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**.

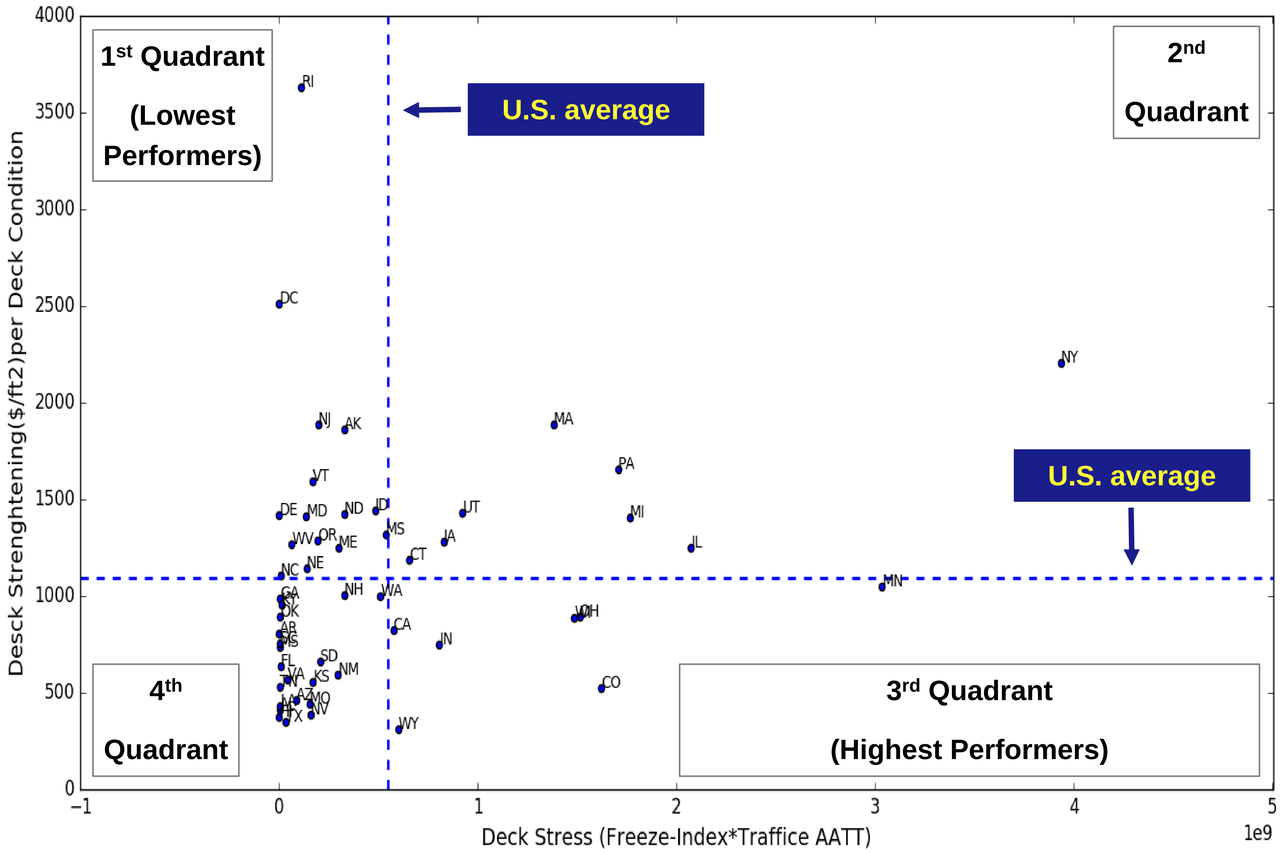
OBJECTIVES

- 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 ft^2 of deck
- Stress factors:
  - Traffic (truck) loads
  - Climate severity (Freeze-thaw index in deg-days)

STATISTICAL DATA



Expenditure, area of the bridge, deck condition vs. freezing index and ADTT

(Average values for 2000-2012)

RESULTS

- **Highest performers** (Little spending per ft^2, high deck condition, high truck traffic, severe climate)

  Colorado, Minnesota, **Indiana**, Ohio, Wisconsin, Wyoming, California

- **Lowest performers** (High spending per ft^2, low deck condition, low truck traffic, mild climate)

  New York, Idaho, Connecticut, Illinois, Massachusetts, Utah, Michigan , Pennsylvania

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 $/ft^2$ in small state has same repair effect as 1$/$ft^2$ 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

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