



USDOT Region V Regional University Transportation Center Final Report

NEXTRANS Project No. 059PY03

The Regional Economic Impacts of Bypasses: A Longitudinal Study Incorporating Spatial Panel Econometrics and Multilevel Modeling

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TECHNICAL SUMMARY

NEXTRANS Project No. 059PY03

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Title

Transportation and Socioeconomic Impacts of Bypasses on Communities: An Integrated Synthesis of Panel Data, Multilevel, and Spatial Econometric Models with Case Studies. The title used at the start of this project was “Transportation and Socioeconomic Impacts of Bypasses on Communities: An Integrated Synthesis of Spatial Econometric Methods and Agent-Based Simulation”. The revised title reflects the methods used during the project and the findings that resulted.

Introduction

This paper will describe an integrated approach to documenting and quantifying the impacts of bypasses on small communities, with a focus on what economic impacts, if any, occur, and how these impacts change over time. Two similarly sized communities in Indiana, a subset of twelve communities analyzed in a previous report (Fricker and Mills 2009), will be discussed in this report. One of these communities has had a bypass in place for 40 years, and the other community has been a candidate for a bypass for several years. The socioeconomic impacts on the community with the bypass will be documented in terms of (1) the decisions made by public officials as learned through case study interviews, and (2) the changes in employment in various industry sectors, as quantified by the development of random effects statistical models. The long-term impacts and lessons learned concerning the bypassed community will then be used to offer suggestions on how communities could benefit from a bypass. The integrated approach of combining case studies with advanced statistical methodologies was found to be helpful in painting a clearer picture of how communities with bypasses were impacted.

Findings

The policies implemented by public officials following the opening of a bypass were found to play a key role in the type and magnitude of long-term impacts. Wabash refocused its downtown around the popular Honeywell Center and implemented TIF districts to attract and retain industry. The city of Warsaw has maintained its dominance in the orthopedics industry, which, according to local officials, may have left the city had the US-30 bypass not been built. Washington, like Warsaw, renovated historic downtown buildings and capitalized on the local tourism and entertainment industries. In Huntington, the implementation of a pedestrian mall failed to improve its downtown, and local politics and community sentiments have hindered industrial development.

The impacts of bypasses on the downtown areas of these small- and medium-sized communities cannot be easily captured by statistical models alone, due to aggregation data, a by-product of Census disclosure laws limiting the availability of local, more disaggregate data, and due to the difficulty in identifying and quantifying the decisions made in the past by public officials. Even with these downsides, the statistical models have largely confirmed the claims made by public officials interviewed for this study. The combination of the county-level and ZIP Code-levels, in conjunction with the case study interviews, have shown that bypasses can have positive and statistically significant economic impacts on communities. The panel data and multilevel models showed significant variance over space. The panel data models and the multilevel models indicated that between-county and between-ZIP variance accounted for a considerable portion of the overall model variance. The spatial econometric models identified significant negative spillover effects and indicated that spatial autocorrelation is present at the ZIP Code level.

Columbia City has experienced significant growth in employment since the opening of the US-30 bypass, although this growth may have come at the cost of a declining downtown. Angola may be able to handle the problem of heavy truck traffic using the proposed traffic calming measures, but should a bypass be built, public officials should be prepared to implement effective land use policies that can help stimulate growth in employment while maintaining the downtown area's economic vitality. The statistical models show that there are significant economic impacts and that these impacts change over time. Multiple methods – multilevel models, spatial econometric analysis, panel data analysis – yielded the same results. Bypasses, over time, will lead affected areas to contribute more to the state's economy, both at the county and ZIP Code levels. Bypasses, in short, will provide the public with an opportunity to expand the local employment base, although these impacts may not be realized for many years.

The lessons learned from case study interviews should be considered by public officials of communities with proposed bypasses. For Boonville, access to the bypass, once it has opened, should be controlled, in order to prevent the loss of mobility that occurred in Warsaw due to retail development. Retail activity in all four bypassed communities profiled declined, due both to retail consolidation (which played a bigger role in the decline in Washington than the bypass) and more convenient access to the bypass. Community officials in Boonville should take steps to prepare for a similar decline in downtown retail activity.

Recommendations

The long-term impact of a bypass on a community is largely dependent on the policies enacted by local officials. A bypass's primary *raison d'être* may be to divert through traffic from city streets unable to handle large volumes of traffic, but from a local official's point of view, the combination of enhanced mobility (which lowers transportation costs, a key selling point for attracting basic industry) and newly accessible land provides an opportunity for growth. Local officials may choose to implement land use controls and public investments that favor development along the bypass, beginning with basic industry and followed by retail development. With limited access to/from the bypass, mobility is maintained,

satisfying state DOT interests, while the new facility can generate new employment and more tax dollars, which satisfies local interests.

Other issues should be considered for communities with proposed bypasses. Local officials should be consulted to determine the status of the city or county Comprehensive Plan and the plans for downtown and outlying areas once the bypass is constructed. If a bypass is not warranted, local officials should have a “backup plan” for dealing with increased downtown traffic volumes, particularly if safety is an issue. Local land use and zoning policies should ensure that development does not impede mobility. The views of local businesses and residents should also be considered.

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