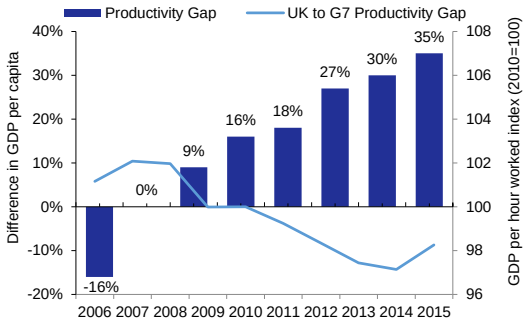
Transport, productivity and rebalancing the UK

1.1The UK Productivity Challenge

Investment in the North and Northern Powerhouse Rail (NPR), should rightly be set within the context of a wider national requirement to deliver productivity driven economic growth. In a climate of political and economic uncertainty, the UK faces increasingly important decisions about investment and policy. These decisions will seek to address the economic challenges that otherwise would prevent the UK from maximising economic growth.

HM Treasury's July 2015 paper 'Fixing the Foundations' recognises that "Growth comes either from more employment, or higher productivity". While the UK has been successful in increasing employment, it has continued to lag behind international competitors on increasing productivity. The gap in productivity between the UK and international comparators has grown in recent years, particularly since the financial crisis. Addressing this productivity challenge is not a quick or easy task, but it is fundamental to securing a sustainable recovery and raising living standards for all over the long term.

Figure 1.1 Productivity Gap between UK and other G7 countries

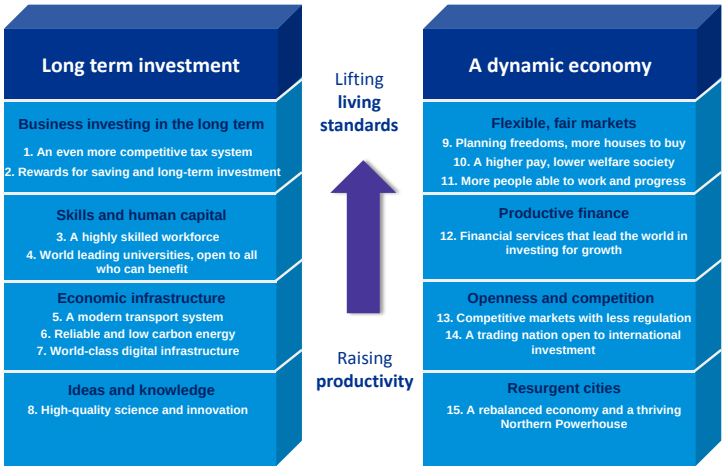


Source: ONS International Comparisons of Productivity - Current price GDP per hour worked, 2015

To address this productivity challenge HMT identified two key pillars of raising productivity:

- Encouraging long-term investment in economic infrastructure, skills and knowledge
- Promoting a dynamic economy that encourages innovation and helps resources flow to their most productive use.

Figure 1.2 Enablers of productivity



Source: HMT Fixing the Foundations

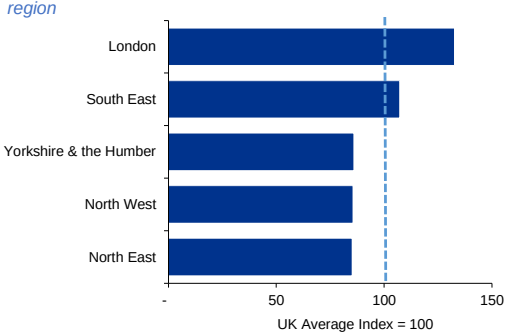
The levers the nation has to deliver productivity growth are well summarised in Figure 1.2

These levers provide the basis from which to tackle the barriers preventing the UK from maximising productivity growth. They also provide a toolkit, which can be utilised to address the structural problems of creating "an economy that works for everyone". Of the levers, investment in economic infrastructure and supporting resurgent cities are particularly relevant to Northern Powerhouse and NPR.

1.1 Re-balancing the Economy to Work for Everyone

Over the last decade, the UK has followed a path of rising polarisation in terms of economic performance. This is reflected in a divergent path in performance between the North and South of the country leading to mounting disparities in productivity across the UK's regions. Without addressing these disparities, there is little potential for the UK to reduce the productivity gap (national and international) and improve its international competitiveness. Delivering "an economy that works for all" cannot be achieved without addressing the challenges faced in the North.

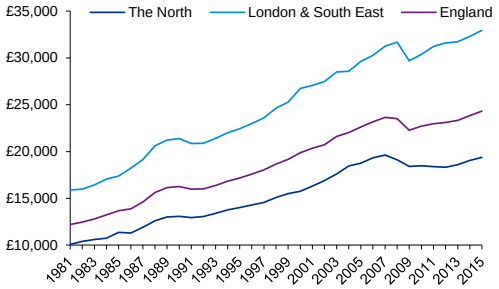
Figure 1.3 GVA per worker index by NUTS 1 region



Source: CE data for GVA based on ONS data and employment (jobs) based on ONS Annual Population Survey.

While London and the South has continued to grow and increase productivity levels, the North has struggled to maintain productivity at the levels observed pre-recession. The North's productivity has historically been below the national average, where GVA per capita has been consistently around 25% below the average for the rest of England.

Figure 1.4 Average GVA per capita over time

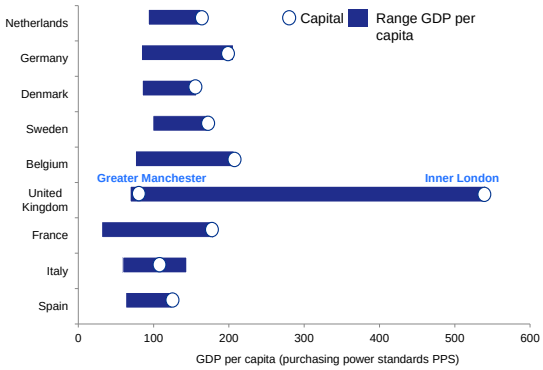


Source: CE data for GVA based on ONS data and employment (jobs) based on ONS Annual Population Survey.

The productivity gap is partly due to low retention of skilled labour[1], but also due to decades of underinvestment in the economic infrastructure needed to make the North more productive and attractive to new businesses and those seeking to re-locate. It is also this economic infrastructure and the employment opportunities it generates that are a major factor in attracting and retaining skilled workers.

The *"Northern Powerhouse Independent Economic Review"* (NIER) measured the economic performance gap in productivity, and found a structural disparity which has been persistent over the last 30 years. The disparities at the regional level are particularly stark when compared to other countries in Europe, where the range of GDP per capita found in the UK is noticeably larger than in any other European country and more than double that found in Germany. This at a high level indicates the scale of the distributional challenge faced by the UK. To achieve the national productivity mission there is a need for the rest of the country outside London and the South East to become more productive by building up areas such as the

Figure 1.5 Range of GDP per capita by country in Europe



Source: Eurostat (online data code: nama_10r_2gdp)

[1] According to the Cities Outlook (2014) by Centre for Cities, most cities see an outflow of younger cohorts

Northern Powerhouse and creating strong city regions.

1.2 The benefits of rebalancing the UK – the Northern Powerhouse as an enabler of productivity growth

In recognition of the benefits from more balanced growth, in recent years the Government has placed increasing emphasis on rebalancing the economy, which has moved to the top of the political and economic agenda. Re-balancing by implication suggests the need for **establishing specific and measurable national policy objectives**, including building a strong and interconnected northern economy to close the productivity gap.

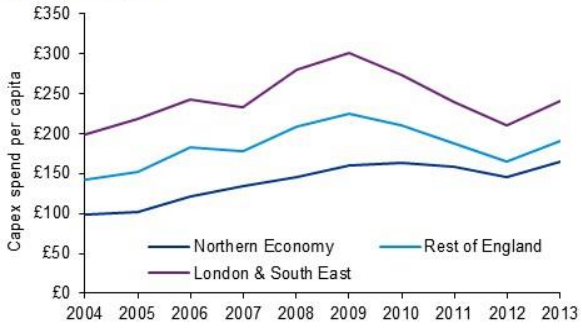
Recent government statements and upcoming policies will be focusing on building "an economy that works for everyone"[2] and moving on from a model where the country is not dependent on one city anymore[3], thus reinforcing a national strategy to rebalance the economy. The main city regions of the North – Manchester, Sheffield, Liverpool, Leeds, Newcastle and Hull, have also contributed to this agenda. The One North report (2014), set out the Northern city regions vision to become "a dynamic counterweight and complement to the London and South-East economy, a destination of choice for investors".

Rebalancing the economy, however, may have different interpretations. The key question here is whether this is a case of targeting purely 'net national' impacts or alongside side this, a degree of re-distribution of the economy, focusing on a **'net north' policy with a wider basket potentially longer-run transformational returns**.

This has important policy implications, including the need for providing investment which supports a wider industrial strategy to help areas outside the South East to create opportunities for young people and to deliver growth. This is likely to involve infrastructure investments, education and training programmes and spatial and planning policy aimed at regenerating towns and cities[4]. This may suggest a more interventionist policy style than previously has been the case and a greater focus on redistribution.

Historically investment decisions have been focused on seeking to meet projected demand. This 'predict and provide' approach to investment tends to re-enforce existing patterns of economic activity, and patterns and migration of the labour force and jobs. The consequences of this approach to investment decisions is relative underinvestment in areas such as the North, which is evident in the levels of transport and infrastructure spend per capita relative to the South East. A demand led approach to investment is also re-enforced by the appraisal frameworks and modelling methodologies, which typically underpin investment decisions. These focus predominately on the marginal welfare impacts for existing users, rather than the changes to economic activity and land-use patterns infrastructure can enable.

Figure 1.6 Historical transport infrastructure spend per capita

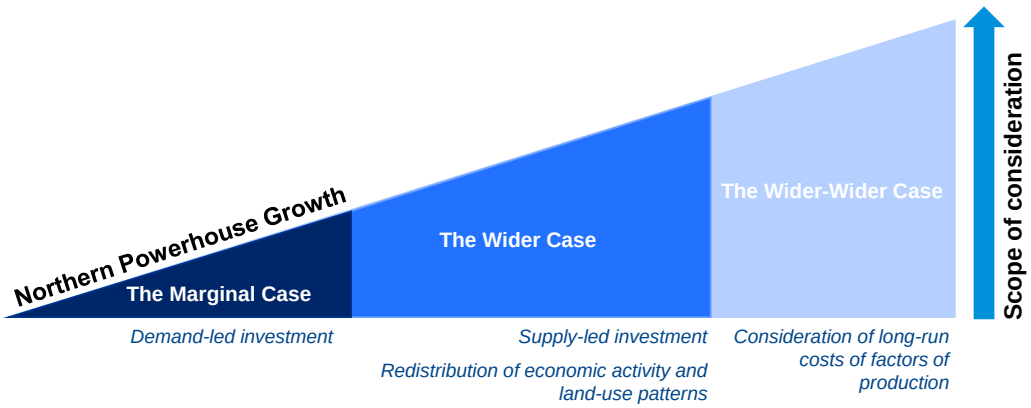


Source: ONS data for public expenditure on transport, CE data for the population data based on ONS Mid-Year Population Estimates

[2] http://business-reporter.co.uk/2016/09/05/theresa-may-vows-bold-action-build-economy-works-everybody/
[3] https://www.theguardian.com/uk-news/2016/sep/20/theresa-may-confirms-commitment-northern-powerhouse-george-osborne
[4] https://www.gov.uk/government/speeches/the-importance-of-industrial-strategy

To create a Northern Powerhouse will require transformational investments in infrastructure, which tend by nature to be (at least initially) supply led. Examples of supply led investment in the UK include the Jubilee Line to Canary Wharf, the DLR, London Overground and Manchester Metrolink. The demand led case for these investments was weak – there were very limited existing trips made and limited economic activity and labour supply in much of the catchment areas. This was reflected in low BCRs of many of these schemes, typically <1.0. History shows that the economic benefits of these investments were transformational to the economy and translated value of the areas served. This provides clear parallels for the investment decisions to be made for Northern Powerhouse, which is unlikely for the most part, to be a demand led case for investment, but more typically supply led and targeting the transformation needed to re-balance the economy.

Figure 1.7 Considerations for national infrastructure investment decisions

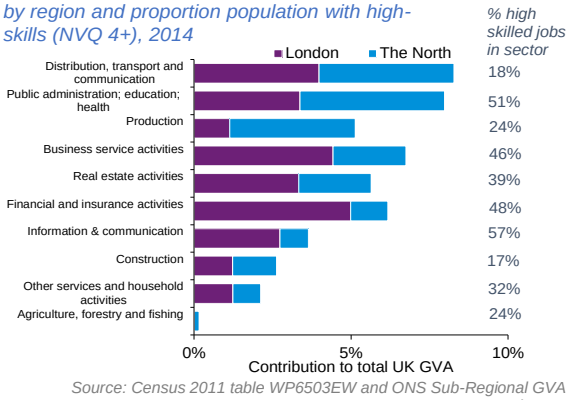


There is a clear rationale for rebalancing the UK economy, beyond those commonly assessed under standard appraisal. Beyond the dynamic economic impacts of investment, a broader or 'wider-wider case' for re-balancing relates additionally to the continued and likely increasing relative opportunity costs of continued investment in the South compared to other parts of the country. This is not an argument for restricting growth in the South, but rather providing and retaining resource in the North at the levels needed to grow and become counter-balance.

There are a number of opportunities that could arise from a balanced economy, these include:

1. Increased economic resilience – both socially and economically, by better diversifying risk, as new areas specialise in different industries, and relieving social tensions that emerge as economic and social disparities increase and concentrate in deprived areas. Key to this resilience is creating increased proportions of high skilled and

Figure 1.8 Sectoral contribution to national GVA by region and proportion population with high-skills (NVQ 4+), 2014

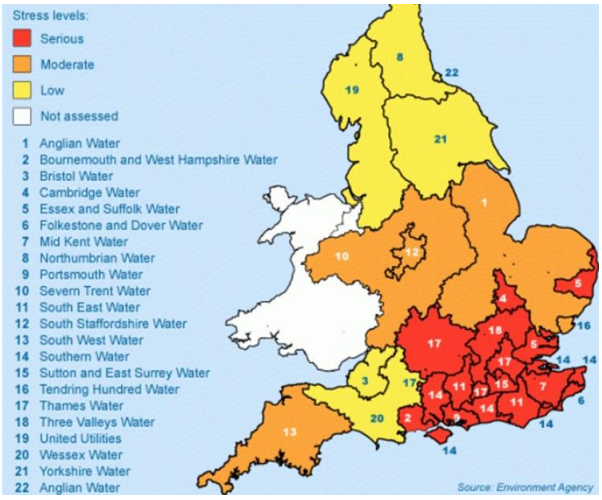


Source: Census 2011 table WP6503EW and ONS Sub-Regional GVA estimates

productive jobs in the North, which are often lacking outside of London.

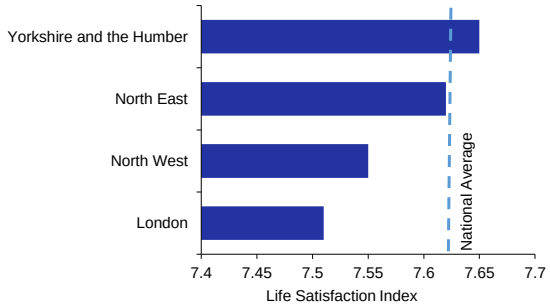
2. Water availability - low rainfall and high population density in the south and east means that water availability per person in these regions is low – with the southeast being the driest part of the country and already water stressed. By contrast, the north and west and much of Wales and Scotland receive the majority of UK rainfall but are more sparsely populated. This has long term strategic considerations for government in driving a spatial policy which does not overly concentrate population in areas which are already experiencing stressed water availability. The costs of transporting water on mass are prohibitive and climate change has the potential to create further pressures on the South-East's existing water infrastructure.

Figure 1.9 Water Stress levels in England 2008.



3. Increasing standard of living, quality of life & natural environment - there are significant differences in the relative affordability of housing across the UK, where first time buyers in London are seeing house prices nearly 9 times average earnings – more than double the affordability of housing in Manchester. Lower house prices in the North also provide a material benefit to those living there. A shortage of housing in London and the South East has increased house prices to rates more than double the national average, with population estimated to grow further in the South housing availability and affordability in the has the potential to become more unstainable.

Figure 1.10 Life satisfaction by region, 2015/16



Source: Personal well-being in the UK : local authority update, 2015 to 2016

The North has the potential to provide a much more cost effective solution to housing, with lower house prices providing lower costs of living to those working in the North. Providing investment which encourages the retention of high-skilled workers in the North is key to supporting continued standards of living in the UK.

4. UK Competitiveness through lower costs of the key 'Factors of Production' - high concentrations of economic activity, as the South East experiences, lead to higher costs of the key 'factors of production' such as high land, including constrained land capacity, high labour costs and investment costs. This will inevitably negatively affect long run economic output. Lower costs of production also make the UK more internationally competitive,

Figure 1.11 Mix-adjusted average house price, Feb 2016

Source: ONS Mix-adjusted average house prices

which is vital in an increasingly globalised post Brexit world. Northern regions offer lower costs and valuable economic assets including:

- **Lower costs of investment** - the rising costs of investing to support the most concentrated cities such as London could prove in the long-run to be prohibitively expensive. Continuously fixing and providing capacity to address the problems caused by ever increasing concentration of economic activity will be difficult without investment in very expensive infrastructure. A clear example of this is capital expenditure on London-based transport infrastructure which has growth both historically (for example the cost of Crossrail 2 being more than twice the cost of Crossrail 1) and relative comparison of cost to infrastructure investment in the North, where capex comparisons of transformational economic infrastructure tends to cost less in the North than it would in the South.

UK infra projects	Region	Capex
High Speed 2	Inter-city	£55.7bn
Crossrail 2	London	£27bn - £32bn
Crossrail 1	London	£14.8bn
Heathrow - new runway	London	£17.6bn
Lower Thames Crossing	London	£4.3bn to £5.9bn
Thameslink	London	£6.5bn
Trans-Pennine Tunnel	The North	£6.0bn
Thames Tideway Tunnel	London	£4.2bn

- **Lower labour costs** - in the context of productivity, businesses are looking to minimise costs to maximise the potential profitability. The North has lower average wages compared to London and the South East partially due to the lower cost of living but also due to the lower skill base. Costs of living as well as skill levels determine wages rates and hence factors such as house prices feed through to wages an reduce the relative competiiveness of businesses.

Figure 1.12 Median weekly earnings by region, 2015

Source: Annual Survey of Household Earnings

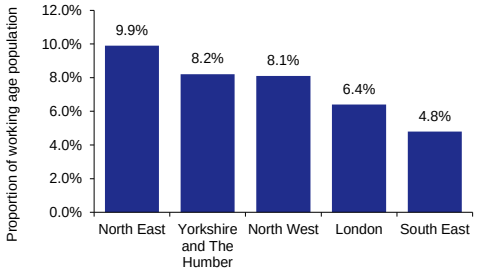
The North has the potential to increase the level of higher skilled jobs at a relatively lower cost, thereby supporting increased UK productivity and international competitveness.

Box 1: Productivity and the costs of the Factors of Production

Economic output (GDP) is determined by the combination and efficiency of factors of production - the resources/inputs used to generate economic output at a national level. These factors of production are land, labour, capital (physical and human) and total factor productivity (the efficiency of these). Changing these factors of production can impact the trajectory of economic growth in the long run.

An example of this is transport investment which has the potential to impact the behaviour of firms and workers. This type of investment has the potential to reduce overall costs of factor inputs impacting economic output directly, and also indirectly through increasing efficiency of the economy i.e. increased productivity resulting from efficiency gains in the use of resources and through economies of scale.

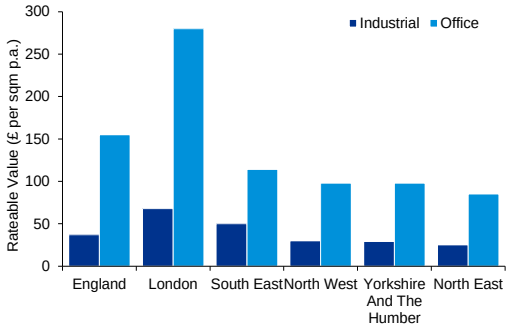
Figure 1.13 Proportion of working-age population claiming income-based benefits by region, 2015



Source: DWP Claimant Counts

- **Supply of graduates** - is an important source of high-skilled labour within the knowledge economy with the north having the highest proportion of Russell Group universities in the UK. In order to secure the skilled workforce that is needed for the future, the North must either retain a larger proportion of graduates from its higher education institutions, or attract skilled labour from elsewhere in the country and overseas.

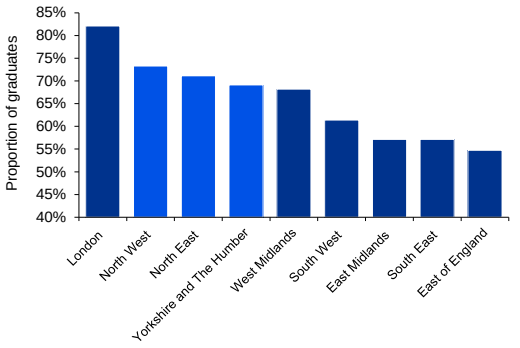
Figure 1.15 Rateable Value by Region for Office and Industrial Space, 2012



Source: ONS Business Floorspace Statistics

- **Higher capacity in the labour market** - the North has an underutilised labour market evidenced by regions in the North having some of the highest proportions of working age population claiming income based benefits. Policies supporting growth in employment in the North, are more likely to be effective in supporting increased labour market participation, particularly if those jobs are more attractive to those currently underemployed.

Figure 1.14 Proportion of graduates working in the same region 3.5 years after graduation



Source: Destinations of Leavers Longitudinal survey 2015

- **Lower land and property costs** – the lower cost and availability of productive floorspace and land in the North also support the competitive and prodivity case for North Powerhouse. The value/cost of floorspace in London is nearly double the national average. In order to maximise firm-level profits, these high overheads are encouraging firms/start-ups to consider alternative options for business location. Policy and investment suporitng Northern Powerhouse and the core cities in the North, will help encourage businesses to choose to re-locate to the North.

The timing of this investment is key and reducing to productivity gap in the North would provide a platform to support wider UK productivity and international competitiveness. The costs of capaital now are at record lows, so it will be cheaper to invest now rather than later down the line, while money is cheap and gap has not widened further.

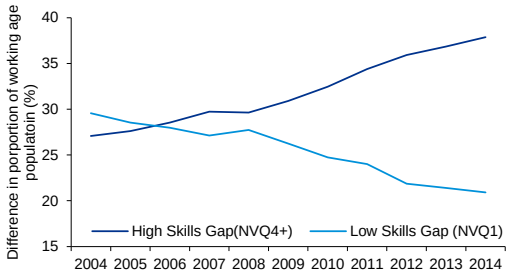
1.3 Northern Powerhouse - Challenges to re-balancing

The NIER identified a number of specific barriers to higher productivity for the North. These are consistent with a number of enablers identified by HMT and highlight the fundamental challenges which must be addressed to overcome the regional disparity in performance. In particular:

- **Low retention of skilled labour**[5] - a long term investment pillar for developing a highly skilled workforce
- Decades of **underinvestment in the economic infrastructure** – another key long term investment pillar
- **Poor transport connectivity** - a barrier to developing critical agglomeration masses.

Skills From the mid-2000s, there has been a persistent gap in skill levels between the North and the rest of England, increasing in the post-recession period. There is a growing disparity of skills within the UK, where the North has a higher proportion of working age population with Low Skills compared to the Rest of England, and a lower proportion of working-age people with High-skilled qualifications (NVQ4+).

Figure 1.17 Trends in the North's Skills Gap as a proportion of Working Age Population

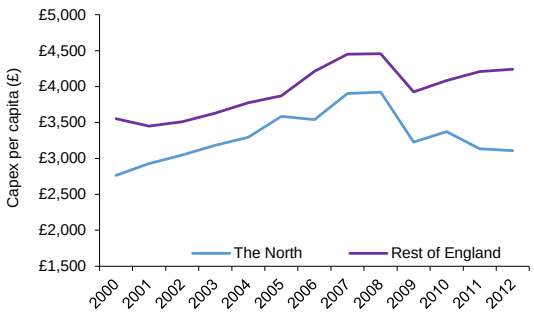


Source: Qualification and working-age population data from the ONS Annual Population Survey

This is due in part to the impact of northern cities losing their skilled individuals to other areas of the UK and those who returned to the North were more likely to be underemployed. The HESA graduate retention rate data[6] found that although 'returners made up 15.7% of 2012/13 employed graduates' in the North East, they were 'much the most likely to be in non-graduate employment, particularly in retail'.

Investment The North has suffered from persistent underinvestment in economic infrastructure compared to the Rest of England. Figure 1.18 illustrates the difference in capex over time where the trend in the North's investment Gap is positive and mostly stable until the financial crisis, after which it drops to levels worse than the Rest of England. The legacy of decades of underinvestment in the economic infrastructure provides a unique opportunity to make the North more productive and attractive to businesses seeking to re-locate.

Figure 1.18 Trend in fixed capital expenditure per capita



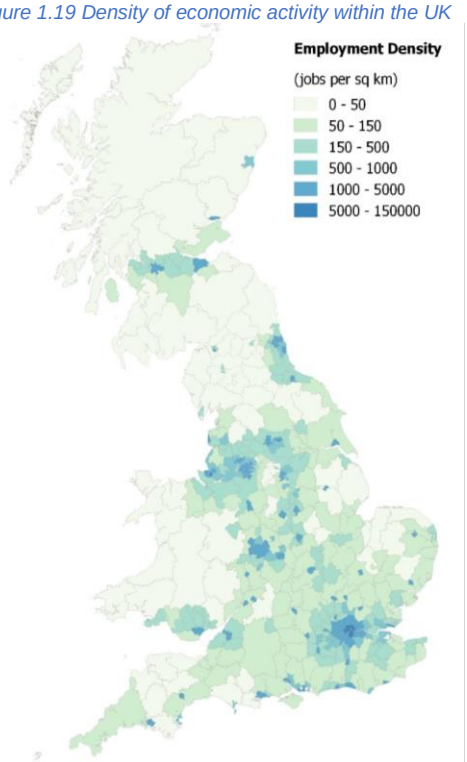
Source: Eurostat

[5] According to the Cities Outlook (2014) by Centre for Cities, most cities see an outflow of young talent except for London, which experiences a big inflow.
[6] HECSU (2015): Loyals, Stayers, Returners and Incomers: Graduate migration patterns.

Agglomeration A lack of agglomeration is mentioned frequently as a reason for the North's performance gap with the Rest of the England due to Northern cities being too small to take full advantage of the 'positive externalities from the spatial concentration of economic activities'. The North's economic activity is dispersed and concentrated within core city centres. The NIER uses employment density to proxy for regional agglomeration, where Figure 1.19 illustrates agglomeration across the UK, where agglomeration occurs mostly within city centres. More generally the North is below national average, and substantially lower than London.

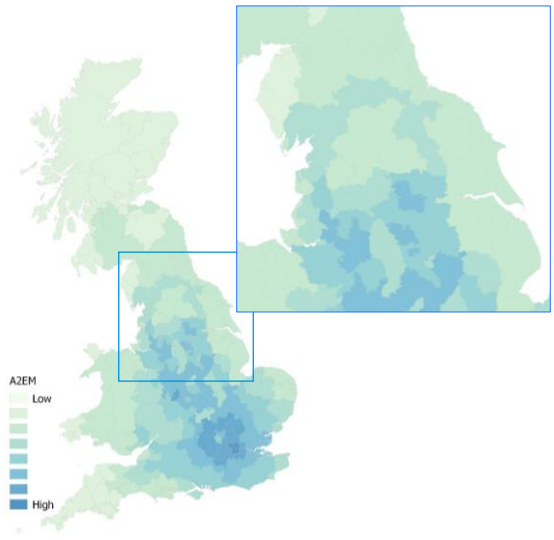
Transport and connectivity One of the key reasons usually cited for the 'productivity' gap that exists between the North and the rest of the country is the poor transport links and connectivity between the major urban and industrial centres, with the NIER describing the area as 'fragmented by poor transport links'[7]. Examples of these include economic interaction between Leeds and Manchester that is currently 40% lower than it could be[8], there is also suppressed demand for travel between Sheffield and Manchester[9], and anecdotal evidence suggests that businesses in Sheffield do not have significant interaction with Manchester as a result[10]. The existing levels of connectivity in the North are materially lower than other more productive parts of the UK, as illustrated in Figure 1.20.

Figure 1.19 Density of economic activity within the UK



Source: Census 2011 employment data and North of England

Figure 1.20 Distribution of transport connectivity within the UK



Source: Census 2011 employment data and North of England

There are other drivers of the performance gap considered in further detail within the NIER, these include sectoral mix, innovation & technology and governance.

The performance drivers identified above do not stand in isolation from one another, rather instead tend to operate together and reinforce one another.

[7] SQW - The Northern Powerhouse Independent Economic Review, 2016,
[8] 'Strengthening economic linkages between Leeds and Manchester' Overman et al, SERC - The Northern Way, 2009.
[9] National Infrastructure Commission report - High Speed North, March 2016.
[10] EKOS Consulting - Joint Economic Study: Manchester and Sheffield, 2008.

1.4 What will it take to rebalance the UK?

Rebalancing the economy is not an easy task. It involves creating critical masses of economic activity in locations that currently struggle to attract investment and retain talent. Increasing the density of economic activity implies improving connectivity as well as complementary policies that make areas good places to do business and that are attractive to live in for skilled people who make up productive labour forces.

To enable the 'Northern Powerhouse' to become more than just a slogan, requires a cold look at what it will take to turn the North into a positive contributor to national productivity growth. This means enabling the North to deliver the £97 billion increase in economic output target identified by the Northern Powerhouse Independent Economic Review (NIER)[11], which was co-launched with Transport for the North (TfN) by the Commercial Secretary to the Treasury, in the summer. This sets a bar by which any Industrial and Investment strategy for the North should be judged against. Delivering this outcome would provide a major contribution to the national productivity mission.

This is a significant feat and will require a combination of policy and investment spread over several decades at levels significantly beyond those historically seen outside of London and the South East. Core to this proposition is investment in transport infrastructure, nested within a wider investment package part of the wider Northern Powerhouse Strategy.

For national policy and investment decisions it also poses questions around whether this is just about targeting investment, which appears, at the margin, to have the greatest 'Net national' impact (through productivity gains) or whether investment should also have a component which is targeted at transformational and re-distributional 'Net North' outcomes (through jobs).

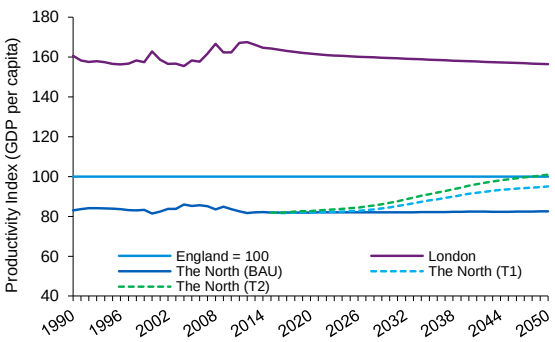
The rationale for such a policy is three-fold:

- The national productivity mission cannot be achieved if the rest of the country outside London and the South East does not become more productive
- There are lower long-run opportunity costs of investing in the North rather than further increasing the concentration of activity in London and South East
- An economy that 'works for all' must address the distributional challenge.

Setting out this policy challenge highlights the need for a clearer understanding of the potential solutions, opportunities and costs associated with delivering this vision for growth.

The task of enabling the North to deliver the £97 billion increase in economic output by 2050 involves a 15% higher than a 'business as usual' growth, a 4% increase in productivity and 850,000 additional jobs in 2050.[12] This future would represent a sustained better long-term performance for the North than has been seen in any period in the last four decades.

Figure 1.21 Productivity and potential future growth trajectories for the North



Note: T1 represents the NIER Transformational scenario and T2 Transformational plus. Source: TfN NIER Workstream 4

This transformational future depends on long-term improvements in the various

assumption of an improvement in the various
s about as a result of sector-level assumptions for

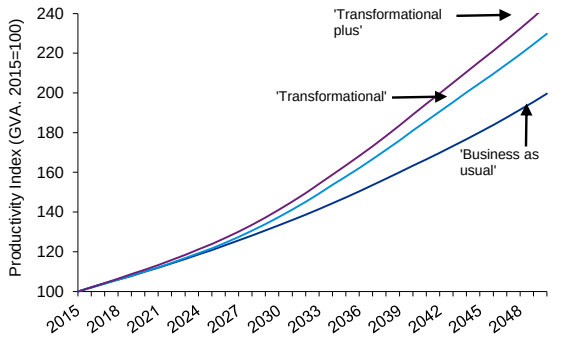
drivers of productivity and output growth, including transport connectivity, and transformational land-use changes, sitting within a wider investment programme targeted at improving productivity in the North. This will entail long-term strategic investments required for re-balancing. These may take years to become operational and with impacts driving economic performance gradually over the long term in combination within some re-distribution of growth in economic activity towards the North.

Box 2: The Northern Powerhouse Productivity Gap and a transformational future

The NPIER estimated that it would take **£97bn** additional economic output in 2050 to close the historical Northern performance gap (i.e. the difference between Northern economic performance and the national average) between a transformational future for the North and if the North continued business as usual - as seen in Figure 1.21. In this transformational future, GVA and productivity in the North are projected to be 15% and 4% higher than 'business as usual' alongside an increased labour force including an 850,000 additional jobs.

The NPIER constructed two core scenarios comparing the growth that might be expected in the North, if:

Figure 1.22 NIER scenarios of Northern growth, 2011 prices



Source: TfN NIER Workstream 4

- **The future is like the past ('business as usual') scenario** which reflects both historical experience and expected UK trends, notably sectoral performance and demographic changes. It's important to note, this scenario is not simply an extrapolation of past outcomes, but can be interpreted as reflecting past experience suitably adjusted for expected UK outcomes. This scenario takes account of changes in the structure of the North's economy that reflect past trends so that, for example, industries that in the past have lost jobs and capacity have a lower weight in the economy now than they did 10-20 years ago.
- **The North's future performance is transformed, relative to the past ('transformational') scenario** assumes, implicitly, that progress is made in tackling the wide range of factors that are responsible for the historical performance gap. Since 'business as usual' incorporates past trends, it can be interpreted as including marginal policy measures of a similar kind and magnitude to those that were applied in the past two decades, and so the 'transformational' scenario implies a *stronger* level of policy action than in the past. An additional sensitivity to this is "transformational plus" scenario which adjusts the "transformational" scenario to reflect a higher UK GDP growth context consistent with the Office for Budgetary Responsibility's long-term view.

1.5 Role of Transport within Powerhouse

1.5.1 How does transport investment impact the economy

Transport connectivity is an essential input into the efficient functioning of markets - it has a role in driving productivity, by enabling enhanced connectivity between and within the North's cities, reducing the costs of doing business and supporting increased agglomeration and linkages between key sectors of the North's economy. Transport infrastructure is therefore key contributor of what will be required to deliver the aspirations for the North.

Increasing transport investment in the North has the potential to reduce effective journey times between major urban and industrial centres resulting in firms and workers being effectively brought closer together making it cheaper and easier to communicate, compete and trade. Thus enabling firms to access to markets wider afoot which could increase access to larger labour markets and skills, encourage expansion, scale economies and development of specialist skills. As well as this, there is the potential for a range of other transport connectivity driven productivity impacts across the economy, including and not exclusive to:

- ***Removing physical barriers to trade*** by providing better linkages across routes previously hampered by physical barriers to trade in the North - such as the Pennines - opening markets for trade and increase competition which prior to transport investment may not have existed due to high travel costs.
- ***Better integration of economic centres*** to address fragmentation of the Northern Economy by allowing better trade between cities. This could encourage increased specialisation through development of sector specific comparative advantages, i.e. shorter travel times between cities could enable some activities to be 'outsourced' to areas with lower costs of production, and creating opportunities for high-value activities to concentrate in city centres.
- ***Redistribution of economic activity and changes to land-use*** targeted and material transport investment is a key enabler of transformational changes in land-use, which are needed to support the levels of employment and population growth required to enable the growth required for re-balancing.

The underlying assumption behind these potential impacts is that transport investment could increase the concentration of economic activity (agglomeration) which brings a combination of scale and density that can make workers and firms more productive and, in many cases, more innovative which is one of the fundamental reasons for sustained growth within cities.

Box 3: Examples of supply led investment in transport

As discussed in Section 1.3, investment in the UK has historically been made based on demand led approach. The case studies below, provide some examples of transport investments where the demand led case was relatively weak with limited existing trips, economic activity and labour supply reflected in low BCRs.

Jubilee Line Extension

The Jubilee Line Extension (JLE) is the extension of the London. With a BCR of 0.95 and a cost of £350m per mile, the JLE was authorised on the back of private sector investment and strong case making.

After completion, the JLE proved to be a significant success by:

- Relieving congestion on the DLR
- Facilitated an additional 426,000 high-skilled high value, high productivity jobs
- Created growth in high employment density locations valued at £14.5bn to economic growth over 60 years and wider benefits to be £6bn.
- Unlocked development areas expanding London's commercial offering and increasing property values in Canary Wharf by £1.9bn and Southwark by £650m.

North London Line

The North London Line (NLL) is a London Overground line which passes through the inner suburbs of north London. The NLL used to be regarded by frequent travellers as offering a poor service, congested trains and an unreliable service. Until TfL took ownership in 2007 and invested with the aim to increase capacity %, remodel stations and integrate lines to create an orbital rail service.

After the upgrades made by TfL:

- Passenger demand has grown greater than forecast levels, up 311% on 2007.
- Additional employment and population growth has been facilitated by better connecting Stratford, Docklands, north east and west.
- House prices have increased significantly in the areas surrounding stations with property values increasing by an average of £90,000 (above local market increases) since 2007.

1.5.2 What must transport contribute to the North's Growth?

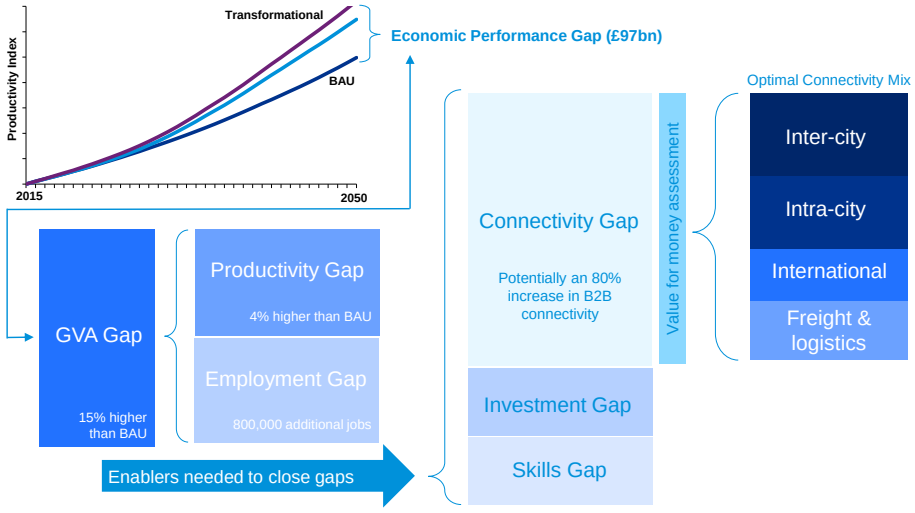
The Northern Transport Strategy recognises that fundamental to delivering this vision is developing a prioritised region-wide investment package which delivers 'cost effective productivity' gains. The nature and scale of an investment package should be determined by how much of the North's growth is expected from transport as well as the supporting measures that are necessary to support economic development (such as the non-infrastructure based parts of the wider Northern Powerhouse Strategy).

TfN is currently in the process of developing the North's Strategic Transport Plan to shape and deliver a strategy for long-term transport investment concentrating on the four key areas requiring connectivity improvements:

- ***Inter-city connectivity*** to drive material improvements in connectivity by rail and road between cities. Examples of this could include a new integrated northern rail system and expanding capacity along strategic road links.
- ***Intra-city and urban connectivity*** prioritising effective investment in improving connectivity within cities between communities and areas of employment. Examples of this could include a focus on developing effective onward connectivity from HS2 stations and working to build in improvements to local rail services.
- ***International connectivity*** in particular improving access to Manchester Airport from nearby cities, and increasing the destinations served by the existing network of airports.
- ***Freight and logistics*** investment to improve planning to support port expansion, with development of the distribution network, and similarly to support increased freight movements by improving rail capacity.

To develop an optimal investment package to address the current and future connectivity challenges in the North driving the connectivity gap, there is a need to consider a combination of both incremental and transformational investments within the four categories mentioned above. Optimisation of this connectivity mix is crucial to filling the connectivity gap needed to drive Northern Powerhouse. This 'connectivity bar' is also driven by the overall scale of connectivity needed and the mix should be set to maximise the impact of the combined transport investments i.e. transformational vs marginal, inter-city vs intra-city improvements, road vs rail, etc. and ensuring cost effectiveness.

Figure 1.23 Contributions to the North's transformational future



Note: The 80% connectivity gap is purely illustrative and based on the relativity between the SERC place-based elasticities of connectivity to productivity, where a 10% increase in B2B connectivity could potentially result in a 0.5% increase in productivity. This assumes that all the productivity growth would come from improvements in transport connectivity, however in practice this may not be the case.