International Transport Forum

Assessing Regulatory Changes in the Transport Sector

Summary and Conclusions

180 Roundtable

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The International Transport Forum

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It draws on the input papers prepared by Guillaume Burghouwt, Yves Crozet, Rex Deighton-Smith, Sara Forsstedt, Lena Nerhagen and Bert van Wee, the rich conversation which took place during the roundtable meeting and the comments and other inputs received during the drafting process. However, a wide range of views were presented and the conclusions presented in this report do not necessarily reflect the views of all participants.

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Regulatory impact assessment for better regulation

Coherent and effective policies and regulations require the systematic use of evidence-based analytical frameworks (OECD, 2009: 11). Contemporary regulation requires decision makers to navigate myriad complexities, uncertainties and rapid societal changes to determine where the public interest lies and what regulatory action, if any, is appropriate. To do this, they rely on evidence-based advice. In turn, quality advice arises from robust analytical processes that are integrated with the policy-making apparatus at all stages of the process. Without such a foundation in evidence and analysis, it is unlikely that decision makers will be able to weigh different options effectively and make regulations that maximise net benefits to society. Regulatory action in these circumstances will likely be sub-optimal, and potentially counter-productive.

Regulatory impact assessment (RIA) is a tool to ensure policy coherence and effectiveness. It expands the quantity and quality of information available to decision makers to help them make better decisions and presents it in a consistent format. By clarifying policy objectives, identifying all feasible options, gathering evidence, exploring assumptions and systematically identifying and assessing expected impacts, RIA aims to give policy makers greater insight into the nature of policy problems and the real world impact of potential responses. Policy makers can use this information, combining it with political considerations and their own judgment, to choose policy options that are expected to provide the greatest net benefit to society as a whole (OECD, 2002: 45; OECD, 1997: 7; OECD, 2009: 13; World Bank, 2010: 7). Widespread recognition of the importance of RIA in contributing systematically to the achievement of better policy outcomes led the OECD Council to recommend that member countries "integrate Regulatory Impact Assessment (RIA) into the early stages of the policy process for the formulation of new regulatory proposals" (OECD, 2012).

In addition to coherence and effectiveness, assessing regulatory changes in a systematic way under a RIA framework contributes to the key regulatory quality dimensions of efficiency, equity, transparency and accountability. The result is better-designed regulations that are less likely to be biased towards short-term and/or sectional interests.

RIA can increase transparency and accountability by requiring policy makers to present the rationale for their policy and regulatory decisions in a clear, logical and objective manner. Greater transparency at the early stages of the policy cycle will also make stakeholder involvement more effective in identifying problems with the analysis and identifying other potential policy options. Continued scrutiny of the performance of policy interventions over time, including their coherence, contributes to strengthening the accountability of policy makers.

Well-executed RIA also ensures that long-term policy objectives are explicitly incorporated in decision making. The RIA process facilitates the identification of both the underlying policy problem and all interventions capable of addressing that problem (World Bank, 2010: 6). Aligning sectoral, local and national strategies can be an added benefit of RIA, contributing to policy coherence in the inter-jurisdictional sense. Experience in the United States shows that RIA equips central government with a tool to more effectively oversee the work of specialised agencies, without the need to acquire the same degree of detailed knowledge as their agents (Posner, 2001). The same can be said about coordination between central government and state/regional/local authorities.

These benefits of RIA may be particularly important in the transport sector, as it is characterised by long investment cycles and relatively slow replacement rates for both vehicles and infrastructure. These characteristics imply a need for particularly careful policy analysis prior to implementation and an acute need for high levels of acceptance of regulatory initiatives. Once imposed, costs tend to be sunk. The transport sector is also characterised by the need for a range of government agencies to co-operate to align policies and regulations to achieve long-term goals such as accessibility, service delivery, safety and environmental quality. Effective coordination, facilitated by good RIA, is therefore crucial.

The two main fields of ex-ante analysis for decisions in the transport sector today are Cost-Benefit Analysis (CBA), to assess the socio-economic return on investment in infrastructure projects, and competition analysis in the case of proposed mergers and potential abuse of monopoly power. Both types of analysis can offer valuable insights to the process of RIA. In particular, CBA is a well-developed methodology that can be used to quantify and monetise the economic, social and financial effects of regulations. However, RIA can help to improve regulatory quality and avoid the adoption of poorly designed regulations even when it is not particularly complicated. The methodology or methodologies used in RIA is only one (albeit important) determinant of its effectiveness. Also essential is the means of integration of RIA into the policy process. A step-by-step approach to RIA should be adopted, beginning in the early stages of policy development. By contrast, where RIA is adopted purely as a compliance exercise, without real integration into the policy process, it is unlikely to be influential, even if conducted to an ostensibly high standard. The results of RIA are typically incorporated in a document presented to policy makers for decision. However, the document (an individual regulatory impact assessment) is merely the product of a broader system designed to improve the quality of policy analysis (OECD 2008b: 15). This paper identifies and explains the importance of the key elements of a good practice RIA system, particularly in the context of transport regulations. It describes the rationale for, and the benefits of, RIA frameworks and provides advice on dealing with the practical realities of implementing RIA in the transport sector. It concludes with recommendations for governments seeking to implement RIA for transport regulation within their jurisdictions. Overall, RIA is crucial in both supporting the development and adoption of better public policies and enhancing the legitimacy of policy initiatives. Both outcomes favour greater acceptance of the policies and regulations adopted and higher rates of voluntary compliance with regulatory requirements (OECD 2008a). The box below sets out ten good RIA practices.

Box 1. Getting maximum benefit from RIA: good practices

1. **Maximise political commitment to RIA**. Reform principles and the use of RIA should be endorsed at the highest levels of government. RIA should be supported by clear ministerial accountability for compliance.
2. **Allocate responsibilities for RIA programme elements carefully**. Locating responsibility for RIA with regulators improves ''ownership'' and integration into decision making. A central body is needed to oversee the RIA process and ensure consistency, credibility and quality. It needs adequate authority and skill to perform this function.
3. **Train the regulators**. Ensure that formal, properly designed programmes exist to give regulators the skills required to do high quality RIA.
4. **Use a consistent but flexible analytical method**. The benefit/cost principle should be adopted for all regulations, but analytical methods can vary as long as RIA identifies and weighs all significant positive and negative effects and integrates qualitative and quantitative analyses. Mandatory high-level guidelines should be issued to maximise consistency while giving analysts enough flexibility to tailor the methodologies to the characteristics of each regulated sector.
5. **Develop and implement data collection strategies**. Data quality is essential to useful analysis. An explicit policy should clarify quality standards for acceptable data and suggest strategies for collecting high quality data at minimum cost within time constraints.
6. **Target RIA efforts**. Resources should be applied to those regulations where impacts are most significant and where the prospects are best for altering regulatory outcomes. RIA should be applied to all significant policy proposals, whether implemented by law, lower level rules or Ministerial actions
7. **Integrate RIA with the policy-making process** as early as possible. Regulators should see RIA insights as integral to policy decisions, rather than as an ''add-on'' requirement for external consumption.
8. **Communicate the results**. Policy makers are rarely analysts. Results of RIA must be communicated clearly with concrete implications and options explicitly identified. The use of a common format aids effective communication. Limitations of the analysis should also be clearly acknowledged.
9. **Involve the public extensively**. Interest groups should be consulted widely and in a timely fashion. This is likely to mean a consultation process with a number of steps.
10. **Apply RIA to existing as well as new regulations**. RIA disciplines should also be applied to reviews of existing regulations.

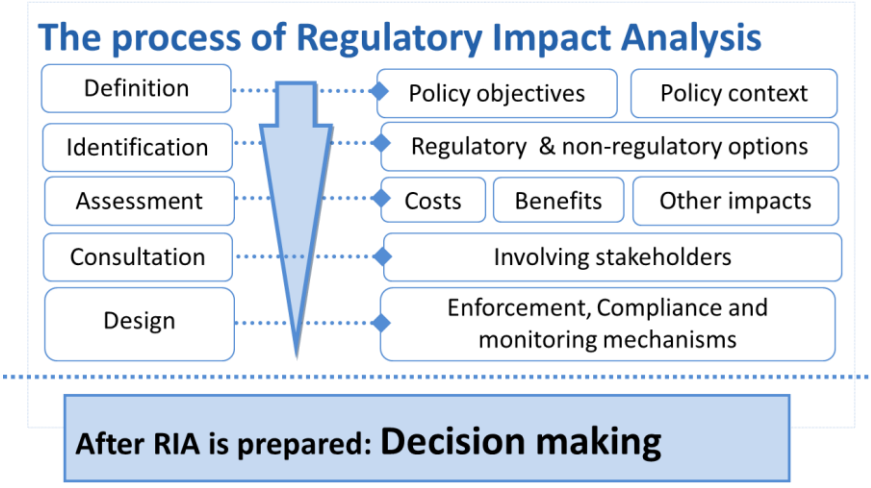
Source: OECD (1997: 215).

Description of regulatory impact assessment framework

The process of regulatory impact assessment

While there is no single framework that fits all types of regulatory assessment across sectors, completing a good quality RIA involves a set of key elements that are consistent across countries (OECD, 2008a; OECD, 2015a: 94; World Bank, 2010; UK Government, 2015; Australian Government, 2014; New Zealand Government, 2013; Israel, 2013). The diagram below summarises the OECD's schematic process for RIA.

Figure 1. The OECD's schematic process for RIA



Source: OECD (2008b: 17)

1. Define the problem, challenges and policy objectives

Roundtable participants were emphatic that this is the most important step in producing a useful RIA. Clear problem definition provides a focus for RIA authors to return to as the RIA develops. In turn, it allows the rest of the analysis to follow logically (Australia, 2014: 18). It is crucial that administrations involve analysts and researchers at this early stage of the RIA process, so as ensure that underlying policy problems are reliably identified, rather than the focus being on particular negative outcomes.

Common problems relate to economic efficiency (market failures, externalities, and misuse of market power), equity considerations (i.e. distributional problems), environmental concerns and health and safety concerns (UK Government, 2015: 62; Australian Government, 2014: 18). In defining the problem, evidence should be sought regarding:

- the nature of the problem
- its probability, or frequency of occurrence
- its severity (or consequences)
- the affected group(s)

- the people and/or organisations best placed to manage or resolve it.

Defining the problem in this fashion facilitates clear identification of the relevant policy objectives. The UK government (2015: 62) recommends that objectives be SMART:

- specific
- measurable
- achievable
- relevant
- time bound

2. Identify potential options and their impact

Following problem identification and analysis, and the identification of the relevant policy objectives it is necessary to identify a range of options that would effectively achieve the policy objectives. Only feasible (i.e. practical and implementable) options should be included in the comparative analysis (Australian Government, 2014: 26). The options considered should generally include both regulatory and non-regulatory policy tools (i.e. alternatives to regulation), since it is rare that regulation is the only feasible means of achieving an identified policy objective.

All options should be measured against a properly specified "base case", which describes the expected evolution of the policy environment in the absence of any specific intervention (Australian Government 2014: 26; UK Government 2015: 64). The specification of the base case should take account of the likely dynamics of the policy environment, rather than assuming that the existing situation will necessarily continue unchanged in the absence of policy intervention.

The impacts of each option should be identified clearly. This includes considering:

- who the option will affect (directly or indirectly) and how (including, financial, social and environmental impacts)
- how affected parties will respond to the proposed intervention
- what the response would mean for the effectiveness of the option.

For options that have a broader impact (i.e. effect large group[s]), it is particularly important to try to anticipate and identify indirect, or unintended, consequences. For example, Burghouwt (2016) demonstrates how, in certain circumstances, the imposition of an air ticket tax results in supply side responses that may lead to base closures by airlines at certain airports. A key benefit of RIA is that its systemic nature implies that indirect, or "second round" impacts are more likely to be identified and assessed if the policy process includes this element.

3. Assess the costs and benefits of different options

For each option, policy makers should aim to assess the societal impact of proposed changes. The foundations of welfare economics are well suited to supporting RIA in this task (Sunstein, 2017). Social welfare analysis involves identifying, specifying and quantifying the benefits and costs of proposed policy changes to understand whether regulations will yield total benefits in excess of expected costs to society, considered as a whole.

When the analysis of costs and benefits is made explicit as part of RIA, impact assessments gain transparency and focus on the consequences of regulations, assisting decision makers in making value judgments about the option they consider most desirable. Where done effectively, this can also provide decision makers with a robust like-for-like comparison of different options (OECD, 2008a: 7-9). Such comparison should also assess whether the expected effects are in line with the challenges and objectives identified in Step 1.

There are a range of methodological tools for assessing the welfare impacts of different policy options. Cost-Benefit Analysis (CBA) is the best available method for assessing the effects of regulation on economic efficiency, an important component of social welfare. The tradition of CBA in the transport sector is well developed with respect to investment projects and can offer valuable insights to the application of CBA in assessing regulatory changes. Moreover, while CBA is often criticised for ignoring or downplaying distributional impacts, a transparent CBA, based on disaggregated analysis of individual impacts on different groups, can provide the basis for the development of a clear understanding of distributional impacts, which can be presented in parallel with the CBA results, thus maximising the information available to decision makers. Such an approach ensures that the analysis of distributional impacts shares the key CBA benefits of being systematic, transparent, quantitative and, as far as possible, monetised. It also promotes consistency between the economic and distributional analyses, again providing a better basis for policy decisions.

Below, we summarise some of the other tools which may also be used, also highlighting some of the inherent limitations attached to each of them.

Box 2. Common impact assessment methodologies

Cost-benefit analysis (CBA) is the gold standard tool for economic efficiency, an important component of social welfare. It identifies the expected costs and benefits of different options over time, quantifies these impacts and presents them in a time neutral monetised form (discounted currency value). This demonstrates which option(s), including non-regulatory options, provide the greatest net benefit to society.

Break-even analysis (BEA) is a useful tool where the effectiveness of an intervention is highly uncertain, or the benefits are extremely difficult to quantify (even indirectly) but the costs are well known. By quantifying the costs of an option, policy makers can determine what value of expected benefits is necessary to justify the cost. For example, given cost data and standard valuations of a statistical life and a serious injury, the introduction of new safety standards for car manufacturers may be judged efficient only if they reduce fatalities and serious injuries by at least 10%. Policy makers can then use judgment to determine whether they believe there is a high probability that the option would result in a net benefit to society.

Cost-effectiveness analysis (CEA) is useful when it is not possible or appropriate to monetise the outcome measure, but it can be quantified. If different options have different results, CEA allows them to be compared in terms of their relative cost effectiveness. That is, CEA involves measuring the ratio of benefit per unit of cost for each policy option and comparing the ratios to assess the relative cost effectiveness of each. In a health policy context, this might involve comparing the number of Quality Adjusted Life Years (QALYs) gained per USD 1 000 of expenditure across different options. In a transport context, the benefit metric might be some measure of accessibility gain, for example.

Multi-criteria analysis (MCA) seeks to combine quantitative and qualitative information into a single methodology. Criteria are developed which reflect the dimensions of the desired policy outcomes. The

different options are then assessed according to each criterion, with scores assigned. The criteria may be weighted and an aggregated score developed for each option by multiplying the scores for each criterion by the weighting assigned (if any). CBA and CEA can be adopted as an element in an MCA, in which case it will typically be appropriate to assign a high weighting to the scores attributed under these criteria.

Source: Adapted from OECD (2008a).

4. Consult affected stakeholders

Consultation is essential to a quality RIA and a useful tool at all stages in the policy process, from problem definition through to designing the preferred regulation and developing an implementation and enforcement strategy (OECD, 2008b: 18; World Bank, 2010: 14). The value of consultation is that it:

- is one of the most cost effective ways of obtaining data and practical information about impacts, costs and benefits, of different policy options (OECD, 2008a: 19)
- provides an opportunity to detect unintended consequences and allow governments to test the logic of potential regulatory options (OECD, 2008a: 19)
- adds transparency, giving stakeholders an insight into how regulatory decisions will be made and an opportunity for engagement on issues important to them (World Bank, 2010: 14)
- improves confidence in government processes and the legitimacy of the overall outcome. (World Bank, 2010: 14; OECD, 2008a: 19). Stakeholders may be more willing to accept a regulatory decision where they consider their concerns have been understood and taken into account, even if they disagree with the ultimate decision. In turn, this increases the likelihood of voluntary compliance with regulations (OECD, 2008a: 19)
- provides an opportunity for stakeholders to put forward additional options that may solve the problem in a more cost effective manner.

With appropriate mechanisms such as anonymous publication in official reports, aggregation of data and confidentiality agreements, consultation can include the sharing of sensitive information to allow all stakeholders to improve the quality of consultations and present their views based on more accurate information. This may be a crucial consideration in obtaining maximum participation in the transport sector, where competitors may not be willing to share financial and operational data.

5. Design enforcement, compliance and monitoring, and data collection mechanisms

While voluntary compliance is an important regulatory dynamic, the effectiveness of regulations is also likely to be substantially dependent on the quality of the enforcement strategies adopted by regulators and the resources allocated to compliance and enforcement activities. Consequently, RIA should consider what compliance/enforcement mechanisms would be necessary to ensure that a regulation is effectively implemented. Undertaking this analysis involves gathering evidence about matters such as (OECD, 2008a: 22):

- the likely level of voluntary compliance
- what compliance/enforcement mechanisms are available, their costs and how effective they are likely to be in increasing compliance (total compliance should never be assumed)

- what types and levels of penalties for non-compliance are effective, appropriate and proportionate.

RIA that is being conducted before regulation is put in place also provides an opportunity to build monitoring and ex-post evaluation mechanisms into the regulation at the outset. These should put in place indicators, which are capable of measurement using objective data that demonstrate whether the regulation actually solves the defined problem and meets its objectives (European Commission, 2015: 30), as well as adopting appropriate data collection strategies. Designing monitoring and evaluation mechanisms in this way also allows an ex-post evaluation of whether the regulation is still needed (Australian Government, 2014: 50).

The practical realities of regulatory impact assessment in the transport sector

Persuading policy makers in the transport sector to integrate RIA into their decision-making processes has not proven to be an easy task, for several reasons. Implementing good RIA can be seen as a significant drain on scarce resources and as requiring specialist expertise that may be in short supply. RIA may also be seen as limiting agencies' freedom to act to achieve their underlying goals, particularly where it lays bare substantial costs, which would not otherwise be readily apparent, while the benefits of thorough analysis are visible primarily in the medium to long term. In addition, its results can be difficult to communicate (OECD, 2015a: 39-40).

However, the experience accumulated in the field of cost-benefit analysis and competition analysis[1] in the transport sector mean that significant bodies of evidence already exist that can readily leveraged in RIA. Moreover, a number of ITF/OECD countries have set up independent transport agencies in recent years which have developed substantial expertise in regulation, safety and environmental quality monitoring and policy making more broadly. This expertise also means that capacities to undertake high quality RIA are relatively high.

Nonetheless, RIA is relatively resource-intensive and high quality RIA requires specialist expertise. This implies that RIA resources should be carefully allocated, to ensure that the benefits of RIA are maximised at a government-wide level. This implies that the scope of RIA requirements should be consciously and rationally considered. The following paragraphs tackle some of the practical issues often encountered when making decisions about which proposed regulatory changes should be subject to RIA, when and how it should be done.

When should regulatory impact assessment be undertaken?

The principle of proportionality should be applied to RIA (OECD, 2015a: 97), with the most detailed and complete analyses being reserved for the regulations with the greatest impacts, those whose impacts are subject to the highest levels of risk and/or uncertainty and those policy objectives which can be addressed by multiple, competing options. This is where the greatest potential benefits lie, in terms of

RIA's ability to improve regulatory outcomes, thus enhancing economic activity, transparency and community welfare (OECD, 2008a: 40; World Bank, 2010: 13).

OECD countries have opted for a number of approaches to target RIA (OECD, 2015b: 103). Perhaps the most common is the application of a monetary threshold in terms of the expected costs of the regulation. In the United States, a full CBA is required if a regulatory measure is deemed to be "economically significant" (i.e. its expected annual cost is USD 100 million, approximately EUR 94 million), if it imposes major costs on a specific sector/region, or if it has significant adverse effects on competition, productivity, innovation or employment. Similarly, in Korea, RIA is required for regulations which have an estimated regulatory cost of over KRW 10 billion (approximately EUR 8.5 million), affect over one million people, restrain competition, are excessive in light of international standards or raise significant controversy among stakeholders. In the United Kingdom, there are different broad levels of analysis ranging from Level 1 (description of stakeholders affected by the regulatory change) to Level 4 (full monetisation of impacts) and RIA is tailored depending on the scale, duration and complexity of a policy's likely impact.

Regulatory changes at the national level in the transport sector will frequently have significant impacts, suggesting that they will typically require extensive RIA if the proportionality principle is adopted. Nonetheless, an intellectually honest qualitative assessment may still provide useful information and be an appropriate alternative where there is neither the data nor the skills to provide a robust quantitative analysis. Although RIA should permeate the whole process of regulatory interventions, resource constraints may require calibrating efforts at different stages. Three alternative approaches to applying a limited amount of RIA resources can be identified (OECD, 2015a:.97):

- invest as much as possible in ex-ante RIA to minimise the probability of choosing the wrong policy option, and then perform ex-post evaluation after a given period of time (e.g. five years)
- invest less in ex-ante RIA when a policy option is clearly superior to others but adopt a tighter schedule for ex-post evaluation (e.g. two years), a pilot phase and/or a detailed monitoring plan
- select the most readily reversible policy option, so that in case of gross misevaluation at the outset, it will be easier to change the direction of policy later.

RIA can be carried out ex ante, ex post or both. It can also be conducted at different stages of the policy cycle. Ex-post assessments are not only useful to verify whether the impact of newly implemented policies is consistent with ex-ante expectations, but also to collect information that informs future rulemaking in similar areas. In a number of jurisdictions, there are mandatory requirements to carry out ex-post analysis of regulatory changes. These include regulations at the European level (five years after entry into force) and regulations contained in the Federal Register of Legal Instruments in Australia (ten years after entry into force). The widespread conduct of ex-post RIA can help to reveal systematic errors or biases and thus improve the quality of ex-ante RIA over time.

In this context, it is good practice to strengthen the links between ex-ante and ex-post analysis when drafting RIA documents. Monitoring changes over time is especially relevant in the transport sector given the time lags between regulations being approved and that implementation is longer than in other sectors. Including a choice of indicators to be collected by the relevant transport authority that inform the ex-ante analysis and form the basis of future monitoring and evaluation activity can help embed RIA in the policy cycle and facilitate future revisions and updates.

Who should do regulatory impact assessment?

RIA frameworks are intended to ensure that robust analysis is fully integrated in the policy making process (OECD, 2009: 12). This implies that transport ministries, agencies and regulators developing regulatory proposals should have in-house RIA capability. Ideally, each agency should have a core-team of experts who have appropriate training to undertake and promote RIA (OECD, 2008b: 36).

However, RIA (especially in its more advanced forms) is a technically challenging exercise (OECD, 2009: 20). The analytical skills to conduct RIA, especially to quantify impacts, may be in short supply (World Bank, 2010: 13). Capacity building, information sharing and cooperation between experts are fundamental. Teams of experts and analysts in transport administrations should also be able to draw support and guidance from a central government regulatory reform unit, which coordinates RIA throughout government, providing support, guidelines and advice to agencies (OECD, 2009: 39). For instance, Finland established an independent Council of Regulatory Impact Analysis at the Prime Minister's Office in December 2015. The Council is responsible for issuing statements on government proposals and on their regulatory impact assessments. Nine RIA experts were appointed for a period of three years.

Transport policy needs good regulatory impact assessment more than some other sectors

Quality RIA is especially important for transport, for several reasons. Demand for transport services is derived demand – i.e. people's mobility is a function of their demand for goods and services in the economy (Bamford, 2001). Second, transport policy and regulation tends to be far reaching and embrace substantial second round (indirect) effects. Third, transport activity generates high external costs and benefits – i.e. both negative and positive externalities are produced beyond the sphere of transport markets, affecting health, productivity, safety, etc. (Maibach et al, 2008). All of these factors make the identification and assessment of the full range of impacts of such interventions particularly challenging. This, in turn, increases the expected benefit of taking a systematic and rigorous approach, as required by RIA.

The general principles of RIA provide a robust framework within which transport policy and regulatory initiatives can be assessed by allowing policy makers to address the complex direct and indirect impacts of policies through a reasoned process that brings together evidence from stakeholders at different levels.

At the same time, the characteristics of transport markets make completing quality RIA particularly challenging. As noted, second-round effects are likely to be particularly significant in many transport contexts. For example, .Burghouwt (2016) shows that this is true of many transport policy changes in the aviation context. Changes in demand in response to a policy change (e.g. the introduction of a passenger tax) can often lead to supply responses by airlines, particularly due to the "lumpy" nature of supply. These can significantly affect both consumer outcomes and the overall welfare impacts of the policy and should, therefore, be incorporated into the analysis. Burghouwt proposes a Hub Network Rationalisation model, which can address these second round impacts systematically in a CBA framework in certain contexts, but notes that the necessary methodology to do this in some other cases has yet to be developed. Burghouwt argues that the CBA should, at a minimum, include a systematic attempt to identify such potential second-round effects and to at least address them qualitatively in circumstances in which a full quantitative analysis is not feasible.

Van Wee (2016) similarly highlights a number of fields in which regulatory activity tends to have strong second-round impacts in the road transport context. For example, pursuing better safety outcomes by regulating to mandate various safety requirements in new vehicles may have significant negative impacts on pollution and resource consumption if it significantly increases vehicle mass. The significant increases in average vehicle mass observed in recent decades suggest this effect is being observed in practice, yet it appears to be rarely or never taken into account in regulatory decision making. Similarly, van Wee notes that reductions in speed limits – another common safety-related innovation – necessarily increase journey times. Given that the Value of Travel Time (VTT) is a core benefit driver in respect of many transport infrastructure projects, it is clear that the costs of increased travel time should be taken into account and weighed against expected safety benefits. Conversely, reductions may have a positive impact on congestion, since peak road capacity is reached at speeds of around 90 km/h and falls progressively thereafter. Van Wee also notes, perhaps more controversially, that there are likely losses of utility associated with regulation prohibiting faster driving, and that these should potentially also be weighed in RIA.

Van Wee argues more broadly that the CBA that is at the heart of RIA only measures a subset of relevant policy objectives – i.e. efficiency and equity (though it also potentially enables equity impacts to be better quantified and understood). Conversely, other important choice variables such as ease of implementation, flexibility and long-term robustness are not addressed. Nonetheless, he argues that good RIA must continue to be grounded in well-developed CBA.

Impact assessments in the transport sector also need to acknowledge that changes in the transport arena will have a series of impacts on other sectors of the economy and society, and that these impacts can be as significant as the direct impacts in transport markets. Deighton-Smith (2016) identifies the impacts of a price regulatory regime in the freight transport industry. These include both significant intra-sectoral changes in demand due to relative price changes and impacts across the broader economy due to the impact on absolute prices and the consumer responses to these. The fact that transport services are intermediate goods amplifies the impact of these changes across the broader economy. Of note is that, while CBA was carried out prior to the introduction of the policy change, many of these impacts, which were fundamental to appraisal of the scheme, were not taken into account. The rapid reversal of the policy as its practical impacts came to be appreciated highlights the risks and potential costs both of failing to carry out sufficiently comprehensive RIA and failing to give adequate weight to RIA results in making policy choices.

Transport policies tend to have financial and economic implications for other parts of government, such as those responsible for urban development and the environment. Moreover, there are implications for multi-dimensional issues of fairness such as equitable access to basic services for different income groups and regional accessibility. These implications occur both horizontally across government departments and vertically across levels of government.

Good RIA provides policy makers in the transport sector with a framework to identify these potential impacts more systematically, both in the case of well-known markets such as airport/airline relationships in the aviation industry and when making decisions about far reaching regulations that deal with equity and human rights such as accessible transport for all (Box 3).

Box 3. Mapping the potential impacts of regulatory changes in transport

In recent years, proposals for the introduction of aviation taxes have attracted considerable scrutiny and have ignited public debate in countries such as the Netherlands, Norway and the United Kingdom. The role of RIA in the midst of heated political discussions is most important. As in other transport

industries, assessing the impacts of changes in aviation policy requires thorough analysis.

Mapping both direct and indirect impacts involves a consideration of the direct costs for government (i.e. the regulatory burden of collecting and administering the tax) and airlines, as well as the direct costs for passengers resulting from higher ticket prices. A wide range of indirect costs must also be taken into account, encompassing supply reactions such as airlines base closures, demand reactions such as modal-switch, broader economic impacts resulting from reduced connectivity, and environmental impacts linked to changes in aviation such as emissions and noise.

A similar framework can be applied to the assessment of accessibility provisions for mobility-impaired passengers such as requiring that buses be step-free. In many ITF/OECD countries, legislators and governments have explicitly enshrined accessibility as a right and a legal requirement; but progress in this field is slow and the implementation of accessibility-enhancing measures is constrained by competing demands for investment and an unclear understanding of the economic benefits of improved accessibility. While cost estimates are readily derived, benefits are often not clearly defined, quantified or documented.

RIA should be conducted on a consistent basis, so that the results are as widely comparable as possible. This implies the adoption of a standard framework for classifying benefits and beneficiaries. This is not to suggest that all of the beneficiaries and benefits identified in the framework should be included in every analysis of accessibility. Rather, the aim is to provide a complete list of potential impacts for different types of users and for non-users (such as potential users). In the accessibility example above, user groups would include disabled, mobility impaired and other encumbered passengers (including the temporarily encumbered). The indirect effects of accessible transport for all would include the ability to access services more easily and more frequently and greater social inclusion, countering the risk of isolation which can lead to adverse psychological problems.

Sources: UK Government (2016), Air Passenger Duty: Rates, https://www.gov.uk/government/publications/air-passenger-duty-rates/air-passenger-duty-rates); ITF (2016).

Quantification of expected impacts to demonstrate the merits of regulatory changes

Box 2 summarises the different methodologies that can be used to carry out the quantitative analysis of welfare impacts. The key difference between these methodologies lies in the way that benefits and costs are presented and compared in order to inform policy decision making. When both costs and benefits can be assessed and quantified (at least to a substantial extent), CBA is the best available method for assessing the effects of regulation on economic efficiency, and can also be used to better understand distributional impacts, thus providing a broader perspective on expected changes in social welfare. However where it is not possible to monetise key benefits reliably, the use of CEA may be the best feasible option, while if the effectiveness of the proposed regulation is highly uncertain, for the use of break-even analysis may be preferable.

Despite their differences, all the methodologies identified in Box 2 reflect a key principle of regulatory impact assessments: that quantification and monetisation should be carried out, as far as practicable, consistent with the proportionality principle, to understand whether regulations will yield total benefits in excess of expected costs to society. Such quantification necessarily adds to the robustness of impact assessments and ultimately helps to elevate the importance of objective criteria in political decision-making.

As noted, efforts to quantify potential impacts need to be proportionate to the magnitude of the measures proposed. Where the resources available to undertake RIA are limited, decisions on whether or not to develop quantitative estimates of impacts should be based on:

1. qualitative analysis of the impacts expected from the proposed regulation
2. estimates of the size of the quantification task
3. the availability of data to assess likely impacts
4. robustness of the methodology selected to produce the quantitative results.

Qualitative analysis of expected impacts can inform decisions on where to direct quantification efforts by providing insights into the likely magnitude of impacts and the range of affected parties. Specific impact thresholds, above which quantification is required, can also be established, as discussed above in the section on when to do RIA.

In the transport sector, the availability of good statistics and the presence of sophisticated modelling tools provide a good foundation for quantification (i.e. effects on the supply of transport services, on passenger and freight demand, on accessibility for groups of society, etc.) and monetisation (i.e. the conversion of quantified impacts into monetary values based on welfare economics principles). A well-developed evidence base helps the RIA process at several different stages. For example, good statistics can inform the analysis of problems at the initial stage; models and datasets can provide insight into the order of magnitude of impacts as well as providing a basis for future monitoring and evaluation.

In most OECD countries, dedicated departments or public sector agencies collect transport statistics regularly. In addition, international, national and regional transport models have been developed to analyse and forecast both passenger and freight flows. Consistent statistics and detailed modelling are relied upon to assess the impacts that transport investment projects are likely to have. One typical impact category used in these assessments is direct travel time savings for transport users. In most OECD countries, and particularly in northern Europe and Australasia, time savings are monetised and included in CBA together with other quantitative and qualitative impacts. Crucially some of the additional impacts that are typically quantified are not limited to the transport sphere, and provide an estimate of how transport impacts are transmitted through the economy into changes in employment and economic outputs (Mackie and Worsley, 2013). Some important differences between quantitative assessments of transport investment and impact assessment are summarised in Table 1 below.

Table 1. Comparison of quantitative techniques in the transport sector

	CBA for investment projects	Quantitative component of RIA
Data	Available from existing datasets or collected ad-hoc through surveys/models	Available from existing datasets or collected ad-hoc through surveys/models
Modelling	Based on available national/regional models and bespoke modelling tools	Ad-hoc; but must account for indirect impacts (i.e. behavioural responses of users and businesses)
Outputs	Conventional CBA plus wider economic benefit assessments. Capital and operating costs.	CBA where feasible, CEA or BEE in other cases. Distributional impacts identified and quantified where significant.
Monetisation	Based on standardised values	More discretionary, not always optimal
Summary outcome	BCR, NPV, IRR, Distributional analysis	BCR, NPV, Distributional analysis

Box 4. The use of RIA in rail reform

Experience with applying CBA in the transport sector, and modelling and quantification more broadly, has been adapted to inform and support RIA of rail reform in different contexts. Crozet (2016) presents a number of techniques that can be used to assess regulatory changes in the rail sector generally. The examples discussed in Annex A provide specific case studies of quantitative techniques for RIA and the benefits of applying the framework to the sector. They are:

- Europe – new roles and responsibilities for the European Union Agency for Railways (ex-ante)
- United Kingdom – increasing competition in passenger services (ex-ante)
- Japan – Cabinet Office's assessment of rail privatisation (ex-post)

The case studies are part of a broader trend toward the use of quantitative techniques to assess regulatory changes in the rail policy arena. Assessments are often commissioned by government agencies and carried out by specialised consultants and/or academics. In each case, quantification is facilitated by the existence of detailed databases containing historical market data as well as by involving stakeholders in data provision at the early stages of the RIA process. The framework is adopted in a flexible manner and expert judgement is used in each case to decide which impacts are both significant and more readily quantifiable. The rigorous application of RIA, including quantification and monetisation of expected impacts has better informed the decision-making process in all three cases.

Outstanding challenges

While OECD countries are increasingly adopting quantitative methodologies for RIA, challenges remain in ensuring that RIA is an effective tool to aid policy decision making. These can be broadly divided into specific methodological challenges and broader process challenges. In the first category, a key issue is calibrating the scale and scope of the analysis to the significance of the policy and regulation being assessed

As noted above, the importance of second-round and cross-sectoral impacts to the assessment of transport projects makes the question of calibrating the scale and scope of the analysis particularly challenging. Full quantification and monetisation of second-round impacts may be precluded by capacity constraints and/or questions of proportionality. However, systematic identification of such impacts, together with good qualitative assessment, should be minimum requirements.

A further methodological challenge, identified by van Wee (2016) relates to the very long-term impact of many transport decisions. A corollary of this is recognition of the fact that the costs of meeting some regulatory requirements are likely to change substantially over time as technical innovation brings forward more effective and less costly solutions. Van Wee argues that RIA should attempt to account for these changes, potentially by attempting to categorise dynamic cost curves by reference to a taxonomy of technology types and the historical experience with cost evolution in each area. At the same time, he notes the likely need for sensitivity testing, given the substantial uncertainty necessarily involved in such exercises. A "break-even" approach is also suggested. Addressing the practicability of these proposals may be a fruitful area for further research.

Van Wee also highlights a second methodological challenge arising from the very long time horizons often required when conducting impact assessment in the transport context. This is that it substantially

increases the importance of careful specification of the base or "reference case" against which the impact of the various proposals identified is measured. In general, the longer the time horizon considered, the less likely it will be that a base case that simply projects forward the current state of play will be appropriate. Instead, consideration of the likely responses of market actors to the changing market conditions that would arise in the absence of government action is required. Where these reactions can be predicted with reasonable confidence, this should be incorporated into the reference case assumptions.

Similarly, the choice of discount rates becomes increasingly important where very long time horizons (i.e. more than 30 years) are considered. This issue has been the subject of substantial debate, which should be taken into carefully account in the transport context (see, for example, OECD, 2009: 89-92).

Among process-related concerns, the most significant include the need to ensure that the RIA process is coherent and consistent and that RIA is conducted in a timely manner – i.e. is commenced in the early stages of the decision-making process, so that it can contribute effectively to the evaluation of different policy options (OECD, 2015b).

A recent report on the use of RIA in Sweden provides an example of a RIA system that is often fragmented, with the responsibility for the implementation of RIA being in the hands of several government agencies with different strategic objectives (Nerhagen and Forsstedt, 2016). The RIA sample analysed in this report revealed numerous basic methodological deficiencies: nearly 90% of RIAs lacked an evidence-based problem description; only a small share of RIAs included a quantification of societal costs and benefits, there is a disproportionate focus on small and medium-sized enterprise impacts, and different government units developed "their own" RIA approach, undermining comparability and the potential to benefit from synergy effects. The lack of a consistent, whole of government approach to impact assessment significantly increases the challenge of ensuring that RIA achieve high quality standards and are consistent in approach and, therefore, comparable across projects and modes.

These examples point to some of the outstanding challenges for implementing RIA, in the transport sector and more broadly. The success of a RIA framework relies heavily on the adoption of a whole-of-government approach that encourages evidence-based decision making and limits the opportunities for political manipulation of the process itself. To gain maximum benefits from RIA governments should ensure that it is embedded in the policy cycle and that clear responsibilities are assigned as to who should carry it out and when. The availability of good quality data on transport markets and related impacts is paramount if RIA is to include a quantitative assessment of costs and benefits, and to ensure that effective monitoring of outcomes takes place over time.

Box 5. Political aspects of RIA

The political economy of regulatory impact assessment (RIA) in general and cost-benefit analysis (CBA) in particular has a long history, and the tools have been used in different ways.

Economists such as Jules Dupuit have urged the use of something like CBA since the first half of the 19th century, promoting it as a way to ensure the thorough and dispassionate analysis of proposals for public-works projects put forward by politicians, ministers, and bureaucrats. In the United States, the Federal Navigation Act of 1936 and the Flood Control Act of 1939 sought to rein in legislative proposals for projects to be carried out by the Army Corps of Engineers by mandating a formal analysis of the likely costs and benefits, direct and indirect, of such projects. More recently, proposed government-funded transport projects in the European Union, the United Kingdom, the Netherlands, Canada, Australia, and other jurisdictions have been required by legislation and/or regulation to be subject to cost-benefit analysis. These approaches have, in all cases, been promoted as helping to ensure that the welfare benefits that projects/policies yield to society as a whole exceed the project's costs.

While the use of RIA has expanded rapidly in recent decades, both in OECD countries and beyond, it remains subject to criticism in some quarters. A key criticism derives from the fact that costs are more readily able to be monetised than are benefits. The quantitative and monetary focus of CBA is said to lead to benefits being inadequately weighed, and thus to give rise to a systematic bias against regulatory intervention to address social harms. This dynamic is also said to enable those with vested interests to use CBA requirements to delay and discourage regulatory interventions.

In part, this divergence of views reflects a more philosophical divide. Those urging the broader use of CBA and RIA argue that government-sponsored projects should, at a minimum, be efficient: efficiently chosen and efficiently carried out, satisfying the basic requirement that a project's foreseeable benefits exceed its costs. Those urging a more limited reliance on formal (and especially formally quantitative) analysis argue that any reasonable social-welfare function includes other arguments besides efficiency – in particular, various dimensions of equity. In this view, the practical impact of a focus on CBA and its seemingly simple and straightforward results is to crowd out more nuanced analyses. These critics also focus on some weaknesses that are claimed to be inherent in the CBA methodology. These include the difficulty of monetising benefits such as a clean environment and the controversies inherent in expressing the value of future events in today's money (i.e. determining the correct discount rate). This is a particular problem in relation to events with potentially large but uncertain impacts that may take place in the very distant future (van Wee, 2016; ITF, 2011).

In practice, it is important to distinguish between the intrinsic limitations of characteristics of RIA/CBA and problems that arise from the way in which it is applied in specific circumstances. In a world of increasing demands on government to act in an ever wider range of policy dimensions, the imperatives of efficiency and objectivity are increasingly important. RIA/CBA can offer much in this area, particularly by identifying the most cost-effective means of achieving certain social objectives. Arguments against the use of these approaches risk ceding a larger role to partial assessments that are politically biased.

Sources: Coates, J. C. (2015); Schwartz and Nelson (2016); Sinden (2016). **Error! Hyperlink reference not valid.**

Communication

Effectively communicating the results of individual RIAs is important to ensuring the benefits of RIA are achieved. Without effective communication, RIA risks being less influential with policy makers and stakeholders, potentially favouring less evidence-based policy-making approaches. However, good quality RIA can involve very technical analyses, which are not accessible to key audiences. Policy makers are rarely technical analysts (OECD, 1997: 215). This is typically also true of key stakeholders affected by new regulations. As a result, it is necessary to communicate the results of RIA with a reasonable level of simplicity and conciseness (OECD, 2008b: 55). Ensuring that policy makers and stakeholders understand the results of RIA and the reasons for a preferred regulatory option improves both RIA's ability to influence policy choice and the level of stakeholder acceptance of policy decisions (OECD, 2008a: 22).

Several countries have taken steps to make RIAs more accessible and improve how RIA results are communicated. For example, the government of the United Kingdom uses summary tables to distil the key aspects of each RIA's analysis and recommendations[2]. Similarly, the European Commission uses a two-page summary in addition to a 30-40 page report aimed at non-experts, with more technical analysis presented in separate annexes (European Commission, 2015: 31).

Technology is also offering new opportunities to promote consultation and feedback. At the end of 2016, the US government launched “RegInfo Mobile”, an application that allows users to access information about the status of federal regulations and information collection requests on their smartphones. In recent years, the European Commission has promoted the use of online surveys to assist in the design of questionnaires and correspondence with interested stakeholders during the RIA process.

There are also other measures being developed to make the written style of RIA more accessible. For example, New Zealand’s Ministry of Transport has used composite individual citizens to demonstrate the possible impacts of policies and to more effectively communicate concepts and policy impacts (Ministry of Transport, 2015: 11). This involves modelling and explaining the impacts of different policy options on an individual with particular characteristics, such as a particular age or gender. While none of the characters or archetypes is an actual individual, they represent an “average” person from a particular demographic group. The European Commission has begun using narrative elements, such as calls for urgent action, to make technical analysis more tangible and bridge the gap between evidence based and political considerations (Radaelli, Dunlop and Fritsch, 2013: 508).

Conclusion and recommendations

Coherent and effective policy and regulations require the use of frameworks based on evidence and analysis. Without such a foundation in evidence and analysis, it is unlikely that decision makers will be able to effectively weigh different options and make regulations that maximise net benefits to society. Indeed, the complexity of the regulatory environment means that counter-productive results – i.e. regulations or policies that impose costs far in excess of the benefits they confer, is often a very real likelihood.

Regulatory impact assessment (RIA) is a tool to ensure policy coherence and effectiveness. When fully implemented, it creates a system in which institutions and their staff adopt a whole-of-government, evidence-based approach to impact assessments. They develop policy and regulations using processes that gather evidence, consult with stakeholders, explore assumptions and systematically identify and assess the expected impacts of different options.

The specific characteristics of transport services and markets, including the different roles that transport services play in socio-economic terms, mean that RIA frameworks are particularly likely to yield major benefits when applied to transport policy. The general principles of RIA provide a robust framework within which transport policy and regulatory initiatives can be assessed, by allowing policy makers to address the multiple direct and indirect impacts of policies and their complex interactions, through a reasoned process that brings together evidence from stakeholders at different levels.

There are proven analytical tools and extensive statistics for analysing investments and infrastructure performance available in much of the transport sector, and a history of using them in decision making. Therefore, the transport sector has a strong foundation from which to implement quality RIA, as shown in the examples provided in this paper.

This paper has surveyed various tools, structures and methods for undertaking quality RIA relating to transport policies and regulations. It demonstrates a series of good practice measure governments would ideally implement as part of an RIA system. These include:

- clearly acknowledging the assumptions and limitations of the analyses used in RIA, to enable decision makers to clearly identify uncertainty and exercise judgement, bearing in mind that decisions in the transport sector can have long implementation time lags
- quantifying impacts on social welfare as far as possible, to enable the comparison of potential outcomes on a like-for-like basis, using CBA as the preferred methodology for assessments in light of its widespread use in transport projects analysis
- making RIA a standard part of the policy making cycle when proposing new policy or evaluating existing policy
- systematically highlighting the linkages between proposed regulatory changes and high-level transport vision and policy objectives
- linking ex-ante and ex-post reviews
- setting up future evidence gathering activities as part of ex-ante RIA enables better future policy evaluation, including by introducing monitoring indicators based on regularly collected transport statistics.

This paper has also sought to demonstrate that the process of systematically analysing impacts is more important to improving policy outcomes than the precision of any specific calculations and presence of any specific institutions. RIA, even when it is not particularly complicated, is vital to ensuring good quality regulation. As a result, even where the best practice measures identified above are not feasible, governments should make use of RIA frameworks to assist them in developing and implementing more coherent, effective transport regulations. There are numerous practical examples[3] of good quality RIA that can provide a useful template for implementation; international comparisons and information exchanges shall continue to advance capabilities in this field.

Notes

1 Many competition authorities perform and often publish assessments of the overall "impact" of their decisions: these assessments quantify in a simple and concise manner the benefits expected to result from the decisions on mergers and antitrust infringements they took over the period under examination

2 https://www.gov.uk/government/publications/impact-assessment-template-for-government-policies

3 See Annex A for rail case studies; Deighton-Smith (2016) for road safety regulations; UK (2016) for air passenger duties changes, available at https://www.gov.uk/government/publications/air-passenger-duty-rates/air-passenger-duty-rates and Ireland (2008) for reforms in trade licensing provisions, available at http://www.aviationreg.ie/_fileupload/Image/2008-09-11_CP5_TTReview_Revision.pdf

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Annex A: Regulatory impact assessment case studies in the rail sector

Case study 1: Reforming the EU Agency for Railways (ERA)

The creation of a Single European Railway Area is a long-term goal of rail policy at the European level. The European Commission has introduced a succession of legislative measures since 1991, including four "Railway Packages", aiming to open national markets to competition and increase the interoperability of railways at the EU level. The latest legislative effort, known as Fourth Railway Package, focuses on the removal of remaining administrative and technical barriers by establishing a common approach to safety and interoperability rules for rail companies across the European Union (European Commission, 2013: 27). A key proposal involves reforming the structure, funding and the powers of the European Union Agency for Railways (ERA) to enable it to take over some of the responsibilities currently resting with national authorities on safety certification and vehicle authorisations. This forms the "Technical Pillar" of the Fourth Railway Package.

The proposals were subject to a full RIA, in line with the Commission's guidelines stating that "an impact assessment is required for Commission initiatives that are likely to have significant economic, environmental or social impacts" (European Commission, 2015). Specifically, each RIA at the EU level needs to answer the following questions:

1. What is the problem and why is it a problem?
2. Why should the EU act?
3. What should be achieved (objectives)?
4. What are the various options to achieve the objectives?
5. What are their economic, social and environmental impacts and who will be affected?
6. How do the different options compare in terms of their effectiveness and efficiency?
7. How will monitoring and subsequent retrospective evaluation be organised?

The impact assessment was carried out by an external consultant and published in 2012. Following the identification of the problems with the current arrangements for safety certification and vehicle authorisation across Europe, the assessment outlines the policy goals of the initiatives, verifies the strategic fit with the EU's long-term objectives and details six policy options to reform ERA and streamline the processes of certification and authorisation of rail companies in Europe. A quantification of costs and benefits follows.

The evidence base for the RIA was collected in part by relying on ERA's extensive dataset and in part through a stakeholder questionnaire, reaching rail operators, authorities and industry representatives in all member states. Crucially, the questionnaire contained both a number of questions related to the proposed regulatory changes and a set of specific data requests, including authorisation and certification costs for rolling stock and information on the administrative cost of carrying out current technical functions at the national level.

The quantification methodology adopted in this impact assessment involves comparing four of the six proposed policy options (two were discarded via qualitative assessments) against a baseline business-as-

usual scenario. For each policy option, the principal benefits arise from shorter authorisation and certification timescales and from cost savings, for instance from removing the need to re-authorise vehicles in different EU countries via the adoption of a single authorisation valid across the EU28, provided by ERA. The key costs relate to the establishment and operation of the ERA. However, considered from an EU-wide perspective, these costs are significantly smaller than the costs currently incurred by national authorities in undertaking the equivalent functions. Thus, the RIA found that all options would yield savings in current certification and authorisation costs.

The appraisal of costs and benefits is done by comparing the net present value of each policy option against the baseline scenario. It uses a conventional framework whereby future impacts are calculated over a 10-year period (2015-2025) and discounted. The quantitative results are reported in Table A1 below. The preferred policy option, maximising efficiency and effectiveness, is the third one.

In addition to the quantified impacts, the impact assessment provides a rationale for assessing a range of impacts qualitatively only. The rationale states that it would not be appropriate to estimate additional indirect impacts beyond the direct cost and time savings quantified because the quantification of direct impacts is in itself riddled with uncertainty. An extra layer of complexity built on this uncertainty is deemed too problematic. Furthermore, the causality between lower costs and indirect impacts such as greater rail activity and increased investment in rolling stock is too weak, based on available evidence, to justify the inclusion of quantitative estimates of these potential benefits in the analysis. A number of impacts are thus assessed qualitatively and rated on a scale ranging from zero impact to high impact.

Table A1. Summary of quantitative assessment of policy options to reform the ERA

Policy option	Efficiency (Total net benefit – EUR million)	Effectiveness (Number of operational objectives met)
1. Further ERA coordination	411	1
2. ERA as a 'one-stop shop'	461	2
3. ERA and national authorities share competencies	497	3
4. ERA takes over activities of national authorities regarding authorisation and certification	476	3

Source: European Commission, (2013): 27

Case study 2: Increasing competition in passenger services

The supply of passenger rail services in Great Britain involves competition for the market, by way of the competitive bidding for franchises to operate passenger services in a region or on a major route for a specified period of time (ORR, 2015). There is also a degree of competition in the market between train operators by way of overlapping franchises, parallel franchises and open access operators (OAO) competing with franchisees – although these mechanisms are limited by a regulatory framework that seeks to balance greater competition with the need to protect the stability of franchises and the funding of the network.

The Competition and Market Authority (CMA) has worked closely with the Office of Rail and Road (ORR) to assess whether the current framework in which competition is primarily achieved through a process of

competition ”for” the market is the best way to deliver value for money and service quality in the sector, or whether more significant benefits could be achieved by introducing a greater degree of competition in the market. This is part of the CMA’s statutory duty to promote competition for the benefit of consumers and its strategic role of challenging government where the government creates barriers to competition.

The CMA published a discussion paper for consultation in July 2015 setting out the benefits that greater in-market competition could deliver and the challenges that would need to be addressed. The paper builds on extensive analysis of the available evidence and stakeholder consultation. In addition to examining potential passenger benefits, the CMA also examined the potential for greater competition in the market to deliver efficiency gains. As part of this assessment, the CMA commissioned an econometric study which suggested that the efficiency advantages offered by open access operators would more than offset any cost disadvantages and that expanding the role of open access has the potential to deliver greater efficiencies including from dynamic competition and upstream competition. The availability of detailed data on operators’ costs, traffic and performance, which is regularly collected by the ORR, facilitated this preliminary assessment.

In its consultation paper, the CMA put forward four policy options to increase the degree of competition in the market. During the consultation period, the ORR commissioned an independent impact assessment which examined the legal and operational feasibility of each option. It also undertook both quantitative and qualitative assessments of the options, considering the impact on passenger outcomes (such as fares and service quality), meeting social objectives (such as investment and accessibility), wider benefits (such as facilitating economic growth), industry costs and efficiency and rail industry funding and affordability.

The appraisal of costs and benefits was done by calculating the net present value of each policy option vis-à-vis a baseline scenario (business-as-usual). Future impacts were calculated over a 20-year period, assuming implementation in 2023, and discounted. The quantitative results are reported in Table A2 below. The analysis was carried out by route for each of the three main intercity corridors in the United Kingdom as the evidence examined by the CMA suggested that greater in-market competition had the potential to deliver the most significant benefits on longer distance routes. Option 3 was only tested in the case of the Great Western Main Line as there is currently only limited overlap between franchisees on these routes. In addition, the consultants agreed not to quantify the impacts of Option 4 given the high degree of uncertainty linked to the policy proposals at this stage. The preferred policy option for all routes considered appears to be Option 1, increasing open access operations alongside existing franchises.

Table A2. Summary of quantitative analysis of policy options for greater competition

Policy option	West Coast	East Coast	Great Western
	Estimated impact (GBP million, 20-year appraisal)		
1. Increasing the role of OAOs alongside franchises	915	489	262
2. Having two competing franchise operators in each franchise area	95	236	--
3. Increasing the overlap between franchises	--	--	56
4. Licensing multiple operators, subject to conditions	--	--	--

Source: ORR (2015)

The CMA invited further comments on the four options in its discussion document in light of the impact assessment. Taking all the evidence into account, the CMA recommended in its final report published in March 2016 that Option 1 would deliver the most immediate benefits from increased competition – but that a move towards a system of multiple licensed operators replacing franchises would merit consideration at a later date. In parallel, the CMA recommended that Option 2 should be considered on areas of the network where it has potential to deliver greater benefits.

Case study 3: Railway privatisation in Japan

Ex-post impact assessment of rail privatisation has been done in Japan by the Committee on Regulatory Impact Analysis in the Field of Public Utility Rates, Cabinet Office (CAO). The reforms of the former Japan National Railway (JNR) took place in 1987 when the privatisation process started. JNR was privatised and split into six passenger railway companies and one freight railway company (the JR companies). The assessment is based on data for the year 2000 and published in 2005 following a request from the Price Stability Policy Council, located in the CAO.

The privatisation was the consequence of JNR's huge deficit, which led to its de facto bankruptcy in 1986. Urban sprawl and motorisation had changed both personal transport habits and the pattern of logistics in Japan, and continuation of these trends had led to progressively increasing financial deterioration. For instance, although JNR had over 50% share of the overall passenger and freight transport market until 1960 and 1955 respectively, its share had fallen to approximately 5% by 1985.

It was argued prior to privatisation that the monopolistic nature of the public corporation system made JNR operate inefficiently and impeded its ability to adapt to changes in the market. Moreover, regulations governing fare setting, human resource management, and investment plans did not give management room for independent decision making, and made the chain of responsibility within the company uncertain.

The assessment aimed to quantify the impacts of privatisation by comparing what happened with a baseline scenario of JR remaining in public ownership. The comparison tests two different scenarios: one under which JR would have been able to continue raising fares (but to a lower extent than JNR) over time (Case 1) to address its financial deficits, and; another scenario under which JR continues to have the same fixed fare as JNR (Case 2).

The analysis employs a welfare analysis approach, and focuses on two types of benefits: user benefits and supplier benefits (in the form of consumer and producer surplus), which together provide an estimate of total welfare changes expressed in JPY 251 billion in Case 1, and in JPY 80.6 billion in Case 2.

In the analysis, the increased user benefits due to the privatisation consist of travel time savings, travel cost savings (i.e. cheaper fares), enhanced comfort (due to reduced crowding), improvement of transfer at stations, and enhancement in accessibility (e.g. wheelchair-accessibility), while supplier benefits are calculated only as changes in operators' revenues.

The benefit calculation methodology follows the "Project Evaluation Manual of Rail Projects" issued in 2005 (renewed in 2012). The Japanese Ministry of Land, Infrastructure, Transport and Tourism has been working on the ex-post appraisal of public infrastructure projects since 1999, and ex-post appraisal became mandatory for public infrastructure projects from 2003. In line with this move, the "Project Evaluation Manual of Rail Projects" of 2005 has been developed for use in the ex-post appraisal of railway projects.

The demand forecast analysis examines four processes: trip generation, trip distribution, mode choice, and route assignment. For trip generation and distribution, the population and general traffic volume are fixed at the volume of 2000. For mode choice, the analysis divides the whole traffic into the traffic of pedestrians and other transport modes (rail, automobile, bus), and then uses a disaggregated modal choice model to calculate the resulting number of railway passengers. For route assignment, it uses a disaggregated demand model (given by the Council for Transport Policy) to calculate the number of railway passengers for respective railway lines.

The data used to forecast the railway passenger volume is sourced from the Tokyo Metropolitan Area Person Trip Survey (performed by groups from different layers of governments), the National Census, the Basic Resident Register, and the Establishment and Enterprise Census. The base year of 2000 was selected because of the rich data available for the periodic National Census year. The authors would have preferred to carry out the analysis at the national level, but data limitations on railway passenger trips led to the decision to focus on the Tokyo Metropolitan area (Tokyo, Kanagawa, Saitama, Chiba, and southern Ibaraki) only. This area was divided into zones with five layers: prefectural level, block level, municipal level (333 zones), PT Survey's basic planning zone level (651 zones), and dense rail network zone level (dividing the 651 zones into 2 482 zones).

The ex-post RIA concluded that privatisation had been the appropriate policy choice and quantified the benefits of having pursued this policy. The quantitative assessment carried out by CAO shows that precision was chosen over comprehensiveness. The analysis focused on a single year and a specific area of the country because data were more readily available. The results however provide a large enough confidence margin to say that the policy as a whole has been successful and welfare improving.

Annex B: List of participants

Participant affiliation below was provided at the time the Roundtable was held in September, 2016.

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International Transport Forum

Assessing Regulatory Changes in the Transport Sector

This report outlines good practice for regulatory impact assessment (RIA) in transport. It describes the rationale and the benefits of RIA frameworks and offers guidance for the practical implemention of RIA in the transport sector. The report also contains recommendations for governments seeking to implement RIA within their jurisdictions.

Resources from the Roundtable on Assessing Regulatory Changes in the Transport Sector are available at:
www.itf-oecd.org/assessing-regulatory-changes-roundtable

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