

Active Travel England

Active Travel Portfolio Research and Evaluation Programme

Evidence assessment: The Economic Impacts
of Active Travel

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Sheffield Hallam University, NatCen and Mosodi Ltd

ACTIVE TRAVEL PORTFOLIO RESEARCH AND EVALUATION PROGRAMME

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Executive summary

About this evidence assessment

Sheffield Hallam University, NatGen, and Mosodi Ltd were commissioned by the Department for Transport (DfT) and Active Travel England (ATE) to carry out an evidence assessment on economic outcomes generated through active travel. Whilst active travel evidence and policy often refers to cycling and walking, a broader and more inclusive definition refers to any travel that is powered, partially or fully, by the sustained physical exertion of the traveller (Cook et al., 2022). As such, the definition also includes wheeling (wheelchair use as well as a variety of other modes such as skateboarding or scooting).

In England, the government has an ambition to make walking, wheeling, and cycling the natural choices for shorter journeys or as part of a longer journey. The [second cycling and walking investment strategy](#)¹ (CWIS2) aims, by 2025, to increase the percentage of short journeys in towns and cities that are walked or cycled to 46%; increase walking activity to an average of one walking stage per person per day; double cycling activity to 1.6 billion journey stages; and increase the percentage of children aged 5 to 10 who usually walk to school to 55%. Over the longer term, the ambition is that half of all short journeys in towns and cities will be walked or cycled by 2030, and that England will have a ‘world-class’ cycling and walking network by 2040.

The need for evidence on economic outcomes

Investment in active travel generates economic benefit in multiple ways. Increasing active travel has the potential to make a significant impact on a range of priority outcome areas, including health and wellbeing, environmental sustainability, employment and productivity, placemaking, and growing local spend. Yet these benefits are seldom monetised comprehensively. There is a strong scientific evidence base linked to the physical and mental health benefits generated by undertaking physical activity at specific intensities and frequencies. If active travel participation rates and intensities are evidenced, then it is possible to calculate healthcare cost savings from known economic and social values linked to the prevention of certain health conditions (e.g. diabetes, heart disease, cancer).

Beyond these health economic benefits, there is also evidence to suggest a wider set of economic benefits through, for example, the positive influence that active travel investments can make on improving the physical realm and, in turn, supporting local growth and spend.

The purpose of this evidence assessment is to explore and, where possible, quantify in monetary terms, the range of economic benefits resulting from active travel linked to either behaviour change interventions or infrastructure development or both. Quantifying the economic value of active travel helps to build stronger business cases to support greater investment which may help to increase wider engagement, political will, and support for active travel.

¹ ATE & Department for Transport (2023) The [second cycling and walking investment strategy](#) (CWIS2), 10 March 2023.

Structure of this report

Reflecting the multiple ways that active travel delivers economic benefit, the findings in this evidence assessment are summarised into eight categories:

- Societal benefits.
- Cost benefit analysis.
- Health economics.
- Employment and local growth.
- Local spend.
- Productivity.
- Infrastructure benefits.
- Economic benefits to individuals.

Methodology

The report presents findings from 25 studies that were selected following a process of systematic searching, screening, prioritising, and evidence extraction. The evidence reviewed comprises peer-reviewed academic studies along with grey literature (published reports). It is important to note that the evidence assessment had a tightly defined scope. Therefore, more extensive and systematic research into the evidence base would be required to produce exhaustive findings.

Key findings

This report attempts to answer the following research questions:

- **RQ1.** What economic benefits are derived from active travel for (i) society and (ii) individuals?
 - **RQ1a.** What are the health-related economic benefits / NHS cost savings resulting from active travel?
 - **RQ1b.** What are the economic benefits of active travel linked to enhanced employment / local growth?
 - **RQ1c.** What are the economic benefits of active travel linked to individuals e.g. household budgets?
 - **RQ1d.** What are the economic benefits of active travel linked to enhanced productivity?
 - **RQ1e.** What are the economic benefits of active travel linked to infrastructure development?

This section summarises the key findings of this evidence assessment. Key findings are also synthesised in the Key Findings Tables at the end of this section.

Economic benefits for society

The reviewed evidence presents a positive picture of how active travel generates economic benefits for society. Health-related economic benefits are integral to this and make the greatest economic contribution (Crawford & Lovelace, 2015). More broadly, the impacts of active travel of health and wellbeing outcomes are also covered in a separate evidence assessment, *The Health and Wellbeing Impacts of Active Travel* (Vey et al., 2024).

The evidence for overall economic benefits and health economics was identified in 15 sources, including both UK and international evidence. The evidence underscores that the economic benefits of active travel are multifaceted and encompass various dimensions, such as: job creation and economic growth, retail and business benefits, property values, congestion reduction, environmental benefits, and cost savings for households. The wider evidence suite also includes a focused look at the evidence in relation to active travel and journey times and congestion outcomes.

Cost Benefit Analysis and Return on Investment

The identified evidence on Cost Benefit Analysis (CBA) and Return on Investment (ROI) consists of individual examples rather than a coherent body of evidence. Values may be impacted by the type of intervention and its context, so it is difficult to compare across studies as they are not conducted on a like-for-like basis. The calculated benefit-to-cost ratios (BCRs) within included studies vary significantly: 3.5:1 for infrastructure, 4.4:1 for one school travel study (Jacob et al., 2021), 11:1 for community active travel in New Zealand (Chapman et al., 2018), and cycling studies ranging from 5:1 to 19:1, with one as high as 35.5:1 (DfT, 2016). Further details are explored in the main body of this report.

Health economics and cost-savings to society

Active travel contributes significantly to positive health outcomes, resulting in reduced healthcare costs. The evidence reviewed highlights the value of walking and cycling in Scotland (with significant variation between years and geographic areas), active travel health impacts in Barcelona, the impact of 'getting England cycling', the public health impact of increased walking in Canada as a means of diabetes prevention, and the potential effects of infrastructure investment in Sweden.

Most of the economic impact is attributable to walking, particularly in the UK, due to the higher prevalence of this mode of commuting in comparison to other active modes. The evidence stressed the importance of capturing accurate data and rates of active travel journeys as this is fundamental to calculating economic values.

Employment and local growth

Where available, the evidence assessed suggests that active travel spending is highly cost-effective in terms of the number of jobs created per pound spent when compared to other investment. This reflects the high number of supply-chain jobs associated with constructing walking and cycling infrastructure. However, available data is somewhat limited. The evidence highlighted that improved active travel infrastructure can also help businesses attract and retain staff, through a pedestrian-friendly urban realm.

Local spend

Three studies were assessed which considered the impact of active travel on local spend. This evidence suggests that, as a mode of transport, cycling contributes more to the local economy than the use of other transport modes. Cyclists are more likely to frequent local shops, restaurants, cafés and other local businesses than users of other transport modes; evidence also suggests that they provide higher rates of repeat custom.

A review article concluded that improved pedestrian facilities, such as landscaped areas, lighting and seating, are likely to provide a positive economic benefit to local retail and food service businesses, even where vehicular travel lanes or parking are removed or reduced in the process.

Productivity

The reviewed evidence suggests that there may be a ‘dose-response’ relationship between workplace absenteeism and the frequency, speed and distance of commuter cycling, where people who cycle more often and over longer distances are absent for fewer days on average. There is evidence to suggest that people who exercise for around 30 minutes a day are found to take around 25% less short-term sick leave. A reduction in traffic congestion would benefit productivity via a reduction in the time and cost of employees travelling in work hours. See also the evidence assessment, *The Impacts of Active Travel on Journey Times, Congestion and Resilience* (Parkes et al., 2024).

Infrastructure benefits

Infrastructure development generates local economic development that benefits government (through increased property values and municipal revenues) and business (increased commercial retail sales). Better active travel infrastructure can make areas more desirable for businesses, reducing retail vacancies and helping to regenerate high streets. One study found that shopping districts in London that have benefitted from street improvements have delivered an average rental uplift of over 50%. Creating high quality urban spaces has a significant impact on where people and businesses choose to locate. There is evidence to suggest that investment in active travel infrastructure generates a higher societal benefit than other transport investments.

Economic benefits to individuals

Beyond the wider benefits and cost savings to society, individuals also experience a range of economic benefits from active travel. These benefits include cost savings, improved physical and mental health benefits and greater social connection. They arise both directly and indirectly as a result of other benefits.

Limitations and suggestions for further research

This report provides insights into the economic outcomes generated through various interventions and infrastructure improvements. This evidence assessment helps to emphasise the significant and varied economic benefits of active travel. However, it has also highlighted several potential gaps and limitations in the evidence base:

- The lack of quality data needed to measure and quantify economic impact was cited by several studies, such as active travel rates (including undercounting of walking trips).
- The limited data relating to employment and local growth was highlighted as a gap in the evidence base.
- There is a need for appraisal methods that comprehensively incorporate all relevant costs and benefits across all transport modes. This could help to realise the potential of active travel and to secure funding for both behaviour change and infrastructure investment.
- Consistent data (via common metrics) that can enable direct comparisons across and within modes (including understanding the nuances linked to different demographic factors such as gender or age) would help to strengthen the evidence base to enhance both public and political support.
- More evidence is needed to understand the distribution of economic impacts, including equity and in relation to socioeconomic change within places.

Key Findings Tables

This section provides summary tables on the key findings from the evidence assessment.

Table 1: Impact of active travel on economic outcomes

Key evidence	Source
Economic benefit to society	
Sustrans' 2021 Walking and Cycling Index calculated that walking, wheeling, and cycling created £6.5 billion in economic benefit for individuals and society across the 18 UK Index cities included in the modelling. Extrapolating these figures to the whole of the UK, assuming similar activity levels, equates to an overall annual benefit of approx. £36.5 billion.	Sustrans (2022) Evidence review, 12 studies. UK.
The average annual monetary health and economic benefit of increased walking in Barcelona between 2009 and 2013 was estimated to be €57.8 million.	Perez et al (2017) Modelling. Spain.
A 2018 scoping study estimated that cycling contributes about £5.4 billion a year to the economy, with the larger share of this, £4.1 billion, coming from wider impacts, particularly reductions in loss of life, and reduced pollution and congestion.	Newson & Sloman (2018) Review. UK, Europe.
An English study found the largest component of the economic benefit is due to improved health as a result of physical activity (approximately 84% of the £2 billion per annum total benefit), followed by decongestion benefits (over £250 million per annum).	Crawford & Lovelace (2015) Economic benefit analysis. UK.

Key evidence	Source
Economic impact (product sales)	
Products associated with the cycling industry contribute £700 million to the economy. Every time a new bicycle is sold in Britain – approximately every 10 seconds – that sale represents the equivalent added value to the economy of, on average, around £1,800.	Newson & Sloman (2018) Review. UK, Europe.
In 2019, a Bicycle Association report on the economic impact of cycling and the cycle industry was estimated to contribute £7.5 billion in economic value per year, equivalent to around £1,800 per year for each adult cyclist and supporting 64,000 – 69,000 green jobs. The cycle industry alone provides around £1.2 billion in direct economic benefits and tax, with a further £0.6 billion in benefits from cycle tourism, events and infrastructure. The remaining indirect benefits are derived from health, congestion and environmental benefits (fewer premature deaths: £4.3 billion; more productive workforce: £934 million; reduced congestion: £180 million; NHS savings: £130 million; reduced emissions: £104 million).	Hopkinson (2023) Economic benefit analysis. UK.

Key evidence	Source
Return on Investment (ROI), Cost Benefit Analysis (CBA) and Benefit Cost Ratios (BCRs)	
Cost-benefit analysis of New Zealand's Model Communities active travel programme, which included infrastructure development, facilities, promotion, events and training, produced a BCR of 11:1, indicating a positive return on investment. The main source of benefits was increased health and reduced injury (together 98% of the benefits) and, to a lesser extent, reductions in carbon emissions (2%). The estimated net economic benefits were valued at NZ\$151.2 million, the health and injury benefits were estimated at NZ\$163.6 million, and CO ₂ reduction benefits were estimated at NZ\$2.6 million.	Chapman et al (2018) Cost Benefit Analysis. New Zealand.

Key evidence	Source
Return on Investment (ROI), Cost Benefit Analysis (CBA) and Benefit Cost Ratios (BCRs)	
Within a review study of green investments, three towns designated as Sustainable Travel Towns (Darlington, Peterborough, Worcester) were assessed. Part of the Smarter Choices Programme, schemes focused on encouraging active travel, for example, through personal travel planning, travel awareness campaigns, promoting walking and cycling, and public transport marketing. The assessment found that car trips per person reduced and sustainable travel modes (bus travel, walking and cycling) increased. The Smarter Choice Programme study did not include a full cost-benefit analysis but a limited exercise focusing on congestion effects found BCRs of approximately 4.5:1.	What Works Centre for Local Economic Growth (2020) Evidence review. 12 studies. UK, EU and US.
A study on the value for cycling for DfT reported that cycling schemes can achieve more for less, with BCRs in the range of 5:1 to 19:1 – some as high as 35.5:1.	Raje & Saffrey (2016) Evidence review. 88 studies. Global.
A systematic review of active travel to school evidence from high income countries (including the US, Canada, the UK and Australia) found that the overall median BCR (from 6 studies) was 4.4:1 which indicated economic benefits exceeded implementation costs. The median BCR for a subset of infrastructure-heavy projects from the US and the UK was 3.5:1.	Jacob et al. (2021) Systematic review. 9 studies. Global.
Investments in cycle track networks in Norway generated four to five times their costs. The economic modelling accounted for pedestrian and cyclist safety, health effects and negative externalities (e.g. air pollution and noise) as well as broader costs such as parking. The cycle network investments were found to be more beneficial to society than other transport investments	What Works Centre for Local Economic Growth (2020) Evidence review. 12 studies. UK, EU and US.
A CBA model based on a review of previous studies assumes that walking creates an overall average economic benefit of CA\$0.50 per person-mile. Benefits are larger if pedestrian facilities attract at-risk users (which are not defined). Cycling creates an overall average economic benefit of CA\$0.20 per person-mile. Benefits are larger if cycling facilities attract at-risk users.	Litman (2024) Economic benefit analysis. Global.

Key evidence	Source
Health benefits / health economics	
A study estimated that if all settlements of 20,000 residents or more in England and Wales achieved London's level of cycling and walking, the NHS could save approximately £17 billion (at 2010 prices) over a 20-year period.	What Works Centre for Local Economic Growth (2020) Evidence review. 12 studies. UK, EU and US.
A study of the health and economic benefits of active travel found that interventions in Barcelona (which included bike share provision, traffic safety improvements, signalling enhancements and traffic calming measures) have led to an increase in active transport without a parallel increase in pedestrian and cyclist traffic injury rates. Walking trips in Barcelona on working days increased by 26.7%, preventing 86 deaths per year and producing an average annual economic benefit of €47.3 million. Cycling trips increased by 72.5%, preventing 8.5 deaths per year and average annual economic benefit of €4.7 million.	Perez et al. (2017) Modelling. Spain.
It was estimated that walking commuting in Scotland prevented 211 premature deaths per year in 2001 and 173 premature deaths per year in 2011. Whilst the walking rate in Scotland was estimated to increase, the total distance covered by walkers was estimated to decrease, which, together with decreases in background mortality, led to an estimated decrease in the prevention of premature deaths.	Baker et al. (2021) Survey – cross sectional, repeat measures. N=250,000. Scotland.

Key evidence	Source
Health benefits / health economics	
Analysis showed that the annual health economic value of walking commuting in Scotland in 2001 was €854 million per year, or €6.85 billion over 10 years (at an annual discount rate of 5%). In 2011, the equivalent estimates were €700 million (annual) and €562 billion (over 10 years) respectively.	Baker et al. (2021) Survey – cross sectional, repeat measures. N=250,000. Scotland.
Across the 32 Local Authorities in Scotland, there was considerable variation in walking distance per person (3.0 to 6.3 km/day in 2011) and therefore the number of premature deaths prevented by walking commuting per year ranged from 0.6 to 30.8 (2011), with the health economic value at a Local Authority level ranging from €2.4 to €124.4 million per year.	Baker et al. (2021) Survey – cross sectional, repeat measures. N=250,000. Scotland.
Across the 32 Local Authorities in Scotland, cycle commuting (33,818 people cycling an average of 8.9 km/day) was calculated to prevent 19.8 premature deaths per year in 2011 with the health economic value estimated to be €79.8 million per year (€640.2 million over 10 years at an annual discount rate of 5%).	Baker et al. (2021) Survey – cross sectional, repeat measures. N=250,000. Scotland.
Diabetes risk (the probability of developing diabetes in the next 10 years based on a statistical model) decreased with greater engagement in active transportation, from 10.1% among those with zero weekly minutes of active transport time to 7.5% among those undertaking at least 150 weekly minutes.	Kornas et al. (2021) Modelling cross sectional survey data. N=15,759. Canada.
Models used within a 2021 Canadian health study predicted that an additional 25 minutes per week of walking would result in 10,400 fewer diabetes cases over 10 years among the least physical active groups (sedentary and moderately active), amounting to CA\$74.4 million in healthcare cost savings. If walking time increased by an additional 150 min each week, the models estimated that there would be 54,300 fewer diabetes cases and CA\$386.9 million in health care cost savings.	Kornas et al. (2021) Modelling cross sectional survey data. N=15,759. Canada.
Increasing walking by an additional 150 minutes per week (equivalent to an increase in daily step counts of 2,100) was estimated to result in 42,700 fewer diabetes cases, resulting in potential savings of CA\$303.7 million in healthcare costs in 10 years.	Kornas et al. (2021) Modelling cross sectional survey data. N=15,759. Canada.
The Diabetes Population Risk Tool (DPoRT) predicted 6,600 and 34,400 fewer diabetes cases among non-active transport users if they increased their weekly walking time by 25 and 150 minutes respectively, with corresponding health care savings estimated to be CA\$47.1 to 244.8 million.	Kornas et al (2021) Modelling cross sectional survey data. N=15,759. Canada.
The Municipality of Stockholm committed funds for bicycle path infrastructure with the aim of achieving a 15% increase in the number of bicycle commuters by 2020. This work is based on a previously constructed scenario. The largest reduction in healthcare costs is attributed to increased physical activity and the second largest to reduced air pollution exposure among the population of Greater Stockholm. The expected net benefit from the investment is 8.7% of the Stockholm County Healthcare budget and 3.7% after discounting. The economic evaluation estimates that the intervention is cost-effective, and each disability-adjusted life year (DALY) averted gives a surplus of €9,933.	Kriit (2019) Modelling. Sweden.
Active transportation in Denmark represents a benefit to society estimated at €24 billion per year (cycling) and €66 billion per year (walking) due largely to their positive health effects. This equates to €0.18 per passenger kilometre (pkm) for cycling and €0.37/pkm for walking.	Gössling et al. (2019) Cost Benefit Analysis. Denmark.

Key evidence	Source
Health benefits / health economics	
A longitudinal study of the impact of the 'mini-Holland' schemes in Outer London boroughs found positive economic benefits arising from improved health. The health economic benefits from physical activity resulting from infrastructure improvements were estimated to be £724 million over a 20-year appraisal period for the interventions implemented by Wave 3 of the study (2016–9) against scheme costs of £80 million (net benefit of £644 million). £558 million of the benefits were derived from increased physical activity and £166 million from reduced sickness absence. Extrapolating, the authors estimated that if all residents of Outer London boroughs had the same exposure to a mini-Holland as in the study area, the total gross benefits across all boroughs would be £13 billion.	Aldred et al. (2021) Survey (longitudinal); health economic analysis. N=3,000 (wave 1); n=1400 (repeat). England.

Key evidence	Source
Employment / local growth	
A 2018 scoping study to value the cycling industry found that it generates around 64,000 Full-Time Equivalent (FTE) jobs in the UK, including jobs in tourism, sales and repair, cycle hire schemes, manufacturing, cycle infrastructure and delivery riders.	Newson & Sloman (2018) Review. UK, Europe.
A 2016 study of the economic benefits of increasing cycling rates found that more than 650,000 jobs are linked to cycling in the EU27 countries and that more than 400,000 new jobs could be created in the future with a doubling of cycling modal share.	Blondiau et al. (2016) Modelling. EU27 (including UK).
Cycling alone is estimated to directly support around 64,000 jobs in the UK including those in the construction sector, bicycle retail, repair and manufacture, cycle tourism, hire scheme and delivery riders. These jobs are estimated to directly contribute around £700 million to Gross Value Output.	Newson & Sloman (2018) cited in ATE & DfT (2023)
Better active travel infrastructure can help businesses attract and retain staff, with 73% of London Business Improvement Districts reporting that having pedestrian-friendly urban realm is important to achieve this.	Aldred & Sharkey (2018) cited in ATE & DfT (2023)
A UK study of the Linking Communities programme in England found active travel investment supported 6.9 jobs per £1 million spent on active travel infrastructure and 0.9 jobs per km of route construction. Cycling infrastructure investment in the US created 11.4 jobs per US\$1 million spend plus three jobs per US\$1 million through supply chains. Another US study found a similar impact: 10.3 jobs per US\$1 million spend.	What Works Centre for Local Economic Growth (2020) Evidence review. 12 studies. UK, EU and US.
Investments in cycling infrastructure contribute to cost savings for individuals and society. They also generate local economic development that benefits governments (through increased property values and municipal revenues) and businesses (increased commercial retail sales). Investments in cycling infrastructure create job opportunities, with estimates suggesting 10 to 23 jobs at the state level and 8 to 11 at the municipal level are created for every US\$1 million spent on cycling and walking infrastructure projects.	Institute for Transportation and Development Policy (2022) Evidence review. Global.
The employment effect of cycling infrastructure is 1.28 times higher than the employment effect of general transport infrastructure.	Blondiau et al. (2016) Modelling. EU27 (including UK).
Economic appraisal modelling based on 58 active travel infrastructure projects across 11 US cities shows that on average 9 jobs are created for each US\$1 million of investment. This increases to 11 jobs per US\$1 million of out-of-state (i.e., cross boundary) effects are included. Around half (4.69) of the estimated jobs are directly created (e.g., through construction), whilst the remaining are indirect (supply-chain) (2.12 jobs) and induced (2.15 jobs).	Garrett-Peltier, Heidi (2011) Modelling. US.

Key evidence	Source
Employment / local growth	
A study on the value for cycling for DfT reported that cyclists visit local shops more regularly, spending more than users of most other modes of transport. Numerous studies have shown that while cyclists spend less per visit, they tend to visit shops more regularly resulting in higher weekly spends (e.g. Clifton, 2012; TfL, 2011; O'Connor et al, 2011).	Raje & Saffrey (2016) Evidence review. 88 studies. Global.
A study on the value of cycling for DfT reported that per square metre, cycle parking delivers five times higher retail spend than the same area of car parking.	Raje & Saffrey (2016) Evidence review. 88 studies. Global.
A study on the value for cycling for DfT reported a study showing that a compact town in the Netherlands optimised for walking and cycling can have a 'retail density' (spend per square metre) 2.5 times higher than a typical urban centre.	Raje & Saffrey (2016) Evidence review. 88 studies. Global.
Customers going shopping by bike account for a consumption volume of more than €111 billion in the EU28 countries (including the UK).	Blondiau et al. (2016) Modelling. EU27 (including UK).
If the modal share of cycling was doubled in the EU this would generate an increase in retail turnover for local retailers of more than €27 billion.	Blondiau et al. (2016) Modelling. EU27 (including UK).
Better active travel is important to attract more customers to the high street. People who walk to the high street typically visit twice as frequently and spend up to 40% more overall compared to those who drive.	TfL (2019) cited in ATE & DfT (2023)
Better active travel infrastructure can make areas more desirable for businesses, reducing retail vacancies and helping to regenerate high streets. Shopping districts in London that have benefitted from street improvements have delivered an average rental uplift of up to 54%. Increased cycling trips is found to contribute to the emergence of new local shops and businesses.	Carmona et al. (2018) cited in ATE & DfT (2023)
An evidence review in 2021 concluded that pedestrian facilities, such as landscaped areas, lightening, seating, etc are likely to provide a positive economic benefit to local retail and food service businesses (the focus of four case studies), even where vehicular travel lanes or parking are removed or reduced in the process.	Volker & Handy (2021) Evidence review. 23 studies. US, Canada.
In the UK, tourism attributable to cycling is estimated to contribute at least £500 million per annum to the economy.	Newson & Sloman (2018) Review. UK, Europe.

Key evidence	Source
Productivity	
An international study of green investments reported findings based on a self-reported questionnaire of 1,236 Dutch employees which showed that the average duration of absenteeism over the one-year period of study was one day shorter in cycle commuters than those who did not cycle to work. People who cycled more often and over longer distances were absent for fewer days on average.	What Works Centre for Local Economic Growth (2020) Evidence review. 12 studies. UK, EU and US.
On average, people who exercise for around 30 minutes a day are found to take around 25% less short-term sick leave.	DfT (2022) cited in ATE & DfT (2023).

Key evidence	Source
Economic benefit to individuals	
A CBA found that some pedestrian and cycling projects appear to have high subsidy costs per mile of travel, but the comparator often underestimates the true costs and subsidies of car use (including parking and costs of road traffic accidents). Active travel improvements that allow households to own one fewer car typically provide CA\$5,000 to CA\$10,000 in direct savings to those households, plus similar value benefits for road and parking infrastructure savings, traffic safety and health benefits, environmental benefits, and local economic development.	Litman (2024) Cost Benefit Analysis. US.
One study quantified the personal costs and benefits of modal shift toward active travel using EU city-level data (accounting for exposure to air pollution, individual health benefit, population health benefit due to reduced pollution, and risk of accidents). It concludes that those undertaking a 5 km bicycle journey twice a day, five days a week, would accrue individual health benefits worth around €1,300 per annum due to their increased physical activity. In a large city (population over 500,000) the value of the associated reduction of air pollution of each person switching to active travel is around €30 per year.	What Works Centre for Local Economic Growth (2020) Evidence review. 12 studies. UK, EU and US.
A review of the value for cycling for DfT cited a Dutch study which found that residential property values rise 1% if motor vehicle traffic is reduced by 50%.	Raje & Saffrey (2016) Evidence review. 88 studies. Global.

1. Introduction

1.1 Active travel policy context

Active travel can be defined as travel that is powered – either partially or fully – by the sustained physical exertion of the traveller. Whilst active travel evidence and policy often refers to cycling and walking, a broader and more inclusive definition refers to any travel that is powered, partially or fully, by the sustained physical exertion of the traveller (Cook et al., 2022). As such, the definition of walking also includes wheeling (use of wheelchairs and other wheeled mobility aids such as mobility scooters and rollators) as well as the use of a variety of other modes such as skateboards and kick scooters. In recent years, active travel has received increasing recognition for its potential to help facilitate a range of environmental, public health and economic policy outcomes (Hirst, 2020).

In England, the government has an ambition to make walking, wheeling and cycling the natural choice for shorter journeys or as part of a longer journey. The government's original Cycling and Walking Investment Strategy (CWIS) published in 2017 set out specific, measurable aims and provided the financial resources to help achieve them.

The [second cycling and walking investment strategy](#)² (CWIS2), published in 2022 and updated in March 2023, aims, by 2025, to increase the percentage of short journeys in towns and cities that are walked or cycled to 46%; increase walking activity to an average of one walking stage per person per day; double cycling activity to 1.6 billion journey stages; and increase the percentage of children aged five to 10 who usually walk to school to 55%. The latter is set out as a specific target. Over the longer term, the strategy is that half of all short journeys in towns and cities will be walked or cycled by 2030, and that England will have a 'world-class' cycling and walking network by 2040. CWIS2 also introduced a more inclusive definition of active travel to include wheeling.

To support the implementation of projects that deliver its active travel aims, the Government has made an investment projected to be £3.6 billion from 2021 to 2025, and established ATE. ATE's role is to administer the funding whilst working with local authorities to ensure the delivery of high-quality active travel infrastructure for walking, wheeling and cycling, provide tools to deliver ambitious active travel programmes, and support children and other people to cycle.

The need for evidence on economic impacts

The broad range of benefits that active travel can deliver has long been understood, and CWIS2 recognises that active travel is 'one of the best return on investment decisions governments can make.' But there remains a need to improve the evidence base on the impact of specific active travel interventions, including of local schemes (NAO, 2023). This evidence assessment considers a range of studies that can help evidence the range of economic benefits that active travel interventions can bring about.

2 ATE and Department for Transport (2023) The [second cycling and walking investment strategy](#) (CWIS2), 10 March 2023.

1.2 Background to the evidence assessment

In 2022, the Department for Transport (DfT) commissioned Sheffield Hallam University in partnership with the National Centre for Social Research (NatCen) and Mosodi Ltd to undertake a portfolio evaluation of active travel. Overall management of this evaluation programme was transferred to ATE in September 2023. The overall aims of the evaluation are to understand how active travel interventions are being delivered; what impact they are having on uptake of active travel; whether they represent value for money; and how they are contributing to the government's walking and cycling objectives.

To support the development of evaluation activities, ATE commissioned a suite of evidence assessments across a range of research and policy priority areas to help assemble evidence of 'key facts' and identify research gaps. The complete list of these evidence assessments is:

1. Enabling adult cycling.
2. Walking and wheeling.
3. Early consideration of active travel via planning and design.
4. Economy.
5. Health and wellbeing.
6. Journey times, congestion, and resilience.
7. Active school travel.

1.3 Impact on the economy

Increasing rates of active travel has the potential to make a significant impact on a range of priority outcome areas, including on population health and wellbeing, environmental sustainability, employment and productivity, placemaking, and supporting local economic growth.

Whilst investment in active travel generates economic benefit in multiple ways, such impacts are seldom monetised in a consistent and comprehensive, which captures the broad range of benefits.

There is a strong scientific evidence base linked to the physical and mental health benefits generated by undertaking physical activity at specific intensities and frequencies. By understanding changes in the rate of active travel participation and intensity of physical activity, it is possible to calculate healthcare cost savings arising from the prevention of certain health conditions (e.g. diabetes, heart disease, cancer). Capturing and estimating these health benefits (and healthcare system savings) is central to most approaches to assessing the economic benefits of active travel. Indeed, many studies suggest that most of the economic impact of active travel arises from the prevention of health conditions.

The purpose of this evidence assessment is to explore and, where possible, extract quantified (monetised) evidence of, the range of economic benefits resulting from active travel linked to either behaviour change interventions or infrastructure development, or both. Quantifying the economic value of active travel helps to build stronger business cases for investment which may in turn help to increase community engagement in and political support for active travel.

1.4 Research questions

This Evidence Assessment focuses on reviewing evidence of the economic impacts associated with active travel including health economics, modelling return on investment / cost benefit analysis, employment, productivity, local spend, local growth, congestion, and place quality.

The specific research question (and sub-questions) addressed is:

- **RQ1.** What economic benefits are derived from active travel for (i) society and (ii) individuals?
 - **RQ1a.** What are the health-related economic benefits / NHS cost savings resulting from active travel?
 - **RQ1b.** What are the economic benefits of active travel linked to enhanced employment / local growth?
 - **RQ1c.** What are the economic benefits of active travel linked to local spend?
 - **RQ1d.** What are the economic benefits of active travel linked to enhanced productivity?
 - **RQ1e.** What are the economic benefits of active travel linked to infrastructure development?

1.5 The structure of this report

This report is structured as follows:

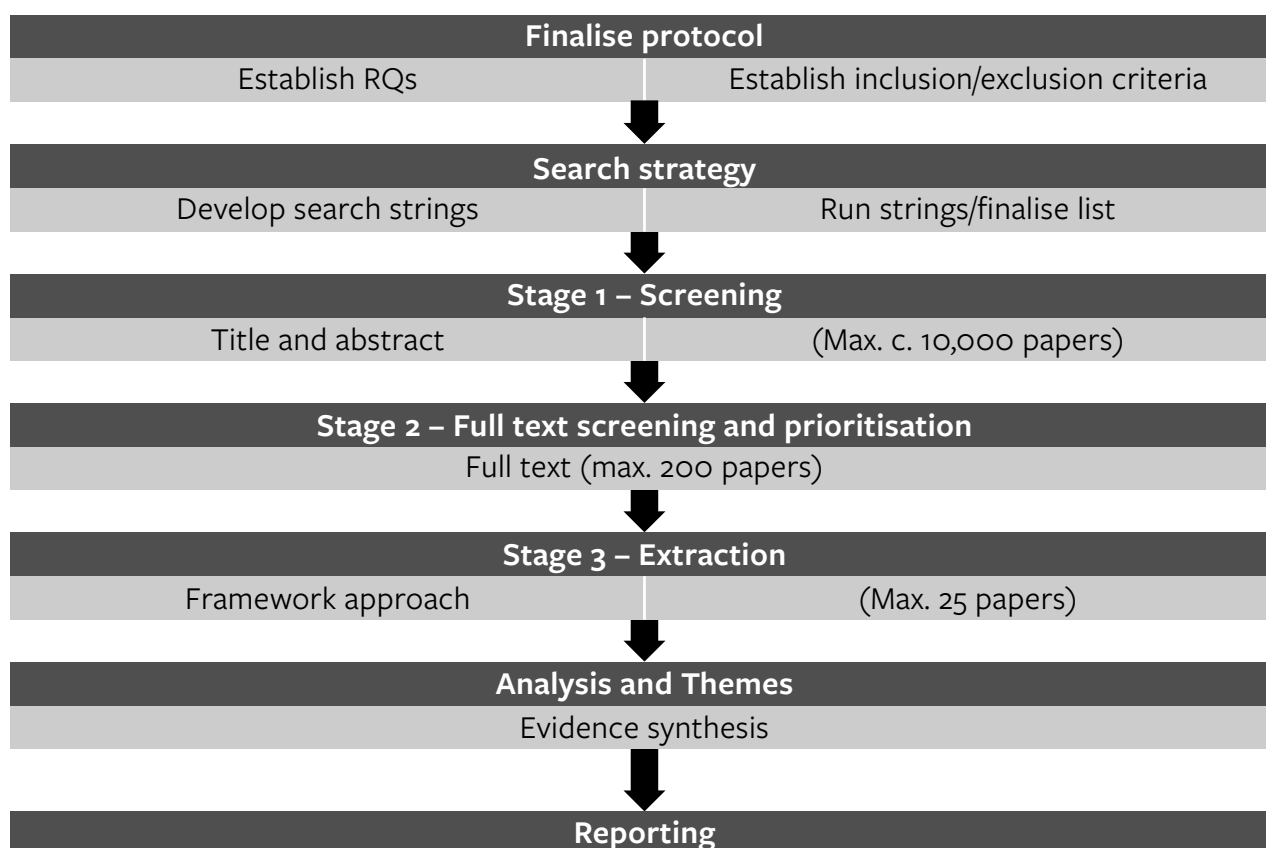
- **Executive summary.** The executive summary provides a high-level summary of the report, as well as a summary of key findings.
- **Introduction.** This chapter provides background to this evidence assessment.
- **Methodology.** The second chapter provides a summary of the methodology used for identifying and synthesising relevant evidence.
- **Findings: Economy.** The third chapter summarises the economic outcomes that are generated from active travel – ranging from healthcare savings, to productivity, to local spend.
- **Conclusion and next steps.** A final chapter provides a summary conclusion of the evidence against the research questions and sets out implications and recommendations in terms of addressing gaps in the evidence base.

2. Methodology

This section outlines the overall methodology and approach to the evidence assessment. It provides further detail about the development of the assessment protocol, each of the specific stages in the identification, screening and extraction of evidence, as well as identifying the limitations of the research design.

The overall design was organised into three key stages and a set of supporting activities, as summarised in Figure 1.

Figure 1: Evidence assessment stages



2.1 Evidence assessment protocol

A protocol was developed which outlined the process and method to be followed. This helped to ensure consistency across the suite of assessments and to support the identification of relevant, high-quality papers within each assessment within a finite resource.

Initial thematic priorities for the evidence assessment were determined with ATE. A stakeholder engagement process was held with key staff within ATE, DfT and other organisations to discuss and agree the thematic scope, agree a set of sub-themes to structure the identification and assessment of evidence, research questions and the concepts and terms that would be used to specify the inclusion criteria. Suggestions were also made by stakeholders for specific non-academic studies and reports for consideration in the evidence assessment. Initial scoping was supported by running a series of test searches using generic search strings on bibliographic databases to provide an initial indication of the likely size of the evidence base. This was used to help further refine the thematic scope of the assessment and its sub-themes and provide initial information on the broad composition of the evidence base (e.g. likely availability of UK-based evidence, types of methods and studies, availability of systematic or meta review studies).

2.2 Search strategy

Academic literature was identified as being potentially relevant to the assessment theme and sub-themes using two database searches: an academic search using the Scopus database and a manual grey literature search across a range of relevant sites (full details of this, including the specific search strings used, can be found in Annex A). In addition to this, evidence identified by experts from ATE and DfT at the stakeholder engagement stage was incorporated into the screening.

2.2.1 Inclusion and exclusion criteria

The inclusion criteria were developed to narrow the search to the papers most relevant to the overall theme. These criteria were applied to both search pathways but not to the third pathway, which was the suggested evidence from ATE and DfT staff.

- **Language:** Only English language papers.
- **Country:** UK, Europe, North America, New Zealand and Australia (those deemed most relevant to the English context).
- **Year:** Papers published from 2013 onwards (to ensure the most recent evidence was prioritised).
- **Publication status:** Published peer-reviewed academic literature and published grey literature.
- **Type of studies:** Systematic/evidence reviews, meta-analysis, theoretical paper, or studies using primary data collection or secondary data analysis.

2.2.2 Academic database search and search strings

Separate search strings were developed for each of the identified sub-themes within this theme, this included:

Sub-theme	Search terms for inclusion in search strings
Economic benefit to society	"economic contribution" OR "economic impact" OR "economic value"
Local growth / productivity	productiv* OR "job satisfaction" OR absentee* OR "sick leave" OR presentee* OR efficien* OR "staff turnover" OR "job creation" OR "life years added"
Local spend / employment / placemaking	"local spend" OR "local growth" OR "financial impact" OR employ* OR placemaking OR "place making" OR "cost saving*" OR "saving money" OR "cost of living" OR "retail footfall" OR "high street spend*" OR "economic benefit*" OR "financial benefit" OR "dwell time" OR "spending patterns" OR "value for money" OR "Pedestrian pound" OR "cost benefit analysis" OR "cost benefit ratios" OR "social value" OR "social return on investment" OR "cycling economy"

These strings were then used to search the Scopus bibliographic database, which is a large and comprehensive database of peer reviewed academic publications. Annex A provides an outline of the search strategies deployed and breaks down the number of results returned for each search string and in each database. The total number of studies identified as being potentially relevant was as follows:

- Economic contribution / economic impact / economic value: 21.
- Employment / local growth / productivity: 420.
- Local spend: 642.

After the screening process, this generated 671 studies, reduced to 573 after removing duplicates.

2.2.3 Grey literature search

To supplement the academic database search, a search of 'grey' literature was conducted across a range of relevant websites using the Google search engine. This applied a standardised set of search strings for all six evidence assessments to identify further sources. The results were then manually screened by each theme to identify relevant evidence for inclusion in the full text screening stage. Theme leads coordinated to avoid including the same piece of evidence in multiple themes. For this theme, 21 additional papers and reports were identified for inclusion in the full text screening. A full list of the websites searched for grey literature is included in Annex A.

2.2.4 Suggested evidence

A final pathway through which evidence was identified was via suggested evidence provided by experts at ATE and DfT. The stakeholder engagement stage included inviting suggestions of evidence that might be included in the assessment. For this theme, 28 papers were identified through this pathway, with 14 of these selected for full text analysis.

2.3 Screening and extraction

2.3.1 Title and abstract screening

In total, 573 academic sources were screened. This process involved assessment of article titles and the publication title against the inclusion criteria. The criteria used at this stage were:

- Relevance to the theme and sub-themes.
- Geographic focus (aiming to identify UK based studies where possible).
- Paper type³ (e.g. systematic review paper, primary research paper, literature review, discussion paper).
- Study/data type (aiming to prioritise inclusion of studies which used real-world data as opposed to modelled or synthetic data).
- Coverage across sub-themes (aiming for a pragmatic distribution of studies across the agreed sub-themes).
- Whether the study was specifically recommended at the stakeholder engagement stage for inclusion; and
- Age of the study (aiming to include most recent studies where possible).

Following this screening process, 43 studies were accepted for full text review.

³ Systematic review papers were prioritised (where available) as these papers synthesise the available evidence on a topic or the effectiveness of an intervention by drawing on multiple primary research papers. This means that evidence from systematic reviews is more comprehensive and reliable than from individual studies.

2.3.2 Full text screening and prioritisation

In total, 43 papers went through full text review from the academic search. An additional 24 were included from the grey literature search and 14 following recommendations from ATE and DfT. A Weight of Evidence (WoE) approach was used to score evidence according to the quality of its research design and presentation of findings. This was assessed using the questions and scoring scheme set out in Table 2 to arrive at a final WoE score out of 14 for each candidate source.

Table 2: Weight of Evidence scoring scheme

Question	Score
Is there a clear statement of the aims/objectives or clear research questions?	1-4
Is the sampling strategy (or data selection strategy if not collecting primary data) clearly described and appropriate for the research questions/aims?	1-4
Is the method of data collection and analysis clearly described, and appropriate to answer the aims/research questions?	1-3
Are there any concerns regarding accuracy (e.g. discrepancies within the report)? (high score means no concerns)	1-3
Total Weight of Evidence (WoE) score	4-7 (low) 8-11 (medium) 12-14 (high)

2.3.3 Data extraction

Using the WoE scoring to prioritise the most robust studies, 25 papers were identified to extract data and evidence from. The full list of papers and their WoE scores is provided in Annex B. An extraction framework was developed to organise the evidence extracted. The framework was structured thematically, to ensure a spread of papers across the sub-themes. Once extraction was complete, the evidence was summarised and synthesised for inclusion in this report.

2.4 Limitations of the research design

This was a focused evidence assessment. It drew on a limited number of sources (81 in total, with key findings extracted from 25 studies) in line with the available resource, to answer the research questions, using a systematic screening and prioritisation process. To draw more exhaustive conclusions a systematic review would be required, or the review of a wider body of evidence.

3. Impacts of active travel on the economy

This chapter examines the evidence relating to how active travel, particularly via walking, wheeling, and cycling, generates substantial economic benefits. A range of economic outcomes were examined within the identified evidence base and are summarised by the following sub-headings:

- 3.1 Economic benefits of active travel for society.
- 3.2 Cost Benefit Analysis / return on investment studies.
- 3.3 Health economics and cost-savings to society.
- 3.4 Employment / local growth.
- 3.5 Local spend.
- 3.6 Productivity.
- 3.7 Infrastructure benefits.
- 3.8 Economic benefits of active travel for individuals.

3.1 Economic benefits for society

The reviewed evidence presents a positive picture of how active travel generates economic benefits for society. Health-related economic benefits are integral to this and make the greatest economic contribution (with greater detail provided in section 3.3). The evidence for overall economic benefits and health economic benefits was identified in 15 sources, covering both UK and international studies and drawing on a range of study types including review articles, modelling studies and scheme evaluations. The quality of the evidence reviewed varies, with some studies lacking sufficient detail to be able to assess the quality of underlying data and check the reliability of research claims, particularly in the case of some grey literature and review articles.

The evidence assessed underscores that the economic benefits of active travel are multidimensional. As well as the health impacts of active travel, job creation and economic growth, retail and business benefits, property values, congestion reduction, environmental benefits, and household cost savings all make a positive economic contribution. This multidimensionality as well as methodological and data limitations (notably including the difficulty of accurately measuring rates of active travel participation) present challenges for the modelling of economic impact, leading to some variability in reported estimates.

The economic contribution of cycling features prominently in the reviewed evidence. Studies point to wider value generated through the manufacture and retail of cycling ‘products’ as well as the range of economic and social benefits generated by cycling (health and wellbeing, environmental, cost saving, journey times, etc). However, European (Gossling, 2019; Baker, 2021) and US evidence (Litman, 2024) suggests that the economic benefits from walking are 2-3 times greater than for cycling, with Baker (2021) finding that ‘the majority’ (c. 90%) of an estimated economic benefit of €780 million is attributable to walking (€700 million) in comparison to cycling (value of €80 million, constituting approximately 10%).

In 2021, Sustrans' Walking and Cycling Index (formerly Bike Life) was used to calculate the value of walking, wheeling and cycling to the UK economy. The Index calculated that these modes created £6.5 billion in economic benefit for individuals and society across the 18 Index cities included in the modelling (including direct economic benefits of walking and cycling as well as reducing the cost of traffic congestion and running a car, improved health and reduced burden on the NHS, and fewer sick days at work, amongst others). Extrapolating these estimates to the whole of the UK, assuming similar activity levels, equates to an overall annual benefit of approximately £36.5 billion (Sustrans, 2022). The Sustrans' research has been developed over many years and is robust, incorporating longitudinal findings. The survey samples are between 1,071 and 1,338 per city and a range of modelling tools are used to estimate value, including the World Health Organisation's Health Economic Assessment Tool (HEAT) (WHO, 2017).

The Walking and Cycling Index found that walking, wheeling and cycling are typically cheaper than driving. However, the index shows that there is a notable disparity in access to cycling and other active travel options between socioeconomic groups. For many people, the initial purchase of a cycle or suitable mobility aid is prohibitively expensive. The index found only 37% of residents on low incomes have access to an adult cycle in comparison to 60% of residents in managerial and professional occupations. Despite these costs, the study reports a strong desire among individuals, particularly those on low incomes, to engage in active travel. Sustrans' survey data found a high level of public support for active travel initiatives, including among residents in low-income areas. The survey data reported that more people on low incomes want greater investment in walking (58%) and cycling (50%), than on driving (36%). Furthermore, 70% of residents on low incomes would find access to a cycle useful to start cycling or cycle more (Sustrans, 2022). This research suggests that addressing financial barriers and socioeconomic disparities in access is necessary to promote wider access to active travel and therefore increase its economic benefits.

A scoping study conducted by Transport for Quality of Life on behalf of the Bicycle Association (Newson & Sloman, 2018), also employing the WHO HEAT tool, found that cycling contributes about £5.4 billion a year to the British economy, with the largest share of this (£4.1 billion) attributable to wider impacts including reductions in loss of life, pollution and congestion. Products associated with the cycling industry contribute £0.7 billion. The study reported that cycling generates around 64,000 Full-Time Equivalent (FTE) jobs in the UK, including jobs in tourism, sales and repair, cycle delivery, manufacturing, and cycle infrastructure. This means that the economic value of the cycling sector to the British economy is more than three times larger than that of the steel industry (£5.4 billion compared to £1.6 billion for the steel industry), and the cycling sector employs approximately twice as many people (64,000 compared to 32,000). The cycle industry was estimated to contribute £7.5 billion in economic value per year, equivalent to around £1,800 per year for each adult cyclist.

Research undertaken on behalf of the European Cycling Federation by Neun and Haubold (2016), cited by Newson & Sloman (2018), suggests that if benefits associated with the avoidance of climate change damage, reduced morbidity, improved mental health from physical activity, and improved children's health were included, there would be an additional contribution of £3.0 billion to the UK economy. Newson & Sloman (2018) concluded that cycling "has the potential to stimulate the economies of our cities, both by reducing congestion and making them function better, and by making them more attractive places for employers such as the tech industry to locate, knowing they will be able to attract a high-skilled, dynamic workforce" (p. 26). The study recommended further research into these areas.

An international study of ‘green investments’ by the What Works Centre for Local Economic Growth (2020) assessed the evidence of the local economic effects of three categories of environmentally friendly investments: active travel, energy efficiency and natural capital investments. The study reviewed robust evaluations from 12 active travel projects and concluded that active travel can contribute to local economic growth by reducing congestion (Sloman et al, 2010), providing jobs (Garrett-Peltier, 2011; Brown et al., 2014; Sustrans, 2014), enhancing productivity (Rabl & Nazelle, 2012; Hendriksen et al., 2010) and making places more attractive to live and work (Jiao et al., 2019). It also improves health (Hendriksen et al., 2010; Rabl & Nazelle, 2012), and reduces pollution (Rabl & Nazelle, 2012), generating economic benefits from societal cost-savings. The health economic benefits are described further in section 3.3 below.

Within the studies reviewed by What Works Centre for Local Economic Growth (2020) was that by Rabl & Nazelle, 2012, which quantified the personal costs and benefits of modal shift towards active travel using EU city-level data (accounting for exposure to air pollution, individual health benefit, population health benefit due to reduced pollution, and risk of accidents). The study concluded that those undertaking a 5 km bicycle journey twice a day, five days a week, would accrue individual health benefits worth around €1,300 per annum due to their increased physical activity. In a large city (population of over 500,000), the value of the associated reduction of air pollution of each person switching to active travel is around €30 per year.

3.2 Cost Benefit Analysis and Return on Investment

Within the evidence reviewed, several studies conducted Cost Benefit Analysis (CBA) and reported median benefit-cost ratios (BCRs). The calculated BCRs vary significantly: 3.5:1 for infrastructure, 4.4:1 for one school travel study (Jacob et al., 2021), 11:1 for community active travel in New Zealand (Chapman et al., 2018), and cycling studies ranging from 5:1 to 19:1, with one as high as 35.5:1 (DfT, 2016). It should be noted that these are individual examples rather than a coherent body of evidence, and that values may be impacted by the type of interventions, context, characteristics etc, so it is difficult to compare across studies as they are not conducted on a like-for-like basis.

A Cost Benefit Analysis (CBA) study from Denmark (Gossling et al., 2019) found that the private cost to the individual of cycling is significantly lower than for driving and arises mostly out of travel time, as vehicles are prioritised in traffic. EU cost calculations as presented by the authors suggest that to shift mobility from the car to the bicycle is worth about €0.30 per passenger kilometre (pkm), and from the car to walking €0.48/pkm in net societal benefits (Gossling et al, 2019). The study reported that automobility is subsidised in the EU at an estimated cost of €500 billion per year and, by contrast, active travel represents a benefit to society estimated at €24 billion per year (cycling) and €66 billion per year (walking) due predominantly to their positive health effects. In Canada, a recent CBA study by Litman et al. (2024) found that some pedestrian and cycling projects may have high subsidy costs per mile of travel, but this often underestimates the true costs and subsidies. Active transportation improvements that allow households to own one fewer automobile typically provides CA\$5,000 to CA\$10,000 in direct savings to those households, plus similar value benefits for road and parking infrastructure savings, traffic safety and health benefits, environmental benefits, and local economic development. Walking produces an average economic benefit of CA\$0.50 per person-mile, while cycling yields CA\$0.20.

CBA of New Zealand's Model Communities active travel programme (Chapman, 2018), which included infrastructure development, facilities, promotion, events and training, resulted in a benefit-cost ratio of 11:1, indicating a positive return on investment (using a discount rate of 3.5% and robust to sensitivity testing). The main source of benefits was increased health and reduced injury (together 98% of the benefits) and, to a lesser extent, reductions in carbon emissions (2%). The estimated net economic benefits were valued at NZ\$151.2 million, the health and injury benefits were estimated at NZ\$163.6 million, and carbon dioxide reduction benefits were estimated at NZ\$2.6 million. The mix of interventions varied by city, with each adopting a programme of infrastructure investments focusing on the creation of arterial cycling paths, new and upgraded segregated collector cycling paths, marked on-road cycle lanes, cycle parking and complementary interventions (reduced speed limits, cycle training, and media campaigns). The costs and benefits for specific schemes or intervention types are not reported within the study. The study concluded that when concerted investment is made in active travel in a city, there is likely to be a measurable, positive return on investment.

The review by the What Works Centre for Local Economic Growth (2020) included a study of the Smarter Choice Programmes which resulted in reduced car trips per person, and increased usage of sustainable travel modes (bus travel, walking and cycling). The study did not include a full cost-benefit analysis but found a benefit-cost ratio of approximately 4.5 when considering congestion effects. The review also highlighted a Norwegian study (Sælensminde, 2004) which found that investments in cycle track networks generated benefits that were four to five times their costs. The economic modelling considered pedestrian and cyclist safety, health effects and negative externalities (e.g. air pollution and noise) as well as broader costs such as parking. The cycle network investments were found to be more beneficial to society than other transport investments.

Active travel investments were reported to have the highest BCRs (from 22 studies on active travel, energy efficiency and natural capital), with these generally ratios between three and six, although some are higher. The methods used are likely to underestimate total benefits because they typically focus only on mortality but not morbidity.

A 2021 study (Jacob et al., 2021) investigated the economic benefit of active travel to school. The study highlighted that there has been a decline in the number of children walking or cycling to school and to address this there have been various programmes implemented across several countries to make active travel to school both safer and more appealing. This study incorporated a systematic review of the active travel to school literature, which found that the overall median benefit to cost ratio was 4.4 to one (from six studies) indicating that economic benefits consistently exceed implementation costs. A separate evidence assessment on Active School Travel (Bhagat et al., 2024) considers the impact of school travel interventions in more detail.

3.3 Health economics and cost-savings to society

Active travel contributes significantly to positive health outcomes, resulting in reduced healthcare costs and improved productivity. (More detail on evidence on the health and wellbeing impacts of active travel is provided in a separate evidence assessment – see Vey et al., 2024.)

A Scottish study in 2021 (Baker et al., 2021) aimed to quantify the proportion of active commuters who met a daily equivalent of physical activity recommendations through their commuting journeys to add to a body of evidence on the levels of benefits of active commuting at a national level. Data was analysed from respondents of the 2001 and 2011 Scottish Census, looking at respondents who selected walking or cycling as their usual journey to work. Analysis showed that the annual health economic value of walking commuting in Scotland in 2001 was EUR 853.7 million per year, or €6850.7 million over 10 years (at an annual discount rate of 5%). In 2011, the values were €700.2 million (annual) and €5619.3 million (over 10 years) respectively. Across the 32 LAs, there was considerable variation in walking distance (3.0–6.3 km/day in 2011) and therefore the number of premature deaths prevented by walking commuting per year ranged from 0.6–30.8 (2011) with the health economic value ranging from €2.4 to 124.4 million per year.

Baker et al. (2021), found that in Scotland 33,818 people cycled an average of 8.9 km/day in 2011. From these data it was estimated that cycle commuting in Scotland prevented 16.8 premature deaths per year in 2001 and 19.8 premature deaths per year in 2011. The annual health economic value of cycle commuting in Scotland for 2011 was calculated as €79.8 million per year or €640.2 million over 10 years (discount rate 5%). The study calculated an economic value of approximately €780 million per year for walking and cycling combined. The majority of this (€700 million) is attributable to walking to work due to the higher prevalence of this mode of commuting in comparison to cycling (value of €80 million). Across the 32 local authorities, average cycling distances per day for cycle commuters varied from 7 km to 16 km, with the associated reduction in premature deaths varying from 0.03 to 4.40 deaths. The health economic value of cycle commuting ranged from €0.1 million to €17.8 million per year and from €1.1 million to €142.8 million over 10 years.

The Baker et al. (2021) study does have some acknowledged limitations. Of particular note is the fact that the data was generated from datasets from the 2001 and 2011 censuses of population and therefore may not reflect the current levels of active commuting in Scotland. It is also possible that there has been an underestimation of the number of active commuters and consequently the estimated health economic values.

The What Works Centre for Local Economic Growth (2020) review of ‘green investments’ assessed nine studies of the local economic effects on health of active travel. This included the Rabl & Nazelle (2012) study cited in section 3.1 above as well as a New York City study (Jiao et al., 2019) which found that neighbourhood slow zones (NSZs; the introduction of traffic calming measures) reduce road casualties by 8.7% in areas with a NSZ compared to an increase of 0.3% in control areas. This is equivalent to a gain of 0.002 in quality-adjusted life years (QALYs) and a net saving of US\$15 over the lifetime of the average resident. Furthermore, Jarrett et al. (2012), estimated that if all settlements of 20,000 residents or more in England and Wales achieved London’s level of cycling and walking, the NHS could save roughly £17 billion (in 2010 prices) in total over a 20-year period.

A study by Perez et al (2017) on investment to enhance active travel within Barcelona (a mix of bike share provision, traffic safety improvements, signalling enhancements and traffic calming measures) found that while the number of walking and cycling trips in the city on working days increased between 2009 and 2013 (by 26.7% and 72.5% respectively), pedestrian and cyclist injury rates decreased by 26.7% (walking) and 1.4% (cycling), resulting in the average mortality risk for the population of walkers reducing by 1%. From this data, healthcare savings were modelled using HEAT (WHO, 2017) and an average annual monetary benefit of €57.8 million was calculated (€236.5 million over a 5-year period factoring in discounting by 5% per year). The study concluded that changes in transport policies in Barcelona aimed at promoting

active transportation created clear health benefits related to physical activity but increased neither the number of pedestrian nor cyclist traffic injuries. A clear recommendation was for better integration and coordination between transport and health policies.

Crawford & Lovelace (2015) studied the economic benefits of ‘getting England cycling’. Their report compares the economic benefits of achieving these ambitions against a zero-growth baseline, considering health, environmental, safety and congestion factors from 2015 to 2050. They estimated that if the Cycling Delivery Plan ambition was achieved by 2025, the doubling of cycle trip stages (which would mean 3% of journeys being made by bicycle) could result in an economic benefit of around £2 billion per year. A significant majority of the benefits would be due to increased levels of physical activity (approximately 84% of total benefits), but decongestion benefits would also be over £250 million per year.

A Canadian study by Kornas et al. (2021) estimated the public health impact of increases in walking as a means of diabetes prevention. They used a validated Diabetes Population Risk Tool (DPoRT) to model healthcare cost savings attributable to diabetes. Three population level scenarios involving increases in walking among individuals with low physical activity levels, low daily step counts and high dependency on non-active forms of travel, were compared to a baseline scenario (no change in walking rates). Each scenario predicted a considerable reduction in diabetes and related healthcare cost savings. Increases of walking by 25 minutes each week per person was predicted to prevent up to 10,400 diabetes cases and generate CA\$74.4 million in healthcare cost savings in 10 years. Diabetes reductions and cost savings were projected to be higher if increases of 150 minutes of walking per week could be achieved at the population-level (up to 54,000 diabetes cases prevented and CA\$386.9 million in healthcare cost savings). Policy, programming, and community designs that achieve modest increases in population walking could translate to meaningful reductions in the diabetes burden and cost savings to the healthcare system. A separate evidence assessment, *The Impacts of Walking and Wheeling Interventions* (Bhagat et al., 2024), reviews evidence which suggests that built environment interventions (notably the creation and upgrading of new walking routes) together with selected behaviour change interventions (such as media campaigns and travel planning) are most effective in increasing walking.

Kriit et al. (2019) conducted a health economic appraisal of a proposed investment in urban bicycle infrastructure in Stockholm County, Sweden. The study found the largest expected reduction in healthcare costs would be attributed to increased physical activity and the second largest to reduced air pollution exposure among the population of Greater Stockholm. The expected net benefit from the investment was 8.7% of the 2017 Stockholm County healthcare budget (3.7% after discounting) resulting from infrastructure development. The economic evaluation estimates that the intervention is cost-effective, and each DALY averted gives a surplus of €9,933. The results remained robust under varied assumptions pertaining to reduced numbers of additional bicycle commuters.

Aldred et al. (2021) led a longitudinal study of the impact of the ‘mini-Holland’ schemes in Outer London boroughs, which helps to show the potential of infrastructure development. Changes included redesigned junctions that are safer for cyclists and pedestrians, segregated cycle lanes on busy roads, and reductions in the amount of traffic using residential streets – which can benefit all road users. The scheme found positive economic benefits arising from improved health, estimated at £724million over a 20-year appraisal period against scheme costs of £80million. Extrapolating, the authors estimated that if all residents of Outer London boroughs had the same exposure to a mini-Holland as in the study area, the total gross benefits across all boroughs would be £13billion. Outer London’s mini-Holland interventions have led to sustained increases in active travel. Living within 2 km of a new mini-Holland

route was associated with 35.7 min extra active travel per week after two years, and a similar 33.0 extra minutes per week after three years.

In summary, the economic impacts of active travel interventions, particularly infrastructure development, are realised in a significant way through their benefits for population health and wellbeing.

3.4 Employment / local growth

Active travel spending is highly cost-effective in terms of the number of jobs created per pound spent (DfT / ATE Draft Active Travel Economic Framework, 2023). This reflects the high number of supply-chain jobs associated with constructing walking, wheeling and cycling infrastructure. Better active travel infrastructure can help businesses attract and retain staff, with 73% of London Business Improvement Districts (BIDs) reporting that having pedestrian-friendly urban realm is important to achieve this.

Several studies found that cycling goes beyond improving the liveability of cities, public health and air quality by producing 'hard economic value and jobs' (Blondiau et al., 2016). The importance of robust impact evidence to inform investment in increasing active travel opportunities is significant, yet there is reportedly a lack of quantified data on employment and local growth linked to active travel, which could support the evidence base for investment.

Two studies focused on the employment impacts of the cycling industry overall; these consider together the impact of recreation cycling along with cycling for transport (utility cycling).

European evidence published by Blondiau et al. (2016) found that more than 650,000 jobs were linked to cycling in the EU27 member states and more than 400,000 new jobs could be created in the future with a doubling of cycling modal share. The study identified that cycling could create more local jobs, more jobs for lower skilled workers, and more jobs per euro spent. The total jobs created comprises those in retail (mainly sales and repair) (c.80,000 jobs), the bicycle industry (manufacturing and wholesale) (c.23,000 jobs), construction of cycle infrastructure (c.23,000 jobs), bicycle tourism (c.524,000 jobs) and services (c.4,000 jobs). Using a jobs intensity measure which is adjusted by turnover, job creation in the 'cycling industry' is typically above that for other transport modes: 4.89 FTE manufacturing jobs per €1 million turnover for cycling compared to 1.63 FTE per €1 million for the car industry. Jobs in cycle-related sales and accessories show similar job intensities (5.42 FTE per €1 million for cycling; 1.92 FTE per €1 million for the car industry). On the contrary cycling repairs has a lower job intensity than car repairs (5.23 FTE versus 7.59 FTE per €1 million).

A UK study of the contribution of the cycling industry overall to employment and local growth (Newson & Sloman, 2018), found that 64,000 FTE jobs in the UK were generated by the cycling industry (including jobs in sales and repair, manufacturing, infrastructure / construction sector, retail, hire schemes, cycle delivery and cycle tourism). The DfT / ATE active travel economic framework (2023) reported that these jobs are estimated to directly contribute around £700 million to Gross Value Output. It should be noted that these two studies cover the cycling industry overall, not just cycle commuting.

The employment effects of cycling investment were considered by three studies (Garrett-Peltier, 2011; Brown et al., 2014; Sustrans, 2014) within the review by the What Works Centre for Local Economic Growth (2020). Each of these studies was based on a comparison of outcomes in both a treatment and control group. The findings indicate that cycling infrastructure investment in the US created between 10.3 and 11.4 jobs per US\$1 million spend, and an additional three jobs per US\$1 million through supply chains involved in infrastructure development (Garrett-Peltier, 2011). A UK-based study of the Linking Communities Programme by Sustrans (2014) found that active travel investment supported 6.9 jobs per £1 million spend and 0.9 jobs per km of route construction, with an aggregate BCR (across all schemes) of 10.9:1 (range of BCRs was 3.7:1 to 32.8:1). The review's authors, however, note the study did not account for weather, seasonality, local effects, or displacement which could affect the robustness of the estimates. Brown et al.'s (2014) study found that active travel-related infrastructure, businesses and events were estimated to contribute US\$497 million to the economy of New Jersey in 2011, nearly eight times the estimated US\$63 million invested in active transportation-related infrastructure in 2011 by governmental agencies. The study found that this investment supported 4,018 jobs.

3.5 Local spend

The evidence reviewed suggests that as a mode of transport, cycling contributes more to the local economy than the use of other transport modes. Cyclists make greater use of local shops, restaurants, cafés or other local businesses than users of other transport modes. Blondiau et al. (2016) reviewed studies from Copenhagen, Portland (Oregon), New York and Dublin and reported that cycle commuters are more 'loyal', visiting shops more frequently than other transport users, and spend more in the local convenience stores, bars, cafés and restaurants. Reflecting very high modal share, the study in Copenhagen (Kästrup, 2013) found that cyclists contributed the most to the turnover of the retail sector in that city. A survey of retailers in Dublin concluded that retailers consistently over-estimated the spending level of customers travelling by car and under-estimated spend by cyclists (O'Connor et al., 2011). The New York study (New York City Department of Transport, 2012) found that the installation of protected bicycle lanes on 8th and 9th Avenues in Manhattan was correlated with an increase in retail sales of up to 49% in that area. Reviewing these studies, Blondiau et al. (2016) concluded that 'functional' cycling (i.e., not for leisure) proportionally 'contributes probably more to the local economy than the use of other transport modes' (p. 2311).

A North American review by Volker and Handy (2021) identified 23 studies that either compared consumer spending between active travellers and car users or quantified an economic impact to local businesses following the introduction of bike and/or pedestrian infrastructure. The review concluded that pedestrian facilities, such as landscaped areas, lighting and seating, are likely to provide a positive economic benefit to local retail and food service businesses even where vehicular travel lanes or parking are removed or reduced in the process. Similarly, the economic framework developed for ATE and DfT (unpublished) states that 'better active travel' is important to attract more customers to the high street. People who walk to the high street typically visit twice as frequently and spend up to 40% more overall compared to those who drive.

3.6 Productivity

Hendriksen et al. (2010) studied the association between commuter cycling and rates of employee absenteeism and assessed whether there is a dose-response relationship between the frequency, speed and distance of commuter cycling and absenteeism. It draws on cross-sectional data about cycling for 1,236 Dutch employees, obtained via a self-reported questionnaire. Company absenteeism records were also collected over a one-year period (May 2007 to April 2008). Propensity scores are used to try to make groups comparable and adjust for confounders, with Poisson models used to assess the differences in absenteeism among non-cyclist and cyclist commuters. The study finds that the mean total duration of absenteeism over the period of study was one day shorter in cycle commuters than those who did not cycle to work, and a dose-response relationship where people who cycle more often and over longer distances are absent for fewer days on average.

The ATE and DfT (unpublished) economic framework states that active travel boosts productivity, expands the labour force, catalyses local growth (with lower workplace absenteeism contributing to economic growth) and enables new sustainable developments. Reducing traffic congestion raises productivity in several ways – see also the evidence assessment on *The Impacts of Active Travel on Journey Times, Congestion and Resilience* (Parkes et al., 2024) for more details. First, it will reduce the cost of moving goods and services around the country, allowing businesses to be more reliant on ‘just-in-time’ deliveries. Second, it will reduce the time and cost of employees travelling in work hours, freeing up their time for more productive activities. Third, it will bring people and businesses closer together in travel terms, delivering productivity improvements through agglomeration benefits. Improving walking and cycling infrastructure and routes to public transport interchanges can make significant contributions to relieving traffic congestion. ATE and DfT (unpublished) states that traffic congestion costs the UK economy around £8 billion each year, wasting 73 hours on average per road user. The same study also reports that, on average, people who exercise for around 30 minutes a day were found to take around 25% less short-term sick leave.

3.7 Infrastructure benefits

The following section summarises evidence relating to economic benefits linked to infrastructure investment and development. Infrastructure evidence is integrated throughout the Key Findings table to present findings in the most concise format.

Better active travel infrastructure can make areas more desirable for businesses, reducing retail vacancies and helping to regenerate high streets. Shopping districts in London that have benefitted from street improvements have delivered an average rental uplift of up to 54% (ATE and DfT, unpublished). Increased cycling trips were found to contribute to the emergence of new local shops and businesses. Investments in cycling infrastructure also contribute to cost savings for individuals and society. According to the Institute for Transportation and Development Policy (2022) infrastructure development generates local economic development that benefits governments (through increased property values and municipal revenues) and businesses (increased commercial retail sales).

A study of the value of street improvements in London by Carmona et al. (2018) found that high quality street environments can make residents healthier, happier and more engaged with their local community. Street improvements, such as schemes including a range of measures including widening pavements, changing kerbs, paving, introducing shared surfaces, outdoor greening, and seating, resulted in an uplift in office rental values equivalent to an additional 4% per annum, indicating a positive secondary economic impact.

As noted in section 3.4, investments in cycling infrastructure are found to create job opportunities, with estimates suggesting 10-23 jobs at the state level and 8-11 at the municipal level are created for every \$1 million (US) spent on cycling and walking infrastructure projects (Institute for Transportation and Development Policy, 2022). Garrett-Peltier (2011) explored the employment impacts of building pedestrian and bicycling infrastructure such as pathways, bike lanes and trails. They conducted an economic appraisal of 58 active travel infrastructure projects (in 11 US cities) calculated an average of 9 jobs per \$1 million of investment. It found that around half (4.69) of the estimated jobs are directly created (e.g., through construction), whilst the remaining are indirect jobs in the supply-chain (2.12 jobs) and induced jobs (2.15 jobs). The study highlighted the relevance of pedestrian and cycling infrastructure in addressing multiple challenges faced by the US including high unemployment, carbon-based energy dependency and obesity. It suggested that investing in such infrastructure is crucial for commuting, recreation and fitness, and can also help to mitigate unemployment by creating jobs in engineering, construction, and material production. The findings underline the importance of including pedestrian and cycling facilities in transportation projects, not only for their environmental and health benefits, but also for their potential to generate local employment.

There is evidence to suggest that investment in active travel infrastructure generates a higher societal benefit than other transport investments (Blondiau et al., 2016; What Works Centre of Local Economic Growth, 2020) and this can be achieved faster (ATE / DfT, unpublished) than other infrastructure developments such as major road and rail schemes. Annualised infrastructure costs in compact, less car-dependent cities are 33% less than in 'sprawling' low-density, car-oriented cities (DfT, 2016).

The ATE / DfT (unpublished) economic framework reviews a range of mechanisms whereby investment in active travel can positively impact on development. Good active travel infrastructure can enable brownfield land use, and in general promote higher development densities reducing the need to build on greenfield land. High quality active travel infrastructure may reduce the number of car parking spaces required, allowing for higher development densities. Furthermore, active travel infrastructure can reduce the upfront cost of new developments if the requirement for costly junction and road improvements is lessened. ATE / DfT (unpublished) also state that the vast majority of 'high performing' local authorities are looking to invest in active travel to support economic growth. For example, 100% of authorities report a key objective for investment in active travel is to improve local health, 84% say it will help support the planning process for housing developments and 80% say it will help reduce traffic congestion.

The review by What Works Centre for Local Economic Growth (2020) cites evidence that investments in cycle track networks in Norway generated four to five times their costs, making them more beneficial to society than other transport investments (Sælensminde, 2004). Cycling projects usually create more jobs than road-only infrastructure projects due to their relative labour intensity (Garrett-Peltier, 2011).

As discussed in section 3.2, a systematic review of economic evidence on active school travel found that interventions that improve infrastructure and enhance the safety and ease of active travel to schools generate societal economic benefits that exceed the societal cost (Jacob et al., 2021).

Further research (Carmona, 2018) suggests that high-quality street environments can contribute to the health, happiness, and engagement of residents within their local community. Improvements to the quality of the publicly owned and managed street fabric return substantial benefits to the everyday users of streets, and to the occupiers of and investors in neighbouring property in multiple ways. Consequently, they return significant value.

Overall, creating high quality urban spaces has a significant impact on where people and businesses choose to locate. High quality urban spaces attract people and businesses due to improved quality of life and social interactions. Investment in active travel infrastructure, enhances quality of life making places more desirable to live and work, thus attracting local businesses and residents to boost local growth (ATE / DfT economic framework, 2023).

3.8 Economic benefit to individuals

It is important to note that beyond the wider benefits and cost savings to society, individuals also experience a range of economic benefits from active travel. These benefits are both direct and indirect, such as improved physical and mental health benefits, or greater social connection. Walking, wheeling and cycling are typically cheaper modes of travel than driving (Sustrans, 2022) so would provide cost savings. However, the benefits of active travel are not universally accessible, as there can be cost barriers to opportunities (e.g. access to bikes, cost of equipment etc). The 2021 Sustrans index highlighted that 70% of residents on low incomes would find access to a cycle useful to start cycling or cycle more.

Litman (2024) cited within his concluding comments that active transportation improvements that allow households to own one fewer automobile can typically provide CA\$5,000 to \$10,000 in direct savings to households, plus similar value benefits worth of road and parking infrastructure savings, traffic safety and health benefits, environmental benefits, and local economic development; methods described in this report can support those conclusions. The What Works Centre of Local Economic Growth report (2020) used EU City-level data and found that those undertaking a 5 km bicycle journey twice a day, five days a week, would accrue individual health benefits worth around €1,300 per annum due to their increased physical activity. Raje & Saffrey's (2016) study of the economic benefit of cycling highlighted that residential property values rise 1% if motor vehicle traffic is reduced by 50%.

4. Key determinants of and barriers to participation in active travel

In assessing the evidence of the economic impacts of active travel, a number of key determinants of and barriers to active travel participation were noted. These are summarised as follows:

- **4.1 Key determinants**
- **4.2 Key barriers**

4.1 Key determinants

Appropriate infrastructure

Infrastructure development generates local economic development that benefits government (through increased property values and municipal revenues) and business (increased commercial retail sales).

Better active travel infrastructure can make areas more desirable for businesses, reducing retail vacancies and helping to regenerate high streets. Creating high quality urban spaces has a significant impact on where people and businesses choose to locate. There is evidence to suggest that investment in active travel infrastructure generates a higher societal benefit than other transport investments.

Walking / pedestrian facilities

Within the evidence assessed, a high proportion of the economic impact generated is attributable to walking (2-3 times greater than for cycling), particularly in the UK. This is due to the higher prevalence of this mode of commuting in comparison to other active modes.

A review article concluded that improved pedestrian facilities, such as landscaped areas, lighting and seating, are likely to provide a positive economic benefit to local retail and food service businesses. Evidence elsewhere (for example on Planning – see The Impacts of Early Consideration of Active Travel via Planning and Design [Stockburn et al., 2024]) suggests that improved facilities are particularly important in encouraging walking and wheeling by older people.

4.2 Key barriers

Data – quantity, quality and consistency

The evidence stresses the importance of capturing accurate data and volume of active travel journeys as this is fundamental to calculating economic values. The foundation of calculating economic impact is based on participant numbers (how many people are walking, wheeling and cycling) in order to model the value of the impact generated. Consistent data (via common metrics) that can enable direct comparisons across and within modes.

There is a need for appraisal methods that comprehensively incorporate all relevant costs and benefits across all transport modes. This could help to realise the potential of active travel and support organisations to secure funding for both behaviour change and infrastructure investment.

Accessibility and equity

This research suggests that addressing financial barriers and socioeconomic disparities is necessary to provide wider access to active travel and therefore increase its economic benefits. There is notable disparity in access to cycling and other active travel options between socioeconomic groups.

5. Limitations

The reviewed evidence presents a positive picture of how active travel generates a broad range of economic benefits. However, it also highlights a range of evidence gaps and limitations. The process of measurement and economic valuation linked to active travel is challenging given its multifaceted nature and there are inherent difficulties in accurately measuring rates of active travel (particularly walking) on which to base economic modelling. This section underscores some of the key issues with assessing the economic contribution of active travel, based on a small sample of identified studies between which there are inconsistencies and differences in approach and method.

The quality of evidence varies across studies, with some lacking sufficient detail to assess data quality and research claims, particularly in grey literature and review articles. The Weight of Evidence score for each piece of evidence in the review is given in Annex B. This variability makes it challenging to accurately synthesise the evidence related to the economic impact of active travel.

Cycling receives more attention and is more readily associated with economic impact than walking. However, the available evidence suggests that the economic benefits from walking may be 2-3 times greater than those from cycling. Based on the caveats cited in the evidence, there is likely to be an under-estimation of economic value of active travel. A review of international transport planning practice by Litman (2017) concludes that, whilst walking currently receives a fair and efficient share of transportation resources, this reflects an undercounting of walking trips, an undervaluation of walking benefits, and undervaluation of motor vehicle costs.

Some of the evidence assessed is not current and therefore this may result in inaccuracies (particularly where there has been a substantial change in active travel participation rates since values were calculated). The academic literature search (via Scopus) set a threshold of the past 10 years for identifying studies, but flexibility was needed due to the low level of evidence returned and the grey literature also highlighted some studies based on older data. There was a notable lack of identified evidence relating to the 'cost of living'. This should be explored further in future research and evidence reviews.

In some studies, it is difficult to isolate the economic impact of active commuting as the evidence may relate to general investment in improved facilities for walking, wheeling and cycling which increase leisure usage in addition to commuting. This may be problematic because of the expectation that commuting and other journeys may be treated differently in transport appraisal (e.g. TAG). This is exemplified within infrastructure studies and those linked to wider societal benefits such as employment and local growth.

The lack of longitudinal data within the evidence base limits the opportunity to assess the effects of investments on employment, local growth, and related outcomes over the longer term (although some economic forecasting with discounted rates is included).

It is noted that the Benefit-to-Cost Ratios (BCRs) reported in the evidence are very high in relation to typical BCRs for other transport schemes such as road building (which would average around 2:1). This could suggest publication bias and should be explored in greater detail.

This evidence assessment does not review the issue of gentrification because no studies were selected which addressed this directly. There is a need for evidence which understands and controls for the correlates – e.g. does active travel gentrify areas as part of the way it delivers economic benefits, or are the economic benefits additional to those that could be ascribed to gentrification?

6. Conclusions

This report has attempted to answer the following research questions

RQ1. What economic benefits are derived from active travel for (i) society and (ii) individuals?

- RQ1a. What are the health-related economic benefits / NHS cost savings resulting from active travel?
- RQ1b. What are the economic benefits of active travel linked to enhanced employment / local growth?
- RQ1c. What are the economic benefits of active travel linked to individuals e.g. household budgets?
- RQ1d. What are the economic benefits of active travel linked to enhanced productivity?
- RQ1e. What are the economic benefits of active travel linked to infrastructure development?

This evidence assessment helps to emphasise the significant economic benefits of active travel, highlighting its role as a low-cost, high-yield solution towards addressing health, climate, and equity issues. The economic contribution of cycling overall, features quite prominently in the literature. The wider value of cycling covers its retail contribution plus expenditure on cycling 'products', as well as the range of economic and social benefits generated by cycling (health and wellbeing, environmental, cost saving, journey times etc). However, European and US evidence suggests that the economic benefits from walking are 2-3 times greater than for cycling, due to the much higher levels of participation.

Where available, the evidence assessed shows that active travel spending is highly cost-effective in terms of the number of jobs created per pound spent, compared to other investment. There are also interconnected benefits derived through the development of active travel infrastructure and an uptake in usage of this. Examples include infrastructure development helping to attract businesses to an area, helping them to recruit and retain staff through a pedestrian-friendly urban realm, and making areas more desirable for businesses to operate, reducing retail vacancies and helping to regenerate high streets. There is evidence to suggest that investment in active travel infrastructure generates a higher societal benefit than other transport investments.

Determinants / barriers to participation

At present the benefits of active travel are not universally experienced, with notable disparity in access to active travel options between socioeconomic groups. The evidence reviewed suggests that addressing financial barriers and socioeconomic disparities is necessary to provide wider access to active travel and therefore increase its economic benefits. Sustrans' walking and cycling index reported that only 37% of people on low incomes have access to an adult cycle, in comparison to 60% of people in managerial and professional occupations. Despite this, there were high levels of latent demand for active travel within low-income communities, but there are cost and access barriers standing in the way. Consideration of how to widen access to everyone, particularly people with protected characteristics (including age, gender, ethnicity, low incomes, people with a disability) would help to unlock greater economic impact.

6.1 Future research

In reviewing the evidence several limitations became apparent. Future research could potentially seek to address these. In particular:

- Economic impact assessments tend to focus on cycling, whilst the economic contribution of more walking and wheeling appears to be underplayed. This has led to the suggestion that studies may therefore tend to undervalue the economic impact of active travel as a whole. Future research could aim to address this apparent imbalance.
- Studies which have been used to inform factors in appraisal and modelling guidance may be outdated and not reflect contemporary economic conditions (e.g. cost of living). There is a need for more up to date research which is based on current known rates of participation in active travel, current costs across transport modes and other input variables. Longitudinal studies capable of tracking effects over a longer period would be particularly valuable.
- Because leisure and commuting journeys are treated differently in terms of their economic impacts, there is a need for more studies which disaggregate between trip types and purposes.
- More research is needed to ensure that the high benefit-cost ratios (BCRs) typically reported in active travel appraisals and evaluations do not reflect publication biases.
- Future research should more carefully control for correlates, especially for decomposing active travel benefits into those that result from infrastructure and those that result from wider gentrification within intervention areas. More generally, more evidence is needed to understand the distribution of economic impacts and how these relate to wider socioeconomic changes within places.

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Annex A – Database searches

Sub-theme: Economy

Platform: Elsevier

Date searched: 8 February 2024

Number of results: 16

Table 3: Economy sub-theme search string

String no	Search string	No of results
1	TITLE-ABS-KEY (active OR bicycl* OR cycl* OR bik*) W/2 (commut* OR journey* OR travel*)	6,003
2	TITLE-ABS-KEY ("economic contribution" OR "economic impact" OR "economic value")	89,631
3	#1 AND #2	21
4	Limit language to English	21
5	Limit document type to article, review	16
6	Limit publication year to 2013-2024	16

Sub-theme: Productivity

Platform: Elsevier

Date searched: 8 February 2024

Number of results: 213

Table 4: Productivity sub-theme search string

String no	Search string	No of results
1	TITLE-ABS-KEY (active OR bicycl* OR cycl* OR bik*) W/2 (commut* OR journey* OR travel*)	6,003
2	TITLE-ABS-KEY (productiv* OR "job satisfaction" OR absentee* OR "sick leave" OR presentee* OR efficien* OR "staff turnover" OR "job creation" OR "life years added")	6,705,608
3	#1 AND #2	420
4	Limit language to English	398
5	Limit document type to article, review	269
6	Limit publication year to 2013-2024	213

Sub-theme: Local spend

Platform: Elsevier

Date searched: 8 February 2024

Number of results: 425

Table 5: Local spend sub-theme search string

String no	Search string	No of results
1	TITLE-ABS-KEY (active OR bicycl* OR cycl* OR bik*) W/2 (commut* OR journey* OR travel*)	6,003
2	TITLE-ABS-KEY ("local spend" OR "local growth" OR "financial impact" OR employ* OR placemaking OR "place making" OR "cost saving*" OR "saving money" OR "cost of living" OR "retail footfall" OR "high street spend*" OR "economic benefit*" OR "financial benefit" OR "dwell time" OR "spending patterns" OR "value for money" OR "Pedestrian pound" OR "cost benefit analysis" OR "cost benefit ratios" OR "social value" OR "social return on investment" OR "cycling economy")	4,264,762
3	#1 AND #2	642
4	Limit language to English	620
5	Limit document type to article, review	520
6	Limit publication year to 2013-2024	425

Grey literature

Platform: Google (using bespoke search strings)

Date searched: 28 February 2024

Number of results: 136

Table 6: Grey literature searches

Organisation	Search string	Valid results
Active Oxfordshire	(INTITLE:research OR study OR analysis) AND (active AROUND(2) (travel OR commute OR journey OR transport)) AND AFTER:2012 AND site: activeoxfordshire.org/	6
Active Travel Academy (University of Westminster)	(INTITLE:research OR study OR analysis) AND (active AROUND(2) (travel OR commute OR journey OR transport)) AND AFTER:2012 AND site: westminster.ac.uk/ata/	5
Age UK	(INTITLE:research OR study OR analysis) AND (active AROUND(2) (travel OR commute OR journey OR transport)) AND AFTER:2012 AND site: ageuk.org.uk/	6
Association of Cycle Traders (ACT)	(INTITLE:research OR study OR analysis) AND (active AROUND(2) (travel OR commute OR journey OR transport)) AND AFTER:2012 AND site: cycleassociation.uk/	1
British Heart Foundation (BHF)	(INTITLE:research OR study OR analysis) AND (active AROUND(2) (travel OR commute OR journey OR transport)) AND AFTER:2012 AND site: bhf.org.uk/	2
Campaign for Better Transport	(INTITLE:research OR study OR analysis) AND (active AROUND(2) (travel OR commute OR journey OR transport)) AND AFTER:2012 AND site: bettertransport.org.uk	10

Organisation	Search string	Valid results
Campaign for National Parks	(INTITLE:research OR study OR analysis) AND (active AROUND(2) (travel OR commute OR journey OR transport)) AND AFTER:2012 AND site: cnp.org.uk/	4
Centre for Transport & Society (University of the West of England)	(INTITLE:research OR study OR analysis) AND (active AROUND(2) (travel OR commute OR journey OR transport)) AND AFTER:2012 AND site: uwe.ac.uk/research/centres-and-groups/cts	0
Cycle BOOM	(INTITLE:research OR study OR analysis) AND (active AROUND(2) (travel OR commute OR journey OR transport)) AND AFTER:2012 AND site: cycleboom.org/	1
Cycling UK	(INTITLE:research OR study OR analysis) AND (active AROUND(2) (travel OR commute OR journey OR transport)) AND AFTER:2012 AND site: cyclinguk.org/	18
Disability Rights UK	(INTITLE:research OR study OR analysis) AND (active AROUND(2) (travel OR commute OR journey OR transport)) AND AFTER:2012 AND site: disabilityrightsuk.org/	2
Living Streets	(INTITLE:research OR study OR analysis) AND (active AROUND(2) (travel OR commute OR journey OR transport)) AND AFTER:2012 AND site: livingstreets.org.uk/	6
ModeShift	(INTITLE:research OR study OR analysis) AND (active AROUND(2) (travel OR commute OR journey OR transport)) AND AFTER:2012 AND site: modeshift.org.uk	0
National Institute for Health and Care Excellence (NICE)	(INTITLE:research OR study OR analysis) AND (active AROUND(2) (travel OR commute OR journey OR transport)) AND AFTER:2012 AND site: nice.org.uk/	0
Partnership for Active Travel and Health	(INTITLE:research OR study OR analysis) AND (active AROUND(2) (travel OR commute OR journey OR transport)) AND AFTER:2012 AND site: pathforwalkingcycling.com/	0
Paths for All	(INTITLE:research OR study OR analysis) AND (active AROUND(2) (travel OR commute OR journey OR transport)) AND AFTER:2012 AND site: pathsforall.org.uk/	10
Royal National Institute of Blind People (RNIB)	(INTITLE:research OR study OR analysis) AND (active AROUND(2) (travel OR commute OR journey OR transport)) AND AFTER:2012 AND site: rnib.org.uk/	1
Sustrans	(INTITLE:research OR study OR analysis) AND (active AROUND(2) (travel OR commute OR journey OR transport)) AND AFTER:2012 AND site: sustrans.org.uk/	15
The Ramblers	(INTITLE:research OR study OR analysis) AND (active AROUND(2) (travel OR commute OR journey OR transport)) AND AFTER:2012 AND site: ramblers.org.uk/	1
Transport & Health Study Group (THSG)	(INTITLE:research OR study OR analysis) AND (active AROUND(2) (travel OR commute OR journey OR transport)) AND AFTER:2012 AND site: transportandhealth.org.uk/	4
Transport for London (TfL)	(INTITLE:research OR study OR analysis) AND (active AROUND(2) (travel OR commute OR journey OR transport)) AND AFTER:2012 AND site: tfl.gov.uk/	0
Transport Research Laboratory (TRL)	(INTITLE:research OR study OR analysis) AND (active AROUND(2) (travel OR commute OR journey OR transport)) AND AFTER:2012 AND site: trl.co.uk/	8
Transportation Research Group (University of Southampton)	(INTITLE:research OR study OR analysis) AND (active AROUND(2) (travel OR commute OR journey OR transport)) AND AFTER:2012 AND site: southampton.ac.uk/research/groups/transportation-group	0

Organisation	Search string	Valid results
Sport England	(INTITLE:research OR study OR analysis) AND (active AROUND(2) (travel OR commute OR journey OR transport)) AND AFTER:2012 AND site: sportengland.org/	9
Systra	(INTITLE:research OR study OR analysis) AND (active AROUND(2) (travel OR commute OR journey OR transport)) AND AFTER:2012 AND site: systra.com/uk/	1
Transport Scotland	(INTITLE:research OR study OR analysis) AND (active AROUND(2) (travel OR commute OR journey OR transport)) AND AFTER:2012 AND site: transport.gov.scot/	0
Bikeability	(INTITLE:research OR study OR analysis) AND (active AROUND(2) (travel OR commute OR journey OR transport)) AND AFTER:2012 AND site: bikeability.org.uk/	0
Transport for New Homes	(INTITLE:research OR study OR analysis) AND (active AROUND(2) (travel OR commute OR journey OR transport)) AND AFTER:2012 AND site: transportfornewhomes.org.uk/	4
ITS Leeds	(INTITLE:research OR study OR analysis) AND (active AROUND(2) (travel OR commute OR journey OR transport)) AND AFTER:2012 AND site: leeds.ac.uk/transport	0
Centre for Cities	(INTITLE:research OR study OR analysis) AND (active AROUND(2) (travel OR commute OR journey OR transport)) AND AFTER:2012 AND site: centreforcities.org/	7
Chartered Institute of Highways and Transport	(INTITLE:research OR study OR analysis) AND (active AROUND(2) (travel OR commute OR journey OR transport)) AND AFTER:2012 AND site: ciht.org.uk/	14
Chartered Institute of Logistics and Transport	(INTITLE:research OR study OR analysis) AND (active AROUND(2) (travel OR commute OR journey OR transport)) AND AFTER:2012 AND site: ciltuk.org.uk/	1
Total		136

Annex B – Details of sources included in the full assessment

Reference and DOI	Method / data	Sample	Geography	Weight of Evidence score	Reason for inclusion where WoE is not high	Economic benefits	Health economics	Infrastructure
Aldred, R., Woodcock, J., & Goodman, A. (2021). Major investment in active travel in Outer London: Impacts on travel behaviour, physical activity, and health . <i>Journal of Transport & Health</i> , 20.	Survey longitudinal, plus health economic analysis	3000 1st wave, 1400 repeat phases	England	11 (medium)	Relevance to themes		✓	✓
Active Travel England (ATE) & Department for Transport (DfT) (2023) <i>ATE Draft Active Travel Economic Framework</i> . Unpublished report by Fiona Raje and Andrew Saffrey. London: Department for Transport.	Evidence review including case studies	No details	N/A	N/A	Relevance to theme; ATE/DfT recommended	✓		
Baker, G., Pillinger, R., Kelly, P., & Whyte, B. (2021). Quantifying the health and economic benefits of active commuting in Scotland . <i>Journal of Transport & Health</i> , 22.	Survey – cross sectional, repeat measures	250,000	Scotland	11 (medium)	Relevance to the theme, recent study, sample size	✓		
Blondiau, T., van Zeebroeck, B., & Haubold, H. (2016). Economic Benefits of Increased Cycling . <i>Transportation Research Procedia</i> , 14, 2306-2313.	Modelling	N/A	EU (including UK)	10 (medium)	Sub-theme coverage	✓		
Carmona, M., Gabrieli, T., Hickman, R., Laopoulou, T., Livingstone, N. (2018) Street Appeal: The value of street improvements . Summary report also produced by TfL.	Mixed methods	N/A	N/A	10 (medium)	Sub-theme coverage			✓
Chapman, R., Keall, M., Howden-Chapman, P., Grams, M., Witten, K., Randal, E., & Woodward, A. (2018). A Cost Benefit Analysis of an Active Travel Intervention with Health and Carbon Emission Reduction Benefits . <i>International Journal of Environmental Research and Public Health</i> , 15(5).	Cost Benefit Analysis	N/A	New Zealand	12 (high)	N/A		✓	
Crawford, F. Lovelace, R. (2015) The Benefits of Getting England Cycling .	Economic benefit analysis	N/A	UK	10 (medium)	Relevance to the theme, UK focus	✓		

Reference and DOI	Method / data	Sample	Geography	Weight of Evidence score	Reason for inclusion where WoE is not high	Economic benefits	Health economics	Infrastructure
Garrett-Peltier, H. (2011). Pedestrian and Bicycle Infrastructure: A National Study of Employment Impacts.	Modelling	N/A	USA	9 (medium)	Sub-theme coverage	✓		
Gössling, S., Choi, A., Dekker, K., & Metzler, D. (2019). The Social Cost of Automobility, Cycling and Walking in the European Union. <i>Ecological Economics</i> , 158, 65-74.	Cost Benefit Analysis	N/A	Denmark	6 (low)	Relevance to the theme	✓		
Hopkinson, L. Transport for Quality of Life (2023). The UK Cycle Industry: Current Economic and Employment Benefits and its Decarbonisation-Driven Growth Potential. Report for the Bicycle Association.	Economic Benefits analysis	N/A	UK	7 (low)	Relevance to the theme, UK focus	✓		
Institute for Transportation and Development Policy (2022) Making the economic case for cycling.	Evidence review	N/A	Global	N/A	ATE / DfT recommended	✓		
Jacob, V., Chattopadhyay, S. K., Reynolds, J. A., Hopkins, D. P., Morgan, J. A., Brown, D. R., Kochtitzky, C. S., Cuellar, A. E., & Kumanyika, S. K. (2021). Economics of Interventions to Increase Active Travel to School: A Community Guide Systematic Review. <i>American Journal of Preventive Medicine.</i> , 60(1), e27-e40.	Systematic review	9 studies	Global	13 (high)	N/A	✓		
Kornas, K.; Rosella, L.C.;Fazli, G.S.; Booth, G.L. (2021). Forecasting Diabetes Cases Prevented and Cost Savings Associated with Population Increases of Walking in the Greater Toronto and Hamilton Area, Canada. <i>Int. J. Environ. Res. Public Health</i> , 18, 8127.	Modelling cross sectional survey data	15,759	Canada	11 (medium)	Relevance to the theme		✓	
Kriit, H. K., Williams, J. S., Lindholm, L., Forsberg, B., & Nilsson Sommar, J. (2019). Health economic assessment of a scenario to promote bicycling as active transport in Stockholm, Sweden. <i>BMJ Open.</i> , 9(9).	Modelling	N/A	Sweden	10 (medium)	Relevance to the theme		✓	

Reference and DOI	Method / data	Sample	Geography	Weight of Evidence score	Reason for inclusion where WoE is not high	Economic benefits	Health economics	Infrastructure
Litman, Todd Alexander (2017) Economic Value of Walkability . Victoria Transport Policy Institute.	Economic Benefit Analysis	N/A	Global	6 (low)	Sub-theme coverage	✓		
Litman, T.A. (2024). Evaluating Active Transport Benefits and Costs Guide to Valuing Walking and Cycling Improvements and Encouragement Programs .	Cost Benefit Analysis	N/A	USA	6 (low)	Relevance to the theme; recent study	✓		
Living Streets (2018). The Pedestrian Pound: the business case for better streets and places .	Mixed methods review	N/A	UK	5 (low)	ATE / DfT recommended; sub-theme coverage	✓		✓
Neumeier, L. M., Loidl, M., Reich, B., Fernandez La Puente de Battre, M. D., Kissel, C. K., Templin, C., Schmied, C., Niebauer, J., & Niederseer, D. (2020). Effects of active commuting on health-related quality of life and sickness-related absence . <i>Scandinavian Journal of Medicine & Science in Sports</i> , 30(S1), 31–40.	RCT	73 participants	Austria	11 (medium)	Sub-theme coverage		✓	
Newson C, and Sloman L. Transport for Quality of Life (2018). The Value of the Cycling Sector to the British Economy: A Scoping Study .	Review	N/A	UK; Europe	4 (low)	Relevance to theme	✓		
Pérez, K., Olabarria, M., Rojas-Rueda, D., Santamariña-Rubio, E., Borrell, C., & Nieuwenhuijsen, M. (2017). The health and economic benefits of active transport policies in Barcelona . <i>Journal of Transport & Health</i> , 4, 316–324.	Modelling	N/A	Spain	13 (high)	N/A		✓	
Raje, F., & Saffray, A. (2016). The Value of Cycling . Department for Transport.	Evidence review	88 studies	Global	10 (medium)	ATE / DfT recommended; sub-theme coverage	✓		

Reference and DOI	Method / data	Sample	Geography	Weight of Evidence score	Reason for inclusion where WoE is not high	Economic benefits	Health economics	Infrastructure
Sustrans (2022). Helping people through the cost of living crisis and growing our economy. The role of walking, wheeling and cycling.	Review	N/A	N/A	N/A	ATE / DfT recommended; sub-theme coverage	✓		
Volker, J. M. B., & Handy, S. (2021). Economic impacts on local businesses of investments in bicycle and pedestrian infrastructure: a review of the evidence. <i>Transport Reviews</i> , 41(4), 401–431.	Evidence review	23 studies	USA, Canada	11 (medium)	Relevance to the theme, recent study	✓		
What Works Centre for Local Economic Growth (2020) Local green investments.	Evidence review	12 studies	UK, EU and US	9 (medium)	ATE / DfT recommended, UK focus	✓		