



Local Economic Benefits of Station Investment

Report
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Rail Delivery Group
Stations Strategy Group

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1 Introduction

Context of the Study

- 1.1 Britain's 2500+ railway stations are an important part of the nation's infrastructure. They are the gateway to the journey opportunities and connectivity that the train service of the rail network can provide. However, they can also represent civic amenities which offer benefits to the wider community beyond the rail passenger. This study consolidates perspectives from a snapshot of previous studies and outcomes from previous station investments to identify the current knowledge of the benefits of stations as at 2018.
- 1.2 The study builds on previous Rail Delivery Group work, including development of the Vision for Stations created in 2015, which highlighted the role of stations as potential catalysts for local entrepreneurialism and investment. The study also follows on from the report on the regeneration potential of investing in rail stations¹, which identified how station investment had supported development, regeneration and growth in the vicinity of a station. Other Rail Delivery Group work has examined this theme.
- 1.3 It is generally acknowledged that investment in transport infrastructure, and rail infrastructure investment specifically, can support the generation of economic benefits. Furthermore, those benefits are not thought to be limited to the immediate area of the investment, but also, contribute on a national basis toward the UK's productivity. These assertions typically form key tenets of the justification for any new transport project by public sector promoters, and private sector stakeholders also stress criticality of infrastructure investment².
- 1.4 National policy with regards to transport investment has largely proceeded on this basis; the case for High Speed 2, for example, has largely focused on the projected economic benefits that the project is suggested to deliver.
- 1.5 However, it is not solely at the national level that the focus on the economic benefits of transport infrastructure has come to determine patterns of transport investment. The Combined Authorities, centred on the major cities of England outside of London, and the Local Enterprise Partnerships linking numerous local authorities together on economic projects, have tended to prioritise transport investment as a key economic priority. Again, this is based on the presumption that transport infrastructure is an enabler of economic growth.

¹ Regenerating Britain's railway stations: a six-point plan, Rail Delivery Group, 2017

² For example, London First, a business membership organisation, is a key proponent of Crossrail 2.

- 1.6 Rail investment is seen as being able to support the economy in a number of ways. Larger projects, such as High-Speed 2 or Crossrail, are viewed as enablers of transformational growth, while many smaller-scale investments are promoted on their basis of their strong economic rationale.
- 1.7 The body of theoretical literature on the topic is well-developed; the theory of how time savings, resulting from transport investments, translate into tangible economic benefits forms the basis for the appraisal of most contemporary proposals for transport investment in the UK. Additionally, however, recent years have seen an increased recognition of the wider potential role that transport investments can play in an economy, allowing local areas to overcome specific barriers to economic growth. These may take the form of enhancing transport accessibility/connectivity, from the opening of new stations, or the significant transformation and stations and its surrounds, such as the major London St. Pancras/Kings Cross redevelopment. However, despite the wealth of theoretical work on the topic, the available empirical evidence of the impacts of transport investments remains much more limited and variable, and this is equally true for rail and station investments as it is for other modes.
- 1.8 The aim of this study is to review and distil the current and key available evidence on such transport investments, with a focus on rail station investments, and to draw out the key findings and implications of this limited body of research. The intention is to produce a study which can inform debate within the industry as to what the research implies for investing in the station estate to maximise benefits and what opportunities should be grasped to improve the evidence and narrative for the case for investment.

Report Structure

- 1.9 The report is structured into three sections, which cover the range of research available on the topic, along with the principal conclusions to be drawn from the evidence available.
- Chapter 2 considers the literature on transport investment more generally, outlining the current policy context on the relationship between transport investment and economic growth, before covering the theoretical groundings for this relationship along with the broader empirical evidence on the topic of transport investment. It examines evidence on property prices, direct investment, and indirect investment in turn. The purpose of this chapter is to draw a more complete picture of the theoretical relationship between transport investment and economic benefits as it is currently supposed, and to illustrate where empirical evidence currently exists for the effects described.
 - Chapter 3 focuses on rail and station investments directly, and it divides the observed impacts of such investments into categories, allowing the drivers of particular economic effects to be determined in closer detail. Again, the chapter categorises benefits as concerning property prices, direct investment, and indirect investment. This section also focuses in on individual cases of station investment, highlighting the particular economic benefits associated with each and illustrating the context-specific nature of such benefits.
 - Our key conclusions and suggested implications are set out in Chapter 4 of the report, noting that, based on the limited quantitative evidence available, it appears that the local economic benefits of station investment appear to be conditional on the local context of the investment, and dependent on other factors being in place to have a transformative effect. This section also covers the recommendations for future research, focusing on further isolating the contexts in which station investments can bring about local economic growth.

2 The Link between Transport Investment and Economic Growth

Overview

- 2.1 There is a significant body of research which examines the economic linkages between transport investments and economic growth. Most of the available evidence is based on road, rather than rail, infrastructure. However, this evidence provides a useful indicator of the potential impacts of station improvements on local economies, and as such, highlights the breadth of possible impacts that station investment could result in. In Chapter 3 we relate the general findings on transport investment and growth to the rail service and station-specific improvements.

Policy Rationale

The Growth Agenda

- 2.2 There is increasing recognition amongst policymakers of the role that transport investment can play in supporting economic growth. The Government's Transport Investment Strategy³ (July 2017) identified the objectives of transport investment as being to:
- create a more reliable, less congested and better-connected transport network that works for the users that rely on it;
 - build a stronger, more balanced economy by enhancing productivity and responding to local growth priorities;
 - enhance our global competitiveness by making Britain a more attractive place to trade and invest; and,
 - support the creation of new housing.
- 2.3 The themes of transport investment as being fundamental to supporting productivity, inward investment and housing delivery are cross-cutting, and are reflected in modal policies and strategies such as the Rail Investment Strategy, Roads Investment Strategy (RIS) and Airports National Policy Statement.
- 2.4 The role of transport investment in supporting local growth priorities provides an underlying rationale for the ongoing process of devolution and the creation of elected Mayors, Combined Authorities and Local Enterprise Partnerships, who are charged with identifying and prioritising local infrastructure investment that supports economic growth, housing delivery

³ <https://www.gov.uk/government/speeches/transport-investment-strategy>

and local regeneration and development. The role of rail and stations investment is seen as key to supporting growth for many local and sub-regional economies.

Appraisal Guidance – the Five-Case Model

- 2.5 The economic role played by investment in transport infrastructure is reflected in the appraisal guidance for public projects provided by the Treasury, which recommends a five-case model to undergird the business case for such projects (including transport infrastructure investments) in its Green Book guidance. The five cases for each project are the strategic, economic, commercial, financial, and management cases, and in the context of transport investment, the economic and strategic cases revolve around the linkages between such investments and economic outcomes.
- 2.6 As part of the economic case for a public project, it is necessary for a Value for Money (VfM) statement to be produced, in order to establish that the project maximises value. This statement is intended to incorporate the economic benefits brought about by any such improvement, measured against the cost of investment. This is underpinned by cost-benefit analysis, which focuses on the quantification of economic benefits at a national level.
- 2.7 There has been increased emphasis on the strategic case for transport investment, which demonstrates the alignment of investment with wider economic policies and outcomes. The strategic case is intended to provide an economic narrative, highlighting the “case for change” and incorporating the economic context into business strategy. The strategic case is typically sub-national in focus, as the economic policies that it is intended to support are at the sub-regional (e.g. Combined Authority or LEP) or local level.
- 2.8 A key challenge within a business cases is the need to ensure consistency across and between the economic and strategic cases, in particular reconciling the analysis supporting the economic appraisal (where long-established guidance frames the approach adopted) with the strategic case, which often cite more transformational potential impacts.
- 2.9 There have been examples of where non-webTAG approaches have been used to estimate economic impacts, such as for High Speed 2, where KPMG reported annual economic benefits of £15bn – an order of magnitude greater than that within the economic appraisal⁴. Similarly, the Crossrail Impact Report cited a GDP boost from the Crossrail project at £42bn, and it predicts a £9.9bn net economic benefit, using the Department for Transport’s appraisal methods. The Institute for Government How to

“...non-webTAG approaches have been used to estimate economic impacts an order of magnitude greater than that within the economic appraisal...”

⁴ The House of Lords Economics of High Speed 2 report (2015) discussed one of these approaches, taking the example of the KPMG research into the economic consequences of High Speed 2. The House of Lords report noted that the results of the KPMG research differed from the results provided by the Wider Economic Impacts analysis from the initial Economic Case made for the project, and highlighted that the KPMG approach instead assessed the likely impacts of increased connectivity between locations on the line using a framework usually used to analyse improvements to connectivity between two individual locations rather than to the country as a whole. This illustrates a problem of calculating additionality of benefits from transport investment.

Value Infrastructure report (2017), meanwhile, argues that cost-benefit analyses struggle to capture the “dynamic effects” of transport infrastructure projects which fundamentally change the structure of an economy, with “megaprojects” – worth over £1bn – generally taking place over too long a term to have their benefits adequately predicted by an appraisal methodology based on current economic trends.

- 2.10 The need to establish an internally consistent approach across strategic and economic cases has informed the ongoing research as part of the Department for Transport (DfT)’s ‘Understanding and Valuing Impacts of Transport Investment’ (UVITI) programme, and related guidance. The ways in which specific impacts are measured also remains the focus of DfT research; the department continues to investigate, for example, the methods used to calculate the values of time for different user groups, which contributes to the calculation of the overall economic benefit of a transport investment project.

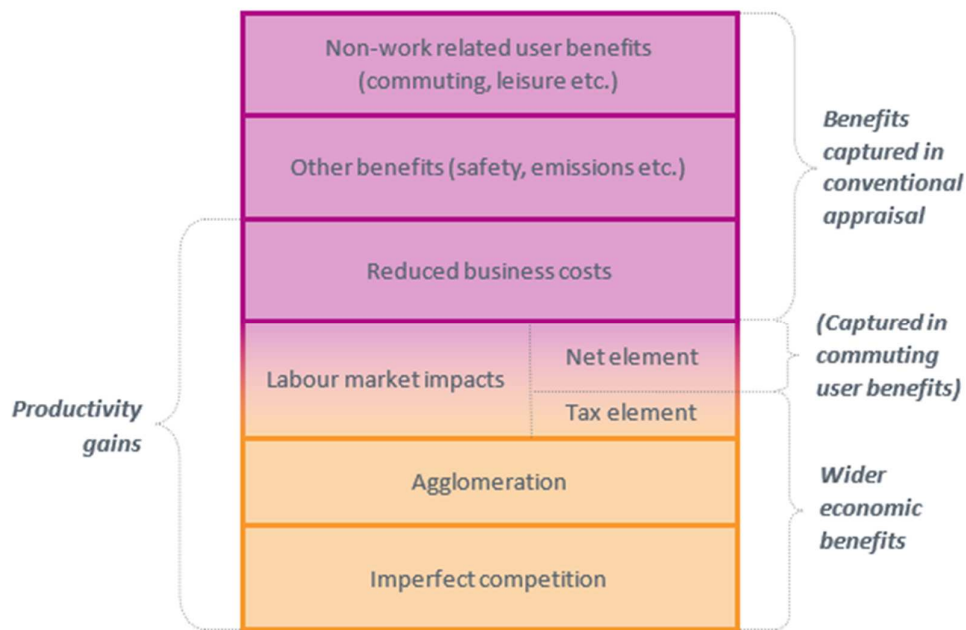
“...cost-benefit analyses struggle to capture the “dynamic effects” of transport infrastructure projects which fundamentally change the structure of an economy ...”

How Transport Investment Supports Growth: Theoretical Linkages

- 2.11 Transport appraisal is underpinned by the assumption that time savings to business users are a direct measure of, and proxy for, the economic productivity benefit of transport investment.
- 2.12 Recent decades have seen increasing recognition of the ability of transport infrastructure to deliver additional ‘wider’ benefits in the form of agglomeration, labour market and imperfect competition impacts.⁵ Wider economic impacts are now formalised in DfT guidance.
- 2.13 Economic appraisal captures both productivity benefits (where the outcome is increased GDP), which accrue largely from benefits to businesses, and ‘welfare’ impacts which capture the societal benefits to individuals (e.g. by reducing travel times individuals increase their leisure time). Only productivity benefits translate directly into economic growth. Figure 2.1 below highlights the breadth of economic effects that transport appraisals are now expected to capture.

⁵ Beginning with the Standing Advisory Committee on Trunk Road Appraisal (SACTRA) report in 1999, a broader approach to the potential benefits of transport investment, including land-use change, non-working time savings, and employee accessibility, started to emerge; this trend has continued, through to the Eddington Transport Study (2006) and the more recent Transport Investment and Economic Performance (TIEP) report (2014).

Figure 2.1: Economic Benefits of Transport Investments



Source: Steer Davies Gleave, later reproduced in WebTAG guidance.

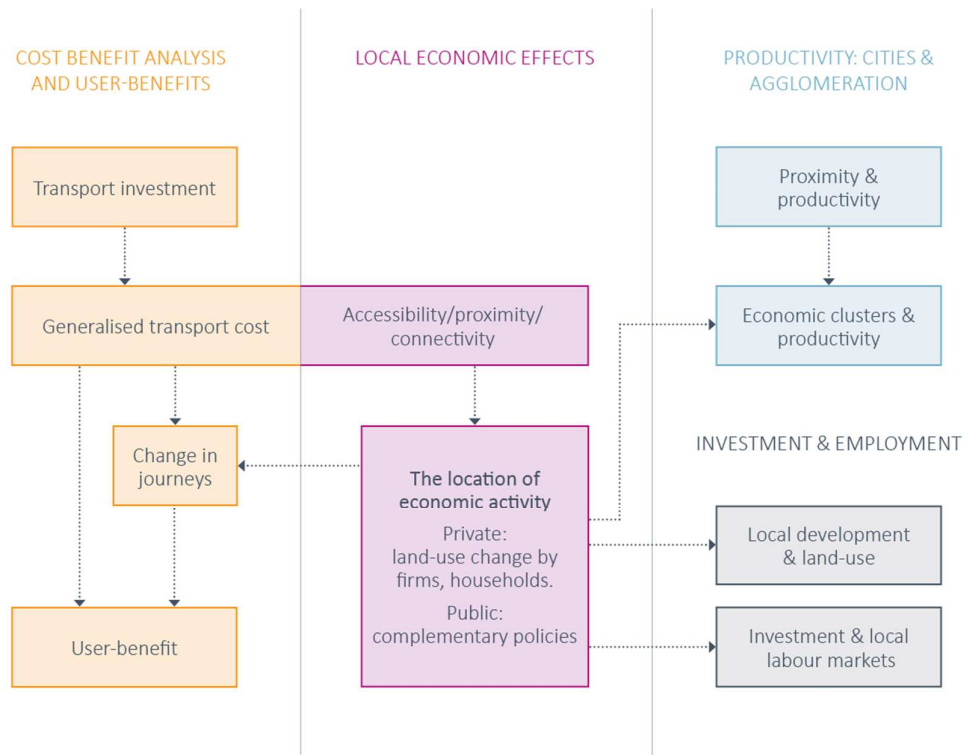
- 2.14 The theoretical linkage between transport investments and economic growth has been covered in depth in the literature. As mentioned above, there is an established theory regarding how the time savings associated with transport investments result in economic growth.

Developing Understanding and Evidence

- 2.15 Over the last two decades there has been an increased focus on seeking to understand how transport benefits ‘ripple through’ to the real economy, allied with research that has sought to identify benefits of transport investments that go beyond those captures by time savings.⁶
- 2.16 The Transport Investment and Economic Performance (TIEP) report (2014) suggests that transportation investments bring savings in terms of costs and time, which in turn are expected to generate three kinds of impacts. Figure 2.2 below illustrates the conceptual relationship between each benefit and its localised economic impacts, as described in the TIEP report.

⁶ This research includes SACTRA (1999), The Eddington Study (2006), TIEP (2014) and Wider Impacts Guidance from the DfT (updated regularly)

Figure 2.2: Effects of transport investments; the TIEP typology



Source: Steer Davies Gleave - based on figure presented in Transport Investments and Economic Performance report, Department for Transport, 2014

- **User-benefits**, which are directly represented by the changes in traffic flows resulting from the investment, come from the reductions in time and cost associated with transport improvements. The relationship between these benefits and economic growth is well-developed in the literature. However, as the TIEP report indicates, these benefits do not necessarily accrue to the user of the improvement.
- **Productivity effects**, which result from the greater level of economic interaction in high employment centres generated by the improved access, are not directly linked to the users of the transport investment. Instead, these gains are theorised in the TIEP report to result from the benefits of aggregation. These benefits emerge due to the concentration of workers and firms in clusters which reduce inefficiencies associated with labour costs, and allow cities to specialise – and thus improve quality of output – in specific sectors.
- **Investment and employment effects**, which result from changed patterns of investment attractiveness as the relative accessibility of a location changes, form the third type of economic benefit conceptualised in the TIEP report. These represent the idea that transport investments make firms more likely to invest in an area, thus increasing employment in that area. However, there is a difficulty in establishing whether investment is additional – in that it would not have happened in the absence of transport improvements – or if it is abstractive – it would have taken place elsewhere in the absence of transport improvements.

How Transport Investment Supports Growth: Empirical Evidence

National-Level Effects

- 2.17 There have been a number of studies which have attempted to establish the empirical relationship between transport investment and economic growth at the aggregate (i.e. national) level. This is essentially to test whether the theoretical framework that underpins guidance (where investment leads to productivity impacts) can be observed based on evidence from implemented projects.
- 2.18 Table 2.1 outlines some of the key studies which have attempted to determine the nature of this relationship, and their findings.

Table 2.1: Sample studies concerning the relationship between transport and economic growth

Study	Method	Findings
SACTRA report, 1999	Literature review; investigating evidence relating to economic impacts outside of conventional user benefits	<ul style="list-style-type: none"> Established theoretical basis for relationship Limited evidence to suggest that transport investments have more than a marginal effect on the economy; potentially a supportive effect, but not in itself transformative at national GDP level
TIEP report, 2014	Literature review; collation of evidence to determine relationship between observed impacts and appraisal	<ul style="list-style-type: none"> Affirms theoretical basis for relationship Further research needs to be done to examine land-use change; difficulty in proving additionality
What Works Transport Review, 2015	Literature review; collation of multiple sources to establish trends	<ul style="list-style-type: none"> Review found evaluation evidence to be weak and inconsistent. Clear impact of rail stations on residential property prices, dependent on distance from the improvement; effects of greater connectivity very limited by distance from the improvement
Elburz et al., 2017	Meta-analysis collating multiple previous studies; identifying linkages across relevant studies	<ul style="list-style-type: none"> No conclusion drawn on whether transport investment causes economic growth
Holmgren and Merkel, 2017	Meta-analysis collating multiple previous studies; identifying linkages across relevant studies	<ul style="list-style-type: none"> Difficult to establish direction of causality; no clear evidence that transport investment causes economic growth
Does Transport Investment Really Boost Economic Growth? Melia, 2018	Literature review; assessing direction of causality, aggregate vs. abstracted growth	<ul style="list-style-type: none"> Direction of causality between economic growth and transport investment is unclear; no strong evidence to suggest that any wider economic gains are additional rather than abstractive.

- 2.19 The findings presented in Table 2.1 highlight that, while the theoretical relationship is strong, the available empirical evidence is more variable and inconclusive. In particular, it seems that there is limited evidence in support of transport investments resulting in economic changes at the aggregate level. This may well reflect difficulties in trying to isolate and measure the impacts of transport investment on the macro-economy. rather than abstracted, economic growth effect.

- 2.20 Melia (2018) argues that there is a lack of evidence to support the claim that transport investment leads to increased GDP at the national level, and further notes that, instead, the direction of causality between the two phenomena is uncertain. He thus suggests that it is also possible that economic growth spurs transport investment.

Impacts on the Real Economy

- 2.21 A central assumption in transport appraisal guidance is that business time savings, or indeed commuting and leisure time savings, are an accurate and reasonable proxy for the aggregate economic benefits (comprising both productivity and welfare) at a national level. From the national perspective, how these benefits are used by economic actors (businesses, individuals, developers etc.) is a secondary consideration – as the ‘first order’ effect based on the measurement of transport benefits (usually time savings) fully captures national economic benefit⁷.
- 2.22 However, how benefits are used by economic actors affects the functioning of specific sectors and of local economic geography. For example:
- Given a reduction in travel times and costs, a business could choose either to fulfil the same amount of work with fewer people (increasing profit but reducing jobs), or to see to expand operations into newly accessible areas (and potentially grow the business and expand employment).
 - For individuals, changes to commuting travel times can either be ‘banked’ (they work the same but have more leisure time), or changes in transport connectivity could enable people to move further afield (e.g. to a larger house, with the same commute time), where the ‘benefit’ is captured in the form of a better house, or they could work longer and retain the same leisure time (in which case their employer would capture the benefit).
 - For property owners, transport benefits may lead to rising property prices where the benefit flow to the owner of the property, rather than, for example, a tenant in that property who instead may have to pay higher rents.
 - For developers or inward investors, the change in transport may affect the overall attractiveness of a location to locate or invest in, which can impact on the pattern of development and / or land values.
- 2.23 Any sizeable transport investment will result in a complex range of responses by a variety of users – all of which will have a complex and potentially diffuse effect on the economy affected.
- 2.24 Moreover, these effects are also largely distributional in nature. Even where impacts are significant and visible (e.g. if property prices go up, development rates increase) there is likely to be a corresponding impact where relative prices decrease elsewhere and other areas are less attractive to investors and developers.
- 2.25 The complexity of how the ‘first order’ benefits of transport investment (i.e. time savings) may be used by a range of different economic actors in part explains the difficulty faced by

“...sizeable transport investment will result in a complex range of responses by a variety of users...”

⁷ And as national guidance, it is the aggregate effect on the UK economy that is the focus of investment appraisal.

researchers seeking to evaluate impacts. Research undertaken in support of the TIEP report found that, in most cases claimed time savings from road improvements (reported in scheme appraisals) were often not delivered in practice – with the suggested explanation that people responded to improvements by travelling more or further. David Metz has long suggested that people have a broadly given ‘budget’ of travel time that they are willing to spend, and that improvements in accessibility or connectivity typically result in people choosing to travel further within the same time ‘budget’.

- 2.26 This does not, in itself, mean that the transport benefits did not accrue – market that they are captured in secondary markets. Indeed, in many cases the rationale for transport investment is specifically aimed at delivering secondary impacts – for example supporting the development of housing or expanding labour markets.

Types of Localised Economic Impacts

- 2.27 The localised benefits of a transport improvement are typically central to making a political case for the improvement for local politicians, regardless of whether they bring about an aggregate economic benefit to the entire country. In terms of these localised benefits, there is quantitative evidence available which suggests transport improvements can bring about economic activity in a specific area.
- 2.28 These focus on three main areas, which are:
- **Property price impacts** – where a transport investment leads to an increase in the price of commercial or residential land / property.
 - **Direct investment (developer-led response)** – where a transport investment increases the viability and attractiveness of a location as a place to develop – e.g. stimulating housing or commercial development.
 - **Indirect investment (business-led decisions)** – where a change in the accessibility or environment of an area encourages businesses to re-locate or expand.

“...house prices in the areas surrounding Crossrail stations have increased 31% over the wider market...”

Property price impacts

- 2.29 In terms of localised economic benefits, the picture is clearest in favour of property price impacts. Much of the available empirical evidence suggests property price is positively influenced by transport investment; the TfL Land Value Capture report (2017) outlines how the farebox cannot adequately capture the “willingness to pay” of different users; those who are more willing to pay thus pay for property near the improvement instead. This land value uplift could theoretically be captured where the improvement funder is also a local landowner (for example, TfL), allowing for transport improvements to become self-funding and highlighting the positive potential of increasing land values. The What Works report collates the results of eleven studies concerning both road and rail projects, four focusing on road and seven on rail, noting a consensus for increased property prices near improvements in each. However, it is also noted that for road improvements, the evidence shows a more pronounced increase in

the value of properties slightly more distant from the improvement than for those in closest proximity⁸.

- 2.30 The Impact of Crossrail on Property report (2018) illustrates this effect, suggesting that house prices in the areas surrounding Crossrail stations have increased by 31% (over and above compactor locations across the wider market) since the project was announced, and drawing a relationship between the projected decrease in commuting times and the property price uplift – the report states that a time saving of 10% on a commute increases the property price by 6%. This research highlights the significant anticipatory effect associated with transport improvements, whereby demand for properties has been observed to increase in the vicinity of stations that are yet to see any service improvements but where such improvements are scheduled to occur.
- “...a time saving of 10% on a commute increases the property price by 6%.”***

Direct investment (developer-led response)

- 2.31 Direct investment refers to the response of developers who respond to improved accessibility or public realm by investing in, typically, commercial or housing developments. The increased value of the land means that the development is typically of a higher density or quality that would be possible without the investment. In many cases, additional development can be spurred by a combination of public sector investment and private developers. This can create a mutually reinforcing regenerative effect, which is described further in Chapter 3.
- 2.32 The Value of Station Investment report (2011), for example, suggests that the Sheffield Station Gateway programme generated inward investment of £74m to the station area, which in turn led to a GVA uplift in Sheffield city of £3.4m per year.

Indirect investment (business-led decisions)

- 2.33 Business location (or indirect effects) refer to the decision of firms and businesses to locate or expand in an area, due to the enhanced attractiveness of a location following investment. An example would be the decision by Apple to locate their UK headquarters in Battersea Power Station, the development of which was enabled by the Northern Line extension.
- 2.34 However, as noted by McQuaid et al. (2004), there does not appear to be significant quantitative evidence suggesting that businesses will choose to relocate primarily to take advantage of transport improvements. Transport investments make an area more attractive to businesses already looking to relocate, but this effect is likely to be less pronounced if it is not accompanied by other developments.
- 2.35 While transport is only one of many factors that drive the decision for a firm to relocate to, or set up in a specific location, the combined effect of many firms' decisions can result in the nature of employment in an area changing significantly. An example was the transformation of the area around Manchester Piccadilly station, which went from largely low-grade and low-density usage before the station and public realm investment, to an area which is now viewed as an attractive city centre location with high-value knowledge sector employment.

⁸ Where people gain from enhanced accessibility without the direct negative impacts of traffic and noise.

- 2.36 Additionally, investment and employment effects are not necessarily positive for a local area served by the transport improvement. The SACTRA report notes that the improvement of transport links between two locations may mean that economic benefits accrue to one such area to the disadvantage of the other; this results from the reduction in competition barriers that protected businesses in one area from those in the other. The What Works Transport Review (2015) similarly suggests that the “two-way roads” effect may lead to economic activity being moved away from, rather than towards, a location, due to improved transport connectivity.

The Link between Transport Investments and Economic Growth: Conclusions

- 2.37 There appears to be a strong theoretical basis for a relationship between transport investments and economic growth. Transport appraisals are now expected to capture a wide range of economic benefits associated with transport investments, and while approaches to quantifying these benefits differ, there appears to be wide acceptance of the idea that these benefits do exist.
- 2.38 The empirical evidence is more mixed, at the national level. There does not appear to be a clear suggestion that transport investments lead to additional, rather than abstracted, economic growth.
- 2.39 At the local level, however, there appears to be a much stronger case for suggesting economic benefits emerge from transport investments, with a range of benefits in terms of employment, indirect investment and land value uplift occurring. While these benefits may be abstracted from other areas, rather than aggregate at the national level, it remains the case that these benefits have been observed in a local context.
- 2.40 The next chapter will explore these effects in the context of rail and station investment more specifically, drawing out the key outputs from such investments, and examining how these translate into localised economic benefits.

3 Rail and Station Investments

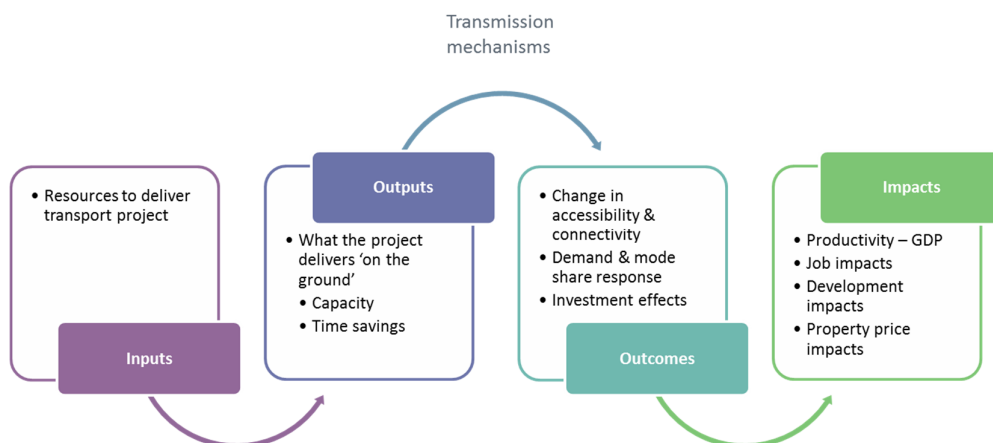
Overview

- 3.1 There is a significant volume of available evidence concerning rail and station investments specifically. Again, theoretical perspectives inform the relevant literature including empirical evidence, and additionally, there are several studies which investigate specific case studies of investment to gauge local-level effects.
- 3.2 The research covers a wide variety of potential rail and station improvements. Some of the evidence, such as in cases where a new station opens, are difficult to categorise as simply either “station improvements” or “service improvements”; in numerous other cases, service improvements and station improvements coincide, and as referenced earlier, this makes separating the impacts of each improvement difficult.
- 3.3 We have looked at the evidence from transformative station investments, such as that at London St. Pancras station, and (the more limited) literature on the impact of smaller-scale station or service improvements. We have also looked at studies that represent predictions about potential economic benefits, as well as those where the actual impacts of completed projects have been evaluated.

How Rail Investment Can Support Growth

- 3.4 The relationship between rail investment and economic growth is set out in Figure 3.1, which presents some of the main types and outputs of such investments, and maps the economic benefits which are typically associated with each type of improvement.

Figure 3.1: Logic map from transport investment inputs to local economic outputs



Source: Steer Davies Gleave

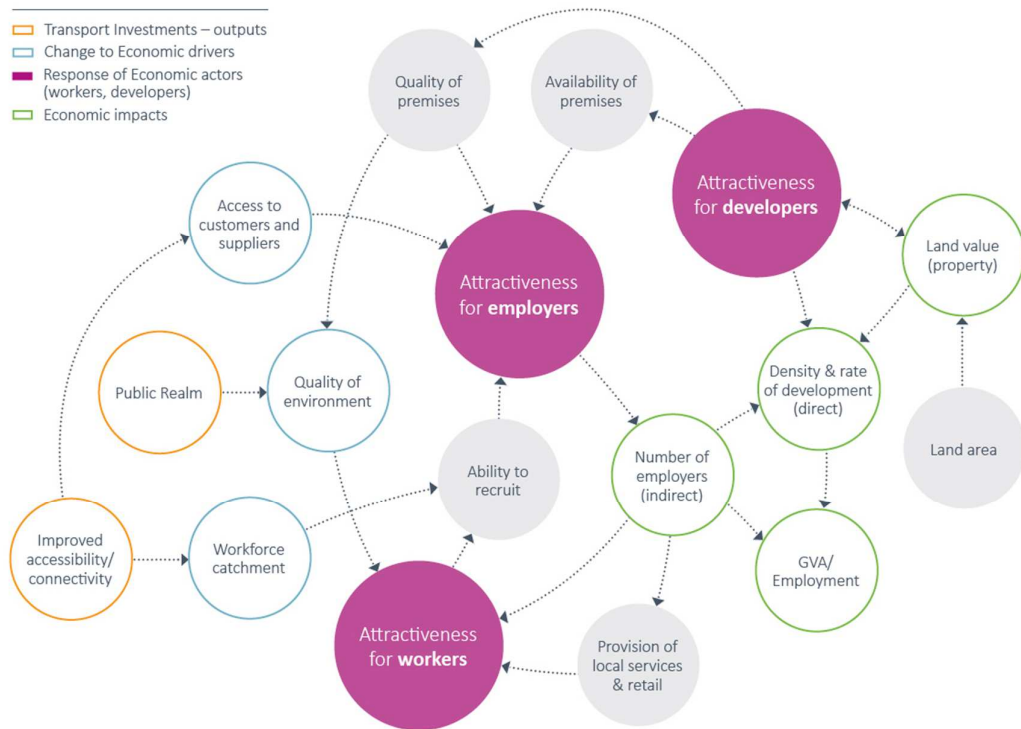
Key Transport Outputs from Rail Investment

3.5 There are, then, certain key outputs that result from rail investment which are expected to have economic benefits.

- **Increased accessibility**, in the context of rail investment, can be transformational, as in the construction and implementation of new routes such as High Speed 1 which fundamentally alter an area's transport accessibility, or less pronounced, such as with the opening of smaller new stations on existing routes.
- **Connectivity improvements**, including capacity enhancements
- **Enhancements to the public realm** in and around the station currently represent a significant proportion of investments
- **Increased local connectivity** can result from the opening of new pedestrian routes as a part of station redevelopment, or increased access to or through the station from the surrounding area in non-rail modes. An example of this type of improvement is the pedestrian connection linking the flats west of Sheffield station to the Supertram stop on the other side of the station.

3.6 Figure 3.2 illustrates the relationship between these outputs and localised economic benefits.

Figure 3.2: Transport investment inputs and local economic outputs



Source: Steer Davies Gleave

3.7 The relationships outlined in Figure 3.2 highlight the varied benefits resulting from rail and station investments, and the three key outcomes that the diagram suggests – property price increases, direct investment, and indirect investment – are considered in further detail below. These categories map onto those outlined in the previous chapter.

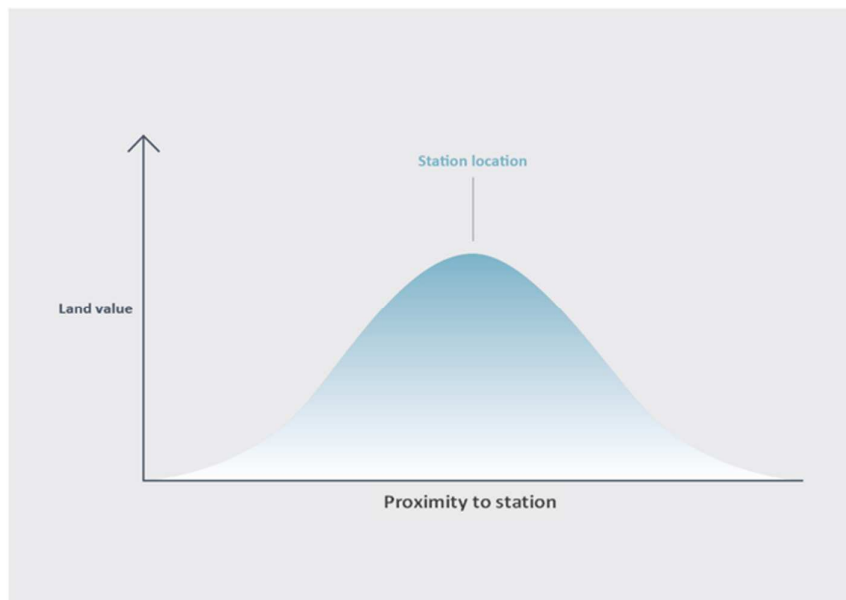
Property price impacts

- 3.8 There is significant quantitative evidence suggesting that property price effects arise from proximity to improved rail stations; furthermore, the nature of the improvements driving these increased values vary, suggesting that land value uplift results from a broad range of station improvements. This land value uplift can in turn then be translated into further development, positively impacting the local economy.

Accessibility

- 3.9 The general relationship between transport accessibility and land values, as discussed below, is shown in Figure 3.3, which illustrates that residential property prices near stations tend to be of the highest value, before dropping with distance as accessibility reduces.
- 3.10 This relationship is observed across residential locations – and more so where rail commuting levels are higher and thus the relative importance of proximity to a station is greater. For example, TfL research⁹ suggests that there is a 10% premium for properties within 500m of stations, with the premium falling to 5% and zero at distances of 1,000m and 1,500m respectively. For commercial property, the relationship is less pronounced, and tends to be stronger for more established commercial centres with a higher degree of in-commuting by rail (i.e. where rail accessibility is a greater determinant of the overall locational attractiveness).

Figure 3.3: Land values near stations – General relationship



Source: Steer Davies Gleave

- 3.11 Given this general relationship, it follows that an improvement in transport accessibility *should* result in increased property prices in the vicinity affected.
- 3.12 This is supported by much of the available evidence whereby accessibility improvements, such as new routes and services, are observed in the literature to be associated with rising property

⁹ Based on Nationwide data, and reported in TfL's Land Value Capture Study (2017)

prices near affected stations. The What Works Transport Review notes that, of the seven rail studies concerning residential property prices that it considers, five of these found a positive effect and two found no effect, with none discerning a negative impact.

- 3.13 The example of the Jubilee line extension (JLE) highlights the potential for accessibility improvements to an area to radically increase property values in that area. The TfL Land Value Capture report suggests that, from December 1995 to five years following the project's completion, land values near JLE stations increased by 52% above the general market. The report highlights how the effects on commercial property prices are observed from the date of announcement of the project.

- 3.14 As noted above, the transformative Crossrail project was found in the Impact of Crossrail on Property report to result in property price increases of 31% over the wider market since the announcement of the project, and Abbey Wood station, for example, has seen increases of 5.8% per annum above wider price inflation. The City of London Impact of Crossrail report also predicts a rise of 1% in residential house prices above the London prime market near Liverpool Street station, due to the accessibility benefits of Crossrail. Additionally, in the case of Crossrail, anticipatory effects of the project have been observed for commercial properties within half a mile of affected stations, according to the TfL Land Value Capture report. These commercial premises have seen a rise in value of 8-15% above commercial properties outside this radius.

“...land values near JLE stations increased by 52% [following the investment]”

- 3.15 However, these effects are not associated with all such improvements, as evidenced by the High Speed 1 Initial Evaluation (2013). Examining house prices near the HS1 stations in Kent, the report finds that these have underperformed relative to England, and comparable control areas. Near Ashford International station, for example, the HS1 initial evaluation suggests that house prices grew at half the England and Wales average between 2010 and 2013, and that, within the Ebbsfleet International station area, price growth was flat over that period.

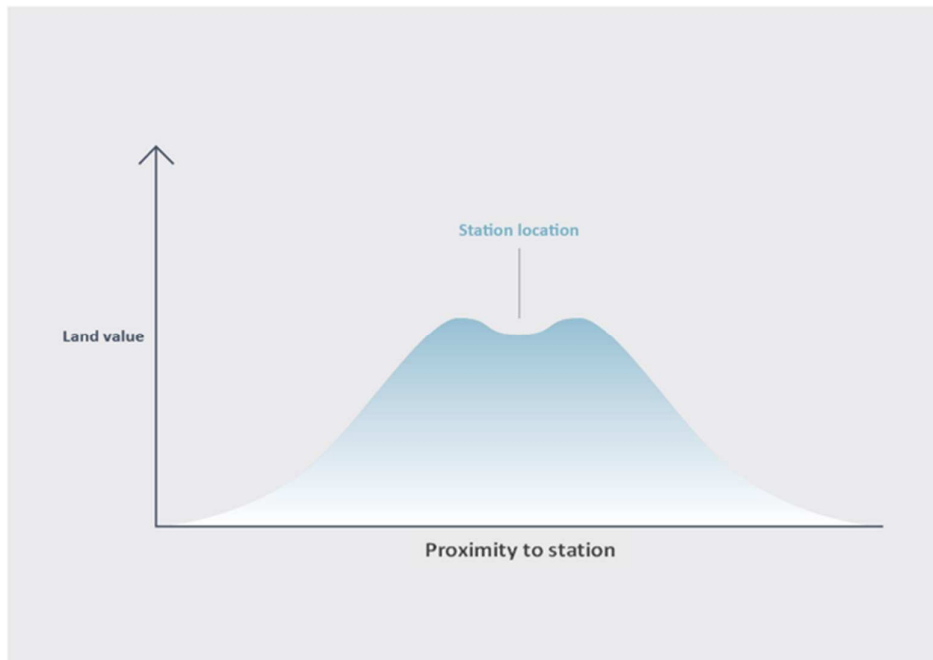
Public realm improvements

- 3.16 Public realm improvements aim to make places more attractive places to live and for businesses to locate in. The ‘What Works Centre’, in its briefing on public realm (based on evaluation evidence) concluded that there was strong evidence on the positive link between amenity value (including public realm) and property prices, and that enhanced public realm can boost local development, jobs and business activity. However, they also cited concerns about the impact of increased property prices in exiting residents, and identified that increased local business activity is likely to be displaced from elsewhere. In short, public realm can have a positive impact for some, but these can be offset by negative redistributive effects for others.
- 3.17 In the station context, objective of enhanced station environment and associated public realm is explicitly to promote local regeneration and development. Stations are, by their nature, highly accessible and therefore a natural focus for higher density and more sustainable development. Where public realm can play a part in increasing land values, this can enhance the overall viability of housing or commercial development in the vicinity.
- 3.18 There is significant evidence suggesting that station improvements, which improve the public realm, have a positive upwards impact on property prices. According to the Value of Station Investment report, the redevelopment of the public realm at Manchester Piccadilly station

was associated with a land value uplift of 33%, while at Sheffield station, the report suggests that a similarly public realm-focused upgrade resulted in an increase in local property rateable values of 67%.

- 3.19 The Value of Stations report found that, where there was a poor quality public realm and surrounding built environment, this could have a negative impact on the value and type of development. The report suggested that poor quality public realm impacts can result in a “volcano” distribution of property price values, with properties in the immediate vicinity of the station being of lower value than those a short distance away. Examples of this were Manchester Piccadilly station in the early 2000s each prior to the major redevelopment of the station and associated public realm, and Birmingham New Street station before the Gateway redevelopment, this ‘volcano’ effect on land values is shown in Figure 3.4 below.

Figure 3.4: Land values near stations with a poor quality public realm



Source: Steer Davies Gleave

- 3.20 The evidence of the 2011 study found that ‘volcano’ effect was more prevalent for larger stations, where the scale of station and related infrastructure often marked the point of delineation between higher and lower value commercial activities.
- 3.21 More recent research by TfL (Land Value Capture Report) identifies a similar effect linking negative house price effect in the immediate vicinity of the station to the potential for added noise, crime or congestion in station areas. Property may thus also become less attractive simply due to the increased footfall resulting from station or service improvements, although this effect is not explored in the same depth as the positive property price effects.

Direct investment (developer-led response)

- 3.22 Rail and station investments are associated with direct investment benefits in the local area, resulting from the outputs described above; increased accessibility, connectivity, and public realm attractiveness appear to be associated with increased development.

Dependent development

- 3.23 One form of development activity associated with rail and station improvements is dependent development, where the rail and station improvement is integrated with commercial and residential developments surrounding it, and where these commercial and residential developments would not have been adequately served (and probably would not have occurred) in the absence of the transport investment.
- 3.24 An example of this exists with London Underground's Northern Line Extension to Battersea. The Battersea Power Station development has produced a mixed-use space, creating both commercial and residential opportunities in an area presently not served by London Underground and with limited National Rail connectivity.
- 3.25 The provision of two new stations and Battersea Power Station and Nine Elms enable the delivery of 16,000 new homes and 20,000 to 25,000 new jobs in the Vauxhall and Nine Elms Opportunity Area. This level of development would not be achievable without the NLE.
- 3.26 Similarly, the Barking Riverside Extension will support the delivery of 10,800 homes in the Barking Riverside Opportunity Area, compared to only 4,000 that could be delivered in the absence of the scheme.
- 3.27 There are also examples of where station enhancements have facilitated the reconfiguring of the station and railway land, to free-up land for commercial or housing development. One of the principal examples of this is given by the King's Cross redevelopment, where a lot of the land used was previously railway-owned but unutilised. The King's Cross redevelopment has been associated with wider development impacts, which will be mentioned later in the report; however, turning railway land over to development and improvement in the immediate vicinity of the station contributed to the overall trend of increased development in the area.

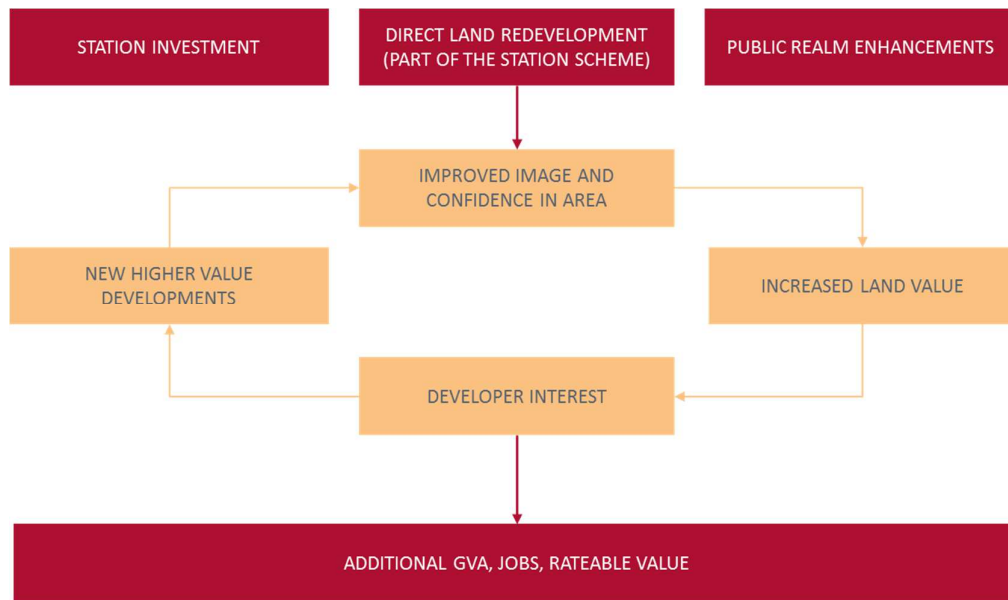
Catalyst for additional development

- 3.28 It is also the case that rail and station investment provide the catalyst for additional development, complementing the initial investments.
- 3.29 The Super Stations report (2012) discusses the case of Stratford station, where the Stratford City development, and associated public realm improvements, occurred as part of an integrated masterplan improving the station and the surrounding area. The report notes that the 8,500 jobs created were primarily driven by the Westfield shopping centre, rather than the station directly; however, it is difficult to disaggregate the effects of the station improvements from the project as a whole, and the Super Stations report does suggest that the efficiency of the new transport interchange created at Stratford station was a central contributor to the success of the Stratford City project.

- 3.30 The example of the Manchester Piccadilly station renovation is drawn upon in the Value of Station Investment report. This investment created 21,500 square feet of retail space as part of a development at the station location, along with a new concourse space. These public realm improvements brought quantifiable benefits; the Value of Station Investment report suggests a GVA uplift of £1.3m in the area accruing from the programme, and the Super Stations report notes that the average rate of retail spend at the station was 40% higher than the national average 3 years after the opening.
- 3.31 This dependent development can be associated with additional development, which remains nevertheless a direct result of the station investment. The commercial development observed around Birmingham New Street station, resulting from the New Street Gateway scheme which transformed the station and the adjacent public realm, falls into this category. The Value of Station Investment report predicted that this would lead to the development of over 350,000 sq. ft. of new office space, and 2,200 to 3,200 new jobs. The Rail Delivery Group's Regenerating Britain's Railway Stations: a six-point plan (2017) interviewed local stakeholders, after the opening of the Gateway Project, who identified major commercial developments that were approved or planned, that would not have come forward without the station. These include a new 26-storey hotel development has been approved and will be built on Hill Street, opposite the station. The Southside Business Improvement District (BID) reported a 12-fold increase in footfall immediately south of the station, which has transformed the level of local activity (bars, restaurants, hotels) in the area.
- 3.32 A similar case exists at London St. Pancras station, where the arrival of HS1 was, according to the HS1 Initial Evaluation, the catalyst for significant development as a direct result. The study notes that £2bn of additional transport investment money has been spent on other projects in the King's Cross-St. Pancras area, allowing both stations to be redeveloped, and increasing the available space for commercial activity. At King's Cross station, for example, the Retail Facts and Figures brochure (2017) notes that the Estate will offer 8 million sq. ft. of mixed-use space on completion, and that it will at that point see a £1.6bn annual retail spend. The scale of the development is such that a new postcode has been introduced to serve the area.
- 3.33 The interaction of rail and station improvements, and local development, thus potentially creates a "virtuous circle" of growth and accessibility improvements. Figure 3.5 below outlines this process.

"...the average rate of retail spend at [Manchester Piccadilly] was 40% higher than the national average..."

Figure 3.5: The “virtuous circle” of transport investment and development



Source: Steer Davies Gleave

- 3.34 High Speed 2-related city centre masterplanning, with the associated quantified predicted benefits, stem from this theory of development and investment. The Birmingham Curzon station HS2 masterplan (2014) highlights the impact of increased accessibility to this site in the city centre, predicting that, in conjunction with the area masterplan and the introduction of HS2 services, the new terminus area will support 14,000 net new jobs (with a large proportion at more senior levels), 600,000 sq. m. of new employment space, and a cumulative GVA impact of £3.1bn.

Impact of investment: larger and smaller conurbations

- 3.35 The available evidence appears to suggest that larger projects, such as the Sheffield Station Gateway, have a disproportionately large effect on local economies relative to smaller station improvements. Levels of employment in the Lower-Level Super Output Area containing Sheffield railway station increased 6.6% following the implementation of the programme, and this represented a rate double that of the city as a whole. Additionally, rateable values of business premises within a 400m radius of the station increased by 67% in the years following the improvements, according to the Value of Station Investment report.
- 3.36 On a smaller scale, rail and station improvements can also have discernible impacts on driving development. The case of Glasshoughton station, in West Yorkshire, is an example of this “virtuous circle”. The Economic Value of Rail in the North of England report (2014) outlines the transformative plan to redevelop the former mining and industrial area as a centre for leisure and retail, and the opening of the station in 2005 was a consequence of this. However, station usage data suggests that, in 2012/13, passenger usage was almost triple that which had been initially projected, and while it is not certain that this represented additional journeys rather than those abstracted from other modes, it is possible to draw a link between the increased accessibility provided by the station and the continued investment in the Glasshoughton area. By 2014, more than £100m had been invested in development at the site.

- 3.37 The case of St. Helens Central station, from the Value of Station Investment report, also suggests that investments to smaller stations outside of major city centres can have important localised economic effects. The report suggests that the £6.2m redevelopment of St. Helens Central station has been followed by several new office developments in the local area, and, while the report notes that it is difficult to prove a direct causal link between the station improvement and the commercial investments, it also notes that the station redevelopment coincided with a larger regeneration programme for the area to which the station improvement may have contributed.
- 3.38 The Community Stations report, meanwhile, takes the case of Wakefield Kirkgate station, which enjoyed more than £5m worth of investment between 2013 and 2015. Several new retail businesses were able to occupy space in the improved station, with the report noting that catering in particular has emerged as a key sector in the station space. The report also highlights the mechanism by which the station improvement has been associated with increased economic activity; namely, co-operation between the local community and the railway industry.
- 3.39 However, when station improvements take place in a context of little economic activity and limited investment, the impacts on local regeneration and economic growth appear to be consequently limited. The Laurencekirk station evaluation (2015) suggests that there has been no clear evidence of an economic uplift for the Laurencekirk area since the station opening. The evaluation notes that there may have been some small labour market effects due to the increased connectivity, with the new station reducing journey times to centres of employment in Aberdeen to 50 minutes; however, these findings were not significant enough to indicate a clear relationship.

Indirect investment (business-led decisions)

- 3.40 Another theorised effect of rail and station investment, then, is that it attracts further, indirect, investment. As outlined above, accessibility improvements are thought to encourage business relocation to a local area, and, where this occurs, this would be associated with increases in Gross Value Added (GVA) and employment in the area.

Accessibility

- 3.41 The most transformative accessibility improvements are thought to have similarly large impacts on indirect investment. The High Speed 2 New Economic Analysis report (2013) suggests that the HS2 project would boost the UK's annual productivity by £15bn, the clear majority of which (£13.5bn) would result from improvements in rail connectivity to businesses. For Sheffield, Derby, and Nottingham, the improvement in business connectivity by rail due to HS2 is given as 23%.
- 3.42 Crossrail is associated with similar transformative impacts. The City of London Impact of Crossrail report suggests that the connectivity benefits of Crossrail would support 23,000 additional central London jobs by 2027, and prices the GDP boost from the Crossrail project at £42bn. It also predicts a £9.9bn net economic benefit, using the Department for Transport's appraisal methods.
- 3.43 However, it is possible to overstate this effect. The HS1 Initial Evaluation, discussing the investments at London St. Pancras station, notes that only 5% of residential and commercial

“Crossrail is associated with...a £9.9bn net economic benefit...”

occupiers identified HS1 as a factor in their choice of location. This perhaps suggest that the broader programme of station and public realm improvements in the King's Cross-St. Pancras area were more important in driving relocation; the report does state that improved pedestrian access was another important factor.

- 3.44 Additionally, the House of Lords Economics of High Speed 2 report (2013) indicated that even transformative impacts on journey times do not necessarily lead to economic growth. The French TGV system, according to the report, created a mix of stations; some (as in Lyon) integrated into the local transport network, led to clear economic benefits, while other new stations had not enjoyed similar gains.
- 3.45 The concerns expressed in the same report regarding the proposed Sheffield Meadowhall HS2 station reflect this experience; a hub situated far from the city centre is not thought likely to boost the Sheffield economy in the same way as a city centre station would, despite the large journey time reductions which HS2 would engender.

Site accessibility

- 3.46 The local economic impacts of improvements to site accessibility, as part of rail and station investment schemes, also form part of the indirect investment benefits.
- 3.47 The Bristol Temple Quarter Enterprise Zone report (2015) is focused on the relationship between site accessibility and business relocation to the area. The report notes that the benefits of reduced crowding and improved services to Bristol Temple Meads station would include the area's increased attractiveness as a place to locate a business, and thus potentially generate 17,000 jobs in the area.
- 3.48 Importantly, however, increased site accessibility is not always associated with such indirect investment and employment benefits. The City of London Impact of Crossrail report discusses the longer-term effects of the construction work at Farringdon station, and observes that the improvements will lead to the displacement of 800-1000 jobs from the area due to reduced commercial space. In terms of local economic impacts, this is clearly negative; however, the report does not examine the localised economic benefits arising from increased footfall through the area.

Rail and Station Investments: Conclusions

- 3.49 The evidence suggests that rail and station investments do result in local economic benefits, though this is not in all contexts, and the size of these benefits varies.
- 3.50 In terms of property price impacts, there is clear evidence in support of a localised positive effect associated with rail and station improvements; it is also evident that the nature of the improvement affects the property price outcome. In the absence of station improvements which positively affect the public realm, any property price uplift is more muted.
- 3.51 Development effects are varied, with a "virtuous circle" of development growth and transport improvements in some cases, and negligible effects in others. The contrasting cases of Glasshoughton and Laurencekirk suggest that it is not station size, but existing development activity, which influences whether an investment will be accompanied by further development and the associated local economic benefits.
- 3.52 For business relocation effects, the evidence is mixed, suggesting that businesses may relocate to sites of rail and station investment, but that this is unlikely to be the principal driver of such

a move. Even where the impact on accessibility is likely to be transformative, rail and station investment alone does not appear to be sufficient to attract businesses to a local area.

4 Conclusions and Recommendations

Conclusions

- 4.1 There is a strong and established conceptual relationship between transport and economic growth. This underpins appraisal guidance, and is used to assess the scale of forecast economic impacts *at the national level*.
- 4.2 What is of greater interest to local policy-makers and politicians, is whether and how transport investment leads to impacts in the real economy, in terms of productivity, jobs, supporting development and so on. Indeed, this is often the primary rationale for investments, articulated through the strategic case.
- 4.3 Our review of academic and empirical research on the relationship between transport investments and economic growth has found that the evidence is variable, and highlights that there have been few quality of investment evaluations and limited systematic effort to track the observed economic benefits from prior investments made.
- 4.4 What is clear is that all investment is context specific, and that transport investments can, in some circumstances, have a clear relationship with the delivery of localised economic benefits, resulting from rail and station investments. Our report also highlights investment where the evidence suggests that impacts were modest, negligible or even negative.
- 4.5 From this perspective, transport investment should be viewed as a potential enabler of desired economic outcomes, where it addresses identified issues, constraints, opportunities or market failures. The potential success of transport investment will be maximised where transport investment is coordinated with other complementary investment or policy initiatives. Where this is not the case, the potential for rail and stations to drive these economic benefits is more limited.
- 4.6 The clearest relationship between rail and station investments, and local economic benefits, is with property prices. Property price impacts are observed to differ depending on the nature of the improvement, with station investments that improve public realm, for example, shifting the distribution of property prices in the vicinity of the station away from a “volcano” model, unlike accessibility improvements to services.

Recommendations

- 4.7 From our research and the above conclusions, we offer the RDG a number of recommendations that it might wish to consider. These are all consistent with the RDG’s Vision for Stations: nine principles for the future of Britain’s stations, along with its

Regenerating Britain's Railway Stations: a six-point plan. They are aimed at both delivering a better station estate experience but also an improved knowledge base upon which to make decisions.

Recommendation 1: Build understanding and linkage to housing promoters

- 4.8 Housing delivery is a national policy priority, and transport investment is increasingly viewed as a key enabler of additional housing. Given the weight of evidence and narrative linking house prices and station location/ quality of public realm it is recommended that the RDG engages with the promoters of housing development to:

- confirm the characteristics of neighbourhood stations that support increased property value to the door step of the station;
- ensure that the industry is optimising its arguments and case for investment to those whose investment rationale might be improved by a better performing station; and,
- consider the implications of potential of land value capture mechanisms for the development and funding of rail and station enhancements.

Recommendation 2: Place greater emphasis on benefit identification, measurement and evaluation

- 4.9 As identified in the report the empirical information on the economic impacts of station investment lags behind the volume of theoretical research. The RDG could play an instrumental role in helping the Industry at-large and scheme Promoters in:

- Developing or synthesising the evidence around how different types of rail investment can lead to a range of different types of economic outcome, and in which contexts. The industry might create new insights and/or additional confidence and evidence of the investments and management interventions if there is more determined emphasis on benefit and 'logic mapping' and reporting for station investments. Greater preparation and transparency for the identification of benefits of improvements in the "station experience" (including related public realm) could help to identify if and how they can be separated from railway connectivity and capacity benefits that often accompany station investments.
- Encouraging a more systematic and disciplined approach to the evaluation of station (and other rail) investments. Whilst major infrastructure investments, e.g. HS1, spend considerable time identifying the how/when/where/who of benefits and beneficiaries, and are often held to account for the delivery of those benefits, there is often not the same focus or energy applied to the evaluation of station investments. The benefit / logic mapping at the scheme development and appraisal effectively forms the basis of the 'hypothesis testing' through the project evaluation.

- 4.10 The two should be mutually reinforcing, as better evaluation supports a richer understanding of the scale and nature of potential economic impacts associated with investment.

Recommendation 3: Develop an investment appraisal approach with Government

- 4.11 Government is being pro-active in its desire to develop the evidence base and guidance around transport investment and economic performance – at both national and local levels. As of February 2018, the DfT is already considering changes to WebTAG for the May 2018 release which will capture "context specificity", creating a greater focus on localised economic impacts of transport investment schemes. Additionally, as new strategies for analysis and appraisal are developed by DfT over the longer term, along with future updates to WebTAG.

- 4.12 It is recommended that RDG feeds in to these developments with the intention of integrating the economic role of stations into these strategies, by supporting DfT's understanding by focusing specifically on how research and guidance applies in the specific context of station investment. Examples of specific research areas could include:
- How dependent development is considered. Station investment can affect the viability, density, scale, rate and type of development, but often does so in a more catalytic and complex way than is posited by current guidance – where the assessment of dependency is binary.
 - How 'non-transport' benefits as increased retail and commercial opportunity that are produced by station investments are captured and valued within appraisal.
 - More consideration of likely counterfactual scenarios – if it weren't for investment would the associated local economic impacts (development, housing) take place elsewhere in the city / region (fully displaced). Even in the event of full displacement, it is relevant to consider where development might alternatively go – and whether this is less sustainable or viable than in the 'with investment' scenario.
- 4.13 In order to ensure that these impacts are incorporated in planning in the future, it is recommended that RDG liaises with the Governments with regards to any changes to their transport investment appraisal practices,
- Recommendation 4: Improve transparency and impact of direct contribution of stations*
- 4.14 The stations of Britain are important providers of a variety of services in their own right. The industry can develop a narrative around the direct impacts of the station estate. For example, with consistent process and minimal effort it should be possible to create metrics and messaging around:
- X,000 square feet of retail trading space within stations
 - X,000 square feet of commercial space
 - X number of Small & Medium Enterprises located at stations
 - Number of railway staff employed at stations
 - Number of staff (railway and others) at stations
 - X,000 car parking spaces
- 4.15 This also enables a database to be developed that could be used to assess station investment potential or 'gap analysis', by relating the above to catchment and demand metrics.
- 4.16 Comparisons to other institutions to help identify scale and the changing nature and resilience of the estate would add additional effectiveness to the metrics. For example, the station estate might be the largest provider of car parks, the largest landlord to SMEs and the 'fifth' largest shopping centre/High Street operator.



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B Station Case Study Table

Station	Date	Improvement	Outcome
Farringdon	future	Creation of the three-network interchange; pedestrianisation; new accessibility improvements	Near doubling of passenger numbers; displacement of jobs
London Liverpool Street	future	Creating the new LS-Moorgate interchange; reductions in journey times.	Residential prices in the area expected to outperform those of central London prime by 1%; 1,000 new private residential units
Whitechapel	future	Introduction of Crossrail; associated public realm improvements in preparation	2,000 new residential units
London Euston	future	Rebuilding of station to accommodate HS2; final model as yet unclear	Dependent on nature of remodelling; suggestion that prime London location offers significant economic potential benefits
Stratford	2012	Partnership planning for the area surrounding the station, with the Olympic Delivery Authority	Westfield Stratford City created 8,500 jobs; important to note that, while the station was not the primary driver of this, improvements to the station are suggested to have contributed to this.
Manchester Piccadilly	2002	£62m investment; 75,000sqft new concourse with 21,500sqft of retail space; significant accessibility improvements for vehicles; public realm improvements	Significant new office developments near the station (quantified); increase in quantity of hotel accommodation (quantified); GVA boost of £1.3m; further investment generated leading to a £6.6m GVA boost.
St Helens Central	2007	Rebuilding of entire station (£6m); increased accessibility	Increased office space around the station; additional car parking facilities suggesting increased attractiveness of the area even to non-rail travellers.
Sheffield	2005	Sheffield Station Gateway (£25m): remodelling of station access area, part of a masterplan for the entire area	185 jobs directly generated; employment increase in the station LSOA of 6.6% 2003-08, compared to 3.3% in Sheffield as a whole; 67% rateable value increase for businesses within 400m; change in property values equivalent to £74m inward investment; annual GVA uplift of £3.4m.
Birmingham New Street	2015	New St Gateway; new concourse, tripling the space; new retail availability	At time of study too soon to investigate; predicted 2,200-3,200 new jobs generated; new office space availability NB scheme now complete; potentially more info now available

Laurencekirk	2009	Re-opening of station; direct services to Aberdeen and Edinburgh	16% of surveyed station users reducing the number of vehicles they own; reduction in peak time traffic; limited agglomeration and labour market effects (not quantified); no clear evidence of a positive local economy effect, though this could be due to lack of data availability (e.g. census) or lack of time elapsed.
Ashford International	1996	Rebuild of station to accommodate implementation of Eurostar/HS1 services	Number of businesses increased by 4.8% within 500m of the station and 6.1% within 2km, compared to 0.7% within Ashford district; house price growth lower than UK average. Note HS1 services was the main driver
Stratford International	2009	Introduction of a new high-speed station in Stratford	Difficult to disaggregate from the effects of the Olympic redevelopment and the Westfield site associated with Stratford mainline station; Jubilee line more transformative; concentration of economic activity around Stratford mainline
London St Pancras International	2007	Redevelopment of St Pancras; new HS services	New retail and commercial space; new employment created; limited development outside of station area
Ebbfleet International	2007	Introduction of a new high-speed station in Ebbfleet	Businesses report that HS1 has improved the commute for their staff; new theme park is being developed which investors suggest would not have happened in the absence of HS1; 6,500 new homes, but lots of development opportunities not pursued
Leeds	future	Integrated Station and Masterplan; comprehensive remodelling of the station and the public realm around it	300,000 sq. m of new space, with unquantified impact on jobs and commerce.
Bristol Temple Meads	future	Introduction of trains back into the old station; new station entrances to the north and east; new, high-quality public realm that better integrates the station into the surrounding area and improving permeability through the EZ; new, well-lit, large station concourse; 30,000 – 34,500 sqm of commercial development; reuse of the Passenger Shed arches for retail; 850 space multi-storey car parking, bus interchange, taxi rank and cycle hub	Not yet clear if any desired outcomes will be achieved; station masterplan suggests an aim of 17,000 new jobs by 2040
Glasshoughton	2005	Opening to provide access to a redevelopment around a former colliery/industrial centre	Over £100m being invested in the area; however, the regeneration project had already commenced when the station was opened. Further growth has occurred since.
Abbey Wood	2017	Redevelopment of station to accommodate Elizabeth line	Projected price increase in the station area of 5.8% p.a.; probably driven by service rather than station, despite significance of remodelling

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