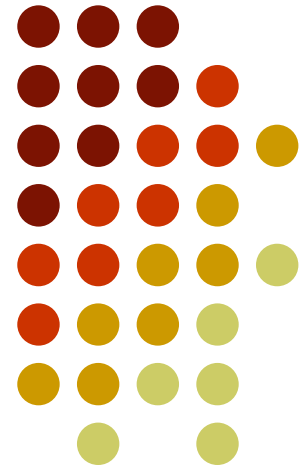


Usage

Dr. Kazuya Kawamura

University of Illinois at Chicago
Urban Transportation Center



Usage data types

- **Link data**

Objectives:

- Develop the data set that covers the entire study area
- Provide input to the capacity analysis

- **O-D data**

Objectives:

- Identify key characteristics of freight movement (national, regional, state)
- Set the "crude" boundary for the growth over the next 20 years

Outline of the presentation

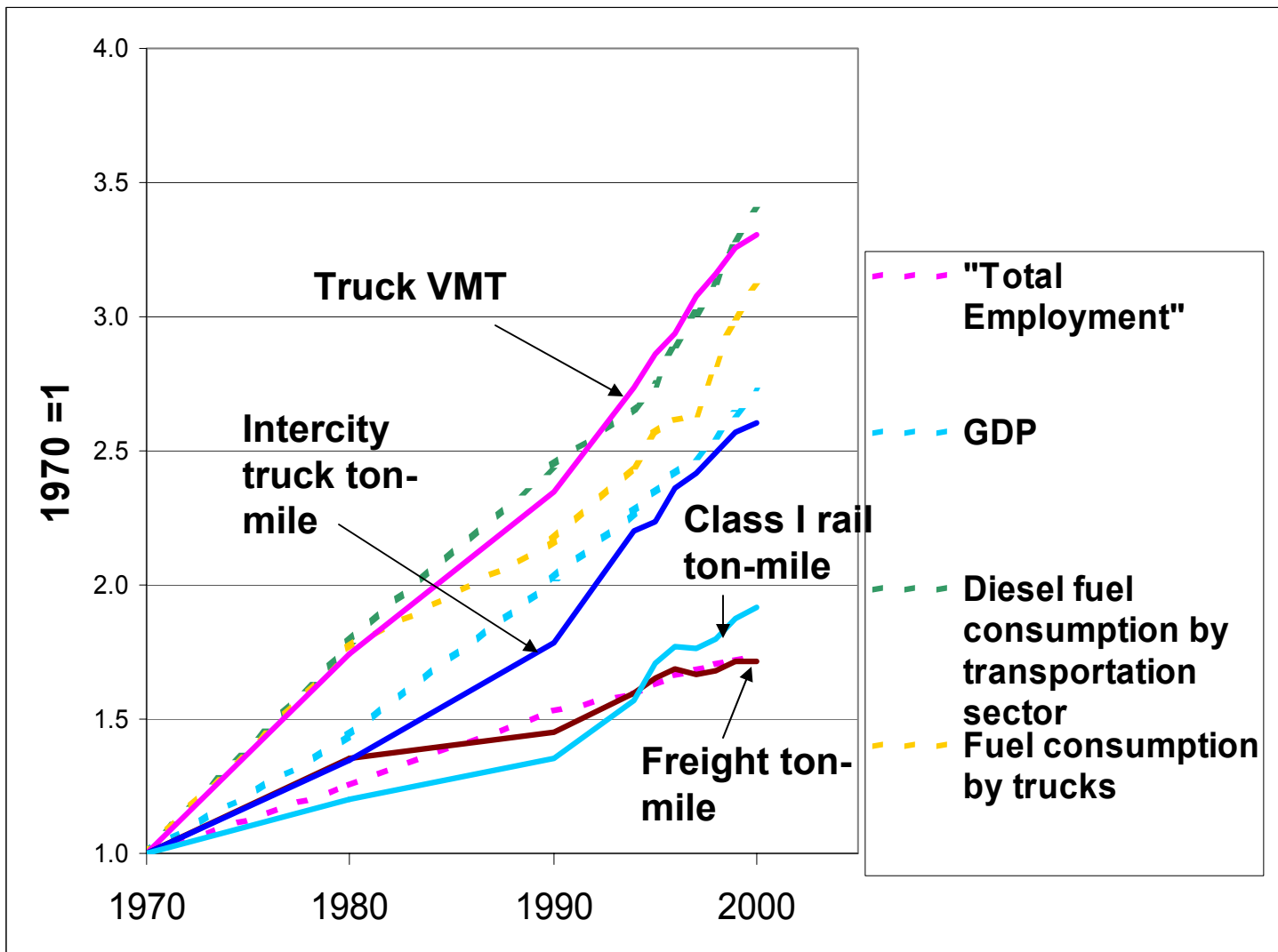
- **"Big-picture" analyses**
 - Past trends and long-term projections
 - Economic development and freight

- **Opportunities**
 - Intermodal (rail-truck)
 - Regional approach

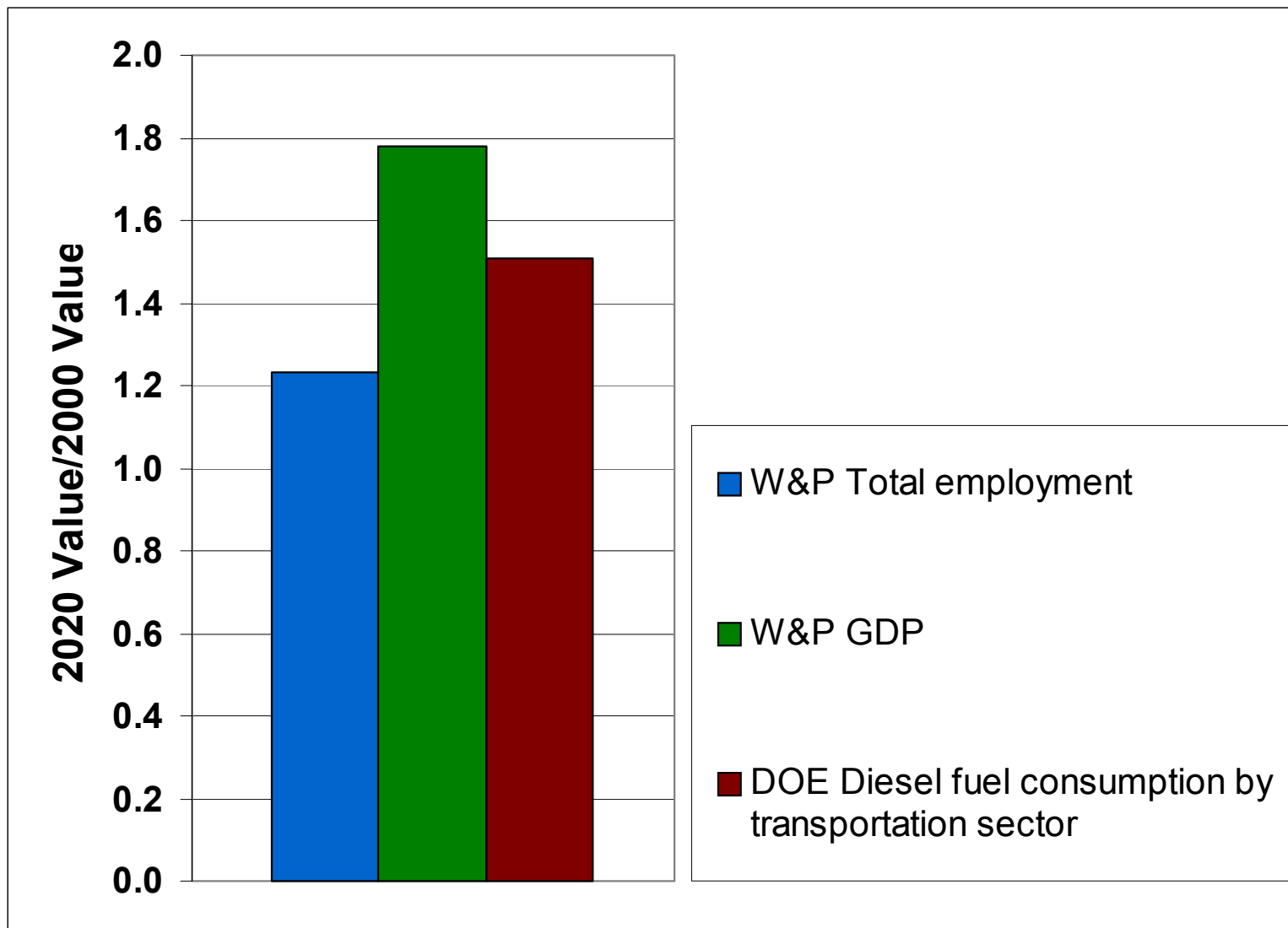
Past trends and long-term projections

- A crude analysis, trying to determine the realistic boundary for the growth over the next 10 ~ 15 years

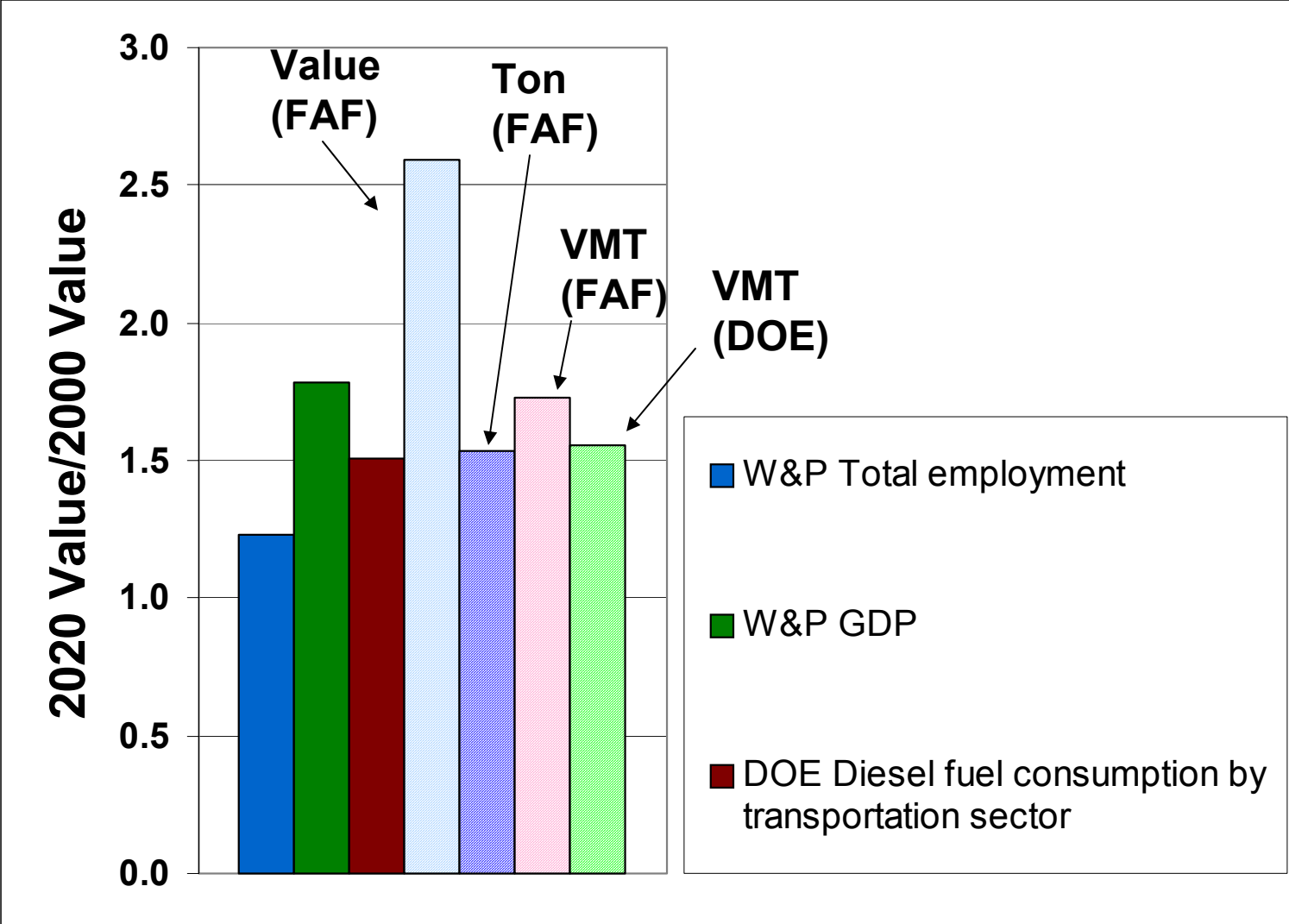
US freight activity and indicators (1970-2000)



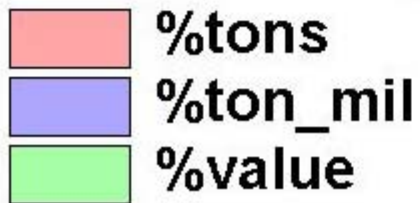
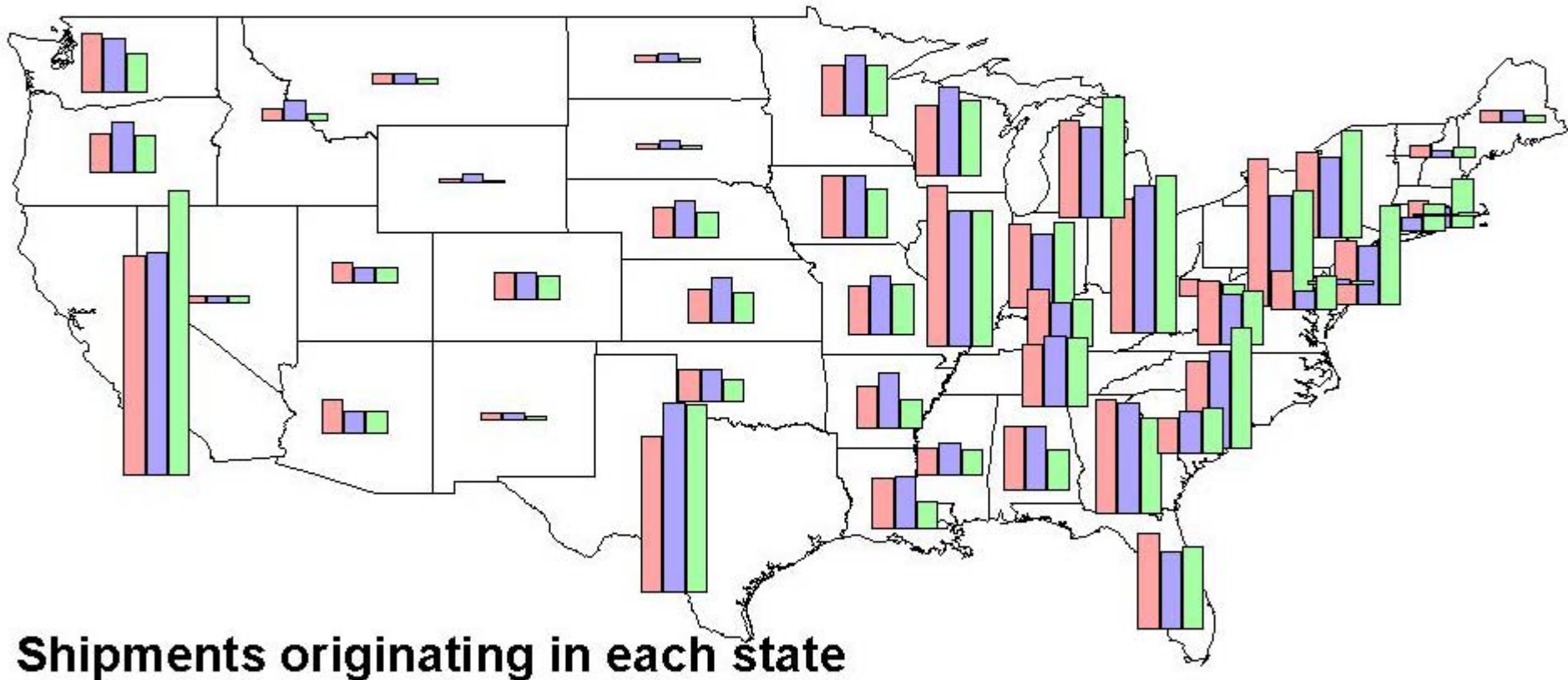
Expected increase in economic indicators (2000-2020) - National forecasts



Comparison of expected growth (2000-2020) National forecasts

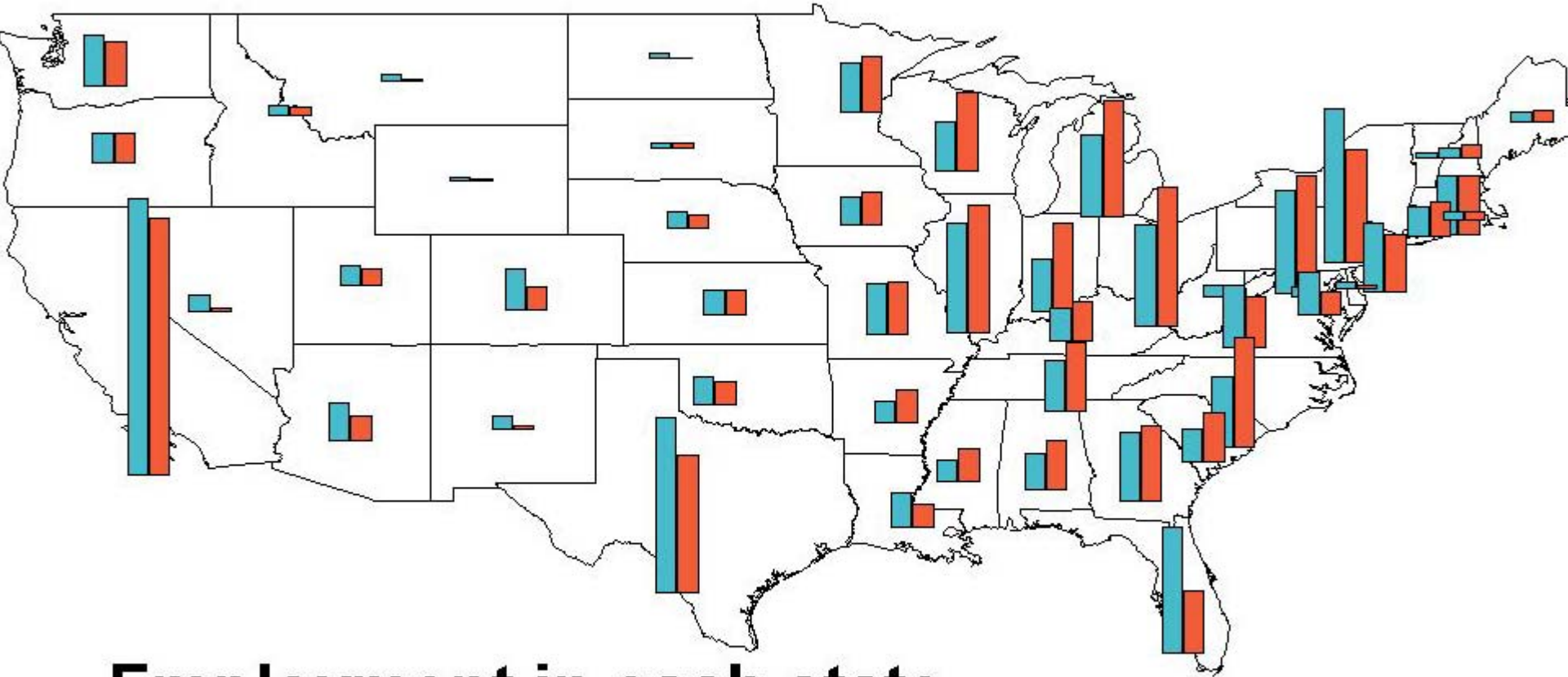


Distribution of freight activities (1997)

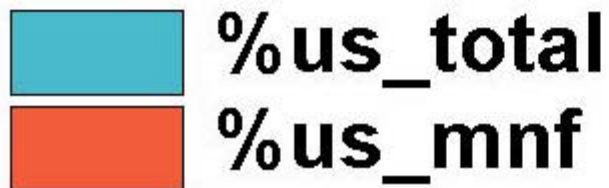


Source: 1997 CFS

Distribution of employment (1997)

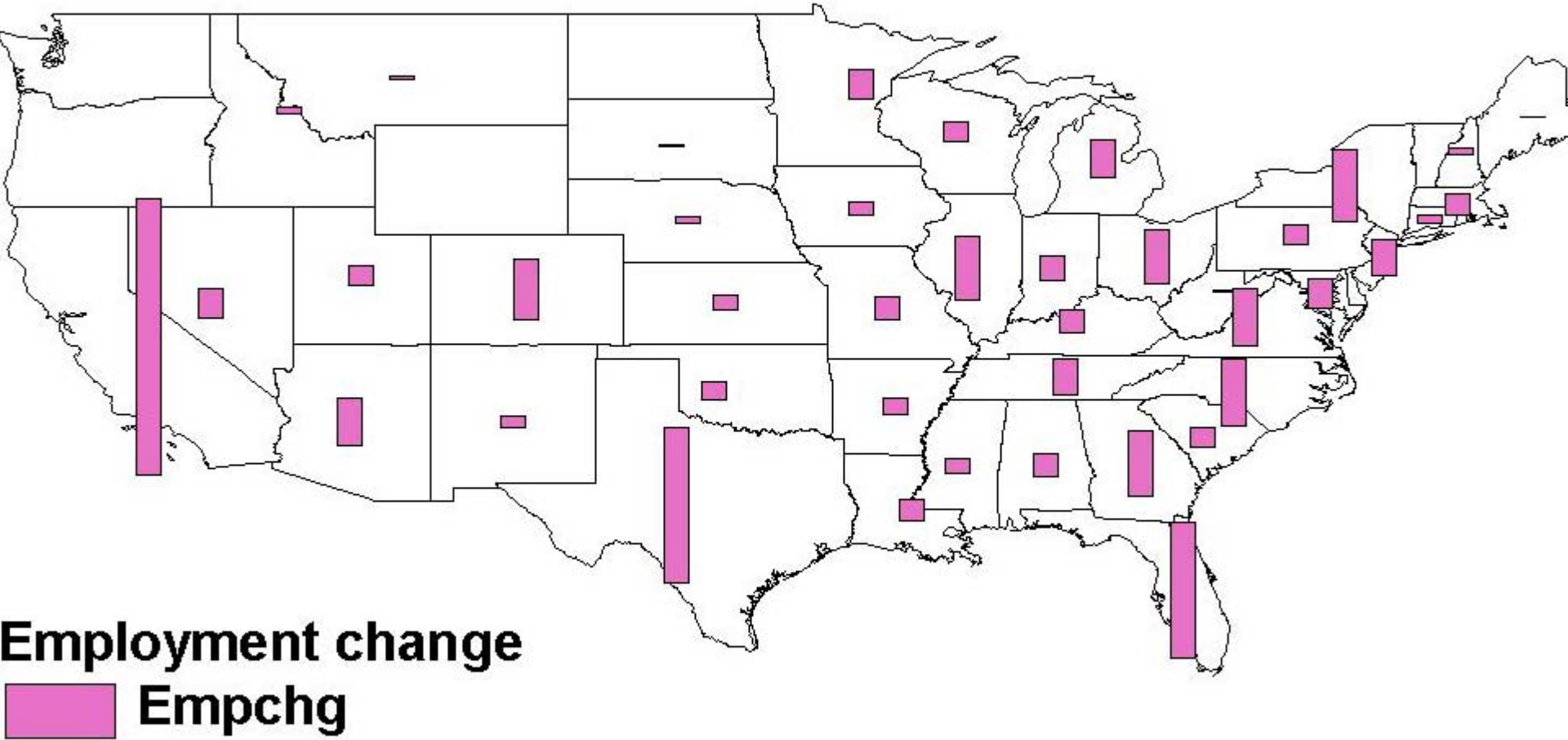


Employment in each state



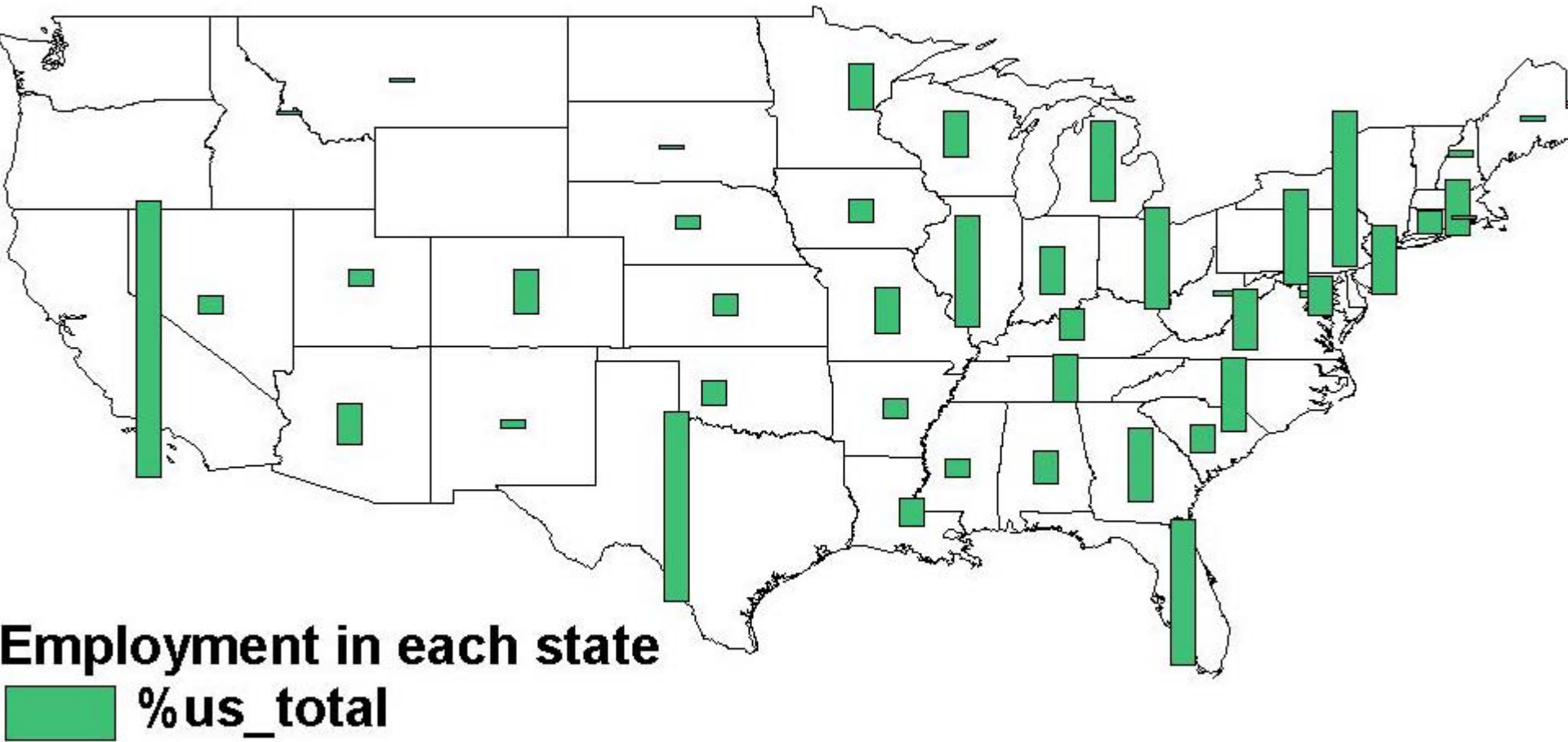
Source: US Bureau of Labor Statistics

Projected change in employment (2000 - 2010)



Source: US Bureau of Labor Statistics

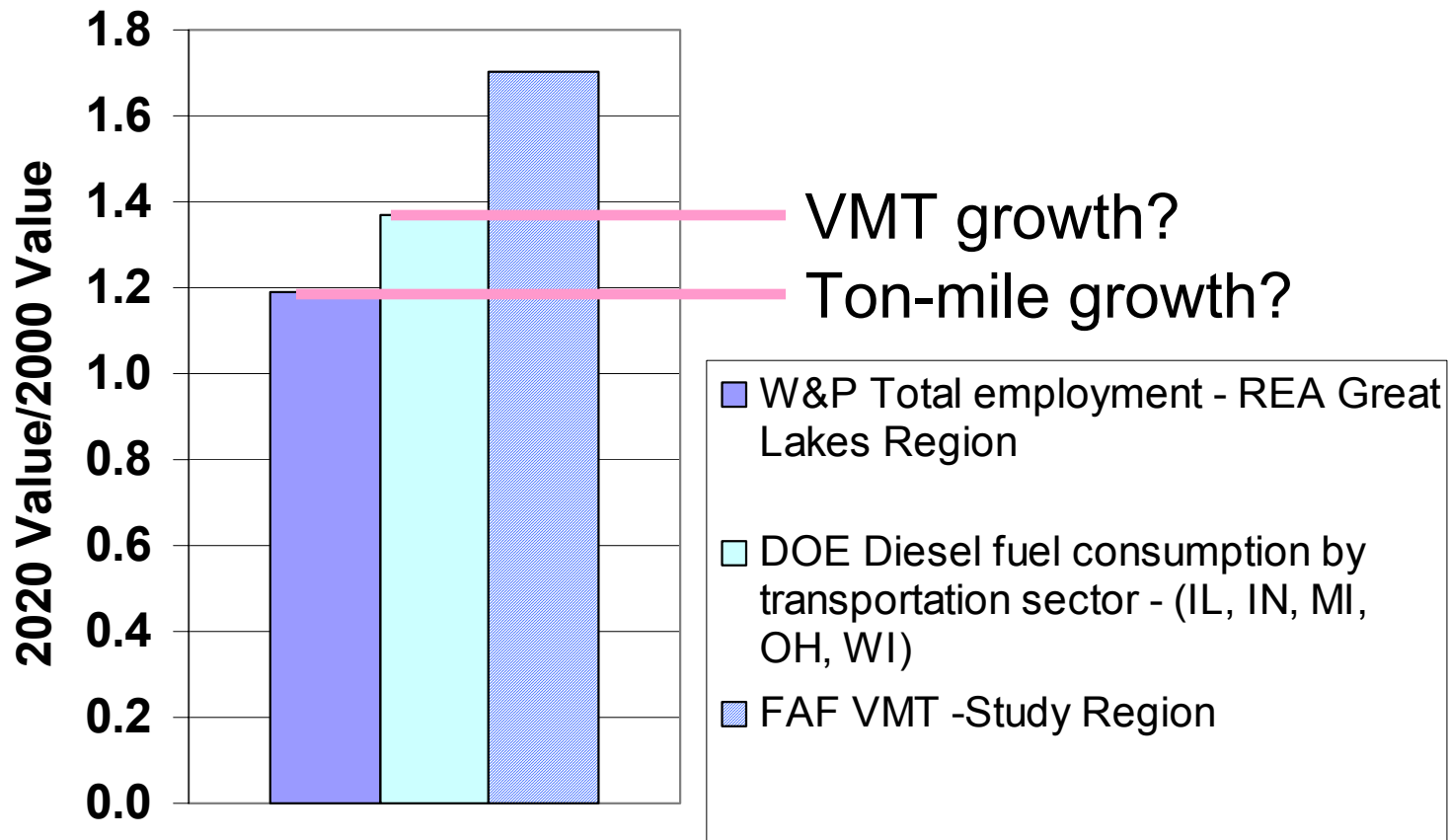
Distribution of employment (2010)



Source: US Bureau of Labor Statistics

Comparison of expected growth (2000-2020) Upper Midwest forecasts

2000-2020 Growth Comparison



Overall assessment

- Pre-2000 projections for domestic freight activities need to be adjusted downward (40-50% increase in VMT by 2020 instead of 75%)
- Capacity shortage is still a serious problem

Opportunities:

Will Intermodal be the solution?

Why regional approach makes sense

Will Intermodal be the solution to the capacity problem?

- In 1997, the most recent official figure available (97 CFS), Intermodal accounted for
 - **0.5% of tons,**
 - **2.1% of ton-miles, and**
 - **1.1% of value**of the U.S. freight movement

Will Intermodal be the solution to the capacity problem?

- In 2002, using the estimated growth of 7% a year between 1997 and 2002, Intermodal accounted for
 - **0.7% of tons,**
 - **2.4% of ton-miles, and**
 - **1.3% of value.**
- of the U.S. freight movement

Will Intermodal be the solution to the capacity problem?

- Assuming Intermodal will grow at 7% and total freight will grow at 2% a year, in 2020, Intermodal will account for
 - **1.6% of tons**
 - **5.8% of ton-miles, and**
 - **3% of value**
- of the total freight in the US

Characteristics of Intermodal freight

- **Intermodal still accounts for a small share of the entire freight movement that originate in the study area (97CFS)**
 - **0.2% of weight**
 - **1.2% of value**
 - **1.8% of ton-mile**

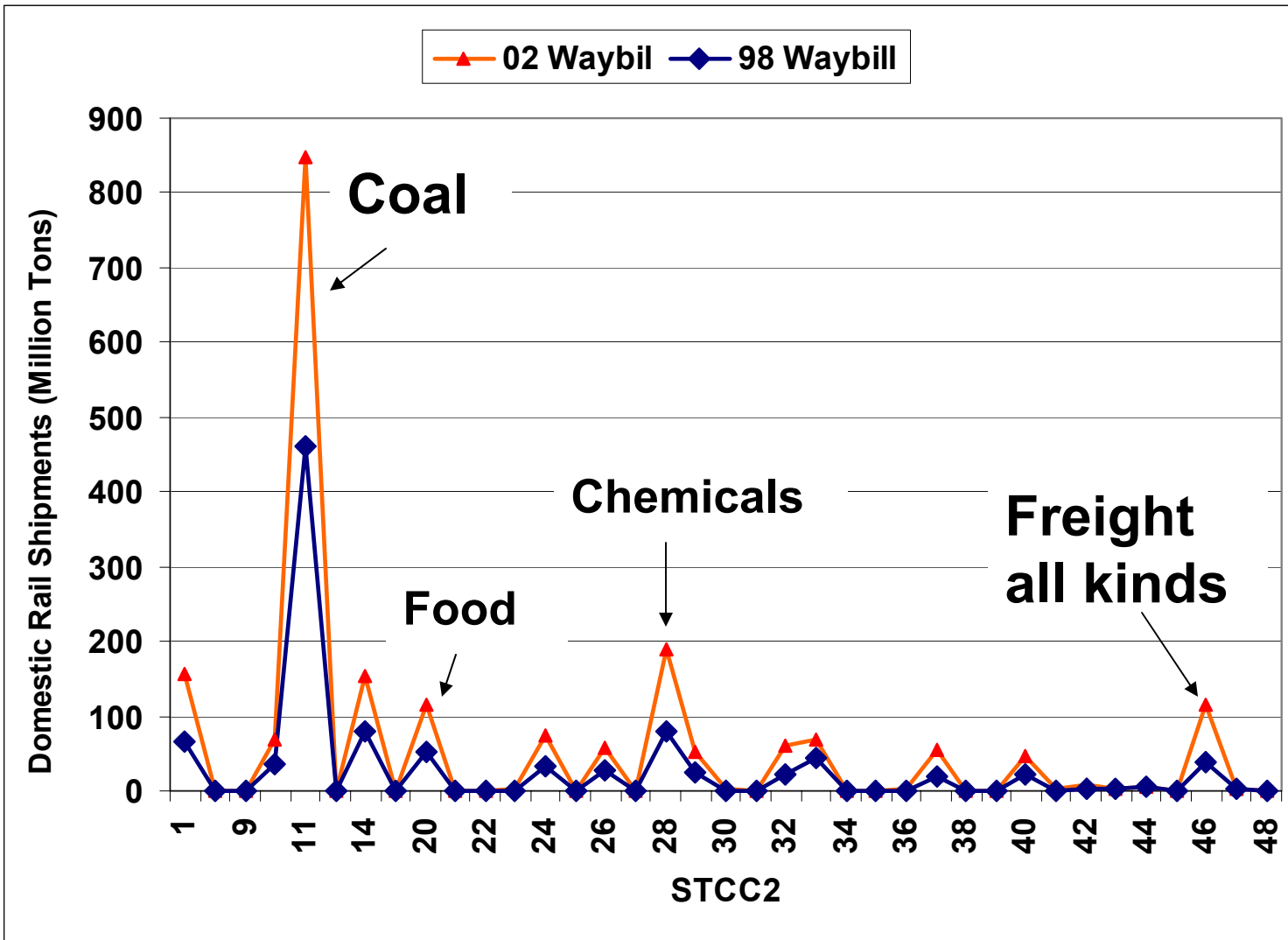
Current characteristics of Intermodal freight

- **Intermodal relies on niches**

Examples:

- CA and TX account for ~50% of Intermodal tonnage originating in the Study Area
 - Automobiles and Parts account for 73% of value and 35% of tons of Intermodal shipments originating in the Study Area
 - **Intermodal can be a major player in those niches**
- ~ 10% of total freight tonnage going from the study area to CA is by Intermodal

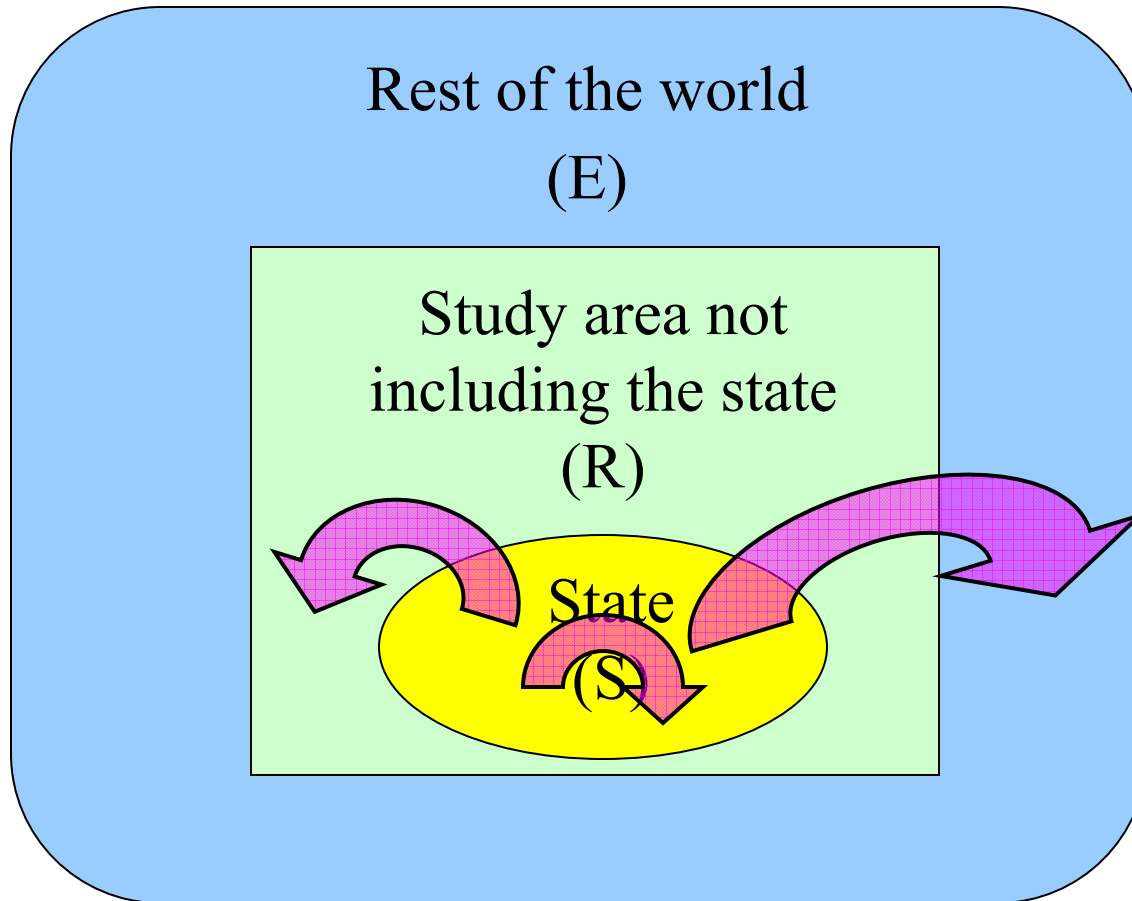
Commodity shipped by rail (Million tons)



Why regional approach makes sense

- Inter-regional shipments are critical for addressing congestion
- Most of the freight on the study corridor segment is regional in nature

Shipment Types Used in the O-D Analysis



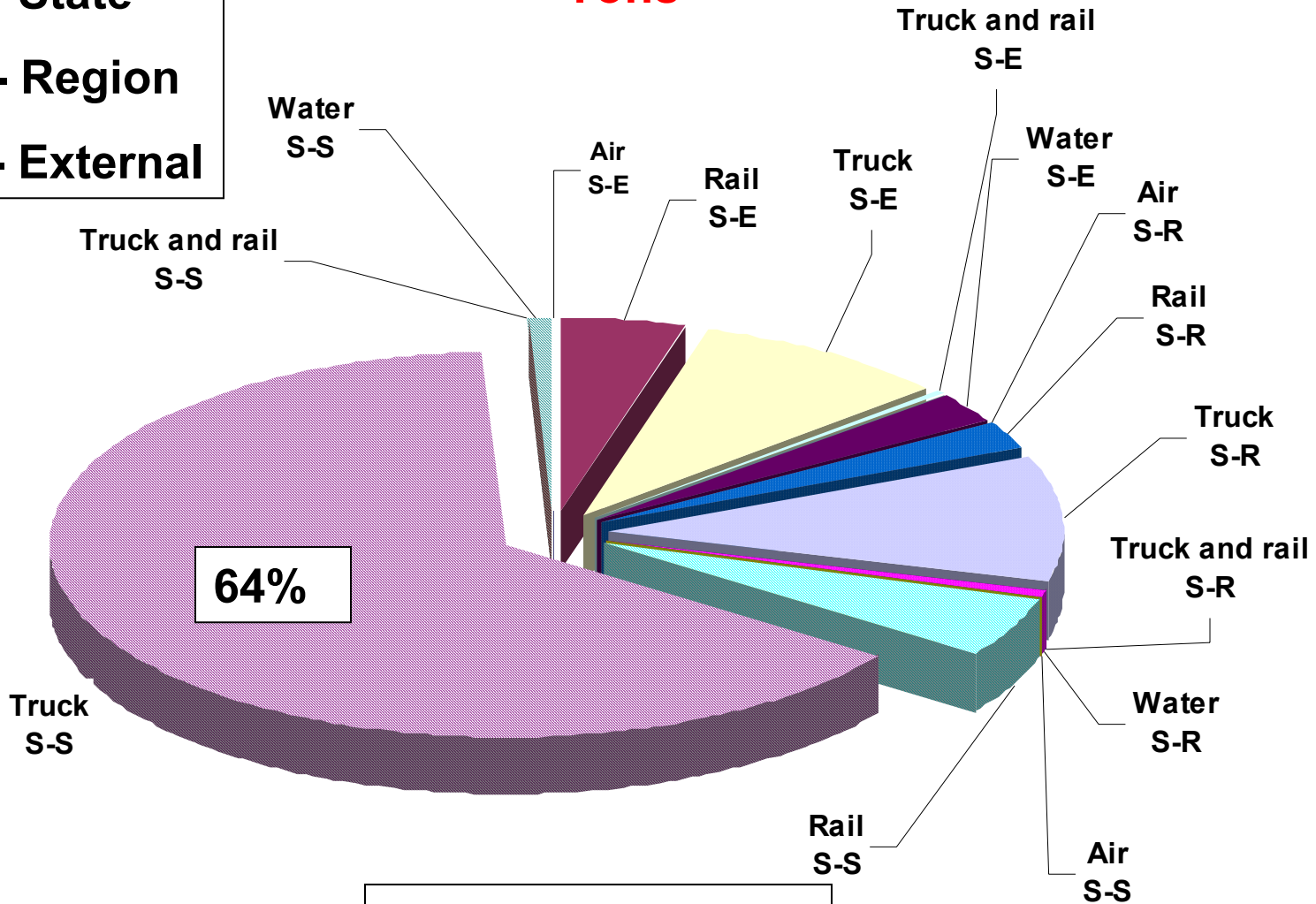
3 Types of shipment

- **S** \Leftrightarrow **S** (Intrastate)
- **S** \Leftrightarrow **R** (Intra-regional)
- **S** \Leftrightarrow **E** (External)

Shipment with Origin in the Study area

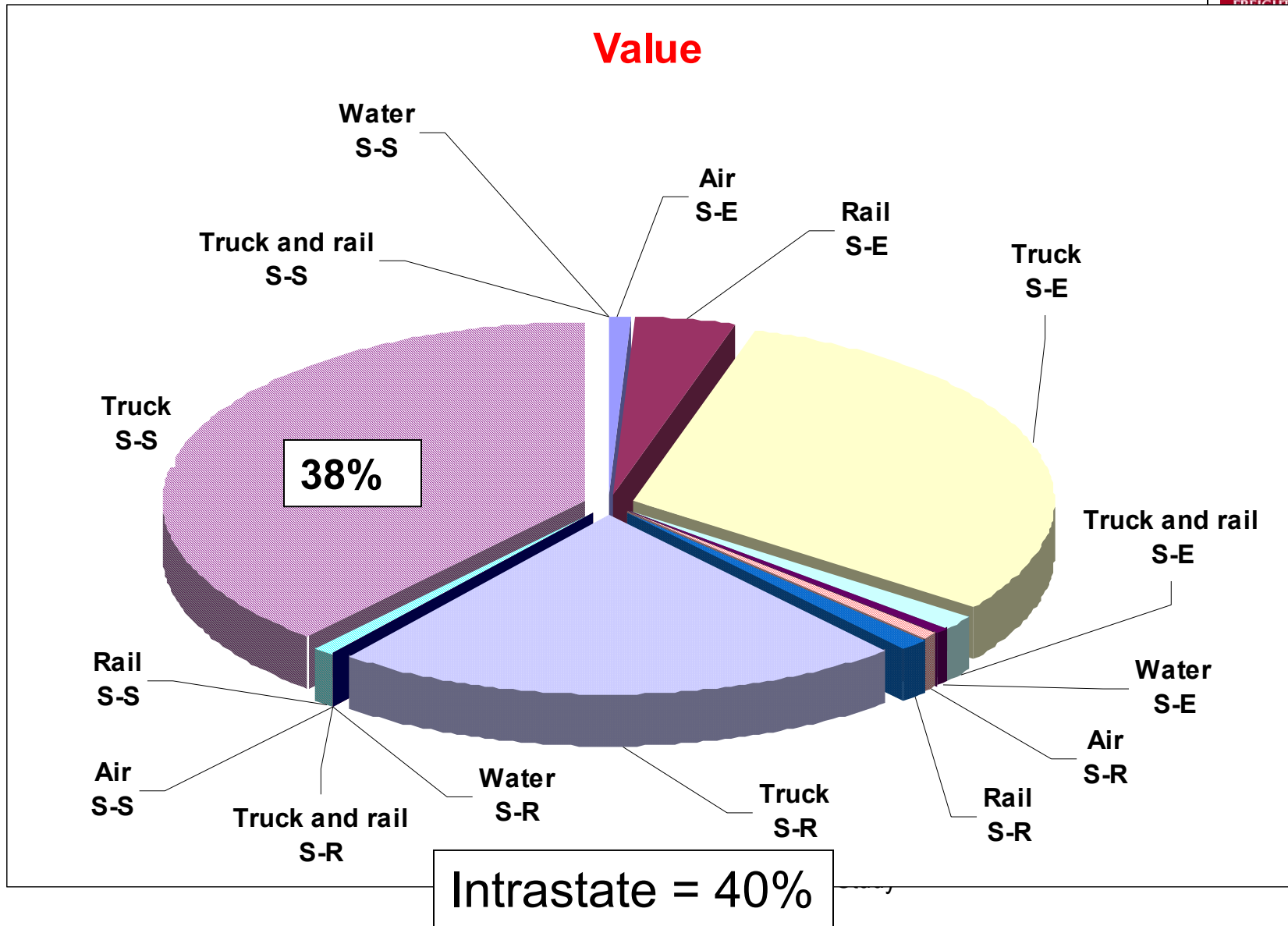
S - State
R - Region
E - External

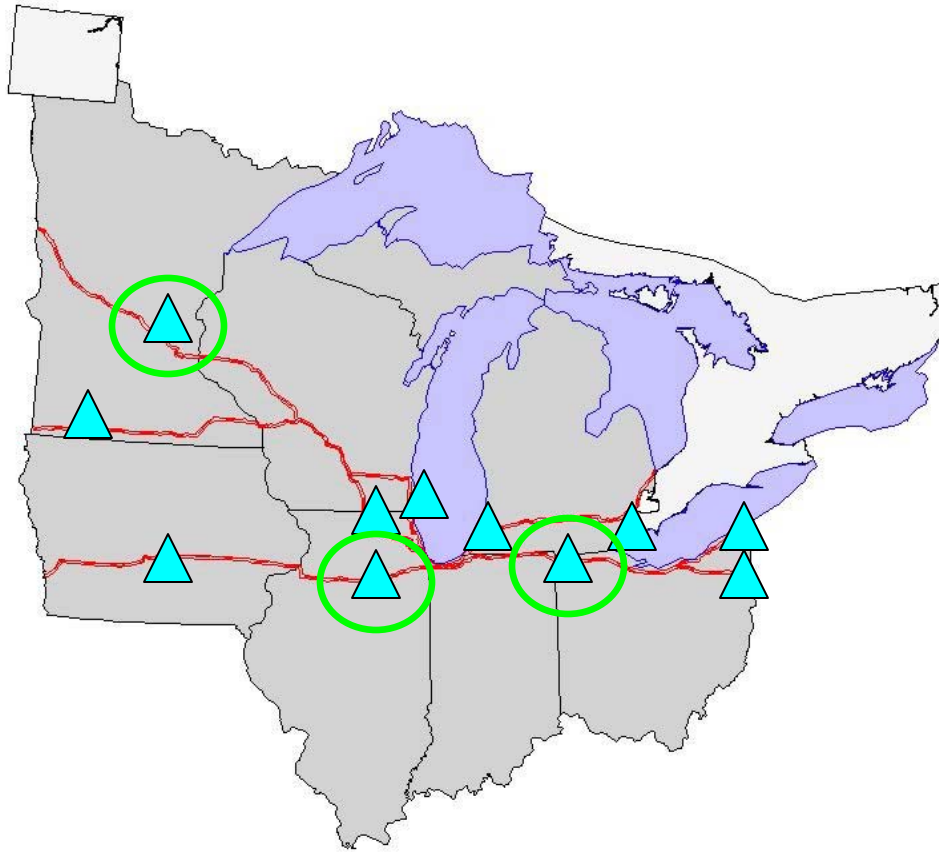
Tons



Intrastate = 70%

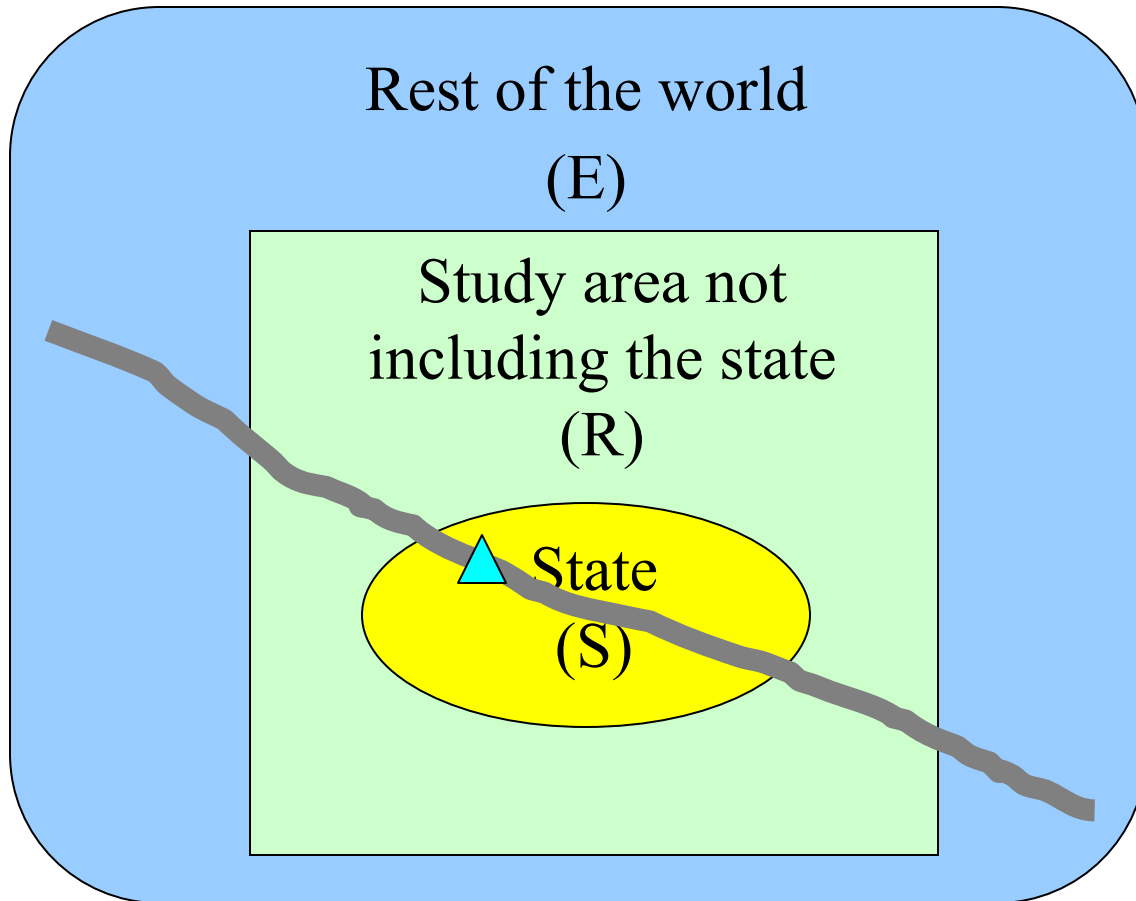
Shipment with Origin in the Study area





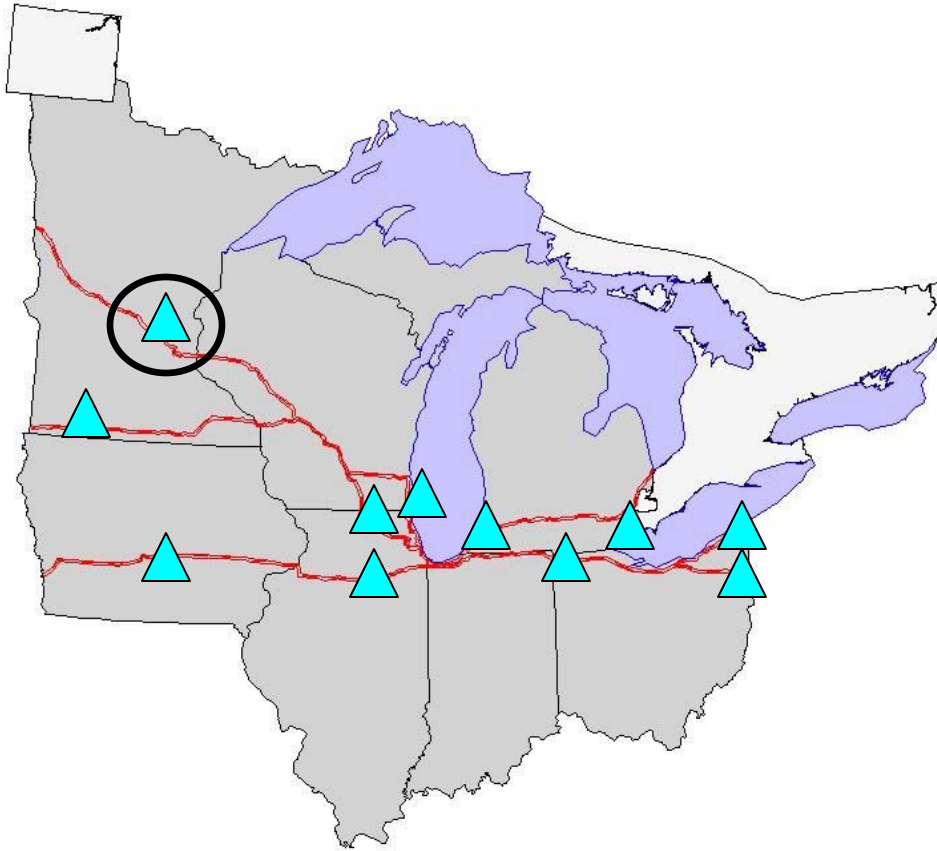
Select link analysis locations

Shipment Types Used in the Select Link Analysis



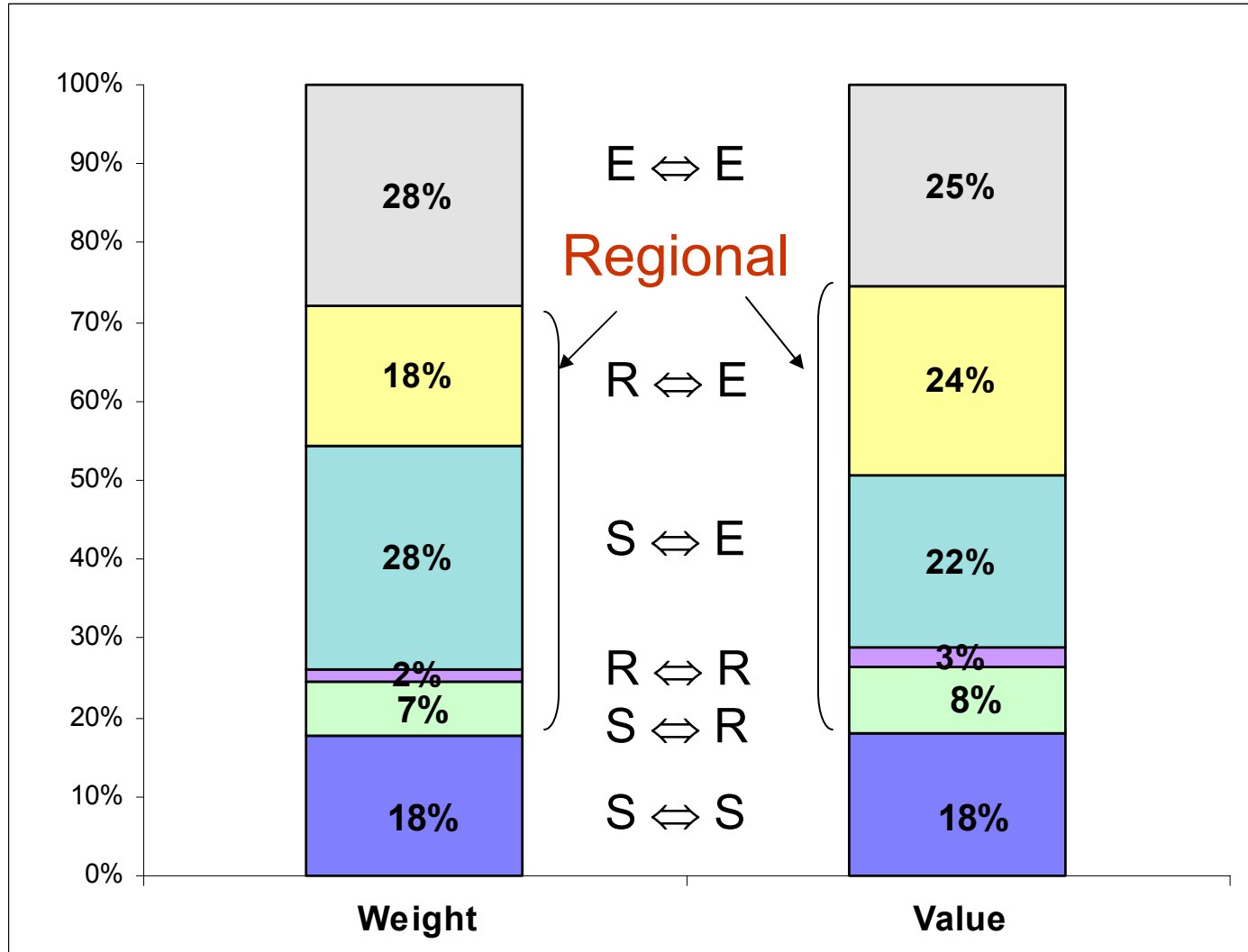
6 Types of shipment

- **S** ↔ **S** **Intrastate**
 - **S** ↔ **R**
 - **S** ↔ **E**
 - **R** ↔ **R**
 - **R** ↔ **E**
 - **E** ↔ **E** **Through**
- Regional**



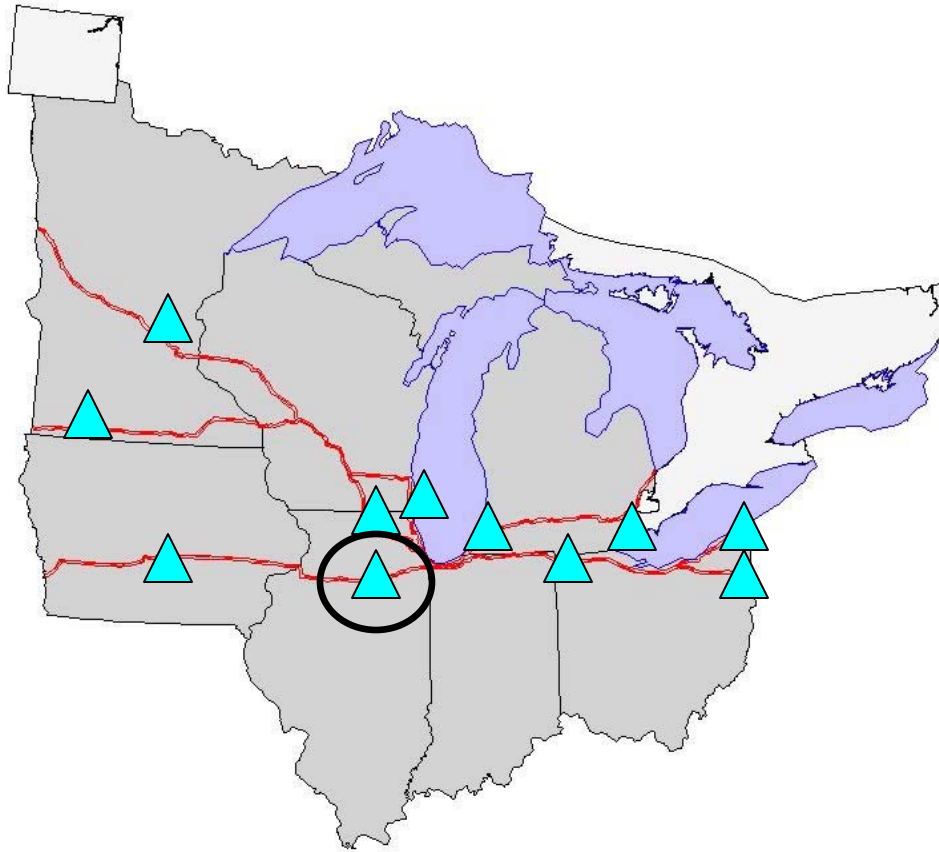
Select link analysis locations

Shipment types for truck freight on I-94 west of Minneapolis



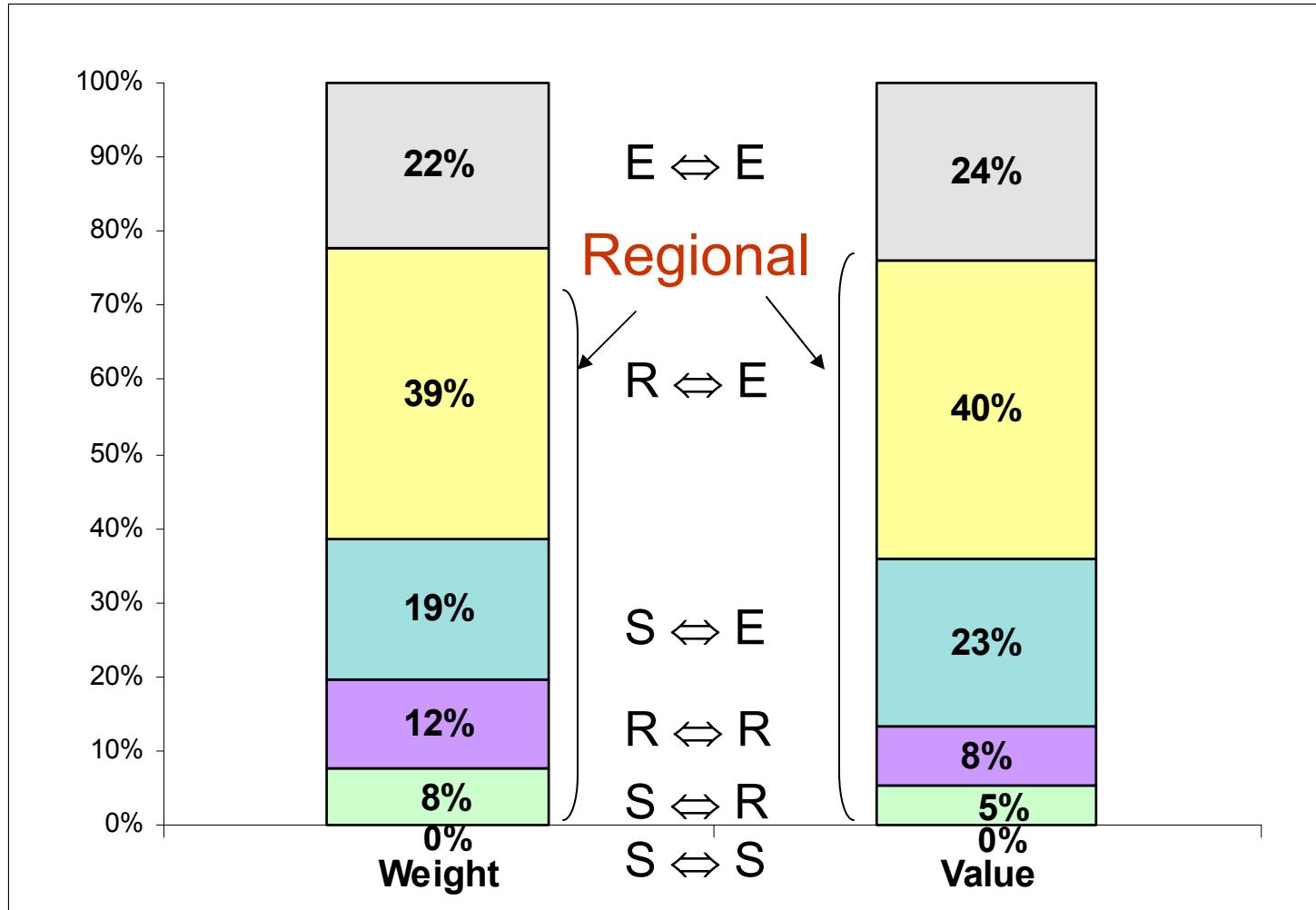
Upper Midwest Freight Corridor Study

Source: FHWA



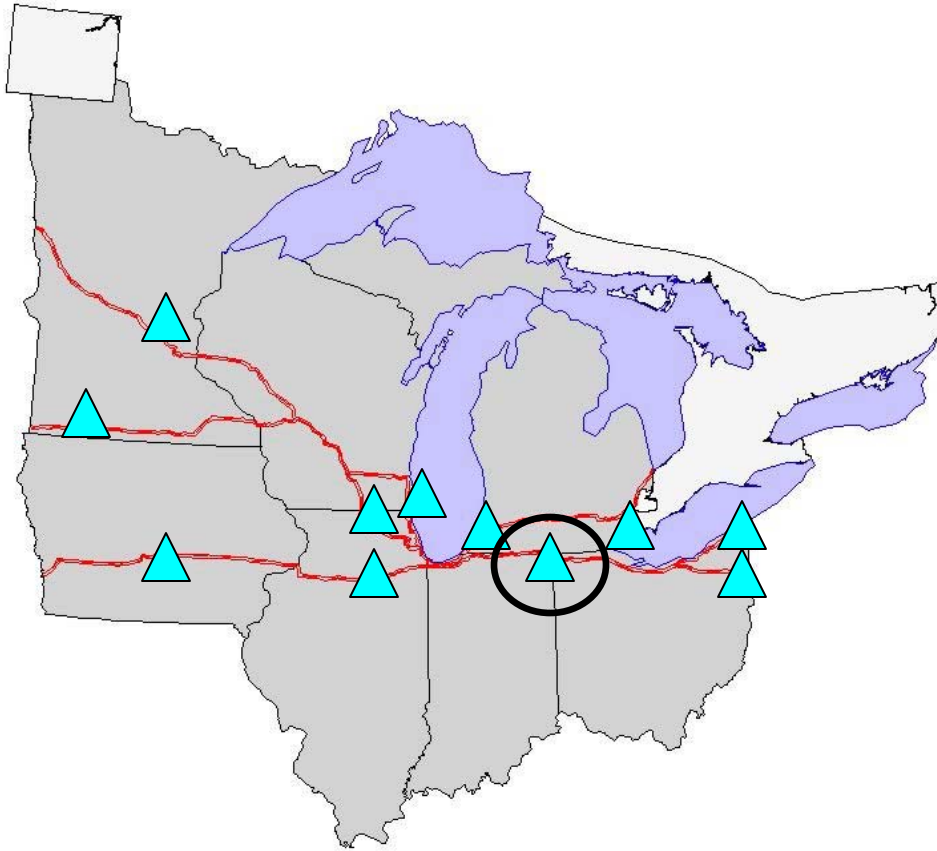
Select link analysis locations

Shipment types for truck freight on I-80 west of Davenport



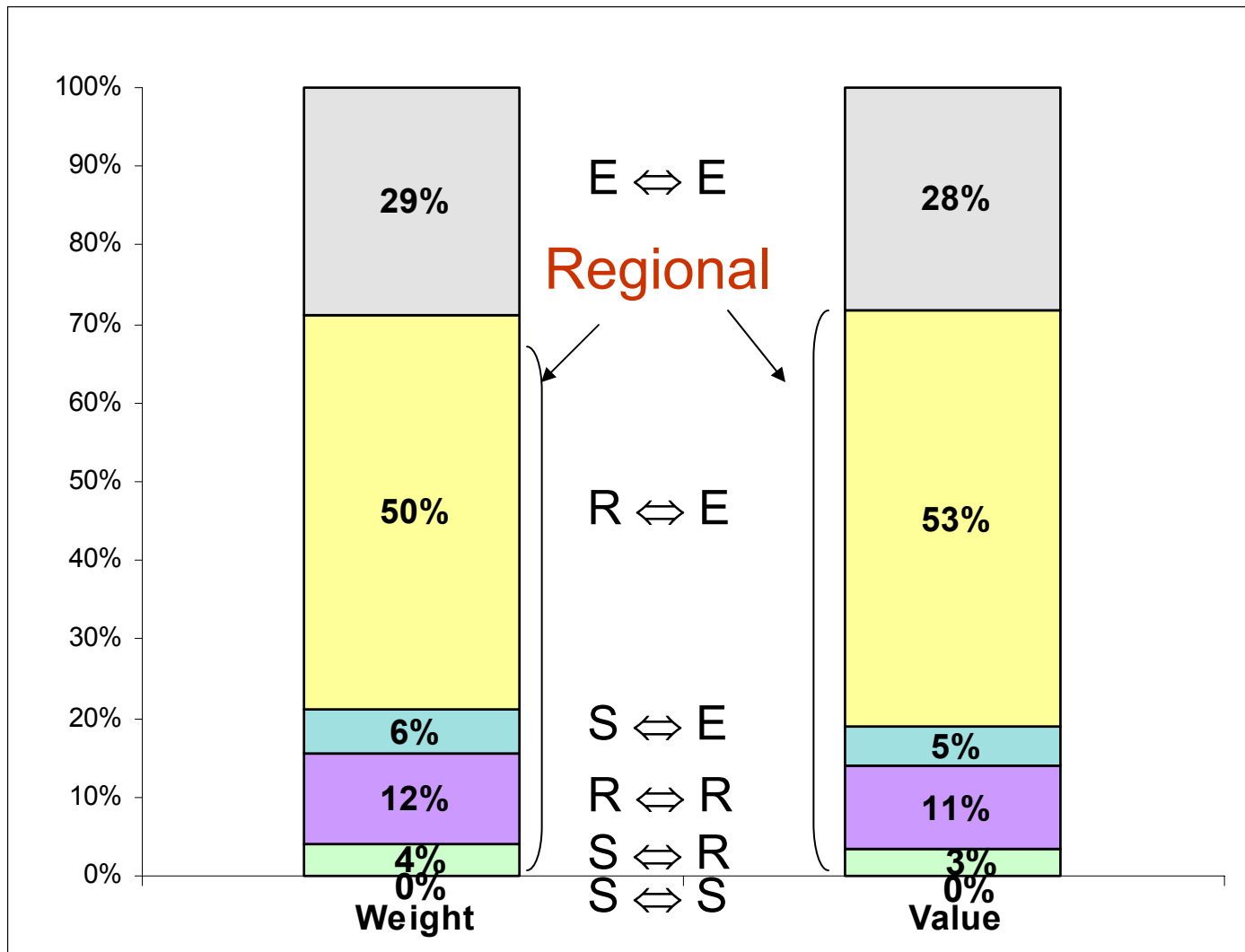
Upper Midwest Freight Corridor Study

Source: FHWA



Select link analysis locations

Shipment types for truck freight on I-80/90 in IN near OH border



Upper Midwest Freight Corridor Study

Source: FHWA

Summary of key findings from the usage analysis

- 7-State region is a large economic engine, generating about 30% of nation's freight movements
- Even at a lower rate, growth in freight activity within and through the study area will be formidable

Summary of key findings from the usage analysis

- Intermodal alone will not solve the system capacity problem, but it can play an important role
- Technological innovations?
- Regional approach makes sense because intra-regional movements are critical
- Need more recent data
- Need better Intermodal data