Appendix E

Rapid Review 2: Local Economic Impacts of Active Travel

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What are the local economic impacts of active travel interventions or shifts to active travel? (Including the local economic spend of car users versus active travel users in the UK.) A rapid review of the evidence.

Highlights

- Active travel interventions offer a positive return on investment, driven by public health gains and potential economic benefits.
- Local economic impacts are likely to be either positive or neutral following active travel changes, although targeted measures may be needed to support certain sectors.
- Active travel users do not spend less than car users over one month.
- More research on the economic equity impacts of active travel would be beneficial.

Summary

Local authorities face the challenge of maximising benefits for their communities and meeting increasingly complex needs in the context of increasingly tight budgets. Active travel interventions including walking, cycling, wheeling, and improvements in public transport offer the potential to enhance the liveability of the built environment, to support climate mitigation goals, and to deliver broad health benefits. In the context of discussions about the pace and scale of implementation of active travel interventions, concerns or questions are regularly raised about their local economic impacts. This rapid review sought to synthesise available evidence on this. Overall, evidence identified suggests that in the majority of contexts and for the majority of interventions these interventions have a positive or neutral impact on local economics, through a variety of mechanisms. The most important, if not quickest, of these relate to the economic benefits arising from changes to physical activity levels in the community, but shorter-term benefits may also accrue through mechanisms including benefits to most local retail, and reduced absenteeism.

Numerous studies demonstrate positive benefit-cost ratios for active travel interventions. The health benefits from increased physical activity generally outweigh potential risks like traffic accidents due to increased miles of cycling & walking. In addition, well implemented schemes can reduce rather than increase the frequency of injuries. Substantial long-term health savings are projected, potentially reducing burdens on local services including the NHS.

Local business sales are largely unaffected or even benefit from active travel interventions. Evidence from pedestrian street improvements and cycle-way interventions suggests increased footfall and consumer spending, particularly in businesses accessible by walking or cycling. However, car-oriented businesses & larger home-goods stores may experience negative impacts. Property values tend to increase in areas with improved active travel infrastructure, positively impacting both commercial and residential sectors.

Additionally, active travel interventions appear to generate more jobs per investment than traditional road projects. Improved health outcomes from active travel may also reduce absenteeism, helping economic productivity.

Evidence quality was mixed and more UK-specific studies with robust pre-post intervention data are needed for in-depth analysis. Research exploring the impacts of active travel on economic equity and accessibility for specific population groups and geographic areas is limited and would be valuable.

Background

Local authorities with limited budgets must determine where, and how, to allocate their funding for maximum benefit. They seek to provide infrastructure and services to best support their communities, improving both economic stability and quality of life. Active travel interventions, including walking, cycling, wheeling, and public transport infrastructure, can offer an opportunity to improve an area's built environment. Alongside these interventions, a broader shift in mobility patterns towards active travel can help to achieve climate mitigation goals along with having broader health benefits.[1] Despite these potential benefits, concerns exist about the possible economic impacts on businesses and communities. Understanding the local economic impacts of active travel interventions and modal shift will allow for better informed decision-making by local authorities.

This review aimed to examine the evidence regarding local economic impacts of active travel infrastructure and a shift to active travel modes. It also explored whether the local spending patterns of car users differ from those utilising active travel.

Key findings

Overall, the evidence suggests that the most commonly used active travel interventions have positive benefit-cost ratios, primarily due to the health benefit gains.	A large number of reports performed cost benefit analysis of active travel interventions or active travel modal shift. There was a wide range of benefits and disbenefits included in the calculations, including health, accidents, and congestion. Most studies calculating benefit-cost ratios (BCR) for active travel interventions found that the derived economic benefits were greater than the expenditure needed to deliver the intervention (net positive, BCR >1). One systematic review on large-scale active travel infrastructure interventions (over USD $3 million) found that all studies demonstrated a positive return on investment.[2] One systematic review[3] and one critical review[4] found that all but one of their included studies showed the benefits of active travel interventions outweighed the costs. Another systematic review found that 26 of the 32 included studies reported the benefits were greater than the costs but that there was a wide range of BCRs.[5] A systematic review on interventions to increase active travel to school found all interventions had positive BCRs, with a median BCR of 5.8:1 over a two-year time period.[6] A systematic review that looked at modal shift, not interventions, found that the BCR for mode shift to active travel ranged from positive to negative, but that the median BCR was net positive.[7] A 2015 report by the UK Department for Transport (DfT) found that on average the benefits of UK active travel interventions were 5 times the costs (BCR 5.6:1).[8] A more recent UK study of the Connect2 program found that 49% of schemes achieved a BCR of over 4, a level regarded by DfT as very high value for money.[9] The positive impacts to health from an increase in physical activity levels through active transport, outweigh negative impacts such as increased traffic accidents and air pollution exposure.[7] The health metrics used varied but included benefits to mortality and morbidity (diseases such as cardiovascular disease, respiratory disease, diabetes) activity.[2, 7] These health parameters contributed significantly to the overall benefits of positive evaluations.[2, 3]
The largest and most studied benefits estimate gains in population health associated with the interventions. Recent estimates suggest these are large and sustained.	Multiple reports quantified the possible savings from improved population health generated by active travel interventions[10-14], or modal shifts to active travel.[15-20] There was a wide range of outcomes included in the calculations such as premature mortality, disease incidence, traffic injuries and sickness absence. The quantified estimates ranged in values, but all found that there were substantial health savings to be made from increased physical activity. A 2024 study by Aldred[11] quantified the 20-year health economic benefit from the 'mini-holland' interventions in London, finding that the total health economic

	benefit was around 10 times the programme cost. Jarrett [16] found that by increasing the walking and cycling levels across England and Wales, there was potential for the NHS to save roughly £17 billion over 20 years, from a reduction in disease incidence of type 2 diabetes, dementia, depression, ischaemic heart disease, cerebro-vascular disease, breast cancer, and colon cancer.
Most studies suggest active travel interventions, especially those involving walking, have a positive impact on shop sales; other studies suggest there is no change. **A few studies suggest a negative impact on a small subset of car-related or large-home good businesses.**	Two reviews reported on the change in local shop sales following active travel interventions, referencing studies mainly in North America [21, 22]. The influence of the interventions differed depending on intervention and shop type, but largely indicated either positive or neutral effects on sales. Local businesses mostly experience either increased sales or no change following the installation of bicycle facilities (including when vehicle lanes are removed). However, there is evidence that vehicle related businesses & large home-goods stores may experience reduced sales. [21, 22] Pedestrianisation and increased pedestrian facilities are likely to create a positive impact on retail and food service sales. [21] Mixed interventions of both bicycle and pedestrian interventions found either neutral or positive impacts on sales. [21] One bike lane evaluation suggested that negative impacts on sales may decrease with time as local residents become more accustomed to the intervention. [23]
Limited evidence shows footfall generally increases following the introduction of active travel measures.	One review [24] reported an increase in footfall following the introduction of active travel measures. The review drew from evaluations of UK interventions that included improvements aimed at pedestrians (traffic calming, road crossings, pavement widening, street furniture) or improvements for cyclists such as installation of a dual-cycle carriageway (with reduced parking and a one-way motor access). A case-control study [25] in Canada found that following the installation of a bike line, there was a significant increase in food service/bar and retail stores that had over 100 customers per day. There was no significant impact found on other service-based businesses. They also found an increase in the monthly per customer spend after the intervention. Stantec Consulting [23] found that self-reported rates of shopping patterns found between 79-75% of visitors had not changed their shopping patterns following bike lane installations in Vancouver. Those visitors that had changed were visiting the streets on average between 3-11% less.
Active travel users are likely to spend more per month though less per trip than car users.	A 2021 review of US studies by Volker and Handy [21] suggests that cyclists and/or pedestrians spend more per month than motor vehicle drivers (spend per trip x amount of trips). This may differ depending on the specific stores, with motor vehicle drivers spending more on average at supermarkets than active travel users. [21, 26] Per-trip spending by travel mode was more mixed. Spending patterns differed across studies and store types. Volker and Handy [21] concluded that the per-trip expenditure of active travellers in urban centres and retail corridors was not consistently more or less than motorists. At supermarkets motorists reliably spent more than cyclists and pedestrians. [21] These US findings align with the results from a survey done by Sustrans [27] in three UK towns. They found that in car users spend more than active travellers on single journeys. However, over 1-month, active transport users visited local shops more often than car users and spent more in total. [27]

Following active travel interventions there are mostly positive, although some mixed, impacts on property values & rental rates.	Four reports (one case-study [28] and three reviews [14, 22, 26]) found mostly positive impacts on local property values following active travel interventions or in areas with high 'walkability'. Kornas [26] found that the positive effect applied to office and retail properties, but not industrial properties. A case study examined interventions to improve the streetscape and walkability of 5 streets in London. [28] It found an uplift in office and retail rental values in improved streets, although the interventions also aimed to improve the streetscape in general so this effect cannot be attributed directly to the walkability improvements. The evidence on residential property was more neutral. Carmona [28] found a negligible impact on residential values, while Kornas [26] identified multiple studies that found that walkability increased property prices. The review by What Works Centre for Local Economic Growth [22] found positive or neutral impacts on property (including residential) values following improved walking or cycling infrastructure, with two studies finding limited or no effects and two studies finding a positive effect. The review also found that walkability was associated with a positive impact on house prices in two studies, with one finding mixed results. [22]
No negative impacts on vacancy rates identified after active travel interventions.	Three studies examined the impact of active travel and walkability infrastructure interventions on vacancy rates. One study of bike lanes installation and removal of parking in Toronto found that the vacancy rates along the street remained steady, compared to the control street where they declined slightly. [25] A case-study of two streets in Vancouver that had bike lanes installed found that vacancy rates remained steady on one and decreased on the second street. [23] Carmona [28] looked at interventions to improve the streetscape and walkability in London, finding a decline in vacancy rates on the improved streets and creating a 17% per annum difference compared to the unimproved streets.
Employment effects show positive results but with less robust evidence.	There was a positive impact on employment with job generation from active travel infrastructure. A review by [26] using North American studies, found between 8-11 jobs generated are generated municipally for each $1 million spent on active travel infrastructure. [26] Only one study within the review estimated the number of jobs generated by type of infrastructure project, and reported that per $1 million, investments in cycling infrastructure generated the most jobs compared to road, pedestrian, or trail projects. These results are similar to those found by [27] which used data from two active travel infrastructure projects in Scotland and Wales, finding that 12.7 jobs were created for every £1 million of investment. Another benefit from the health improvements from active travel is a reduction in work absenteeism. [8, 14, 24] This is often included in the health benefits quantification, for example in the 2021 study by Aldred et al. where savings of reduced absenteeism account for 25% of the total health savings. [29] Supporting active travel can also have impacts on employment equity, with more accessible public transport increasing access to employment opportunities disabled and low-income adults who cannot use private vehicles and improving access to education and employment opportunities. [14]

Areas for further research

To strengthen the evidence base for local authorities, further research on the economic impacts of active travel infrastructure is essential, particularly within the UK context. Prioritising natural experiment studies, designed with robust pre-and-post intervention data collection, and incorporating tests for statistical significance, would greatly enhance the reliability of findings.

There was limited evidence on economic equity. UK-specific research exploring how active travel and public transport improvements affect economic equity is crucial. This should include examining how these changes impact accessibility, particularly regarding job access and potential economic benefits for specific population groups.

Methods

This rapid review was performed using light touch methods to gain a broad overview of possible local economic impacts. Detailed methodology can be found in Appendix C. AI literature search tools (Elicit AI [30]and Consensus AI [31]) were used to accelerate the search process, along with a Google Scholar search and relevant citation searching. A basic grey literature search using Google was used to try to identify any missing papers from the UK government (DfT) or local authorities. The question, along differently worded versions, was put into Elicit & Consensus. 212 unique references from Elicit and 262 unique references from Consensus were imported into EPPI Reviewer software [32], where duplicates were auto resolved. 13 additional reports were identified from Google Scholar and the direct Google search, with a further two from citation searching with Scite AI [33]. A total of 443 references were screened, with 26 reports (focused on reviews where available) referenced in the rapid review.

Relevant information was extracted manually with Elicit AI support. Evidence synthesis was done manually with the aid of Gemini AI. Gemini AI was used to assist with the write up of summaries and to proofread and refine written text. Quality assessment was not done formally due to the diversity and number of studies examined, although it was informally considered.

Limitations

Despite attempts to ensure no key papers were missed, it is possible that some relevant papers were missed due to the rapid nature of the search and use of AI tools. With the unknown nature of the algorithm for the AI searching tools, the search may not be reproducible, and it is possible that there is unknown bias introduced by the AI tool. The Google Scholar search aimed to help find any missing or uneven searches.

Much of the literature on the specific economic impacts comes from grey-literature evaluations, reviews and summaries that have not been through the peer-review process, potentially increasing their risk of bias. As we did not formally assess risk of bias or quality assessment, we cannot make any formal conclusions around evidence quality.

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