Joint Transportation Research Program

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SPR-3504 2012

Socioeconomic Forecasting

Introduction

Because the traffic forecasts produced by the Indiana Statewide Travel Demand Model (ISTDM) are driven by the demographic and socioeconomic inputs to the model, particular attention must be given to obtaining the most accurate demographic and socioeconomic forecasts.

The Regional Economic Models, Inc. (REMI), model, which was customized for the state of Indiana, is the fundamental tool employed by Indiana Department of Transportation (INDOT) to provide long-range socioeconomic forecasts that are used as inputs to the ISTDM. In the recent development of its 2035 long-range plan, INDOT attempted to use the REMI model for the long-range socioeconomic forecasts. For Indiana's large manufacturing sector, the REMI forecast for employment was extremely pessimistic, predicting that total employment would not return to 2007 levels until 2035. Instead, INDOT used a forecast from Woods and Poole, which showed a short-term employment reduction, followed by modest levels of employment growth extending to 2035.

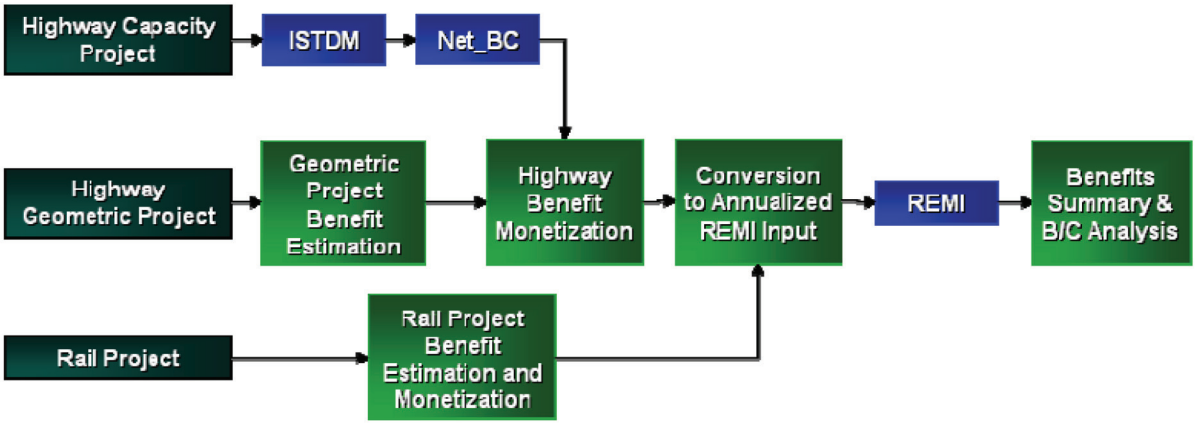
The use of the REMI model as the INDOT simulation tool to test policy alternatives raised two concerns: (1) can REMI long-range socioeconomic forecasts be used as inputs to the ISTDM, and (2) does the REMI model outperform alternative economic impacts models that INDOT could select to meet its needs.

The objective of this research project was to review REMI's socioeconomic forecasting process and assess the appropriateness of using REMI forecasts/output within the INDOT planning process. Specific objectives included the following:

- Review INDOT's current REMI socioeconomic forecast relative to the most recent economic data.
- Evaluate the quality of REMI economic model output compared to forecasts from other available economic impact analysis models.
- Recommend what models might be used as economic forecasting tools to meet INDOT forecasting, economic impact assessment, and other research and planning needs.
- Develop a plan for creating an expert panel for INDOT to assess the extent to which economic forecasts are consistent with what is happening in the Indiana economy.

Findings

- The REMI models are consistent with the state of the practice in forecasting and impact analysis. A REMI model, like its competitors, is vulnerable to the trends contained in the historical data it uses, especially recent trends. After the most recent periodic update in data, the performance of the REMI PI+ model improved, that is, it produced long-term forecasts that were more credible.
- Transportation infrastructure appears to be a necessary, but not sufficient, condition for generating economic development. Transportation infrastructure has a varying degree of significance on a firm's likelihood of locating in a specific area, combined with four other factors: labor, markets, fiscal, and agglomeration.
- A case study served as a reminder that a single transportation improvement project—even a major one—is not likely to have economic impacts at the statewide level that are significant. Because REMI operates at the state level, significant impacts at the local and corridor level do not show up without special efforts at post-processing the REMI results.



- Indiana University's Center for Econometric Model Research (CEMR) is capable of conducting economic impact analyses, with local knowledge of the Indiana economy, at a cost lower than REMI's. However, INDOT would have to verify that confidence in a CEMR economic impacts analysis of transportation projects is justified.

Implementation

This study has confirmed that REMI is a model that uses standard methodology and, when using historical data that reflects long-term trends, REMI produces forecasts of employment and income that are suitable for use in INDOT's ISTDM.

The study has also identified an alternative source of such forecasts. Indiana University's CEMR is affiliated with the Indiana Business Research Center (IBRC). The CEMR model is an econometrics model, and tends to be more accurate as a predictive model. Its forecasts can be used to adjust REMI employment forecasts for the state of Indiana, because they are built upon the knowledge of local economists. The CEMR can customize its forecasts to meet the needs of INDOT's ISTDM. Because both REMI and CEMR can provide reliable information needed by INDOT for its ISTDM, INDOT can decide whether to continue its established relationship with REMI or begin to work with in-state CEMR, based on factors such as cost and responsiveness.

In cases where the credibility of data, forecasts, and/or impact analyses needs to be verified, an INDOT version of an expert panel could be convened. A proposed structure for an expert panel is outlined in the report.

Recommended Citation

Xiong, Y., J. D. Fricker, K. T. McNamara, and J. W. Longley. *Socioeconomic Forecasting*. Publication FHWA/IN/JTRP-2012/05. Joint Transportation Research Program, Indiana Department of Transportation and Purdue University, West Lafayette, Indiana, 2012. doi: 10.5703/1288284314664.

View the full text of this technical report here: http://dx.doi.org/10.5703/1288284314664

Published reports of the Joint Transportation Research Program are available at: http://docs.lib.purdue.edu/jtrp/

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