Economic Losses in Mississippi Caused by Disruptions in Transportation System: an Enhanced Simulation Combining Geospatial, Freight and Census Data Analysis

1 - The SERRI Initiative and DRIADS project

This South Region Research Initiative (SERRI) project aims to explore the positive effects of combining Homeland Security issues with regional transportation infrastructure decision-making and economic development strategies within the State of Missisippi. The SERRI Initiative collaborates with a diverse group of researchers and stakeholders to identify critical infrastructure deficiencies and information gaps within the region. The project employs an integrated modeling approach that combines demographic and transportation analysis and modeling systems with policy and decision making. This new generation of modeling capabilities has significantly improved regional transportation system resilience.

2 - Study Area and Scenarios considered

This work is an exercise developed for the entire State of Mississippi. The study area includes all major transportation infrastructure, including bridges and road networks. This exercise uses the model to test the impact of transportation disruptions on the economic resilience of the state. The results illustrate the importance of transportation infrastructure to the economic well-being of the region. The scenarios considered include the impact of a major transportation disruption on the economic resilience of the state. The results highlight the importance of transportation infrastructure to the economic well-being of the region.

3 - Interoperating Re-Routing and Regional Economic Models

Mississippi’s economy is traditionally based on rural activities and harbor, however, large manufacturings and small businesses have been settled in the state in the recent decades. The diversity of industries is evidenced through the economic activities of the different counties. From economic perspective, the State of Mississippi presents signs of change compared to the historical standards. The study area employs a model of transportation network systems to show the potential economic impacts of transportation disruptions on the economic well-being of the region.

4 - Geoprocessing: Railroads, LandCover and Economics

A GIS linking and transportation geoprocessing analysis by modeling. Transportation Census and LandCover dataset is used to understand the spatial-temporal correlation existing. Landcover products used is in local industry, the local high-capacity transportation systems (bridges primarily, and economy).

5 - Analyzing Regional Economic Impacts

Using the BIM model to analyze the Gulf Coast Region, the economic analysis determines the economic development and climate resilience to the transportation infrastructure. The BIM model is used to identify the vulnerable transportation networks and prioritize the regions that are most likely to be affected by transportation disruptions. The results of the analysis provide a framework for understanding the economic impacts of transportation disruptions on the regional economy. The results identify the regions that are most likely to be affected by transportation disruptions.

6 - Portraying Economic Distress

In this study, the economic impacts are those initiated by the changes of the economic distress status of the regions. The definition of the economic distress status is derived from the Public Works and Economic Development Act of 2011, which is a public law that defines areas of extreme economic distress. Economic distress areas are identified according to five criteria:

- LOW FDI CAUTIA INCOME: The area has a per capita income of 60% or less of the national average.
- UNEMPLOYMENT RATE PET BOR Substance Abuse: the area has an unemployment rate that is at or above the most recent 24-month period for which data are available. The area has a per capita income of 60% or less of the national average.

The results of the analysis provide a framework for understanding the economic impacts of transportation disruptions on the regional economy. The results identify the regions that are most likely to be affected by transportation disruptions.

- 10 * 10: Economic distress area as of the results of the analysis.
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**Scenario (1)** was used to measure economic distress resilience of the coastal counties using regional economic models.