

SPATIAL ECONOMETRIC ANALYSIS OF HIGHWAY AND REGIONAL ECONOMY IN MISSOURI

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ABSTRACT

The dissertation consists of four chapters: first, highway and economic development; second, spatial effects of highways and employment in Missouri; third, highway and industrial establishment in Missouri; finally, simultaneous spatial model of highway-employment for economic growth in Missouri. Spatial econometric methods are used in order to investigate the relationship between highways and regional economy.

The first chapter shows that the reduced transportation cost due to highway improvements makes production and distribution efficient, and has good effects on economies of scale, specialization and cost reduction. As for the second chapter, interstate highways in Missouri don't have positive effects on employment growth. The variable of mileage of road with four lanes has significantly negative sign but two lanes show insignificantly negative sign and it of surrounding counties has insignificantly positive sign. Spatial autoregressive coefficient (ρ) is significantly positive. In the third chapter, the spatially autoregressive coefficients (LAMBDA) show all significantly positive. Highway investments have insignificant negative effects on firm establishments in all models. Highway investments of neighboring counties are significant negative. This result doesn't provide evidence that highways have positive effects on regional economy related to firm establishments in Missouri. With respect to the fourth chapter using a simultaneous highway-employment spatial econometric model, the coefficients on the highway variable of population is statistically significant positive and others are insignificant. Spatial lag coefficients on manufacturing and population are significantly positive. The employment of retail trade depends on the population in the neighboring counties, and the county population relies on the employment of retail trade and wage positively in the neighboring counties. The results show that highways in a county have negative effects on employment growth of manufacturing and retail trade. But highways in a county are important factors in attracting the population in Missouri. Highways in Missouri may serve as firm amenity to increase wages rather than household amenity to increase labor supply.