



9

Railway Reform:

Toolkit for Improving Rail Sector
Performance

Chapter 9:

Setting the Regulatory Framework

9 Setting the Regulatory Framework

9.1 Introduction

The railway industry has always had high public sector involvement. In many countries, railways are owned and managed by the public sector. However, both publicly *and* privately owned railways have usually been subject to some government control—pricing, market entry and exit (obligations to keep lines open and services operating), financial structure, accounting methods, vertical relations such as those between infrastructure and train operations, and operating rules.⁸⁶

Increasingly over the past 30 years, experts have questioned the heavy burden of economic regulation. Regulations that once protected national monopolies have been replaced in some countries by regulations that open access to infrastructure for third parties. These opposing trends are most apparent in the European Union (EU) where rail market liberalization has been accompanied by extensive regulation to establish a non discriminatory market.

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In principle, the best regulator *is* the market, which means that economic regulation should be used *only* to correct for market failures, for example, if competition is absent. Regulation should be used cautiously, as it can inflict unintended consequences on those it was designed to protect. For example, in many countries, regulated prices are set below cost. In the short term this appears to benefit customers but over the longer term railway assets and services will deteriorate because prices that are set at below cost-recovery will discourage or even prevent railway companies from making longer-term investments, and could even cause bankruptcies. Therefore, regulations that work against railways' long-term financial sustainability will also eventually hurt customers.

Railway reform may involve changes to railway ownership or management, institutional and organizational structures, and governance systems. These changes may require changes in the form of economic regulation. For example, the introduction of third-party access creates the need to regulate the conduct of infrastructure supply organizations. Economic regulation may also include the difficult task of maintaining and developing competition in the sector.

Although this chapter focuses on economic regulation, the discussion will also include regulations needed for railway safety, environmental protection, and harmonization of technical standards.⁸⁷

This chapter also covers the institutional and organizational aspects of regulation. In many countries, the ministry responsible for transport has been replaced as regulator by a body that is independent of government. Regulation is then separated from the government, which retains administrative oversight and its roles as policymaker, owner, and financier. In countries that have not yet managed to establish

⁸⁶ I. Kessides and R Willig, *Restructuring regulation of the rail industry in the public interest*, Policy Research Working Paper, (World Bank, 1995).

⁸⁷ A broad range of information on regulation, with a glossary available in six languages, is available at <http://www.regulationbodyofknowledge.org/>

independent regulation, other solutions may be required, at least in the shorter term, until obstacles can be overcome.

9.2 The Public Interest

Regulatory intervention is required if the public interest is expected to differ materially from the commercial interests of service providers—usually private companies. This situation is often referred to as ‘market failure.’

The public interest is compromised if the market fails to deliver on government objectives, such as national security, national cohesion or social policy objectives. It is then up to the government to set out what it requires the railways to do and to pay for the cost of doing so. These are essentially public sector obligations (PSOs). Administering public sector obligations is a form of regulation, but since this is discussed in Chapter 8, it will not be repeated in this chapter. Instead, this chapter focuses on regulating railways’ monopoly power and developing competition, safety and environmental regulations, and establishing technical standards.

Aspects of public interest that must be considered in designing rail sector regulatory systems are discussed in the following sections.

9.2.1 Economic issues

Most economic regulation in the railway sector is designed to address two issues: (i) monopoly, particularly natural monopoly; and (ii) managing industry interfaces, usually at the point of separation between the natural monopoly and the rest of the industry.

Monopoly

The most common form of market failure in railways arises from monopoly power. Railway companies may dominate certain markets and usually have a natural monopoly, at least for infrastructure.⁸⁸ In the rail sector, it is rarely possible to create competition in infrastructure provision due to the economies of density required to sustain the business—average cost declines as corridor volumes rise (see Chapter 3). Also, when inter-modal competition and intra-modal competition between railway undertakings are weak, regulation may be needed to protect the final customer and perhaps to ensure that all competitors or potential competitors have fair access to facilities owned by incumbents. Economic regulation should be designed to replicate a competitive environment to the extent possible.

⁸⁸ A natural monopoly is an entity whose average costs decline with output.



When a monopoly exists, price and service quality can be determined in several ways.⁸⁹ Gomez-Ibanez suggests an array of options along a continuum (Figure 9.1) ranging from total dependence on markets to public provision of the service.⁹⁰ At one end of the continuum—the market extreme—customers contract directly with the monopoly service provider. The next option is concession contracts, which, like private contracts, use the courts to settle disputes but are more suited to railways with many customers. Further along the continuum, government would create a specialist body to carry out discretionary regulation, including the power to set prices and services standards. The regulator would operate within a clear and transparent framework set by legislation but broad enough to allow the regulator to exercise substantial discretion. At the political extreme of the continuum are the public enterprise options.

In practice, these options are more complex. Discretionary regulation can be combined with concession contracts (discussed below) and public enterprises. For example, in Europe, many state-owned infrastructure providers are subject to discretionary regulation, irrespective of whether they are part of holding companies or completely independent of any operator. Markets may have more or less influence. State-owned infrastructure providers, for example, rarely depend entirely on private markets to raise capital.

⁸⁹ Rail's natural monopoly element is its infrastructure. This is true for both vertically integrated and vertically separated railways. Vertical separation reduces the scope of the natural monopoly—rail operators have no choice, while end customers sometimes do.

⁹⁰ J. A. Gomez-Ibanez, *Regulating Infrastructure: Monopoly, Contracts and Discretion*, (Cambridge, Mass. Harvard University Press, 2003).

Managing interfaces within a reformed industry

If there is third-party access to infrastructure, regulation is needed to ensure equitable access among railway undertakings seeking to use the infrastructure, in particular to ensure that access rules and charges are not discriminatory.

If there is third party access *without* vertical separation of infrastructure and operations, particularly strong regulations are needed to ensure that the vertically integrated railway does not discriminate against new entrants.

Because vertical separation prevents the infrastructure supplier from having direct contact with customers, regulation may be needed to ensure that investments made by the infrastructure supplier reflect customer and government needs. Also, under vertical separation, infrastructure and train operations should be well coordinated and regulation can play a role in this.

9.2.2 Safety and the environment

Typically, the railway industry does not bear the full costs of accidents or environmental damage, so regulation is required to protect the public, employees, and the environment, as in other economic sectors. Otherwise, rail companies may neglect safety and environmental concerns, either for commercial reasons or simply because they lack awareness or competence in these areas.

9.2.3 The need for common technical standards

Railways have an incentive to develop and agree upon common technical standards because this facilitates interoperability among railway systems. Even railways that are not connected to other railways are interested in developing common technical standards so they can benefit from economies of scale in manufacturing. As a result, standards have been developed by the International Union of Railways (UIC), the Association of American Railroads (AAR), the Organization for Cooperation of Railways (OSJD)⁹¹ and others.

Despite this, individual railway companies can lack incentives to develop and apply common technical standards; regulation can ensure that standards are established and met.

9.2.4 Impact on competing modes

Competing modes of transport such as roads usually entail much higher safety and environmental costs than rail. Railway regulations should not be so harsh that they stifle railways' ability to compete because this would tend to encourage customers to select other modes, creating overall deterioration in safety and environmental performance across the entire transport sector. Therefore, to uphold the public interest, competitiveness should be taken into account when developing regulations for the rail sector.

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⁹¹ For Eastern Europe, the Former Soviet Union, China, North Korea, Mongolia and Vietnam.

9.3 Forms of Regulation

9.3.1 Links among forms of regulation

The different forms of regulations are linked. Safety and environmental requirements affect technical standards and all of these shape requirements for economic regulation because they influence competition in rail services and the commercial aspects of railway performance. Also, competition can affect the implementation of safety, environmental, and technical regulations. For example, in the EU, introducing open access has led to requirements for each country to establish a national safety authority and an accident investigation body (European Parliament and Council, 2004), and Technical Requirements for Interoperability.

9.3.2 Economic regulation

Regulation and structure - international experience

Regulations must be designed to take account of industry structure, since this determines *what* needs be regulated: the interfaces within the railway industry, such as ensuring fair competition among operators and appropriate access charges or the price to the end-consumers of services.

International experience illustrates the link between structure and regulation. Most railways worldwide are vertically integrated and many have no automatic requirement to provide third-party access to other operators. The United States approach (see Box 9.1), which has competing vertically integrated railways allows for light regulation of prices to end users. This approach may be replicable in Russia, China, and India, which are large enough for competing vertically integrated railways. However in smaller countries competing vertically integrated railways would be uneconomic. Introducing competition within the smaller rail system would require third-party access, which would require more intrusive regulation than the regulation in the United States.

Box 9.1 Regulation of Vertically Integrated United States Railroads

The American experience in reducing regulation illustrates the effectiveness of a light touch, especially if there are competing vertically integrated railways. Vertically integrated freight railways compete in most markets with road and in some markets, with parallel rail lines.

Most railways are owned by the private sector in the United States and for many years were subjected to detailed control by the Interstate Commerce Commission (ICC). Railways could not close lines or merge, and were subject to strict regulation of tariffs and other aspects of service. Contracted (negotiated) rates with shippers were not allowed, only common carrier tariffs.

These restrictions prevented commercial initiative and created railway organizations that resembled the public sector. This led to inadequate or even nega-

tive financial returns and a consequent lack of investment. Eventually, it culminated with the bankruptcy of several railways (20 percent of the industry) in the 1970s.

In 1980, the regulatory regime was changed to achieve a better balance between the financial viability of the railways and the interests of shippers. The new approach depends on competition between railways and competition between railways and roads to ‘regulate’ the market. Railways were permitted to negotiate prices and services with customers. The Regulator agency intervenes only on prices, only in response to complaints, and only if the ratio of revenue to variable cost for the traffic is greater than 180 percent. The Regulator also reviews mergers to preserve competition.

Since 1980, all performance measures of the railways have improved and financial returns have been adequate but not excessive. Average rail rates have fallen 55 percent, rail traffic volume has nearly doubled, and the railways have reinvested more than \$460 billion into their systems.

Typically, formerly planned economies have vertically integrated railways with one dominant operator. Most aspects of price and quality are regulated through direct control—railways are run as ministries or as state administrations (see Box 9.2), which puts them under direct political control. This results in conflicting interests—as a regulator, the ministry may want lower tariffs, but as an operator, it might want higher tariffs. Therefore, railways are fettered in their ability to operate as a business.

Box 9.2 Formerly Planned Economies

Typically, formerly planned economies (including India) regulated most aspects of railway price and quality through direct control, either by running railways as ministries or as state administrations. In China and India, for example, the ministry is policymaker, regulator (economic and safety), owner and dominant (vertically integrated) train operator. However, Russia has corporatized its railways, separated management from government functions and allowed private wagon owners to become operators, although they must usually use Russian Railways’ locomotives.⁹² When Russian Railways (RZD) has finished creating subsidiaries to own all its wagons, tariff regulation will be limited to infrastructure and locomotives. The RZD tariffs are regulated by the Federal Service for Tariffs⁹³, a body responsible for tariffs in all network industries in Russia.

The EU and Australia (see Box 9.3) allow competing railway operators access to the railway infrastructure. Their experience is relevant to countries that have or are considering open access or limited third-party access. Open access allows competition to regulate the final market. Its disadvantage is that regulation is still required to ensure

⁹² Russia follows EU terminology: carriers provide traction, operators do not.

⁹³ <http://www.fstrf.ru/eng>. More details on Russia may be found in the Case Study and in the relevant chapter of *Reforming Railways*, <http://www.cer.be/publications/books/2099-new-reforming-railways-learning-from-experience>

fair access to infrastructure and encourage competition among operators. Regulation of access charges is important in open access situations.⁹⁴

Box 9.3 ‘Open Access’ in Europe and Australia

Traditionally, most European countries regulated entry into the rail market, allowing only the state-owned vertically integrated railways to operate train services. Recently, however, the European Union and Australia, competition has been introduced in the rail sector by removing barriers to entry and allowing third party access to monopoly railway infrastructure.

Because railway undertakings are now operating in a competitive market, the focus of regulation must change from controlling the behavior of the vertically integrated railways to controlling the behavior of the natural monopoly infrastructure provider and promoting competition among operators. New forms of regulation are therefore required. The key principles for the EU are contained in Article 30 of EU Directive 2001/14:

- The creation of national regulatory bodies (RBs) is required, independent from any infrastructure manager (IM), allocation or charging body or applicant (railway undertaking seeking railway capacity);
- The applicant must have a right of appeal against unfair discrimination;
- RBs must decide on any complaints and take remedial action;
- RBs must ensure the charges for access to infrastructure are non-discriminatory and are set by the IM at a level that allows them to cover the direct cost of operating the service,⁹⁵ including scarcity and environmental costs, with mark-ups allowed where the market can bear it;
- RBs must ensure that IMs are able to balance income and expenditure;

Member states must ensure RBs have the powers to obtain information that allows them to carry out their duties.

The EU rules were established before Central and Eastern European countries joined the EU in 2004 and 2007. In some CEE countries, the incumbent railways and rail modal share have suffered from opening up their markets. As a result, despite apparent broad agreement on the principles of liberalization, the context must be carefully considered to avoid unintended outcomes.

Duties of the economic regulator

No single model is best for economic regulation of all railways. Regulation must be designed to achieve national transport sector objectives and take account of other aspects of railway reform, particularly industry structure and government policy on private sector participation. Also, regulation must consider the railway market—which could range from a single user mineral railway to a network serving

⁹⁴ More details on the Australian approach may be found in the Case Study on the Australian Rail Track Corporation.

⁹⁵ This is generally interpreted to mean marginal cost.

many freight customers and passengers—whether competition exists, whether a new line will be built, and railway ownership. These considerations shape the objectives that discretionary regulation should be designed to achieve and these objectives become the duties of the regulator.

Other practical considerations include any experience of regulation in the country, the existing political culture, and the potential to recruit staff with the skills and abilities needed to run the regulatory body.

The broad duties of the economic regulator or regulators should be enshrined in legislation. They may cover the following issues:

- Regulating tariffs and services, if there is little or no competition
- Developing competition
- Ensuring non-discriminatory access
- Determining access charges
- Ensuring infrastructure investment

Once competition is adequate, tariffs and services should be deregulated.

Regulating tariffs and services

Regulation of rail tariffs and services should be considered if there is little or no competition, whether from other rail operators, other transport modes, or competing sources. In this case, the standards of price regulation should be objective and transparent. Historically, governments have regulated transport tariffs and quality and many governments still do so. However, once competition is adequate, tariffs and services should be deregulated.

Developing competition

Competition is more efficient than regulation. Therefore an important task for the regulator is to help establish competitive markets, which will remove the need to regulate tariffs. However, in developing competition, the regulator must consider whether railway entities already face competition from other transport modes. Therefore, the regulatory body must monitor the development of competition and may intervene actively to promote competition, sometimes in cooperation with the competition authority if it has relevant experience.

If third-party access to railway infrastructure is allowed, competition among railway undertakings should lead to lower prices, increased innovation, and the development of new markets. However, incumbent railways, usually state-owned, have complained that new market entrants ‘cherry pick’—that they enter or compete in only the most profitable markets, leaving the incumbent to serve the least profitable markets, which it may be under an obligation to serve. Another possibility with passenger railways is that new entrants may schedule their services just before the incumbent’s. The consequent reduction in profitability can lead to reduced invest-

ment, thus leading to increased need for government support—for example, to replace cross subsidies from profitable block trains⁹⁶ to single wagonload services—and the closure of loss-making services.⁹⁷

The regulator can help prevent cherry picking and ensure that competition is fair among industry players and of benefit to customers. Experience suggests that it may be more difficult to develop competition for passenger services than for freight. This may explain why regulations often differ between freight-dominated railways and passenger-dominated railways, which often rely on franchising.

Ensuring nondiscriminatory access

Healthy competition with third-party access requires the incumbent and new market entrants to share a level playing field. All licensed undertakings must have equitable access rights to track, under specified conditions. The regulator may be required to arbitrate complaints about discrimination in access provision.

Competition can sometimes be encouraged by developing multi-party access to the so-called ‘last-mile’ facilities—stations, depots, and connections to rail networks for which shared facilities make more economic sense than duplicate facilities.⁹⁸ If it is expensive to duplicate essential facilities; ideally, the owner *should* provide access to competing companies. However, to require this could discourage investment as companies do not want to invest to benefit their competitors.

The distinction between essential and non-essential facilities is illustrated by Annex II of the European Union’s Directive 2001/14 (European Parliament and Council, 2001)⁹⁹ (see Box 9.4). The Directive includes lists of services that may be supplied to railway undertakings. Group 1, the minimum access package, and Group 2, track access to services facilities and supply of services, refer to services that would be costly to replicate and to which access must be provided (see Article 5). Group 3, additional services, *may* be offered; if they are, the infrastructure manager must supply them upon request. Finally Group 4, ancillary services, *may* be supplied but the infrastructure provider is under no obligation to do so.

⁹⁶ Block trains are trains that run from origin to destination without passing through marshalling yards where wagons are reorganized into new trains.

⁹⁷ *Railway Reform - Regulation of Freight Transport Markets*, (European Conference of Ministers of Transport, 2001).

⁹⁸ If access requirements do not discourage investment because the investor is obligated to provide access to the facility that will give advantage to competitors.

⁹⁹ http://ec.europa.eu/transport/rail/packages/2001_en.htm

Box 9.4 ANNEX II of EU Directive 2001/14 - Services to Be Supplied to Railway Undertakings

1. The minimum access package shall comprise:
 - a) handling requests for infrastructure capacity
 - b) the right to utilize the capacity that is granted
 - c) use of running track points and junctions
 - d) train control including signaling, regulating, dispatching, communication, and providing information on train movement
 - e) all other information required to implement or operate the service for which capacity has been granted
2. Track access to services facilities and supply of services shall comprise:
 - a) use of electrical supply equipment for traction current, where available
 - b) refueling facilities
 - c) passenger stations, their buildings, and other facilities
 - d) freight terminals
 - e) marshalling yards
 - f) train formation facilities
 - g) storage sidings
 - h) maintenance and other technical facilities
3. Additional services may comprise:
 - a) traction current
 - b) pre-heating of passenger trains
 - c) supply of fuel, shunting, and all other services provided at the access services facilities mentioned above
 - d) tailor-made contracts for:
 - control of transport of dangerous goods
 - assistance in running abnormal trains
4. Ancillary services may comprise:
 - a) access to telecommunication network
 - b) provision of supplementary information
 - c) technical inspection of rolling stock

Developing access charges

The charging system for access is one of the most complex issues of third-party access. First, to be able to calculate the cost of providing infrastructure services, accounts for infrastructure must be separated from accounts for rail operations.

Second, a decision must be made about the principles on which charges should be determined. Two broad options are marginal cost pricing and full cost recovery. Most economists favor marginal cost pricing, which charges for costs incurred for each service. However, the marginal cost of infrastructure is normally much less

than average cost,¹⁰⁰ so under marginal cost pricing, the railways will recover only a small proportion of total costs.

Another option is referred to by economists as a ‘second-best’ solution. The second-best solution adopted by the EU (EU Directive 2001/14) is to allow mark-ups above marginal cost to permit differentiated charges and improve cost recovery. Although it does not mention Ramsey Pricing, the EU Directive proposals are consistent with this approach.¹⁰¹ So far, this approach has had limited success because many infrastructure managers measure direct costs inaccurately and lack market segment data on the sensitivity of traffic volumes to changes in access charges. In part, this is because, unlike integrated operators, infrastructure managers have no direct contact with customers. Chapter 3 noted that putting the full burden of Ramsey Pricing on access charges would create highly differentiated charges that could trigger regulatory objections or legal challenges.

Another way to recover fixed costs from customers is to impose a two-part tariff with a fixed charge to reflect fixed costs, including the longer-run costs of providing capacity. However, fixed charges are difficult to establish in a competitive market with open access because they affect competition between the larger incumbent railway undertaking and smaller new entrants to the market that have very different abilities to pay fixed charges.

Western European nations often resort to government funding to fill the gap between revenue and expenditure because of the difficulty of finding a second-best solution that allows full cost recovery from charges. However, in Central Europe, government budgets are more tightly constrained so high uniform-access charges are often imposed on all traffic. This reduces traffic levels and therefore reduces contributions to fixed costs.

Ensuring infrastructure investment

Ensuring the right amount and type of investment in rail infrastructure is complex and difficult in railways, because of the lumpiness of investment in railway infrastructure (large investments are needed all at once), because railway assets have long lives, because of the importance of sunk costs since rail infrastructure rarely has alternate uses and cannot be moved, and because of the large number of ultimate beneficiaries of investment. In most years, even in North America’s deregulated and highly efficient railways, capital returns have failed to meet standards set by the regulator.

As a result of these difficulties, government may require the regulator to create a framework that encourages infrastructure investment. The key choices here are between rate-of-return (or cost-of-service regulation) and incentive (or price-cap) regulation.

¹⁰⁰ An exception is where there is congestion or scarcity of capacity, and marginal costs exceed average costs. This could be a real issue in countries with high capacity utilization. In these cases, the solution is to improve the design of access charges.

¹⁰¹ Ramsey pricing is an approach whereby charges are raised above variable costs in inverse proportion to the elasticity of demand for a particular market segment. In other words the higher the elasticity of demand, the lower the charge.

Rate-of-return regulation was developed in the United States for setting utility rates. Prices are based on an efficient firm's costs for providing service, including a return on capital. The standard of an efficient firm is used because basing tariffs on all capital invested encourages wasteful investments, and basing it on all operating costs provides little incentive to reduce these costs.

Price-cap or incentive regulation is common among utilities in Europe, but for railway infrastructure, it exists only in Britain where it was introduced when railways were privatized in 1996. The Office of Rail Regulation applies a five-year price cap to infrastructure supplier's charges (Network Rail) and the infrastructure supplier retains any efficiency gains for the five-year period.

A weakness shared by both approaches is the difficulty of assessing efficient firm costs. Also, "there is no transparent method of comparing the cost and efficiency with which infrastructure is being maintained and thus there is no effective incentive for infrastructure providers to be efficient."¹⁰² Finding benchmark railway companies is difficult, since generally each country has only one infrastructure provider. Thus, in-country benchmarking is difficult, and for international railways and other industries benchmarking is complex.¹⁰³

Regulatory incentives appear to have little influence on efficiency gains by state-owned companies, perhaps because it is assumed the state will cover any losses. Governments usually regulate infrastructure suppliers through governance arrangements and annual budgeting, including an allowance for a return on capital. In mainland Europe, Ministries set annual budgets for state-owned infrastructure suppliers; this means the supplier retains any efficiency gains for only one year. However, several European countries have introduced multi-year contracts between the state and infrastructure suppliers as an alternative to regulation. To enlarge the planning horizon and to encourage efficiency gains, the EU is considering a requirement for member states to offer infrastructure managers multi-year contracts or to enact regulations to improve budgeting certainty and provide incentives to infrastructure managers to improve their efficiency.

Economic regulation across borders

Railways are the most competitive transport mode for moving freight over long distances; hence, cross-border railways are of growing economic importance. Consequently, regulatory frameworks need to meet national requirements and be sufficiently flexible to achieve compatibility across borders to operate or build new systems. In Europe, railways have developed along national lines so key concerns are interoperability and access, including access charges (Box 9.5), problems that are common to cross-border movements around the world.

¹⁰² *Railway Reform and Charges for the Use of Infrastructure* (European Conference of Ministers of Transport, 2005).

¹⁰³ Comparing costs has been less problematic in the U.S.A. due to multiple rail companies and the regulator STB, which has created standard cost definitions, cost reporting requirements and a URCS (uniform rail costing system).

Box 9.5 Access Charges for Cross-Border Movements in the EU

In the EU, access charges for cross-border movements have been debated extensively. National levels and structures of access charges vary widely among countries resulting in customer charges that are complex and unpredictable, and creating incentives for each country to act in its own interest by maximizing its revenue share from these services. Instead, some have argued that both the structure¹⁰⁴ and level of access charges should be harmonized across Europe. However, this is impractical due to wide variations in national levels of state support for infrastructure.

In the former Soviet Union, railways were unified until 1990 and they continue to adhere to the same technical and safety standards. Although transit tariffs vary, a satisfactory international agreement is in place. In Africa, a few international railways were built in colonial times, which predated today's national boundaries; therefore, interoperability is not a problem, unless countries change technical standards, such as gauge. The key regulatory issue is access arrangements for transit services from landlocked countries to ports.

In developing countries, the solution to the sharing of revenue for cross-border movements should be more straightforward. Governments should negotiate an international treaty, mirrored in an agreement among national railways that includes financial arrangements. The Southern Africa Development Community (SADC), for example, agreed on a "Protocol on Transport, Communications and Meteorology."¹⁰⁵ The chapter on rail included a requirement for "the establishment of regional railway costing principles, and a regional system for account settlement that provides for simplified payment procedures and account settlement procedures." At the time of writing, this system had not yet been implemented, but it is consistent with the principle that revenue sharing should be based on cost.

9.3.3 Safety regulation

Rail industry incentives are inadequate to improve safety because railways do not bear all of the costs of accidents. Consequently, safety cannot be left entirely to the industry, particularly if the railways carry passengers.

Safety regulations should not be too burdensome, so safety rules should be more relaxed on railway lines with little traffic or low speeds. Regulators should establish safety standards and railway companies should establish systems for implementing the standards. Regulators should then review, approve, and audit the system to ensure adherence. Appropriate regulations are more likely than inappropriate and illogical ones to be accepted by the industry and to be implemented without too much supervision. Safety regulation should not be intrusive and the regulator's

The regulator should set the safety standards and the railway companies the system for implementing the rules.

¹⁰⁴ If one country charges by train-km whereas a bordering country charges by gross ton-km, the train makeup will not be optimized for either.

¹⁰⁵ *Protocol on Transport, Communications and Meteorology*, Chapter 7 on railways, (Southern Africa Development Community, 2008). <http://www.sadc.int/index/browse/page/162>.

primary focus should be to ensure adequate processes are established to meet standards. See Box 9.6 for examples from the EU and South Africa.

Safety regulation could be ‘privatized’ through insurance requirements. For example, insurance company surveyors could conduct annual inspections, which would be a condition to obtain insurance, and insurance would be a condition to obtain a license to operate.

Box 9.6 Examples of Safety Regulation in the EU and South Africa

In the EU, Safety Directive (2004/49)¹⁰⁶ requires railway operators to maintain a safety management system (SMS) and hold a safety certificate or authorization indicating the safety regulator accepts the SMS. This directive is more detailed than earlier legislation as it now takes account of market opening and interoperability. The principles include: (i) railway companies are responsible for the safety of their portion of system; (ii) safety regulators are responsible for managing, regulating, and enforcing safety rules; and, (iii) national accident investigation bodies must be established and can be part of the safety regulator.

South Africa adopted a similar approach. The Railway Safety Regulator (RSR), under the Department of Transport, oversees and promotes safe railway operations by supporting, monitoring and enforcing within an enabling regulatory framework.¹⁰⁷ The RSR oversees railway safety in South Africa; train, station, and railway line operators remain responsible for implementation.

9.3.4 Environmental regulation

Most railway environmental regulation is based on cross-sector national legislation for environmental protection. Typically, rail-specific regulations cover three broad areas:

- Soil pollution, for example from engine lubricants, oil leakage from wagons, sewage from passenger trains, pesticides, and creosote from wooden sleepers;
- Noise from rolling stock, which can be a major concern in urban areas;
- Local air pollution from diesel trains; pollution from freight (e.g., coal dust).

The environmental regulation body may also undertake environmental impact assessments for new projects. Assessments could cover a range of issues, including the impact on human settlements, wildlife, and water resources.

Environmental regulations are often standardized internationally. For example, a recent EU Directive (2004/26) aligns diesel locomotive emission limits with U.S. standards to help create a competitive global market for rolling stock.

¹⁰⁶ <http://eur-lex.europa.eu/LexUriServ/LexUriServ.do?uri=OJ:L:2004:220:0016:0039:EN:PDF>

¹⁰⁷ Source: RSR’s website - <http://www.rsr.org.za/>

In the United States, the Federal Railroad Administration (FRA) is responsible for environmental regulation and environmental impact assessments. In contrast, in the EU, most countries assign environmental regulation to their environmental agencies, not a sector regulator.

9.3.5 Technical regulation

Technical regulations may be required to meet safety, environmental, or operational standards. A key form of technical regulation aims to ensure that track and wheels are compatible with each other on all lines. For example, EU directives on interoperability use provide a degree of technical harmonization and procedural standardization. Soviet standards, which still apply in former Soviet Union countries, have the same function.

Often, technical regulation standards are set too high, which makes them uneconomic. Regulations should not be overly prescriptive—national standards should not be misused to protect national industries, and all regulations should be evaluated for cost effectiveness, a task better performed by industry associations than by regulators.

- For example, in the U.S., the safety regulator, FRA, implemented legislation that forced the industry to adopt ‘positive train control’, a system designed to improve train safety. The regulator is convinced of operational advantages but the railroad industry disagrees and claims that the small benefits are far outweighed by high system costs.
- Similarly, the EU is convinced that a cab-based signaling system—European Railway Traffic Management System (ERTMS)—is essential to create a seamless European system and increase rail transport competitiveness. However, some parts of the industry will incur major costs from ERTMS, which could actually *reduce* rail’s competitiveness.

These examples demonstrate the risk of unintended outcomes when governments or super-national agencies determine technical regulations and set standards without understanding the industry’s pragmatic cost-effective requirements. Regulators should avoid imposing standards, implementation methods, or timescales that are unrealistic or unaffordable.

Often, industry associations develop voluntary standards, which reduces industry costs because effective design and standardization facilitates greater competition among suppliers. Voluntary standards developed by major industry associations are most effective when rail-specific national rules and standards align with international standards.

9.4 Regulatory Instruments

9.4.1 Legislation and regulatory instruments

Regulatory instruments are tools to carry out regulation. Their mandate must be provided for in primary legislation, which should set out a general framework that includes overall policy objectives, criteria, and procedures for applying the instruments. Legislation should enable all desirable regulatory interventions.

The simplest and most common regulatory instrument is rule-based regulation, such as tariff control. In contrast, contracts have been introduced as railways have been commercialized and privatized. The most important of these are licenses and concessions or franchises. Licensing is a type of discretionary regulation that may cover economic, safety, and environmental issues. Concessions or franchises cover only economic issues. These contractual instruments are discussed below.

9.4.2 Licensing

An operating license is essentially a contract between the regulator and the company; a regulator may exercise discretion in using its powers. As a contract, a license specifies obligations, risk allocation, and enforcement procedures. In particular, it specifies the rights and obligations of the licensee and gives it the right to operate. A licensed operator must comply with license conditions that indicate its suitability to operate the assets, taking account of its financial and management capacity, and agreed approaches to safety, environmental concerns, customer service obligations and information provision. The regulator and the railway company negotiate a license agreement that stipulates these license conditions. An example of such conditions for Network Rail, covering a wide range of regulatory issues, is on the website for the British Office of Rail Regulation.¹⁰⁸

A license is a *negotiated* contract, which means that under most circumstances, changes can be introduced *only* by mutual agreement. However, regulators should have the authority to impose changes on any operators that disagree with the regulator's proposals, and operators should have the right to appeal or refer to the competition body or other appeals bodies, requesting an investigation.

Licensing could also be used with concessioning (or franchising) although the concessionaire may be exempt from certain license conditions if compliance with licensing conditions has been verified by the concessioning authority. Ideally, the license should be issued by an existing independent licensing body (possibly the regulator), not the concessioning authority. Concessionaires that fail to get a license for any reason normally should not be allowed to operate. A concession should be granted only after the regulator has issued a license, except if operations cannot start until new facilities are built. In that case, a concession agreement would be needed earlier than an operating license.

However, using *both* licensing and concessioning has disadvantages because more than one governing body is needed, and many countries lack resources for this.

¹⁰⁸ <http://www.rail-reg.gov.uk/server/show/nav.2159>.

The simplest solution may be to have a concession and compensate for gaps in the concession contract by making provision for dispute resolution.

9.4.3 Concessions

Key elements of concessioning

Concessioning differs from outright sale of the entire business and is commonly used to introduce competition for the right to serve the market, not competition within the market.¹⁰⁹ Normally, government retains infrastructure ownership and the concessionaire has the rights of use for the contract duration.¹¹⁰ Concessioning is a form of regulation, but additional discretionary regulation may be required.

Concession design depends on the rights that are being contracted for, which could range from the right to operate a few services, to the right to construct and operate an entire national or international railway. The concession could be:

- A negative concession (usually for loss-making passenger services) where tariffs and services are normally regulated and the government pays the concessionaire;
- A commercial concession-operators pay government for operating rights, usually for freight, without rates or services regulations;
- A combination of these two.

A guide to a commercial concession contract is set out in Annex 4.

Regulation under concessioning

Under concessioning, regulation can be as simple as contract enforcement.¹¹¹ Alternatively, regulatory responsibilities can be divided between the concession-monitoring body (either government or a government agency) and an independent regulator. The independent regulator may give the private investor more confidence by providing a check on government, or preventing a concession-monitoring agency from terminating a contract before the concessionaire has an opportunity to rectify any problems. This arrangement should command better concession prices from bidders because it lowers their perceived regulatory risks. Box 9.7 describes experience with rail concessioning and regulation in Argentina.

¹⁰⁹ J. A. Gomez-Ibanez, *Regulating Infrastructure: Monopoly, Contracts and Discretion*, (Cambridge, Mass. Harvard University Press, 2003).

¹¹⁰ In the case of new infrastructure, ownership can either revert to the government at the end of the concession or can be transferred to government on commissioning with the concessionaire having permission to use the facilities.

¹¹¹ Estache and de Rus, *Privatizing and Regulation of Transport Infrastructure*, (World Bank Institute Development Studies, 2000).

Box 9.7 Rail Freight Concessions and Regulation in Argentina

Argentine railways were concessioned in the early 1990s. Government established a transport regulator, also responsible for trucks and buses, which reported to the Secretary of Transportation. The regulator lacked discretion to modify concession contracts and most problems resulted from contracts that were incomplete and rendered obsolete when freight traffic fell short of contracted levels, and growing competition forced a tariff reduction. As a result, concessionaires paid government less and invested less than stipulated by their contracts. Government opted to renegotiate the contracts, rather than terminate them and authorized the Secretary of Transportation to renegotiate, rather than the regulator. This resulted in establishing a system of 'regulation by renegotiation', rather than 'regulation by contract'. Both sides took the contracts less seriously and this reduced their effectiveness.¹¹²

Regulators may arbitrate if investors exhibit opportunistic behaviors such as contract renegotiation demands, or contract non compliance. This is a common occurrence among African concessions¹¹³ but no African country has an effective rail regulator to arbitrate or enforce agreements. Box 9.8 summarizes the experience with rail concessions in Africa.

Concessioning has some limitations compared to discretionary regulation. Since many circumstances are unforeseen when a concession contract is signed, contracts are incomplete and contract rules inadequate to deal with all eventualities. Regulatory processes are a low-cost replacement or supplement for incomplete contracts.

Many failed concessions could have been reinforced to make them more effective if discretionary regulation had been used.¹¹⁴ Concession-monitoring bodies, which are government entities or dependent on government, should not deal with customer complaints or safety concerns because government has a vested interest in protecting the concessionaire's interests. Regulators should be independent of government and the railway industry so they can consider appeals against decisions without resorting to the courts. An independent economic regulator may act as arbiter in concession contract disputes or non compliance.

In principle, under a concession, economic regulation should be passive, which means the regulator should *respond* to complaints rather than *initiate investigations*, and use a light touch, especially because there is often intense competition from road services. However, the regulator may need to do the following:

- Monitor market domination if the concessionaire achieves high levels of rail market share; and monitor measures to deal with abuse of monopoly power

¹¹² J. A. Gomez-Ibanez, *Regulating Infrastructure: Monopoly, Contracts and Discretion*, (Cambridge, Mass. Harvard University Press, 2003).

¹¹³ R. Bullock, V. Foster and C. Briceno, C., *Africa's Infrastructure, A Time for Transition*, (World Bank, 2010). <http://www.infrastructureafrica.org/aicd/flagship-report>.

¹¹⁴ J. A. Gomez-Ibanez, *Regulating Infrastructure: Monopoly, Contracts and Discretion*, (Cambridge, Mass. Harvard University Press, 2003).

- Hear and investigate complaints on access and discriminatory practices
- Assess discrimination among shippers
- Ensure fair access to infrastructure for new operators, if appropriate
- Provide advice to the minister if, for example, the concessionaire wishes to withdraw services

Also, the minister may have authority, either under law or the concession agreement, to require the regulator to review the reasonableness of proposed tariff increases in the context of the concession agreement, if the concession monitoring body lacks the expertise.

Box 9.8 Rail Freight Concessions in Africa¹¹⁵

Since 1993, many African countries have granted concessions to operate railways, a move that has generally improved efficiency and traffic despite weaknesses in concession contracts and institutional arrangements for enforcement. Fears that private concession operators would develop undue market power have proven unfounded but this has meant that tariffs could not be as high as assumed at concessioning. Low tariffs and traffic which fell short of forecasts reduced profitability. High concession fees and unsustainable debt levels have consequently left operators unable or unwilling to invest adequately. Therefore, governments have had to make up most of the investment, using loans from international financial institutions (IFIs), to address renewal and maintenance backlogs. Concession contract regulation has been ineffective, especially on information disclosure, due to shortage of qualified staff and lack of political support for concession authorities. Contracts have not been subjected to independent audits, and concessionaires have suffered unpredictable and arbitrary changes, such as requirements to run unfunded passenger services, or imposed salary increases. An independent regulator or oversight committee might have prevented these irregularities.¹¹⁶

Most Latin American and African countries have chosen to use concessions rather than licensing because they lack a history of independent regulation. However, once the transaction is completed, the concessionaire has considerable leverage, which can become a problem.¹¹⁷ In practice, both concessionaire and government often fail to deliver on their obligations.

Specific regulatory issues in concession contracts

In Latin American and African concessions, most economic regulation is limited to subsidized passenger tariffs, and the potential to abolish concession agreement

¹¹⁵ R. Bullock, *Review of Selected Railway Concessions in Sub-Saharan Africa*, (World Bank, 2006). <http://www4.worldbank.org/afr/ssatp/Resources/WorldBank-WorkingPapers/ESW-RailwayConcessions.pdf> and R. Bullock, *Results of railway privatization in Africa*, (World Bank, 2005). http://siteresources.worldbank.org/INTTRANSPORT/Resources/336291-1227561426235/5611053-1229359963828/tp-8_africa_rail_concessions_web.pdf

¹¹⁶ *Ibid.*

¹¹⁷ R. Sharp, *Results of Railway Privatization in Latin America*, (World Bank, 2005). http://siteresources.worldbank.org/INTTRANSPORT/Resources/336291-1227561426235/5611053-1229359963828/TP-6_LAC_Railways_Concessions_web.pdf.

exclusivity if there is abuse of monopoly power. However, exclusivity is rarely removed as volumes are rarely sufficient to support more than one operator. Furthermore, some concession contracts are silent on the issue of exclusivity; therefore, concessionaires assume it exists and governments assume it does not. In general, Latin American and African concession contract design and regulation need strengthening; an independent regulator with appropriate powers would support this.

Construction of new lines

Concessionaires may sometimes want to ensure that no new lines are built that may compete with the line they have concessioned. The concession agreement could state that the government will not subsidize (or even approve) the construction of such lines for a stated period.

Mineral lines

In many countries, railway lines to export coal or minerals, usually purpose-built and owned by mining companies or their subsidiaries, are commonly concessioned. Sometimes government decides the public interest would be better served if the concessionaire were required to provide capacity for third-party access by other mining companies or others. For example, recently in Pilbara, the Australian Competition Tribunal required the mining companies that owned a rail line to provide access to other mining companies. However, since line owners have incentives to sell spare line capacity, it begs the question of whether regulatory intervention is even necessary or desirable for such lines.

Competition

Competition among rail operators is feasible if lines serve the same markets, but only if sufficient economies of density exist. Otherwise, it is seldom economic to have more than one line serving a corridor. For example, in Mexico, the railway concessioning competition was designed to connect industries through one jointly owned line to more than one railway systems, each serving a separate port.

Duration of concession contract

Long contracts encourage assets investment, market development, and good management practices. Since most railway assets have a long lifespan and railway infrastructure is immobile, the concessions should have commensurate duration. In Africa, for example, concessions are typically 15-30 years.¹¹⁸ However, it is a good idea to design in some review dates to assess progress.

Rail passenger franchises are a form of concession but normally they do not include responsibility for rail infrastructure. In Britain, franchise duration is typically 7-10 years, although there are plans to increase this, and elsewhere in Europe, franchise durations are even shorter. Short franchises increase competition 'for the market' and make it easier for the public sector to capture efficiencies. However,

¹¹⁸ R. Bullock, V. Foster and C. Briceno, C., *Africa's Infrastructure, A Time for Transition*, (World Bank, 2010). <http://www.infrastructureafrica.org/aicd/flagship-report>.

short franchises discourage concessionaires from investing in assets or staff training and development, or introducing permanent cost-saving measures. This can shift responsibility for investment to the public sector.

9.5 Institutional Issues

9.5.1 Principles for sound regulation

Key principles for determining how to regulate railways are as follows:

- The regulator is independent of industry and government
- The regulator has clear legal authority and can extract industry information required to carry out its specified duties
- Transparency and openness prevail
- The regulator is accountable for action, inaction, and related costs
- Regulatory decisions are consistent and predictable
- Simple regulatory design clarifies roles and responsibilities, which can help avoid misunderstandings and legal disputes.

All aspects of regulatory activity should reflect these principles.

Independent regulators

Independence from industry and government is desirable for any regulator. This is because the decisions of an independent regulator are more likely to be, and be perceived to be, free from vested interests and consequently less liable to controversy and legal challenges. Independence reduces the scope for ‘regulatory capture’—when a regulator champions special interests, such as short-term industry objectives or political outcomes—rather than upholding the public interest. A clear delineation of tasks is needed between the government as policy maker, the regulator as referee, and industry players as infrastructure and service providers.

Economic regulation should be independent of any railways industry player; this is even more critical after introducing competition, to maintain a level playing field and the perception of fairness.

Ministers should have no authority to influence regulatory decisions. If the industry is regulated by a ministry with financial interests in the railways, or ministry policy objectives conflict with commercial objectives, the private sector will walk away and the goal of developing market competition will be unrealized. Independence should also ensure consistent and predictable decision-making as decisions are separated to some extent from the political process.

Before investing, the private sector will be concerned that regulations and rules may be introduced or changed which may undermine the profitability of their investments, or even worse, renders their assets vulnerable to expropriation. Independent regulation provides greater certainty than if decisions depended entirely on government. Regulators often oversee complex and contentious situations, and should be allowed to seek professional advice and find apolitical solutions.

However, even though regulation should function outside the political process, regulator authority and scope of responsibility are established through government legislation, and members of the regulatory body should be appointed by government.

How can countries establish regulation that is genuinely independent? Many countries lack experience of independent regulation or the financial and human resources to regulate effectively. Consequently, some national governments opt to regulate using concessions. However, without some independent regulation, concessions can be problematic.

To achieve genuine independence, the regulator must be adequately resourced, typically from a dedicated funding source that emanates from the industry it is regulating—through fees for licenses or concessions. Independent funding insulates the regulator from government budgets and reinforces independence from government. Parliament should establish the regulator’s budget, separate from that of the ministry responsible for railways, to ensure budgetary accountability and independence. Genuine independence is also reinforced through stringent processes to appoint and dismiss the regulatory board and senior staff (see section on staff below).

In practice, countries may be unable to implement all elements of regulatory independence immediately. A small fledgling regulator could benefit from established government administrative procedures, and financial independence from public subsidy is unlikely given the substantial start-up costs to set up the regulator. However, the long-term goal should be regulatory independence.

Clear legal authority and duties

The powers of the regulatory authority should be fully articulated in legislation, avoiding the need for the regulator to seek ministerial approvals. The legislation should specify the regulator’s legal authority and scope of responsibility. In particular:

- The roles of the regulator and other bodies should be clarified to avoid overlapping responsibilities.
- The regulator’s authority must be sufficient to execute specified responsibilities; for example, the regulator must be able to access industry information.
- All aspects of regulatory processes should be transparent, including all decisions and the justifications for them.
- The regulator should be legally accountable for procedures and decisions through an appeals procedure, which provides a reputational incentive for the regulator to base decisions on evidence and sound reasoning.
- Permanent consultative arrangements should be established with key sector stakeholders, including ministries, ports (where appropriate) and major customers.

Transparent and open processes for making and publishing decisions reinforce the independence of the regulator.

For example, the duties of the British rail regulator are in Section 4 of the 1993 Railways Act.¹¹⁹

Transparency and openness

Transparent and open decision-making processes conducted through formal channels reinforce regulatory independence and provide market confidence that there has been no undue influence from government or industry. This includes opening regulatory processes and procedures to public scrutiny and disclosing all decisions, procedures, appointments, financial information, and means of appeal. Communication channels should include annual reports, a continually updated website, and perhaps a telephone call-in facility.

Accountability

The regulator must be accountable to the public it serves, to the industry it regulates, and to parliament, which authorizes its operation. Therefore regulatory reporting procedures and access to information for consumers and other stakeholders must be open and transparent. The regulator must demonstrate accountability in staffing procedures, lines of authority, and decision-making. Also, accountability requires a coherent, robust, and open appeals process for industry to challenge regulator decisions.

Of course, independent regulators are capable of exceeding their mandates and increasing their internal costs to unjustifiably high levels. Therefore, checks and balances must be established through governance structures, mandatory public information disclosure, independently audited accounts, and judicial reviews and investigations of regulator decisions. Regulators should submit an annual report to parliament disclosing finances, planning, achievements and failures, and a parliamentary body, such as a public accounts committee, should oversee this.

Consistency and predictability

Regulators need enough flexibility to improve the regulatory regime by adapting processes and decisions to reflect lessons learned in carrying out their work. However, inconsistent or unpredictable shifts in regulatory requirements increase risk for the private sector, generating suspicion and reducing credibility about regulatory independence, thereby raising the cost of capital and discouraging investment in the industry.

Complexity should be minimized

Minimizing the cost and complexity of regulation is a key objective in regulatory design. Complexity increases costs for the regulator and the industry, uses scarce human resources, and can stifle commercial activity. Regulation must strive to avoid reducing rail industry competitiveness, particularly since most governments want to shift transport traffic to rail from less environmentally friendly modes. Regulatory design should be aimed at limiting regulation to the absolutely essential, and streamlining regulatory structures and processes, leaving as much as possible to the market and the industry.

¹¹⁹ http://www.railwaysarchive.co.uk/documents/HMG_Act001.pdf.

A clear delineation of tasks between government, as policy maker and the regulator, and as referee should be made.

9.5.2 Institutional arrangements and staffing

Within the context of the principles set out above, several inter-related options exist for regulatory institutional arrangements.

- Should economic and safety regulations be combined in a single body?
- Should rail have its own regulator or share a regulator with other sectors?
- Should the regulator be designated as an agency or an authority (implying more independence)?

There are also staffing options, which are discussed below.

Combine economic and safety regulation?

A single body can carry out economic and safety/technical regulation, or tasks can be shared by separate bodies. Some countries have opted for separate bodies, such as the United States, and initially, Great Britain. Later, Britain decided that safety and economic regulation should be combined, which would help to ensure that safety regulation took more account of the commercial implications of decisions. This creates some potential for safety to be compromised by a greater focus on commercial outcomes, but combining economic and safety regulation offers the advantage of sharing staff, especially technical staff. It addresses the important issue in designing regulatory frameworks of ensuring smooth coordination between those responsible for different aspects of regulation.

Single sector or multi-sector regulator?

The legislation setting up the rail regulator should take account of other regulators whose authority may take precedence or whose mandate may overlap with that of the rail regulator. For example, would it make more sense for existing regulators to add rail regulation to their responsibilities? Or is a dedicated rail regulator a better option? This relates to the broader issue of whether a single rail regulator or a multi-sector regulator (MSR) should be responsible. Box 9.9 offers examples.

Box 9.9 Examples of Single and Multi-Sector Regulators

In the United States, economic regulation for railways is carried out by the independent Surface Transportation Board (STB), responsible for all surface transport modes; railway safety is regulated by the Federal Railroad Administration (FRA) within the Department of Transportation. Similarly, in Germany, an MSR, the Federal Network Agency (BNA), monitors competition and ensures non discriminatory access to infrastructure in all network industries, including railways; the Federal Railway Authority (EBA) supervises and issues railway licenses.

In Russia, there are two economic regulators (MSRs) for natural monopolies: the Federal Service for Tariffs (FST), which deals only with tariffs and the Federal Anti-Monopoly Service (FAS), which deals with broader competition and regulatory issues. A similar arrangement has been adopted in Kazakhstan.

In other large EU countries (Britain, France, Italy), economic regulators for rail are responsible *only* for the railway industry, but this is not the case in smaller EU countries.

Few transitional or developing countries have sufficient resources to establish a single regulator for the rail sector, or even for the transport sector, so most developing countries have established rail regulation within multi-sector regulators. For example, in Tanzania, the Surface and Marine Transport Regulatory Authority (SUMATRA) regulates economic, safety, and environmental aspects for all transport sectors, except air. Useful synergies can result when a single body regulates multiple sectors.

- Lessons learned from regulating one sector can be applied to other sectors.
- Specialist staff (e.g., lawyers) can be utilized across sectors, creating full work programs and more effective and efficient regulation.
- Utility and transport sectors share the need to plan and finance long-term capital investment, to determine tariffs, and the need for licensing.
- An MSR should facilitate regulatory policy that is more consistent and transparent across sectors.
- An MSR may be less likely to succumb to ‘regulatory capture’ than a single sector regulator, because an MSR has more status and authority, and works across multiple industries and ministries.

MSRs have some potential disadvantages:

- Because of MSR power and influence, leaders can abuse their position. Specialist technical knowledge for individual sectors may be insufficient; this risk can be reduced if each sector is represented at board level, and if sector-specific technical groups are retained at operational level.
- An MSR’s size and relative complexity may present more challenges to establish and manage.
- A larger bureaucracy could delay decisions.

Authority or agency?

The regulator should be set up as an independent authority not a government agency, which would lack the necessary independence. A regulatory authority, operating within a framework defined by government in legislation, will ensure that decisions are consistent and sufficiently predictable to assure investors, rather than based on short-term political gains such as elections, or financial constraints.

Staffing

Many countries have little or no experience of independent regulation so building regulatory capacity is a key issue.¹²⁰ The challenge is to recruit and retain experienced qualified staff that can perform the unique and difficult roles required by the regulator.

¹²⁰ R. Bullock, V. Foster and C. Briceno, C., *Africa’s Infrastructure, A Time for Transition*, (World Bank, 2010). <http://www.infrastructureafrica.org/aicd/flagship-report>.

Regulation should be designed so that its benefits exceed its costs.

Regulators should not depend on a government department for their staffing. To increase independence, appointments should be made independently of government or the minister, possibly through an independent appointments board. Board members and senior staff should have tenures of four or five years to ensure their allegiance is to the regulator and not to their former assignment, typically the industry or the ministry. Board members or senior staff should be exempt from dismissal except under extreme circumstances of moral turpitude or gross incompetence. This precaution insulates decision makers from external pressures, thereby upholding regulator independence. Grounds for termination should be specified in law and termination procedures should incorporate strong checks and balances, such as a requirement for parliamentary ratification.

An effective regulator must have sufficient numbers of competent staff, which could encompass skills in law, economics, accounting, and engineering, depending on the duties of the regulator. Also, railway technical skills will be required for safety regulation, and possibly for economic regulation, to ensure that decisions take account of rail industry realities. Since the regulator should be a catalyst for change and take a fresh look at railways, staffing should not be dominated by former railway employees who may also be overly intrusive and attempt to direct the running of the railway.

9.6 Conclusions

It is difficult to regulate well. Consequently, regulation should be limited to essentials, using the simplest and least intrusive regime possible.¹²¹ Economic regulation of railways is required only if there is market power; it may be unnecessary if there is strong competition from road transport. The regulator should contribute to developing and sustaining competition so that less regulation is needed. If the industry structure allows third-party or open access—creating competition among rail operators—regulation should focus on the remaining natural monopoly, which is usually limited to infrastructure provision.

Regulation should be designed to ensure that its benefits exceed its costs. Economic regulation may be an appropriate response to market failure, but it is more efficient to develop a functioning market than to regulate. Although several forms of market failure exist for railways, monopoly is the form that requires the most regulation. However, by allowing competition in train services, regulation can be limited to infrastructure, particularly investment, and controlling and pricing access. Both access and investment objectives are more easily achieved using commercial incentives than using regulation.

No single best model for economic regulation of railways exists. Instead, regulation should be custom designed to achieve government objectives for the whole transport sector, taking account of other aspects of railway reform. These considerations determine the public interest objectives that regulation should be designed to achieve and these should determine the duties of the regulator that should be enshrined in legislation.

¹²¹ J. A. Gomez-Ibanez, *Regulating Infrastructure: Monopoly, Contracts and Discretion*, (Cambridge, Mass. Harvard University Press, 2003).

Experience suggests that it is more difficult to develop competition for rail passenger services than for freight services, implying that passenger-dominated railways may need more regulation than freight-dominated railways.

A regulatory regime should be flexible enough to respond to the unexpected, particularly when traffic fails to meet projections. Flexibility is easier to achieve through discretionary regulation than through a concession contract, although sometimes a combination may be the best solution.

External safety and environmental regulation is essential for railways but technical standards are often best left to the industry.

Institutional arrangements for rail regulation are important. Ideally, economic regulation should be carried out independent of government *and* industry; if this cannot be achieved immediately, it should be an eventual goal.