

**[Henry G. Overman](#), [Stephen Gibbons](#), Sabine D'Costa,
[Giordano Mion](#), Panu Pelkonen, Guilherme Resende and
Mike Thomas**

Strengthening economic linkages between Leeds and Manchester: feasibility and implications

Report

Original citation:

Overman, Henry G. and Gibbons, Stephen and D'Costa, Sabine and Mion, Giordano and Pelkonen, Panu and Resende, Guilherme and Thomas, Mike (2009) Strengthening economic linkages between Leeds and Manchester: feasibility and implications. The Northern Way, Newcastle upon Tyne.

This version available at: <http://eprints.lse.ac.uk/30806/>

Originally available from [The Northern Way](#)

Available in LSE Research Online: April 2012

© 2009 One North East on behalf of The Northern Way

LSE has developed LSE Research Online so that users may access research output of the School. Copyright © and Moral Rights for the papers on this site are retained by the individual authors and/or other copyright owners. Users may download and/or print one copy of any article(s) in LSE Research Online to facilitate their private study or for non-commercial research. You may not engage in further distribution of the material or use it for any profit-making activities or any commercial gain. You may freely distribute the URL (<http://eprints.lse.ac.uk>) of the LSE Research Online website.

Strengthening Economic Linkages between Leeds and Manchester: Feasibility and Implications

November 2009

**Moving Forward:
The Northern Way**

This research programme was delivered by the **Spatial Economics Research Centre (SERC)** and was commissioned and sponsored by The Northern Way.

The SERC team, based at the **London School of Economics** comprised:

Henry Overman (Programme Director),
Steve Gibbons,
Sabine D'Costa,
Giordano Mion,
Panu Pelkonen,
Guilherme Resende,
Mike Thomas

A Steering Group supported the implementation of the research programme, and policy implications were informed by discussions at a Policy Reference Group.

The following contributed to the work of these groups:

Department of Business, Innovation and Skills:
Adrien Amzallag, Andrew Cunningham-Hughes

Department of Communities and Local Government:
Daniel Thornton, Cathy Francis, Sarah James

Leeds City Region:
Matt Brunt, Rob Norrys

Manchester City Region:
Baron Frankel, Juan Gomez, Rupert Greenhalgh

North West Development Agency:
Damian Bourke, Nidi Etim

The Northern Way:
Andrew Lewis, John Jarvis, Richard Baker

Yorkshire Forward:
Nicky Denison, Simon Foy, Andrew Lowson

Independent Academic Advisor:
Professor Alan Harding, IPEG,
University of Manchester

The Northern Way
Stella House, Goldcrest Way, Newburn Riverside,
Newcastle upon Tyne NE15 8NY
Telephone: 0191 229 6200
Website: www.thenorthernway.co.uk

© One North East on behalf of The Northern Way

Copyright in the design and typographical arrangement rests with One North East. This publication, excluding logos, may be reproduced free of charge in any format or medium for research, private study or for internal circulation within an organisation. This is subject to it being reproduced accurately and not used in a misleading context.

The material must be acknowledged as copyright One North East and the title of the publication specified. This work contains statistical data from ONS which is Crown copyright and reproduced with the permission of the controller of HMSO and Queen's Printer for Scotland. The use of the ONS statistical data in this work does not imply the endorsement of the ONS in relation to the interpretation or analysis of the statistical data. This work uses research datasets which may not exactly reproduce National Statistics aggregates. Copyright of the statistical results may not be assigned, and publishers of this data must have or obtain a licence from HMSO. The ONS data in these results are covered by the terms of the standard HMSO "click-use" licence. We thank Lizzie Diss at the Department for Transport and Dan Graham at Imperial College London for their help with the ward to ward GTC for driving. We thank Peter Wiener at Steer Davies Gleeve and John Jarvis at Yorkshire Forward for advice on constructing the train counterfactuals.

Contents

	Foreword	2
1:	Introduction	4
2:	Background to the research	5
3:	Our findings	6
3.1	Commuting	6
3.2	Interactions in earnings, employment and output	8
3.3	Labour markets	9
3.4	Wider spatial impacts	12
4:	Policy conclusions	16

Foreword

This report touches on one of the biggest strategic questions facing the North of England. In a world in which the agglomeration of economic activity seems to be increasing, can the North of England provide an alternative focus of economic critical mass to match the power of London and the South East?

Since the start of The Northern Way in 2004, there's been a particular focus on the opportunities for closer integration of the larger Northern cities, as a means of improving productivity and growth. Our work on trans-pennine transport links has, in particular, strengthened the case for investment in inter-city corridors. The opportunity for Regional Development Agencies, city regions and their partners to develop more integrated regional strategies is prompting a debate on priorities for investment. And the lively discussion of options for High Speed Rail is prompting a renewed interest in the economic benefits of radical reductions in travel times.

Is there more to be gained from fostering stronger economic relationships between the Northern cities, or between them individually and London? How do inter-city connections measure up against intra-city networks? Can city-to-city links benefit the wider regions, or are the benefits focused more locally? Will everyone benefit from a widening of labour markets, or do some groups and industries have more to gain than others?

In the light of these debates, The Northern Way partnership was particularly pleased to work with the Spatial Economics Research Centre, to examine the benefits from closer links between our two largest city regions: Manchester and Leeds. The work has been supported through our Policy and Research Programme, funded by the northern RDAs, and the Department of Business Innovation and Skills.

When the Spatial Economics Research Centre began in Spring 2008, it was natural that The Northern Way would want a close and productive relationship with it. We supported the alliance between the LSE and Newcastle University in their original proposal to set up SERC, and have been keen to use this significant national centre of expertise to address the questions we see as priorities from the North. We were delighted when Henry Overman and his team accepted our challenge to conduct a detailed economic study of the Leeds-Manchester relationship.

Built up from an impressive database of inter-connections between communities across the UK, it is the product of 18 months of work by a SERC team of researchers based at the LSE, supported by two team of stakeholders – from city regions from both sides of the Pennines, from RDAs and Central Government, working with independent academic challenge from the University of Manchester. It provides a methodology that can potentially be used more widely.

Those looking for a silver bullet solution will be disappointed. The report backs the view that improvements in links between these two cities can have a wider positive impact across the North, and contribute to a narrowing of the economic gap between North and South. But it warns that infrastructure investment can only be part of a solution. The considerable economic benefits that it identifies – up to £6.7 billion across the north of England from a 20 minute reduction in travel time – require, and would prompt, significant structural change in skills and occupational mix. Only those in a position to upgrade their skills in response to the larger labour market would be likely to benefit directly.

As we publish this report, the north is tentatively emerging out of a serious recession. The stronger cities have ridden out the recession better than in the past, while the areas with less reliance have again been the hardest hit. This report suggests that a focus on building stronger connections between our core economic centres can be part of a positive economic strategy for the recovery phase, alongside a renewed emphasis on skills and labour market reform to widen the benefits to a wider range of communities.

Andrew Lewis,
Director of The Northern Way

1: Introduction

This report summarises research by the Spatial Economics Research Centre (SERC) that aims to understand economic integration and interaction between the Manchester and Leeds City Regions. As well as analyzing current patterns, the research assesses the possible economic impacts of increased integration.

The research was commissioned by The Northern Way, as a contribution to its Policy and Research programme, to provide robust evidence about the economic relationships between the two city regions and to assess:

- economic opportunities which could accrue from closer links; to the two city regions, other Northern territories and the wider UK
- risks, either in terms of adverse impacts on the economy of one of the two centres, or impacts on surrounding territories
- the potential and feasibility for public policy to stimulate and encourage such relationships.

The research involved a number of complementary projects, and it was undertaken between July 2008 and November 2009. Facilitated by The Northern Way, the project was supported by representatives from the two city regions, Yorkshire Forward and the North West Development Agency, Government Departments and independent academic advisors.

A summary of findings and policy conclusions is provided in this report. A full report, describing the detailed findings and methodology is also available on the website of The Northern Way at www.thenorthernway.co.uk/leedsmanchester and on the website of SERC at www.spataleconomics.ac.uk.

2: Background to the research

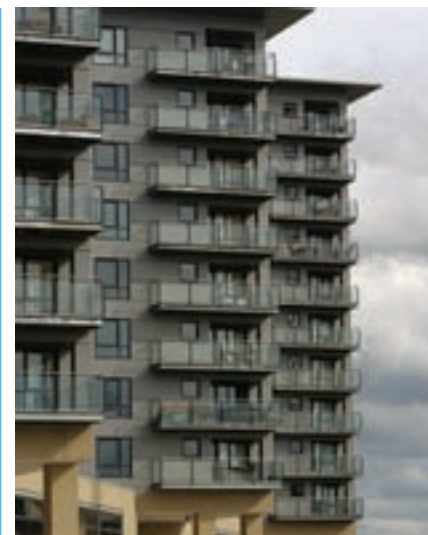
There is increasing interest in the role of cities in driving economic growth and development.

An immediate focus is on the role cities may play in recovery from the current recession. However, beyond this, the importance of cities to the economy and thus to economic policy is increasingly recognised at both national and international levels. In the UK, this increased interest reflects the fact that, after a long period of relative decline, a significant number of English cities have experienced improved economic performance (ODPM, 2006). At the same time, evidence about underlying structural changes suggests there may be potential for continued long term growth in these cities, and for this to drive change in the surrounding city regions.

In particular, if the UK economy continues its inexorable move from manufacturing to services, this will have important implications for continued growth in cities. There is a large body of evidence which suggests that producers of services benefit in a variety of ways when they locate in cities. Crucially, the benefits of this agglomeration appear to be larger for service producers than for manufacturers. A structural shift towards services, combined with the fact that services benefit more from cities, points towards a future in which more economic activity could be concentrated in a small number of larger cities.

Amongst policy makers in the UK, particularly those concerned with spatial disparities, this raises a number of important questions. Will this growth be concentrated mostly in London and the Greater South East? If so, is there anything that policy can, or should, do to counteract this? What role might future growth in Northern cities play in increasing growth in the wider northern economy? Which cities in the North might drive this growth and what, if anything, might be the appropriate role for policy? The research that we describe in this report is concerned with the last of these questions. In particular, we consider the implications and feasibility of developing stronger economic relationships between the Manchester and Leeds City Regions.

Recent reports for The Northern Way from IPEG/CUPS¹ and the Centre for Cities² have assembled extensive evidence describing the economic connections between Northern cities and between the Northern cities and London. This research has served to reinforce the longstanding sense within The Northern Way, and those working around it, that one of the key opportunities for the acceleration of growth available to the north of England as a whole may be the stimulation of higher levels of integration between the Leeds and Manchester economies. These cities are of particular interest because, while both cities have recently experienced strong growth, existing research finds little evidence of interaction in terms of business connections or commuting despite their geographical proximity. Our research builds on this work to provide further evidence on the feasibility and implications of strengthening economic linkages between the Leeds and Manchester City Regions.



1. See 'The Northern Connection', IPEG/CUPS for The Northern Way, January 2008
2. See 'City Links', Lucci & Hildreth, March 2008

3: Our findings

The fact that there is little evidence of interaction between Leeds and Manchester has led some commentators to conclude that the links between the two cities are somehow weaker than they should be and that increasing these links could play a part in improving economic performance of the Northern regions.

In part, this conclusion is based on a comparison to the higher levels of interaction in other parts of the UK, in particular in London and the South East. In part it is based on international comparisons, where we observe stronger economic interactions between similarly sized cities positioned close to each other. Commentators have sought to explain these weak links as arising from a number of factors including; topography (in particular the Pennines), cultural differences and poor transport connections.

In developing this research, we recognised that an analytical jump from the observation of low levels of interaction to the conclusion that integration is *weaker than it should be* is not warranted. Further evidence on the links between the two economies is needed to help assess the case for intervention and to understand whether increasing integration has any role to play in improving the economic performance of the two city regions or the wider Northern economy.

To reach the conclusion that integration is weaker than expected, one needs to make the comparison with an appropriate benchmark. Arguably, neither London and the Greater South East, nor a limited number of international cities provide particularly compelling comparators. Therefore, in the first stage of our analysis we revisited this issue and used regression analysis to construct more appropriate benchmarks based on observed behaviour across the whole of Great Britain. The second part of our analysis then turned to the likely economic impact of increased integration.

The rest of this summary report sets out our approaches and findings in more depth.

3.1 Commuting

This section of the research considers commuting – the only “flow” between places in Great Britain for which we have reasonable data. This analysis is based on all possible combinations of Local Authority areas between which there is some commuting, for example Bolton and Wakefield, Reading and Westminster, Glasgow and Edinburgh, as well as Leeds and Manchester. We ask what determines commuting between Local Authority areas and, given this, whether commuting between Local Authority areas in the Manchester and Leeds City Regions is actually lower than expected.

When making this comparison, we consider the commutes between all Local Authority areas in the Manchester City Region and all Local Authority areas in the Leeds City Region (in both directions). For example, we look at commutes between Bolton and Leeds, as well as between central Manchester and Leeds. Our underlying regression model captures the fact that differences in physical distances, differences in transport time and costs, and the complexity of the total journey all mean that commuting will be lower between some pairs of Local Authority areas (for example Bolton and Wakefield) than others (for example central Leeds and Manchester). We then look at whether overall commuting between the Leeds and Manchester City Regions is unusually low taking these differences into account.

Our analysis of commuting between Local Authority areas in Britain suggests that commuting is greater when areas are larger in terms of employment. High wage areas attract more commuters while low wage areas generate more commuters. Transport costs reduce commuting. These findings are in line with previous research and theoretical predictions.

In order to get a suitable set of comparators, given the size of cities and the distances between them, we use this analysis to compare commuting between pairs of Local Authority areas in the Manchester and Leeds City Regions to pairs within Local Authority areas in eight broadly equivalent comparator city regions.³ These comparators were selected, after consultation with the project's steering group, as areas providing a stronger basis for comparison than a general comparison with Great Britain as a whole, or with commuting to London.

Compared to this group, we find that commuting between the Manchester and Leeds City Regions is about 40% lower than expected given the characteristics of the two cities and the physical distance between them. High overall commuting costs between the Manchester and Leeds City Regions appear to be the main cause of this lower commuting.⁴ Once we include the overall costs of commuting between areas, both by car and train, in our analysis we can no longer be certain that there is any difference between the Manchester and Leeds City Regions and the other comparator city region pairs. In short, the overall costs of travelling between Manchester and Leeds City Regions explain why commuting between pairs of Local Authorities in the two cities is lower than might be expected given their physical proximity. The fact that economic factors appear to explain low commuting levels leaves little room for other factors (for example cultural or social) to play a large part in this story.

There has been some concern expressed in policy circles that the two cities might be particularly isolated from each other in terms of higher skilled workers. This may make the cities less attractive to higher skilled workers than they otherwise might be and make it harder to attract or retain those workers. However, at least in terms of commuting, we find little evidence that this is the case. Indeed, if we focus only on the highest skilled workers we find that commuting is about 10% lower than we would expect given the physical distance between Manchester and Leeds. This difference is not statistically significant and vanishes when we control for travelling costs. In short, commuting of skilled workers between the Manchester and Leeds City Regions is not much lower than we would expect given the distance between the two cities. The overall costs of travelling between the two city regions explain any shortfall.

For other skill-groups within the labour market, commuting between the Manchester and Leeds City Regions is considerably lower than we would expect given the distance, but again most, if not all of the shortfall is explained by the overall costs of commuting between the two city regions.



3. Bristol-Cardiff, Edinburgh-Glasgow, Leeds-Hull, Leeds-Sheffield, Leeds-York, Manchester-Birmingham, Manchester-Liverpool, Nottingham-Derby).

4. We use a measure of generalized transport costs which capture both the monetary and time costs of commuting.

In summary:

- Commuting between Local Authority areas in the Manchester City Region and Local Authority areas in the Leeds City Region is about 40% less than might be expected given the physical proximity of the two cities.
- This is particularly true for low to medium skilled workers rather than higher skilled workers.
- Economic factors, specifically the overall costs of commuting between the two cities, are the most important factor in explaining these relatively low commuting levels. This suggests that lowering these costs has an important role to play in increasing integration between the two city regions. This in turn may improve the economic performance of the two city regions as we discuss further below.
- We do not examine the role of cultural or social factors directly. However, the fact that economic factors appear to explain low commuting levels leaves little room for cultural or social factors to play a large part in this story. This suggests that such factors are unlikely to act as a barrier to increased commuting between the two cities if transport investment lowers the overall costs of commuting, or if other economic factors lead to enhanced interactions.

3.2 Interactions in earnings, employment and output

While commuting is one of the most important ways in which interactions between cities occur, there are of course a number of others, including linkages between customers and suppliers. Unfortunately, there is very little, if any data, collected on these other linkages. There is certainly no systematic source of data collected for different places in different time periods. Therefore, for these other linkages, unlike with commuting, we are unable to directly observe the interactions between places. Instead, we have to turn our attention to the possible effects on outcomes, which are far harder to analyse than the interactions themselves.

We focused on three outcomes that are of great policy interest, namely earnings, employment and output per worker. Our approach considers the extent to which nearby places appear to experience similar levels, changes and growth in these outcomes. Again, we use observed behaviour across the whole of Great Britain to ask what determines these similarities and whether Manchester and Leeds are in any sense unusual.

Our analysis indicates that the correlation in outcomes between Leeds, Manchester and their neighbouring areas is weak relative to the correlation between outcomes in neighbouring places in London and the South East. Taken at face value, this finding would appear to match concerns of commentators that while the individual growth performances in Leeds and Manchester have been strong, weak interactions have prevented the cities from mutually reinforcing and building on one another's growth. However, the correlation in outcomes between Manchester and Leeds and their neighbouring areas are broadly similar to those elsewhere in Great Britain. Any anomalies can be explained by allowing for a small number of observable characteristics of city regions and Local Authority areas, specifically crude measures of industrial structure and skill levels. We find that it is these characteristics of the city regions that explain differences and similarities between them in terms of outcomes.

In summary:

- Overall, we find no strong evidence that Manchester and Leeds are unusual in the co-movements of key economic indicators.
- Any differences from general GB patterns are explained by a few structural economic characteristics of the two areas. As with commuting, this finding points away from social, cultural or similar factors as drivers of weak linkages between the cities (although we do not study these factors directly). It suggests that other unexplained factors are unlikely to constrain Manchester and Leeds from following the general GB pattern.
- This analysis reminds us that the interactions between places are as much outcomes of the underlying structural characteristics of those places as they are drivers of changes in those structural characteristics. Given the current industrial and skills structures of the Manchester and Leeds City Regions the correlations in terms of outcomes are about what we would expect.
- Overall, this suggests that structural change would be likely to play an integral part in increasing the extent of observed interaction between the two city region economies.

3.3 Labour markets

In the second part of our research we turn to the implications of increasing integration between Manchester and Leeds with a particular focus on the possibility of raising the economic performance of the North. We approach this question of the implications for economic performance in two ways.

The first is to view enhanced integration between Manchester and Leeds as a way of increasing the size of the local economy. A larger local economy may help firms be more productive. Such agglomeration economies – as economists refer to the beneficial effects of a larger local economy – may arise for a variety of reasons. In particular large local economies may facilitate sharing of resources (for example of large infrastructure such as airports), matching of capacity (for example, of the right workers to the right firms) or learning (for example, a transfer of knowledge from one firm to another). Can we say anything about the likely impact of these effects if we achieved increased integration between Manchester and Leeds?

Existing work for The Northern Way⁵ has followed Department for Transport guidance on evaluating the wider economic impacts of transport schemes to address this question. This approach uses estimates of the strength of agglomeration economies, coupled with assumptions on the extent to which integration would increase local economy size to work out the productivity impacts on different sectors of the economy. We use labour market data to try to understand whether this existing work captures all the likely impacts of increased integration.



5. Agglomeration Simulation Exercise. Steer Davies Gleave (November 2006) for The Northern Way; and Model Development and Results for The Northern Way using the South and West Yorkshire Dynamic Model, Steer Davies Gleave (December 2006)

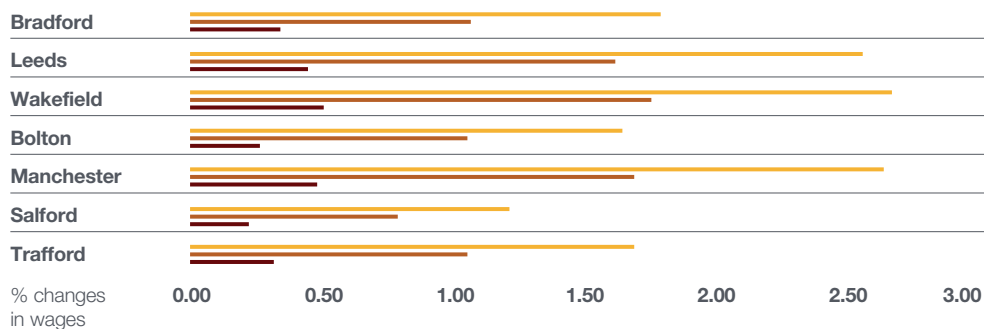
It has been suggested that the size of the Manchester and Leeds economies may have negative implications for labour market outcomes, particularly for more highly educated workers, and that this may be an important factor in explaining their relative under performance.⁶ To examine this possibility we use data on individual wages to see how the level and growth of wages are affected by the size of the local labour market. We then assess the extent to which economic benefits arise from changing the composition of the labour force (building on the observation that large cities have more educated workers) as opposed to generating higher wages for existing workers. Finally, we use our estimates, coupled with realistic assumptions about policy induced changes in transport costs, to assess the impact of increased integration on wages.

We find that closer integration between Manchester and Leeds could be expected to have a positive effect on wages. Our largest estimate, for a 20 minute reduction in train journey times between Leeds and Manchester, has average wages increasing by between 1.06% and 2.7%. The yellow bar in figure 1 shows these changes for selected Local Authorities.

It is important to note that nearly all of these wage effects come about because the *composition* of the workforce is different in larger, better connected places. This difference in composition may arise through sorting effects – movements in the population in response to economic opportunities, or because people change their characteristics in response to changes in labour market size. It is also possible that the difference could arise because of past decisions to better connect existing concentrations of more productive workers.

Whatever the mechanism, the research identifies a particularly important composition effect, in terms of the years of education of the workforce and an even stronger role for unobserved characteristics of worker such as, for example, cognitive ability. The effects for an individual worker, with given and unchanging characteristics (often called place-based effects), are smaller at somewhere between 0.20 and 0.50 of a percent. Again, figure 1 shows the effect of controlling for observed and unobserved characteristics (orange and brown bars) for the same selected Local Authorities.

Figure 1: Effect on wages in selected Local Authorities before and after controlling for composition



Key

- Changing composition
- Age, sex, education, occupation, industry held fixed
- Age, sex, education, occupation, industry, ability held fixed

6. See, for example, the Manchester Independent Economic Review's work on skills which considers this issue

These percentage increases in wages (controlling for labour force composition) are in line with the benefits identified by existing studies on the likely productivity impact of increased integration. These existing studies are focused on identifying wider economic benefits that arise as a result of agglomeration economies and that should be included in the cost-benefit analysis of transport schemes. Our estimates of the impacts on wages, controlling for composition, provide a useful cross-check that suggest wider benefits on wages of roughly the same magnitudes as the productivity effects captured in existing studies.

So what, then, do the larger estimates – those that do not remove the effect of composition – tell us about the likely effect of increased integration? These estimates are best thought of as an upper bound to the overall economic impact of improved linkages. They represent the *combined* impact of (i) place-based productivity effects on workers with fixed characteristics (ii) movement and sorting of more productive workers into more closely connected places and (iii) upgrading of education and skills for workers. They capture the effects of place, plus sorting, plus education and skill upgrading, once workers have moved around across places in response to reduced transport times and the greater integration that delivers. But caution about this interpretation is required, as the direction of causality may not run from improved connectivity to labour market composition, but in the opposite direction: Productive labour markets may encourage better transport linkages. If this is the case then improving transport linkages will not be effective in changing the composition of the labour market, preventing the realization of overall effects on the scale implied by the higher estimates.

The smaller estimates, taking out the effects of composition, capture the additional benefits to workers who don't enhance their skills or become more educated or able in response to economic changes that occur as a result of improved transport links between Manchester and Leeds. They are also less sensitive to the possibility, outlined above, that transport policy has no effect on labour force composition. For these reasons, and because the effects, net of composition, capture the beneficial impact on individuals, many economists argue that they represent the most appropriate focus for policy. Arguably, the smaller estimates are likely to be the most relevant for the vast majority of people currently working in the two city regions.

Therefore, the role of these findings in the assessment of particular investment propositions will depend on policy objectives. A traditional cost-benefit analysis should exclude the impact on wages generated purely by the sorting of individuals from one place to another. However, the upper-bound, combined impacts (including composition) might be of more interest to some policy-makers. They may be seen as appropriate objectives by sub-national authorities working at regional or local levels aiming to increase average wages or incomes in their specific areas, or - as in the UK - where national government has adopted objectives to address aggregate spatial disparities *per se*.

Our findings on wage growth lead to an even starker contrast. Individual wage growth is faster in larger, better connected labour markets, but this effect appears to be driven entirely by the fact that these cities tend to have more educated workers. Once we control for this there is essentially no relationship between city size and wage growth or between city size and the amount of wage growth that occurs because of between job moves. This suggests that greater integration would deliver no wage growth benefits to people who do not change education or skills levels. However, changing composition of the workforce would mean that we may see higher rates of aggregate wage growth in Manchester and Leeds over time.

In summary:

- Closer integration may deliver additional benefits in terms of increased wages for workers. These effects will be largest for those individuals who increase their education or skills in response to the new economic opportunities that greater integration may bring. For those who do not do so the smaller gains highlighted above would represent a persistent, but once and for all, increase in wages. As argued in existing work for The Northern Way, these gains should be considered as additional and may play an important role as wider economic benefits in the cost-benefit analysis of specific projects.
- The aggregate effects of closer integration may be larger than these individual benefits. This relies on structural changes moving the composition of the Leeds and Manchester workforces towards higher skilled jobs. From a traditional cost-benefit perspective, these effects would not be counted as additional for individual investment projects if, as is likely, they come about because of greater attraction or retention of existing skilled workers. If they occur because existing workers increase their education or skills in response to changing economic opportunities some part of these higher gains may be additional (to the extent that the individual benefits of increasing, say, education, outweigh the costs).
- Regardless of the mechanism, if increased integration does lead to structural change these compositional changes will increase aggregate output in Manchester and Leeds, and this will be of interest to policy-makers interested in the performance of these places and of the wider North.

3.4 Wider spatial impacts

Our work on labour markets treats enhanced integration between Manchester and Leeds as a way of increasing the size of the local economy and studies the impact of this on wages and the structure of the economy in the two city regions. The method that we use, referred to as a “reduced form” approach, makes it hard to be specific about the economic channels through which these effects operate. This, in turn, makes it difficult to say anything precise about how these effects will impact on the wider Northern economy. To understand the impact of increased integration between Leeds and Manchester on a wider territory, in the final part of our research we therefore examine these impacts using what economists refer to as a “structural model”.

This model is very specific about the channels through which increased integration impacts on productivity. We focus, in particular, on selection effects that are increasingly recognized as generating a large part of the productivity increase that

we observe as economies become more integrated. The strength of these selection effects depends on both the size of the local economy and the extent to which it is integrated with other local economies. This means that we can use the model, fitted to data across Great Britain, to examine how increased integration affects productivity across different economies and so get some idea of how closer Leeds-Manchester integration might affect other places in the North.

We find that both intra and inter city region transport schemes will deliver productivity benefits as a result of the selection effects generated by greater competition. These effects are positive and will make a contribution to closing the productivity gap between North and South, although they are not particularly large in their impact. These benefits are additional to the user benefits identified in traditional cost benefit analysis and provide an alternative measure of the agglomeration benefits now included in the transport appraisal of some larger projects.

Inter-city schemes favour Leeds, while intra-city schemes favour Manchester.⁷ Better connecting Manchester and Leeds to London delivers larger gains than linking Manchester-Leeds. Given total 2006 GDP in the two city regions and a discount rate of 3%, a 20 minute reduction in train journey times between Manchester and Leeds would be worth £6.7 billion across the whole of the north of England (assuming benefits persist indefinitely) of which £2.7 billion is captured within the two city regions. Reducing train journey times between Leeds-London by 40 minutes is worth £3.4 billion to those two cities, while the same time reduction between Manchester and London is worth £3.6 billion to those two cities. For both the improvements involving London, percentage increases are greater in the Northern cities but the larger size of the London economy means that it accounts for a larger share of the total gains.

As pointed out above, these benefits are additional to the user benefits identified in traditional cost benefit analysis and provide an alternative measure of the agglomeration benefits now included in the transport appraisal of some larger projects. The overall percentage gains in productivity from improving rail links (between Manchester and Leeds or between either city and London) are small. Thus, whilst there are productivity gains from these schemes for both the North and the South, rail links will do little in isolation to address the productivity gap between them.

Increasing the populations of Manchester and Leeds leads to small wage and productivity gains for individuals but quite large total GDP gains.⁸ However, if this population increase came by drawing in workers from lower productivity areas elsewhere the direct effect of moving workers from low to high productivity areas would outweigh the effect from increased productivity as a result of greater selection. In a scenario where the population moves from all over Great Britain the fact that some higher productivity places in the South lost population would offset this effect.

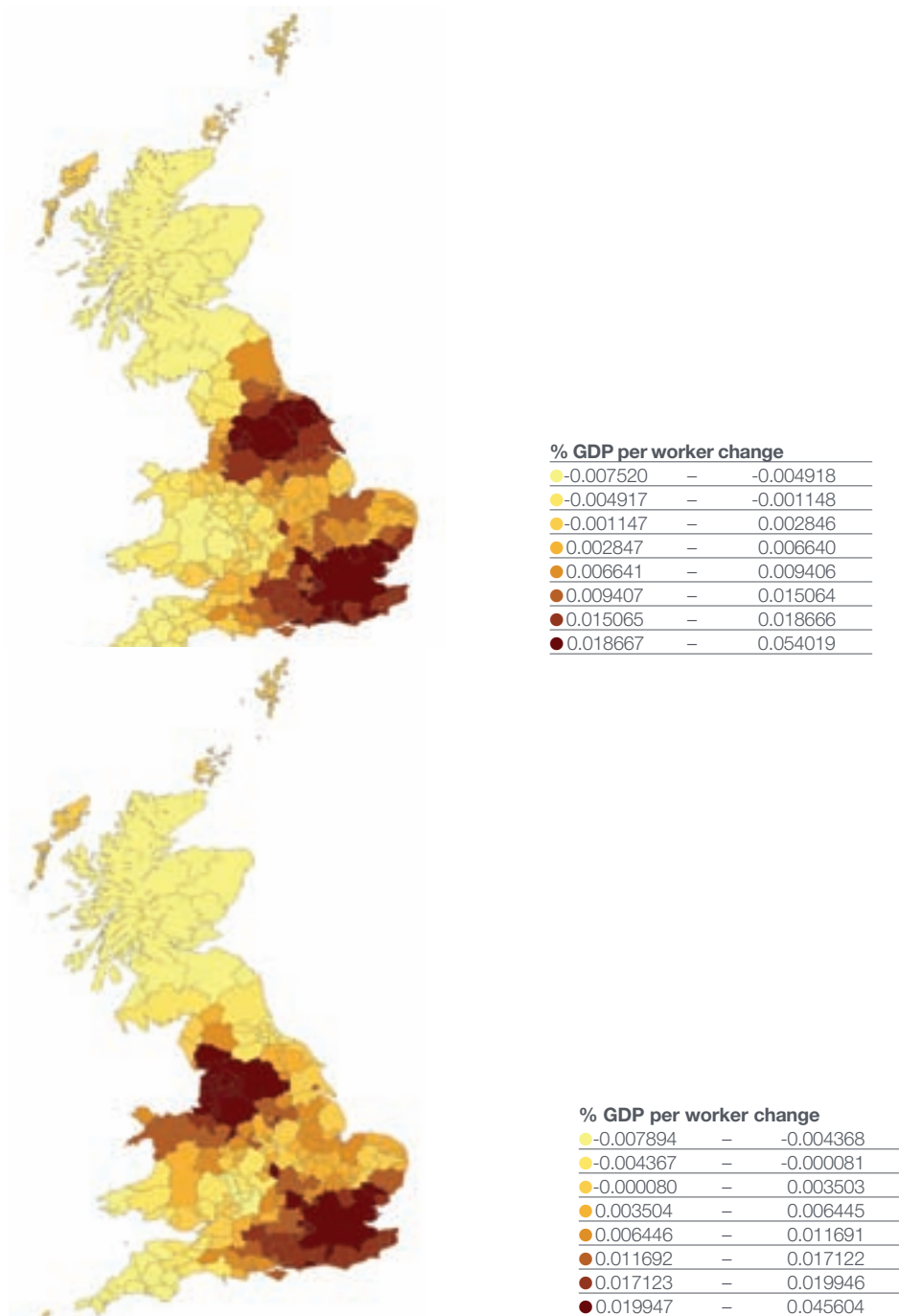
The broad spatial distribution of gains and losses is usually quite intuitive although the details can be quite complicated. For example, figure 2 shows the difference between a 40 minute reduction in train journey times between Leeds-London (page 14 above) and Manchester-London (page 14 below) and a 20 minutes reduction in train journey times between Manchester-Leeds (page 15). The spatial patterns vary markedly, depending on the specifics of the policy change (tested by a number of

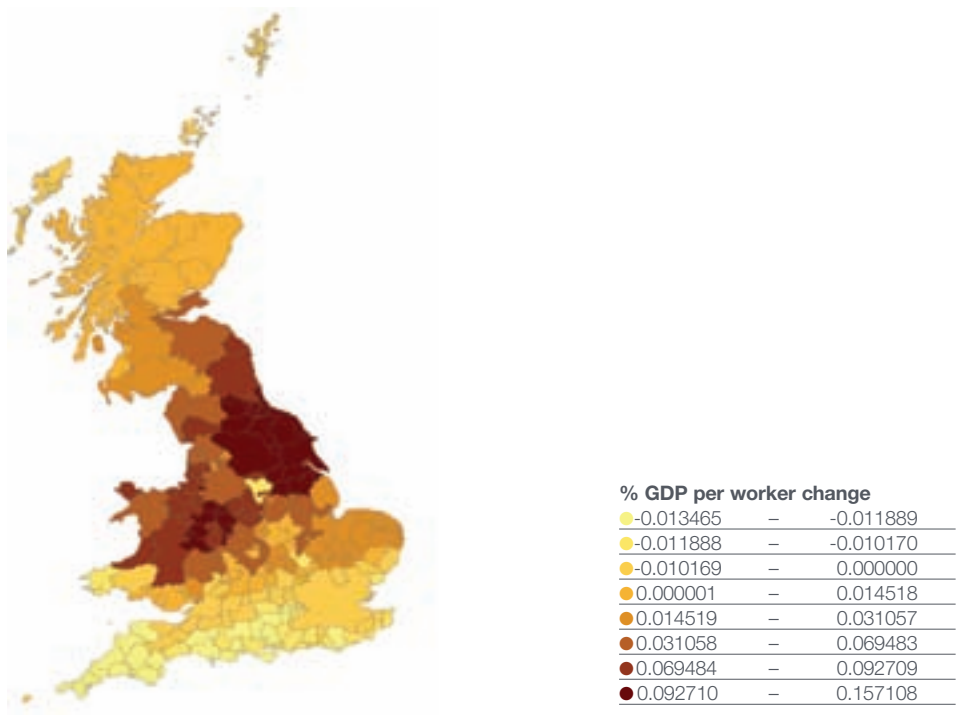
Leeds	09:08	14	Glasgow Centre	Ulugh Beg
Leeds	09:24	3	Bournemouth	Ulugh Beg
Leeds	09:04	3	Harrogate	Northern
Leeds	09:18	14	Llandudno	Northern
Leeds	09:04	3	Harrogate	Northern
Leeds	09:11	1	Rose Hill Reg	Northern
Leeds	09:18	14	Llandudno	Northern
Leeds	09:04	3	Harrogate	Northern
Leeds	09:12	14	Stockport 19th	Northern
Leeds	09:45	14	Widmore	Transpen
Leeds	09:11	13	Scarborough	Transpen
Leeds	09:18	3	Cleethorpe	Transpen
Leeds	09:11	13	Scarborough	Transpen
Leeds	09:42	4	Hull	Transpen
Leeds	09:18	3	Cleethorpe	Transpen
Leeds	09:18	3	Cleethorpe	Transpen
Leeds	09:42	13	Norwich	Transpen
Leeds	09:18	14	Llandudno	Transpen
Leeds	09:24	3	Bournemouth	Transpen
Leeds	09:24	3	Bournemouth	Transpen
Leeds	09:48	14	Liverpool L. St	Transpen

7. This is in line with the overall findings of existing research for The Northern Way that formed part of the evidence base produced in support of The Northern Way Strategic Direction for Transport published in 2006.
8. This is in line with evidence presented in Steer-Davies-Gleave North-South Connections report for The Northern Way

different counterfactuals in our research). As discussed above the Manchester-Leeds improvement delivers smaller aggregate gains than links with London, but these gains are more spatially concentrated in the North. It is not certain that all areas in the North would benefit as a result of closer integration between Leeds and Manchester or between those cities and London, and some areas could be z

Figure 2: Percentage Change in GDP per worker in response to a 40 minute reduction in train journey time between Leeds and London (below) and Manchester and London (bottom) and a 20 minute reduction between Manchester and London (opposite page).





Overall, the structural model delivers two key policy messages:

- The more conservative estimates of the impact on wages produced in our labour market work should be seen as an upper bound for the *additional* benefits of increased integration net of compositional changes. The structural model we present here carefully considers one of the mechanisms that could lead to such effects and finds that they are smaller than the effects that we identified in our labour market work.
- The spatial distribution of changes in response to the counterfactuals we tested is complicated. This is an important finding, because the selection mechanism that we study is one of a very limited number of situations where we are able to articulate a model which allows us to capture the spatial distribution of changes. While it remains popular in policy circles to expand on the likely impacts of policy changes in one place on outcomes in other places our understanding and modeling of these impacts remains in its infancy. Our work suggests that, whilst there are aggregate benefits available for the North as a whole, some areas in the North may lose as a result of greater integration between Manchester and Leeds or between those cities and London.

4: Policy conclusions



The key policy conclusions to draw from the findings of our research are:

- Against the benchmark of other comparable city pairs within Great Britain, we find evidence that commuting between Manchester and Leeds is around 40 per cent lower than expected, given the characteristics of the two cities and the 40 miles distance from centre to centre.
- This is explained partly by overall transport costs between the two cities and partly by their current industrial and occupational composition. This suggests that lowering these costs has an important role to play in increasing integration between the two city regions. This in turn may improve the economic performance of the two city regions
- Although we do not examine their role directly, the fact that economic factors explain these low commuting levels appears to leave little room for cultural or social factors to play a large part in explaining overall commuting patterns. This suggests that such factors are unlikely to act as a barrier to increased commuting between the two cities if transport investment lowers the overall costs of commuting, or if other economic factors lead to enhanced interactions
- Differences in the correlation between the city regions' growth and levels of earnings, employment and GDP (relative to GB benchmarks) are explained by patterns of industrial and skill structure
- Overall, this suggests that structural change would be likely to play an integral part in increasing the extent of observed interaction between the two city region economies.
- Closer integration between Manchester and Leeds (from a 20 minute reduction in journey time) could increase wages by 1.06%-2.7%. This impact is dependent on induced changes in the industrial structure, composition and skill levels of the population. It represents an upper bound of the possible effects as we cannot rule out the possibility that some of this effect runs *from* the composition of the labour market *to* lower transport costs (rather than vice versa). We find evidence that the effect on wages for individuals who do not change their personal or job characteristics are small (between 0.2% – 0.5%). This modest impact on the wages of workers whose characteristics remain unchanged is likely to be offset or even reversed by induced increases in the cost of living.
- This finding suggests that the effects on Manchester and Leeds will be bigger if policy interventions, such as improved transport links, induce structural change, particularly by changing the composition and skills of the workforce. In the analysis of specific transport projects, whether these wider economic impacts should be seen as additional to traditional user benefits depends crucially on the policy objective. From a national cost-benefit perspective, these effects would *not* be counted as additional if, as is likely, they come about because of attraction or retention of skilled workers at the expense of other places. In a policy context which aims to address the underperformance of the North, or address spatial disparities, these effects would be of more importance.
- Inter-city transport schemes appear to favour Leeds, while intra-city schemes favour Manchester. Better connecting Manchester and Leeds to London (through a 40 minute reduction in journey times) generates larger overall gains, with larger aggregate increases in GDP in London, but larger percentage increases in the North. Taken individually, links from Manchester and Leeds to London generate some wage reductions in parts of the east and west sides of the North respectively. In contrast, Leeds-Manchester links concentrate more of the benefit in the North, and generate a rather greater impact on the north-south economic differential.

