JOBS, SOCIAL EQUITY AND GROWING TRANSIT SYSTEMS

A National, Empirical Inquiry

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ABSTRACT

Realizing maximum economic and social equity benefits from transit projects requires station area job growth. Two recent trends—increased interest in high-quality transit corridors among moderate-sized and non-coastal regions, and the rise of Bus Rapid Transit (BRT) as a complement to rail—complicate understanding of favorable conditions for station area job growth. This research examines job growth around new Light Rail Transit (LRT) and Bus Rapid Transit (BRT) stations from 2002 to 2012 using Longitudinal Employer and Household Dynamics (LEHD) data in 15 U.S. regions. To consider equity impacts, jobs are divided by sector/skill and wages. Five Poisson regression models estimate jobs per station area per year in each category as a function of transit mode, years post-implementation, built environment and metropolitan economic and population factors. LRT is a more consistent positive predictor of positive station area job change than BRT. The positive effects of LRT are strongest lower-skill service industry jobs and low wage jobs. Racial disparities unexplained by poverty appear in station area job growth.

INTRODUCTION

Transitways—premium-quality transit services with clear corridor identities and some form of fixed infrastructure—are playing an ever-increasing role in U. S. public transit systems. Transitways improve transit mobility by shortening journey times. They improve transit accessibility by expanding the area one can reach in a given amount of time *(1)*. Increasingly, though, transitways are being built in hopes of improving accessibility by creating destination-rich station areas. Station area job growth is crucial to improving accessibility *(2)*. This is especially true in the context of long-term job sprawl in U. S. metropolitan areas *(3-5)* where transit services to central business districts often benefit a limited fraction of workers. Additionally in many regions, important industry clusters have already formed suburban agglomerations *(6)*: businesses in such industries may desire transit access, but may prefer suburban locations due to requirements of proximity to trading partners, clients and appropriately skilled labor.

The employment accessibility that transitways provide can be a strong promoter of social equity if station areas contain jobs for which marginalized and transportation-disadvantaged workers are qualified. With high-quality transit frequently cast as an in-demand amenity among young, creative class professionals *(7)*, it is crucial to consider station area jobs from a social equity perspective, as well as from an economic and transportation efficiency perspective. In addition to considering different type of jobs, it is increasingly important to consider different types of transitways as well. The recent rise of Bus Rapid Transit (BRT), increasingly as a complement to better-known rail transit services introduces additional unknowns into the station area employment equation.

This paper explores station area employment around newly implemented Light Rail Transit (LRT) and BRT stations in 15 U. S. regions. It explores change in jobs over time, but is not primarily concerned with the empirical question of whether transitways directly cause job growth. Job growth in and of itself is a product of economic demand at the metropolitan or larger scale *(8)*. Rather, this paper proceeds from the normative assumption that a job attracted to, created or retained in a transitway station area is more socially valuable than a similar job elsewhere. It examines the local and metropolitan conditions that predict robust station area employment in a variety of sector and wage categories, with an eye to offering recommendations for creating station area conditions conducive to high numbers of transitway served jobs in a manner that enhances social equity.

LITERATURE REVIEW

Transitways can be powerful tools for increasing regional employment accessibility and, at the same time, promoting social equity *(1, 2)*. Accessibility benefits of transitways are contingent, however, on station areas with jobs in them. In fact, a high density of destinations appears more important in practice for promoting accessibility than high travel speeds *(9)*. Early results following the implementation of the first light rail line in the Twin Cities region suggest a net trend of jobs moving into light rail station areas, and of increasing commutes with origins in transit-served areas and destinations in station areas *(10)*. Other existing research on station area employment and economics, however, tends to take a relatively narrow, case-study approach *(11, 12)*, or to focus on commercial property values *(13-16)*. Both of these approaches offer valuable insight on transit's relationship to local economic development, but neither directly, broadly considers the most important outcome of it: jobs. As such, this research fills an important gap in knowledge by directly addressing station area job growth on a national scale.

Employment Decentralization

Popular conceptions of urban sprawl tend to focus on the uncoordinated, spatial expansion of residential development, but the parallel decentralization of employment locations—"job sprawl"—has been underway for decades *(3-5)*. Central cities generally retain more jobs than there are workers living in them—experiencing net inflows of commuters—but it is quite common for most of the workers in a given metropolitan areas to work in the suburbs: as long ago as 2001, Glaeser, et al found that only 22% of workers in the 100 largest U. S. regions worked within three miles (1.8 km) of their respective city centers *(4)*. In general, the farther from the central business district a job is, the less accessible by transit it is, and by a large margin. Recent research conducted by the Brookings Institution finds that, while roughly 76% of jobs in the 100 largest U. S. regions are in neighborhoods with at least some form of transit service, "The typical job is accessible to only about 27 percent of its metropolitan workforce by transit in 90 minutes or less" (emphasis added), finding low accessibility despite an exceptionally long cutoff time *(17)*.

"Smart growth" is ascendant in regional planning, but overly residential-focused urban revitalization can inadvertently exacerbate job sprawl by displacing productive industrial uses with upscale housing. This modern-day incarnation of urban revitalization can lead to especially severe job sprawl in one of the few sectors which still consistently pays living wages to non-college educated workers: though jobs in the manufacturing sector have undeniably declined in recent years, they continue to offer valuable work opportunities to less-educated workers *(18-20)*, and contribute to a metropolitan economy supporting employment for a wide variety of skill levels *(21)*. The common practice of aligning transitways in old rail corridors to reduce construction costs can constrain more upscale economic development opportunities *(22, 23)*, but might offer opportunities for industrial employers to escape central-city land speculation without suffering a decline of the labor supply access that is a significant benefit of such locations *(19)*.

Transitways and Economic Development

Existing research on the economic development impacts of transitways focuses on rail transit and commercial real estate development *(11, 24)*, business location decisions *(25, 26)* or commercial property values *(13, 27, 28)*. With few exceptions *(29)*, this body of literature finds a modest, yet significant positive effect of proximity to transit stations, as measured by development, location choice or willingness to pay. Although existing studies offer valuable evidence of transit having a positive impact on economic development, they have two major limitations: 1) none of these studies directly addresses station area jobs—arguably the most important indicator of transit stations' economic impacts; and 2) most studies focus on rail transit with very few studies focusing on bus rapid transit.

Specifically, in focusing on commercial real estate development and/or land values, existing studies hint at, but do not directly measure job growth *(8)*. Of course, it is an entirely reasonable assumption that 73% of all office development outside downtown, for instance, brings with it some growth in station area employment. Still, how much in net terms, in what sectors and at what wages are other matters, matters of considerable significance for equitable regional employment access. Based on their behavior, employers appear to perceive at least some benefits from locating near high-quality regional transit options. There is a need for research that engages directly with those perceptions and the motivations they create in order to design strategies for promoting equitable station area job growth.

Compared to research on rail transit, research specifically on the economic development impacts (or any kind of development impacts) of bus rapid transit is much less common. In a study of the East Busway in Pittsburgh, Pennsylvania, Wohlwill finds over $300 million in development within the busway corridor, despite overall population loss. In addition, development tended to cluster around busway stations *(30)*. Cervero finds strong station-area employment growth following full implementation of the OC Transpo BRT system in Ottawa, Ontario—as high as 73% of non-CBD office development in some years, speaking to the potential of transitways to act as the nuclei of new employment centers *(12)*. Resources such as these are the exceptions in the literature: articles on the economic development impacts of BRT overwhelmingly focus on Latin American and Asian systems which operate in very different economic circumstances and real estate markets *(31-33)*. Existing research on North American BRT systems focuses heavily on transit planning and operations, providing little direct insight into economic development impacts *(34-36)*. This lack of knowledge is problematic, as so-called Arterial BRT services appear likely to take on an increasingly important role in transitway development in the coming years, often complementing more regionally-focused light rail lines to provide high-quality local service while extending the reach of transitways to many more areas.

METHODS

The research approach compares job counts in 452 LRT and BRT station areas distributed among 15 regions in every year from 2002 to 2012, the only years for which Longitudinal Employer and Household Dynamics (LEHD) are available at the time of writing. (With one exception: the state of Arizona did not participate in the LEHD program until 2004.) Each observation represents one station area in one year.

Study Areas

The study focuses on 15 U.S. regions that implemented new LRT or BRT lines/stations between 2003 and 2010. This paper grows out of research conducted as part of the Transitway Impacts Research Program—a governmental-academic applied research collaborative in the Twin Cities of Minneapolis-Saint Paul, Minnesota. The 15 regions include the Twin Cities region and its 14 peer regions, as defined by the Metropolitan Council either for transit system performance comparison, or regional transitway investment level comparison (Hiniker, 2013, unpublished material). Although this geographic focus initially arose out of local needs, there are good reasons to maintain it for a more general analysis. The regions included are broadly comparable in size, density, economic conditions, transit demand and/or commitment to regional transit investments. In addition, this class of regions—major metropolitan areas, yet substantially smaller and more automobile-dominated than regions such as New York, Chicago or Boston—have recently come to lead the development of new, high quality transit projects. Their sizes and growth are sufficient to create significant transit demand, but their built forms are substantively different from those of large, coastal metropolises with legacy rail systems. This fact in particular calls for focused examination: regions in this class are likely to require more deliberate promotion of transit-oriented employment centers than larger regions where transit access was never not in demand by employers.

To specifically explore employment surrounding developing transit systems, the analysis considers only stations built from 2003 to 2010, allowing for at least one "before" observation and two "after" observations for every station area. These standards yield a total of six BRT regions and ten LRT regions *(37, 38)*.

Additional BRT Systems

Bus Rapid Transit can refer to a wide range of specific service features including (or not including) dedicated lanes, signal priority, off-board fare collection, high amenity stations, etc. This wide range of features makes BRT a highly versatile technology, but can complicate comparisons of one BRT service to another (or to light rail), as feature levels likely relate to impacts *(39)*. Due to the relatively small number of BRT systems available for analysis, the analysis also includes BRT lines in Eugene, Oregon *(40)*, and Las Vegas, New Mexico *(41)*. These regions particularly increase the sample of full-featured BRT lines with center-running, dedicated gudieways. (The only other such BRT service included is the HealthLine in Cleveland.)

Table 1 shows the transitway types included in the analysis, with BRT broken down by service type. Dedicated guideway BRT operates entirely or primarily in either an exclusive busway or physically separated, dedicated lanes. Median alignments are generally favored. Arterial BRT operates in mixed-traffic on primary, urban surface streets, with some combination of high-amenity stations, signal priority, queue-jump lanes, unique vehicles and differentiated branding.

Table 1 Transitway types

Region	Service
LRT	
Dallas-Fort Worth, Texas	DART
Denver, Colorado	RTD Light Rail
Houston, Texas	Metro Red Line
Minneapolis-Saint Paul, Minnesota	Metro Blue Line
Phoenix, Arizona	Valley Metro Light Rail
Portland, Oregon	MAX
Saint Louis, Missouri	Metrolink
San Diego, California	San Diego Trolley
San Francisco, California	Muni Light Rail
Seattle, Washington	Central Link Light Rail
Dedicated Guideway BRT	
Cleveland, Ohio	HealthLine
Eugene, Oregon	EmX
Las Vegas, Nevada	MAX
Arterial BRT	
Atlanta, Georgia	MARTA Q
Houston, Texas	Quickline Bellaire
Kansas City, Missouri	MAX
San Francisco, California	AC Transit 1-Rapid & 72-Rapid
Seattle, Washington	RapidRide

Note: MARTA discontinued BRT branding soon after the "post-implementation" observation of this study due to low ridership. The service continues to operate as a numbered, limited-stop route.

Units of Analysis

The geographic unit of analysis is the station area, defined by a half-mile (800m), network distance buffer around each station, with limited access highways excluded from buffer generation, so as to base station areas only on streets generally offering at least some level of pedestrian access. The buffers generated are non-overlapping: any area (and job) within one half-mile (800m) network distance of more than one station is always assigned to the closest station.

The final unit of analysis combines the spatial and temporal dimensions of the data. Each observation in the final data set represents the jobs in one specific station area in one specific year.

Job Categories

Not every job is available to every job seeker, and not every job is equally beneficial. For example, extremely high transit accessibility to high-paying white collar jobs is not particularly helpful to a transit-dependent person with a high-school education, unless it comes along with access to jobs that person is more likely to be qualified for. To account for the need for a balance of employment types in transitway station areas, this study separately considers jobs paying an annual wage of less than or equal to $40,000 and jobs paying an annual wage greater than $40,000, and jobs in three sector categories defined roughly by skill level and type of work: blue collar (low-skilled, productive), pink collar (low-skilled, service) and white collar (high-skilled, professional). Slightly less common in the popular imagination than "blue collar" and "white collar", "pink collar" identifies a growing segment of the economy that is differentiated from traditional blue collar employment, and includes generally low wage jobs disproportionately filled by women. Table 2 shows a crosswalk from 2-digit NAICS codes to the broad "collar color" skill/work type categories *(42)*.

TABLE 2 Sector categories

US-NAICS	Sector description	Low-skilled		High-skilled
		Product-ion	Service	
11	Agriculture, Forestry, Fishing and Hunting	X		
21	Mining, Quarrying, and Oil and Gas Extraction	X		
22	Utilities	X		
23	Construction	X		
31-33	Manufacturing	X		
42	Wholesale Trade		X	
44-45	Retail Trade		X	
48-49	Transportation and Warehousing	X		
51	Information			X
52	Finance and Insurance			X
53	Real Estate and Rental and Leasing			X
54	Professional, Scientific, and Technical Services			X
55	Management of Companies and Enterprises			X
56	Administrative and Support and Waste Management and Remediation Services			X
61	Educational Services			X
62	Health Care and Social Assistance			X
71	Arts, Entertainment, and Recreation		X	
72	Accommodation and Food Services		X	
81	Other Services (except Public Administration)		X	
92	Public Administration			X

Regression Analysis

The job, transit service, built environment and metropolitan population and economic data form the basis of five Poisson regression models, one for each sector and wage category. Poisson regression fits a nonlinear model of count data—nonnegative data describing the prevalence of a discrete event expressed as an integer—using an intensity parameter determined by the covariates in the model *(43)*. Jobs are a prime instance of a count variable: no station area can ever have less than zero jobs, nor can it have a fractional number of jobs. The models are clustered by station, to adjust standard errors and p-values accounting for the interdependency of observations from different years in the same station area.

The response variable for each model is the number of jobs in the sector or wage category in question in one station area in one year. Table 3 lists the explanatory variables included in each model.

TABLE 3 Variables included in regression analysis

Variable	Measures	Expected Coefficient
Years open	The number of years from the opening of the station to the collection of the observation.	+
LRT*	Binary variable identifying stations served by LRT.	+
Dedicated guideway BRT*	Binary variable identifying stations served by full-featured BRT with a dedicated guideway.	+
Arterial BRT*	Binary variable identifying stations served by arterial BRT.	+
2003-2012	A set of binary variables identifying the year each observation was collected. 2002 is omitted as the reference category.	Mixed
Mean household size	The mean household size in the station area as of the 2000 Census.	-
% Black	The percentage of station area residents identifying as Black, non-Hispanic as of the 2000 Census.	-
% Asian	The percentage of station area residents identifying as Asian, non-Hispanic as of the 2000 Census.	-
% Hispanic	The percentage of station area residents identifying as Hispanic (regardless of race) as of the 2000 Census.	-
% households <150% poverty	The percentage of station area households living on less than 150% of the Federal poverty standard as of the 2000 Census.	-
Population density	Station area population (in people per square mile [2.6 km^2]) as of the 2000 Census.	+
Metro population density	Metropolitan population density (in people per square mile [2.6 km^2]) as of the 2000 Census.	+
Metro jobs in category	Total metropolitan jobs in the wage/sector category in question as of the year of observation.	+
% category jobs in central city	Percent of metropolitan jobs in the relevant wage/sector category located in the central city as of the year of observation.	+
Miles from CBD	The airline distance in miles (1.6 km) between the station and the central business district.	-
Miles from next station	The airline distance in miles (1.6 km) between the station and the nearest other transitway station.	+

*Each of these variables is also interacted with Years Open.

RESULTS

Table 4 shows the results of the five regression models. All models include 4,725 observations, and produce pseudo R^2's ranging from 0.36 to 0.5. Due to their non-linearity, Poisson regression models are most conveniently interpreted using Incidence Rate Ratios (IRR's) as opposed to raw coefficients. Incidence rate ratios describe the percentage change in the response variable associated with one unit change in each explanatory variable. Values greater than one indicate positive coefficients; values less than one indicate negative coefficients. Incidence rate ratios allow for a direct, practical interpretation of any one explanatory variable. Those variables, however, have widely differing units and ranges, making comparisons of magnitude between variables impossible based on IRR alone. Standardized coefficients, which here describe the percentage change in the response variable associated with one standard deviation change in each explanatory variable, allow for direct comparisons between variables. Standardized coefficients for each model are listed in Table 4 in columns labeled “e^β*x”.

The years after opening variable is statistically insignificant in all five models. The binary variables identifying transitway modes produce a mixture of results: LRT and/or its interaction with Years Open is significant and positive in all five models—most notably for pink collar and low wage jobs, where both base and interaction terms are significant and positive. This pattern indicates a step-change in jobs associated with light rail, as well as a continuing, annual increase in jobs. For example: for pink collar jobs, the base term’s IRR of 1.226 indicates that, as a group, LRT station areas in years following implementation have 22.6% more jobs than they did in years before implementation. In addition, the base term’s IRR of 1.052 indicates that LRT station areas gain additional pink collar jobs at a rate of 5.2% per year following implementation. Low wage jobs show a similar pattern, though with somewhat smaller IRR’s of 1.153 (base) and 1.046 (interaction). Only LRT’s base term is significant for blue collar jobs, showing an overall positive before/after difference in jobs, but no further annual increase. For white collar and high wage jobs, only LRT’s interaction term is significant, indicating no step-change in high status jobs, but positive annual growth in the out years. The base terms are never significant for either BRT mode considered. Dedicated guideway BRT produces a positive interaction for white collar and high wage jobs, while Arterial BRT does likewise for pink collar, blue collar and high wage jobs.

All three racial variables are significant and negative for all but the blue collar jobs model, for which only the percentage of Black residents is significant and negative. The percentage of Black residents is also invariably the strongest negative predictor of all three racial variables considered. The percentage of households living below 150% of the Federal poverty standard, however, is consistently significant and positive, suggesting that any equity issues arising are more racial than economic. Average station area household size is significant and negative in all five models, while station area population density is significant and positive for all models except blue collar jobs.

None of the year dummy variables is significant in any of the models, a potentially surprising result given that the study period includes the Great Recession. As one would expect, however, total metropolitan jobs are a consistent positive predictor of station area jobs, indicating that transitway station areas were not affected by the recession any differently than the regions containing them. Metropolitan population density, however, is insignificant. Miles from the central business district is consistently significant an negative, with IRR’s indicating 16% to 25% fewer jobs for every mile (1.6 km) of distance from the central business district, and standardized coefficients identifying it as the single strongest negative predictor of station area jobs in all five

TABLE 4 Poisson regression models

Response Variable:	**Pink Collar**		**Blue Collar**		**White Collar**		**Low Wage**		**High Wage**	
	N	4725	N	4725	N	4725	N	4725	N	4725
	Pseudo R^2	0.4035	Pseudo R^2	0.3605	Pseudo R^2	0.4733	Pseudo R^2	0.4523	Pseudo R^2	0.5042
Explanatory Variables:	**IRR**	**e^bStdX**	**IRR**	**e^bStdX**	**IRR**	**e^bStdX**	**IRR**	**e^bStdX**	**IRR**	**e^bStdX**
Years open	0.937	0.775	1.029	1.121	0.986	0.947	0.978	0.915	0.983	0.934
LRT	1.226**	1.090	1.442***	1.168	1.049	1.021	1.153*	1.062	1.151	1.062
LRT*Years open	1.052**	1.092	1.049	1.086	1.068***	1.120	1.046*	1.082	1.069*	1.122
Dedicated Guideway BRT	1.020	1.005	0.712	0.912	1.272	1.067	1.094	1.025	1.299	1.074
Ded. Guideway BRT*Years open	1.060	1.058	0.989	0.990	1.091**	1.087	1.054	1.052	1.096*	1.091
Arterial BRT	0.866	0.938	0.785	0.898	1.152	1.065	0.925	0.966	1.148	1.063
Arterial BRT*years open	1.079***	1.165	1.084***	1.175	1.033	1.067	1.037	1.076	1.068*	1.142
2003	1.070	1.019	0.959	0.988	1.007	1.002	1.013	1.004	1.006	1.002
2004	1.045	1.013	0.868	0.960	0.945	0.984	0.963	0.989	0.921	0.977
2005	1.082	1.023	0.802	0.938	0.905	0.972	0.954	0.986	0.866	0.959
2006	1.075	1.021	0.661	0.887	0.869	0.960	0.904	0.971	0.802	0.938
2007	1.132	1.037	0.613	0.868	0.821	0.945	0.900	0.970	0.727	0.912
2008	1.159	1.044	0.573	0.851	0.754	0.922	0.868	0.960	0.656	0.885
2009	1.148	1.041	0.582	0.855	0.719	0.909	0.837	0.950	0.647	0.882
2010	1.161	1.044	0.540	0.837	0.687	0.897	0.829	0.947	0.603	0.864
2011	1.149	1.041	0.472	0.805	0.613	0.868	0.790	0.934	0.520	0.828
2012	1.166	1.045	0.425	0.781	0.589	0.858	0.780	0.931	0.480	0.809
Mean household size	0.979***	0.881	0.981**	0.891	0.975**	0.860	0.980***	0.885	0.973***	0.846
% Black	0.094***	0.539	0.137***	0.595	0.115***	0.569	0.126***	0.582	0.097***	0.543
% Asian	0.127***	0.770	0.120	0.765	0.195**	0.813	0.205***	0.818	0.119***	0.764
% Hispanic	0.199***	0.754	0.582	0.910	0.084***	0.649	0.197***	0.753	0.101***	0.67
% households <150% poverty	3.438*	1.210	9.344**	1.412	4.245*	1.250	3.653**	1.221	6.285**	1.328
Population density (people/mi^2)	1.000*	1.314	1.000	0.893	1.000***	1.247	1.000**	1.232	1.000**	1.18
Metro pop. density (people/mi^2)	1.000	1.011	1.000	1.100	1.000	1.049	1.000	1.067	1.000	0.991
Metro jobs in category (10K jobs)	1.020***	1.501	1.040***	1.867	1.020***	1.754	1.010***	1.504	1.020***	2.058
% category jobs in central city	0.329**	0.866	0.386***	0.876	1.497	1.055	0.840	0.978	0.962	0.995
Miles from CBD	0.841***	0.434	0.883***	0.548	0.759***	0.265	0.833***	0.414	0.755***	0.258
Miles from next station	1.110	1.100	0.917	0.924	1.062	1.056	1.069	1.063	1.042	1.038
Constant	1104.839***		416.826***		2389.600***		2020.183***		2267.536***	

*p<0.1; **p<0.05; ***p<0.01

models. This trend may reflect the extremely high job densities common in central business districts, with sudden drop-off's immediately outside. The percentage of regional category jobs located in the central city is significant and negative for pink and blue collar jobs, indicating such jobs may be more easily attracted to suburban station areas.

The model results paint a picture of station area jobs influenced by a combination of underlying regional factors, transit mode and service characteristics and local socioeconomic conditions. The final section draws conclusions from these results and makes recommendations to maximize station area jobs.

CONCLUSIONS

The results highlight the importance of fixed infrastructure in determining transitways' relationships to local economic conditions. Light rail and/or its interaction with years since opening is significant and positive in every model, consistently demonstrating positive change in LRT station area jobs after rail implementation. Both BRT modes are considerably less consistent, though Arterial BRT's interaction term is significant more often than Dedicated guideway BRT's is. When it is significant, the standardized coefficients for Arterial BRT's interaction show it to be the strongest single modal variable, though generally very close to LRT, and never with the significant base term produced for LRT by three of the models. The differences in station area jobs found here may not justify the selection of LRT as a transitway mode on their own, but they do offer one compelling piece of evidence for the value of rail where it is appropriate. This is not to say that robust employment is impossible in BRT station areas, or that BRT lines are a necessarily bad public investment from a local economic development perspective—fewer jobs for lower capital costs may be a fine bargain to strike in some cases. It is to say, however, that large numbers of station area jobs likely require more direct intervention from the public sector in BRT station areas.

This fact may be cause for concern: Lower costs of implementation are a common reason for selecting BRT as a mode. Intensive local economic development efforts surround LRT projects are often prompted by the need for "a billion-dollar investment [...] to have a billion-dollar impact" *(44)*; such an urgency may not be felt by local policy makers around a lower-cost project. This research, however, suggests that urgency should, if anything, be greater for BRT station areas.

The opposite effects of percentages of minority residents on the one hand and percentages of low-income households on the other raises serious racial equity concerns. The fact that high concentrations of low-income households are associated with more jobs in station areas, while high concentrations of minority residents—particularly Black residents—are associated with fewer jobs suggests minorities have less access direct, local access to new station area jobs. The regional accessibility offered by transitways may mitigate this pattern, but further exploration of this disparity is an important avenue for further research.

Considering social equity from another perspective, the strength of the positive changes found in LRT stations for pink collar and low wage jobs—both of which are disproportionately likely to be held (or sought) by transportation-disadvantaged workers—show potential for light rail as an important promoter of social equity. This pattern also runs counter to common narratives of rail transit as primarily serving affluent, suburban commuters. This research suggests the opposite, at least in terms of new jobs attracted to station areas.

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