

The Network Rail logo, featuring the text "Network Rail" in a blue sans-serif font above a red graphic element consisting of three white diagonal lines forming a stylized 'N' or a signal shape.

Network Rail

The background of the entire page is a high-speed, blurred image of railway tracks receding into the distance. The tracks are a warm golden-brown color, and the blurring creates a sense of rapid movement and depth.

Prioritising investment to support our economy

A new approach to appraisal methodology

Foreword



Paul Plummer
Director,
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Investment in infrastructure is vital to the UK economy, and will continue to be so as the Government seeks to deliver sustainable economic growth. For example, investment in the transport network helps companies trade with other businesses, reach new markets and gives them access to the labour they need.

However, at a time when the funding available for such investment is limited, it is crucial important decisions are taken that focus on delivering the best economic return, as well as delivering that investment as affordably as possible.

This paper seeks to address the issue that, at present, investment decisions in the transport, housing and regeneration sectors are not made on the basis of the economic value they add, but on other factors. In transport, this is through an approach based on welfare economics which focuses primarily on the value of any investment to transport users - most commonly through the time saved on their journeys or other benefits.

Though this welfare economics based approach is perfectly sound, it fundamentally fails to ask how we best generate economic growth and it is not clear that this can be addressed by including wider-economic benefits in the appraisal. This paper argues that a new methodology is needed to help prioritise investment decisions and that this approach should focus on assessing the impact of investment on the economy. It does not advocate doing away with welfare based appraisal altogether, but instead that the current approach should be run in parallel to one that focuses exclusively on the real economy and that facilitates level playing field assessments across closely related strategies such as regeneration and housing.

This approach would differ from one which makes a purely commercial assessment of what should be delivered. Instead, it would make an assessment of how best to identify and target investment to maximise the impact on economic growth. It acknowledges that climate change and other environmental considerations would still need to be given appropriate priority in the decision making process.

With limited money available for investment, it is expected that there would need to be trade offs between the transport, housing and regeneration sectors in order to get the best mix to maximise the economic benefits and secure the best value for money through a genuinely integrated approach.

With the need to reduce the deficit and support economic growth of paramount importance to the Government, we believe an approach which prioritises the maximisation of economic growth could be the primary consideration in decisions on investment for the foreseeable future.

This is very much a discussion paper, and the ideas it contains would require more detailed work, but we would welcome the thoughts of those interested in this area. I would also like to thank colleagues from KPMG for their help in preparing this paper.



Neil Bentley
CBI Director,
Business Environment



In its first months in office, the new Coalition Government has rightly focused on addressing the fiscal deficit, by far the most pressing issue we face today.

In the June Budget, the Chancellor made clear that the Government's plan for the economy will rely on whether increasing private sector demand can offset the impact of public sector cuts.

In that context, it is vitally important for the nation that we ask how we can most effectively generate private sector growth. Investment in our nation's infrastructure – in whatever sector – is absolutely key for business, and the Government has recognised this.

However, when money is scarce, we need to prioritise investment projects that are most likely to support economic growth. In the current climate, we must do everything that can realistically be done to meet that goal.

The problem with the current appraisal system for transport investment projects is that there is no thorough assessment of the impact of those investments on the real economy; what it would mean for jobs, the construction supply chain or for overall economic productivity. These are not questions the current system seeks to address in a wholesale manner, despite the fact that they are crucial in determining the economic value of investment decisions.

With constrained public finances, the taxpayer needs – and deserves – a system that gets the best value for any public money that is spent, and one that helps to deliver the highest possible levels of economic return from transport investment. Businesses need a system that, in simple terms, helps them grow, create jobs and drive further growth.

Therefore, the time is now right to examine whether changes could be made to the appraisal system that help support the overriding objective of encouraging economic growth. The proposals Network Rail has set out in this paper contain a way forward that could support that objective, and the CBI believes these proposals are worthy of further detailed debate. We look forward to the discussions that will follow.

Executive summary

The urgent need to repair the UK's fiscal position and restore economic growth presents a major challenge to the rail industry, the wider transport sector and the public sector as a whole.

There are a number of dimensions to this challenge. First and foremost it is about reducing the costs to the taxpayer of the things the public sector buys. Efficiency, however, is not just about how much things cost, it is about what is bought in the first place. A complete response to the efficiency challenge, therefore, also means understanding whether the things we buy are those that generate the greatest economic value. This Network Rail paper aims to stimulate a debate about how this second dimension to efficiency is addressed.

Within rail, the value for money study being led on behalf of Department for Transport and Office of Rail Regulation by Sir Roy McNulty is assessing whether areas such as asset management, supply chain management and the industry's overall incentive structure can be improved so the railway can deliver better value for money to the taxpayer. This involves both of the dimensions of efficiency identified above, and this paper has been prepared as an input to the study as well as to the wider debate.

In the transport sector, the need to generate economic value has generally been addressed using transport appraisal methodology. This puts a value on improvements to transport, based largely on what users would be prepared pay for the benefits – typically time savings – that they enjoy as a result. The methodology in effect asks the question: 'How do we best spend the tax proceeds of economic growth to increase total economic welfare, trading what taxpayers give up for the value that users receive?'

This approach has underpinned the substantial improvements in rail services over the last 15 years. Whilst taxpayer support for rail has increased significantly, what rail delivers to its users has also markedly improved: there are more services, on newer trains, at record levels of punctuality.

These improved outputs have real value to users, and this has been reflected in increased demand: between 1995/6 and 2008/9 the number of passenger journeys grew by 67%, and there has been a 59% increase in the volume of freight that is moved by rail. This in turn has reduced congestion on the roads, giving benefits to road users as well as rail users.

However, it is clear that we now need to answer a very different question, namely: 'How do we prioritise spending in a way that best supports economic growth?' We believe that a new approach to decision making is required in order to answer this question, both in transport and more broadly.

This is not to say that the improvements in rail services of the last 15 years have not benefited the economy. Far from it. They have delivered substantial benefits through larger and more efficient labour markets, lower congestion, improved business to business connectivity for people and goods, and by enabling the most productive parts of the UK economy to grow faster than they would otherwise have done. The increased expenditure on the railway has therefore delivered economic growth as well as improved transport outputs.

Neither is it to say that the importance of transport to the economy not been recognised before. Traditional transport appraisal puts a value on time saved by business travellers. More recently, methodologies have been developed to estimate some aspects of the "wider economic benefits" of transport improvements. However, these do not capture all of the benefits to the economy; and they are in effect bolted on to an appraisal framework that is still centred on valuing welfare benefits to users.

This paper therefore proposes that strategic spending decisions in transport and closely related sectors should focus more strongly on the maximisation of what we might call "real economic returns" per £ of net cost to the taxpayer.

We suggest that the traditional welfare based approach to transport appraisal should be supported by a separate assessment of the impact on the “real economy”. These two approaches to the returns on transport spend could be run in parallel. The case studies drawn on in the main body of this paper suggest that the “real economy” approach would prioritise different kinds of transport spend, and we would anticipate that the challenges facing the Government mean that the real economic dimension would need to dominate in strategic decision making for some time. But the welfare question will remain relevant and should have a continuing role even in the near term.

The approach to addressing the “real economy” impacts needs to be comprehensive. For transport this means it needs to address the impact of transport on land use and business mix. The case studies drawn on in the main body of this paper suggest these impacts will account for the majority of the long term impacts of transport on the real economy, particularly at the regional and sub-regional level. It is recognised that this means a wider confidence level to transport appraisal impacts than has been the case in the past, but we believe this is a price worth paying in order to provide a comprehensive answer to the key “real economy” question.

This would be quite different both to a purely commercial approach (based on transport services that are commercially viable in terms of fares revenue generated), and to a Keynesian approach (relying on the “multiplier effect” of government spending).

This is not just about rail or transport. It has implications for the way we think about the economic value generated by spending in other closely related areas such as regeneration and housing. It has long been acknowledged that regeneration, housing and transport interventions should be planned together in order to get the best possible economic returns, but this has not always proved easy to do in practice. One reason has been the lack of a common framework for assessing the economic return from the different types of intervention.

However, a new approach of the type suggested in this paper can change this. Regeneration and housing deliver economic outcomes principally through land use change. Extending transport economic impact assessments into land use change, together with a focus on a common currency based on the real economy, therefore opens up the way to the optimisation of combined regeneration, housing and transport programmes designed to deliver the maximum real economic return for a given level of total spend.

A further advantage of this kind of approach is that it gives the ability to make explicit allowance in decision making for the impact of those decisions on the distribution of economic activity. This requires distributional objectives to be defined against which the value of these impacts can be assessed. Although the proposed new approach is principally about providing for better, more economically focused decision making at all levels of government, we believe that in doing so it would facilitate localisation of decision making. Indeed, much of the thinking drawn on for this paper has emerged bottom up as a result of local authorities and others seeking to understand the economic implications of public sector infrastructure spending decisions.

The Government has clearly stated that the priorities for transport investment will be to support both economic growth and the decarbonisation of the economy. We share these priorities, and we support the Government’s intention to ensure that the benefits of low carbon proposals are fully recognised in decision-making. However, for the avoidance of doubt, the focus of this discussion paper is on economic growth.

As explained in the main body of the paper, there are techniques and tools available, or in development, that can help support the steps outlined above, and a key part of delivering the proposed approach would be rapid steps to take these techniques into the mainstream. But this cannot be a lengthy process that seeks perfection. There are decisions that cannot be delayed and others that cannot wait for long. Decisions need to be based on the best available evidence that addresses the wider economic question the country faces. The approach therefore has to be pragmatic, whilst also seeking to ensure that the economic evidence base is enhanced over time.

This, however, needs to be combined with a genuinely integrated approach to efficiency. While the question of how to reduce the cost to the taxpayer of the things the public sector buys is the right place to start the efficiency debate, a genuinely integrated approach is required that addresses the economic impacts of all spending decisions if we are genuinely to deliver better economic outcomes for less spend.



Context

The Chancellor's Budget statement in June 2010 set the tone for a radical re-think of the way that public investment decisions are assessed and prioritised.

Specifically in rail, the value for money study being undertaken by Sir Roy McNulty is examining ways in which the rail industry as a whole could deliver better value for money.

Meanwhile, many of the questions this paper seeks to help address are also issues – at least in terms of transport – which will be the subject of an inquiry recently launched by the House of Commons Transport Select Committee¹.

Government departments with budgets that have not been ring-fenced face real terms cuts in the Comprehensive Spending Review of an average of 25 % in current expenditure, and potentially somewhere in the region of 30-40 % in capital expenditure. In order to deliver more for less and continue to make that investment which promotes economic growth, the UK needs to get at least 33-60 % more 'bang for our buck' from public spending. This will have a fundamental impact upon both rail and the wider transport sector. While a key part of this challenge is to make efficiencies, the Budget also identified that spending plans would need to be reviewed to ensure that the spending which continues is focused in those areas that deliver the greatest economic return.

The logical question which follows is how we can change the way we make taxpayer funded investment decisions to drive economic returns.

This should be seen in the context of a broader set of challenges that the Government has set the public sector as part of the Spending Review²:

- **Does the activity provide substantial economic value?**

If activities are to be prioritised on the basis of their economic value, we need to be clear about how we define economic value. Given today's challenges, economic value should be principally about jobs and productivity. This is, however, not the economic value question that has traditionally been asked when appraising transport investment.

- **Can the activity be targeted to those most in need?**

We should be giving greater weight to investment that both addresses worklessness and provides better accessibility to jobs in deprived areas. This is not to say that we should not meet the transport needs of areas that are already relatively productive, where this supports further economic growth. But if economic growth can be delivered in more than one area then, even leaving aside social or other objectives, it is better from a fiscal point of view that it should be delivered in more deprived areas, as this reduces the cost to government of worklessness.

- **How can the activity be provided more effectively and/or at a lower cost?**

This is partly about straightforward efficiency – doing the same activities for less money. But the question can also be phrased in terms of outcomes: how can we provide the same outcomes more effectively and/or for lower cost. This is particularly relevant where outcomes can most effectively be provided via a combination of interventions across traditional public spending boundaries. We believe this is the case for transport, regeneration and housing as we discuss further within this paper.

- **Does the Government need to fund this activity?**

Understanding who benefits from a particular scheme or activity, how these benefits manifest themselves and their potential financial value can help to leverage alternative funding sources and thereby reduce or even eliminate costs to the taxpayer. In practice part of the rationale for an economically focused approach to programme selection is that it is more likely to generate the kind of benefits that can unlock this kind of financial contribution. The funding approach to Crossrail is a prime example of an economically driven project that is part funded from the benefits it delivers to the London business community – in this case through a bespoke supplementary business rate regime.

¹ <http://www.parliament.uk/business/committees/committees-a-z/commons-select/transport-committee/news/transport-and-economy>

² Sources: The Spending Review Framework, HMT, June 2010; Chancellor's Budget speech, House of Commons, June 2010.

In the longer term, economically focused programmes that generate significant additional economic activity will, over time, start to pay for themselves through increased tax take both at a local and national level. We believe that understanding and valuing this potential should become an increasingly important part of decision making.

- **Does the activity help us to move away from a situation where growth is focused not just in one corner of the country, nor in just one sector?**

If growth is focused in one area of the country or within one sector, this places a substantial constraint on the UK's overall growth potential. The reality is that jobs are more mobile than people, which means that geographically concentrated growth risks reducing economic potential, and concentrated growth risks accelerating the point at which inflationary pressures act as a constraint on growth. An economically focused approach needs to reflect this.

In addition, as the case studies within this paper illustrate, prioritising the economy in decision making also means defining the geography within which decision makers are seeking to maximise economic benefits. There will be important differences between the net economic impact of a given scheme depending on whether the view is local, regional or national. An approach to decision making that prioritises the economy and seeks balanced growth needs to reflect this reality. Ultimately this is not just about the tools decision makers use; it also begs questions about how budgets are allocated and to which level of government.

- **Does the activity make a positive contribution towards meeting our environmental targets?**

Whilst the focus for this paper is decision making that focuses on the real economy, this approach is entirely compatible with giving due weight to environmental targets. At the simplest level this can mean working within an environmental budget as well as a financial one. This, for example, was the approach adopted by Greater Manchester in developing its economically driven transport strategy (see Greater Manchester Transport Fund case study on page 16). Under this approach economic outcomes were prioritised but subject to a minimum level of total environmental gain.

It is also possible to deploy a “shadow economic price” to reflect the benefit to the economy of delivering reduced environmental impacts. In the context of a given environmental target (e.g. an annual target for reducing carbon emissions) this shadow price will be the most economically expensive intervention necessary to meet the target. The benefit to the economy from saving carbon emissions then becomes the value of avoiding this cost.

Both approaches have the advantage that they involve working backwards from the target – they do not involve posing the question about the value of environmental outcomes which risks second guessing the target.

The remainder of this paper:

- Considers these challenges in the context of the existing framework for assessing the case for investment in rail and other transport schemes;
- Outlines a new approach designed to meet those challenges; and
- Provides some case studies that show how this kind of approach has already been used in practice.

Why we need a new approach

Government assesses investments in rail, transport, housing, regeneration projects, hospitals, waste, schools and other areas in a range of different ways. The approach in different sectors has been developed in response to the targets and particular challenges faced for that sector.

The Treasury sets the overall framework for how projects are assessed across different departments through the 'Green Book'. This sets the benchmark for project appraisal and evaluation across government.

The Green Book essentially asks: 'How should the tax proceeds of economic growth be used to buy the things people like?'

We believe that Government's desire to target funding at projects that best support economic growth requires a different question: 'How can our investments be targeted to support economic growth and thereby generate the tax proceeds of economic growth?'

The tools and practices currently used by different sectors to appraise schemes are still important. But they are not set up to answer this question, and they differ so substantially that a level playing field does not exist for prioritising investment on the basis of economic impacts across or indeed within sectors.

Inevitably our starting point for thinking about the approach to decision making is the current way in which transport schemes are assessed. This largely focuses on the welfare benefits to existing travellers (i.e. how much they would be willing to pay for the time savings and other benefits resulting from a given scheme) rather than the contribution to economic activity. Our proposition is that this traditional approach, used in isolation, does not make it easy for decision makers to identify and target investment on those projects that deliver the greatest economic return.

We then look at the approach to decision-making in the regeneration and housing sectors. Investment in these areas is closely related and needs to be planned together in order to complement each other and deliver the greatest possible economic gain. Improving a transport link may increase a city's labour market catchment – a key connectivity change that influences business behaviour and affects productivity. Similarly, increasing the supply of housing near to employment opportunities, or close to existing transport links with available capacity, also provides businesses with access to a wider pool of labour and residents with a larger pool of job opportunities, driving up specialisation and productivity.

In practice this means that different mixes of transport, regeneration and housing investment within an overall combined programme can produce the same overall result on the headline performance of a region's economy. The question therefore, with limited money available, is which mix gives the best result. This means trading between the regeneration, housing and transport sectors to make best use of existing infrastructure as well as optimising within them. Ultimately there is no substitute for genuinely integrated approaches that seek to maximise outcomes for the available budget.

In addition, we show that while the existing method of assessment of regeneration schemes provides some of what an economically driven approach requires, the approach is too narrow, and does not capture the net economic benefits of schemes other than at a very local level.

Different approaches and measures of success for different sectors

The following diagram summarises how we see these differences across transport, regeneration and housing.

Transport



Dominated by Welfare economics – ie user benefits versus costs to taxpayers

Limited focus on the real economy as a result of a fixed land use and fixed sector assumptions and high standard of proof presumption looking at transport in isolation

Regeneration



All about economic impacts through land use change and sectoral impacts but at a very localised level

Housing



Delivers economic impacts through land use change but appraisal tends to be output based

Rail and the wider transport sector

The UK's transport network allows businesses to trade. It enables businesses to access labour, to trade with other businesses and to reach retail markets. Improving transport links by enabling faster and more frequent journeys can:

- Benefit existing economic activity by saving time or cost; and
- Change the way the economy works by influencing what people do, where they do it and how productive they are.

The traditional focus of transport appraisal on welfare benefits to existing and marginal users rather than the overall impact on economic activity (although some of the benefits to existing users will feed through to economic activity). This has, to some extent, been recognised and the Department for Transport has worked to better understand the links between investment in transport and the economy.

The Department for Transport issued a discussion paper in 2005 which examined the impacts of transport on productivity and economic output. Many aspects of this have now been brought into the mainstream of how projects and programmes are assessed. In particular, the draft 'Wider Economic Benefits' (WEBs) guidance now captures:

- How bringing businesses closer together by improving journey times can provide larger effective clusters of economic activity and boost productivity; and
- How changes in the cost of commuting can make a difference to the jobs people take and indeed whether they enter the labour market.

The way these wider economic benefits are applied in transport appraisal effectively treats them as a bolt on to the traditional welfare benefits. The recent history of the transport appraisal process is one of incremental change

by widening the welfare analysis, where this could be done without widening confidence intervals, rather than starting from scratch and considering the potential economic impacts of transport schemes in the broadest sense.

The changes that have been introduced essentially focus on the benefits to existing economic activity rather than assessing how this activity is likely to change. Changes to the way businesses operate, where they locate and how many jobs they create are not captured. In addition, the impact of a transport investment on jobs, other investment, economic output or future national tax revenues is not directly addressed.

The fundamental questions of how transport affects the real economy posed by the Budget and the Comprehensive Spending Review are therefore left broadly unanswered by current techniques. Such questions include:

- How do projects or programmes help support economic growth?
- How and where does this economic growth come from, who benefits, and therefore what contribution is made to balancing growth?
- Do projects or programmes reduce worklessness and support those wanting to work?

Regeneration and housing

Regeneration investments are public funds provided to projects such as new city centre developments, or science and business parks.

The purpose of regeneration schemes is to bring about real economic change in local areas that are in need of a boost in economic prosperity. Public funds may also be committed because the development is considered strategically important to support the growth of particular business sectors or places.

Guidance on measuring the impacts of this investment is set by the Department for Communities and Local Government. Some of the building blocks of regeneration analysis under the DCLG guidance are:

- Understanding the gross number of jobs created at the new site;
- Deadweight – understanding what the private sector would have done anyway in the absence of public intervention;
- Displacement and substitution – understanding whether benefits are displacing other things happening in the target area;
- Leakage – accounting for impacts that benefit those elsewhere; and
- Crowding out – understanding whether public investment is crowding out private investment elsewhere (e.g. by pushing up wages or interest rates).

The appraisal of regeneration projects has developed to capture the impacts that a scheme can have on jobs and development in local areas. Regeneration guidance sheds light on how public investment can increase employment in areas of high unemployment. This could have important consequences for both economic growth and the fiscal impacts of the reducing the welfare burden that results from high levels of worklessness. Techniques for assessing the impact on different groups, particularly the workless, help answer the question the Government is posing about increasing employment and supporting greater economic prosperity.

Therefore, at face value, current tools and practice for the regeneration sector appear to be much better at providing evidence of the impact that regeneration schemes have on the real economy. However, there are two important ways in which this is not the case.

Regeneration is often about the redistribution of economic activity to areas that are deemed by policy to require it. The analysis is designed to be spatial and therefore related to policy considerations in a particular area. This means it is not designed to capture the net impacts of an intervention at sub-regional, regional or national level. As it does not capture the impacts of the scheme on productivity and the supply side of the economy, it is possible that crowding out, displacement, substitution and leakage effects could combine to mean that, for example, the net gain nationally is considerably lower than the gross impacts at a particular site.

In many cases economic impact assessments of regeneration initiatives are confined to impacts on outputs such as floor space, retail units delivered or affordable housing delivered, without attempts being made to assess

the impacts on outcomes such as employment or economic growth. Approaches have been developed to convert these outputs into outcomes, but these tend to rely on a standard set of parameter values. The resulting measures of local job creation may only be associated with a particular geography but can be misinterpreted as impacts on regional or net national employment.

In conclusion, the tools of regeneration analysis inherited by the government are designed to answer questions of local spatial policy. This means that, like transport (but for different reasons), they have not been designed to assess how investments can really contribute to economic growth.

“It is important to recognise that the analytical framework... does have a number of limitations, in particular in accounting for macro-economic adjustments, which may reduce (or increase) the additionality of an intervention at wider spatial scales.”³

The tools of regeneration analysis must therefore be treated carefully when being used to assess the impact of a scheme on regional or national economic growth, and are certainly not comparable with the analysis undertaken to assess transport schemes.

Housing schemes often form part of regeneration schemes and in these cases are assessed in a similar way. A key focus here is the cost efficiency of the scheme in terms of the outputs delivered rather than capturing the explicit economic benefits the delivery of those outputs brings about.

Conclusions

Consideration of the factors set out above leads us to the following conclusions:

- Existing transport appraisal is focused mainly on the benefits to users; benefits to the “real economy” are treated as a bolt on, and treated incompletely;
- Appraisal of regeneration schemes is focused much more on the economy but only at a local level. How much of the effect is simply re-distribution of existing economic activity is not generally evaluated;
- Appraisal of housing schemes is often focused on cost-efficiency of delivering outputs, rather than the ultimate effect on the economy; and
- In short, none of the existing approaches properly address the critical questions that now need to be answered.

However, we do not currently have an approach which allows consistent comparison across these closely related policy areas, or that allows either integrated or sector specific strategies to be optimised in terms of the economic returns they deliver per £ spent.

³ *Additionality Guide: A standard approach to assessing the additional impact of interventions, English Partnerships*

What a new approach would look like

An approach which successfully captures the economic returns from investment would need to:

- Address how investments affect the supply side of the economy and make the UK a more attractive location for business;
- Capture how investments can change the size, location and type of economic activity;
- Consider how an investment attracts unemployed people into the workforce; and
- Provide a level playing field for closely related sectors in the pursuit of economic objectives, so that transport, regeneration and housing can be compared against each other and combined to maximise economic returns.

In this section, we outline the framework of an approach that could deliver on the above, allowing decision makers to address how investment can affect the national, regional and local priorities of employment and economic growth. The case studies we present in the

following section demonstrate how elements of this kind of approach have already begun to be used.

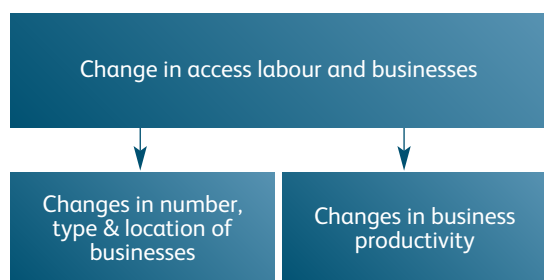
We also discuss how this approach could provide a more complete approach to the immediate efficiency question, recognising that the challenges facing the public sector are not solely about delivering more from a lower overall capital budget but also about reducing current spend in a way that does not undermine the prospects for private sector-led growth.

This framework could apply equally to scheme assessment within the rail sector, the wider transport sector, and in making comparisons between transport and sectors such as regeneration and housing. Overall economic returns can be improved both by action within sectors and across them.

This approach would not alter the need to consider the environmental impacts of schemes, nor does it consider directly the methodology for doing so. The proposed approach is, however, entirely compatible with giving due weight in decision making to environmental targets.

Outline approach to measuring economic impact of transport investment

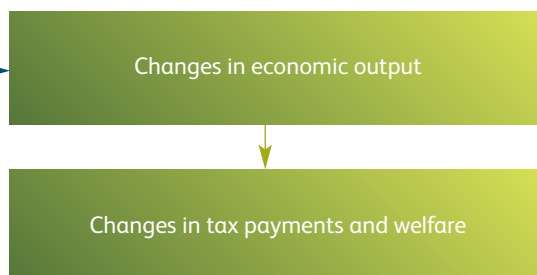
Businesses



Household



Economy & government



From the business perspective, rail and wider transport investments can grow access to labour and to other businesses, growing addressable markets and increasing efficiency. This can influence how businesses operate and where they locate, supporting clustering and specialisation of business activity and feeding through into job creation and economic growth. Using information on where businesses choose to locate and the kind of business they do, the key relationships between transport changes and economic changes can be addressed. This can then be used to capture changes in the competitiveness of different areas and the business response to this through relocation, growth and sectoral change. This kind of analysis is of increasing interest at the local and city region level, but is not part of the investment analysis carried out by central government.

Transport improvements can also reduce direct costs, for example from fuel and staff time, which lead to increased efficiency and economic output.

Similarly, from households' point of view, better access to job opportunities can improve employment search prospects, help attract people into work and reduce unemployment. This both increases economic output and eases the long term welfare burden of worklessness. The spatial pattern of unemployment is linked to the pattern of access to job opportunities. This evidence can be used to capture the impacts of an investment on the pattern of worklessness. In practice, this means a new approach would need to capture how investments expand access to employment opportunities, and the knock-on impacts for economic output and benefits payments. Precisely quantifying these impacts is difficult, but the evidence is sufficient to begin addressing the first order challenge of targeting rail and other transport investment to support economic growth and reducing the fiscal drag of worklessness. It can also help address the longer term fiscal prize of faster national economic growth which ultimately translates into a higher national tax take.

The foundations needed for the analysis of wider economic impacts in transport have been laid. For example, Department for Transport research has shown with statistical confidence that increasing 'effective economic density' by 10 % (for example by improving transport connections between businesses) tends to lead to an increase in productivity of 0.83 % in the producer services sector. Building on this work, other studies have shown significant links between rail connectivity and the location decisions made by businesses. Work on the Northern Hub suggests, for example, that a 10 % change in rail connectivity to other businesses can increase the number of jobs within an area by 14 %. This is because businesses

are attracted to better connected areas, though it should be noted that a large proportion of this effect would be through redistribution and not a net national increase. The statistical analysis this result is based on is statistically significant at the 99 % confidence level.

How investments affect catchment areas can therefore tell us a lot about how businesses' productivity and location are likely to respond to transport investments.

Other work has established links between the connectivity provided by the transport system and the intensity and sectoral mix of local economic activity. Work to assess the impacts of investment in the Northern Hub found that the density of employment in an area tends to increase by 13 % for every 10 % increase in rail connectivity to jobs or other businesses. The same study found that the effect was strongest in the business services and finance sectors and weakest in the agriculture, manufacturing and construction sectors. Similar evidence can underpin how transport can encourage changes in businesses' location, sectoral mix and the number of jobs businesses are capable of creating.

An approach based on these principles must be transparent about how changes take place in different areas. This is not just about understanding the implications of investment for local or regional economic policy. It is also critical to understanding net national impacts, such as the extent to which businesses are attracted to more productive areas or to form denser clusters of business activity in our cities. For some time it has been recognised that transport can boost national productivity by bringing businesses virtually closer together. What has been less well understood is the potential multiplier effect of bringing them physically closer together as a result of what infrastructure can do to make more productive places even more attractive to businesses.

Regeneration and housing investment contribute to net economic growth in the same way through improving the supply side of the economy – better matching employment demand with employment supply by providing job opportunities, sometimes in areas with high levels of worklessness. How schemes contribute to connectivity through the existing transport network determines a large part of their net economic impact, from attracting the unemployed into the labour market or making business locations that deliver agglomeration benefits more attractive. By allowing a comparison between different investments, this approach has no a priori bias as to whether a transport, regeneration or housing investment, or indeed a combined scheme, would provide better value for money when pursuing the objective of economic growth. This is because value for money is a function of both the scale of benefits and the costs of delivery.

So would the new approach replace traditional transport appraisal, add to it or sit alongside it?

The approach advocated here must not be seen as another bolt on to existing approaches, as has been the case with the Wider Economic Benefits (WEBs) that are currently used in some transport scheme appraisals. It is a different approach which focuses entirely on the impact of investments on the real economy. The two approaches are not additive; they are measuring different things and should be kept separate.

In addition, although the key question facing the public sector today is the economic one, the traditional welfare element of transport appraisal is an appropriate way of considering how transport can benefit individuals and, to some extent, businesses. It certainly addresses issues of well-being in that it starts from the premise that people see transport as a means to an end, not the end itself, and they therefore want to get as quickly, as comfortably and as reliably from A to B as possible. The need to focus on the economy does not change this.

In addition, the tools and techniques we have inherited have become well developed as they have been scrutinised and refined over many years. Indeed, many of the techniques and models that already exist to support the traditional welfare approach will also be fundamental in establishing the new framework proposed.

We would therefore suggest that the new 'real economy' approach advocated here works separately and alongside the traditional methods of transport appraisal.

Whilst the details would require significantly more discussion, we would envisage the contribution to the real economy would be the primary criterion for strategic decision making and prioritisation for some time. Clearly the benefit side of the equation means little without reference to costs, and preferably costs should be addressed with reference to whole life costs, which would provide consistency with the long term economic focus. Ideally, the approach would provide space to address long term fiscal returns, and the important differences between local, regional and national economic impacts.

The welfare approach would become a secondary criterion, in order to provide both a better understanding of the potential impacts of schemes on existing travellers; and an additional criterion in assessing schemes, for example where the economic trade-offs were close. There is an open question as to whether the 'wider economic benefits' currently bolted on to the traditional welfare approach would be required within this arrangement, given that they would be covered within the overall calculation of real economic impact of a given scheme.

It is also possible to see the welfare dimension to scheme decision making acting as a minimum threshold which schemes have to pass to be part of a programme. One of the great strengths of the welfare approach is that schemes that deliver benefit cost ratios of greater than 1 can be said with confidence to deliver benefits to users at least as great as the costs imposed on the taxpayer.

Using a welfare BCR as a minimum threshold within an approach that seeks to maximise economic returns would in effect act as a backstop; a minimum guarantee that, even if the economic gains being targeted by a project or programme were not fully delivered, society as a whole was, in a welfare sense, better off as a result.

The environmental criteria would flow through any method of appraisal. One way of doing this would be to set an overall environmental budget to work within – whereby the economic impact is maximised subject to minimum performance against other criteria capturing environmental impacts. This, for example, was the approach used by Greater Manchester in developing its transport fund programme where the approach was the maximisation of GVA (Gross Value Added – essentially, jobs and productivity), subject to also delivering net reductions in transport CO₂ emissions at the programme level. It would also be possible to deploy a "shadow economic price" in economically driven decision making to reflect the benefit to the real economy of delivering reduced environmental impacts.

The above process shows how the approach could work when looking at incremental capital spending decisions. The reality, of course, is that the challenge the public sector faces also means delivering savings in on-going resource spending.

Clearly, the best way to make savings is through pure efficiency that has limited impact on economic and welfare outcomes. The reality, however, is that the challenges are sufficiently large that pure efficiency alone may well be insufficient. To the extent that it is not, the above framework could work in reverse – to answer the question of how to minimise any negative economic impacts of necessary reductions in spend.

Whether considering reductions in spend or enhancements in infrastructure or services, this approach would allow for comparison across closely related sectors on the basis of a common currency (i.e. the GVA impact of the given schemes), giving us the level playing field that fully maximising the economic returns to the affordable level of total spend requires.

Outline of the single economy focused approach across sectors

Transport



Welfare benefits side of transport appraisal treated as separate criteria within transport

Regeneration



Transport economic appraisal becomes 'connectivity impacts' appraisal with land use and sector change part of the mix

Housing



A SINGLE 'ECONOMY FOCUSED' REGIME



Regeneration appraisal widened to include redistribution impacts - to allow the additionality question to be addressed

Housing addressed in terms of economic contribution - e.g. as a potentially more cost-effective way of improving labour markets



Where the new approach has worked in practice

The new kind of approach to assessing and prioritising infrastructure expenditure this paper advocates is already being applied.

This section highlights some examples and, in particular, demonstrates that it has proved possible to consider the real economic impacts of schemes in the following ways:

- Prioritising schemes on the basis of their impact on jobs, productivity and therefore economic output;
- Distinguishing between the national, regional and local benefits of strategic infrastructure;
- Considering the impact of interventions on worklessness; and
- Considering the economic impact of non-passenger transport infrastructure.

Using a new approach to prioritise schemes on the basis of their impact upon jobs, productivity and therefore economic output

Greater Manchester Transport Fund, GMPTE

In May 2009, the ten districts of Greater Manchester voted unanimously to establish the Greater Manchester Transport Fund (GMTF). The GMTF draws upon a mixture of local, national and regional funding to deliver a £1.5bn programme of transport investment over a ten year period.

Using new techniques similar to those described in this paper, the programme to be delivered reflected a local prioritisation exercise that focused principally on economic impacts. Potential transport interventions were modelled to understand their potential impact on output – measured in terms of Gross Value Added (GVA) – through changes in employment and productivity. The prioritisation approach was to

- Maximise the medium term impact on the size of Greater Manchester's GVA for the available funding, subject also to:
 - delivering a net reduction in total carbon emissions at the programme level; and

- securing at the programme level a better than average improvement in accessibility to employment for the most vulnerable 25 % of wards, measured in terms of an index of multiple deprivation.

A prioritisation metric was established by comparing the GVA impact of each potential intervention to its net cost. Costs to the GMTF were assessed on a whole life basis. A 'scheme efficiency' metric was then expressed in terms of the GVA impact per pound deployed. This was then used to rank the list of potential schemes. The resulting programme was multi-modal, including light rail, road, bus interventions, park and ride and a heavy rail stations programme.

This approach produced a very different ranking of schemes to that which would have resulted from a traditional welfare based approach. The most obvious example of this was that the scheme which ranked first under the real economy approach came only ninth under the welfare approach.

It also demonstrated that similar types of schemes could see quite different results in terms of their cost-effectiveness in delivering real economy outcomes. Of the schemes that were affordable within the context of local funding decisions, the top-ranked and bottom-ranked schemes were remarkably alike. Both were light rail schemes. Both had capital costs of approximately £85 million. However, in terms of the GVA impact per £ deployed the scheme at the top of the list performed around 15 times better than the one at the bottom.

The work undertaken in Manchester is possibly the most complete demonstration of how, by adopting a new approach to assessing the economic impact of transport schemes, a clear and coherent economic case for prioritising infrastructure expenditure can be developed. The evidence gathered to establish the economic case for each scheme was also powerful enough to convince local decision makers to allocate a very substantial element of local funding to the programme. Overall more than half of the whole life costs of the £1.5bn programme are being met locally.

Jubilee Line Extension Impact Study

The work done towards understanding the wider impact of the Jubilee Line Extension (JLE) shows that the type of thinking highlighted in this paper is not wholly new.

It was believed the JLE would have significantly wider benefits than those considered in the conventional social cost benefit assessment of the time, which included only the financial and transportation effects.

The Jubilee Line Extension Impact Study Unit (JLEISU), based in the Transport Studies Group at the University of Westminster, was set up in 1997 to help coordinate and provide an independent focus for the Impact Study.

An early paper⁴ by the study team identified a range of wider impacts of the extension that would not necessarily be picked up within conventional transport appraisal. These included:

- Economic and labour market activity;
- Land use;
- Development activity;
- Property market activity; and
- Environment and sustainability.

In particular, the paper highlighted the importance of impacts upon the London labour market, and on changes in land use that would result from the new scheme, neither of which would have been considered within existing transport appraisal techniques.

A series of surveys monitored the impacts of the scheme. These helped to shed light on some of the impacts highlighted above. However, as they focused on activity along the JLE corridor, they cannot provide evidence at a more macro level.

However, we believe the scope was much wider than any preceding transport appraisal work, and it would be worth capturing the lessons learned here when considering a new approach going forward.

This also highlights the extent to which transport, regeneration and housing schemes can complement each other. The JLE was fundamental to the successful development of the Docklands, whilst the success of the JLE in delivering economic growth has been reliant upon developments such as Canary Wharf. The dramatic land use changes that have resulted from the improved transport infrastructure have multiplied the benefits of the scheme many times over.

Using a new approach to consider the national, regional and local benefits of strategic investments

Northern Hub

The 'Northern Hub' study resulted in a proposal for a £530m investment package to improve rail travel in the north of England through quicker, more frequent and more direct rail services.

Phase 1 of the study was led by the Northern Way. Stakeholders in the north of England identified improvements to rail services that would drive and facilitate economic growth, which were then documented by the Northern Way.

Phase 2 of the study was led by Network Rail. Working with the rail industry and PTEs, value for money improvements to rail services were identified that would bridge the gap between currently committed rail improvements and those identified by the Northern Way. The appraisal methodology adopted included Wider Economic Benefits (agglomeration, labour market efficiency and addressing imperfect competition). The evidence base is referenced in chapter 4 of the Northern Hub Rail Study Report⁵.

Businesses and stakeholders from across the north have welcomed the improvements proposed by the Northern Hub, suggesting the appraisal methodology was able to successfully identify improvements that would be supported by those who will make use of them. In particular, direct services between northern cities, without having to change trains in Manchester, were strongly supported both by the methodology and by stakeholders.

The approach adopted differed to some extent from more traditional approaches to transport scheme development, in that it started from a consideration of the potential economic benefits of rail interventions. This focus informed the value engineering of services and infrastructure, rather than simply starting with a list of schemes and applying traditional appraisal methodologies to pick the best performing projects from a welfare perspective.

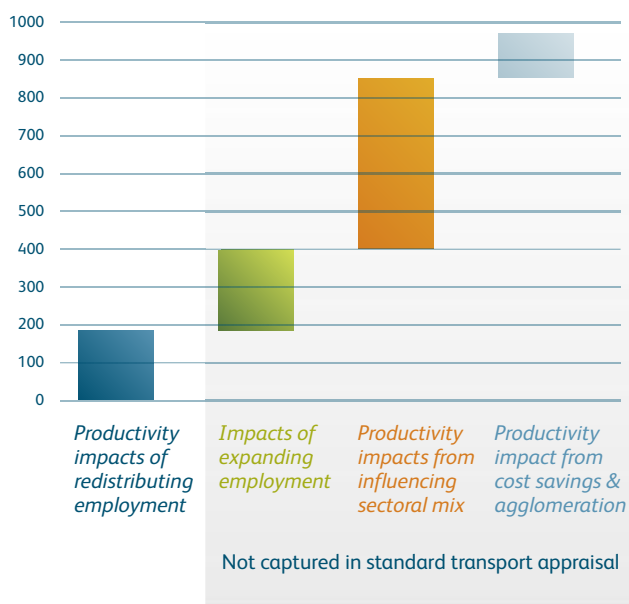
Whilst the assessment methodology did not go as far as the new approach outlined in this paper, it did utilise traditional welfare-based appraisal techniques plus Wider Economic Benefits. Even using this approach, it was clear that some train service improvements were far more significant in terms of their impact on the economy than the welfare benefits alone would suggest.

⁴Jubilee Line Extension Impact Study Unit Working Paper 15, University of Westminster, 1998
http://home.wmin.ac.uk/transport/jle/wp/WP15_Economic_Activity_and_Labour_Market_SR.pdf

⁵The Northern Hub Phase 2 Report, Network Rail, February 2010

Once this work was completed, KPMG was asked by GMPTE to investigate the potential economic impact to the Northern Way area of the proposed Northern Hub scheme, using a development of the methodology used for the Greater Manchester Transport Fund. The chart below sets out the different components of GVA that were valued.

GVA impact of the Northern Rail Hub in the Northern Way area (£millions)



Only the productivity impact from cost savings and agglomeration would have been fully captured in a standard transport appraisal which includes welfare benefits and the currently measured Wider Economic Benefits.

The remaining three impacts require the relaxation of the assumption that land use and sectoral mix are fixed. As the chart shows, relaxing this assumption can have a substantial impact on the overall economic impact of a scheme. In this example capturing these impacts increases annual GVA impacts from around £200 million to almost £1 billion, a factor of five increase.

It should be noted, however, that these impacts are to the Northern Way area only, and a significant proportion of the impacts on sectoral mix and expanding employment will be as a result of abstraction from other areas of the UK. This highlights the importance of defining economic objectives geographically.

After allowing for abstraction, it is likely that total impacts at the national level will be double those that emerge from standard Wider Economic Benefits assessments – since a proportion of the wider regional (sectoral and employment) impacts will ‘stick’ at the national level and the productivity impacts of redistribution (in this case the economic impacts of physically bringing businesses closer together) will be genuinely national.

The above example also highlights the importance of co-ordinating transport, regeneration and housing interventions. The largest wider regional impacts, and a significant proportion of the national impact, depend on sectoral and land use change. It is therefore possible that even better returns could be delivered if regeneration and housing interventions are co-ordinated with transport changes. Conversely, impacts of the above scale could be frustrated if planning or other constraints create barriers to changes in business location or land use.

Using a new approach to consider the impact of interventions on worklessness

Manchester Buses, GMPTE

As part of a joint study undertaken by consultants including KPMG for DfT and GMPTE into the opportunities for delivering enhanced efficiencies in the Greater Manchester bus network, an investigation was undertaken into the potential impact of changes to the coverage and pricing of the bus network on worklessness within the city region.

This showed that for those at the margins of the workforce who face the trade-off between work and benefits:

- Access to employment opportunities through the public transport network could represent a barrier to entering the labour market; and
- That these barriers could be lowered through targeted improvements to the network and/or fares interventions.

The work also derived statistical relationships which could be used to inform Greater Manchester's bus strategy. Importantly the work focused not only on worklessness impacts in a local area, but net impacts at the city region level. The aim was to identify strategies that would produce net reductions in worklessness, increasing both local participation rates and total employment. Clearly such net impacts will have national as well as local benefits, notably the reduction in the cost to the taxpayer of supporting worklessness.

This case study highlights how, by combining some of the more traditional transport economic techniques (which consider how individuals trade off their travel costs and time with other activities), with a consideration of how this might affect individuals' marginal decision to work, it is possible to capture the social outcomes of infrastructure schemes and service improvements in terms of reducing worklessness and additional employment generated, along with the fiscal implications.

Using a new approach to consider the economic impact of freight transport infrastructure

The hidden economic benefits of rail freight

The case studies above focus on the real economic impacts of passenger transport. In practice, real economic as well as environmental gains can also be delivered by rail freight.

It has been recognised for some time that rail freight has the potential to provide benefits to the real economy (through reduced congestion) as well as to the environment through modal shift. Indeed, these benefits have been reflected in the value for money assessments for taxpayer support for rail freight infrastructure and operations.

What has been less well understood is the direct value rail freight can deliver to the economy by lowering the costs of UK distribution for UK businesses in a position to use rail freight. As with benefits to road hauliers from new road construction, or business time savings from passenger rail services, these benefits translate directly into real economic benefits to the country as a whole. They are precisely the kind of real economic returns we believe the new approach should focus on.

These kinds of benefits have been valued in previous studies. In 2006, Network Rail commissioned KPMG to analyse the productivity benefits of intermodal services to and from the major deepsea ports. The work was conducted jointly with Freightliner and was based on a large survey of actual container movements and comparisons between the prices paid by users of intermodal services and the costs of their road alternative.

The results pointed to significant variations in the level of saving between markets (spot, retail and wholesale) and the region from or to which the containers were being moved, with the benefits being greater for regions located further away from the South East's major deepsea ports. It also showed that, in aggregate, these real economic impacts were of comparable size to the external (largely welfare) benefits traditionally used to justify taxpayer support for the intermodal sector. In aggregate, these real economic benefits to users are calculated to significantly exceed the total level of annual support provided.

This work helped support Network Rail's bid for substantial funding from the Transport Innovation Fund to upgrade key freight rail routes, including a programme of gauge clearance projects on the West Coast Main Line for freight being transported from Southampton to the West Midlands and beyond.

The work demonstrates that an alternative approach which focuses on the real economic returns can work for non-passenger transport as well as passenger transport.



Conclusions

- 1 Reducing the deficit and supporting economic growth are the highest priorities for the Government. As a result, affordability and real economic impact are likely to be key considerations for decision makers considering investment in transport (and other areas of government activity) for some time.
- 2 This means asking the question: 'How do we best generate the private sector economic growth that will generate tax proceeds?' This differs from traditional transport appraisal, which focuses upon the welfare benefits to individual users of transport services, and sets out to answer a different question: 'How do we best spend the tax proceeds of economic growth to increase total welfare?' It also differs from a purely commercial approach which would ask: 'What services are commercially viable and what does this mean for investment?'
- 3 The Wider Economics Benefits bolt-on to traditional transport appraisal only partially resolves this issue. As it does not address economic impacts directly, there is evidence that the approach understates economic impacts significantly, particularly at a local and regional level. Critically, it does not provide the kind of level playing field that would allow optimised strategies to be developed that recognise that sectors like transport, regeneration and housing work best in combination and that different mixes of these interventions will deliver different economic returns per £ spent.
- 4 There are techniques and tools available, or in development, that can help answer these questions, but they are not yet part of mainstream decision making. If decision makers are to be able to deliver optimised cross sector strategies, these approaches need to be brought into the mainstream and developed further. This would mean an approach with less certainty than we are used to, though this is a price worth paying to allow the first order economic question to be properly addressed.
- 5 Addressing the big questions is about more than appraisal tools; it is about the way they are used. Any approach needs to provide for transparent comparisons. For transport this means parallel running of a purely "real economy" approach with the traditional welfare assessments being kept separate; they are not additive and should not be mixed. Climate change and other environmental criteria would continue to be given due weight in of decision making.
- 6 A focus on economic outcomes means defining objectives in a way that recognises that economic impacts differ depending on the geography being addressed. Economic impacts are always likely to be greater at lower levels of geography, but at the same time the Government has balanced growth objectives.
- 7 Further detailed work is essential, but we believe consideration should be given to using these kinds of methodologies to assess the impact on the economy of potential investments as the primary assessment criteria, alongside the traditional welfare approach as a secondary criterion.
- 8 Furthermore, it is acknowledged that greater efficiency may be insufficient to fully address the Government's priorities to reduce the deficit. This real economy approach could help to determine the most appropriate reductions in public spending by providing an assessment as to which reductions would have the smallest negative economic impact.
- 9 Network Rail is currently working with its industry partners to develop its plans for Control Period 5 (2014-19). The intention is to prioritise schemes which enhance national or regional economic growth, and we will be looking to see whether this new approach can help the rail industry in assessing which schemes would best deliver against this objective.
- 10 For some time, it has been recognised that to get best value for money regeneration, housing and transport interventions need to be planned together. The new appraisal approach this paper proposes can also be used to assess the impact on the economy of regeneration and housing interventions, and can therefore help determine which schemes provide the best value for money.

Acknowledgments

This paper was prepared with assistance from KPMG's Infrastructure Strategy Team, and Network Rail is grateful for the agreement of Greater Manchester PTE and Freightliner Limited to draw on their data for the case studies set out in section 4.



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