Evaluating Impact of Infrastructure Investment on Regional Labor Markets

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Abstract: This paper examines the effect of road transport infrastructure improvements on inter-municipal commuting intensity in the Czech Republic over the decade 2011–2021. Using linked census data on car-based commuting flows across more than 79,000 origin-destination municipality pairs and network-based travel time estimates derived from OpenStreetMap via the Open Source Routing Machine (OSRM), we estimate first-difference OLS models that relate changes in normalised commuting intensity to absolute changes in road travel time, conditional on pre-existing commuting linkages and a set of push-pull controls. We find that a one-minute reduction in travel time raises car-based commuting intensity by approximately 0.12 to 0.17 car commuters per 1,000 economically active residents, with the effect consistent across intra-regional and intra-district subsamples. Heterogeneity analysis reveals a pronounced gender asymmetry: the travel time effect is negative, sizeable, and statistically significant for female commuters in all specifications, while it is statistically indistinguishable from zero for male commuters in the pooled national sample. Education-stratified results show that secondary-educated workers drive the aggregate effect, whereas workers with only basic education do not respond to infrastructure improvements and highly educated workers exhibit insignificant results. Stratification based on industry exhibited statistically significant results especially for primary and secondary sectors. The findings imply that the labour market returns to road investment are population-specific and context-dependent, with infrastructure serving as a partial equaliser of labour market access primarily for women and workers in manufacturing occupations.