



Project Number

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Economic Analysis Framework for Freight Transportation Based on Florida Statewide Multi-Modal Freight Model

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Current Situation

Freight transportation plays a vital role in Florida's economy at all levels. The Florida Department of Transportation (FDOT) reported that annually, more than 700 million tons of freight move throughout the state. With over 180 million tons of import freight and over 80 million tons of export freight, Florida is the second largest foreign trade zone in the U.S. These goods represent hundreds of billions of dollars in value. Yet, despite these significant flows of goods, the value that freight contributes to Florida's economy is not well measured by current methods, which are focused at the project level and do not effectively comprehend larger scale impacts. This must be addressed if transportation planners are to understand how investments in Florida's freight infrastructure will benefit the economy.

Research Objectives

University of Florida researchers developed an economic analysis framework and models to estimate the impacts of freight-related projects and investments on the economy at different levels.

Project Activities

In a wide-ranging literature review, the researchers examined current state-of-practice in economic analysis of freight transportation in the U.S., some European countries, and Australia. They reviewed several prominent freight models, including RIMS II, REMI TranSight, IMPLAN, and especially the Florida Freight Supply-chain Intermodal Model (FreightSIM), an unconventional model developed and validated in recent years to account for Florida's very diverse, multimodal freight system.

With insights gained in the literature review, the researchers developed a framework that integrates FreightSIM and regional economic models (Input-Output models) to quantify the economic impacts of freight. The framework itself is based on the Transport Economic Development Impact System (TREDIS), and the researchers present a series of case studies to demonstrate the workflow of TREDIS and explore its adaptability to different real-world cases.

The researchers used the framework to develop software called the Florida Freight Transport Economic Impact Kit (FTEIK), which performs regional economic impact analysis based on FreightSIM and a regional Input-Output model. They demonstrate the use of FTEIK in two case studies. The first case study involves a hypothetical expansion of I-10 in FDOT District 3, which includes all Florida counties west of the Aucilla River. The second case study examines an idea to improve interstate highway capacity by adding lanes to the Florida Turnpike in Miami-Dade County. The researchers provide a user's manual for FTEIK in the project report.

Project Benefits

Improved methods of analyzing the needs and impacts of freight transportation on the economy and the impacts of infrastructure improvements on freight transportation will promote a more efficient and cost-effective transportation system.

For more information, please see www.fdot.gov/research/.



Florida's economy depends on the movement of millions of tons of freight by land, sea, and air.