

REPORT

FARAWAY SO CLOSE

THE NORTH EAST AS AN INTERNATIONAL GATEWAY

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October 2013
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Institute for Public Policy Research

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ACKNOWLEDGMENTS

The authors are extremely grateful to all those who took part in the series of roundtable meetings that informed this work as well as those interviewed. We are particularly grateful to Ross Smith of the NECC for his comments and input.

The authors would like to thank IPPR research fellow Mark Rowney for his work on the internal connectivity section.

The authors would also like to thank the NECC Healthcare Trustees for their support of this work.

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This paper was first published in October 2013. © 2013
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EXECUTIVE SUMMARY

International connectivity is vital for any region to compete successfully in the global economy. Linkages between the North East and overseas markets have been a regional strength over many decades, and at present the North East is the only English region with a positive balance of trade. Economic downturns are periods in which market competition is greater than ever, and achieving international competitiveness at this time ensures that firms are best placed to reap returns when the economy expands again (McCann 2013).

The North East is home to two international airports, six ports (including two – Teesport and Port of Tyne – that are nationally significant) 10,000 miles of road, and 14.2 million passenger journeys are made by rail in the region each year. Add to this the fact that three-quarters of the local authority areas in the North East have broadband speeds which outstrip the national average, and the region looks well-placed to maintain its global orientation.

However, to continue to contribute to national prosperity as it has done, the North East must stay ahead of the game. The apparent strength of the region's position has much to do with the deterioration of other regions' export performances in recent years, and the North East depends heavily on its exports to bolster an otherwise very challenging economic situation. With 85 per cent of all the region's exports coming from chemical products and the automotive sector, it is as vulnerable today to overdependence on particular sectors and companies as, historically, it once was on coal.

The recent North East Independent Economic Review (NEIER) made the case that the North East needed transport systems equal to those of its primary competitor areas in Europe – Upper Bavaria, Lombardy, Catalonia and Rhône-Alpes – but to achieve this it needed investment not only to enhance its strategic connectivity, but also to make it an international destination for trade, and in which to live and work.

Based on a literature review, data analysis and a series of interviews and roundtables with businesses and other stakeholders in the North East, this report examines the region's current strengths and weaknesses as an 'international gateway' to the world, and the potential it has to drive northern and national growth by enhancing business connectivity with the global marketplace.

Our research considers each of five modes, or international gateways: air, sea, road, rail and digital. In each case we explore their strengths and weaknesses in the region, and the pressures and priorities that affect them. We consider both the nature of demand and the capacity to supply, and also look at wider competition and complementarity both within and between the different modes.

The importance of interconnectivity

While our research has highlighted specific issues relating to each gateway, perhaps the clearest theme that has emerged is the importance of the linkages between the different modes. At a simple level, the airports and ports depend upon good road and rail links to allow passengers and goods easy access to these important international gateways; passengers nearly always consider journeys – not least overseas journeys – from door-to-door, using several modes of transport. Yet in terms of strategy and planning, it appears that investment decisions rarely take full account of these relationships.

With a raft of different transport planning bodies and strategies, which largely operate at a national level and according to distinct transport modes, the opportunities for a more coordinated approach to enhancing international connectivity are largely overlooked. This has tended to result in failure to develop passenger-focused, integrated transport systems,

and a tendency to cherry-pick specific schemes for development. Indeed, some schemes never get off the starting blocks because their potential wider economic impact is not properly recognised.

In recent years there has been growing interest in more multi-modal approaches to transport appraisal. Multi-modal appraisal involves developing econometric models of the relationships between access and connectivity, and of the characteristics of the local area and its business functions. Such approaches, while they have been attempted in the North East by Arup and Scott Wilson (2002) without having translated into any long-term strategic planning, are essential for the successful development of the North East's major international gateways.

There is also a strong case for the decentralisation of many transport decisions in order to ensure that such linkages are made. This case was made most powerfully through the recent NEIER, which argued that the transport functions of the seven local authorities that make up the North Eastern Local Enterprise Partnership (NELEP) area, Nexus and the Integrated Transport Authority should be taken over by a single strategic body, and that further transport powers, including the commissioning of local rail services, should be devolved from central government.

There is also concern that strategic planning both within the region and more widely will be inhibited by the existence of two separate LEP areas which each have separate transport functions. Though the challenges that this presents are not insurmountable provided that good communication and collaboration are maintained, and although there is no obvious case for a single transport body covering both LEP areas, transport is one sector in which, given the potential mutual benefits of scale and interconnectivity, a single regional strategy would make considerable sense.

For all of these reasons, our principal recommendation concerns the development of a coordinated strategy to enhance international connectivity.

Recommendation

In accordance with the proposals of the NEIER, a combined authority should establish a single transport delivery agency for the North East LEP area – 'Transport North East' – with a view to producing a transport strategy for the region and a prioritised investment programme. However, alongside the remit set out by the NEIER, it is proposed that Transport North East:

- recognises the improvement of the region's international connectivity as a primary objective of its transport plans
- adopts a multi-modal approach to all planning and appraisal processes
- makes a strong case for the decentralisation of wide-ranging transport powers, and works closely with the Department for Transport and national transport bodies to integrate national policies with its own, and
- prioritises collaboration with the Tees Valley authorities from the outset, with a view to exploring a formalised relationship where this is seen to be of mutual benefit.

It is recommended that, ahead of developing any relationship with Transport North East, the Tees Valley authorities continue to develop their strategic transport ambitions and implementation plans with greater focus on international connectivity and multi-modal appraisal.

Air connectivity

Although air traffic has been hit by the recession, over the longer term its rise is projected to continue. However, the dynamics and pressures of the airline industry mean that smaller airports face an increasingly uncertain future. While Newcastle International Airport is looking to develop a new route to North America, Durham Tees Valley Airport has been forced to diversify the use of its site while struggling to remain viable as an operating airport.

The air connectivity that the North East's two airports offer to businesses is extremely valuable, particularly for the big companies that operate out of the region and benefit from the onward connections provided by hub airports such as Heathrow, Amsterdam Schiphol, Dubai and Paris Charles de Gaulle. The airports in themselves are also a source of regional wealth: Newcastle airport contributes £403 million in GVA and 9,550 jobs to the region (York Aviation 2012), and Durham Tees Valley adds £37 million and 600 jobs (Regeneris Consulting 2012).

The major concern for the region's airports, and by extension for the businesses that rely on their connectivity, surrounds routes into major international hubs. Newcastle International Airport's connection to Heathrow is crucial, but there is a worrying trend toward closing connections to regional airports in favour of more profitable routes. While it does have connections into other European hubs, the loss of this route would be a significant blow to the region. To this end, there is particular concern about the work of the Davies commission, which has been charged with addressing issues of national airport capacity. Any national aviation policy should consider not only the South East's capacity issues, but also the wider implications for regional airports.

In terms of multi-modality, Newcastle International Airport has some issues that need to be resolved, such as onward linkages to the Metro and the capacity of the roads which connect the airport to the wider region.

Recommendations

- 1.** Newcastle International Airport should be recognised by public and private partners alike as a critical asset for the economic development of the region. It should be given both direct and indirect support for its initiatives to drive the regional economy, not least the region's small businesses. Particular focus should be given to maintaining current connections with Heathrow, and to establishing a new direct flight to North America.
- 2.** In the economic circumstances, Durham Tees Valley Airport faces a challenge in maintaining its long-term viability, which needs to be demonstrated in order to justify public subsidy and investment. To ensure that Tees Valley retains the best possible links to a range of international destinations, the area will also require high-quality internal infrastructure connecting it to Newcastle International Airport.

3. Both the Department for Transport and the Davies commission should consider the impacts of aviation policy decisions on all UK airports, rather than those in the South East alone, and develop a truly national aviation policy that identifies opportunities to make better use of northern airports.

Sea connectivity

The North East's six ports are a major asset to the region: they are the foundation of its strength in international trade, and the focal point of many industrial centres. The Port of Tyne and Teesport are key features of the UK's national transport infrastructure, and the focus of some of the region's most important industrial sectors – not least chemical processes and the automotive sector. The ports are also integral to the national energy supply, both as the arrival point of imported biomass fuel and coal, and because of the close relationships between these ports and the burgeoning offshore wind sector.

There are many opportunities for the North East's ports to build on their position with respect to Europe, to other key ports, and their existing commercial links to the world, as well as opportunities in relation to freight, tourism and leisure. There is a particular wealth of opportunities in relation to freight, not least in terms of easing the congestion faced by ports in the South East: it is estimated that at present over half of the freight that arrives in south eastern ports is then transported north of Birmingham (MDS Transmodal 2006).

Further port development, and confidence in the ports and related sectors, is inhibited by two major issues. The first and greatest of these is uncertainty regarding government policy, particularly in relation to energy policy and the government's commitment to renewables. There are also concerns around national planning policy, which fails to fully account for the economic significance of ports, and ongoing uncertainty about the UK's relationship with the EU. Each of these factors undermine the case for investment and weaken the attractiveness of the North East in comparison with Scottish and continental European competitors.

The second and related issue concerns the internal infrastructure which would support the ports and related industries, and the opportunities for developing wider logistics and internal transportation associated with the ports. At present, the lack of a properly coordinated, multi-modal approach to transport planning has inhibited the development of major schemes, not least the badly-needed strategic upgrades to the rail freight network which could ease pressure on passenger services and bring significant benefits to the region.

Furthermore, while the ports necessarily operate in a competitive market, there is a growing body of international evidence about the importance of the complementarity of closely located ports, and the combined offer that regional ports can provide.

Recommendations

1. In order to maximise opportunities for the North East, there is a need for a more robust and coherent national ports policy that addresses three key challenges:
 - Reducing the large volumes of freight being carried overland from southern ports to northern destinations.

- Ensuring that investment in renewables in and around ports is not hindered by a lack of policy certainty.
- Taking a more strategic approach to investment in rail infrastructure to support sustainable growth in the region's importation of biomass.

2. The energy bill should set 20 years as the minimum 'grandfathering time' for key incentive schemes, and mainstream political parties should then guarantee cross-party consensus concerning energy policy in order to ensure that energy incentive and regulatory timescales remain unaltered for the foreseeable future.

3. In line with the recent findings of the Armit review of infrastructure, planning for major infrastructure schemes should be reformed so that vital schemes relating to transport and energy do not suffer from unnecessary delays.

4. Given the UK's reliance on its ports, it is vital that EU regulations which impact disproportionately or inequitably upon them are challenged to ensure that UK ports are not placed at a disadvantage.

5. Given the weight of international evidence and the significant opportunities that lie beyond basic competition between ports, it is recommended that North East ports initiate a process of working more collaboratively to achieve a shared strategic vision, and identify a number of key priorities, including a joined-up communications strategy, that will be to their mutual benefit.

Digital connectivity

Digital infrastructure is increasingly crucial to international connectivity and economic success, and its benefits extend far beyond the information and communication sector itself. It improves the productivity of businesses across all industries, levels the playing field and removes obstacles to the success of small businesses and start-ups, as well as allowing large international companies to operate and communicate across the globe. Yet despite most local authority areas having higher-than-average broadband sync speeds, the North East is – against most measures of digital connectivity – the worst-performing region in the country.

This is partly due to the region's rural geography. Businesses in the North East have complained about the slow roll-out of the superfast broadband (SFBB) network in rural areas, just as others have elsewhere in the country. However, there are also significant 'white areas' in key business parks and city-centre locations, often caused by poor planning and undemanding property developers and commercial landlords.

But supply-side problems are relatively small in comparison with the region's weak demand. The major problem in the North East is that businesses are failing to fully utilise the technology that's available. This is particularly true of smaller businesses, and can be put down to a combination of factors including the relatively 'analogue' nature of the region's historical industrial sectors, lack of exposure to technological opportunities, and the small amount of time that businesses invest in evaluating and improving their operations.

Wi-Fi in public places – particularly on public transport and at transport hubs – is increasingly considered to be a key element of international attractiveness and connectivity.

Yet the North East is again found lacking in this regard: while other cities in the UK and abroad find a way around technological and other obstacles, some authorities in the North East appear less willing to push ahead.

Recommendations

1. The North East Chamber of Commerce, in conjunction with the region's universities, should develop a programme for ICT-graduate retention, including facilitating internships and work experience programmes, with the aims of both modernising many traditional businesses' approach to digital connectivity, and providing businesses in the digital sector with the highly-skilled graduates they require.
2. New property developments risk creating new areas of market failure, in which there is little incentive for suppliers or property developers to extend SFBB coverage and businesses are left without it. Local authorities should explore how this can be resolved, using the planning system where appropriate.
3. Local authorities should identify business parks and business properties which lack connectivity, mediating solutions between suppliers and landlords, and ensuring that the needs of small business aren't ignored. They should also clearly communicate their plans to business.
4. Newcastle city council should work with the other Core Cities to push for a solution to state aid obstacles (see page 43) with regards to the roll-out of SFBB in high-density urban areas. and rural local authorities in the region should likewise form an association with areas elsewhere in order to press for the maximum public benefit from the roll-out of SFBB from suppliers.
5. NECC and other business organisations in the region should prioritise schemes to encourage the uptake and full utilisation of digital technology, particularly among smaller businesses, targetting the particular sectors that need it most. This should include the development of special offers in partnership with particular suppliers, which can be promoted as a benefit of membership.
6. Local authorities should move quickly to realise the benefits of free public Wi-Fi, and bring forward plans for its implementation. Transport North East should identify hotspots across the region where free public Wi-Fi would bring the greatest economic benefits – such as in public spaces, transport hubs, and on transport itself – and work with the relevant local authorities to support their development.

Internal connectivity

As set out in the opening section, the success of the North East's internationally-facing infrastructure is dependent on the support of the internal transport network – the roads and railways that transport business people and freight to and from the airports and ports.

The North East's road network is dominated by the A1 and the A19, and ports and airports depend upon these routes both for passenger and freight movements. Consequently, both routes are heavily congested, and have particular pinch-points. The government has recently given the go-ahead for improvements to the A1 western bypass and junctions on the A19, which will bring particular benefits to the Port of Tyne, but there is also a pressing

need to dual the A1 north of Newcastle in order to enhance connectivity with Scotland. However, in the long term, increasing road capacity needs to be balanced by measures to encourage 'modal shift' from cars to rail and bus.

The rail network in the North East caters for an increasing number of journeys – yet besides praise for the east coast mainline, train connections were felt by those participating in our research to be particularly poor. The connections between Middlesbrough and the rest of the region, and the trans-Pennine connection to Manchester, were specifically singled-out for criticism. With respect to light rail, usage of the Metro has declined since 2008/09, but by-and-large most were content with the service it provided. The NEIER set out the need for a regional rail strategy that includes maximising the potential of rail freight to and from the region's ports as one of its core objectives. This is to be commended, provided that such a strategy recognises the benefits of multi-modal appraisal in establishing a business case for scheme developments.

There were 199 million bus passenger journeys in the North East in 2011/12, making it the most popular mode of public transport in the region. Although buses tend not to be a preferred mode of transport for connections to international gateways, there would be clear benefits to developing a single smart-ticketing system for the bus network, and then for other forms of public transport.

Recommendations

- 1.** Transport North East should press the case that all international and inter-regional connections – whether high-speed rail or flights to North America – must have the internal connectivity required to maximise economic benefits to the region and to the country as a whole. With the North East region so reliant on international connectivity, it must be ensured that developments have the greatest possible impact by investing in the internal infrastructure necessary to properly support new developments.
- 2.** In its assessment of the infrastructure improvements needed, Transport North East should prioritise improving those sections of the A1 and A19 that do most to support the international gateways and internationally-facing businesses in the region. It should also develop a strong case for the dualling of the A1 north of Newcastle to improve connectivity with Scotland. Yet it should also recognise that, ultimately, achieving modal shift is a more sustainable approach to addressing the transport needs of the region, and factor this into its longer-term strategic planning.
- 3.** As part of a regional rail strategy, Network Rail and Transport North East should prioritise the electrification of the line between Middlesbrough and both Northallerton and Darlington, and develop plans to maximise the potential for the use of rail freight to and from the region's ports.
- 4.** In accordance with the NEIER's recommendation, Transport North East should, in consultation with stakeholders, make plans for the roll-out of smart-ticketing across the region to facilitate competition on pricing and improve the uptake of public transport among businesspeople.

INTRODUCTION

The Northern Economic Futures Commission concluded that international connectivity is key to the future prospects of the northern economy (IPPR North and NEFC 2012). This is a particular strength of the North East, where export performance outstrips any other region in England. Inward investments by companies such as Nissan and Sahaviriya Steel Industries are often held up as examples of how the global economy can benefit the North East's business prospects. However, competition for international markets is fierce, and the continued and developing success of the North East's exports depends on the region enhancing its connectivity with the rest of the world.

Based on a literature review, data analysis and a series of interviews and roundtables with businesses and other stakeholders in the North East, this report examines the current strengths and weaknesses of the north east of England as an international gateway to the world, and the potential the region has to drive northern and national growth by enhancing business connectivity with the global marketplace.

The research covers five modes, or 'international gateways': air, sea, road, rail and digital. Understanding how these modes overlap and interact is key to unlocking their capacity to drive growth. For each of these five gateways, this analysis of connectivity examines both the nature of demand and the capacity to supply – including the opportunities and constraints acting on both. It also looks at wider competition and complementarity both within and between transport modes, with a particular focus on the multi-modal approach. A series of recommendations are identified not only for each of the five international gateways, but for connectivity as a whole in the region.

Chapter 1 discusses the economic context in which the North East's transport infrastructure operates.

Chapter 2 covers air connectivity, focusing on the region's two airports – Newcastle International and Durham Tees Valley.

Chapter 3 analyses the sea connectivity in the region, via its six ports.

Chapter 4 looks to digital connectivity, a crucial component of the North East's future success, which not only interacts with the other modes of delivery and transport but can be used simultaneously with them.

Chapter 5 looks into the internal connectivity – both road and rail – that supports these international gateways.

Chapter 6 draws conclusions and makes recommendations across the five gateways.

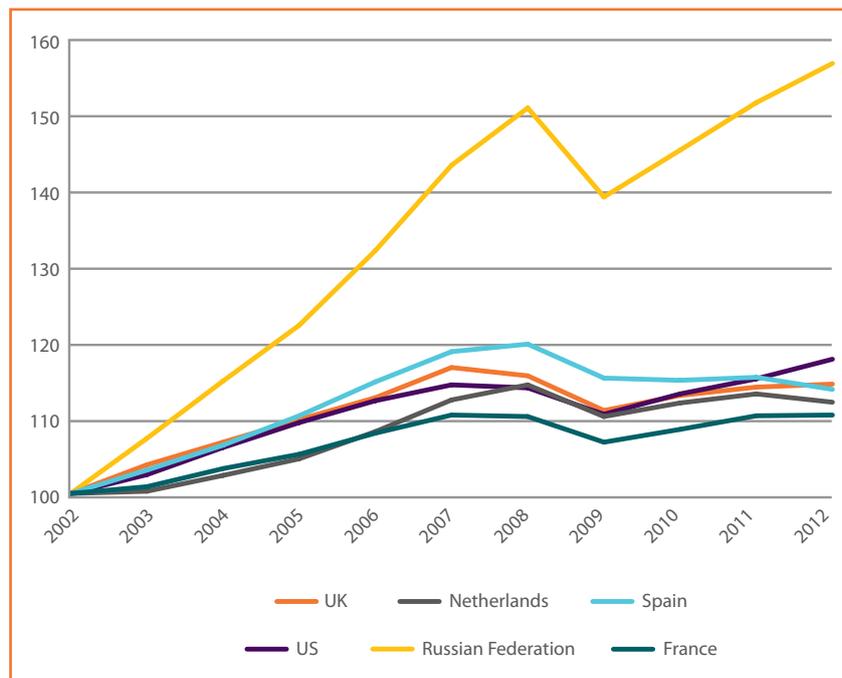
Throughout this report, when we refer to the 'region' we mean the whole of the North East, comprising the two LEP areas; where we are referring to one or other of the LEP areas, we specify which one. We make a number of recommendations which refer to the the proposed Transport North East body. Although the proposals for this body currently only relate to the North Eastern LEP area, we believe that it should ultimately extend its remit to the whole North East region. For this reason, those of our recommendations which refer to Transport North East should be treated as covering the whole region.

1. THE ECONOMIC CONTEXT

1.1 Global crash and national recession

The consequences of the 2007–2008 financial crash are still being felt six years on, with the 2008–2009 recession leaving many economies struggling to maintain significant economic growth. Figure 1.1 below shows real GDP growth in both the UK and in the key export partners of the North East region.¹ While Russia is performing strongly, with projected growth of 3.6 per cent in 2013, and the US has managed consistency (and 1.9 per cent growth in 2013), analysis by the OECD (2013a) projects that all other economies to which the North East exports heavily will continue to struggle with maintaining growth: in 2013, the economies of France, the Netherlands and Spain are predicted to shrink.

Figure 1.1
Real GDP growth (%
with 2002 = 100) in the
UK and in the North
East's key trading partner
countries, 2002–2012



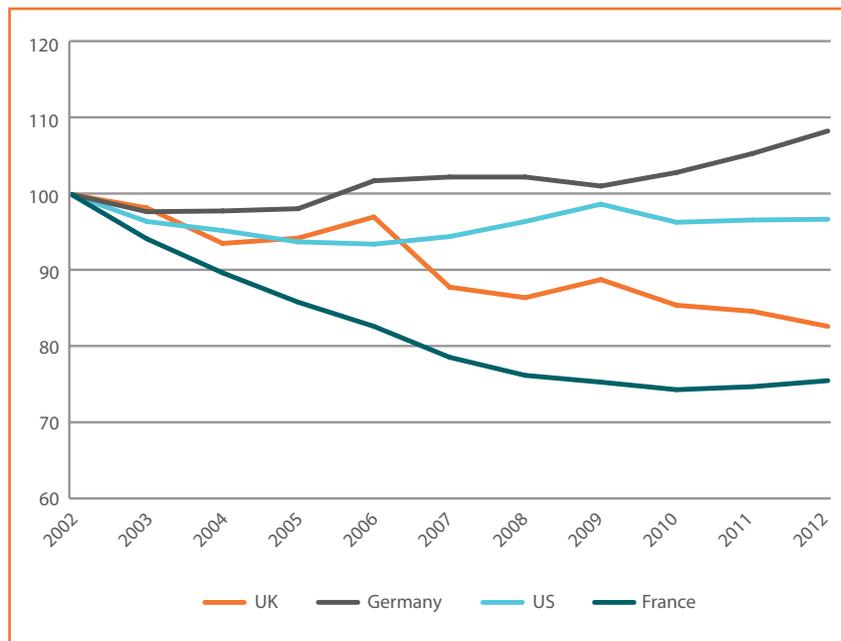
Source: OECD 2013

Looking at export performance,² figure 1.2 shows how the UK's position has deteriorated in almost every year since 2002 – a better performance than France, but worse than those of both the US and Germany. In 2013 the UK's export performance is projected to fall by 1.9 per cent, with only France (2.0 per cent) experiencing a greater fall, although the performance of all four countries' is expected to worsen (OECD 2013a).

1 As defined by ONS Regional Trade Statistics 2012.

2 Export performance is measured as actual growth in exports relative to the growth of the country's export market.

Figure 1.2
Export performance for total goods and services of selected countries (% with 2002 = 100), 2002–2012

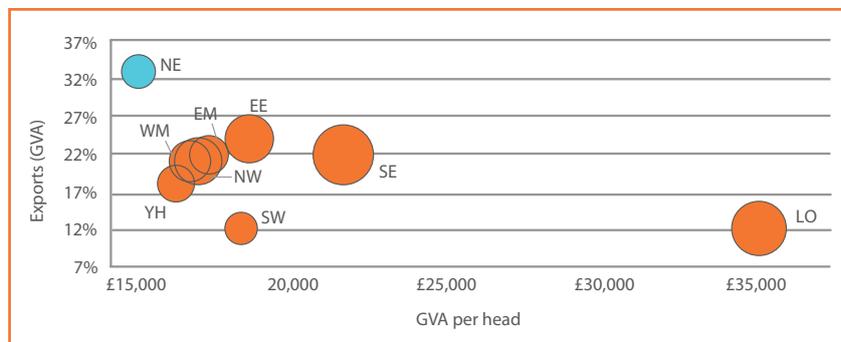


Source: OECD 2013

1.2 The North East – an outward-facing region

The relevance of this context for the North East couldn't be clearer, as figure 1.3 below shows. While it doesn't make the largest contribution to UK exports in terms of value relative to other regions, more than any other it depends on exports for growth, equivalent to a third (33.0 per cent) of GVA (ONS 2013). As the region with the lowest productivity (£15,800 GVA per head), the role of exports in the North East's economy is crucial.

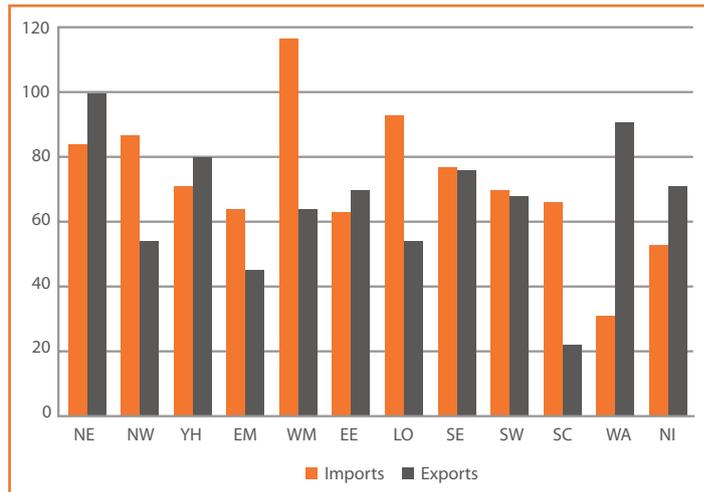
Figure 1.3
Comparative regional exports, by exports as a percentage of GVA and GVA per head (with circle size equal to the total value of exports) of English regions, 2011



Source: ONS 2013

The North East region has also seen significant growth in the value of its exports since 2012, with a rate of growth higher than that of any other region, as is illustrated in figure 1.4 below. The nominal value of the North East's exports grew by 99.7 per cent between 2002 and 2012; and import growth, at 83.5 per cent, was also high, albeit surpassed by the West Midlands (117.2 per cent), London (92.9 per cent) and the North West (86.7 per cent).

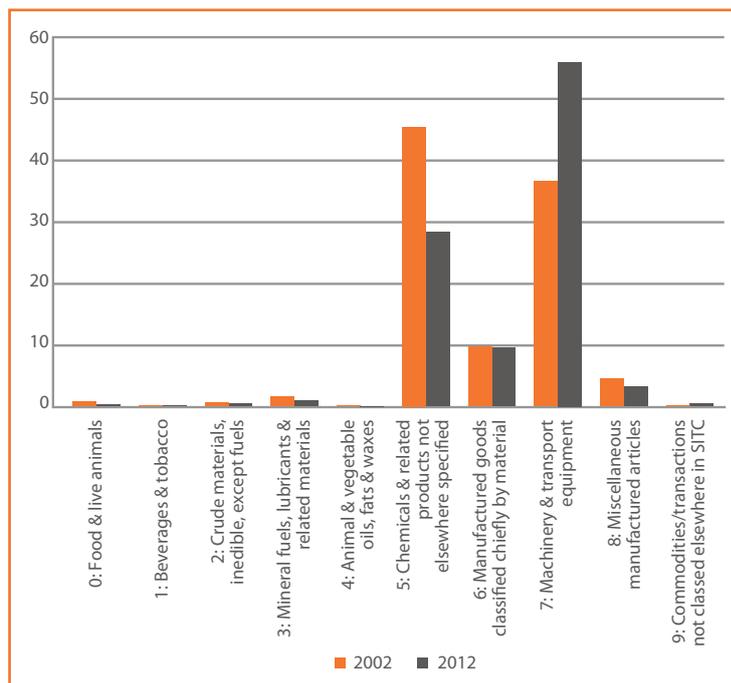
Figure 1.4
Nominal change in value of exports and imports (%) to UK regions, 2002–2012



Source: HMRC 2013

The automotive industry is vitally important to the North East's economy, and it dominates in terms of the region's exports, as figure 1.5 below clearly shows. By value, machinery and transport equipment made up more than half (56.4 per cent) of all exports from the region in 2012, and the export of road vehicles specifically made up 38.7 per cent – a proportion which has more than doubled from the 16.6 per cent share it represented in 2002. Similarly, the automotive industry is also prominent in the region's imports, accounting for up 49.9 per cent of import value in 2012. Road vehicles represented a quarter (24.8 per cent) of all import value in 2012 – again, a proportion which has risen dramatically since 2002, when it was only 10.5 per cent.

Figure 1.5
Composition of the North East's exports by Standard International Trade Classification (SITC) code

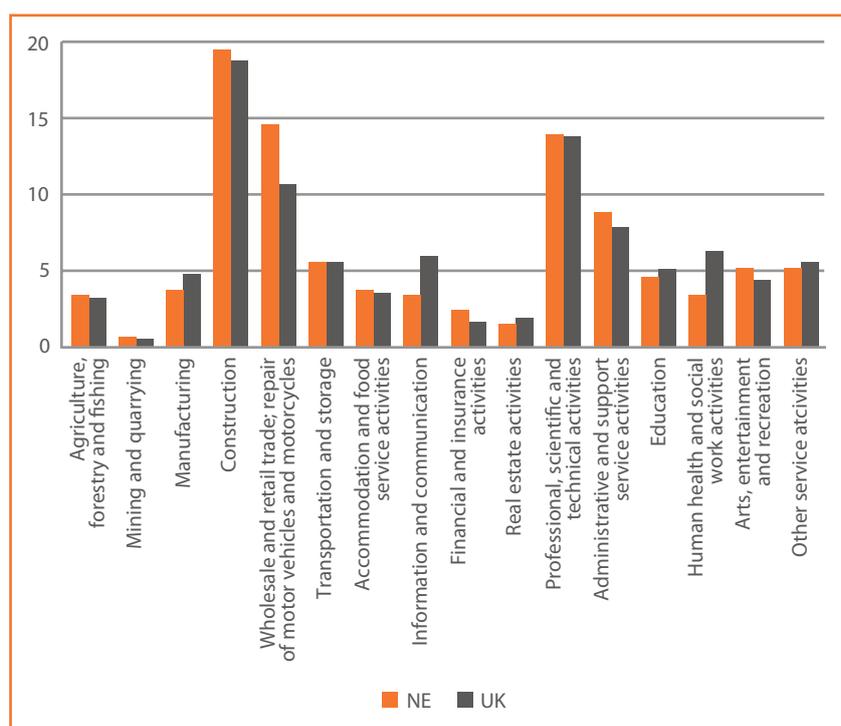


Source: HMRC 2013

1.3 The North East's business base

Businesses of different sizes and sectors will clearly use the North East's infrastructure in different ways: larger businesses in sectors such as financial services and insurance are heavy users of air and sea connectivity, while small businesses stand to gain the most from digital connectivity (though as yet they fail to fully capitalise on its opportunities). The private sector in the North East is dominated by businesses in the construction industry (19.6 per cent), the wholesale and retail trade (14.7 per cent), and professional, scientific and technical activities (14.0 per cent). Compared to the UK as a whole, the North East region has a particularly high proportion of wholesale and retail trade businesses, but a notably lower proportion of businesses in the fields of information and communication, and human health and social work.

Figure 1.6
Number of businesses
in the private sector
(% of total) by sector,
start of 2012

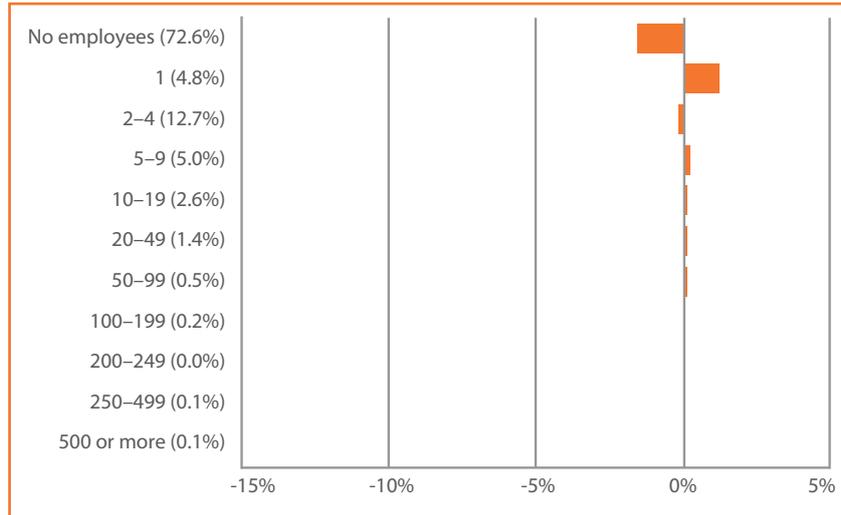


Source: ONS 2012a

The North East is home to 133,455 businesses in total, and, as figures 1.7A and 1.7B show, compared to the UK the region has a smaller proportion with no employees³ (72.6 per cent compared to 74.2 per cent nationally) and a larger proportion with only one employee (4.8 per cent compared to 1.7 per cent). However, a higher proportion of the region's turnover is generated by these smaller businesses than in the UK as a whole, with a far smaller proportion of turnover attributable to companies with 500 or more staff: while in both the North East and the UK only 0.1 per cent of businesses are of this size, in the North East they contribute 34.2 per cent of turnover, whereas in the UK this proportion is 44.4 per cent.

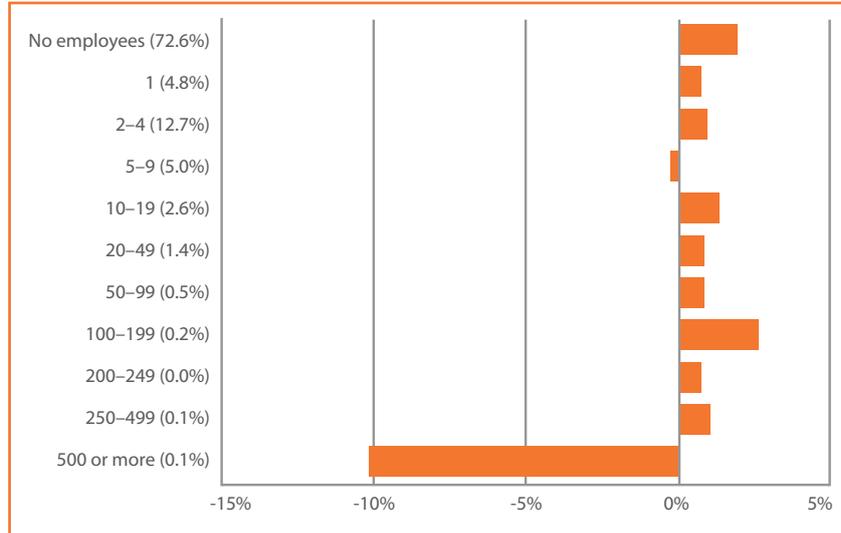
³ That is, sole proprietorships and partnerships which comprise only the self-employed owner-manager(s), and companies that comprise only an employee-director.

Figure 1.7A
Percentage of businesses in the North East by size-band, compared to the UK (UK = 0), start of 2012



Source: ONS 2012a

Figure 1.7B
Percentage of turnover in the North East by size-band, compared to the UK (UK = 0), start of 2012



Source: ONS 2012a

1.4 The North East – an international gateway

The North East is clearly an outward-facing region, and its fortunes are tied to those of other countries and overseas companies. The transport infrastructure of the North East is therefore essential to keeping the region's economy moving. In the North East there are:

- two international airports – Newcastle International and Durham Tees Valley
- six ports – of which Teesport and Port of Tyne are nationally significant
- 10,000 miles of road (DfT 2012a), and
- 14.2 million passenger journeys made by rail per year (ORR 2013).

2. AIR CONNECTIVITY

An international airport is a key gateway and crucial economic asset to any region, connecting businesses and clients in an increasingly globalised and competitive world. Supported by road and rail networks, they have the capacity to be catalysts for regional economic growth.

In the report *Northern Prosperity is National Prosperity*, (IPPR North and NEFC 2012), the Northern Economic Futures Commission argued that capitalising on air transport links is essential for northern prosperity, and recommended that:

- a national aviation policy framework is developed to identify and exploit the opportunities that northern airports represent
- air passenger duty is lowered to its lowest possible rate in northern airports, and
- Manchester Airport is developed as the UK's second international airport.

As a region that depends heavily upon its interaction with the rest of the world, understanding and developing the North East's air connectivity will play a vital role in driving wider northern and national growth. This section of the report draws on research, data analysis and consultations with key stakeholders to outline the role of the region's two airports – Newcastle International (NCL) and Durham Tees Valley (DTV) – could play in driving that growth.

2.1 Airports and economic prosperity

2.1.1 Aviation and national prosperity

In the twenty-first century, air connectivity is a cornerstone of economic prosperity. Globalisation has both driven and been driven by incredible progress in aviation. In the UK, 90 per cent of the population now lives within two hours of an airport (Airports Commission 2013).

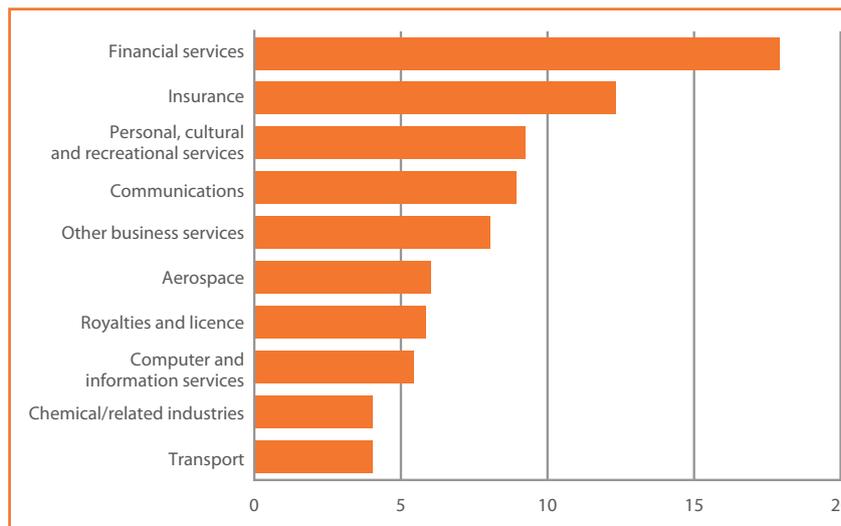
A wealth of research has found that airports are key economic assets to any region, and act as catalysts in creating the conditions for local growth and employment both directly and indirectly through their supply chain (Airports Commission 2013). While it is clear that regional economies benefit from the specialisation, clustering, global supply chains, productivity and innovation that airports bring, establishing the extent to which each of these is decisive has so far not been possible for researchers (Blonigen and Cristeaz 2012, Airports Commission 2013). The Airports Commission (2013) has argued that airports contribute to economic growth in five key ways:

1. Trade in services – where face-to-face contact is key
2. Trade in goods – particularly high-value, low-weight goods
3. Tourism – both for UK residents and for tourists to the UK
4. Business investment and innovation – where connectivity is key to attracting investment
5. Productivity – through job matching and, perhaps, agglomeration effects

The trade in goods conducted through aviation tends to be light and of high value, and comprised around a third of non-EU trade and a fifth of all trade in 2011 by value. However, as almost all trade in goods is in 'belly-hold' (carried on board passenger aircraft), freight connectivity is determined largely by passenger connectivity – freight-only flights account for less than a third of all flights (Airports Commission 2013).

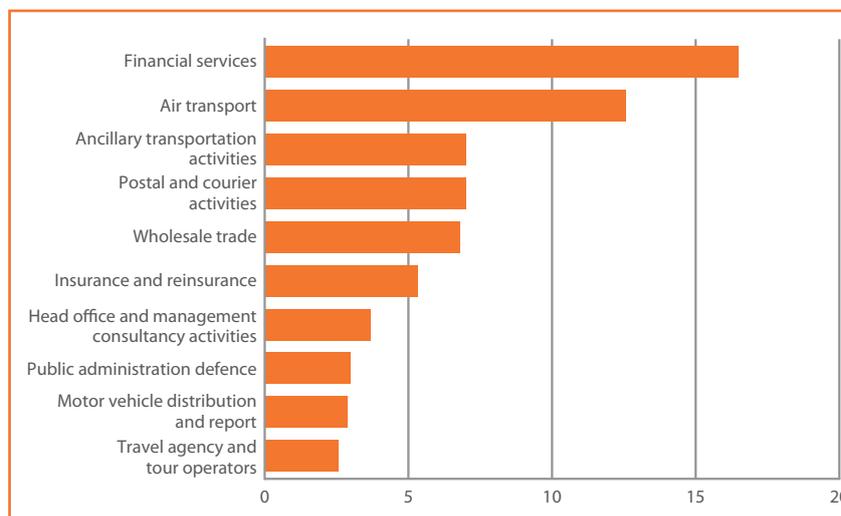
In terms of which sectors tend to benefit from regional airport capacity, research has found that increased airport capacity is associated with significant local growth in the wholesale and retail industries (Blonigen and Cristeaz 2007). However, the sectors which tend to use it most intensely are financial services, insurance and transport, and other analysis has shown how service sectors are particularly reliant on aviation. Figures 2.1A and 2.1B below give an indication of which sectors are most reliant on aviation by analysing the UK share of world exports alongside the expenditure on aviation per employee – the standout sectors are financial services, insurance and transport. Furthermore, aviation makes up a large proportion of transport spending in particular sectors: more than 70 per cent of the financial and insurance sector’s expenditure on transport is on aviation; the figure is 40 per cent in the insurance sector, and almost two-thirds in creative industries (Airports Commission 2013).

Figure 2.1A
Air intensity (%) by sector: UK share of world exports



Source: BIS 2012a, and ONS 2010, via Airports Commission 2013

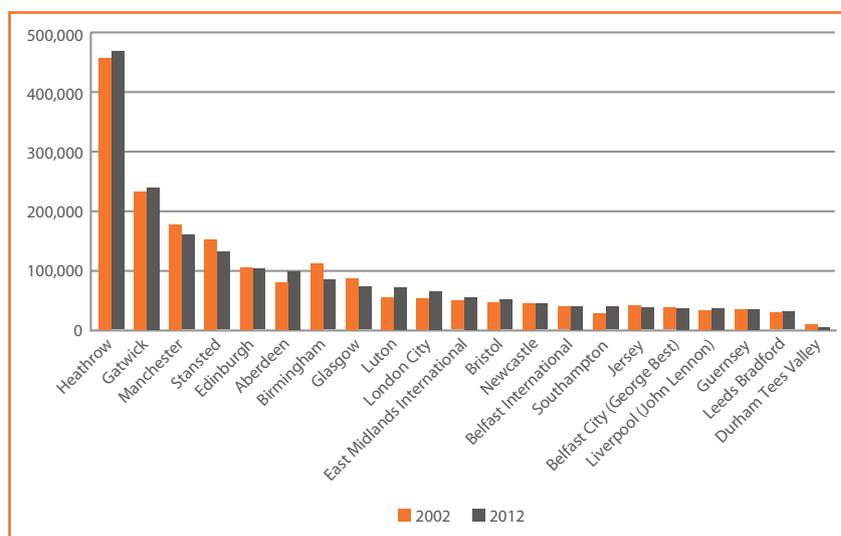
Figure 2.1B
Share of UK aviation expenditure (%) by sector



Source: BIS 2012a, and ONS 2010, via Airports Commission 2013

Even among developed countries, the UK is particularly well connected, with London – and Heathrow in particular – the key features of the country’s aviation connectivity and capacity, which is summarised in figure 2.2 below. Manchester, Edinburgh, Aberdeen and Birmingham airports also play stand-out roles: although not ‘hub’ airports like Heathrow, they connect directly to many destinations, and to many more via Heathrow and other hubs such as Amsterdam Schiphol, Paris Charles de Gaulle, Frankfurt and Dubai.

Figure 2.2
Air transport movements (ATMs) at top 20 UK airports and DTV (ranked 40th), 2002 and 2012



Source: CAA 2013

Passenger choice has increased dramatically in recent decades – whereas once a customer would choose the destination and fly from the airport which had a connection, now they are presented with choices of both destination and originating airports (Kouwenhoven 2008). In the UK, the recent growth of regional airports has outstripped that of Heathrow and of Gatwick in terms of both passengers and flights. This trend has been driven by several key factors, including the preponderance of low-cost airlines, the capacity issues faced by major airports, and the increasing use of the internet to book holidays (ibid).

2.1.2 Aviation and the North East’s prosperity

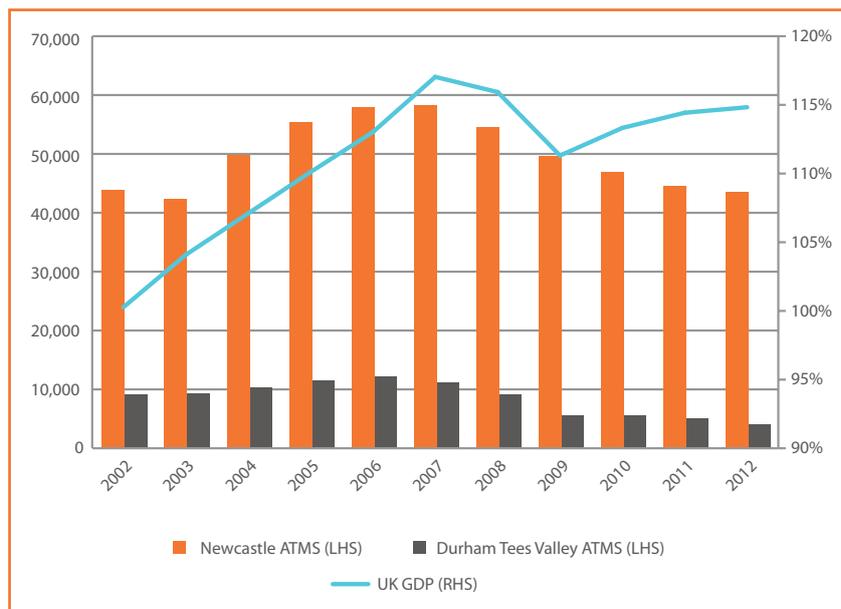
As figure 2.2 above shows, with NCL’s 44,000 and DTV’s 4,000 air transport movements (ATMs) per year, airports in the North East operate at a different scale and serves a far smaller population than regional airports such as Manchester (160,000), Edinburgh (103,000) and Aberdeen (98,000). Nonetheless, stakeholders who participated in our research felt that the airports were a vital asset to the export-intensive region, facilitating direct access to the North East’s markets for inward investors. Previous research found this to be a key factor in firms’ decision-making (NECC and CBI-NE 2013), and our consultation reinforced these findings: the importance of the airport to businesses in the North East was a strong and consistent message. Sheer ease of travel was said by many to be of great benefit, particularly local firms which routinely connect to Europe and the wider world. The specific companies and industries that were said to benefit included pharmaceutical, car manufacturing, logistics and petrochemical companies – as chapter 1 showed, these are the dominant exporters from the region.

There is strong evidence that both NCL and DTV airports make substantial economic contributions to their local and regional economies:⁴

- NCL generates £403 million in GVA and 9,550 jobs (York Aviation 2012), and
- DTV generates £37 million in GVA and 600 jobs (Regeneris Consulting 2012).

However, airports clearly require investment in order to grow, and are sensitive to economic downturns. The recent financial crisis has had a severe impact on the airline industry, with several airlines ceasing trading and others cutting back activities significantly (Harvey and Turnbull 2009). Figure 2.3 below illustrates the trend of national economic growth since 2002, including the fall and the beginnings of struggling recovery that occurred between 2007 and 2012, alongside the ATMs at the North East's airports. It shows that, between the recession of 2008 and 2012, ATMs fell at NCL by a fifth (20.2 per cent) and at DTV by more than half (54.8 per cent).

Figure 2.3
ATMs and real national GDP growth (2002 = 100), 2002–2012

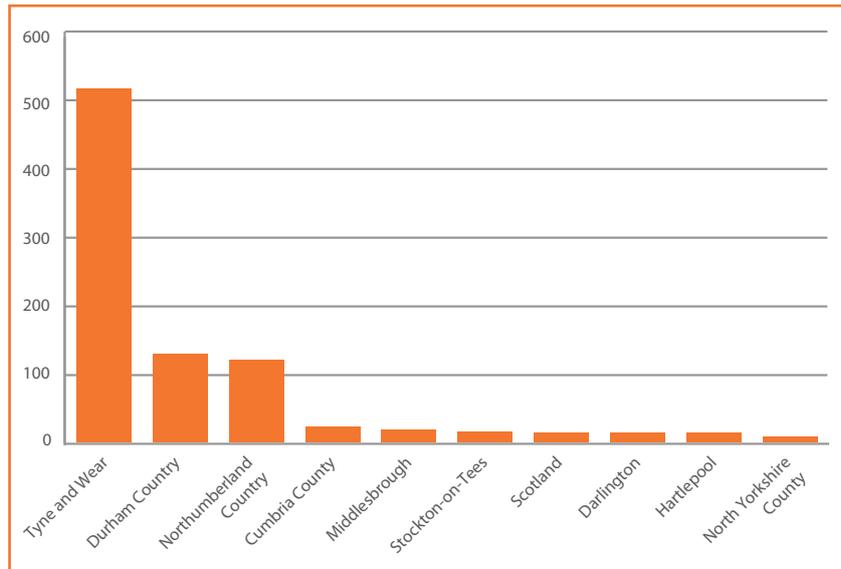


Source: CAA 2013, OECD 2013

The North East's airports are heavily reliant on connections to larger hub airports such as Heathrow, Amsterdam Schiphol and Paris Charles de Gaulle. York Aviation (2012) found that business travellers made up 20 per cent of all passengers at NCL airport, but a far larger share of passengers on certain routes: they made up 38 per cent of those flying to major hubs, and 44 per cent of those flying to domestic destinations (excluding Heathrow). This research also found NCL airport to be particularly useful for large companies that operate at a global scale and which have a presence in the region, because, whether they were based in the region or elsewhere, it allowed them to better connect with their offices and customers worldwide. As figure 2.4 below illustrates, the majority (58.5 per cent) of business passengers at NCL originated or terminated in Tyne and Wear, with Durham County accounting for 14.6 per cent and Northumberland County for 13.6 per cent (CAA 2013).

⁴ These estimates were arrived at using different methodologies

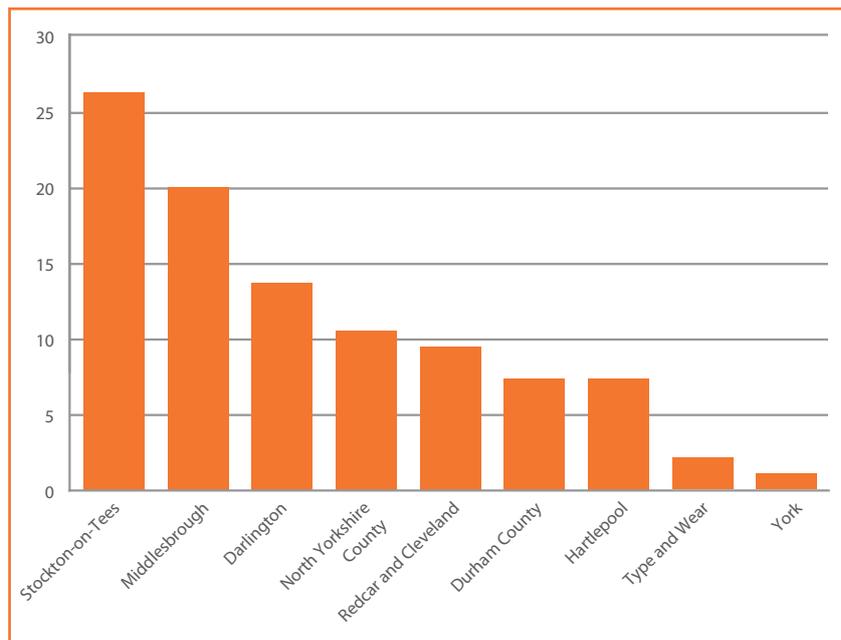
Figure 2.4
Origin/destination
patterns of terminating
business passengers at
NCL (000s), 2009



Source: CAA 2009

DTV, besides far smaller than NCL, also has notably different the origin-and-destination patterns are notably different to NCL above, with 25,000 (26.6 per cent) passengers coming from the Stockton on Tees area, 19,000 (20.2 per cent) from Middlesbrough and 13,000 (13.8 per cent) from Darlington (CAA 2013).

Figure 2.5
Origin/destination
patterns of terminating
business passengers at
DTV (000s), 2009



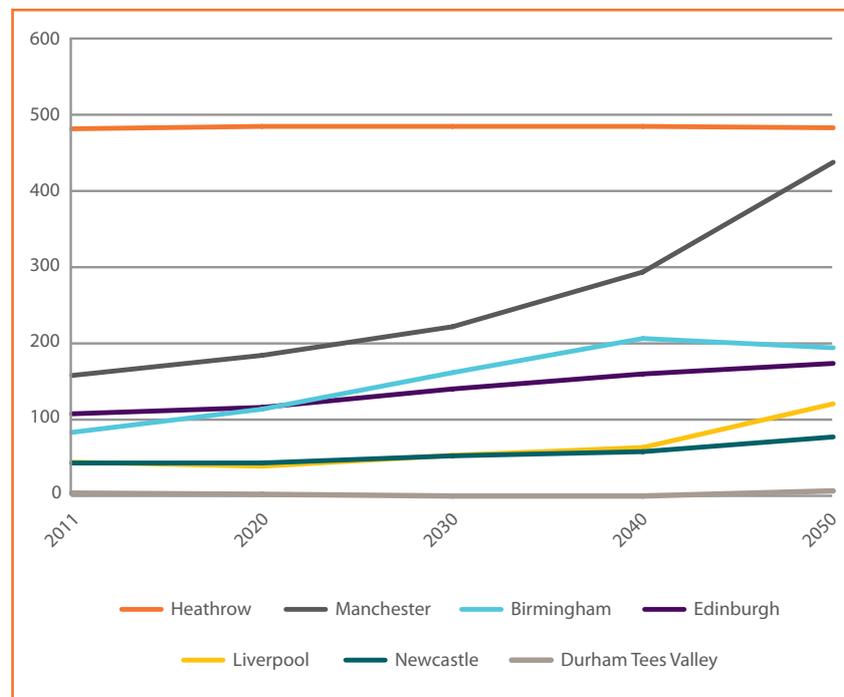
Source: CAA 2009

The consultation found that the Emirates connection to Dubai that the NCL acquired in 2007, and the connectivity that this added for passengers and freight to Asia and Australasia, has been hugely important to both the region's businesses and the airport's

performance: this route alone is estimated to have facilitated business travel worth £7.2 million in 2012 (York Aviation 2012). As such, many of the stakeholders we spoke to were keen to build on this success story with further route development, which is consistent with previous research conducted by NECC (2011, NECC and CBI-NE 2013).

As figure 2.6 below shows, the DfT forecasts that ATM at NCL airport will increase by 9,200 (20.5 per cent), from 45,100 in 2011 to 54,400 in 2030, while over the same period it is set to fall at DTV by 3,800 (59.8 per cent), from 6,300 in 2011 to 2,500 in 2030. However, these forecasts were disputed by some interviewees in the North East, who said that the methodology under-represents the potential for regional airports to grow.

Figure 2.6
ATM forecasts (000s)
for selected UK airports,
2011–2050



Source: DfT 2013a

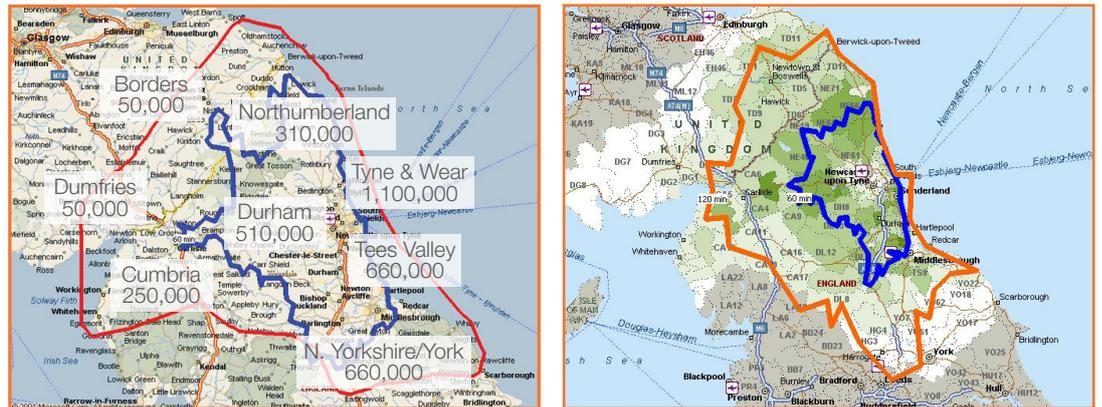
While the stakeholders we spoke to in the North East broadly understood the limitations to connectivity in a geographically isolated and relatively sparsely populated region, they were nonetheless keen to see it be further developed. The key connections which they identified as priorities for the future are covered in section 2.3 below.

2.2 Competition and complementarity

2.2.1 Competition

The catchment areas of the North East's two airports clearly overlap with each other. However, neither appears to substantially overlap with the other airports in the wider North – namely Leeds, Bradford and Manchester. Figures 2.7A and 2.7B show that, while most users of NCL airport are predictably from more nearby and more high-density areas, the airport also attracts some travellers from southern Scotland and northern Yorkshire and Cumbria.

Figure 2.7A and B
 Catchment area of NCL airport, with (in 2.7A, LHS) number of passengers by region



Source: Robson 2013

Turning to the way in which the airports interact with other modes of transport, businesses in the region have clear options about how to connect via air, and are often able to substitute an air with a rail connection, particularly in the cases of Heathrow and Manchester airports. While these options are taken up by many, the rail connection to Manchester was, among the people we consulted, widely felt to be particularly poor.

2.2.2 Complementarity and multi-modality

As has already been noted, the most important transport connections that both NCL and DTV have are with other airports – particularly the hub airports from which passengers can travel further onwards. NCL’s connection to Heathrow, Amsterdam Schiphol, Dubai and Paris Charles de Gaulle, and DTV’s connection to Amsterdam Schiphol, are vital. Our consultation confirmed that these connections are of the utmost importance – particularly the Heathrow connection at NCL. However, while Heathrow is clearly the key connection for NCL, the connections to emerging markets such as China were felt to be better served by Amsterdam Schiphol, Paris Charles de Gaulle and Frankfurt.

The development of multi-modal transport is inextricably linked to the impact that airports can have on regional economies: airports often form the ‘development pole’ around which businesses agglomerate and economies develop (Cristureanu and Bobirca 2007). In our discussions with stakeholders, it was said that Amsterdam Schiphol and Paris Charles de Gaulle airports are key examples of this and that, looking forward, Manchester airport also looks likely to set a good British example of how to capitalise on airport connectivity in this way.

Generally speaking, in terms of multi-modality, the most important factor for business travellers when choosing their mode of transport tends to be speed as opposed to cost. As such, a new mode of access or connection can dramatically change the choices made by airport users (Kouwenhoven 2008). That said, other factors such as reliability and predictability are also likely to be important, but have not been studied as widely (ibid).

With respect to DTV, those we consulted reported a lack of a strategic transport overview, and drew contrasts with other parts of the country where local authorities were better organised in this regard. In particular, DTV was felt to have poor rail connections, although the roads were said to adequately facilitate access for logistics companies based in the area.

In the case of NCL, some stakeholders were keen to develop a direct rail connection, and many felt the Metro connection was underused. However, the picture was generally positive, with local authorities and other stakeholders engaged in developing a complete overview of transport around the airport.

While the view of stakeholders was that NCL's connectivity was generally satisfactory, there were, however, some smaller issues:

- Many commented on the lack of late-night interchanges between the airport and the centre of Newcastle, with Metro and bus links often not coordinated with flights, and onward links from the city centre also overlooked.
- There were concerns about the capacity of the A19 road – which some thought to be a more reliable connection to the airport than public transport (TT2 2013) – because it is expected to come under heavier pressure in future. Any change in airport usage is likely to mean that the A19 will become the obvious route of choice for those wishing to travel from Teesside to NCL (TT2 2013). It was also suggested that the A19 is preferable to the A1, as it is more reliable in terms of journey times.
- Stakeholders also discussed the routes to Manchester airport, and rail as opposed to road was judged to be the principal Trans-Pennine connection. The road route, as noted elsewhere (Northern Way 2011), was considered a poor connection, although one still used particularly frequently by tourists.

2.3 Future developments and the role of policy

2.3.1 Future developments

It was evident from our conversations with stakeholders from the region that there is a degree of uncertainty about the future of NCL – as there is for all regional airports. Business decisions made by airlines operating in a highly competitive industry have dramatic consequences both for airports and for the economies they serve. There is evidently a conflict between the microeconomic decisions of airlines and airports, and the macroeconomic effects that these decisions could have on regional economies, which may ultimately mean that some regional airports will simply not survive. This situation poses both threats to and opportunities for NCL and the North East region.

The recession featured, either explicitly or implicitly, in many of the discussions with stakeholders: the effects of the financial crash are still being acutely felt five years later. Low economic growth, which is projected to continue for the near future, has not only directly affected the region's economy, but it was clear from these conversations that, in an industry where expanding means weathering years of loss, airlines remain somewhat reluctant to invest.

Perspectives on the future vary between the two airports. NCL itself forecasts 8.5 million passengers per year by 2030, and is looking to develop new connections (Newcastle International Airport 2013). NCL and others have been particularly consistent in promoting the potential of a connection to North America, with Newark as the favoured destination (NECC and CBI-NE 2013, NELEP 2013), which would open up North and South America to businesses in the North East region. However, there is also a noted desire for improved access to the Middle East and Asia. NCL is also keen to develop routes to Copenhagen and Frankfurt, low-cost connections to Berlin, Milan and Madrid, and is investigating the possibility of reconnecting to Brussels (a connection which was recently lost, and felt by some to be valuable to the region).

Recommendation

Newcastle International Airport should be recognised by public and private partners alike as a critical asset for economic development in the region, and be given both direct and indirect support for its initiatives to drive the regional economy – not least the region’s small businesses. Particular focus should be given to maintaining current connections with Heathrow, and establishing a new, direct flight to North America.

While NCL is focused on maintaining its current routes and developing new ones, DTV is in an altogether different position. It is struggling against the headwinds of aviation trends, government policy and the wider economy: its passenger numbers have fallen by 713,600 (78.8 per cent), from 906,000 in 2006 to 192,400 in 2011 (Regeneris Consulting 2012). Nonetheless, this same research found strong local desire for the airport to succeed, which is no surprise given that there are 3.5 million people and 115,000 businesses within 60 minutes of the airport. Moves have also been made to diversify DTV – for example, into dismantling and recycling aircraft – as well as plans to develop the Southside Industrial and Logistics Park, which featured in a recent bid for the government’s Regional Growth Fund: a bid for round 4 of this fund was unsuccessful, as was the bid made in 2012 (Price 2013). Among those we spoke to, it was felt that the priority for DTV should be to further diversify and expand operations on the site – as it has done by developing aircraft dismantling – while maintaining the critical level of flights needed for the airport to remain viable.

Recommendation

In the current economic climate, Durham Tees Valley airport faces a challenge to stay viable in the long-term. This challenge needs to be demonstrated in order to justify public subsidy and investment. To ensure that Tees Valley retains the best possible links to a range of international destinations, high quality internal infrastructure needs to be developed to connect it to Newcastle International Airport.

2.3.2 National aviation policy

In March 2013 the government published its aviation policy framework, which puts the economy at the heart of UK aviation strategy (HM Government 2013). In line with the previous government, the current administration is in principle keen to develop capacity outside of the South East. With air passenger traffic expected to double over the next 15 years, there is a risk that the UK will miss an opportunity in this regard, which would represent a threat to its economic competitiveness (OECD 2012).

The five key airports in London and the South East serve more passengers than those of any other world city, and Heathrow is one of the most heavily used international airports in the world. While the UK ranks high in terms of connectivity, for various reasons – including trade and business specialisation, but also historical and cultural ties – other countries’ hub airports are better connected to some of the key emerging markets (Airports Commission 2013).

The question of capacity in the South East is high on priorities list of those who rely on air connectivity in the North East. Not only does the UK suffer an opportunity cost every time Heathrow acts to improve its connectivity, but the recent trend towards closing regional connections is of grave concern to regional airports, including NCL. The Davies commission, which is currently investigating the need for additional UK air capacity, is

due to report by 2015. At this stage, 50 potential options to extend airport capacity have been received by the commission, with a shortlist due to be compiled by the end of 2013 (Parker 2013).

The problem with current national aviation policy in the UK is that it is not very 'national' – this was strongly felt by many of the region's stakeholders. It was said that not only was policy focused on developing capacity in the South East at the expense of options in the rest of the country, but debate about aviation policy failed to fully take account of the fact that regional airports – and, by extension, the strength of regional economies – are heavily impacted on by such decisions. Both NECC and NCL itself are vocal in their support of Heathrow's third runway, yet it is clear that, whatever the decision, it represents both an opportunity and a threat: an opportunity in the sense that it would reassure those airports that rely on this link, and a threat in the sense that the additional uncertainty, in an already uncertain industry, is extremely challenging for those planning many years into the future. As such, an early decision on this issue was widely felt to be important. More generally, however, it was strongly felt that the impact of such decisions on businesses and regional economies across the UK was not being given due consideration.

While attention in the UK is understandably focused on national policy, it is also clear that other countries' policies exert a heavy influence on regional airports and economies – it was noted, for instance, that Amsterdam Schiphol currently serves more UK airports than Heathrow. It was felt that, despite the difficulty of being in such a position, stakeholders in the North East should exercise and coordinate what influence they have on the aviation policies of other countries where they affect the North East's interests.

Recommendation

Both the DfT and the Davies commission should consider the impacts of aviation policy decisions on all UK airports, rather than on those in the South East alone, and develop a truly national aviation policy that identifies the opportunities that exist for the better use of northern airports.

2.3.3 Other policy concerns

In our conversations with stakeholders we found some desire for air passenger duty (APD) to be lowered, because its impact on profit has wider implications for further investment and route development. However, this was not a consensus on this issue, as some considered it not to be a major factor at its current levels, and a less urgent concern than fuel price.

Stakeholders disagreed about the prospect of Manchester airport being made a second UK hub – it was argued that airlines and the economics of route development will decide whether an airport is a hub or not, and that, as there are only five hub airports in Europe, the UK has no automatic right to another one on top of Heathrow.

As might be expected, High Speed 2 (HS2) also featured in the debate about air connectivity. It was felt that, should this project overspend or be less successful than is promised, confidence would suffer, and this could have consequences for future infrastructure investment in general. These discussions took place before the recent rise in the estimated cost of HS2 – which now stands at £50 billion, including the trains themselves – and the doubts which have arisen about the basis of economic benefit calculations for the project. Again, the view from the consultation was that the

decisions of governments in this area have an impact which crosses regional borders and transport modes, yet not only does Whitehall as a whole tend to fall victim to the pitfalls of a 'siloed' structure – with departments failing to coordinate policy – but this was a problem even within the DfT itself.

Another concern that affects smaller airports in particular was said to be the introduction of new safety and security guidelines. These require a minimum level of expenditure which is similar across airports of different sizes, and so put smaller airports at a competitive disadvantage – a particular concern for DTV airport. It was again felt that such decisions by national government failed to take account of the differential impact they could have.

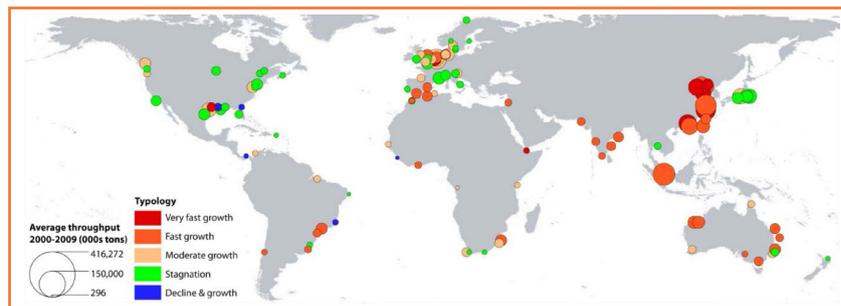
3. SEA CONNECTIVITY

3.1 Overview

The UK port industry is the largest in Europe, and handled just under 500 million tonnes of freight in 2012. Over 95 per cent of UK imports and exports by volume, and 75 per cent by value, still pass through our ports, making them a vital part of our economic infrastructure. (British Ports Association 2013)

A vast proportion of global trade – roughly 90 per cent – is reliant on the infrastructure and connectivity that ports provide. (International Maritime Organisation 2013). The North Sea corridor is one of several areas around the world which expect to see significant growth in the coming years, which can be attributed to factors such as a growing trade with the Far East, continued developments in the oil and gas sectors, and a burgeoning renewables industry.

Figure 3.1
Growth trajectories
of global port areas,
1970–2009



Merk and Hesse 2012

It is also becoming increasingly clear that ports have a much wider economic role to play outside of traditional definitions of their function. Energy supply, manufacturing, chemical and process industries, logistics and leisure are all served by port economies which cut across sectoral boundaries and serve critical functions for the UK economy in terms of jobs, energy security and the advancement of a more positive balance of trade.

Port movement of goods can be split into the following categories:

- 'Ro-ro' (roll-on, roll-off) goods, such as vehicles and ferry passengers.
- Bulk cargoes, including liquid bulk cargo such as crude oil, and other vital input materials required for energy and manufacturing. Dry bulk cargoes, such as ores, coal and agricultural products, are also included within this category.
- Containers, traffic in which has grown nationally by 190 per cent since 1988 (British Ports Association 2013), and which includes all goods delivered within containers to some of our biggest ports, including the likes of Teesport.
- Other activities: the port industry provides a range of other services to various sectors, depending on their location within the UK. The offshore oil and gas, renewable energy, automotive, and logistics and haulage sectors are all examples of this.

3.2 The North East's ports

The North East has six ports, four of which (Tees, Hartlepool, Sunderland and Tyne) are classed as major ports. Five are distributed on the main rivers of the Tees, Wear, Tyne and Blyth rivers, with Seaham harbour located between Teesport and the Port of Sunderland.

These ports are focal points for the North East's major industrial centres, and play a critical role in relation to the region's major industrial sectors – chemical process, polymer, biotechnology,

pharmaceuticals, automotives, steel, engineering and fabrication, oil and gas, renewable energy and tourism – which collectively contribute over half of the North East’s GVA.

The intensity and scale of the North East’s port facilities and their related infrastructure is considerable, and was made possible because of the strategic role that the region has played in the steel, shipbuilding and coal industries in the past, both as part of the UK economy and, previously, that of the British Empire.

Table 3.1
Freight movements in the North East’s major ports (millions of tonnes), 2011 and 2012

Port	2011	2012
Teesport and Hartlepool	35.2	34.0
Tyne	3.508	4.983
Blyth	1.768	1.327

Source: Port of Tyne 2013, Port of Blyth 2012, and PD Ports website⁵

Ports have evolved to the point that they now fulfill a variety of roles and provide a variety of services to the economy, such as renewables, chemical and process industries and hi-tech manufacturing for sub-sea oil, alongside other internationally focussed sectors.

3.2.1 Teesport

Teesport is comfortably the largest port in the North East and the one of the biggest ports in the UK, handling over 5,000 vessels a year and around 34 million tonnes of cargo. It is a deep-water facility located less than a mile from the mouth of the river Tees, and is both home to and surrounded by large-scale industry and manufacturing businesses.

The Teesport site covers just under 800 acres, and is an integral element of the wider industrial area. Steel, petrochemical, renewables, agri-bulks, manufacturing, engineering and high-street commerce operations are all supported by the port.⁶

3.2.2 The Port of Hartlepool

The Port of Hartlepool covers more than 300 acres, and is located three miles up the coast north of Teesport. Hartlepool provides bulk cargo facilities, while supporting both the oil and gas sectors and the offshore wind energy market.

A burgeoning cluster of renewables businesses is growing at the Port of Hartlepool, partly because it is seen as a versatile port with a heavy lift facility that is fit for use by a variety of sectors. With over 900,000 square feet of covered warehousing, the port is also attracting a variety of industrial and manufacturing tenants.⁷

3.2.3 Seaham harbour

Seaham harbour is located in County Durham, approximately 10 miles north of the Port of Hartlepool. Seaham handles ships of up to 8,000 tonnes, with a maximum beam of 18 meters and length of up to 120 meters. The port has 900 metres of quay frontage, and can receive, store and distribute a broad range of commodities – a trait derived from its historical role as a distributor of Country Durham mined coal.⁸

3.2.4 The Port of Sunderland

The UK’s second-largest municipally owned port, the Port of Sunderland is located at the mouth of the river Wear, just north of County Durham and the Seaham harbour. The port

5 <http://www.pdports.co.uk/>

6 <http://www.pdports.co.uk/en/our-locations/teesport/>

7 <http://www.pdports.co.uk/en/our-locations/hartlepool/>

8 http://www.portofboston.co.uk/pages/seaham_harbour.htm

has a growing portfolio which includes imports of forest products, non-ferrous metals, steel, aggregates and refined oil products, and exports of agricultural limestone, chemicals and maritime cranes.⁹

3.2.5 The Port of Tyne

The Port of Tyne, which is the North East's second-largest port, was once famous for its coal exports but is now the fourth-largest importer of coal in the UK. The port's infrastructure – namely rail freight links and bespoke dockside facilities – was originally built up to export coal, but has since been put to use to import it. It is now also a leading importer of biomass pellets, drawing upon the unique infrastructure and transport links it enjoys with key power generation sites around the UK – such as Drax in South Yorkshire – which have been or are currently being converted to biomass.

The quantity of coal that the Port of Tyne handles has increased dramatically from none in 2003 to 3.6 million tonnes in 2012. It also handles bulk and conventional cargo such as wood pellets, grain, scrap, steel and other cargoes.

In addition to other conventional services, the port brings cruise and ferry services to the North East, contributing to a growing tourist industry worth over £3 billion in annual GVA to the regional economy. The Port of Tyne also benefits from significant business as a car terminal and exporter for manufacturers such as Nissan and Volkswagen. During 2012 there were 670,000 car movements (both import and export) through the port, with around 500,000 vehicles being exported from the Nissan site in Washington alone – one in three of the UK's total export of cars.¹⁰

3.2.6 The Port of Blyth

The Port of Blyth in Northumberland is located to the north of Newcastle, and handles around 1.5 million tonnes of cargo each year. Its main trades include unitised cargo (containers and ro-ro goods), bulks including coal, project cargo such as wind turbines, forest products, metals and a wide range of other commodities.

The port is also increasing its involvement in the biomass market, making use of infrastructure set up to support the previous coal-fired power station at Blyth, and a power station which was previously used to power the aluminium smelter and was, until 2011, located at nearby Lynemouth. It is now one of the fastest growing trust ports in the country.¹¹

3.3 Opportunities

The North East's ports are very well-placed to provide links not only to Europe but to elsewhere in the world because of their existing commercial links, the high volume and range of infrastructure they enjoy, and their extensive hinterland of industrial areas, warehousing, energy supply and transport linkages.

A 2013 report published by the OECD (Merk and Hesse 2012) assessed the nature and role of maritime connectivity and its impact on port cities and regions. The report set out a number of metrics for analysing the level of connectivity that ports enjoy beyond standard measures such as the actual number of port-to-port links and the volume of freight handled year on year.

9 <http://www.portofsunderland.org.uk/>

10 <http://www.portoftyne.co.uk/cache/files/1843-1368040620/PortofTyneAnnualReportAccounts2012.pdf>

11 <http://www.portofblyth.co.uk/>

It is clear that factors such as transport links and industrial space are key to the success of ports. Teesport is third globally, behind only Vancouver and St Petersburg, in terms of 'betweenness centrality', owing to its sheer size on the one hand, but also because of its proximity and links to other ports. Merk and Hesse also observed that:

'Maritime connectivity is essential for competitive ports as they determine the frequency of shipping services. Ports with more extensive maritime connections are more attractive to shippers as these ports can offer direct services and this speedier delivery of goods. If sufficient volume is shipped between these ports, frequency of shipping services and thus greater reliability can be guaranteed. If maritime forelands provide a competitive advantage for ports that can attract additional shipments, maritime connectivity is also a dependent variable: more competitive ports will be more attractive for various reasons (e.g. port efficiency or good hinterland connections), attract new traffic for that reason, and thus achieve more extensive maritime forelands.'

Merk and Hesse 2012

But what the study also made clear was that other factors, beyond direct or overt metrics like direct links to other ports, are vital to deciding how ports rank in terms of their competitiveness against other ports:

'Maritime connectivity not only refers to number of connections with other ports, but also the place of a specific port in networks (centrality). There are various indicators to measure port centrality, including degree centrality, betweenness centrality and clustering coefficient. Larger ports are generally more connected and more centrally positioned in maritime networks, which is logical, but there is not a perfect correlation between size and port centrality; some large ports manage to be much more connected than other ports of similar size.

Ports that are closely located to each other can have the same profile of maritime connections, as is the case of Hong Kong and Shenzhen, but also be complementary to each other with respect to maritime connections. For example, the port of Hamburg has strong maritime connections with Asia, whereas the nearby port of Bremerhaven has strong maritime connectivity with North America, which provides synergies between the two ports.'

Merk and Hesse 2012

To this extent, the complementarity that the North East ports offer is critical to the success of any one port. Transport links to other ports, and also to industrial and supporting infrastructure around each port, clearly have a material impact upon their success. In the North East, the proximity of several large ports (illustrated in figure 3.2) to each other, and to key markets in both the UK and the eurozone, mean that they can benefit from strategic infrastructure investments that enhance more than one port simultaneously.

It is particularly important that the intermodal links provided for passenger and freight access enhance the offer of ports. In the case of the North East, which has several ports in close proximity to one another, it would be relatively easy to enhance transport infrastructure strategically in order to benefit several ports, and in doing so enhancing

their competitiveness and that of the region more broadly. We will return to this point in the final chapter of this report.

Figure 3.2
Major ports and airports
of the North East



Source: Adapted from NECC and CBI-NE 2013

3.3.1 Sectoral opportunities

The North East's ports are especially well-placed to take advantage of opportunities within a variety of sectors, none more so than offshore oil, gas and wind, and renewables such as biomass importation.

The North East and Scotland (including the Northern Isles) dominate crude oil exports, accounting for 99 per cent of the 57 million tonnes exported from the UK. This reflects the locations of the crude oil shore storage terminals at Sullom Voe, Grangemouth and the Tees, where oil is stored on receipt by pipeline from the North Sea oil fields.

Teesport is England's biggest hub for the movement of crude oil both imported from Norway and produced in the North Sea. The value of the infrastructure that makes this possible is vast: Teesport is to crude export what the City of London is to financial services.

Oil and gas also contribute a great deal to ports in the North East, and to the economy more generally: 65,000 people in the region are employed in this sector, while over 70 per cent of the oil and gas platforms operating currently in the North Sea were built at, or in the immediate vicinity of, the North East's ports.

It is expected that activity within the oil and gas industry will remain buoyant for decades to come, even as oil and gas reserves diminish. Innovations in drilling and pipe-building techniques developed in the North East have ensured that activity will continue to develop into the medium term.

Offshore wind represents perhaps the biggest opportunity for the North East's ports outside of offshore oil and gas. The region is located 60 miles from Dogger Bank, the larger of the round-3 wind farm zones to be leased by the Crown Estate to electricity generation companies. Dogger Bank is to house between nine and 13 gigawatts of generating capacity – effectively making it the biggest power generator in the world if taken as a single entity. It has been estimated that, if the opportunities presented by offshore wind were fully realised, the North East's economy could increase by around £1.5 billion and gain up to 20,000 newly created jobs by 2030 (NECC 2009).

Biomass represents a huge opportunity for all ports in the North East, not least because of their existing links to the rail freight network which make the transportation of biomass to end-users relatively easy.

However, there are limitations to the volume of biomass that could be placed upon the rail freight network. With biomass requiring twice the volume of coal to provide the same thermal value in terms of energy output, it requires significantly more carriages in a typical port-to-end-user trip. This in turn requires investment in the rail freight network, which suffers from congestion problems between the North East and areas such as South Yorkshire. An increase in biomass traffic to the North East therefore brings with it a substantial challenge, as well as a clear opportunity.

Container movements constitute a growing share of freight, particularly in the North East's two largest ports, and also represent a significant opportunity. This is underlined by the high levels of investment that have gone into container facilities at Teesport and the Port of Tyne respectively in the past two to three years (Port of Tyne 2013).

This investment in facilities, including deep-sea terminals that can house imported containers, has more than one benefit. While it opens up a large market for the North East's ports to tap into, it also provides an alternative to shipping goods into ports in the South East, which faces greater pressures from congestion in terms of both available brownfield land and roads to cater for growing volumes of freight haulage.

It is estimated that 50 per cent of freight that arrives into ports in the South East is transported north of Birmingham, with increasing proportions heading to regions such as the North East (MDS Transmodal 2006). Where imports are bound for northern ports it is clearly not rational to route goods into ports in the South East, given the added burden in traffic and carbon that overland transport of goods entails.

One of the benefits of deep-sea container terminals is that they offer the opportunity to re-route some freight shipping closer to market destinations or export hubs. They have the potential to reduce pressure on an already overstretched road network, while at the same time reducing pressure on the infrastructure around the South East's ports and increasing activity at ports in areas such as the North East. The NEIER identified the opportunities for port-centred logistics development specifically in the North East region as Britain's route of choice to the Baltic and Scandinavia.

There are also specific opportunities in relation to ferry services. An immediate priority should be to restore the direct ferry link from Norway, but longer-term opportunities exist to ensure that the Port of Tyne in particular can become a key destination for European cruises. This requires promotion as part of the wider tourism and leisure offer of the region.

Recommendation

In order to maximise opportunities for the North East, there is a need for a more robust and coherent national ports policy which addresses three key challenges:

- reducing the large volumes of freight being carried overland from southern ports to northern destinations
- ensuring that investment in renewables in and around ports is not hindered by a lack of policy certainty, and
- taking a more strategic approach to investment in rail infrastructure to support sustainable growth in the regional importation of biomass.

3.4 Challenges

In our consultation, both the North East's ports themselves and the businesses within port areas – or more specifically, those businesses located on or immediately nearby port facilities – identified a series of constraints and opportunities for their operations.

Energy policy uncertainty is a pervasive and constant worry not only for ports but for their potential and existing clients. Ports are currently hesitant to commit too much investment to preparing facilities for tenants that may or may not arrive to take advantage of the emerging UK offshore wind market. Respondents to this research described how the state of flux in current UK energy policy not only puts off ports from investing, but also sends negative signals to investors elsewhere who are looking for signals that the UK government is committed to supporting the roll-out of renewable technology.

Many businesses believe that the government's recent energy bill will not do enough to improve investor certainty. One area of concern is the reduction in the grandfathering time permitted for certain incentives, which is now set as low as 15 years under the Contracts for Difference scheme – down from over 20 years for some Renewables Obligation Certificates, which was more closely in-line with investor timescales.

Other countries – such as Germany, which derives 20 per cent of its electricity from renewable sources – have been able to provide sufficient stability within their own incentives regime to increase growth in renewables investment markedly during the past 20 years.

In the UK, however, a perceived culture of political 'tinkering' – exemplified by the hasty changes which were made to the feed-in tariff during 2011 – is making investors understandably very wary of committing to projects which might be impacted by unilateral changes at any given moment. Even if the possibilities of such changes being made are slim, the perception that they might yet happen is hugely damaging.

Recommendation

The energy bill should set 20 years as the minimum grandfathering time for key incentive schemes, and mainstream political parties should then guarantee cross-party consensus on energy policy in order to ensure that energy incentives and regulatory timescales remain unaltered for the foreseeable future.

Fiscal or economic indicator rules (or both) should be put in place to govern any agreement. These could be implemented in way similar to the forward guidance rules put in place by the Bank of England regarding forward planning for the base rate of interest, which is dictated by rules relating to employment levels, among other things.

A concern shared by ports and manufacturers alike was that there was insufficient communication between relevant government departments regarding policies that impact upon port activity, whether on the ports themselves or on the businesses operating in or around them. This is particularly true of transport and energy policies in areas such as freight and biomass, where significant opportunities exist but policy isn't yet working effectively enough to reconcile the growing traffic with the lack of capacity on the freight network. At present, neither national nor local planning policy is reflecting the challenges faced by businesses and the ports themselves.

Planning policy is also cited as a major obstacle to larger investments in particular. Businesses contend that if gateways such as ports are to consolidate and grow, planning policy must place greater emphasis on their unique and vital role. Current policy, manifested in the government's most recent national planning policy for ports, does not deal with this issue in a strategic fashion and relies more on the operation of apparently free-market forces.

In the business context, given the increasing number of UK manufacturers that are internationally owned and highly mobile, greater consideration should be given to supporting investment and growth – that is, if we consider manufacturing and internationally-trading businesses worth protecting to allow the UK to regain its global position as a producer and exporter of goods.

Recommendation

In line with the recent findings of the Armit review of infrastructure, planning for major infrastructure schemes should be reformed to ensure that vital schemes relating to transport and energy do not suffer from unnecessary delays.

Regulation also threatens activity at ports. An EU regulation seeking to penalise emissions from shipping has been enforced earlier in Northern Europe – including the North and Baltic Seas – than elsewhere. This places ports in the North East and other regions at a commercial disadvantage, and illustrates that it is not only the nature of regulation, but the way in which it is implemented that can act as a burden on businesses. Where regulations are deemed appropriate or necessary, they should be rolled out in the most equitable way possible.

Added to this is the uncertainty that now exists regarding the UK's relationship with the EU – a matter which will come up for review in 2017. With eurozone countries making up the vast majority of customers for goods produced in the North East, there is a concern among the region's business community that a diminished relationship with Europe might bring with it serious consequences for investment and jobs in many parts of the country.

Recommendation

Given the UK's reliance on its ports, it is vital that EU regulations that impact disproportionately or inequitably upon them are challenged to ensure that UK ports are not placed at a disadvantage.

3.5 Inter-modality

As is discussed above, port complementarity and intermodal links strengthen ports themselves as well as the offer of a city or region more broadly. However, excluding certain strategic investments that will undoubtedly enhance links to and from all North East ports, there can be no one-size-fits-all-approach to this issue, given the unique profile of each individual port.

In the context of intense competition for public funds, and an equally intense inter-port rivalry (locally, regionally, nationally and internationally), investment comes at a premium: not all necessary infrastructure enhancements can be made to the benefit of all ports.

It is possible, however, to pursue a more strategic approach to investment that identifies and seeks to consolidate the broader offer of an area or region, or indeed a group of ports, on balance. In the case of the North East, inter-modal and direct infrastructure investments could be prioritised in a way that unlocks as much of the capacity of the region's ports as possible.

The fact that the North East enjoys a positive balance of trade is well documented, and can be largely attributed to the production of both steel and cars. However, the importation of biomass and the exportation of crude oil and products related to the chemical and process sector, also make up a substantial proportion of activity in the region's ports.

Keeping freight-intensive activity within the immediate vicinity of ports eases pressure on local transport networks. For instance, the UK's largest integrated chemical complex operates in close proximity to Teesport, and therefore has easy access to the port. There is currently an opportunity to prioritise planning for biomass power stations to ensure they are automatically located nearby ports, thereby reducing pressures on the freight network – as has already been achieved in the case of the Renewable Energy Solutions scheme at Blyth.

Where biomass must be transported from UK ports to elsewhere in the country, strategic upgrades to the rail freight network should make this easier for freight operators; in doing so it would support port activity in this sector.

Enhancements on or around the east coast mainline (ECML) will serve all of the North East's ports. Similarly, investment in the key road links – the A1 and the A19 – at strategic points will also serve all North East ports in some way, whether for freight, employee or passenger access.

The importance of the role that roads play for ports, and for manufacturers based in and around them, must not be underestimated by policy makers. Shipping by barge is still a relatively expensive option for the movement of large manufactured goods.

More broadly, intermodal connections linking gateways such as ports, airports and rail terminals are vital, and roads remain integral to this. Feedback from manufacturers and ports throughout the North East indicated that links by road to and from key markets for both goods and labour are as vitally important as ever. Linking gateways provides connections between senior staff at large manufacturing facilities and their head offices elsewhere in the world.

Furthermore, local rail sidings and upgrades – such as that mooted on the Leamside line – offer an opportunity to ease rail congestion and cater for projected growth in biomass or indeed other bulk importation.

The Leamside line discussion

Respondents to our research engaged in an extensive discussion of the benefits, in the longer term, of reinstating the Leamside line between Ferryhill and Pelaw, a move which has previously been advocated by NECTAR (2013) among others. If reinstated, the line would be used to move manufactured cars from the Nissan factory and other freight, as well as offering a passenger service. This would have the benefits of taking pressure off the A1 western bypass (Highways Agency 2011, in NECTAR 2013), and of routing freight trains away from the ECML. NECTAR note that this would also have the benefit of linking the currently isolated town of Washington with the rail network. However, Nissan has looked into this issue in the past and found the business case for the Leamside line difficult to justify.

Passenger links via the Metro or bus services to Newcastle International Airport also enhance the offer and service for passenger ferry and cruise services from the Port of Tyne, given that passengers often fly from elsewhere in Europe to join these services. Of course, this complementarity also works in the airport's favour.

Linking rail, air and sea services both for freight and passengers is not just a case of providing overt and direct physical links. It is important that policymakers do not treat each gateway as totally independent or mutually exclusive, whether in terms of transport, energy or for planning and appraisal purposes.

Recommendation

Given the weight of international evidence and the significant opportunities that lie beyond basic competition between ports, it is recommended that ports in the North East identify a process of working together more collaboratively to achieve a shared strategic vision, and identify a number of key priorities that will be of mutual benefit – potentially including a joined-up communications strategy.

4. DIGITAL CONNECTIVITY

The *Northern Prosperity is National Prosperity* report affirmed the well-established view that digital connectivity is now a crucial mode of interaction between businesses and between people, and is a key component of advancing northern and national prosperity (IPPR North and NEFC 2012). As one interviewee participating in the present research project remarked, 'broadband is an important part of the economy of everywhere'. In the North East specifically, with its large rural areas and relative isolation from many parts of England, digital connectivity has a unique and unrivalled capacity to diminish distance.

This section looks first at the economic importance of digital connectivity to the national and North East economies, before focusing on obstacles to supply and investment, demand and utilisation, and interaction and connectivity.

4.1 Digital connectivity and economic prosperity

4.1.1 Digital connectivity in the UK

As the second decade of the twenty-first century gathers pace, economic growth is becoming ever more inextricable from digital interconnectivity, and highly productive digital businesses are proliferating. Recent research by Nathan and Rosso (2013) concluded that the digital economy is now far bigger than official statistics show, finding that the sector is made up of at least 270,000 companies (40 per cent larger than the government definition) and that digital companies are growing 25 per cent faster and hire 15 per cent more people than non-digital companies.

Digital connectivity has major benefits to companies in all sectors, and is a catalyst for both productivity and exporting: a large and growing body of evidence confirms the role such technology plays in productivity and growth (Bloom et al 2005), with a recent study concluding that the internet contributes £100 billion to (or 7.2 per cent of) the UK economy – although indirect economic benefits mean that its true impact is both wider and deeper than this estimate (Kalapesi et al 2010). Forecasts indicate that this share is likely to grow by 10 per cent each year until 2015, by which time it will make up 10 per cent of the nation's economy. Connectivity also has the advantage of being a key export sector – the e-commerce industry exports £2.80 for every £1 it imports (ibid). The North East LEP (NELEP) (2013) has outlined the seven potential causal links between connectivity and benefits to the economy, which are:

1. improving access to markets
2. improved productivity
3. encouraging greater innovation activity
4. facilitating new business starts
5. driving inward investment
6. facilitating growth of key sectors
7. helping small and medium-sized enterprises (SMEs) to grow.

The major feature of digital connectivity is currently superfast broadband (SFBB) – a fibre cable connection which allows small businesses and individuals to benefit from speeds previously only enjoyed by large companies. Public Wi-Fi is also being prioritised by local governments across the country.

The government recognises the importance of digital connectivity as a cornerstone of the UK's future growth and prosperity – in its *Blueprint for Technology* (BIS 2010) it prioritised a drive toward becoming better connected with the ambition of becoming the best-connected country in Europe by 2015. However, the government also recognises that the

country as a whole, and some regions in particular, are slipping behind in the global race. The key document outlining government's SFBB strategy – *Britain's Superfast Broadband Future* (DCMS 2011) – also described how it could help drive the UK economy out of recession. The organisation leading on this is Broadband Delivery UK, a team within the Department for Culture, Media and Sport, which has been given £530 million to roll out broadband to rural communities, and £150 million for 'Super-Connected Cities'.

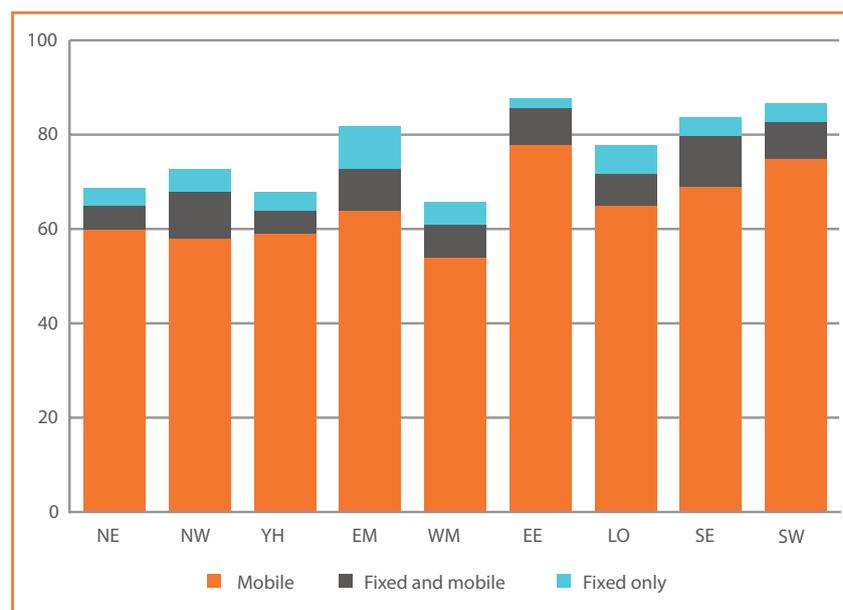
4.1.2 Digital connectivity in the North East

Looking at geographical disparities, internet connectivity is yet another way in which London and the South East dominates – they lead the UK in terms of their levels of connectivity (Kalapesi et al 2010). The North East, on the other hand, is underperforming in connectivity terms:

- It ranks lowest of the English regions on the 'e-intensity index', largely due to population density (Kalapesi et al 2010).
- It has a lower share of 'high-web' businesses (ones which sell or market their services online) than any other region (ibid).
- 25 per cent of the North East's businesses don't use the internet, whereas the average for the country as a whole is 19 per cent (NECC 2011).
- Only one in 33 businesses is IT-and-telecoms-related, compared with one in 17 in the UK as a whole (E-skills UK 2012).

The North East has one of the lowest rates of broadband penetration of any English region, with a total of 69 per cent of households receiving broadband. As figure 4.1 below shows, this is due to a low penetration of households with fixed-only broadband connection, while the proportion receiving fixed and mobile connections is also very low.

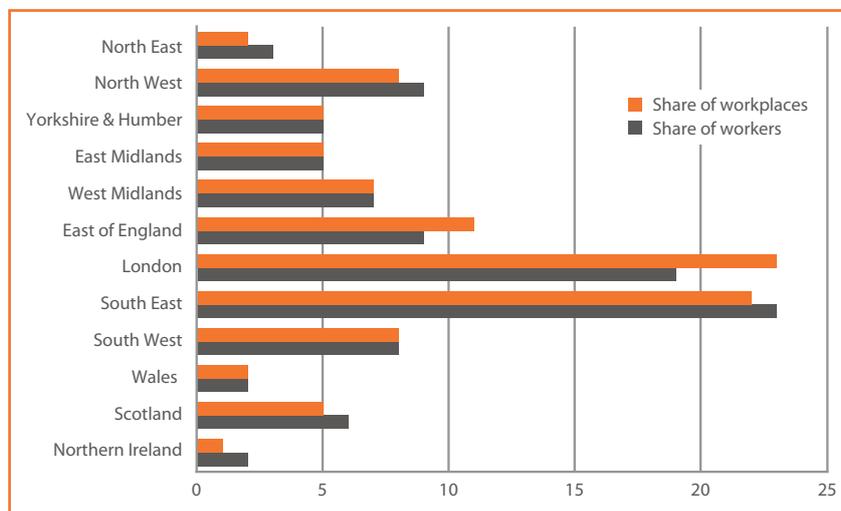
Figure 4.1
Broadband penetration
by English region (% of
all homes)



Source: OFCOM 2012a

The North East's economy is notably short of both workplaces and workers in the IT and telecommunications sector: it makes up only 2 per cent of workplaces and 3 per cent of workers in the sector in the UK as a whole, the lowest proportion among all English regions on both measures (as illustrated in figure 4.2 below). The highest concentrations of jobs in the sector are located in London, which accounts for 23 per cent of workplaces and 19 per cent of workers, and the South East, home to 22 per cent of workplaces and 23 per cent of workers.

Figure 4.2
Share of UK IT and telecommunications economy by region (%), 2011



Source: ONS 2011a; ONS 2011b in E-Skills UK 2012

It has been estimated that more effective use of technology could add £1.2 billion to the North East's GVA by 2017 (E-Skills UK 2010).

However, looking beneath the regional averages, Nathan and Rosso (2013) noted a significant concentration of firms in Middlesbrough, where Digital City is the key feature of a local digital economy. The importance of looking beyond regional averages alone was a point that was also made in the consultation for this report, as many key business locations in the North East do have the connection speeds required to compete in the sector.

Stakeholders expressed differing views in terms of the importance of digital connectivity to the region's businesses: some believed the improvement of connectivity to be 'essential', whereas others said that while its absence would be a drag on business activity, it was not a decisive factor. Its primary value to business was regarded as its ability to facilitate indigenous growth and productivity as opposed to inward investment: digital connectivity did not appear to rank as highly in firms' decision-making as other factors – particularly skills and the other modes of connectivity (specifically the sea ports and Newcastle International Airport), which were regarded as the most important assets the region has to offer.

As might be expected, our consultation found that different businesses have different needs in terms of digital connectivity: some – especially but not exclusively those in digital and creative media sectors – would simply not exist without good connectivity; it better enables others to compete and expand; but for a small proportion of firms, digital connectivity is still not even a basic feature of their business model. This is a problem in the region which arose in the consultation, and which is also evident in the statistics (discussed further in section 4.3 below).

Many stakeholders thought that the key benefit of digital connectivity was its ability to level the playing field for SMEs. SFBB in particular enables them to benefit from connection speeds which previously only large businesses were able to enjoy; the use of 'cloud' software which – where available – reduces the often prohibitive costs that SMEs face when making capital investments; and an enhanced ability to search for and connect with investors, which is particularly useful for start-ups. Research by the FSB found that lack of reliable and fast broadband places a particular constraint on small rural businesses, a fact with particular relevance to the largely rural North East (Hemming and Davenport 2010).

Furthermore, stakeholders said that larger international businesses found digital connectivity particularly useful for internal communication, and that the technology also allows the North East's businesses to trade out of other locations across the globe. The ability to use digital connectivity for teleconferencing was noted as a particularly important one for some large companies.

The point was also made in the consultation that while digital connectivity does have social benefits, it is potentially a double-edged sword: just as it can stimulate digital inclusion, so it runs the risk of causing digital exclusion – the rapid pace of change risks creating a new and deeper divide. Nevertheless, it has great potential to benefit businesses: the demand for ICT-literate employees is now a key feature of the labour market. This is particularly relevant to the North East, which the recent Skills for Life survey (BIS 2012b) found to be the worst region for ICT skills in the country (controlling for first language), and where unemployment is higher than anywhere else in the UK. It was pointed out that not only could ICT policy be used to provide the skills that businesses need, but that it is now increasingly being used by recruitment agencies and government agencies – such as the National Apprenticeship Service and the Department for Work and Pensions – to match the needs of employers and the skills of potential employees.

It was also clear from the consultation that those businesses that rely heavily on digital connectivity look for a strong skills base, and that as such, many are attracted to the supply of graduates from the North East's universities. It was pointed out that a thriving digital sector in the region – built on a dynamic and cutting-edge level of digital connectivity – would retain a greater proportion of graduates from the area's universities. The North East retains 54 per cent of its IT and telecommunications graduates – more than any other English region apart from London (66 per cent) and the North West (61 per cent) (E-skills UK 2012). Eleven per cent of the North East's graduates go to work in London, while 9 per cent go to Yorkshire and the Humber (ibid): in short, a stream of highly-skilled but inexperienced graduates from the region's universities coexists with a high demand for ICT graduates from many local businesses, and low utilisation of ICT in smaller businesses which stand to benefit from their skills. It is important to give these graduates a reason to stay.

Recommendation

NECC, in conjunction with the region's universities, should develop a programme for ICT graduate retention, including the facilitation of internships and work experience programmes, with the aims of modernising many traditional businesses' approach to digital connectivity, and providing businesses in the digital sector with the highly skilled graduates they need.

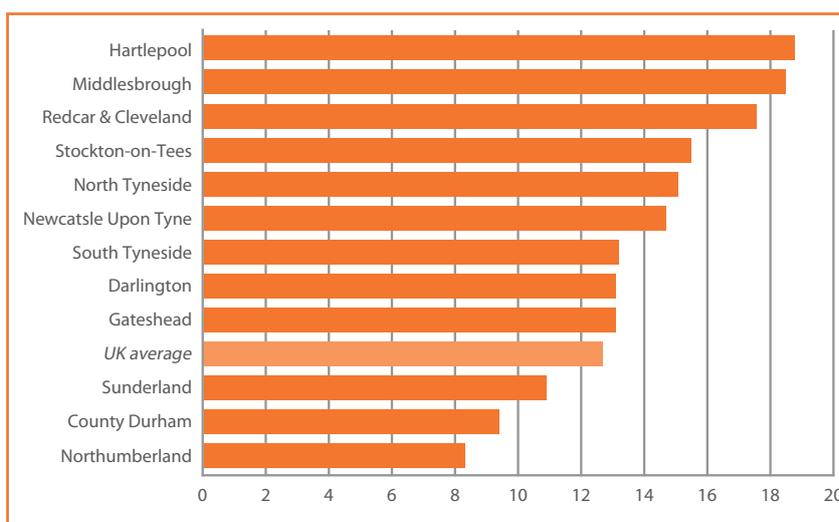
4.2 Supply and investment

4.2.1 Supply of SFBB

In the North East – as in the rest of the country – there have long been high-speed connections for those big businesses that can afford the investment, and the region is currently undergoing a roll-out of SFBB to make these speeds available for personal and small-business use.

Looking at the comparative speed of digital connectivity across the North East, in June 2012 most districts in the region were substantially outperforming the nationwide average sync speed for fixed broadband, which is 12.7 megabits per second (mbps). As figure 4.3 illustrates, Hartlepool (at 18.8 mbps), Middlesbrough (18.5 mbps) and Redcar and Cleveland (17.6 mbps) are performing particularly well. However, three districts are underperforming relative to the UK average: Northumberland (8.3 mbps) County Durham (9.4 mbps) and Sunderland (10.9 mbps).

Figure 4.3
Average sync speed
(mbps) by district,
June 2012

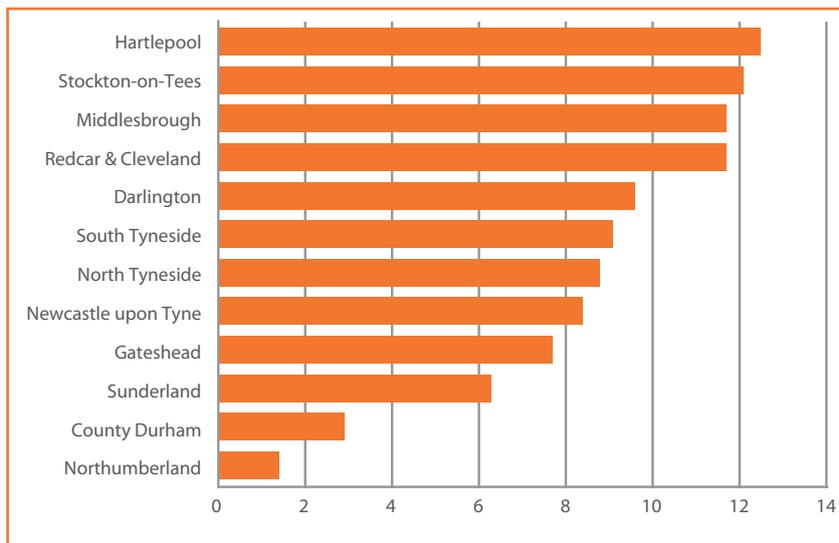


Source: OFCOM 2012b

The more rural areas of the North East tend to have the lowest take-up and availability of SFBB, as figures 4.4A and 4.4B below clearly show; in June 2012 Northumberland fared worst on both measures, followed by County Durham. In terms of take-up, the highest rates were found in Hartlepool (12.5 per cent), Stockton-on-Tees (12.1 per cent) and Middlesbrough (11.7 per cent), while availability was best in Middlesbrough (93.0 per cent), Hartlepool (92.6 per cent) and Stockton-on-Tees (88.8 per cent).

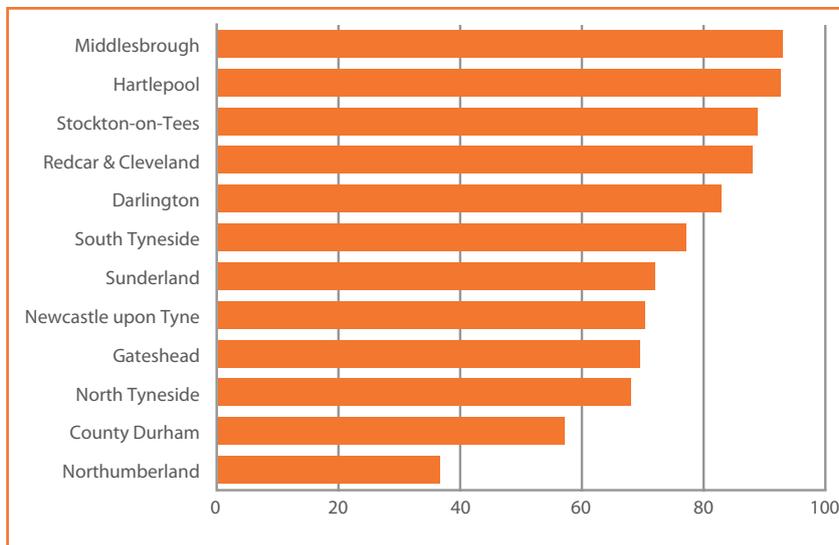
Among those we consulted, the availability of SFBB in the North East was generally regarded as adequate, being either in place or in train, with market failures due to be dealt with by public investment. Discussions did reveal a concern for ‘pockets of problems’ where businesses weren’t getting the coverage they needed to operate, and NECC recently highlighted a widespread desire among businesses in the region that government deliver SFBB funding far more quickly (NECC 2011). The region’s creative and digital sector is particularly keen for this to happen – not only does the sector itself have the capacity to grow, but it supports many other sectors and adds a great deal of value and employment to the region (ibid).

Figure 4.4A
 Superfast broadband
 take-up in the North
 East region, by district,
 June 2012



Source: OFCOM 2012b

Figure 4.4B
 Superfast broadband
 availability in the North
 East region, by district,
 June 2012



Source: OFCOM 2012b

Within the North East, Broadband Delivery UK has distributed £17.8 million of allocations in total, to:

- Durham, Gateshead, Tees Valley and Sunderland (£9.9 million)
- Newcastle upon Tyne (£1.0 million), and
- Northumberland (£7.0 million).¹²

However, consultees raised concerns about how the SFBB roll-out process was being communicated. First, it was felt there was a distinct lack of communication between the various partners: the government, suppliers, and businesses. Many thought that the roll-out was poorly thought through, that neither industry nor the small businesses who are key

¹² Figures may not sum due to rounding.

stakeholders were consulted, and that the process seemed driven by politics rather than economic intelligence. The communication problem was considered most acute between small businesses and suppliers, and one that travelled in both directions. It was clear that small businesses often did not receive the necessary support or encouragement to make their views heard by suppliers, or have the purchasing power with which to negotiate. The small size of these businesses means that they often rely on public authorities – whether local authorities or local enterprise partnerships (LEPs) – to facilitate this. It was felt that the demise of the regional development agency One North East left the region without a useful forum which also provided a strategic, coherent and reliable point of contact across a larger geography.

Some of those who utilise digital connectivity heavily felt that both the public agencies and large suppliers were behind the curve, and didn't fully appreciate the pace at which both the technology and the businesses that rely on it are moving. It was felt that international comparisons – the SFBB roll-out in the United States and Singapore, and free public Wi-Fi in South Korea, for example – would humble current ambitions for the North East, and frustration was expressed about the fact that companies overseas enjoy such advantages. Related to this was a suspicion that the scale of suppliers and public authorities in the UK at times got in the way of ingenuity, and that their conservatism was stifling much-needed innovation.

4.2.2 SFBB supply to rural and urban areas

Much of the North East is rural, and as such its businesses are increasingly dependent on digital connectivity (NECC 2011). There is therefore a high level of concern about the digital connectivity of the region's rural areas, and with other areas in the UK – notably Cornwall and Lancashire – leading the way, there are certainly lessons to be learned (ibid). The recent North East Independent Economic Review (NEIER), also commented on the need for greater rural broadband connectivity (NELEP 2013). Yet the current rural broadband programme has been criticised by the National Audit Office, which noted that the programme is nearly two years behind schedule, and that BT – operating within a framework which is clearly failing to stimulate competition – has underinvested in the programme (Comptroller and Auditor General 2013). However, both suppliers and local policymakers stated that, while the impatience is understandable – particularly on the part of small businesses and those whose industries are particularly innovative or reliant on digital connectivity – the plans for roll-out are in place.

As with other utilities – such as plumbing, electricity supply and telephone lines – businesses can only purchase their connection from a supplier once the SFBB infrastructure is in place. This means that landlords play a large role in determining the level of connectivity businesses can enjoy – yet the view of many stakeholders was that landlords were failing to meet what was felt to be an obligation to provide SFBB to their premises.

The key priorities that emerged from our consultation related to ensuring connectivity where demand is high: that is, both where there is high volume of demand (such as in the urban core), and where there is high need or dependency, which is true of creative and digital businesses and small businesses based in rural areas. It was reportedly very difficult to encourage suppliers to retrofit buildings and business parks, leaving many businesses without vital connections. There would also appear to be opportunities to improve the communication of plans for and progress towards enhancing digital connectivity, in order to both broadcast the region's business-friendly culture, and somewhat alleviate businesses' understandable frustration at real or perceived lack of progress.

Recommendations

1. Local authorities should identify business parks and business properties which lack connectivity and mediate solutions between suppliers and landlords, ensuring that the needs of small businesses aren't ignored. Steps taken should be clearly communicated to a business audience.
2. New property developments risk creating new areas of market failure in locations where there is little incentive for suppliers or property developers to extend SFBB coverage, leaving businesses without. Local authorities should explore how this can be resolved, making use of the planning system where appropriate.

There are also urban 'white areas' (areas of market failure), with business parks which have no connectivity for SFBB presenting a particular issue. It was noted that, often, retrofitting a business park can be as expensive as rolling-out SFBB to a rural village.

Not only that, but a recent legal obstacle has made the proper provision of digital connectivity in urban areas more difficult (Williams 2013). The objective of public funding for the roll-out of SFBB is to plug gaps where there are market failures – the so-called white areas that suppliers won't invest in themselves. However, in its application to built-up urban areas at the centre of cities – such as Newcastle – this use of public money appears to constitute a breach of European state aid rules. This was challenged by stakeholders in Birmingham, but the UK government has backed down from challenging this in the European courts on the city's behalf. As a result, in the economic cores of Newcastle and other major UK cities, which are vital for driving national growth, there will be small businesses with no access to a SFBB connection because of failure by both the market and the state to find a solution.

Recommendation

Newcastle city council should work with the other Core Cities to push for a solution to the state aid obstacle regarding the roll-out of SFBB in high-density urban areas. Rural local authorities in the region should do likewise, by forming an association with other areas in order to press suppliers to roll-out SFBB in a way that maximises the benefit to the public.

Finally, several small-scale supply-side problems were also reported during the consultation which require further investigation:

- It is often not in an ISP's interests to encourage the uptake of new hardware, perhaps because there are better margins on older technology.
- ISPs sell far more aggressively to domestic users than they do to businesses – they tend to target businesses for internal communications (such as business phones), but not for SFBB.
- Some small businesses have encountered reluctance from suppliers to engage and negotiate with them.

4.3 Utilisation and demand

It would appear that, like the UK as a whole, the North East has more of an issue in terms of the utilisation of and demand for digital connectivity than it does in terms of supply. These features, unlike the supply-side failures described above, are determined not so much by geography but by the size, sector and certain other features of businesses. Failures in utilisation range from those who make no use of digital connectivity at all, to those that fail to fully utilise the technology they do have. There was a concern that ‘digital ghettos’ could arise, and that ‘e-parochialism’ dominated some companies and sections of certain industries.

There are several potential reasons businesses are not fully utilising the digital connectivity available to them. In our consultation, stakeholders suspected that underutilisation was due to the following possible reasons:

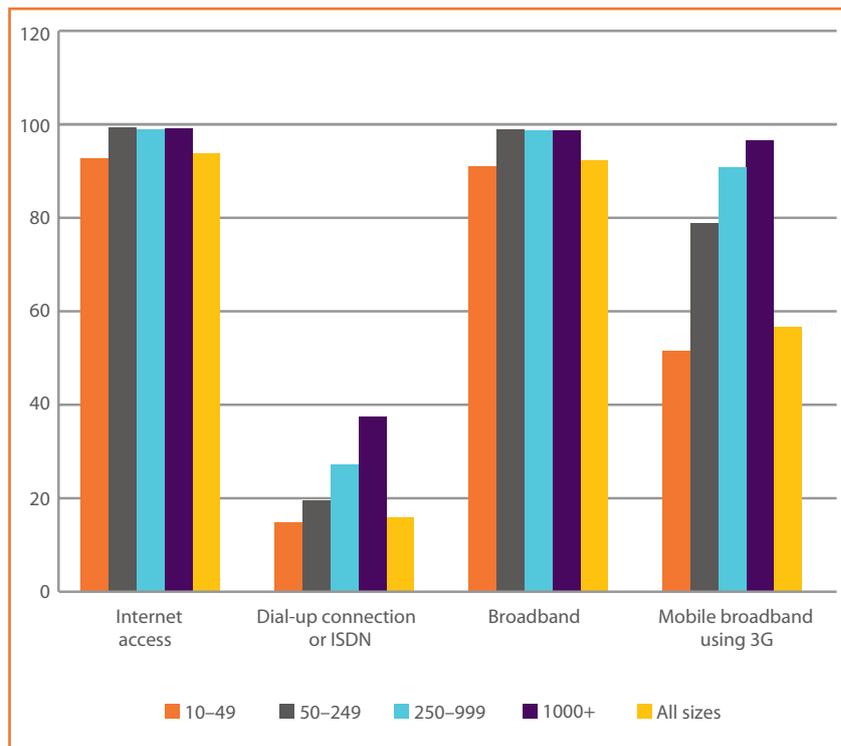
- The North East is dominated by businesses in traditional sectors (such as manufacturing), where relationships were firmly established and less dynamic.
- Small businesses tend not to have the time or capacity to reflect on their operations and look into new ways of working.
- Without exposure, a vicious cycle can develop whereby not being connected itself precludes further utilisation, as it means that businesses aren’t in contact with other firms that are pushing the boundaries of connectivity.

4.3.1 Business size

The consultation confirmed that business size is a key factor in utilisation, with smaller businesses far less likely to be using the available connectivity to the full. Even among those businesses that are already connected, it is difficult to communicate the additional benefits of faster and better connections to smaller firms. However, it was reported that contact is important, and that those SMEs that formed part of the supply chains of big companies tended to utilise digital connectivity more due to their exposure to the more advanced operations of larger companies. Smaller businesses also tended to have an ‘expectation problem’ – they haven’t adjusted to the need for SFBB in the modern economy, and so don’t ask for it from landlords.

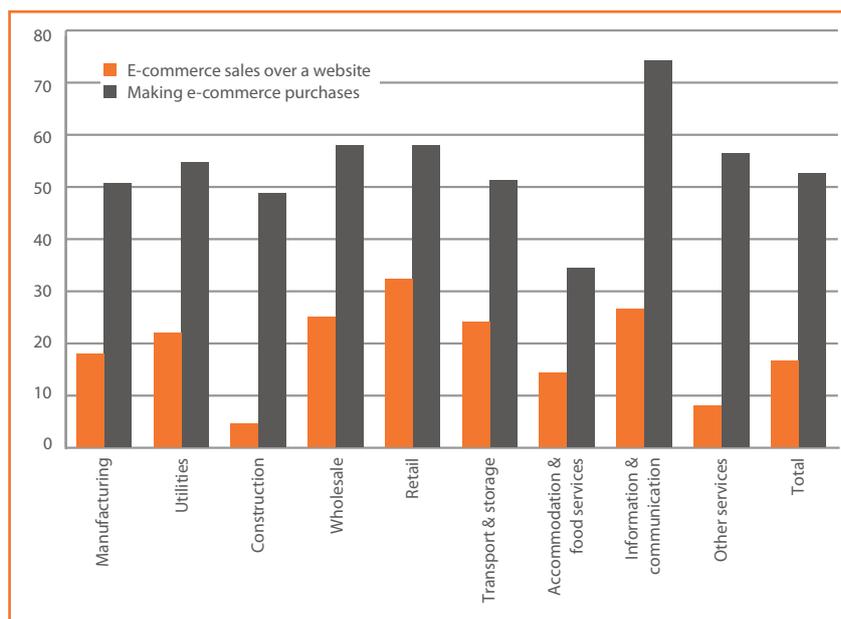
It is the internet in particular that has empowered many SMEs to grow, by enabling them to access wider markets and to market and sell a broad range of products online (Kalapesi et al 2010). Yet, as figure 4.5 below shows, despite the advantages that it confers, smaller businesses tend to be more poorly connected: 93.0 per cent of small businesses (with 10–49 employees) have internet access, compared with 99.4 per cent of big businesses (which employ 1,000 or more) (ONS 2012b). The gap in terms of mobile broadband using 3G is also substantial: among small businesses, uptake is only 51.5 per cent – almost half the rate of big businesses (96.9 per cent) (ibid).

Figure 4.5
Connectivity of UK
businesses by size-
band, 2011



Source: ONS 2012b

Figure 4.6
E-commerce activity by
UK businesses by sector,
2011



Source: ONS 2012b

4.3.2 Business sector

Industrial sector is also a key determinant of business utilisation – e-commerce usage among different sectors in 2011 is summarised in figure 4.6 above, and it makes clear that of these, information and communication (74.4 per cent) comes out top, but that there is also high usage in retail (28.2 per cent), wholesale (58.1 per cent), and other services (56.6 per cent). The pattern is different in terms of sales, however, with particularly high degrees of usage in retail (32.4 per cent), information and communication (26.6 per cent) and wholesale (25.1 per cent).

Recommendation

NECC and other business organisations in the region should prioritise schemes to encourage the uptake and full utilisation of digital technology, particularly among smaller businesses and those particular sectors which would benefit most. This should include the development of special offers in partnership with particular service providers, which the organisations involved could then promote as a benefit of membership.

4.4 Interaction and interconnectivity

The interaction between digital connectivity and other modes – road, rail, air and sea – is markedly different from the interaction between those conventional modes of transport – a point that was picked up on by almost all consultees. However, this is not to underplay its significance to – and interaction with – these other modes. indeed, there are effects of substitution and complementarity, as well as the unique ability to simultaneously combine digital connectivity with the other modes of connectivity.

4.4.1 Competition and complementarity

The government has recognised that digital connectivity can have a substitution effect on international travel by allowing telepresenting and videoconferencing (Airports Commission 2013). Our consultation found that this view was shared in the North East – it was reported that digital connectivity does indeed reduce the need for travel, and is particularly useful for sole traders and employees living in rural areas.

Relatedly, working from home can clearly negate the need to travel by road or rail. While some reported that the working-from-home trend in had reached its peak, others were not so sure: if it is viewed as a perk, then the recession means that employers will find it less necessary to offer such incentives. However, rising transport costs and falling real wages could potentially result in an increase in this mode of working. It was also expected that SFBB will make a significant difference in this regard, as more and more private connections will be of a speed sufficient to enable videoconferencing from home.

However, the consultation found that the potential negative impacts of competition and displacement were outweighed by the complementarity and benefits that greater digital connectivity can offer. Research by the Airports Commission (2013) has found that digital connectivity has the ability to support both global and national networks – these are of particular importance to the North East's businesses, many of which are either global companies or global players with broad horizons, and which often have operations across many countries and continents. However it was also felt that this is another way in which the proliferation of SFBB will level the playing field for small businesses in terms of offering them greater global connectivity, and by enabling them to compete at this scale their demand for air connectivity is also likely to increase.

Overall, it was felt that while there may be some substitution effect, many of those who made note of the trend also conceded that, despite the increase in flexible modes of working, face-to-face contact will remain important: as well as 'travelling electronically' using digital connectivity, business people will always need to travel physically.

4.4.2 Wi-Fi and travel

Another point of interaction between digital connectivity and the other modes is the way in which people connect digitally while they actually travel, particularly when using Wi-Fi on trains, trams and buses, and in ports, airports and public spaces. It was noted that enabling people to connect digitally while travelling would result in significant productivity gains, as it would mean that time spent on transport could be spent working; it would also have the added benefit of stimulating greater use of public transport. It was felt that this would not only bring a productivity benefit, but it would also be socially valuable, stimulate interest from those businesses that are currently reluctant to utilise what's available, and would benefit smaller businesses in particular. Some felt that current digital connectivity on trains was problematic, but it was noted that this is a problem elsewhere in the country and across the world which can be put down to the technology available.

This is in contrast to free public Wi-Fi – in town centres, for example, about which there was some frustration given that the technology not only exists but is being used across the world, just not in the North East. It was felt that this could add value by projecting a modern, pro-business image. There have already been attempts to roll out public Wi-Fi, but complications in both Newcastle and Durham have hindered its progress. There is also an emerging possibility of a public Wi-Fi connection in Newcastle International Airport.

There appear to be some obstacles to the progression of digital connectivity policy, not least the understandable fear that public authorities that provide public, open Wi-Fi could be held legally accountable for any abuses of it. Nevertheless, some local authorities have pushed ahead with this, with Newcastle city council recently announcing progress in this regard, though details have yet to be finalised (the Journal 2013).

Recommendation

Local authorities should move quickly to realise the benefits of free public Wi-Fi and bring forward plans for its implementation. Transport North East should identify hotspots across the region where free public Wi-Fi would have the most economic benefit – such as in public spaces, transport hubs, and on transport itself – and work with the local authorities in which they are situated to support their development.

5. INTERNAL CONNECTIVITY

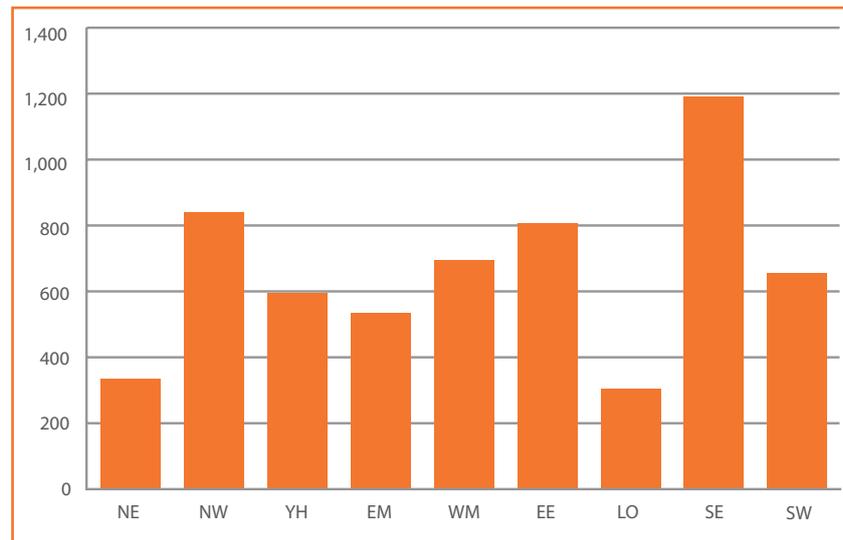
As has been noted earlier in this report – particularly in the sections on air and sea connectivity – the success of the North East’s internationally-facing infrastructure is dependent on the support of the internal transport network: the roads and railways that transport businesspeople and freight to and from the North East’s airports and ports are vital to the region’s economy. This section looks at how road and rail infrastructure supports the ports and airports in the region, and draws out strategic priorities that stakeholders should focus on to ensure that the region fully capitalises on these vital assets and ensures the best possible connectivity between the main international gateways.

5.1 Road infrastructure

5.1.1 Current performance

The North East’s road network is 10,043 miles long and, as in the rest of the UK, the majority of this network (8,909 miles) consists of rural roads (DfT 2013b). However, in contrast to the rest of the UK, the North East’s network is of much lower quality: it has only 36 miles of motorway, and the main city, Newcastle upon Tyne, is not directly connected to the UK’s motorway system at all. In 2008, the OECD calculated that motorway density (the number of kilometres of motorway per head of population) in the North East was only 0.02 – less than half the UK average of 0.05; this research also concluded that infrastructure in the North East was significantly below both national and OECD standards (OECD 2012). This lack of roads is not limited to motorways. Figure 5.1 below shows how the North East lags behind every other English region (excluding London) in terms of dual carriageways.

Figure 5.1
Length of road (miles)
which is a major road
dual carriageway, by
English region, 2012



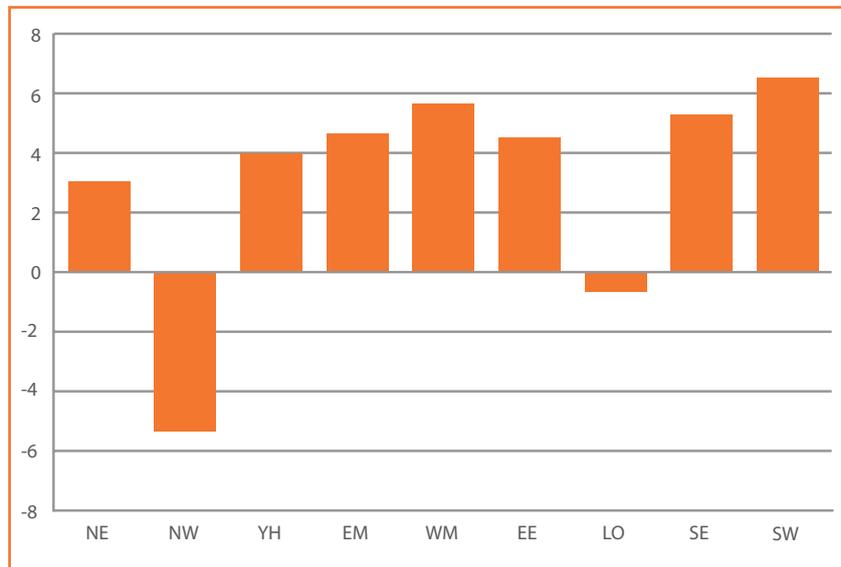
Source: DfT 2013b

Yet despite the relatively poor road network, car ownership in the North East rose by 3.0 per cent between 2006 and 2011 (see figure 5.2 below). Over the same period, road congestion eased in the North East, as it did in the country as a whole (DfT 2012a).

Our consultation found that the roads in the North East were thought to perform their vital function well, and were able to both facilitate internal (intra- and inter-regional) connections as well as international connections via the airports and ports. There are, however, only two main roads in the North East (the A1 and the A19), and the region’s

reliance on them was felt to be a connectivity problem in itself – many commented that both are heavily congested during peak periods. There are also multi-modal issues with regards to the A19, as Nissan relies on the road heavily in order to access the Port of Tyne. Looking to the Tyne’s road tunnels, research has found that volumes respond to capacity, and that the initially positive impact that the opening of the second Tyne tunnel had on congestion has begun to disappear, with a reported 10,000 additional vehicles per day travelling through the site (TT2 2013). The message from the North East, as elsewhere, appears to be that increasing capacity doesn’t necessarily ease congestion, and can merely increase utilisation.

Figure 5.2
Percentage change in car ownership by region 2006–2011



Source: DfT 2012a

5.1.2 Pressures and priorities

While all agreed that congestion was a problem on certain routes in the region, the consultation found a clear split in terms of the solutions.

One view is that the road network as it currently stands can, with the modal shift toward rail, be managed in such a way as to make further physical developments unnecessary. Consequently, increasing road capacity is not a solution: some suggest it will merely increase uptake, and fail to solve congestion problems (NECTAR 2013). There was evident concern about encouraging car use (and the resultant increase in carbon emissions) as part of a solution to congestion, and a preference for a programme of traffic management schemes, ‘whether involving “hard shoulder” running, congestion charging, variable speed limits, bidirectional traffic lanes, bus priority, phased traffic signalling or peak hour closures of certain access roads to major highways’ (ibid), encouraging modal shift toward public transport. Some consultees viewed the use of ‘big data’ and ‘smart journeys’ to manage transport networks as potential aspects of a solution to congestion. While business use of public transport is increasing, it was felt that many will continue to use cars to access the airport in particular – and in order to overcome this, the quality of airport interchanges was felt to be key.

Although not diametrically opposed, the other view is that capacity should be expanded through a series of improvements to the road network. The North East has clear and

consistent priorities in terms of the roads it wants to see developed: the A1 and the A19 are often put forward for development by stakeholders in the region (NECC and CBI-NE 2013, NELEP 2013). Stakeholders were of the view that certain improvements to the A1 and A19 would be of benefit to the ports – particularly a resolution to the bottleneck on the A19 which serves the Port of Tyne. The A1 and the A19 are not, however, the only road priorities in the region, with many keen to see the A66 and A69 which serve Teesport and Port of Tyne developed, albeit in the longer term (NECC and CBI-NE 2013).

A general question was raised regarding the trends in car usage in the UK, and how they pertain to the North East region – whether the number of cars has peaked, and the extent to which the decarbonisation of transport will impact on this trend. Relatedly, a new UK-wide network of hydrogen refuelling stations for fuel-cell (hydrogen-fuelled) vehicles is in the very early stages of planning. Initially, many of these vehicles will be heavier vehicles, such as buses and lorries, needed to deliver people and freight to ports and airports. While it is too early in the network's planning stages for an assessment of this development's likely impact on the travel patterns or economy in the North East to have taken place yet, transport planners and policymakers must properly consider that impact in future.

Recommendation

In its assessment of the infrastructure improvements needed, Transport North East should prioritise improving those sections of the A1 and A19 that do most to support the international infrastructure and internationally-facing businesses in the region. It should also develop a strong case for the dualling of the A1 north of Newcastle to improve connectivity with Scotland. Yet it should also recognise that, ultimately, achieving modal shift is a more sustainable approach to addressing the transport needs of the region, and factor this into its longer-term strategic planning.

5.1.3 Buses and smart-ticketing

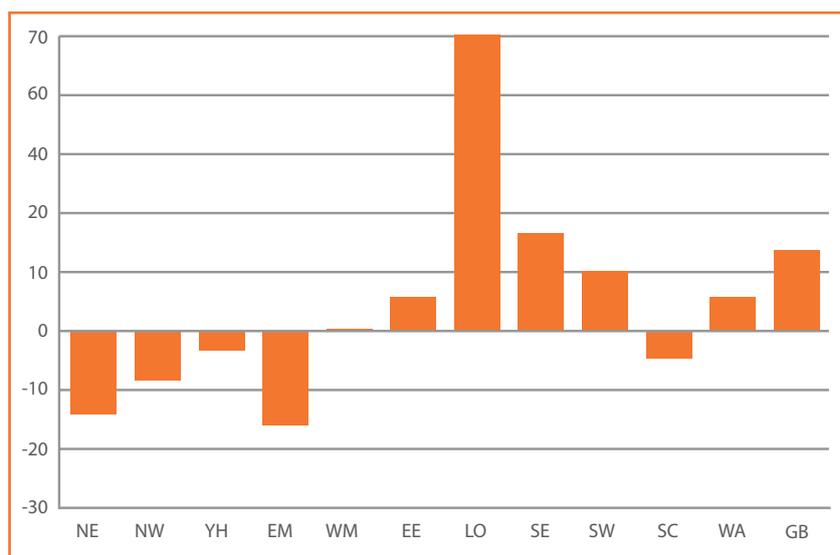
Some stakeholders felt that bus connections are vital, yet often overlooked by policymakers. There were 199 million passenger journeys in the North East in 2011/12, which actually represents a substantial 17.8 per cent fall on numbers from just a decade earlier. This contrasts with a 17.5 per cent rise across the UK as a whole over the same period – only in the East Midlands was the fall in bus passenger journeys greater than in the North East. These changes are summarised in figure 5.3 below.

The NEIER (2013) has argued for the development of a single network-wide smart-ticketing system for Tyne and Wear buses to drive competitive pricing on the area's buses, with later roll-out to other modes of transport. In the context of international connectivity, making bus journeys to and from the airports and ports easier is an important consideration, as it facilitates interconnectivity between the different modes of travel that people might use to get to international gateways.

Recommendation

In accordance with the recommendation of the NEIER, Transport North East should, in consultation with stakeholders, make plans for the roll-out of smart-ticketing across the region to encourage competition on pricing and improve the uptake of public transport among businesspeople.

Figure 5.3
Percentage change in local bus passenger journeys by region, 2002–12*



Source: DfT 2012c

*Note: The methodology used to estimate these figures changed in 2004/05

5.2 Rail

5.2.1 Current performance

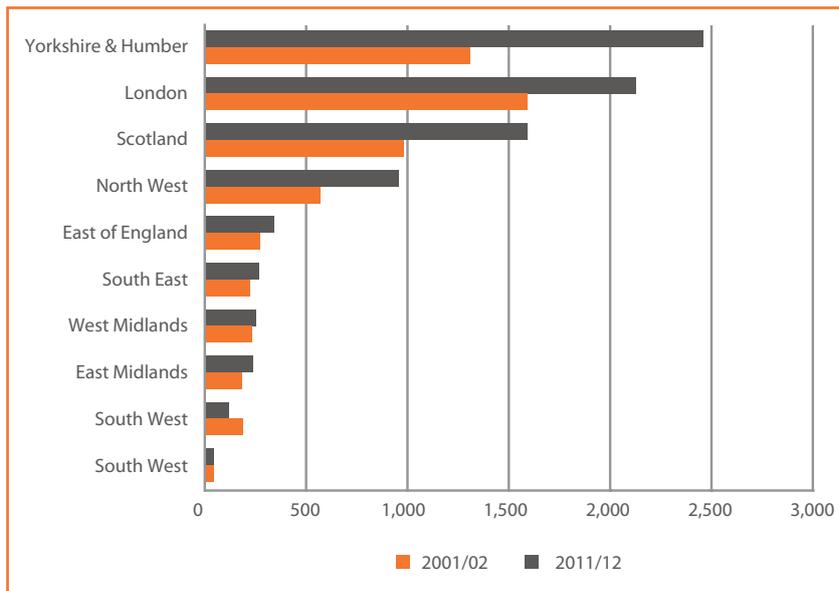
In 2011/12, 14.2 million passenger journeys were taken by rail in the North East, of which 8.3 million (58.7 per cent) were to or from areas outside of the region, with the remaining 5.8 million (41.3 per cent) made within the region. The total number of journeys increased by 4.9 million (53.0 per cent) in the 10 years to 2011/12. As figures 5.4A and 5.4B below show, the principal connection was to destinations in Yorkshire and the Humber, where 2.4 million journeys to or from another region connected, and to London, the connection for 2.1 million journeys (with the two regions accounting for 29.3 per cent and 25.4 per cent respectively of the total number of journeys). These positions switched in the 10 years to 2011/12, during which time connections to and from London fell by 3.1 per cent points, and journeys to and from Yorkshire and the Humber increased by 5.9 per cent. Within the North East itself, more than half of all journeys took place within Tyne and Wear (52.9 per cent), followed by Darlington (14.7 per cent) and Durham (13.3 per cent) (all figures from ORR 2013).

Our consultation identified some strengths in the North East's rail infrastructure: it was felt that the ECML was a good connection to London – a view corroborated by its 92 per cent passenger satisfaction rating, the highest the line has received since the survey began in 1999 (Passenger Focus 2013a). However, aside from the ECML line, the region's rail connections in general were felt by stakeholders to be particularly poor: whether to Middlesbrough or to Manchester, there were clear concerns about journey time and journey quality.

This does raise some questions about Network Rail's priorities for developing the rail connectivity in the region, which are primarily to reduce the journey time from Newcastle to London to two hours; improve connectivity via the ECML to Northallerton, Newcastle and the Durham coast; and improve connections to the region's borders with Scotland, Cumbria and North Yorkshire. Whilst there should be no complacency about the importance of these lines, research by the Northern Way (2011) highlighted the importance of increasing capacity

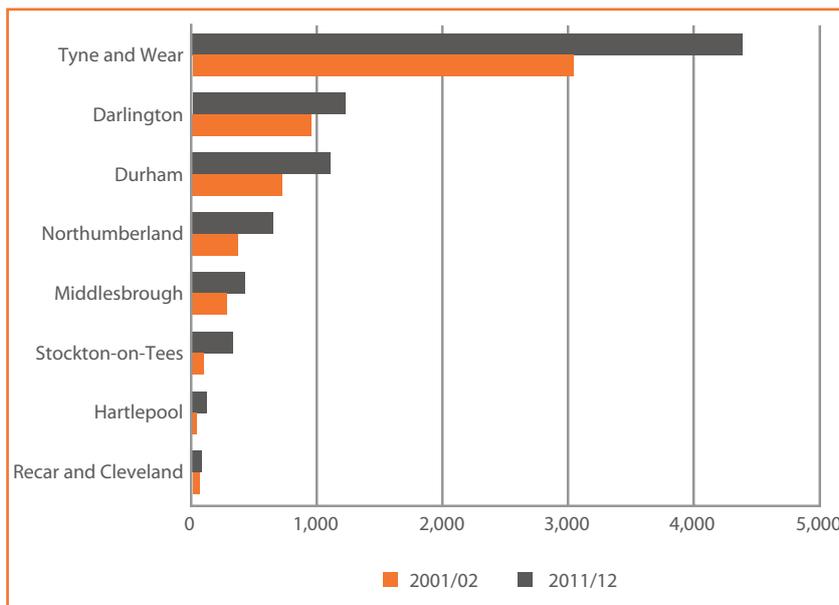
on the Northern and Trans-Pennine services for the region's economy, and this must be a key issue of concern with the forthcoming round of refranchising.

Figure 5.4A
Rail journeys to/
from outside the
North East (millions),
2001/02 and 2011/12



Source: ORR 2013

Figure 5.4B
Rail journeys within the
North East (millions),
2001/02 and 2011/12



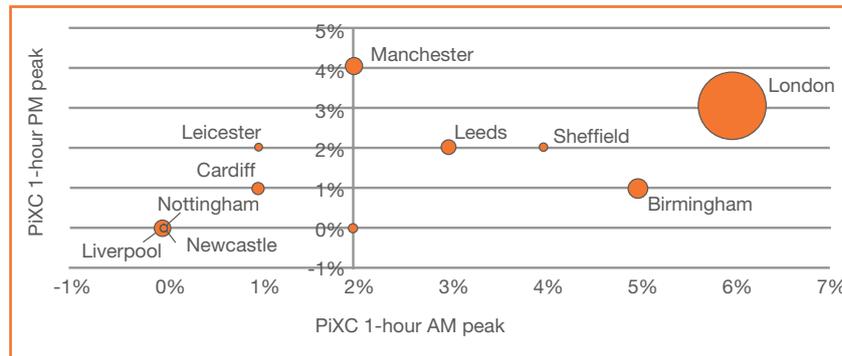
Source: ORR 2013

Overcrowding (measured by passengers in excess of capacity) is not a major problem on Newcastle's railways. As figure 5.5 below shows, Newcastle – along with Nottingham and Liverpool – is part of a trio of major UK cities which have no passengers in excess of capacity on their railways during both morning and evening one-hour peak times. (This is also the case for three-hour peak times in all three cities.) In this respect Newcastle

contrasts with other major cities – particularly London, which has high congestion on both the morning and evening commutes, but also Manchester, Birmingham, Sheffield and Leeds, all of which have rates of overcrowding in excess of the averages for all UK cities in either the morning (2.2 per cent) or evening (1.4 per cent) one-hour peak times.

Figure 5.5

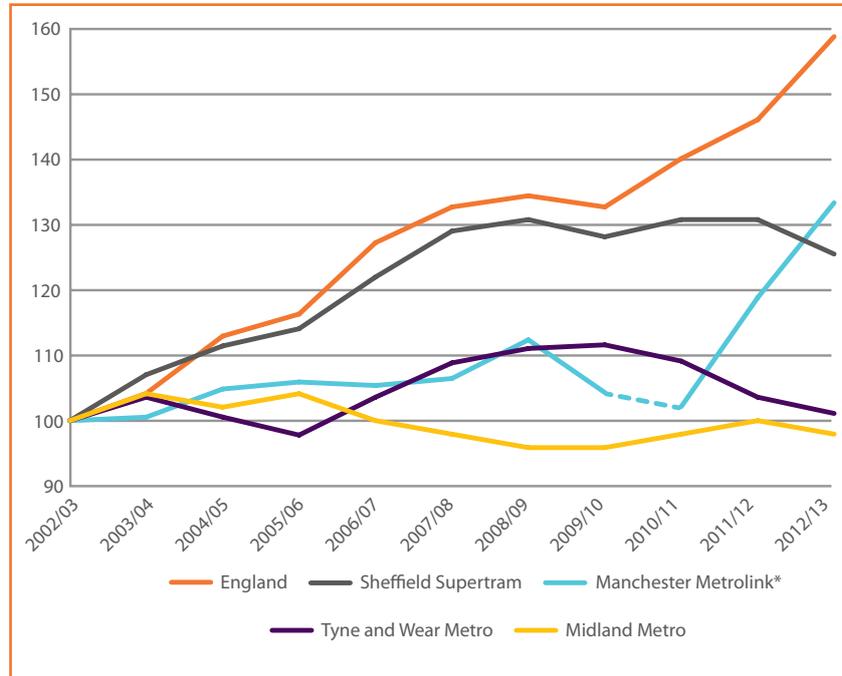
Passengers in excess of capacity (%) during one-hour peaks (am and pm) in major UK cities (size of circles = average volume of passengers during am and pm peak times)



Source: DfT 2013c

Figure 5.6

Growth in light rail and tram passenger journeys, by region and for England as a whole, 2002/03–2012/13 (2002/03 = 100)



Source: DfT 2013

*Note: Manchester Metrolink have revised their method for calculation of passenger boardings, so the figures from 2010/11 are not directly comparable with those from previous years

Usage of the Tyne and Wear Metro now stands at 37.0 million passenger journeys per year; over the decade to 2012/13 it increased by 400,000 (1.1 per cent), though passenger volume has fallen by 3.8 million (9.3 per cent) from its 2008/09 peak of 40.8 million (DfT 2013b). This is out of line with trends in other major UK cities outside of London, and with England as a whole, as figure 5.6 above illustrates. Many factors need to be considered in order to explain this – not least the recent significant extensions, for

example, to Greater Manchester's Metrolink. Despite some negative findings about Nexus (the North East's passenger transport executive) in a recent Passenger Focus survey (2013b) our own consultation found that many stakeholders were content with the Metro's service in general, and were satisfied with the connection to the airport specifically. There were, however, some concerns regarding some journey times

5.2.2 Pressures and priorities

As might be expected, HS2 featured in many of our conversations with stakeholders. While their general attitude was positive – in line with previous research by the Northern Way (2011) and NECC and CBI North East (2013) – there were some significant reservations: stakeholders expressed both hopes that this could help boost the North East's economy, and fears that it might act as a drain upon it. Its high and increasing cost was understandably a concern, and there was a firm consensus that, in order for its full economic benefit to be felt, the right onward connections must be put in place. There is strong evidence from other countries and within the UK that corroborates the view that, in order to fully benefit from high-speed rail, the networks connecting high-speed rail stations to wider transport networks that reach into the regions must also be looked at (Chen and Hall 2011).

Recommendation

Transport North East should press the case that all international and inter-regional connections – whether high-speed rail or flights to North America – have the internal connectivity required to maximise their economic benefit to the region and to the country as a whole. With the North East so reliant on international connectivity, it must be ensured that developments have the greatest possible impact by investing in the internal infrastructure needed to properly support new developments.

Electrification was also highlighted as a key priority during discussions with stakeholders in the region: this concurs with the NEIER, which recommended electrification of the lines between Middlesbrough and both Northallerton and Darlington (NELEP 2013). Stakeholders made the point that failing to electrify these routes would isolate the area significantly. Again, Network Rail is currently investigating such a development, but stakeholders emphatically made the point that transport infrastructure plans should not be made in isolation from other modal considerations and spatial economic strategies.

Recommendation

As part of a regional rail strategy, Network Rail and Transport North East should prioritise the electrification of the lines between Middlesbrough and both Northallerton and Darlington, and develop plans to maximise the current potential for the use of rail freight to and from the region's ports.

6. CONCLUSIONS

THE IMPORTANCE OF MULTI-MODALITY

The strength of the North East's export performance clearly relies on strong infrastructure. This is important to the local economies of the North East, but also to its contribution to the national economy, which is seeking to rebalance regional growth and improve its balance of trade. As such, the economic fortunes of both the region and the nation would be lifted by improvements to the North East's international connectivity.

This report has demonstrated how vital both airports and ports are in this regard, and how both depend heavily on other modes of transport – the road and rail infrastructure – in order to operate. The interconnections between different modes are critical in order to ensure that the transport system as a whole is more than simply the sum of its parts. The interconnectivity of the whole system is often known as multi-modality. Based on research, data and qualitative evidence drawn from interviews and roundtables, this section looks first at the theory underpinning multi-modal connections, before moving on to look specifically at multi-modality in the North East.

6.1 The multi-modal approach

To date, most transport project appraisal has been mode-specific. Furthermore, government funding formulae, strategies and frameworks are also mode-specific, with different policy teams for each mode of transport. To an extent this reflects how the industries operate at corporate level (although many transport businesses provide different modal services within the same group of companies).

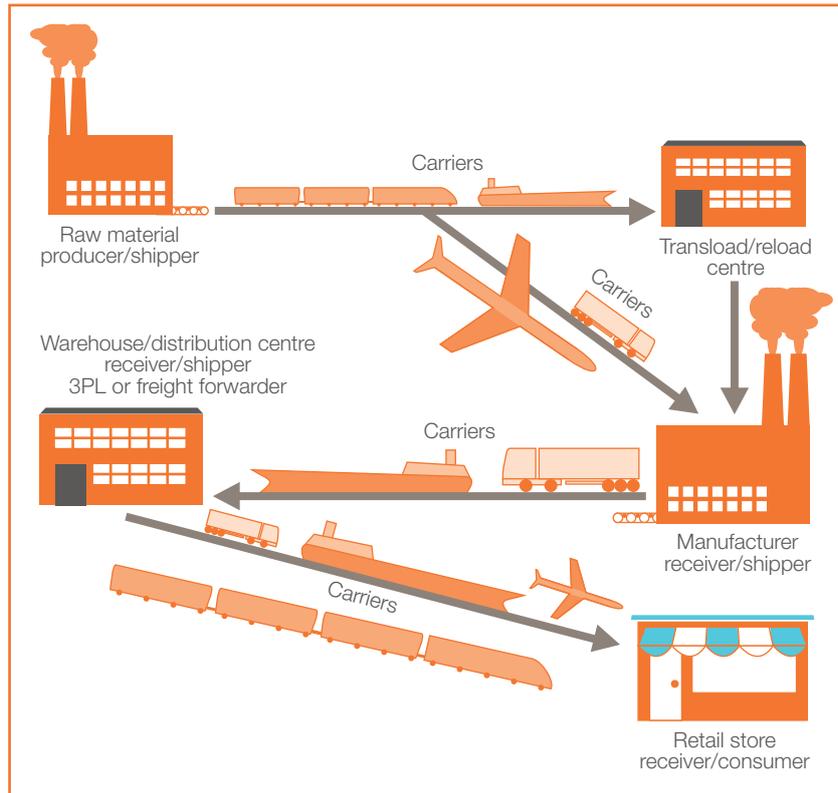
However, this approach does not reflect the way that travellers approach their journeys: 'When planning the commute to work or a long-distance trip, people think about the cost, convenience and complexity of the entire door to door journey – not simply one element of it' (DfT 2013e). Most journeys – whether domestic or international, business or pleasure – will involve more than one mode of travel, and the attraction of making any single journey is largely determined by the weakest link in the chain of numerous connections.

In order to fully capitalise on transport infrastructure investment, the importance of multi-modality is clear, and the case is made both forcefully and often (see for example ICE 2013). In order to develop strategies that account for the dynamics of business decisions and their interactions with static infrastructure investments, clearly a view must be taken of the whole rather than its component parts.

In order to do so, it is crucial to understand that transport infrastructure assets have a differential impact on users and their market access depending on their business and its connectivity needs – and they will therefore have a differential impact on areas, depending on their industrial composition. As such, it is necessary to consider not only the origins and destinations of journeys, but also the purpose for which they are undertaken. A businessperson travelling from the North East to China is going to have very different internal and international transport needs to a business exporting large manufacturing products from the North East to China, whose needs in turn differ from a business importing small parts from China to the North East to make technologically advanced consumer products. Yet all three are business journeys, with similar origins and destinations, and all three have the potential to have a positive impact on the North East's economy. To fully understand transport infrastructure, it is necessary to think of each part of a journey not in isolation, but rather to consider the whole journey: a multi-modal analysis must be undertaken from the perspective of the individual traveller.

As an example of this interaction, figure 6.1 below illustrates the interconnectivity of shipping freight.

Figure 6.1
An illustrative multi-modal supply chain of freight shipment



Source: Recreated from WSA 2007

One approach to analysing multi-modality is to define different types of access and connectivity, and then to ‘develop econometric models of the relationship between access/connectivity characteristics of local areas and relative levels of business productivity, job concentration and export base’ (Alstadt et al 2012). The seven types of access and connectivity suggested by Alstadt et al (2012) are:

- local market access
- regional delivery market
- access to a domestic airport
- access to an intermodal rail facility
- access to a major seaport
- access to a major international airport, and
- access to a major international land border.¹³

Another approach to multi-modal analysis is to develop a land-use model and a transport-use model, and then to consider the interfaces between them (Arup et al 2002). Arup et al’s land-use model estimated future population and employment distributions based on different scenarios which included estimates of spatial linkages between different activities,

¹³ The latter is not relevant to the North East, provided that Scotland does not vote to leave the UK in the 2014 referendum.

and used this to generate a matrix of demand for travel. The transport model took different elements relating to the supply of transport, such as costs and the characteristics of public transport and the road network. It allowed for differences in travel choices by travellers who had varying access to private transport and different trip purposes, and by travellers changing their travel habits as the provision of transport changed. The outputs of the two models for each year were fed into each other, producing a multi-modal annual picture of travel habits.

However the analysis is conducted, it must account for several key things:

- industrial composition
- the quality and quantity of existing infrastructure
- the ability of both the public and private sector to work together to deliver complex intermodal changes, and
- future changes to any of the above.

6.2 Multi-modality and economic growth in the North East

Our consultation highlighted a high level of support for a multi-modal approach to transport planning, and a strong desire for a unified, coordinated approach to transport in the region – with emphasis on improving the whole region’s international connectivity.

A lack of coordination and strategy was identified as a major concern, and our consultation and wider research found little evidence of a multi-modal approach being taken, or of the connection being made between the economic growth generated by international connectivity and internal modes of transport. This problem is not isolated to the North East, but extends across the country and – as is evident in the sections of this report, particularly on air connectivity – it is part of an endemic problem in Whitehall. Government’s transport infrastructure decisions are often made with only passing reference to national and regional transport strategies, and often without any evidence concerning the effect on economic growth in different regions of the UK. Network Rail in particular has noted that the lack of a unified transport strategy is a barrier to a more effective multi-modal approach, and the Institution for Civil Engineers also considers this a problem (ICE 2013).

There is also a notable lack of evidence on which to base key transport decisions, particularly the specific industrial needs of businesses in the North East, and what businesses could gain from a modern and integrated transport system. For example, the North East LEP (NELEP 2013) found that no business case was made for many road developments in isolation, let alone an analysis of the wider economic benefits that a programme of road and rail improvements, geared toward enhancing international connectivity, could generate. This is despite the research on multi-modality carried out by the DfT in the North East in the early 2000s (Arup and Scott Wilson 2002, in NECTAR 2013). The transition from research to clear, consistent, long-term strategy was not made, and as a result there has been a noted problem with the ‘cherry-picking’ of transport schemes, and with the urge to do new things instead of focusing on what is known to work well.

From all of the research that we reviewed, two inseparable priorities for transport policy in the North East kept emerging: cooperation between the decision-making authorities and transport users, and the integration of transport modes around the passenger journey. Both cooperation across partners and integration across modes are important, because

modal shift was a major feature of our consultation, and is increasingly becoming a focus of transport policy more generally (DfT 2013e). It is clear that all modes are strongly interdependent on one another, and that capitalising on the efficiencies to be made by coordinating improvements and planning for the longer-term is essential. This point is not entirely dependent on the economic and fiscal situation, but made all the more important by it.

This holistic and multi-modal approach requires devolution, integration and intelligence.

In order to achieve a more unified transport policy at national, regional and local levels, it is important to devolve much more transport policy and funding so that the North East can shape its own priorities. Participants in our consultation stressed the importance of getting big players together – across authorities, and across transport providers and businesses – but made it equally clear that it is vital to respond to the needs, patterns and trends of individuals’ use of the infrastructure. Buy-in from business was felt to be key, as was better reporting of usage which would better enable transport to respond to the businesses’ needs. To that end, the NEIER recommended setting up a Transport North East body, funded by existing streams and from borrowing (NELEP 2013).

However, it was agreed that this cooperation alone would not in itself bring about the level of integration required. Our consultation found that the full utilisation of available technology is an essential component of capitalising on a multi-modal understanding of users. This includes the use of smart-ticketing and ‘big data’ to better map out their journeys and interactions. The communication and coordination that underpin such an approach is evidently key, and would provide the evidence base on which to form strategies and integrate transport infrastructure most effectively.

Recommendation

In accordance with the proposals of the North East Independent Economic Review, the Combined Authority should establish a single transport delivery agency for the North East LEP area – ‘Transport North East’ – with a view to producing a transport strategy for the region and a prioritised investment programme. However, alongside the remit set out by the NEIER, we propose that Transport North East:

- Recognises the improvement of the region’s international connectivity as a primary objective of its transport plans.
- Adopts a multi-modal approach to all planning and appraisal processes.
- Makes a strong case for the decentralisation of wide-ranging transport powers, and works closely with the DfT and national transport bodies to integrate national policies with its own.
- Prioritises collaboration with the Tees Valley authorities from the outset, with a view to exploring a formalised relationship where this is seen to be of mutual benefit.
- Before any relationship is developed between Transport North East and the Tees Valley authorities, it is recommended that the Tees Valley authorities continue to develop their strategic transport ambitions and implementation plans, with a growing focus on international connectivity and multi-modal appraisal.

REFERENCES

- Airports Commission (2013) 'Discussion Paper 02: Aviation Connectivity and the Economy', London: HM Government. https://www.gov.uk/government/uploads/system/uploads/attachment_data/file/138162/aviation-connectivity-and-the-economy.pdf
- Alstadt B, Weisbrod G and Cutler D (2012) 'The Relationship of Transportation Access and Connectivity to Local Economic Outcomes: A Statistical Analysis', *Transportation Research Record* N2297 (2012): 154–163. <http://www.edrgroup.com/pdf/Alstadt-Weisbrod-Market%20Access-TRB-2012.pdf>
- Ove Arup and Partners International Limited [Arup] and Scott Wilson Scotland Ltd [Scott Wilson] (2002) *A1 North of Newcastle Multi-Modal Study*, London: Department for Transport
- Ove Arup and Partners International Limited [Arup] and Scott Wilson Scotland Ltd, in association with Marcial Echenique and Partners and Social Research Associated Ltd (2002) *Tyneside Area Multi-Modal Study: Study Report*, UK: Arup and Scott Wilson. <http://www.suburbansolutions.ac.uk/documents/TAMMS%20Tyne%20&%20Wear%20study/TAMMS%20Final%20Report.pdf>
- Blonigen B A and Cristeaz A D (2007) 'Airports and Urban Growth: Evidence from a Quasi-Natural Policy Experiment', Oregon: University of Oregon. http://pages.uoregon.edu/bruceb/airurban7_final.pdf
- Bloom N, Sadun R and van Reenen J (2005) 'Information Technology and Productivity: It ain't what you do it's the way that you do I.T.: Testing explanations of productivity growth using US affiliates', EDS Innovation Research Programme discussion paper series no 002, London: Centre for Economic Performance, London School of Economics and Political Science. <http://www.lse.ac.uk/researchAndExpertise/units/innovationResearch/pdf/EDSdp002.pdf>
- British Ports Association (2013) 'Market Overview', webpage, accessed 01 October 2013. <http://www.britishports.org.uk/uk-ports-industry/market-overview>
- Chen C L and Hall P (2011) 'The impacts of high-speed trains on British economic geography: a study of the UK's InterCity 125/225 and its effects', *Journal of Transport Geography* 19: 689–704
- Civil Aviation Authority [CAA] (2009) *CAA Passenger Survey Report 2009*, London. <http://www.caa.co.uk/docs/81/2009CAAPaxSurveyReport.pdf>
- Civil Aviation Authority [CAA] (2013) 'Table 04: Air Transport Movements 2002–2012', London. http://www.caa.co.uk/docs/80/airport_data/2012Annual/Table_04_2_Air_Transport_Movements_2002_2012.pdf
- The Comptroller and Auditor General (2013) *The Rural Broadband Programme*, London: National Audit Office. <http://www.nao.org.uk/report/the-rural-broadband-programme/>
- Cristureanu C and Bobirca A (2007) 'Airports Driving Economic and Tourism Development', *Romanian Economic Journal* X(25): 31–44. <http://www.rejournal.eu/Portals/0/Arhiva/JE%2025/JE%2025%20Cristureanu%20Bobirca.pdf>
- Department for Business Innovation and Skills [BIS] (2010) *Blueprint for Technology*, London. https://www.gov.uk/government/uploads/system/uploads/attachment_data/file/32432/10-1234-blueprint-for-technology.pdf

- Department for Business Innovation and Skills [BIS] (2012a) 'Industrial Strategy: UK Sector Analysis', BIS economics paper no 18, London. https://www.gov.uk/government/uploads/system/uploads/attachment_data/file/34607/12-1140-industrial-strategy-uk-sector-analysis.pdf
- Department for Business Innovation and Skills [BIS] (2012b) *The 2011 Skills for Life Survey: A Survey of Literacy, Numeracy and ICT Levels in England*, London. <https://www.gov.uk/government/publications/2011-skills-for-life-survey>
- Department for Culture, Media and Sport [DCMS] (2011) *Britain's Superfast Broadband Future*, London. <https://www.gov.uk/government/publications/britains-superfast-broadband-future>
- Department for Transport [DfT] (2011a) *National Policy Statement for Ports*, London. <http://assets.dft.gov.uk/publications/national-policy-statement-for-ports/111018-ports-nps-for-das.pdf>
- Department for Transport [DfT] (2011b) *Shipping Fleet Statistics*, London. www.dft.gov.uk/statistics/series/shipping-fleet
- Department for Transport [DfT] (2012a) 'Table VEH0204: Licensed cars, by region, Great Britain, annually: 1994 to 2011', London. <https://www.gov.uk/government/statistical-data-sets/veh02-licensed-cars>
- Department for Transport [DfT] (2012b) 'Table CGN0902: Average journey times (flow-weighted) during the weekday morning peak on locally managed "A" roads, by region in England: annually from 2006/7', London. <https://www.gov.uk/government/statistical-data-sets/cgn09-flow-weighted-vehicle-speeds-by-region>
- Department for Transport [DfT] (2012c) *Annual Bus Statistics 2011-2012*, London.
- Department for Transport [DfT] (2013a) *UK Aviation Forecasts 2013*, London
- Department for Transport [DfT] (2013b) 'Table RDL0101: Road lengths (miles) by road type and region and country in Great Britain, 2012', London. <https://www.gov.uk/government/statistical-data-sets/rdl01-road-lengths-miles>
- Department for Transport [DfT] (2013c) *Rail Passenger Numbers and Crowding on Weekdays in Major Cities in England and Wales, 2012*, London
- Department for Transport [DfT] (2013d) *Light Rail and Tram Statistics 2012-13*, London
- Department for Transport [DfT] (2013e) *Door to Door: A strategy for improving sustainable transport integration*, London. https://www.gov.uk/government/uploads/system/uploads/attachment_data/file/142539/door-to-door-strategy.pdf
- E-Skills UK (2010) 'North East IT & Telecoms Regional Datasheet', Basingstoke. <http://www.e-skills.com/research/research-publications/regional-datasheets/>
- E-skills UK (2012) *Technology Insights 2012: UK*. <http://www.e-skills.com/research/research-publications/insights-reports-and-videos/technology-insights-2012/>
- Harvey G and Turnbull P (2009) *The impact of the financial crisis on labour in the civil aviation industry*, Geneva: International Labour Organisation. http://www.ilo.org/wcmsp5/groups/public/---ed_dialogue/---sector/documents/publication/wcms_161566.pdf
- Hemming M-C and Davenport C (2010) *Broadband: Steps for an Incoming Government*, London: Federation of Small Businesses. http://www.fsb.org.uk/policy/images/0932fsb%20broadband%20report_web.pdf

- HM Government (2013) *Aviation Policy Framework*, London. https://www.gov.uk/government/uploads/system/uploads/attachment_data/file/153776/aviation-policy-framework.pdf
- HM Revenue and Customs [HMRC] (2013), *UK Regional Trade Statistics*, Southend-on-Sea. <https://www.uktradeinfo.com/Statistics/BuildYourOwnTables/Pages/Table.aspx>
- Institution of Civil Engineers [ICE] (2013) *State of the Nation: Transport 2013*, London. <http://www.ice.org.uk/getattachment/62287087-5d12-48b3-8619-b16b33292270/State-of-the-Nation-Transport-2013.aspx>
- International Maritime Organisation (2013) *IMO's contribution to sustainable maritime development*, London. <http://www.imo.org/OurWork/TechnicalCooperation/Documents/Brochure/English.pdf>
- IPPR North and the Northern Economic Futures Commission [NEFC] (2012) *Northern Prosperity is National Prosperity*, London: IPPR. <http://www.ippr.org/publication/55/9949/northern-prosperity-is-national-prosperity-a-strategy-for-revitalising-the-uk-economy>
- The Journal (2013) 'Free Newcastle City Centre Wi-Fi on the way', *The Journal* website, 04 July 2013. <http://www.thejournal.co.uk/news/north-east-news/newcastle-city-council-prepares-roll-4865930>
- Kalapesi C, Willersdorf S and Zwillenberg P (2010) *The Connected Kingdom: How the Internet Is Transforming the U.K. Economy*, Boston: Boston Consulting Group. http://www.bcg.com/expertise_impact/publications/publicationdetails.aspx?id=tcm:12-62986
- Kouwenhoven M (2008) *The Role of Accessibility in Passengers' Choice of Airports*, The Hague: Organisation for Economic Co-operation and Development and the International Transport Forum. <http://www.internationaltransportforum.org/jtrc/discussionpapers/DP200814.pdf>
- McCann P (2013) 'The North East LEP Area in the Context of the Global Economy', Newcastle upon Tyne: North Eastern Local Enterprise Partnership. <http://www.nelep.co.uk/media/2636/nelep-report-philip-mccann.pdf>
- MDS Transmodal (2006) *Port Demand Forecasts to 2030*. <http://webarchive.nationalarchives.gov.uk/+http://www.dft.gov.uk/consultations/archive/2006/ppr/ukportdemandforecaststo2030.pdf>
- Merk O and Hesse M (2012) *The Competitiveness of Global Port-Cities: The case of Hamburg*, OECD Regional Development Working Papers 2012,06, Paris: OECD Publishing. <http://www.oecd-ilibrary.org/content/workingpaper/5k97g3hm1gvk-en>
- Nathan M and Rosso R with Gatten T, Majmudar P and Mitchell A (2013) *Measuring the UK's Digital Economy with Big Data*, London: National Institute for Economic and Social Research. http://niesr.ac.uk/sites/default/files/publications/SI024_GI_NIESR_Google_Report12.pdf
- Newcastle International Airport (2013) *Masterplan 2030: Consultation Draft*, Newcastle upon Tyne. <http://www.newcastleairport.com/Media/masterplan-and-development/newcastle-airport-masterplan-2013-low-res.pdf>
- North East Chamber of Commerce [NECC] (2009) *Generating Growth: NECC's First Energy Policy Report*, Durham. <http://www.realwire.com/writeitfiles/NECC%20Energy%20Report%202009.pdf>

- North East Chamber of Commerce [NECC] (2011) *Fit for the Future: NECC's 2011 Infrastructure Report*, Durham. <http://www.necc.co.uk/filedownloads/category/1-policy-document-library?download=60:fit-for-the-future-neccs-2011-infrastructure-report>
- North East Chamber of Commerce [NECC] and the Confederation of British Industry North East [CBI-NE] (2013) *North East Business Transport Priorities, January 2013*, Durham. <http://www.necc.co.uk/filedownloads/category/2-general-files?download=288:necc-cbi-transport-priorities-2013>
- North East Combined Transport Activists Roundtable [NECTAR] (2013) *Submission from NE Combined Transport Activists Roundtable*, Newcastle upon Tyne: North East Local Enterprise Partnership. <http://www.nelep.co.uk/media/2115/north-east-economic-review-nectar-submission.pdf>
- North Eastern Local Enterprise Partnership [NELEP] (2013) *The North East Independent Economic Review*, Newcastle upon Tyne. http://www.nelep.co.uk/media/2935/nelep_ipad-version_hires.pdf
- Northern Way (2011) *The Northern Way Transport Compact: The Economic Case for Transport Investment in the North*. <http://www.northernwaytransportcompact.com/>
- Ofcom (2012a) *CMR England chart pack 2012: England's Communications Market 2012*, London. http://stakeholders.ofcom.org.uk/binaries/research/cmr/cmr12/CMR_2012_England_chart_pack.pdf
- Ofcom (2012b) 'UK Fixed Broadband Map 2012: Map showing broadband information by administrative authority', London. <http://maps.ofcom.org.uk/broadband>
- Office for National Statistics [ONS] (2010) *Input-Output Tables*, 2010 Edition, Newport
- Office for National Statistics [ONS] (2011a) *Inter-Departmental Business Register*, Newport
- Office for National Statistics [ONS] (2011b) *Labour Force Survey 2011*, Newport
- Office for National Statistics [ONS] (2012a) *Business Population estimates for the UK and regions*, Newport
- Office for National Statistics [ONS] (2012b) *ICT Activity of UK Businesses, 2011*, Newport
- Office for National Statistics [ONS] (2013) *Regional Economic Indicators*, Newport
- Office of Rail Regulation [ORR] (2013) *Regional Usage Profiles 2011-12*, London: ORR
- Organisation for Economic Cooperation and Development [OECD] (2012) 'Growth factors and bottlenecks: Lessons from 23 regional case studies', in *Promoting Growth in All Regions*. Paris: OECD Publishing. http://www.keepeek.com/Digital-Asset-Management/oecd/urban-rural-and-regional-development/promoting-growth-in-all-regions/growth-factors-and-bottlenecks_9789264174634-7-en
- Organisation for Economic Cooperation and Development [OECD] (2013) *OECD Economic Outlook, Volume 2013/1*, Paris: OECD Publishing. <http://www.oecd.org/eco/economicoutlook.htm#Stats>
- Oxford Economics (2005) *Measuring airline network benefits, Report Prepared for The International Air Transport Association*, Oxford: Oxford Economic Forecasting.
- Parker A (2013) 'Davies Reveals 50 Proposals for Airport Expansion', *Financial Times* website, 07 August 2013. <http://www.ft.com/cms/s/0/2ba735b8-ff7e-11e2-b990-00144feab7de.html#axzz2fdHTjXs6>

- Passenger Focus (2013a) *National Passenger Survey Spring 2013 – Train Operating Company (TOC) reports*, Southend-on-Sea. <http://www.passengerfocus.org.uk/research/publications/national-passenger-survey-spring-2013-nps-train-operating-company-toc-reports>
- Passenger Focus (2013b) *National Passenger Survey Spring 2013 - NPS - Passenger Transport Executive (PTE) reports*, Southend-on-Sea. <http://www.passengerfocus.org.uk/research/publications/national-passenger-survey-spring-2013-nps-passenger-transport-executive-pte-reports>
- Port of Blyth (2012) *Annual Review 2011*, Blyth. <http://www.portofblyth.co.uk/images//annual%20review.pdf>
- Port of Tyne (2013) *Annual Report and Accounts*, South Shields. <http://www.portoftyne.co.uk/cache/files/1843-1368040620/PortofTyneAnnualReportAccounts2012.pdf>
- Price K (2013) 'Durham Tees Valley Airport Misses out on Regional Growth Fund round four cash' *Evening Gazette* website, 11 July 2013. <http://www.gazettelive.co.uk/news/durham-tees-valley-airport-misses-5065906>
- Regeneris Consulting (2012) *Durham Tees Valley Airport: Economic Impact Assessment*, London
- Robson E (2013) 'Newcastle International: Your Airport', presentation made at Newcastle University, 06 February 2013. <http://www.ncl.ac.uk/ceg/assets/documents/seminars/ErinRobson.pdf>
- TT2 Limited (2013) *North East Independent Economic Review Submission by TT2 Limited*, Tyne and Wear. <http://www.nelep.co.uk/media/2118/north-east-independent-economic-review-tt2-submission.pdf>
- Wilbur Smith Associates [WSA] (2007) *Arizona Multimodal Freight Analysis Study - Technical Memorandum #1: Analysis of Freight Dependent Industries*, Arizona: Arizona Department of Transportation. <http://azmemory.azlibrary.gov/cdm/ref/collection/statepubs/id/9338>
- Williams C (2013) 'George Osborne broadband growth plan abandoned over state aid complaints', *Daily Telegraph* website, 02 October 2013. <http://www.telegraph.co.uk/technology/broadband/10144035/George-Osborne-broadband-growth-plan-abandoned-over-state-aid-complaints.html>
- York Aviation (2012) *The Economic Impact of Newcastle International Airport*, Macclesfield