bid-rigging involves collusion among franchise or license bidders to influence who wins an auction or auction price.</td>
</tr>
<tr>
<td><strong>Market allocation</strong></td>
</tr>
<tr>
<td>Market allocation can be implemented by horizontal or vertical agreements aimed at reducing competitive entry. In horizontal agreements this involves firms agreeing not to compete in each other’s geographical markets. In vertical agreements some market allocation may be desirable to avoid the duplication of expensive fixed assets.</td>
</tr>
</tbody>
</table>

Table 7 sets out the approaches adopted in the United States of America, the European Commission, and Canada.

Table 7. Alternative regulatory approaches

<table>
<thead>
<tr>
<th>Regime Regulatory approach</th>
</tr>
</thead>
<tbody>
<tr>
<td><strong>United States of America</strong></td>
</tr>
<tr>
<td>Collusive arrangements among competitors, are illegal regardless of whether the agreed restrictions are considered to be reasonable or not. Participants to a restrictive agreement can be punished if it is proven that: (a) such an agreement exists, and (b) it is anticompetitive.</td>
</tr>
<tr>
<td><strong>EC</strong></td>
</tr>
<tr>
<td>Article 81 of the EC Treaty prohibits all agreements between undertakings “which may affect trade between member states and which may have as their object or effect the prevention, restriction or distortion of competition within the Common Market”. Article 81 specifically bans price-fixing and production allocation agreements.</td>
</tr>
<tr>
<td><strong>Canada</strong></td>
</tr>
<tr>
<td>In Canada, only agreements among competitors that lessen competition “unduly” are prohibited. In consequence, it is necessary to prove both the existence of an agreement and that it unduly lessens competition. This extra condition makes it much more difficult to prosecute firms.</td>
</tr>
</tbody>
</table>
2. Monopolies, mergers and acquisitions

Normally competition authorities, rather than sector regulators, review and approve mergers, acquisitions and other corporate combinations. However, in many network industries there is increasing globalization and as a result the concerns and work of regulators and competition authorities are converging.

Many mergers are proactive insofar as they promote scale economies, new synergies and innovation. However, concerns about mergers relate to the potential for anti-competitive behaviour and the abuse of market where a firm acquires market dominance. Merger controls aim to prevent the accumulation and exercise of market power to the detriment of competitors and consumers. The basic rationale for merger control is that it is preferable to prevent firms gaining excessive market power than to regulate the abuse of power once a monopoly exists. Merger reviews usually attempt to evaluate the potential impact on competition in a particular market.

There are broadly three types of mergers. “Horizontal mergers” occur between firms in the same market and give rise to the potential for market dominance and are therefore of most concern. “Vertical mergers” are those between firms in upstream and downstream activities in the same industry. Vertical mergers can give cause for concern if they allow firms engaged, for example, in network provision to discriminate in terms of access or price in favour of its own subsidiary and against other providers. “Other mergers” between firms in unrelated businesses are unlikely to be of any concern to either the competition authorities or regulators.

In some countries, larger proposed mergers require government approval and following review may be prohibited or approved subject to conditions. Table 8 below sets out a typical structure for the evaluation of a proposed merger.

Assessing the net effects of a merger proposal is difficult, as is assessing the distribution of any gains between producers and consumers. It may be possible in some cases to approve a proposed merger even though there are potentially anti-competitive effects, provided the benefits are great enough.

During a more detailed review, a competition authority may require the following additional information:

- Products, customers, suppliers, market shares and financial performance;
- Activity of competitors and competitors’ market shares;
- Influence of potential domestic and international competition;
- Peace of technological change and its impact on competition;
- Nature and degree of regulation in the particular market.
<table>
<thead>
<tr>
<th>Tasks</th>
<th>Scope</th>
</tr>
</thead>
<tbody>
<tr>
<td>Market definition</td>
<td>Careful definition of the market is critical to determining the extent of market power and hence the scope for anti-competitive behaviour</td>
</tr>
<tr>
<td>Identification of firms and their market share</td>
<td>The determination of market share will have a direct bearing on an assessment of market power and the potential for the abuse of such power. The analysis should include existing and potential competitors</td>
</tr>
<tr>
<td>Identification of the potential effects of merger</td>
<td>In assessing the potential adverse effects of a proposed merger attention will focus on the creation or increase of market power of the dominant entity. There may also be scope for anti-competitive agreements among firms</td>
</tr>
<tr>
<td>Analysis of barriers to entry</td>
<td>Evidence of low barriers to entry may help justify a merger. High barriers to entry will raise concerns in merger evaluations</td>
</tr>
<tr>
<td>Benefits arising from a proposed merger</td>
<td>Benefits such as improvements to efficiency and increases to social welfare will need to be measured and assessed against the costs of monopolization of a market because of a merger</td>
</tr>
</tbody>
</table>

In attempting to remove the anti-competitive effects of mergers, a number of structural and behavioural remedies are available to the competition authorities, as follows:

(a) **Prohibition or dissolution** – this involves preventing a merger in its entirety, or if the merger has already occurred, enforcing the break-up of the merged entity;

(b) **Partial divestiture** – this involves permitting firms to proceed with a proposed merger to divest of certain assets or activities, which are deemed to give rise to the potential for anti-competitive behaviour;

(c) **Regulation or conditional approval** – a merger may be approved subject to agreement being reached about the behaviour of the firm post-merger and the avoidance of anti-competitive actions. This usually requires ongoing regulation.

See annex II for further information on the implementation of policy by competition authorities.
K. Competition and sector-specific regulation

Some countries have both a general competition authority and a sector-specific regulator while others have one or neither. Where a number of authorities exist, it is important that an industry is not subjected to duplicative or inconsistent intervention.

Table 9 below illustrates the typical differences between a competition authority and a sector-specific regulator. In the context of this discussion, sector-specific regulation embraces industry-specific regulation and multisector regulation.

Sector-specific regulation typically involves both prospective and retrospective activities. A regulator will often establish conditions for participation by firms in particular markets. Such conditions are usually forward-looking and might include the approval of prices or the terms and conditions for network access. Regulators are also typically required to respond to complaints, or to remedy existing or past behaviour that might contravene competition or sector policies and laws. Competition authorities, by contrast, tend to act retrospectively by correcting the anti-competitive actions of firms. Often sector-specific regulators will take actions that are counter to general competition policies. For example, sector regulators might approve certain forms of cross-subsidization as the least cost method of maintaining universal service obligations even though they are undesirable in the context of competition policy.

Table 9. Comparative roles of competition authorities and sector-specific regulators

<table>
<thead>
<tr>
<th>Activity</th>
<th>Competition authority</th>
<th>Sector-specific regulator</th>
</tr>
</thead>
<tbody>
<tr>
<td>Scope</td>
<td>➢ Economy-wide</td>
<td>➢ Usually industry-specific</td>
</tr>
<tr>
<td></td>
<td>➢ Multiple industries</td>
<td>➢ Powers tend to be broadly defined</td>
</tr>
<tr>
<td></td>
<td>➢ Powers of intervention and remedies tend to be narrowly defined</td>
<td></td>
</tr>
<tr>
<td>Policy focus</td>
<td>➢ Objective to reduce conduct that reduces competition</td>
<td>➢ Multiple policy objectives</td>
</tr>
<tr>
<td></td>
<td>➢ Focus on allocative efficiency and prevention of “abuse of market power”</td>
<td>➢ Monopoly regulation of Prices and universal service</td>
</tr>
<tr>
<td></td>
<td></td>
<td>➢ Transitional regulation may focus on preventing anti-competitive behaviour as a market becomes competitive</td>
</tr>
<tr>
<td>Process</td>
<td>➢ Retrospective remedies</td>
<td>➢ Pro- and retrospective</td>
</tr>
<tr>
<td></td>
<td>➢ Complaint/investigation driven</td>
<td>➢ Broader scope for public intervention</td>
</tr>
<tr>
<td></td>
<td>➢ Formal procedures</td>
<td>➢ Formal and informal</td>
</tr>
</tbody>
</table>
There are a number of important reasons for maintaining sector-specific regulators, at least until the relevant markets have become reasonably competitive. These include the need:

(a) For technical and sector-specific expertise to deal with key issues in the transition from monopoly to competition;

(b) For advance rules to clearly define an environment conducive to the emergence of competition rather than retrospectively punish anti-competitive behaviour or restructure an industry;

(c) To apply policies other than competition-related ones which are nevertheless consistent with government policy for a sector, for example, on universal service coverage;

(d) For ongoing supervision of and decisions on issues such licensing conditions, service quality, and network access or inter-network connectivity in telecommunications.

I. Independence of regulator

It is generally accepted that regulators should be independent with a reasonable amount of discretionary power; be autonomous and expert; and, appropriately accountable.

Independence requires regulators to be at arm’s length from both political pressures, in particular ministries, and from the regulated enterprises themselves. It is generally not sensible to have regulators under the control or influence of politically appointed ministers or the utilities that provide services since both have direct or indirect effects on customers or users. On the one hand, ministers establish the policies within which operators compete and where applicable any capital or operating subsidies, on the other hand, the operators themselves directly provide services to intermediate and final consumers. Independence also requires that regulators, both board members and executives, are appointed and replaced on the basis of professional and not political criteria, preferably for a fixed period.

Independence requires that the regulator is not restricted to an advisory role but is able to make effective decisions on the basis of rules. In practice, it will be necessary to secure a balance between the regulator having too little and too much discretion without political intervention. The risks are that too little discretion may overly advantage users compared to shareholders in the utilities whereas too much discretion may have the reverse effect, which is likely to lead to political pressure being placed on government by customers and users. Such problems can be limited by the careful creation of rules for intervention at the time that the regulatory body is established.

Autonomy can be considered in a number of dimensions. Financial autonomy requires that regulatory institutions should have access to their own sources of funding. Relying on budgetary transfers decided by politicians can threaten a regulator’s independence, since a cut in funding could reduce the effectiveness of the regulatory system. Levies on the regulated firms or the consumers of the regulated services are the most common alternatives and can be viewed as user fees for the services of the regulator,
in terms of the protection of consumers’ interests. It is preferable if the Government
determines the levies annually on the basis of the budget proposals of the regulatory
agency.

Autonomy also requires that the regulator should be free to recruit the necessary
number of staff with the appropriate expertise and experience without political
interference. This does not necessarily imply that the staffing numbers should be large
but it may necessitate the ability to recruit staff outside the restrictions of civil service
terms and conditions of employment. On occasions external consultants may be needed
where the necessary skills are not available locally – regulators should be free to acquire
all the resources necessary to effectively do their jobs.

In addition, regulators need autonomy in the process of monitoring of compliance
and enforcement with the ability to impose appropriate penalties with agreed rules on
behaviour. Ideally, penalties should be commensurate with the damage caused and
involve the provision of compensation to competitors or consumers as appropriate.

Accountability requires transparency in decision making which is often counter to
the natural disposition of many bureaucrats. Further, accountability requires the
following:

(a) Simple and clearly understood procedures;
(b) Deadlines for decision taking which are adhered to;
(c) Detailed justifications of decisions;
(d) Non-political reviews of decisions made;
(e) Hearings or tribunals to receive representations from affected groups
including consumers; and
(f) Provision for appeals against decisions made by a regulator either to a
Competition Authority or through the Courts.

Accountability also requires the facility to remove a regulator in circumstances
where they act illegally or inappropriately in the context of the regulatory rules and
procedures. It is widely recognised that accountability is improved where regulation is
established in the form of a board or commission rather than a single person such as a
Director General. It is often suggested that the members of a commission can monitor the
actions of other board members and the executive.

M. Regulating the transition from monopoly to competition
in
the infrastructure industries

An effective competition policy must take into account the specific characteristics
of an industry to which it is applied. The network service markets present special
challenges for the application of competition policy in effecting the transition from a
structure based on a state-monopoly to one with private sector competition. It is generally
desirable to minimize government intervention in competitive markets. However, it is
widely agreed that regulatory intervention is required to implement a successful transition
from monopoly to competition.

Well-established incumbent operators normally possess significant advantages
over new entrants that necessitates regulatory intervention, which includes:
(a) **Control of essential facilities** – incumbent operators often own “essential facilities” that were built and paid for under a regime of government ownership or guaranteed rate of return regime. Essential facilities include local loops in telecommunications networks, local power distribution systems, and railway signalling. New entrants usually require access to such facilities if competition is to be feasible and duplication is either technically difficult or economically inefficient. Incumbent operators can refuse access to essential facilities, provide inferior access, or charge new entrants excessive prices to access or use such essential facilities;

(b) **Economies of established national networks** – incumbent operators might enjoy “economies of scale and scope” that new entrants cannot match for many years. It may be that the costs of duplicating a network are prohibitively high, or there may be enough existing capacity that the costs of a new entrant using the incumbent’s network are negligible. In certain industries, such as telecommunications, incumbent operators have often provided local call services at subsidized rates. This provides the incumbent with advantages in terms of economies of density, scale and scope. In competing for a new customer an incumbent can often offer a relatively low price, which reflects lower long-run incremental cost than that of a new entrant. The incumbent, unlike the new entrant, can spread its joint and common costs across a greater customer base;

(c) **Vertical economies** – many incumbents have vertically integrated production activities, both upstream and downstream. For example, in the electricity industry, an incumbent is likely to be involved in generation, distribution and supply. Incumbents are likely to benefit from vertical economies related to integrated network planning, construction, operations and maintenance;

(d) **Control over network standards and access** – since incumbent operators have usually established the network standards to which new entrants must adapt. Further, incumbents can gain advantage by changing standards without warning;

(e) **Cross-subsidies** – incumbent operators are often able to cross-subsidize services, for example, telephone operators often subsidize competitive internet services from less competitive international services. Such cross-subsidization is potentially anti-competitive if it deters new entrants to an industry;

(f) **Customer inertia** – incumbents sometimes make it difficult or costly for a customer to change provider, thereby reducing the competitiveness of the market.

The “natural advantages” of incumbent operators, in terms of economies of scale and scope and customer inertia, can be augmented by anti-competitive conduct by such firms. The key challenge for competition authorities and regulators is to promote competition without unfairly handicapping incumbent operators. As markets become more competitive, through technological innovation etc., the need for industry specific

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regulation may diminish or even expire. Flexibility and transparency in the design of regulatory tools and institutions will be required to ensure appropriate responses to rapidly evolving competitive conditions.

N. Summary

1. Competition policy in regulated sectors, such as the infrastructure industries normally involves three main strands:
   - Structural change to create competitors – including break-up or unbundling decisions, such as those taken at the time of privatization; the control of mergers and acquisitions, and restrictions on the scope of business;
   - Liberalization – including policies designed to remove legal barriers to market entry;
   - Conduct regulation - including explicit monopoly controls and competition measures to constrain the behaviour of dominant firms, for example, through price regulation.

2. Traditionally infrastructure facilities and services have been provided on a monopoly basis, either by state-owned enterprises or by regulated private enterprise. However, in recent years, the provision of infrastructure facilities and services by private firms in competitive markets has been viewed as a means of reducing the costs and the fiscal burden of the sector, while at the same time increasing the dynamism of supply.

3. It is now widely accepted that the introduction of competition during the process of and preferably prior to privatization will result in increased benefits to the consumer and economy in the long run. It is however, desirable that regulatory measures are taken to ensure that consumers’ interests are protected.

4. The first step, in introducing or increasing competition in the provision of services previously provided either directly by the state or by state-owned enterprises, is to design and implement a “liberalization programme” aimed at:
   - Depoliticization;
   - The commercialization of operational management;
   - The selection and detailed design of an appropriate competitive market form;
   - The development of effective competitors;
   - The development of regulatory institutions appropriate to the market form.

5. The main ways in which the private sector can be involved in the provision of infrastructure facilities and services are:
   - Corporatization and performance contracts;
   - Affermage contracts, concessions and franchises (designed to create “competition for the market”);
   - Privatization (designed to create “competition in the market”).
6. In designing an economic reform programme, it is imperative to determine, on a sector-by-sector basis, the appropriate mix of policy instruments necessary to create and maintain a competitive market and an efficient allocation of resources. Policy makers must initially consider the technical nature of the industry, or sector, in which competition is to be introduced.

7. One approach to regulating industries with different competitive potential at each stage of production is to break them up by privatization, and to sell the monopolistic and competitive elements as different entities. The aim is to create “competition in the market” for potentially competitive activities.

8. Under full privatization with open competition “in the market”, ownership and control is transferred to the private sector and operators are subject to the prevailing commercial laws. In its extreme form the only regulation which is necessary relates to the general legislation on monopolies and restrictive practices.

9. Creating competition is, however, not limited to separating out potentially competitive elements of an industry from the elements best provided on a monopoly basis. Indeed, if “competition in the market” cannot work, then it may be possible to create “competition for the market” as a means of obtaining improvements in the efficiency of a monopolist. This form of competition is created by organizing an auction to force the potential monopolists to compete with each other for the right to be the sole provider, of infrastructure facilities, networks or services.

10. Long-term contracting can offer a solution to increasing private participation in natural monopoly industries. However, care should be taken that long-term contracting does not result in unsatisfactory outcomes in terms of inhibiting competition and strategic behaviour by firms that is contrary to the public interest.

11. The principle objectives for competition and regulatory authorities should be to promote long run economic efficiency and to promote consumer welfare.

12. Competition policy and regulatory agencies should not only create competition but also maintain it. Maintaining competition in regulated industries is primarily concerned with the regulation and control of:

- Anti-competitive behaviour by dominant firms;
- Mergers, acquisitions and other corporate combinations.

13. It is normally for competition authorities, rather than sector regulators, to review and approve mergers, acquisitions and other corporate combinations. However, in many network industries there is increasing globalization and as a result the concerns and work of regulators and competition authorities are converging.

14. Some countries have both a general competition authority and a sector-specific regulator while others have one or neither. Where a number of authorities exist, it is important that an industry is not subjected to duplicative or inconsistent intervention.
15. An effective competition policy must take into account the specific characteristics of an industry to which it is applied. The network service markets present special challenges for the application of competition policy in effecting the transition from a structure based on a state-monopoly to one with private sector competition. It is generally desirable to minimize government intervention in competitive markets. However, it is widely agreed that regulatory intervention is required to implement a successful transition from monopoly to competition. As competition replaces monopoly there is a continuing regulatory requirement to ensure that monopoly does not re-emerge through predatory pricing or mergers which lead to market dominance. It will be necessary for the government to determine whether the general competition authorities are capable of providing such regulation or whether the industry regulator needs to continue its role.

16. Public intervention can have other objectives. For example, a government may adopt rules and policies that limit the participation of foreign capital or companies in order to create or cultivate a domestic industry. Such intervention may deliberately limit competition and compromise economic efficiency in favour of other public interests.

17. As competition replaces monopoly there is a continuing regulatory requirement to ensure that monopoly does not re-emerge through predatory pricing or mergers which lead to market dominance. It will be necessary for the government to determine whether the general competition authorities are capable of providing such regulation or whether the industry regulator needs to continue its role.

18. As markets become more competitive, through technological innovation etc., the need for industry specific regulation may diminish or even expire. Flexibility and transparency in the design of regulatory tools and institutions will be required to ensure appropriate responses to rapidly evolving competitive conditions.