How well are we doing relative to other States?

Interstate Highway Bridge Spending and Performance Comparisons across the States of the Union

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INTRODUCTION

- U.S. Department of Transportation and the General Accountability Office are engaged in oversight and accountability of state highway agencies.
- There is a need for regular systemwide monitoring of transportation infrastructure condition in response to highway expenditures.

OBJECTIVES

- Need to identify high performance and low performing agencies
- Poor performance of agency could be due to:
  - Work culture
  - Poor design/construction
  - Poor materials
  - Corruption
  - Etc.
- Provide basis for recommendations for agency performance enhancement

VARIABLES

- Strength factors:
  - Total expenditure per ft² of deck
- Stress factors:
  - Traffic (truck) loads
  - Climate severity (Freeze-thaw index in deg-days)

RESULTS

- Highest performers (Little spending per ft², high deck condition, high truck traffic, severe climate)
  - Colorado, Minnesota, Indiana, Ohio, Wisconsin, Wyoming, California

- Lowest performers (High spending per ft², low deck condition, low truck traffic, mild climate)

STATISTICAL DATA

DISCUSSION

- Key assumptions:
  - (a) NBI data with the data spanning of 2000-2012
  - (b) 1 degree-day of FI and 1 truck have equivalent effects on deck damage
  - (c) Zero scale economies of expenditure effects on damage remediation. (Therefore, 1 $/ft² in small state has same repair effect as 1$/ft² in large state)

SUMMARY & FUTURE WORK

- The framework and results shows how oversight agencies can increase the overall accountability of individual highway agencies
- Offer plausible explanations of the observed differences in the resulting overall bridge condition across the states.
- Using lagged panel model specifications
- Considering site-specific design variables
- Identifying the stability of ranking
- Relaxing the assumptions
- Extend the work to superstructure and substructure