

Walking - The Bottom Line

Rodney Tolley, Howard Boyd

Abstract

There has been scant attention paid in research to demand-side measures of walking and little research has taken into account pedestrian profiles, motivations and lifestyles. Little is known about the economic impacts of walking, whether for the individual or the community - though intuitively it would seem that they are strongly positive in both cases. However, decision-makers are better persuaded by hard evidence. This paper reports on current research which attempts to provide data in this vital area. It is hoped that the results will provide a base for the development of robust and transferable evidence of the truth of John Robert's words, that 'a good physical environment is a good economic environment'.

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Introduction

Is walking good for your health? Of course. Is it sustainable? Compared with other modes of travel, it is the 'greenest' mode. Is it good value for money? That depends. This paper explores some of the issues concerned with establishing whether walking provides good value for money, and for whom.

There are many valid demands on public spending. It should be possible to show in an objective way whether it is better to spend money on encouraging walking than to invest it somewhere else. In short, there needs to be a consistent, fair and understandable method of comparative 'appraisal'.

This could be either 'financial' or 'economic' appraisal. Financial appraisal looks at the bottom line, the income or benefits minus the costs, for an individual or an organisation. This is not really relevant to transport provision where many of the costs, like road building and maintenance, are incurred publicly, while the benefits - easier journeys - are realised by individuals. Economic appraisal, on the other hand, looks at the whole picture, regardless of whether the organisation spending the money gets the benefits from it directly. This is the most relevant appraisal method for an investment to encourage or improve walking.

Elements which could be valued are shown in Table 1.

Table 1 Elements to be valued in an economic appraisal of walking

Costs	Benefits
<ul style="list-style-type: none">• Travel time• Shoe leather, wet weather gear• Accident risk• Personal security risk• Reduced access to services	<ul style="list-style-type: none">• Personal ('internal') savings from non-use of motorised transport eg. licence fees, fuel, fares. (Only a benefit if the walking trip replaced a motorised trip)• Environmental, social and other 'external' savings from non-use of motorised transport, e.g. congestion, air pollution, costs of maintaining roads. (Only a benefit if the walking trip replaced a motorised trip)• Social contacts with other walkers• Improved physical fitness• Predictable journey time

This paper takes the UK procedures for economic appraisal of transport projects as a starting point for a discussion of the costs and benefits of walking.

Transport cost benefit analysis

The UK Government requires transport schemes promoted by local authorities to undergo an appraisal procedure before receiving financial support from central funds.

This appraisal is partly quantitative - using estimates of money saved or spent - and partly qualitative, making judgements about the extent of the unquantifiable benefits or costs.

Until the 1990s, the appraisal system was heavily slanted towards schemes to benefit private motorised travel. Two computer programs, COBA and URECA (for inter-urban and urban schemes respectively) are provided to local authorities by the government, to enable them calculate the costs, benefits and return on investment for transport schemes and publish them in a consistent format. To use COBA or URECA, a separate computerised traffic model usually has first to be built and run, to provide the data on present and projected motor vehicle traffic volumes which COBA and URECA will turn into monetary costs and benefits. Largely because of the limitations of the initial modelling stage, they do not normally consider walking and cycling.

Under COBA and URECA, almost any scheme, which significantly saves drivers' time, is likely to show a positive Net Present Value, the economist's yardstick used to compare outcomes. With travel time costed at up to £13 (US\$18) an hour (at 1994 prices) it is easy for a scheme which eliminates traffic delays on a high-volume road to justify the necessary construction costs. In contrast to these apparently very precise figures, other costs and benefits which are not so easy to quantify, such as environmental and social costs, or changes to travel time for non-motorised travellers, were, until recently, largely ignored.

If it could be modelled and appraised in COBA, walking should come out well from any objective appraisal of transport economic efficiency. Walking needs little new infrastructure and user costs are minimal. For very short journeys its simplicity gives it a time advantage over cyclists and motorists who need to look for somewhere safe and convenient for their vehicles. If the appraisal could be extended to consider environmental and social costs, then the benefits of walking as a mode of transport would be even more apparent.

NATA and the appraisal summary table

Since 1998, a new approach to appraisal has been promoted by the UK government, not surprisingly called the New Approach to Appraisal (NATA). It is based around the 'Appraisal Summary Table' (AST), which aims to put all the economic, environmental and social costs and benefits of the investment being proposed on a single piece of paper.

The AST takes the five key objectives from the UK government's 1998 White Paper 'A new deal for transport' (DETR, 1998). These are:

- to protect and enhance the built and natural environment;
- to improve safety for all travellers;
- to contribute to an efficient economy, and to support sustainable economic growth in appropriate locations;
- to promote accessibility to everyday facilities for all, especially those without a car;
- to promote the integration of all forms of transport and land use planning, leading to a better, more efficient transport system.

Within these five objectives, the AST expects an impact statement for each of 21 sub-objectives as shown in Table 2.

Table 2 Sub-objectives for which impact statements are required in the AST

Objective	Sub-objective
Environment	Noise Local air quality Greenhouse gases Landscape Townscape Heritage of historic resources Biodiversity Water environment Physical fitness Journey ambience
Safety	Accidents Security
Economy	Transport economic efficiency Reliability Wider economic impacts
Accessibility	Option values Severance Access to the transport system
Integration	Transport interchange Land-use policy Other government policies

For most of the impacts it will not be possible to assign monetary or numeric values which have general consensus. Under 'biodiversity', for example, how much is one great crested newt worth if its habitat is threatened?

However, in all cases it should be possible to assign a score (a seven-point score from 'large positive effect' to 'large negative effect'). For some impacts, it may be possible to give a numeric value (eg. the number of houses adversely affected by traffic noise, the life years gained by regular exercise, the amount of CO₂ being emitted by vehicles), even though there is not, as yet, agreement on the monetary value of these indicators. Only for 'accident costs' and 'transport economic efficiency' (vehicle operating costs and the costs of people's travel time), are agreed monetary values available.

The authors of NATA stress that there is no implicit hierarchy of objectives. The AST is there to set out the impact of the plan or scheme on 21 different objectives. It is for politicians, professionals and the public to decide whether Scheme A with strong economic benefits but serious environmental impacts is to be preferred over Scheme B with the opposite.

Applying NATA to walking

NATA and the AST provide a much more useful framework for comparing the costs and benefits of motorised travel with walking and cycling than COBA alone. Schemes designed to encourage walking and cycling and so change the modal split may have an

effect on the economic efficiency of transport, expressed as the 'generalised cost' of total transport use. Walking has less operating costs than cars (just shoe leather?), but may have more travel time costs. The pattern of accidents may also change. NATA encourages a more in-depth investigation of these effects.

In the UK, there remain three significant problems in including non-motorised modes in the appraisal process with the same level of accuracy as motorised modes:

1. lack of reliable travel data for cycling and walking, eg. journey frequency, length, purpose, origin, destination, disaggregation of data into social class, age, household availability of a car, trip generation potential of specific activities or developments;
2. a need to agree a realistic valuation of the perceived costs and benefits of cycling and walking, including accident costs;
3. difficulty in using modelling to predict future cycling and walking traffic volumes, especially in a detailed traffic model.

Babtie, the CTC (Cyclists' Touring Club) and the Policy Studies Institute are developing an economic appraisal system for walking and cycling projects. The study is being funded by the UK Department of the Environment, Transport and the Regions and a charitable foundation, the Rees Jeffreys Road Fund.

The project is looking for agreed and consistent values of:

- The valuation of pedestrians' time. How is it different for working time, commuting and leisure time? Or for children and adults?
- The cost of traffic accidents. How should some of the costs of accidents to vulnerable road users be assigned to vehicles involved in the accident?
- Benefits of improved health and longer life from regular walking.
- Walking 'operating costs' where significant.
- Environmental and social costs (eg. air and noise pollution, severance) if they can be quantified.

From the research, a software package is being developed which will model walking and cycling over a given area and predict the new total transport cost for any change in the proportion of walking and cycling trips. Costs could be greater or lesser. Walking may take longer than car travel, and so have a higher time cost. On the other hand there could be user health benefits and less general air pollution.

Discussion

These methods may allow a more accurate assessment of the actual costs and benefits of walking. However, the key issue is of who bears the costs and who reaps the benefits, for on this will depend the decision on whether to walk for a particular journey.

By way of illustration, what interpretation should be placed on a high volume of pedestrians walking along a city street? At one extreme, this could be seen as an environment in which, *inter alia*:

- access is good ie. needed destinations are close by;
- the infrastructural conditions are favourable;
- climatic conditions are not unfavourable or can be dealt with;
- danger from assault or traffic is at an acceptable level;

- cultural and social conditions are favourable for all walkers, including women and children.

In other words dense flows of walkers are interpreted as evidence that people actively choose to walk, because of all the modes available to them walking best meets their needs. Such dense flows of pedestrians might be seen as a triumph of transport planning, the ultimate goal of which could be for everything to be accessible by a short walk.

An alternative interpretation might be that this is an environment characterised by the opposite of all of the above, overridden by the fact that the walkers are financially too poor to be able to exercise any modal choice. They are reluctant, even enforced walkers, who would rather use bicycles, buses, powered two-wheelers or cars but cannot do so. Walking does not meet their needs in any way, but is used as the mode of last resort.

In this case, such flows might be interpreted as evidence of failure of the transport planning system. Consider, for example, how many walkers in a Southern city would be better off with a bicycle, which would allow them to:

- access a larger labour market and increase job choice;
- access a larger potential market for the sale of goods or services;
- better access services such as health care;
- carry heavier loads over longer distances in a shorter time, reducing health damage through practices such as headloading and making more efficient use of limited food intake;
- have more time for social, economic and other activities as a result of time-saving on repetitive daily tasks such as collecting water or food shopping.

This problem of interpretation is complex because it involves the broad transport, economic and societal context, as well as individual walkers' motivations. Moreover, there has been very little research on utilitarian walking focused on why people walk. Generally, studies have shown that cost is not an important element in the decision to walk and that time/convenience and other factors are more important in the individual decision (National Consumer Council 1987, 1995; General Consumer Council for Northern Ireland, 1997). More recent research indicates that issues of image and lifestyle are key influences (Tolley *et al*, 2001) with everyday walking being seen as a low status activity increasingly confined to those people who cannot afford a car and therefore have no alternative.

The implication of this is that even if new and refined appraisal methods are able to demonstrate the individual economic benefit of walking, people may behave counter-intuitively (or non-economically) in selecting their travel mode. For these reasons, it may be that whatever the outcome of more sophisticated appraisal methods, focussing on the benefits to the individual may not be helpful. If the goal is to reverse the decline in utilitarian walking, it might be more important to demonstrate wider economic benefits to society as a whole or to particular communities.

John Roberts' pioneering work in this field (Roberts, 1988; 1990; TEST, 1988) was curtailed by his untimely death in 1992. Since then, pro-walking policies have become more commonplace as the benefits in terms of congestion relief, air quality and individual health have been realised. But it has not yet been possible to demonstrate to

politicians and other decision-makers the specific economic benefit to the city or community which results from implementing a pro-walking scheme. It is true that there has been research on the effect of pedestrianisation schemes, with studies suggesting that pedestrianisation has a positive effect on turnover, on house and land prices (Hass-Klau, 1990). But outside these wholly car-free spaces, there has been little research on walking and economic activity. There is a lack of robust demonstrations of what many intuitively suspect - that places where people like to walk benefit disproportionately from their spending activity.

At the level of the city as a whole, there is anecdotal evidence that accessibility and quality of life go hand in hand, so the city is more attractive to inward investment. For example, when cities are ranked according to quality of life, those with much walking (and cycling) are high on the list because they are healthy and have good air quality (Ice, 2000). Moreover, in walkable cities there is good customer retention for local shops: in the Netherlands, the town of Houten, with its high levels of cycling (and walking) has retail turnover 2.5 times higher per square metre than elsewhere in the country.

There may also be regional economic regeneration effects. For example, cycle tourism in Vermont is said to generate twice the income generated by the maple syrup industry. Research indicates that investment in cycle facilities and routes not only produces net economic benefits for a region but that these are more likely to be retained within the regional economy. It is estimated that La Route Verte, the 2000 km cycle network in Canada, will generate expenditure within the range of \$26m to \$31m when complete in 2005. Of this, approximately 10 per cent would be from new visitors attracted by the facility and 13 per cent from retention of existing domestic tourism. Nearly one quarter of the additional cyclists' spending in the Québec economy can be attributed to the overall appeal of La Route Verte as a tourism attraction in its own right, rather than being simply a transport network (Couture, *et al*, 1998).

These results relate to cycling rather than walking and to rural tourist networks rather than cities and so direct inferences cannot be made. Nevertheless, the parallels are encouraging. Both cycling and walking are sufficiently slow and flexible to allow their adherents to stop and spend *en route* more easily than can a car driver or bus passenger. Indeed, given their heightened awareness of the environment around them - of shops, window displays, stalls etc - walkers are more likely to notice the opportunities to spend. The key issue though is the improvement in the quality of the urban environment that results from a rise in the volume of walkers and a fall in the dominance of cars. It is that quality which one suspects will result in higher visitation levels and frequencies, longer dwell times, and higher levels of expenditure per head. In other words, to go back to John Robert's words, 'a good physical environment is a good economic environment'.

Conclusions

There has been scant attention paid in research to demand-side measures of walking and little research has taken into account pedestrian profiles, motivations and lifestyles. Little is known about the economic impacts of walking, whether for the individual or the community - though intuitively it would seem that they are strongly positive in both cases. However, decision-makers are better persuaded by hard evidence. The problem to date is that there has been very little data about walking and its linkages to the

economy, so there is a need for more information about the volume of walking in different zones, the composition of demand, the level of spending and the benefits accruing to the community from this activity. Evidence is emerging of the general economic significance of cycling to towns and cities and it is hoped that the project reported on here will provide similar insights for walking.

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