



# Transit and job accessibility: an empirical study of access to competitive clusters and regional growth strategies for enhancing transit accessibility



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## ABSTRACT

This study looks at questions of regional transit job accessibility in an urban area making significant changes to its transit system. The study area is the Minneapolis–St. Paul (MSP) metropolitan region, which also has several initiatives to build/expand different *competitive economic clusters*—export-oriented, interconnected firms in the region. We analyze current transit accessibility to the existing clusters in the region and find significant sector to sector differences that highlight both the poor level of transit access to some economic sectors and the need of automobile ownership to be able to reliably access these jobs. Further, given changes that are being made to the transit system, we conduct scenario analyses and ask which population and employment growth patterns the region should follow to maximize transit accessibility for its residents. The results suggest that a strategy which focuses growth along transitways, particularly the growth of jobs along transitway corridors, will achieve the best regional transit accessibility gains. The research helps to bridge the separate bodies of literature on competitive clusters and transit, tests alternative land use scenarios to enhance accessibility, and investigates the importance of transit for jobs in regional competitive clusters.

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## 1. Introduction

The idea of using policy to build or strengthen what are called *competitive economic clusters* in regional economies has received increasing attention since the 1990s. Clusters refer to "...a geographically proximate group of interconnected companies and associated institutions in a particular field, linked by commonalities and complementarities" (Porter, 2000). They are seen as drivers of regional economies; they pay higher wages relative to the general economy, have faster wage growth, higher levels of creativity, and bring positive externalities to their regions (Porter, 2003). Many areas have pursued strategies to attract, create or expand these interacting sectors with an eye toward advancing their economic growth and competitiveness. The Minneapolis–St. Paul Metropolitan area, for example, has several initiatives currently underway that either work to expand clusters or further the interests of cluster industries.<sup>1</sup>

While the successful development of clusters is a win for a region, unequal access to jobs in these industries can have direct implications on who benefits from these successes. Discussions of cluster development however seldom address the question of equitable transportation access from the perspective of residents. Specifically, if cluster development is not informed by regional access considerations, those who are car-less or other disadvantaged groups can end up with significantly diminished opportunities in these industries. Coordinating cluster development efforts with efforts to concentrate these industries near transit accessible locations may help lessen the potential access gap that can be created when clusters are promoted without regional multimodal accessibility in mind.

This study looks at the questions of job accessibility by transit in a regional context where a transit system is undergoing several changes. The study area is the Minneapolis–St. Paul (MSP) metropolitan region. Given the advantages of cluster industries, the study starts by identifying the region's competitive clusters. We evaluate how jobs in general and cluster jobs in particular are served under the existing transit system. Further, given changes that are being made to the transit system, we conduct scenario analyses and ask which population and employment growth patterns the region should follow to maximize transit accessibility

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<sup>1</sup> Some examples include the MSP Regional Cluster Initiative, BioBusiness Alliance, High Technology Council, Robotics Alley, and Defense Alliance.

for its residents. We draw implications from the scenario analyses that are broadly applicable to other regions as well. This research helps to bridge the separate bodies of literature on competitive clusters and transit, tests alternative urban growth scenarios to enhance accessibility, and investigates the importance of transit for jobs in regional competitive clusters.

The relationship between transit and jobs has been a ripe area of policy and study. Transit has been suggested as one of the key solutions to problems of spatial mismatch between job opportunities and residences of disadvantaged population groups. Policies at the federal level have tried to address the needs of families moving from welfare to work through programs such as the Job Access and Reverse Commute (JARC) program, which funded fixed-route and demand responsive services that connect those seeking opportunities with jobs. The evolving urban growth patterns which have come to favor suburban environments also present challenges for connecting workers and jobs and this has reinforced the need for a private vehicle to ensure access to broader metropolitan opportunities. Policy efforts to attract and grow regional economies (such as the cluster approaches) offer opportunities for planning futures that can better address the worker–job connection through integrated land use and economic development initiatives. By influencing location decisions one can ensure better transit access choices, especially for disadvantaged and car-less households to sectors whose locations have thus far favored the automobile.

While research on transit and jobs rarely focuses on jobs in competitive clusters – in part due to the close association of clusters to high skilled workers – the concept of clusters can be made expansive to incorporate the variety of sectors that are linked through supply chains, knowledge sharing, and industrial class to the core industries of a region. Our approach is to focus on the regions' most competitive sectors while adopting a broad grouping definition for clusters that includes both export-oriented as well as local-serving sectors based on their existing trading relationships. Analyses that are based on all job categories are also performed.

The paper is organized as follows. The next section reviews the existing literature on jobs, workers and transit. That is followed in [Section 3](#) by a discussion of the local context in the Twin Cities region which discusses the changes the transit system is undergoing and identifies the regional competitive clusters. In [Section 4](#) we look at the location of cluster jobs and their current transit accessibility. That is followed in [Section 5](#) by a future scenario analysis to look at how accessibility may be enhanced in the region through land use and housing/population location strategies given a changing transit system. [Section 6](#) provides a summary and discussion of the findings.

## 2. Literature review

The literature on transit and jobs has largely evolved into three separate—yet related—bodies of research: one focuses on how transit services may provide workers' access to jobs, another on how transit may influence business location choice, and the third on how spatial distribution of jobs may influence transit use and transit system planning. Key findings from these bodies of research are summarized below.

### 2.1. Transit and workers' access to jobs

Whether public transit is an important mode of transportation getting people to work is an arguable question in the literature. Workers in the U.S. predominately (almost 90% of the workers) travel to work in privately owned vehicles, and the proportion of

workers who usually commute by transit has remained at about 5% since 1983 ([Santos et al., 2011](#)). However, public transit proponents have argued that these statistics could be misleading as they do not account for the fact that many locations in the U.S. offer no public transit services and thereby do not supply a public transit travel choice for workers ([Belzer et al., 2011](#); [Tomer et al., 2011](#)). In places with enhanced transit systems such as the cities in the San Francisco Bay Area, transit's share of the commute trip ranges from 10% to 40%—significantly higher than the national average of 5%. More generally, transit ridership is typically higher in urban regions with a strong CBD and more centralized development patterns ([Hendrickson, 1986](#); [Mierzejewski and Ball, 1990](#); [Meyer and Gomez-Ibanez, 1981](#)).

Public transit is also recognized as a much more important mode of transportation for low-income workers who do not have access to reliable private cars. Many researchers agree that public transit serves a key component in addressing poverty, unemployment, and uneven access to job opportunities ([Blumenberg and Manville, 2004](#); [Fan, 2012](#); [Rast, 2004](#); [Sen et al., 1999](#)). However, in reviewing the literature on transit's impact on employment outcomes of disadvantaged groups, only a few empirical studies find positive effects of transit accessibility on employment outcomes ([Kawabata, 2003](#); [Ong and Houston, 2002](#)), and many find little or no association between transit availability/quality and employment participation ([Bania et al., 2008](#); [Cervero et al., 2002](#); [Sanchez, 1999](#); [Sanchez et al., 2004](#); [Thakuriah and Metaxatos, 2000](#)).

When explaining the inconsistent evidence on transit's impact on employment, some researchers cite difficulties in determining the effectiveness of transit programs for influencing employment outcomes of disadvantaged groups, including no accepted performance measures and the inability to control for intervening factors affecting employability ([Sanchez, 2008](#)). Further, as low-wage workers benefit from increased job access, many purchase automobiles, ending their transit-dependency and increasing the difficulty of assessing the employment outcome impacts of transit systems ([Sanchez et al., 2004](#)). Many researchers also concede that inconsistencies in the literature partially reflect the ineffectiveness of U.S. transit services in meeting the needs of disadvantaged groups for job access ([Blumenberg and Manville, 2004](#); [Fan, 2012](#)).

### 2.2. Employers' demand for transit

Businesses in different industries prioritize different location factors including the consideration of commute-sheds and labor supply ([Holl, 2006](#)). [Laulajainen and Stafford \(1995\)](#) suggest that employers outside New York- or Los Angeles-scale megaregions cannot reasonably hope to draw on an area beyond 45–60 min travel time for non-executive positions. In the Chicago metropolitan area, [Kawamura \(2001\)](#) finds that firms' average distance to freeway interchanges decreased from 1981 to 1999, and that distances between firm locations in the central city and rail transit stations decreased as well over the same period. In Madrid, [Mejia-Dorantes et al. \(2012\)](#) find that the opening of a new rail transit line connecting previously poorly served suburbs led businesses to quickly reorient their location choices towards the new transit stations, in spite of a previous non-transit oriented built form.

It has been suggested that a high-quality transit network can allow employers to benefit from the clustering and agglomeration of people and businesses ([Tomer et al., 2011](#)). Such benefits, although widely discussed in the literature, have rarely been empirically demonstrated. A related body of empirical research exists focusing on businesses' "willingness to pay" for locations near transit, using changes in commercial property values near transit as a proxy measure of employers' demand for transit. Much research has found premiums for commercial property in rail transit station

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