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The economic value of bus subsidy

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Abstract

Bus networks carry 4.7 billion passenger trips a year in England, around three times the total number of trips made on national rail. But although buses are the backbone of public transport in large urban areas, they are often ignored in national policy debates, which tend to focus on higher profile infrastructure investment. In this paper we draw attention to the economic value of public funding for bus networks by applying a comprehensive cost benefit analysis framework to estimate the effect of three revenue-based bus policy measures in the context of the six English metropolitan areas: free travel for elderly and disabled people, fuel subsidy and subsidy of non-commercial bus services.

We find that all three types of measure can have a Benefit Cost Ratio (BCR) in excess of 1. In the case of fuel subsidy and subsidy for non-commercial peak services this can be in excess of 3, which is higher than for many infrastructure schemes. We also find that a significant proportion of benefits accrues to other road users in the form of reduced congestion. This work addresses an important gap in the empirical evidence base and also serves to highlight to decision makers the mechanisms through which revenue funding generates social and economic benefits. We show, in particular, that bus subsidies can be a highly effective distributional tool in addition to generating considerable transport benefits. Our framework should be easily transferable and could therefore be of value to other researchers and practitioners.

Selection and peer-review under responsibility of Association for European Transport

Keywords: Public transport; bus subsidy; economic appraisal; transport policy

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1. Introduction

Many would agree that public transport networks make an important contribution to the economy (see, for example, APTA, 2014 or pteg, 2014). But buses are perhaps not the first thing that comes to mind when we think of how this economic contribution comes about. Yet, in most countries, bus services are the backbone of public transport networks. This is certainly the case in England, where buses carry 4.7 billion passengers each year, over three times the number using the national rail network.

Despite the large number of people who rely on bus services across England every day, government funding for bus networks outside London is in decline. We estimate that government funding for bus networks will have fallen by around a quarter in real terms, between 2010/11 and 2014/15 (pteg, 2014a), leading to increases in fares, and reductions in services and patronage. This is driven, at least in part, by a lack of understanding of the economic contribution of bus networks. Many believe that bus subsidy functions essentially as an income re-distribution mechanism and bus networks as a safety net for those without access to better alternatives.

The purpose of this paper is to challenge these views by articulating and quantifying the economic contribution of bus networks and of bus subsidy streams. We focus our analysis on the six English metropolitan areas outside London (where Passenger Transport Executives, or PTEs, have responsibility for coordinating public transport networks). Table 1 shows that these areas represent 44% of the bus market outside London (in passenger trips) and figure 1 shows that these are the areas where bus mode share for travel to work is at its highest.

The following section describes our approach to measuring the economic value of bus networks; section three provides a cost-benefit analysis of three key bus subsidy streams and section four concludes the article.

This article is based on the 2014 pteg report "The case for the urban bus: the economic value of bus networks in the metropolitan areas", which provides additional background information as well as a detailed description of the methodology employed in this work.

Table 1. Bus patronage and bus mileage (2011/12). Sources: DfT Bus Statistics TablesBUS0103, BUS0820, BUS0821, BUS0203, BUS0205

	Total trips (million)	Older & disabled concessionary trips (million)	Total bus network (million bus-miles)
Metropolitan areas (PTEs)	1,041	304	351
Shire and unitary areas (rest of England)	1,314	456	656
London	2,324	305	302
TOTAL	4,679	1,065	1,309

2. Measuring the economic value of bus networks

Our methodology for valuing the economic contribution of bus networks is rooted in welfare economics and the British cost-benefit analysis tradition. We attempt to measure (1) the economic benefits derived by users and (2) the economic benefits derived by non-users, including decongestion, agglomeration impacts, option and non-use values, and other externalities.

2.1. User benefits

Bus networks serve many different markets, each of which is likely to put a different value on bus services. In understanding and quantifying user benefits we have therefore segmented the bus market into homogeneous groups, which are expected to behave in a similar way and derive the same types of benefit. The other objective in developing this segmentation is to separate out parts of the network or user groups which benefit from different levels of public funding, which will be of use in section three. Table 2 shows the segmentation employed in this study.