



## Costs and benefits of employment transportation for low-wage workers: An assessment of job access public transportation services

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### ABSTRACT

This paper focuses on an evaluation of public transportation-based employment transportation (ET) services to transport low-wage workers to jobs in the US. We make an attempt to capture a more comprehensive range of intended and unintended outcomes of ET services than those traditionally considered in the case of public transportation services. Using primary data from 23 locations across the country, we present a framework to evaluate how transportation improvements, in interaction with labor markets, can affect users' short-run economic welfare, users' long-run human capital accumulation and non-users' short-run economic welfare. These services were partially funded by a specialized program – the Job Access and Reverse Commute (JARC) program – which was consolidated into larger transit funding programs by recent legislation. In the sites examined, we found that low wage users benefited from self-reported increased access to jobs, improvements in earnings potential, as well as from savings in transport cost and time. Simulations show the potential of users to accrue long-term worklife benefits. At the same time, users may have accrued changes in leisure time as a result of transitioning from unemployment to employment, and generated a range of societal impacts on three classes of non-users: the general tax-paying public, the general commuting public in the service operating area and other low-wage workers in local labor markets.

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### 1. Introduction

Evaluating the full costs and benefits of transportation is a complex task (Greene & Jones, 1997; Murphy & Delucchi, 1998; Shiftan & Shefer, 2009). Transportation investments are motivated by several factors, calling for the need to evaluate impacts using different metrics (Weisbrod, Lynch, & Meyer, 2009). Within this context, Lakshmanan, Nijkamp, Rietveld, & Verhoef (2001) brought together evidence from a broad body of literature relating to the nature, measurement and policy implications of benefits and costs of transportation. They noted (along with others) that in contrast to many other types of public investments, where often only “winners” and “non-affected” are involved, transportation investments are likely to cause some groups to be better off, while causing others to be worse off, and that the incidence of gains and losses may vary over space for different groups of interest.

In this paper, we consider the case of evaluating a sample of employment transportation (ET) services funded by the Job Access and Reverse Commute (JARC) program of the U.S. Department of Transportation, to transport low-wage workers to jobs or job-training. The evaluation attempts to reflect the above-mentioned considerations. Major potential barriers facing workers entering the low-wage market include skills mismatch, discrimination, lack of access to informal information networks and spatial mismatch (including lack of transportation). Research on spatial mismatch stimulated a discussion on the importance of transportation in the employment outcomes of low-wage workers (Ihlanfeldt & Sjoquist, 1998; Kain, 1968, 1992; Kain & Persky, 1969). Several authors presented empirical evidence of gaps between residential areas and employment opportunities (Thakuriah & Metaxatos, 2000; Bania, Leete, & Coulton, 2008; Coulton, Leete, & Bania, 1999; Hess, 2005).

The JARC program was instituted by the Transportation Equity Act for the 21st Century (TEA-21) of 1998 and was continued by its successor, the 2005 Safe, Accountable, Flexible, Efficient Transportation Equity Act: A Legacy for Users (SAFETEA-LU) until 2012. The program was motivated by an increased awareness of the mobility

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barriers experienced by low-wage, carless workers and by programmatic considerations following the passage of the Personal Responsibility and Work Opportunity Reconciliation Act of 1996 or the welfare reform act. At that time, a renewed emphasis was placed on the need for special transportation programs to assist in job accessibility and to improve the employment outcomes of low-wage workers. Recently, as a part of overall transportation program consolidation by the 2012 surface transportation legislation, Moving Ahead for Progress in the 21st Century (MAP-21), JARC was repealed as a stand-alone program and JARC-eligible activities are incorporated into federal urbanized and rural area transit formula programs.

The services considered in this paper were partially funded by the JARC program under TEA-21 and financially matched by other sources (including state and local human services and workforce development agencies, and private and non-profit organizations). ET systems are special public transportation services that connect low-income areas to job-rich areas, auto-loan programs, travel training programs, mobility information services, and other services that address the transportation barriers faced by low-wage workers.

The paper specifically evaluates ET public transportation services based on bus (Fixed-Route, FR) and van (Demand-Response, DR) services, using empirical data from 23 services located in different parts of the country in 2002. Between 1999 and 2002, the Federal Transit Administration (FTA) of the US DOT, spent approximately \$27 million on the program, and during 2002, close to 94% of all program funds were spent on such services. The program gave local organizations considerable flexibility in designing, targeting and administering programs that suit the local context. Distinguishing characteristics of the program as a whole were that the services are intended to fill gaps in existing transportation services and that services were to be designed by transportation agencies in partnership with workforce development boards, labor organizations, human services agencies and other public, private and non-profit organizations involved in planning, financing and operating such services, as part of a Coordinated Human Services Transportation Plan (FTA, 2007).

As noted by Thomopoulos, Grant-Muller, & Tight (2009) and Weisbrod, Lynch & Meyer (2009), incorporating equity considerations in the evaluation of transportation infrastructure has regained interest in recent years. Public transportation in general plays a social service role for individuals with no cars or with limited means to operate cars, including low-income individuals, persons with disabilities, young people and others (Lewis & Williams, 2000). However, ET services are required where traditional public transportation systems do not operate or are not cost-effective to operate. The motivation for these programs stem from the fact that without such investments, low-wage workers may face significant barriers to being employed, resulting in continued dependence on public assistance, unemployment benefits or other types of aid, lack of upward mobility, and potentially chronic or episodic poverty over a longer time frame, requiring other types of social services. A review of 140 studies of welfare reform by the author's research team revealed that transportation was consistently cited as being a barrier to employment, a reason for staying on public assistance, or a reason for quitting the latest job.

The paper is organized as follows: in Section 2 we present background information on the factors motivating the CBA framework. In Section 3, details on the methodology are presented, including data sources and the benefit and cost metrics considered. Results are given in Section 4. Conclusions are given in Section 5 and the major limitations of the approach are summarized in Section 6.

## 2. Background and motivation

The framework attempts to extend previous research on the economic evaluation of transportation investments in three major ways. First, while impacts of transportation investments are usually disaggregated by facility-type, area, trip purpose, mode of use and so on, there is no well integrated framework that allows a full consideration of the types of job placements generated by transportation services, and the associated real welfare gains. Second, while changes in travel times and associated benefits related to mobility are included in transportation program evaluations, other meaningful outcomes such as those experienced in labor markets are typically excluded from impact evaluations, since under the assumption of perfect competition in labor markets, the addition of these benefits to mobility benefits are expected to lead to "double counting" (an issue that has been studied in different ways by various authors, including, Boarnet, 2007; Jara-Diaz, 1986; Lakshmanan et al., 2001; Wheaton, 1977). Third, many of the benefits may take on the form of delayed consequences, as the stock of labor market consequences lead to incrementally gainful effects over time. Being able to access employment opportunities today may generate benefits over an entire worklife; however, workers are not well informed about these long-run effects. Under such circumstances, long-run effects take on the characteristics of externalities. To examine these worklife events, a dynamic framework is needed, which allow the consideration of mobility benefits that may accrue over time, in contrast to a single point of time.

The conceptual development of a CBA framework adopted to address the above considerations are motivated by the threefold issues of standing (whose benefits and costs matter for the purposes of evaluation), the timing of benefits and treatment of externalities, as described below.

### 2.1. Issue of standing

We consider three main groups with standing: (1) users of ET services to who benefits and costs accrue as a result of using the services; (2) non-users, which is the rest of society affected by the benefits and costs that accrue to the users; and (3) society, which is the sum of users and non-users. Several authors (for example, Baum, 2009; Gurley & Bruce, 2005; Lichtenwalter, Koeske, & Sales, 2006; Ong, 2002; Raphael and Rice, 2002) have considered the relationships between labor market outcomes such as employment status, wage rates, hours worked and benefits, and how these may be related to transportation options such as car ownership. ET program benefits, self-reported by service users (Thakuriah et al., 2006; 2011a) include increased access to jobs and placement in previously inaccessible jobs, improvements in earnings potential, the ability to work in more convenient or higher-paying shifts and overall reductions in commuting trip uncertainty and reduction in the perceptual barriers in accessing far-away or otherwise inaccessible job locations. Additionally, there may be long-term benefits to the user, of the type described below under "Timing of Benefits".

At the same time, in going from joblessness to work, users incur various costs, including transit fare and commuting time, which has a monetary value. Additionally, new workers may also forgo leisure time or time spent on activities that take place outside the labor market (Greenberg, 1997). Many of these activities (for example, various forms of home production such as child care, housework, home repairs, care to senior members within the household) may in fact be quite productive and have economic value. If an estimate of time spent in leisure is not introduced into the CBA, there is a possibility that the final net user benefit will be

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