

# **Transportation as a Determinant of Employment Outcomes**

## Dissertation summary

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This thesis examines how access to transportation affects labor market outcomes, particularly for less-skilled populations.

The first chapter explores whether owning a car increases an individual's probability of employment. Previous studies using OLS estimates have found a positive relationship between car ownership and employment outcomes. However, OLS estimation does not account for the possibility of a common underlying factor which could influence both employment and car ownership (such as motivation or ability), or the possibility of reverse causation (i.e., having a good job allows one to accumulate the capital necessary to purchase a car). This chapter addresses these causality issues by using state-level gasoline taxes and auto insurance rates to instrument for car ownership, purging the car ownership variable of the effects of employment outcomes or underlying factors such as motivation, so that the causal effect of car ownership on employment can be measured. The state-level instruments are appended to the Survey of Income and Program Participation (SIPP). Standard estimation procedures lead to understatement of the standard errors when instruments vary between but not within groups; therefore, since this chapter uses state-level instruments, a Feasible Generalized Instrumental Variables (FGIV) Estimator is utilized to obtain appropriate standard errors, using a method similar to random effects. OLS regressions indicate that owning a car yields a 16.8 percentage point difference in the employment rate. The Two Stage Least Squares specification yields a slightly smaller estimate of a 14.6 percentage point difference in the probability of employment due to car ownership, significant at the 5 percent level. (In the first stage regression, gas taxes and average insurance premiums have a significant negative effect on the probability of owning a car.) The effects of car ownership on employment decrease as imputed earnings increase, indicating that car ownership is more important for less-skilled workers.

The second chapter investigates whether the density of public transit routes within a city affects employment outcomes. City characteristics are included in the specification to avoid erroneously attributing significance to transit route density because of correlation with some other city-level variable which affects employment. In addition, random effects are included to avoid overstating precision of the estimates. Detailed transit data calculated from the National Transit Database are appended to individual-level SIPP data along with other city characteristics. In a sample covering 62 small and mid-size cities, transit route density does not have a statistically significant effect on the probability of employment for the general population. However, for those with no college education, transit route density has a positive effect on employment, significant at the 5% level. For this low education sample, a ten percent change in transit route density is predicted to increase employment by roughly three tenths of a percent (.27%), as compared to an increase of 1.72% expected from a ten percent change in the rate of car ownership. When the transit variable is disaggregated by mode, bus and vanpool route densities are found to have a significant positive effect on employment for the low education population, while commuter rail and light rail do not. The sample is augmented with data for 14 larger cities with less accurate transit data. With this larger sample, transit route density has a positive effect of approximately the same size for both the low and high education groups, significant at the 5% level. The large sample results indicate an increase in employment of sixth tenths of a percent for a ten percent change in transit density.