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Better economic regulation: The role of the regulator

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International Transport Forum

Better Economic Regulation: The Role of the Regulator

03

Discussion Paper 2011 • 03

OECD

International Transport Forum

OECD

Discussion Paper No. 2011-3

Round Table, 2-3 December 2010

BETTER ECONOMIC REGULATION: THE ROLE OF THE REGULATOR

SUMMARY OF DISCUSSIONS

April 2011

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April 2011

BETTER ECONOMIC REGULATION: THE ROLE OF THE REGULATOR

1. INTRODUCTION

Good transport services contribute strongly to the productivity of an economy and extend the range of activities accessible to consumers. Good services require adequate infrastructure and reasonable usage conditions to that infrastructure. Much transport infrastructure is capital intensive and lumpy. Such cost structures imply that there will be few service providers. In some circumstances the structure of costs and technology is such that economic regulation is the best way to drive efficient outcomes. Achieving the right governance structures – including the question of when to regulate and how to regulate – is central to performance of the sector and the subject of this paper, which summarises discussions at a Roundtable[1] held in December 2010.

Good governance and striving for efficiency is always desirable but the 2008 financial crisis has raised the stakes for getting the design of regulatory frameworks right. In its aftermath, financing infrastructure (new build, renewals and maintenance) will be more difficult for both the public and private sectors for an extended period. There is a risk that inadequate or poorly maintained infrastructure becomes a brake on recovery and on long-term economic development.

Governance through regulation (whether of privatised companies or state owned companies with a commercial remit) is useful particularly when very long asset life-spans demand predictability and long-term commitments in relationships whilst preserving some flexibility to deal with changes in external circumstance. A long-term focus is sometimes difficult to reconcile with the short term imperatives of democratic government. When infrastructure is regulated, the transparency created by a fully independent regulator is invaluable to ensuring sufficient investment is forthcoming while maintaining reasonable conditions for user access. Much of the discussion at the Roundtable focussed on how to achieve effective independent regulation and how to reconcile independence with the legitimate control of policy by the executive part of Government.

It deserves emphasis that independent regulation is not seen as a universal default governance arrangement. Much of the discussion also focussed on when to regulate, when State ownership and control might be preferred and when to rely on competition, even if imperfect, to drive efficiency. The discussions underscored that there are opportunities to improve performance significantly in aviation, rail and road sectors by learning from successful experience in improving governance structures in a range of countries.

1.1. Specific Assets

The provision of transport services requires relation-specific investments on behalf of some of the parties involved. Such specific investments occur throughout the economy, but they become central to transactions where sunk costs related to durable and immobile investments are large. Some key parts of transport infrastructure are characterised by very high asset-specificity. Rail networks are a clear

example. Investments in track and signalling infrastructure represent a large share of the overall cost of providing rail services and the investments once made cannot be transferred to any other use and the salvage value is relatively small if services are abandoned.

Governance in the public interest in sectors where specific assets are key poses several challenges. First of all, what can be done to make sure that investments with low or zero alternative value are forthcoming? Privately or publicly owned firms require reasonable certainty on rates of return and protection against expropriation. Once an investment is made in an asset that will be shared, other users have an incentive to pay as little as possible for its use (e.g. rail terminals build by one train operator to which other train operators have access), even if that means reneging on earlier promises. If the governance system does not trade off the various interests appropriately, underinvestment is likely to result over time. This dilemma can also afflict vertically integrated companies, for example railways financially dependent to a large degree on compensation from Government for passenger train operations operated under public service obligations. Infrastructure investments, and crucially maintenance expenditures, then have to be matched to train operations dependent on predictable levels of compensation. On the other hand, enterprises relying on a supplier that enjoys market power (e.g. railway operators relying on a separate infrastructure manager) seek protection against potential abuse of market power, i.e. against opportunistic behaviour by the infrastructure owner. The second issue is then how to deal with situations where investments present possibilities for opportunistic behaviour.

A range of potential solutions exist from market led to government-ownership, covering private contracts, concession contracts, discretionary regulation and public enterprise (Gómez-Ibáñez, 2003). All of them have been tried, with performance very much dependent on the institutional and market contexts. In the transport sector, disenchantment with full, direct public ownership and control, coupled with a reluctance to leave governance to markets entirely has lead many governments to favour a hybrid solution where independent regulators have oversight over privatised companies or State-owned companies with a commercial remit. The regulator protects users' interests by keeping abuse of market power in check and protects the infrastructure owner's interests in order to maintain investment incentives, aiming ultimately to provide adequate levels and quality of service at reasonable prices, now and in the future.

Relying on an independent regulator to oversee infrastructure and service provision is just one way to handle a situation where relation-specific investments give rise to incentives for opportunism, and it has its advantages and drawbacks. Section 2 of this paper discusses under what conditions the approach is likely to outperform other governance arrangements. Discretionary regulation suits some situations better than others and this implies that the choice of approach to governance should be subject to regular re-assessment. Understanding what circumstances suit discretionary regulation also contributes to the design of effective regulation. At the same time, re-assessment should not undermine the very purpose of regulation, which is to mitigate risks of opportunism.

1.2. Independence

Regulators need to be independent, for if they are not they cannot credibly commit to their key tasks – protecting property rights and containing opportunistic behaviour. Independence from the regulated enterprises is clearly essential to containing opportunistic behaviour. Independence from the Government of the day is similarly important, especially when the Government is a shareholder in one or more of the regulated enterprises. More broadly a "key benefit from the independent regulatory model is

to shield market interventions from interference from 'captured' politicians and bureaucrats" (OECD 2002). As noted by Ponti (2010) this capture mechanism "is symmetrical, based on an exchange of favours and benefits. Typically, the agency – for example, an airport concessionaire – obtains higher tariffs and in exchange extends the workforce beyond its requirements for political consent (votes of exchange)".

Independence from the Government of the day is also needed to protect property rights and provide the stability over time needed for making the large and lumpy investments in assets with long cost-recovery periods that are typical of much transport infrastructure. A political focus on short-term consensus is the implicit price of democracy (Ponti 2010) but is far from ideal for optimising investment in infrastructure. Long-term concession contracts and independent regulation are the main mechanisms for mitigating this problem.

From independence it follows that a regulator will have discretion. The key question then is discretion over what? Which policy issues ought to fall inside the scope of the regulator's competence to change regulation and which should remain outside, in the political realm? This is discussed in Section 3. Answering this question is particularly difficult where extraordinary events with major impacts on costs or demand are concerned.

2. WHEN TO REGULATE

2.1. Choice of governance structures depends on the (evolving) context for regulation.

It may be commonplace to say that governance structures should fit their context but it is important to underline that the transport sector is very diverse. Private contract law is quite sufficient to govern relationships between private suppliers of transport services in much of the sector. Where public intervention is indicated, it may only be required in parts of the market. For example, some airports exhibit substantial market power whilst others don't. For non-hub airports served by low cost carriers, for example, cost structures and competitive conditions arguably are such that bilateral contracts provide satisfactory outcomes so that regulation is not needed (Starkie, 2008). Indeed in these circumstances regulation is likely to be counterproductive.

Most of the UK's regional airports have been de-regulated as competition has emerged, with for example Liverpool airport now competing with Manchester airport on both domestic and overseas routes. This has freed airports from regulatory constraints, with no evidence of detrimental results for pricing of air services. BAA Plc, the company that took over the airports around London, Edinburgh and Glasgow from the former British Airports Authority has been required by the Competition Commission to divest some of its airports, starting with Gatwick in 2010, so that competition might gradually replace regulation of airside charges.

Setting regulatory caps on infrastructure charges is never a simple task and always contested. De-regulation avoids the cost of regulation and the larger potential costs of distortion in the market. Australian airports have enjoyed a generally successful governance framework for airside and groundside

charges since 2002, free of regulation even though distance confers significant potential monopoly power on all the major airports. Charges are monitored by the regulatory authorities and the threat of potential re-regulation appears sufficient to prevent abusive pricing. Airlines are not entirely satisfied with the prices that result and Virgin Blue has twice asked competition authorities to intervene in the pricing of airside services at Sydney airport (2002 and 2010)[2]. Agreement was reached in both cases without recourse to formal arbitration by the competition authorities, most recently in early 2011. The Productivity Commission reviewed arrangements in 2007 and found that the system worked reasonably well, recommending continuation of the system for Sydney, Melbourne, Brisbane, Perth and Adelaide airports until 2013. The Commission is now reviewing regulatory arrangements again.

Shifting the focus from airports to international airline routes, entry to many markets continues to be restricted by individual governments seeking to protect national carriers or under bilateral agreements. The benefits to consumers of deregulating these routes are potentially very large. Oum (2009) estimates that the progressive implementation of open skies agreements within the European Union and between Europe and the USA accounted for a third of the growth of revenue passenger kilometres over the last two decades. Worldwide liberalisation could increase future growth of international aviation markets by 15% (ITF 2010). The annual net benefits of the deregulation of the US aviation market have been estimated to amount to $20 billion (Morrison and Winston, 1999), accounting for changes in both fares and service quality, and stemming from the 1978 decision of the government to end controls on domestic fares and routes.

As with airports, geographic proximity provides an opportunity for route based competition between seaports that needs to be taken into account when examining issues of competition inside the ports arising from vertical integration of terminals, shipping lines and logistics companies. The northern seaports in Europe between Le Havre and Hamburg, for example, present sufficient opportunities for inter-port competition to obviate the need to regulate most port services. Access to port railheads is problematic where rail infrastructure inside the port is owned by a single enterprise. Encouragement by the government for voluntary cooperation between rail operators, through an implicit threat of regulatory intervention, appears to be the most practical approach to ensuring efficient access to and investment in essential facilities where replication is tightly constrained by the space available in ports (ITF 2009).

Where cost structures and competitive conditions render bilateral contracts unsatisfactory, intervention may improve outcomes. The first task is to identify which parts of transport sub-sectors fulfil these conditions. Where market outcomes are determined to be unsatisfactory, four approaches to intervention are possible:

- Non-intervention (beyond oversight by competition authorities), which remains an option should the costs and risks of intervention seem as large as the potential benefits;
- Public procurement contracts and concessions;
- Discretionary regulation, by an (independent) regulator of privatised or public sector companies;
- Public ownership and management.

Public procurement contracts and concessions work best where there is competition for the market (competition for concessions or contracts) and less well where there is bilateral negotiation with an

incumbent supplier rather than open competition. Public ownership and management is one approach to governance where there is insufficient competition to serve the public interest to the best possible extent. It is, however, fraught with problems of cost-inefficiency, time-inconsistency, rent-seeking and distribution of rents.

Discretionary regulation is a response to these problems but is it necessarily better? And does it necessarily outperform private contracts or concession contracts with the public authority? There is a presumption in much of the literature that "the ultimate goal in infrastructure regulation may be to dispense not just with public provision but, where possible, with public regulation as well" (Gomez-Ibanez, 2003). This, to be clear, is a performance-based judgment rather than an ideological one. We need therefore to define under what circumstances are contracts less suitable than regulation, and whether these circumstances occur particularly often in transport.

A key problem with specific contracts is that they lack flexibility. As a consequence the relation between contractees is not very resilient against (large) unexpected changes. This vulnerability is not limited to the transport sector but it is particularly relevant in several segments of the sector because of the presence of large sunk costs and limited scope for competition. In the railway sector, sunk costs can be extremely high and network competition is difficult (although it does exist on parallel freight lines, dense freight corridors and coal in the US and between the two Canadian rail operators). Specifying contracts between network providers and users to describe contingencies in sufficient detail to promote infrastructure investment whilst guaranteeing acceptable conditions for use of the network and preserving the ultimate consumer interest, is never fully workable. Discretionary regulation then is a better choice.

The appeal of discretionary regulation lies in its broader flexibility. This makes it more resilient to unexpected change than a pure contracting approach and able to complete what are inevitably incomplete contracts between parties. Public ownership and provision has similar flexibility but scores less well in terms of time-consistency and cost-efficiency. Discretionary regulation is more flexible precisely because of the discretion of the regulator, and discretion requires independence.

The ability of discretionary regulation to cope with rapidly changing environments and incomplete contracts makes it particularly well suited to managing the transition from state ownership to privatisation. There is evidence that the presence of a strong, independent regulator when formerly state-owned assets are privatised leads to significantly fewer instances of ex-post renegotiation of contracts (Guasch et al 2003). Pure contracting means that if there is a dispute between the government and a concessionaire a court or judge is required to reach a decision. Whilst a good judge can make a better decision than a poor or captured regulator, judges lack the flexibility of regulators and generally their economic and engineering expertise.

Discrete regulation does have its problems. Information requirements for regulation are significant and the regulator inevitably has less information than the regulated party. With an un-regulated public or private monopoly the problem may be more extreme, with neither incentives nor requirements to produce information or develop asset registers for use in-house.

Regulation is also inherently somewhat unstable, prone to capture and to ossification. These are manifestations of the more general issue of opportunism that is associated with the limited specificity (increased flexibility) of the relation, and reflect the "halfway status" of regulation between contracting and public provision. The halfway status means regulation again tends to exhibit half the problems of public ownership and management, where capture and instability can be even more marked.

Good regulatory design is about limiting the drawbacks inherent in discretionary regulation. The regulator should be independent of government (i.e. have sufficient discretion) and of the regulated parties (to be in a position to arbitrate). For independence, procedural guarantees are prerequisite but a regulator will only remain independent if he or she behaves independently, in terms of both arbitration and alacrity in addressing issues where regulatory guidance is needed. The regulator does need to be accountable for decisions and performance. This accountability resides with the legislature, where the regulatory mandate originates, and is exercised by parliamentary or congressional committees and ultimately the courts. These issues are taken up further in Section 3.

2.2. Adapting governance arrangements to changing markets

The awareness that governance structures need to be adapted to circumstances is not new. A variety of structures is used in different segments of the transport sector and within the same segment structures evolve over time. Given that there is inertia in institutions and that interpreting fast and multi-faceted change in markets is hard, one should not expect optimal governance structures to be in place at every instant. But is adaptation fast enough? And is it moving in the right direction, given current understanding of good governance approaches internationally in industry and the research community?

The account of the aviation industry in Niemeier (2010) suggests a mixed answer: change is mostly in the right direction but it is not fast enough and we currently over-regulate airports, ground services, air traffic control and income from shopping at airports. The scope for competition-based governance is broadening gradually but restructuring and de-regulation to foster competition could be expanded considerably were it not for vested interests that slow down the process. As already noted, UK regulators and the Government have concluded that competition between airports is sufficient in most cases to optimise socio-economic outcomes. This applies to both smaller airports and many larger airports. Aviation charges have been deregulated at Manchester, in light of growing competition, and modified at Stansted. The break-up of BAA is likely to increase scope for competition and may see further deregulation at some of the London airports. Charges may, however, continue to be regulated at Heathrow because of the continuing market power of its unique hub function. Scarcity of capacity may limit the scope for competition and the potential for collusion between the London airports may still require monitoring.

As this evolution suggests, economic regulation may be required in fewer circumstances than is often assumed. A case in point is EU Directive 2009/12/EC on airport charges, which requires regulation of tariffs at airports handling over 5 million passengers a year. This includes Gatwick, Manchester and a number of other airports that have been taken out of economic regulation by the UK Government and implies data reporting duties that are arguably unnecessary. The general point to be made here is that one size rarely fits all. So when regulatory arrangements are being reviewed and economic regulation introduced in place of direct management by the State, it is important to recognise that not all parts of the sector may need regulating.

Recognizing that the choice of governance structure is driven by context and that context is subject to change, it is necessary to regularly re-assess the case for regulation.[3] The potential for competition in some transport markets possibly is large enough that the rationale for regulation as a guard against the abuse of market power no longer exists or is disproportionate to the potential problems given the costs often entailed. The history of deregulation, e.g. in aviation in the USA, illustrates that an increased potential for competition tends to weaken the support for regulation that may have existed. There are

two caveats surrounding the need for reassessment. First, reassessment should trigger change where necessary, but it should not cause disruption. A common characteristic of good regulation is market stability and temporal consistency[4]. The regulatory design should allow for gradual change, in order to reduce the likelihood of abrupt change.

Second, the case for introducing, continuing, or abandoning regulation should be based on careful investigation. In the case of aviation, for example, it is not sufficient to point casually to increasing passenger numbers and low profits to conclude there is no further need for regulation. Increasing passenger numbers could reflect higher incomes and not necessarily follow from lower prices. And if prices do fall, it does not necessarily follow they are now at competitive levels. Low profits could be the consequence of competition, but also of inefficient management. Moreover, profits could be too low in the sense of not covering fixed costs or not allowing sufficient investment.

While the need for regulation in aviation may have declined overall, slot allocation at hub airports where capacity is scarce requires particular attention. Slot rents can be very high[5], and better allocation mechanisms could provide substantial economic benefits (Mott MacDonald, 2006) as well as providing clearer signals on the need for more capacity. Precisely what form this intervention might take is open to debate, but improvement over current mechanisms through solutions which provide for a more effective market in slots appears possible.

2.3. Adapting regulation to the institutional environment

We have assumed so far that discretionary regulation can be implemented where it needs to be, i.e. that it is a feasible choice. This is not straightforward. The broader institutional context needs to be sufficiently strong and favourable to provide a regulator with the stability and legitimacy needed to function. In the extreme, if these prerequisites are not met independent regulation simply is not possible. Somewhat less extreme and more commonly, independent regulation is not an entirely natural concept to a country's decision-making culture. Ponti (2010) provides some examples of a culture that can be described as hostile to independent regulation. This hostility can be the result of stakeholders taking action to protect rents.[6] It can, however, also be the consequence of politicians who think, in good faith, that protecting natural monopolies is important, for example to ensure strong national champions, generate regional economic benefits or provide supra-competitive revenues to subsidise public services.[7] Hostility to independent regulation should hence not be equated with a simple lack of concern for the public interest but promoting national champions usually equates to collecting rents from international commerce.

In such institutional contexts it may still be desirable to introduce regulation but its design needs to be adapted to the prevailing circumstances if it is to be workable (see Section 3). The result may be a far cry from the textbook ideal of discretionary regulation. For example, governance can ideally be enhanced by keeping competition authorities separate from sectoral regulators. Competition authorities can then play a role in the necessary periodic review of the regulatory framework (for example examining the potential to separate parts of the industry to provide for competition in place of regulation) and they can serve to hear appeals by stakeholders against regulatory decisions (avoiding the compromise of regulatory independence that would occur if appeals were made to the Government). In a hostile institutional environment there may be merit in foregoing these advantages and basing a sectoral regulator inside the competition agency, at least temporarily, in order to confer sufficient authority on the regulator. Economies of scale and shortage of qualified personnel can also favour integration (Aubert

and Laffont 2002), a factor relevant to OECD countries with relatively little experience of independent regulation as well as many developing countries. Some of the evidence brought to the roundtable (e.g. Winsor, 2010) suggests that appreciable deviations from the textbook occur in countries such as the UK with long experience in developing models of economic regulation.

2.4. Technical challenges for regulation

Even if regulation is the best governance solution in a given context, and even if the broader institutional framework makes regulation feasible, there are still formidable challenges to implement this effectively. Regulators act in the public interest by introducing a degree of time-consistency in the decision-making process and they protect users against the abuse of market power. Both tasks require substantial inputs of information from the regulated parties. Regulators decide more or less directly on how much to invest and on how much to charge for the use of infrastructure and the use of services. In a well-functioning market, prices are essentially information indexes: they summarise the (private and ideally social) opportunity costs of supply as well as the marginal willingness to pay for the service or product in question. Prices do not perform that function in regulated markets. Regulators can at best construct shadow-prices with the information they have. Sometimes the data needed to construct a shadow price simply do not exist, as no-one has an interest in gathering them. Sometimes the data do exist, but the party that gathers them has no interest in sharing them with the regulator. Information is incomplete for all parties involved, and it is distributed asymmetrically (the regulator has less of it than the regulated parties). This constitutes a formidable challenge for regulation, important enough for some researchers to emphasize that informational problems are a severe drawback for regulation when considering the choice between various potential governance systems. Withholding information bears risks for the regulated company, however, as the regulatory may err on the side of disadvantage to the company. Regulatory pricing regimes can be constructed to some extent to incentivise adequate disclosure of information (Lafont and Tirole 1993).

3. DESIGNING EFFECTIVE REGULATION

3.1. Time-consistency, incomplete contracts and balancing discretion against capture

The key task of regulation is to curb opportunistic behaviour, i.e. hold all parties involved to their initial commitments. As indicated above, a contract probably outperforms discretionary regulation in this sense, but it is not suited – or not even possible – where flexibility and discretion are needed to allow agile responses to unforeseeable changes in circumstances relevant to the relation. Contracts will inevitably be incomplete when they concern complicated relations between infrastructure managers and transport service operators, and discretion is required to fill the gaps as they emerge. Discretion and agility could be even larger with public ownership, but there the balance tips unfavourably in terms of opportunism. The art of regulatory design is to minimize the probability of slippage in the direction of full discretion/opportunism (capture) or inflexible rule-type regulation (ossification).

This is the purpose of an independent regulator or independent regulatory agency. Independence provides for discretion but within a transparent, fixed framework set by legislative act. The attributes of independent regulation include:

- Consistency, reducing the risk that returns on sunk investments might be expropriated through lower than optimal charges for their use by third parties;

- Stability and predictability, reducing the risk that plans for infrastructure maintenance and development or for transport services will be changed to reflect short term political pressures (rather than staying with long term political objectives), raising costs or confiscating value;

- Neutrality in decision-making, mitigating the risk that the wrong projects are chosen, reflecting short term political advantage rather than long term policy goals, this can be particularly important in international projects where there are strong short term incentives to favour bids on the basis of nationality rather than quality;

- Non-discrimination[8], mitigating the risk that conditions for access to critical infrastructure may be biased towards incumbents.

One question that arises in striking the balance between capture and ossification is how passive or active should regulation be. Should discretionary regulatory action be limited to responding to complaints from stakeholders that existing rules are deficient, e.g. a train operating company complaining about a network operator, or should the regulator be able to act proactively on the basis of its own analysis of the performance of the industry? Views expressed at the Roundtable very strongly leant towards the second option. Regulators not only should be allowed to take action on their own behalf, they are participants in the policy-making process, proposing and taking action that develops policy (in line with framework legislation of course) in the regulated sector, not simply enforcing a set of narrow rules. The natural tendency for contracts to be incomplete makes this inevitable. Sectoral regulators must fill the gap if the objectives of economic regulation are to be achieved. Restricting the scope of a sectoral regulator's activities to policing primary legislation in much the way that courts can do would make the regulatory agency redundant. It must use discretionary powers to develop infrastructure pricing and access arrangements in a continuous drive to improve efficiency, and deliver on any other objectives of the legislation establishing regulation. The dynamic nature of the competitive environment in which regulated industries operate, described above, also makes it important. Ever since the US Sherman Act of 1890, national antitrust authorities and sectoral regulators have exercised powers to restructure industries to preserve or indeed to create the conditions for competition. Where such powers should reside – in the sectoral regulator or an economy-wide antitrust authority – is discussed below but it clearly endows regulators with an inescapable political identity.

3.2. Scope of discretion

Given the purpose of regulation – a protection of property rights and containment of opportunistic behaviour – it follows directly that regulators need independence to carry out their task effectively. There is no such thing as effective dependent regulation. What is controversial is not so much the need for independence but the scope of it. How far precisely does the mandate of regulation go? Given that there will often be tradeoffs with other policy goals, what is the proper division of labour between the regulator, the Government and the regulated parties?

In the light of earlier remarks concerning context-dependence of regulation, concerning not just the choice to govern through regulation but also of the design of regulation, one should not expect a simple recipe for the proper division of labour that fits all purposes. This division, too, is context-specific. Nevertheless, some general observations can be made.

First, the key issue in establishing governance through regulation is to define the scope of regulatory discretion. Politics ultimately takes precedence over regulatory discretion as the scope of the regulatory mandate is defined by politicians. The mandate needs to establish transparent processes to enable the implementation of broader policy goals (e.g. carbon reduction targets) and to resolve tradeoffs. But once the mandate exists, the mission of regulation, focusing on time consistency, requires that there be independence. It is no abdication of politics to refrain from intrusion in all but the most extreme circumstances, but rather a commitment to a policy choice to introduce some time consistency into decision-making, where that is thought to be important, which will help ensure that transport infrastructure is delivered more efficiently Once defined, the inclination of regulators is to view their mandate as a contract; and attempts by politicians to intrude or renege will cause conflict and potentially disruption.

Regulatory mandates are established by law and this endows regulators with legitimacy for discretion and at the same time responsibility to the legislature for the independent exercise of their powers, rather than to the executive branch of government. Politicians can modify the scope of regulation and regulatory discretion by amendments to the law that established the regulator. It is when Governments try to overrule regulatory discretion by means other than primary legislation that conflict arises.

Competence is an important aspect to determining the scope of regulatory discretion. For airports, determining which should be subject to economic regulation and which face sufficient competition to be free of regulation is critical. The regulator is often better placed than Government to make the decision. There is a risk that regulatory agencies become reluctant to cede dominion but this can be countered in the duties of the regulator set out in primary legislation. As regulatory agencies mature an imbalance in the expertise available to the regulator and that in the Government department with oversight for the sector can develop, with more resources available to the regulator. Decisions to break up businesses in order to create competition in place of regulation presents a more politically charged version of the de-regulation issue. Antitrust authorities often have powers to break up firms, even if these are rarely exercised, and independent sectoral regulators can similarly be given such powers. A proper appreciation of how decision-making responsibilities are divided is important for all parties involved. For example, it might be the case that the Spanish buyer of the UK airports group BAA underestimated the importance of independent regulators in relation to the Government in the UK framework of governance and as a result over-valued its acquisition at a time when the structure of UK airports was under review.

Setting up a transparent and justifiable division of labour takes time and expertise. Discussants at the Roundtable observed that regulation is often, and sometimes unavoidably, introduced with very short lead times. The result is often sub-optimal regulatory design and ultimately higher costs. Railways in the UK are a case in point. Privatization and regulation were introduced very quickly and with an ultimate focus on creating conditions in which all parts of the industry including infrastructure could be sold for maximum receipts at minimum cost to the tax-payer. Poor management from the company that bought the infrastructure assets, which turned out to have a very limited understanding of its assets and investment needs, revealed or engendered a need for more complete regulation. Effective asset management initially received inadequate attention from the regulator and took several years and a

change of regulator to achieve, during which time the infrastructure and the company's records of the condition of the track had deteriorated to a point where a derailment in 2000 threw the entire industry into crisis.

The accident, at Hatfield, was caused by disintegration of a rail and killed four passengers and injured 76 others, some very seriously. The effect on the railways was of a totally different magnitude than earlier accidents involving much larger numbers of fatalities. Speed restrictions were placed on large parts of the network where maintenance records were insufficient to determine the risk of similar derailments occurring. The seeds for the ensuing conflict between regulator and Government over which parties should bear the cost of remedial investment were sown in the deficiencies of the privatization process itself.[9] Regulatory discretion had been used to address the deficiencies in Railtrack's asset management but deployment of the new rules came too late. Regulatory independence was deployed, to a degree probably not seen before or since in a regulated utility anywhere, to fund the remedial maintenance needed to remove the speed restrictions and raise standards to the level required by government, through increases in infrastructure charges. This increase in charges was passed through to the Government under the conditions of its private law concession contracts with train operators, which include clauses to insulate them from unforeseen changes in charges (see Winsor 2010 p 11 for details). The decisions taken by the regulator in the 2000 and 2003 reviews added £12 billion to the annual cost to government of the railways. Clearly an issue of immense political portent but an unavoidable result of the unexpected flaws which this incident revealed in the mandate established on privatisation. Reform of the mandate (described in 3.3 below) has improved transparency in making tradeoffs between taxpayer costs and levels of service.

3.3. Regulation and politics

Regulation exists to improve time consistency in decision-making and, while it does not guarantee it (a regulator can change course and cannot control his or her successors), time inconsistency is less of a problem than with public ownership and management. The fundamental objective of removing British Rail from public ownership and placing the railways under regulatory control was to overcome the perennial instability of funding for the railways under direct annual Government budget decisions. It has been very successful in meeting this objective. Regulators thus sometimes take actions that run counter to the immediate short-term interest of the Government. Were this not the case, there would be no need for independent regulation. It therefore makes no sense to try to design regulatory mandates to eliminate such conflict. Instead, the design issue is to keep the costs of the conflict as low as possible, in order to maintain the advantages of regulation over a single integrated political process.[10] A clear division of labour is key together with procedures to manage dialogue between regulator and government in cases of disagreement.

The conflict between the rail regulator and the Government in the UK between 2000 and 2003 was partly the consequence of a lack of clarity over the mandate. The mandate described levels of quality and service to be maintained on the rail system, and the task of the regulator was to make sure the financial means to provide that output were raised through the stipulated charging mechanisms. Given the level of output, the sudden cost increase after the true state of the network became known could not be avoided, and the regulator saw it as an execution of the mandate to pass through the additional costs to Government if the Government was not willing to reduce the outputs required from train operators under public service obligations. The Government's view was that the regulator could not impose a cost increase of this magnitude and only Government is in a position to arbitrate on such major consequences

for policy across the economy. Whatever one thinks about which interpretation is more reasonable, the episode led to a clarification of the division of labour through a new obligatory process of negotiation over outputs and infrastructure charges. Periodically, Government now issues a "High Level Output Statement" setting out what services it wants to see under concession arrangements. The Office of Rail Regulation then makes a judgement on what level of charges are required to provide for these services on an efficiently run network. The Government then publishes a "Statement of Funds Available". If there is a discrepancy the regulator makes proposals for how services can be cut back to match funds, with iterations until agreement is reached. The new structure formalises the process for arriving at consistency between output aspirations and cost expectations[11] and may help pre-empt future crises by increasing the transparency of the decisions to be made and the trade-offs involved.

There are understandable concerns that independent regulation may prove an obstacle to implementing broad policies such as decarbonising the economy or dealing with emergencies (see next section) .Properly designed, this need not be the case and indeed independent regulation should help broader policy goals to be delivered more cost effectively. The impact is chiefly to reveal tensions between competing policy objectives, make trade-offs explicit and drive development of durable solutions in place of unsustainable short term compromises. Modal shift policies are a case in point. Independent rail regulation makes the cost of measures to transfer traffic from the roads to railways more transparent, which may be politically inconvenient but the stability and predictability it brings to the planning and pricing environment makes it much more likely that the measures, if introduced, will be successful.

3.4. External shocks

Planning for events that are not just out of the ordinary but for which no historical evidence can guide behaviour is obviously difficult and presents an extreme case of the problem of incomplete contracts and determining what is for the regulator to decide and what is for politicians to decide. In general terms we can distinguish between events about which we are consciously uncertain and those about which we are totally unaware (Modica and Rustichini 1994); we can distinguish between "known unknowns" and "unknown unknowns" or Taleb's "Black Swans": events that are highly unlikely but have major effects when they do occur. For uncertainties that can be envisaged regulation can provide for pre-specified adjustments to infrastructure charges or service requirements. For Black Swans, governance arrangements can pre-specify procedures for consultation, negotiation and decision, which should at least reduce the time taken to respond to shocks and improve the transparency of decisions.

For example, the regulatory framework for air side charges at the Paris airports anticipates some external shocks. The regulation of charges agreed for the 5 years from 2008 took account of demand side risk. The evolution of charges is related to projected traffic volumes, estimated largely on expected changes in GDP. Charges are reviewed each year and in circumstances where growth in traffic is more than a certain percentage above expectations, charges are automatically increased. Conversely if traffic volumes are much lower than expected charges are reduced. The regulator in the Ministry of Transport arbitrated this agreement between the airport manager, ADP, and its major client, Air France, resulting in an arrangement that provided independence from political intrusion in tariff setting for a five year period. This provides stability in an industry where the Government is an important shareholder in both commercial parties, owning ADP outright and 19% of Air France-KLM.

Unfortunately, the severity of the economic downturn in 2008 drove traffic volumes far below the levels foreseen for adjusting tariffs. Requests to make further short term reductions, of the kind an infrastructure service provider might be inclined to offer clients in a fully competitive environment, were refused. Whatever the merits of the decision, the decision making process would be more transparent if regulation was in the hands of a fully independent regulator and subject to an explicit process of arbitration between the Government and the regulator of the kind developed for UK rail infrastructure after the economic shock provoked by the Hatfield accident.

The Eyjafjallajökull volcanic dust cloud in May 2010 provides another recent example of an extreme event that regulation, in regard to air safety, had not foreseen. Existing safety limits for the exposure of aircraft engines to volcanic dust were designed for situations where ash plumes are either localised problems or can be readily avoided by detour. Exposure limits were therefore set low with a wide safety margin. The 2010 eruption in Iceland produced very fine ash that dispersed much more widely than is usual. Coupled with unusually stable weather conditions, this resulted in a large area of some of the world's busiest airspace being potentially contaminated for over a week. Safety regulators, air traffic regulators, meteorology agencies and aero-engine manufacturers worked rapidly together to improve the identification of contaminated areas and improve the calibration of safe ash exposure limits. New regulations that permitted a resumption of most of the suspended aviation services were operational within a week. But this was a very long week for airlines losing business. It should be noted that emergency arrangements between national air traffic controllers for diverting traffic were in place and worked well, the critical element being a risk sharing agreement to allocate revenues from diverted flights.

Responsibilities for responding to broader shocks have been clarified by the Eyjafjallajökull eruption. Other jurisdictions should be able to benefit in terms of establishing formal procedures for prompt consultation and preparations can be made for responding to similar, but potentially much larger eruptions, from a neighbouring volcano.

Can arrangements for prompt consultation prevent stakeholders lobbying Ministers to pre-empt decisions on changes to regulations in a future crisis affecting aviation or other transport services? Probably not, but formal arrangements for responding to crises should reduce the negative impact on asset values to some extent.

3.5. Transparency

The importance of transparency in decision-making has been stressed several times already, in relation to ensuring infrastructure investments are forthcoming, avoiding discrimination and opportunistic behaviour and responding to external shocks. Transparency is centrally important to sustaining independent regulation and to realising its benefits; and independent regulation can also maximise transparency. But it requires systematic publication by the regulator of the findings of regulatory reviews and evidence submitted to the regulator. The basis for decisions reached needs to be set out and made public. The presumption for independent regulation is evidence-based decision making. This implies that the types of evidence required for setting infrastructure charges, for example, need to be set out publicly by the regulator together with procedures for quality assurance. Governments can impose these duties on a regulator more effectively than on themselves by virtue of the separation of responsibilities and regulators can help sustain their independence through pro-active implementation.

Audit by parliamentary or congressional committee may also have a greater impact on an independent regulator than the executive arm of Government.

3.6. How "political" do regulators need to be?

Regulators are active participants in the policy process, simply because their actions have important political consequences, e.g. through highly visible impacts on fares and service quality, and because they don't follow narrow rules but have substantial discretion. As regulators are active participants in the policy process they will need political skills, for example to prepare stakeholders, including Ministers, for change. Informing Ministers ahead of major decisions is critical, thought difficult when politicians do not want to hear bad news. Being part politician does not imply capture. On the contrary, political entrepreneurship helps avoid capture and helps maintain support for regulatory strategy. This support can come from politics, but given limited time consistency of elected officials, a broader basis needs to be sought, in industry, with users and with the media. The strongest support for independent regulation naturally comes from new entrants to the market and from consumer organisations. The regulator must actively seek engagement with stakeholders and devote significant effort to seeking buy-in (including from Ministers) ahead of major decisions. An independent regulator should not, or at least not always, be an intransigent regulator. Intransigence can lead to costly disruption and damages the integrity of the regulatory system at large.

A special case of political entrepreneurship concerns the European Union directives. The recast of the First Railway Package of Directives, proposed in 2010, includes a strong formulation of the requirement for establishing an independent regulator. Imposing this on reluctant national governments might prove counterproductive in the light of the observations made above on the need to match governance arrangements to the political as well as the economic context. A special effort to engage in debate on this point with Governments less convinced of the merits of full independence could bring dividends in terms of the effectiveness of the reform.

Regulators are always subject to political pressure, because they make decisions about things that politicians care about. Political independence in the sense of such pressure being absent is an oxymoron. Independence, instead, should be seen as giving regulators the means to participate in the policy process to the extent this is needed for them to be able to function, recalling that the main functions are to bring more time consistency into the decision-making process and containment of opportunistic behaviour.

3.7. Maintaining independence and avoiding capture

It is noteworthy that the strategy of acquiring and maintaining support does not just consist of partaking in the political process. It is also, and foremost, a matter of building competence and credibility. Reputation will help garner broad support and maintain independence, although at the same time it makes the regulator stronger and this increases unease among politicians. Winsor (2010) sums up the approach as follows. "The regulator should be assiduous in doing its job well, professionally, proactively, proportionately, in accordance with its legal duties, and explain to people what it is doing, and why, and the principles upon which it is operating. It should not be found asleep at the wheel, or looking the other way."

Recruitment policies also contribute to independence. Industry expertise is essential for a good proportion of the staff of regulatory agencies, but for the regulator him or herself is not necessary and can be counterproductive. More importantly, regulators that take senior positions in one of the companies subject to their authority, or lobby for the industry, shortly after leaving the regulatory agency do nothing to enhance the reputation of the agency for independence. Employment contracts can and probably should include sterilisation periods on departure. Recruitment from professions that offer high profile or well remunerated[12] employment opportunities outside the regulated industry after leaving the post also have merit. This includes legal, accounting and academic professions. Successful regulators from other sectors of the economy also clearly have very relevant and transferable experience. Some of the participants in the roundtable were of the view that recruitment of the regulator from the civil service can be problematic because of a natural culture of deference to ministers among government department officials. Again, this applies to the post of regulator rather than regulatory agency staff in general.

3.8. Independence from whom?

Where there is regulation, independence needs to be real rather than simply notional if the regulator is to be able to exercise the discretion. As already noted, independence is essential to containing opportunistic behaviour and this includes independence from the Government of the day with its inevitable focus on the short term. This is a particular issue when the government is a shareholder in one or more of the regulated enterprises. It is sometimes argued that separation of functions within government is sufficient, with regulation the responsibility of the Transport Ministry and ownership a function for the Finance Ministry. But both collegiate responsibility in Cabinet and the primacy of the Prime Minister overrules this weak form of separation. Only a separate and independent regulator can remove the conflict of interest between ownership and arbitration in these circumstances.

3.9. Data and information

Data is essential for economic regulation, and has to be supplied to the regulator from the regulated enterprises. As noted in section 2, in the absence of competition infrastructure charges are established on the basis of costs, or rather the costs that the regulator judges an efficient supplier would incur. To make these calculations data is required on the assets owned, the quality, maintenance requirements and renewal horizons for the assets, traffic carried and ideally data on similar systems elsewhere for benchmarking. The enterprise must also report on what it charges customers to ensure compliance with regulations. A considerable level of detail may be required. This is costly for the industry to supply and for the regulator to process, and a powerful driver for a preference to rely on competition rather than price regulation wherever possible. At the same time, this is the kind of information an infrastructure manager in a competitive environment would need for running its business profitably. Reporting costs are not overly burdensome so long as data requirements are clear and stable. Ad hoc requests for unexpected data are what create excessive burdens. Many countries have experience with requiring regulated companies to publish standard sets of data, used to regulate them and also to provide information to academics and the public, an important aspect to driving optimal outcomes over the long term (ECMT 2007).

Regulation of capital expenditure is the most problematic area, and regulations should be designed as far as possible to create incentives to report accurate information rather than game the regulator (Lafont and Tirole 1993). Incentivising efficiency and restraining prices through RPI-X formulae has in many cases proved less problematic than trying to establish a cost-plus cap on expenditure.

In some sectors RPI-X caps to charges may have tended to push infrastructure management towards sweating assets, with potential under-investment over the long term and risks of declining quality and inflation of maintenance costs in later periods. To avoid this outcome the regulator requires sufficient data and analytical capacity to understand the costs of the industry.

Regulators need to be adequately resourced both in respect to analytical capacity and transparency, and the publishing duties this implies. These resources should not be viewed as a cost of independent regulation but rather a cost of good governance, as the resources would be required somewhere in government for transparent, evidence-based decision making regardless of regulatory arrangements. In practice the costs of even the largest transport sector regulatory agencies are modest as a recent UK House of Lords Enquiry revealed (see Table 1), particularly in relation to the cost of regulating banks and other financial services.

Table 1. **Total operating costs out-turn by regulator by financial year (£000s)**

Regulator		2004/05	2005/06	2006/07	% increase 2004/05 to 06/07
CAA	Civil Aviation Authority	78,169	75,860	74,551	-4.63
CC	Competition Commission	22,800	26,388	21,617	-5.19
FSA	Financial Services Agency	241,600	256,300	263,700	9.15
Ofcom	Telecoms	121,555	128,986	129,420	6.47
Ofgem	Gas	32,919	32,722	35,849	8.90
OFT	Office of Fair Trading	51,678	54,845	74,526	44.21
Ofwat	Water	11,196	10,571	11,511	2.81
ORR	Office of Rail Regulation*	13,010	27,829	29,181	124.30
Postcomm	Postal services	9,026	9,693	8,763	-2.91
TPR	Pensions	22,599	27,434	31,607	39.86
Totals		604,552	650,628	680,725	12.60

*The relocation of safety regulation from a separate regulator to the ORR was a major contributor to the increase in costs in 2005/6.

Source: House of Lords 2007.

3.10. How many regulatory agencies?

As already discussed, sectoral regulators have an obligation to use proactive regulatory powers to improve outcomes in the sector for which they are responsible. Some of these powers may overlap with those of economy-wide regulators such as antitrust authorities. Both can have rights to initiate far-reaching changes, such us the break up industries to foster competition, but when this power is shared

clear procedures for consultation and interaction between the authorities need to be established. Overlaps can occur also between economic regulators and safety and environmental regulation. The merits of combining regulatory functions in a single agency or keeping different tasks in separate Agencies is, as with other aspects of regulatory governance, very much context dependent. It should not be forgotten, however, that safety is first and foremost a management responsibility. Fragmentation engenders coordination costs and scarcity of talent points in direction of fewer agencies that can achieve economies of scale and consistency in decisions. The authority of a new sectoral regulator can in some environments be strengthened by amalgamation with an economy-wide antitrust agency or another sectoral regulator that has already proved its independence through effective use of discretionary powers in controversial cases. On the other hand, a dedicated sectoral regulator may achieve more focus on critical issues and be able to mobilise resources more effectively than a broad regulator that may be distracted by urgent issues in other sectors under its brief. Within transport, merging competencies for a particular mode may have more advantages than merging responsibilities for several modes but the arguments are not clear cut and there is little empirical evidence to support either view.

In regard to safety, changes in the approach to regulation can have major impacts on costs, even within a mode. In the UK, for example, a shift in the way rail incidents are treated that coincided with privatisation and re-regulation of the industry, contributed to an escalation of costs. A culture of viewing small numbers of accidents as an inevitable part of running the system, with a focus on investigating causes to identify remedial measures regardless of blame, changed to a culture of establishing fault with much greater use of criminal proceedings. The Hatfield accident and its fall-out exacerbated the trend. The response has been a large increase in expenditure on legal costs and a tendency for decisions on procurement and procedures to be excessively risk-averse, with insufficient attention to cost implications in relation to the reductions in risk to passengers and railway workers actually achieved. Combining safety and economic regulation might be one way of achieving better results for the money spent on safety but this needs to be balanced against any risk of diluting the focus of regulation on both sides of the equation. Outright conflicts of interest must be avoided, and the accident investigation service therefore needs to be kept separate from safety regulation as its purpose is to identify deficiencies in current arrangements and propose remedies.

Safety regulation can be abused to obstruct access to rail infrastructure, particularly when some aspects of safety regulation are delegated to an incumbent train operator. With gradual market opening of European rail markets under EU Directives, technical aspects of safety certification for rolling stock and drivers were initially delegated to incumbent train operators in many countries. Delays in processing applications for certificates for new entrants have been identified as a major obstacle to market entry in a number of cases. RFG (2005) gives examples in France, where a separate rail safety regulatory authority, EPSF, has recently been established to remove conflicts of interest. Discrimination is also a risk when regulation is the direct responsibility of a Ministry as concerns to promote the interests of national industries, rail equipment manufacturers as well as train operators, can result in a conflict of interests. Independent regulation is the only way to counter such conflicts of interest.

3.11. Policy priorities

Policy priorities, between safety, environment, investment etc., change over time. The virtue of independent economic regulation is that the focus on efficient levels of investment in infrastructure over the long term is insulated from too much vacillation in the political priority accorded to it in the short term. Past decisions to make regulation of transport infrastructure independent may have caused

tensions with politicians over recent years, as the environmental agenda took centre stage, tax revenues in the bubble economy loosened financial discipline and then financial crisis management diverted unprecedented volumes of public spending to rescuing banks. But in the new economic conditions of austerity, where public expenditure on infrastructure is unlikely to be sufficient to deliver the economic growth required for recovery, creating the conditions to attract investment to infrastructure is about to return to the top of the agenda. Independent regulation will be the key.

4. CONCLUSION

Good transport infrastructure contributes strongly to economic productivity and growth and achieving the right governance structures - including when to regulate and how to regulate - is central to the performance of the sector. The evidence discussed at the Roundtable suggests that there is significant scope to improve present performance and indicates practical ways to do this by learning from successful experiences in a range of sectors and countries. The 2008 financial crisis has made investors more averse to risks of all kinds and without improved governance there is a danger that inadequate infrastructure will become a brake on economic recovery.

Governance arrangements need to be tailored to markets. Where there is competition, private contracts are adequate to protect private and public interests, subject to the standard antitrust powers of competition authorities. Where competition is possible but competitive discipline is weak, the threat of regulation can be sufficient to restrain potential rent-seeking; the antitrust authority can be given powers to introduce economic regulation should regular abuses of market power be identified.

Competition is sometimes more feasible than often assumed. Given the costs and market distortions which often accompany regulation it is worthwhile to adopt pro-active policies to make the best use of markets. In some cases forced divestment of assets (horizontally or vertically) will be important to enhancing competition. Fair terms of access to key infrastructure will often also be important, as is a pro-active competition policy to prevent abuse of the advantages of incumbency.

Where sunk costs are high, significant market power exists, conflicts between the interests of infrastructure management and transport service operations are strong, and outcomes likely to be unstable, economic regulation may be indicated and is most effectively delivered through an independent regulator, charged with objectives of:

Providing incentives for efficient investment in infrastructure and other long term assets such as rolling stock;

- Through protection of returns on investment from sudden changes in government policy and external shocks;
- Through predictable pricing of infrastructure use over the medium term;

- Through transparent and predictable processes for determining rates of return on regulated assets.

- Preventing abuse of monopoly power:
  - Preventing access arrangements and technical regulations being used to discriminate between infrastructure users;
  - Ensuring monopolists behave similarly to enterprises subject to market disciplines so that infrastructure managers adjust prices, capacity and service quality to take account of the profitability of their clients; and that transport service operators adjust prices, capacity and service quality towards maximising consumer surplus.

Regulatory independence is the key to maintaining incentives for investment in transport infrastructure in the right places and to make the best economic use of existing infrastructure. The papers prepared for the Roundtable illustrate that, where competitive discipline is weak, present approaches to regulatory governance structures frequently result in significant inefficiency, with the wrong level of capacity (either over or under capacity) and inefficient use of assets.

Trade-offs with other policy goals mean there are limits to independence and elected politicians have the ultimate authority to arbitrate, but this needs to be done through transparent processes established by the regulatory framework agreed in primary legislation. Experience will often reveal that regulatory arrangements need improvement and the regulatory framework should provide for this through periodic review and, when necessary, supplementary primary legislation. It is worth emphasising that properly structured independent regulation should not act as a barrier to the achievement of other policy goals (e.g. carbon reduction targets), but rather it should help to ensure that these broader policy goals can be delivered more cost effectively.

There also needs to be confidence that independent regulation can respond to external shocks and not act as a hindrance to governments responses to these. For uncertainties that can be anticipated regulation can provide for pre-specified adjustments (e.g. to charges or services); for unknown unknowns, governance arrangements need to pre-specify procedures for consultation, negotiation and decision, to facilitate risk balancing across the broad range of policy goals. With experience accumulated to date, the existence of some formerly poorly appreciated risks is now clear, notably in relation to the condition of long term assets such as rail track. When such assets are re-regulated or privatised when knowledge of their condition is poor, regulation needs to focus on rapidly improving asset inventories and needs to establish procedures for assigning any excess costs that arise as a result of better understanding maintenance and renewal costs.

Independent regulation requires a clear division of labour, with the primary legislation specifying the regulator's responsibilities, responsibilities that remain with the executive arm of government or with other agencies, and interface arrangements between the parties. The regulator should be independent of government (i.e. have sufficient discretion) and of the regulated parties (to be in a position to arbitrate). Independence requires appropriate recruitment, security of tenure and conditions on subsequent employment and provision of adequate resources to carry out regulatory responsibilities. For independence, procedural guarantees are prerequisite but a regulator will only remain independent if he or she behaves independently, in terms of both arbitration and alacrity in addressing issues where regulatory guidance is needed. The regulator needs to be accountable for decisions and performance. This accountability resides with the legislature, where the regulatory mandate originates. It also requires

transparency in the decisions made by the regulator, achieved by publishing the data, evidence and reasoning on which they are based.

Regulators need to be proactive to be effective, intervening to improve outcomes of their own accord rather than responding only to demands from the businesses for which they are responsible. This is particularly important where re-regulation and restructuring seeks to promote private investment or creates conditions in which private and State-owned enterprises are expected to compete.

NOTES

1. See annex for participants.

2. On 4 January 2011, Virgin Blue asked the National Competition Council to recommend the "declaration" of two services at Sydney Airport under the Trade Practices Act. The complaint concerned airside services, including the use of the runways and taxiways, and domestic terminal services. The courts subsequently declared Sydney airport for access, which meant that domestic airlines could negotiate with the airport subject to arbitration by the Australian Competition and Consumers Commission (ACCC) in case of failure to reach an agreement. Agreement was reached without arbitration in early 2011. This follows a similar complaint by Virgin Blue in 2002 that resulted in declaration of the airside services in 2005 for a 5 year period and agreement finally reached between Virgin Blue and the airport in May 2007.
www.firststateasia.com/uploadedFiles/CFSGAM/PdfResearch/070906_Aust%20Airport%20Regulatory%20Review.pdf , *www.virginblue.com.au/AboutUs/Media/NewsandPressReleases*

3. The discussion here reflects a near-but-not-complete consensus view at the roundtable. A small minority argues that the case for regulation exists when there is an essential facility, and no detailed need of costs and benefits is needed. Furthermore, the regulator should base their decisions on a transport system view, not a narrow modal efficiency approach.

4. Time consistency means that regulatory decisions and more broadly government actions that affect the value of contracts and assets held by regulated businesses are made on the basis of the same principles throughout the length of the contract. Major regulatory reviews or new primary legislation can alter these principles but the circumstances under which such changes can be expected to be made should be transparent and specified in the regulatory framework.

5. The value of BA's slots at Heathrow airport was higher than its market capitalisation value in 2010 (Forsyth 2010).

6. For example, a single private company owns 60% of the toll highway network in Italy and represents 75% of the revenues. The rents are very considerable and provide both the means and the incentive to defend them. In a further aberration companies of this type are among the few that can finance, or are eligible to finance, investments in other sectors, e.g. airports. The returns on such investments then are benchmarked against the highway business returns.

7. The remaining 40% of toll highways in Italy is owned by 32 companies, some of which are partially public, with local authority involvement in particular. The rents are used to fund schools etc., leading the authorities to resent efficiency-improving regulation.

8. Note that discrimination in the sense employed here does not include differential pricing of services according the willingness of the end-use market to pay, or Ramsey pricing, which can present the most efficient way to recover the costs of fixed assets.

9. This includes the decision not to make technical experience in the rail industry a condition for companies or consortia bidding for the infrastructure assets. Such conditions are frequent in the privatisation of utilities and were standard, for example, in the privatisation of energy sector industries in central and Eastern Europe during the reform of their economies in the 1990s.

10. One could see these costs as coordination costs, similar to those emerging with separation of formerly integrated firms. The separation is beneficial for reasons, ultimately, of efficiency, but coordination costs increase.

11. The HLOS-SOFA mechanism does remove the discretion of the regulator to increase the level of funding to meet current outputs should the regulator judge it efficient to do so. Moreover, when outputs are reduced through this mechanism, open access train operators (which unlike holders of concession contracts – franchises - are not indemnified by government against changes in infrastructure services) may suffer, devaluing earlier investments in locomotives for example.

12. Recruitment of financial service regulators faces the biggest problems in this respect.

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