

# Midwest Manufacturing Matters

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# Introduction

- Review role of manufacturing in the Midwest
- Evaluate recent trends
  - ◆ Focus on changes in firm organization
  - ◆ Role and impact of interregional and international trade
- Examine prospects

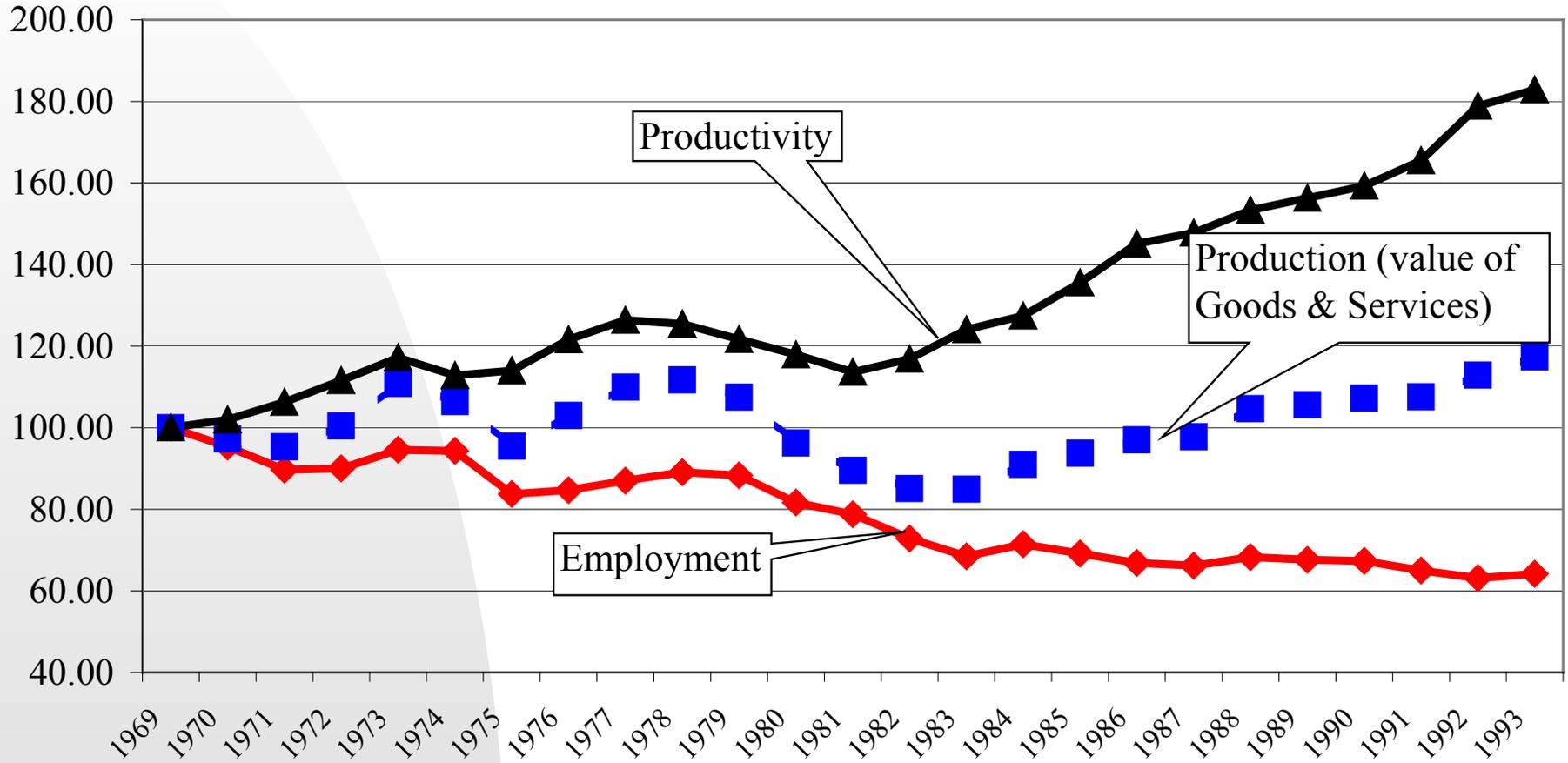
# What we Thought had Happened

- Erosion of jobs in 1970s through 1990s was end of the major structural reorganization and shake out
- No sucking sound from NAFTA
- Shift away from defense spending favored Midwest
- Manufacturing employment increased in early 1990s

# What we Thought had Happened: Illinois

- Dramatic loss of employment in manufacturing 1970-1993 (decline by almost 40%)
- Phenomenal increase in productivity (80%)
- But....production increased by 20%
- We produced more with much less labor

## Manufacturing Changes in Chicago: Indexed to 1970=100

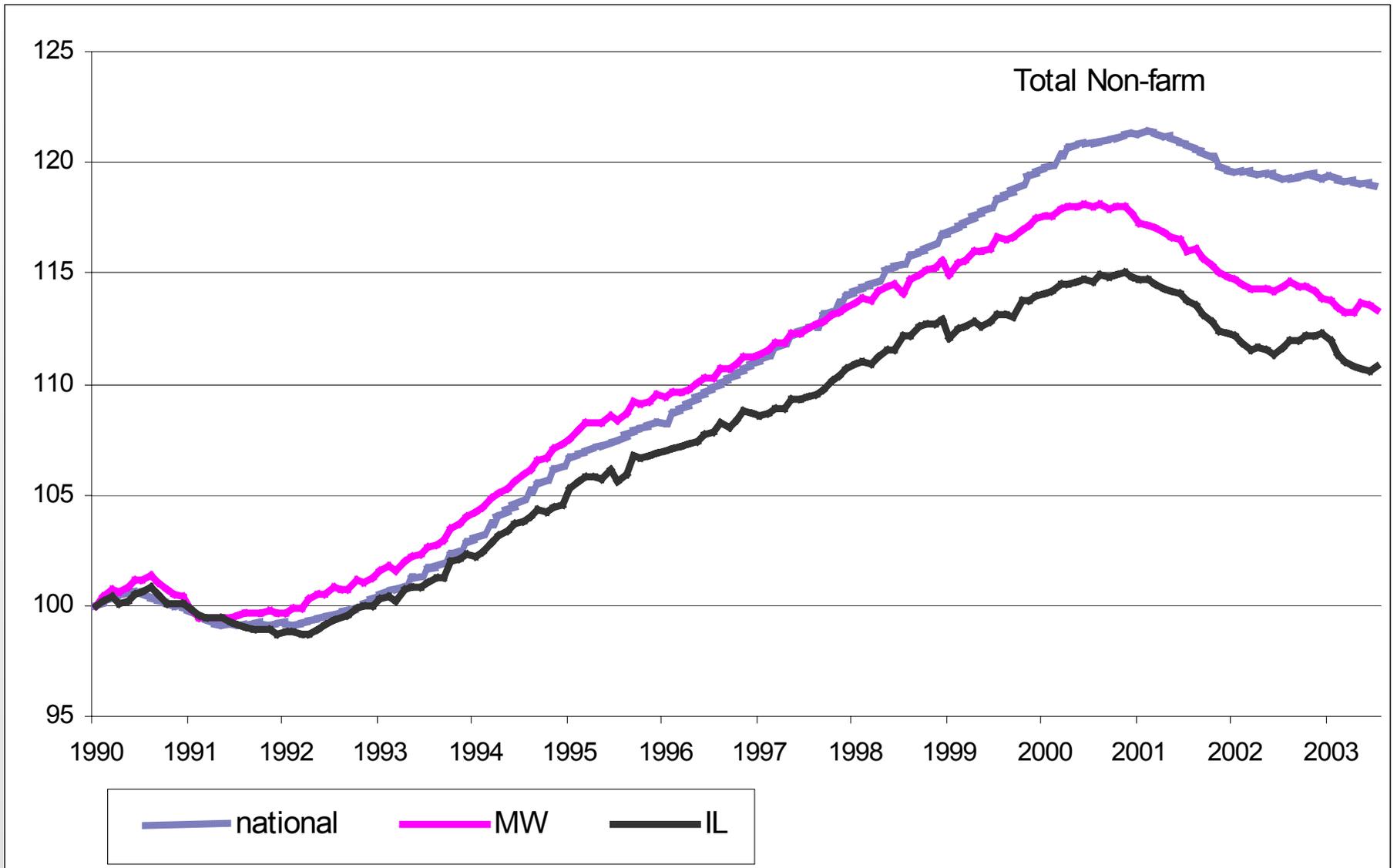


# What we Thought had Happened

- Prospects for the Midwest looked encouraging
- But then, we looked at the data.....

# What we Thought had Happened: Total Non Farm Employment

- Illinois, Rest of the Midwest (IN, WI, OH, MI, MO) and US moved in similar fashion through 1995
- Rest of Midwest and US continued to match each others growth rates for the next two years while Illinois slowed
- By 2001, Illinois' growth rate was 3 percentage points lower than Rest of Midwest and 7 point lower than US
- All tracked together post 2001

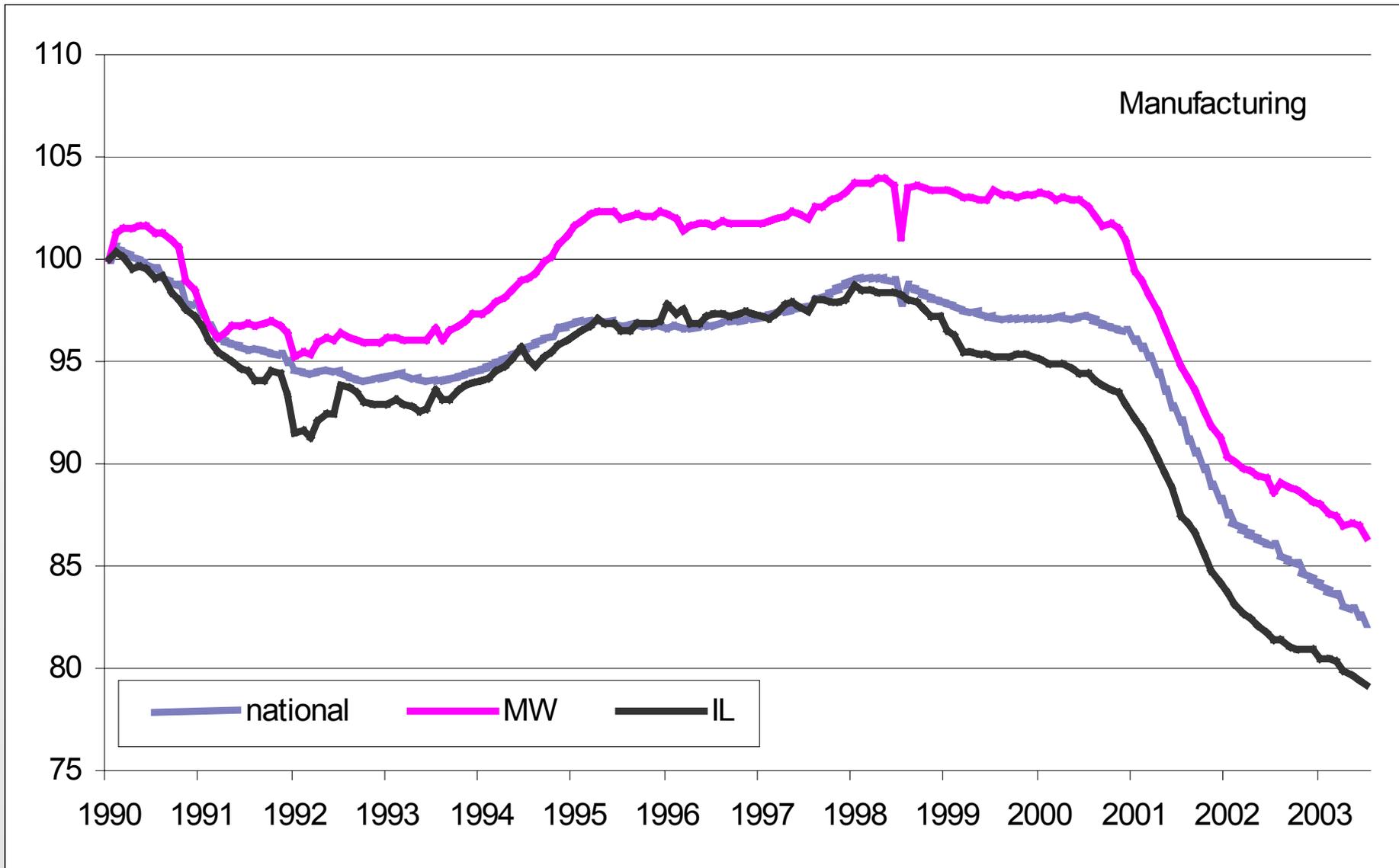


# And then we come to Manufacturing Employment.....

- REAL's long-term forecasts in mid 1990s suggested continual erosion of manufacturing employment
- Steep decline through 1992 (loss 8% of 1990 base employment in manufacturing compared to 4% in US)
- Recovery through mid 1998 (parallel rate with Rest of Midwest) but lower than US

# And then we come to Manufacturing Employment.....

- Decline thereafter – ahead of RMW for 2 years then parallel decline
- US decline began in 2001
- Mid 2003 employment levels down 21% (Illinois), 17% (RMW) and 12% (US) compared to 1990
- Rates of decline for the last two years similar in IL, RMW and US



# Summary Scoreboard

<i>Sector</i>	<i>Comparison to MW</i>	<i>Comparison to US</i>
Construction	+/-	-
<b>Manufacturing</b>	-	-
Trade, Trans. & Utilities	-	-
Information	+	+/-
Prof. & Bus. Services	+/-	+/-
Financial Services	-	-
Education and Health	+/-	-
Leisure and Hospitality	+	+
Other Services	+/-	+/-
Government	+/-	+/-

# Benchmark analysis

- Decomposing the growth into three different parts:

$$g_i = G + (G_i - G) + (g_i - G_i)$$

- Where

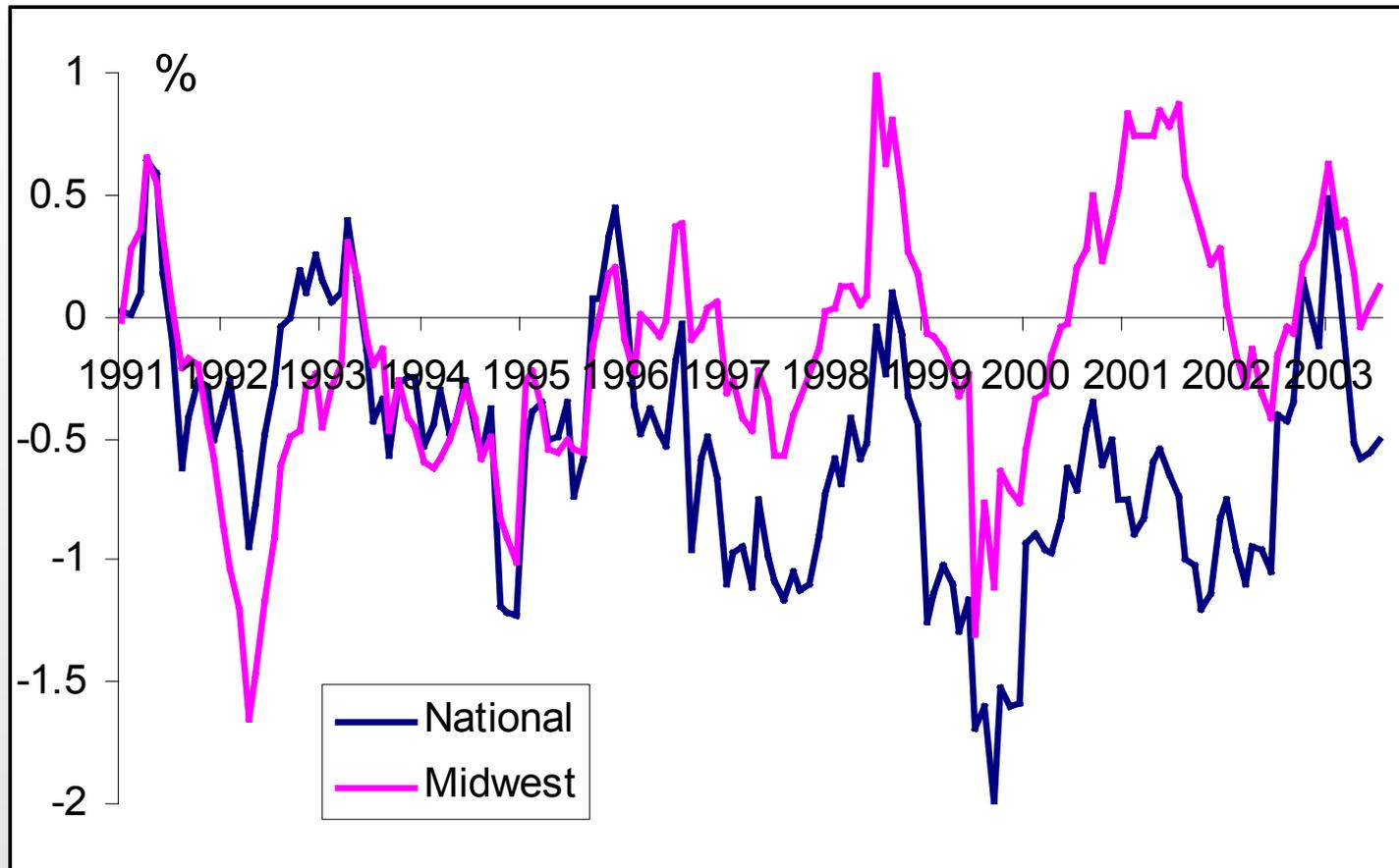
$g_i$  = Illinois growth of sector  $i$

$G_i$  = Benchmark's growth of sector  $i$

$G$  = Benchmark's growth for all sectors

- Two benchmarks: US and Midwest employment growth
- Focus on  $(g_i - G_i)$  difference between growth in IL and MW or US

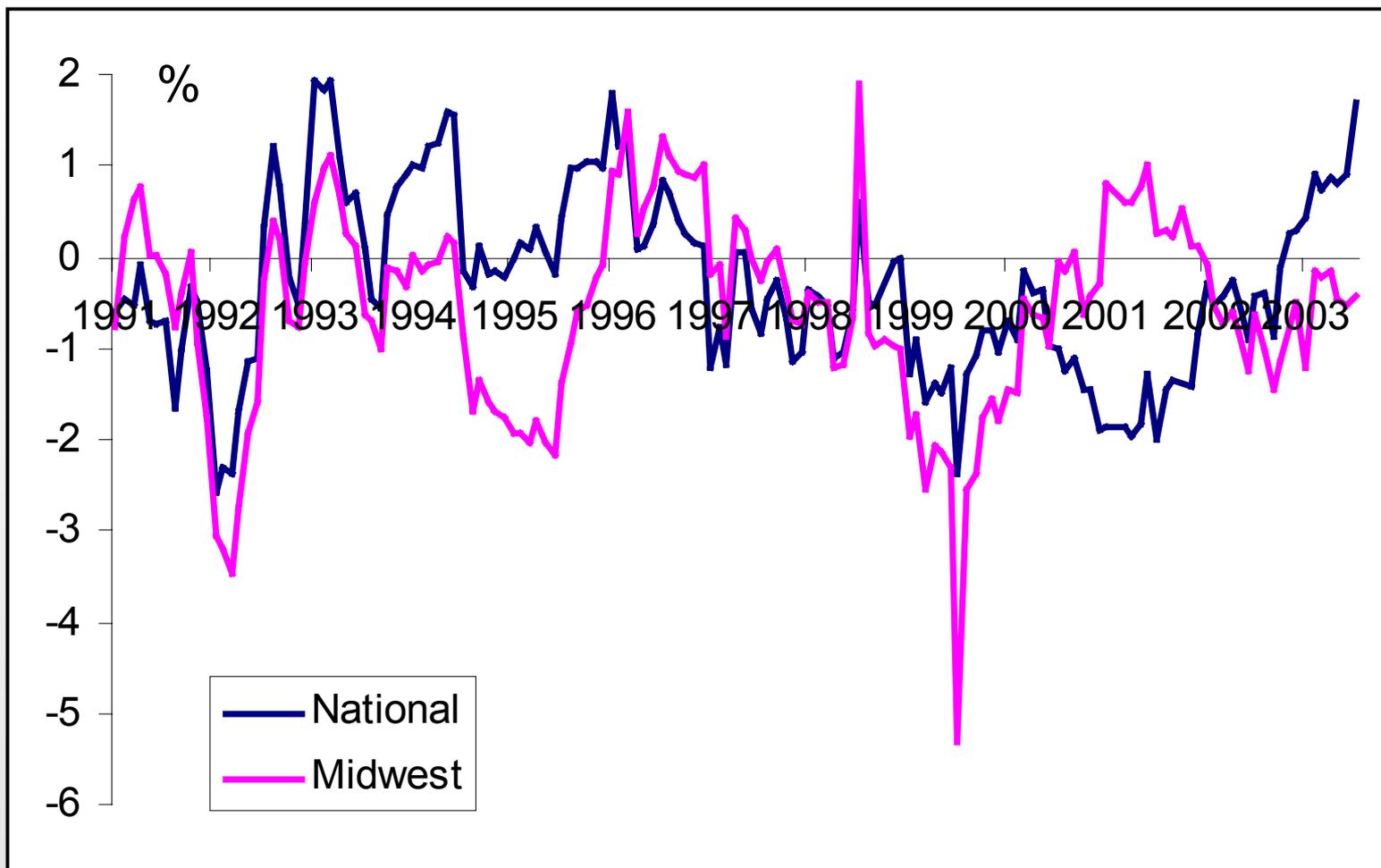
# Total NonFarm Employment



**Positive** – Illinois grew faster than the benchmark

**Negative** – Illinois grew slower than benchmark

# Manufacturing Employment



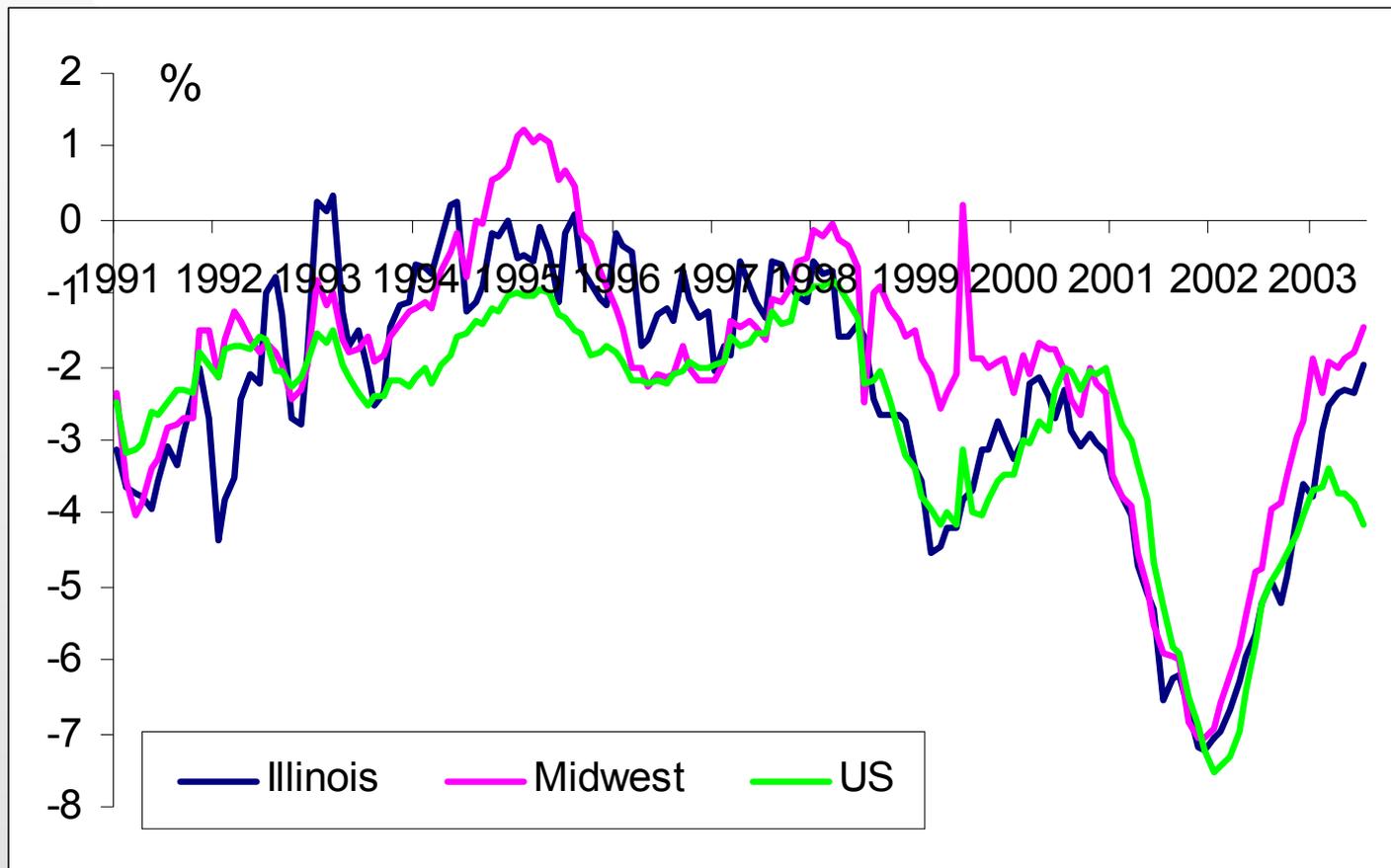
**Positive** – Illinois grew faster than the benchmark

**Negative** – Illinois grew slower than benchmark

# How did the Growth/Decline Experience in Manufacturing compare with All Sectors?

- $(G_i - G)$  is called industry-mix effect, showing how sector  $i$ , at the national level, fares with the overall sectors as a whole
- Positive (negative) industry-mix effect means that the sector grows higher (slower) than the economy as a whole

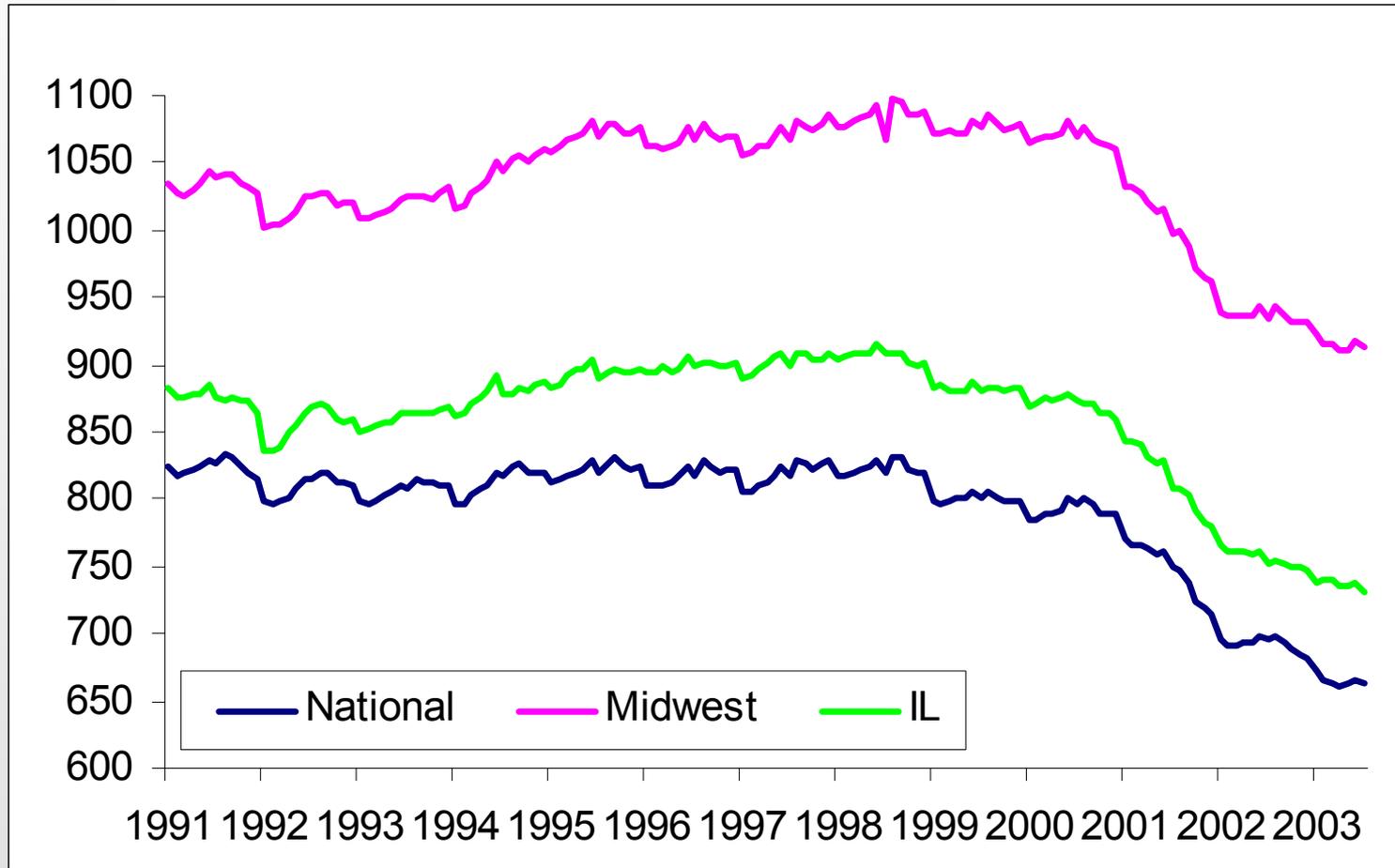
# Manufacturing Growth – Comparison to all Sectors' Growth



# What if Illinois had the Same Structure as RMW or US?

- ◆ IL graph shows the Illinois actual number of employment in the sector and changes
- ◆ MW graph shows Illinois employment in the sector, if IL had the Midwest structure and rate of growth
- ◆ US graph shows Illinois employment in the sector, if IL had the US structure and rate of growth

# Manufacturing Growth Rates with RMW and US Structure

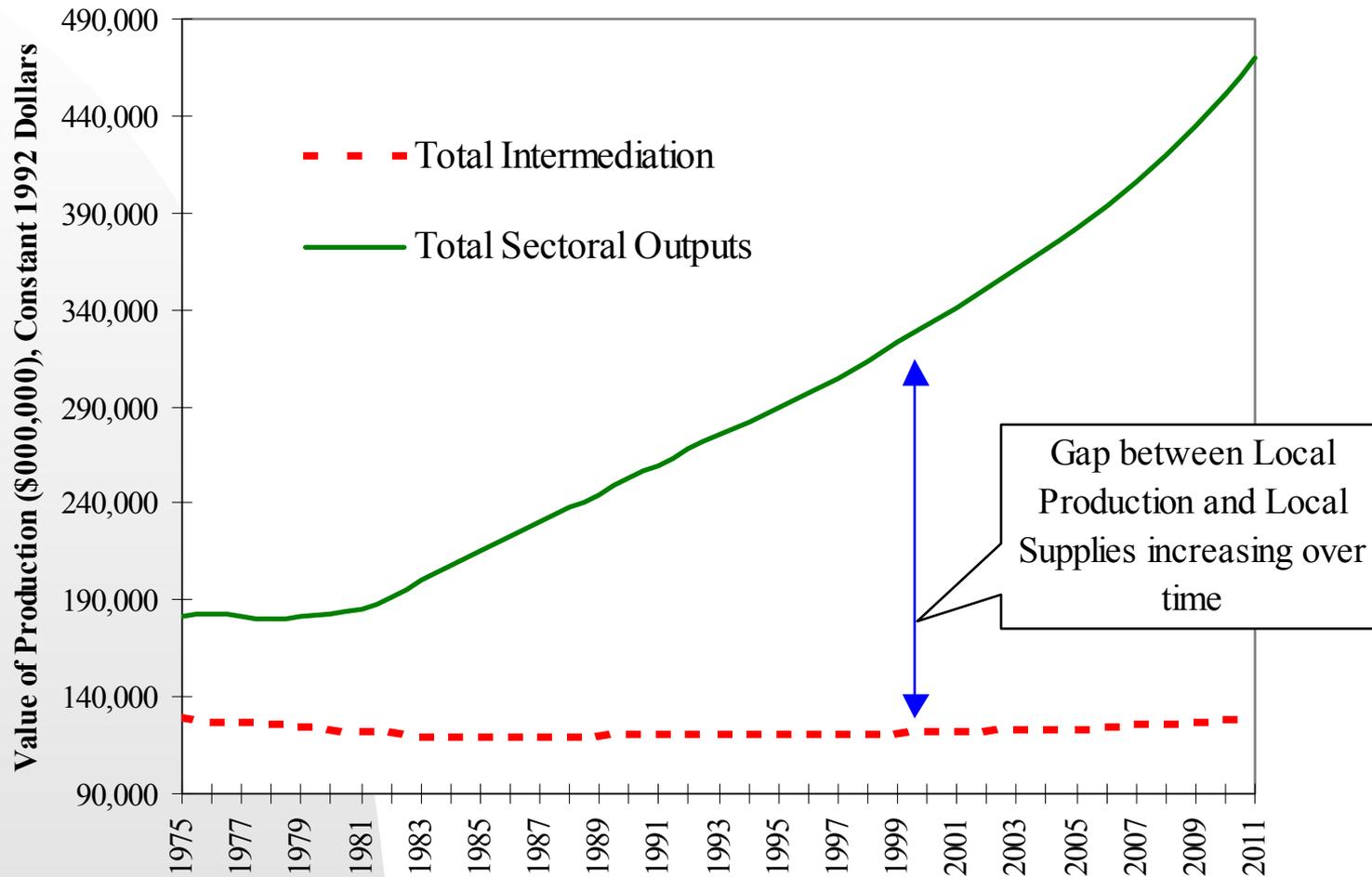


# Summary of Comparisons

- Illinois economy transformed over last 30 years – less dependent on Manufacturing than RMW but still more dependent than US as a whole
- Recent trends suggest slowing of decline but.....
- Illinois' manufacturing integrated with RMW

# Hollowing Out - Revisited

- Data extracted from our Chicago models revealed a hollowing out process in the metropolitan economy
- Typical establishment was
  - ◆ Buying less
  - ◆ Selling lesswithin the region's economy

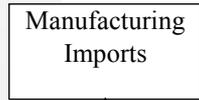


# Implications

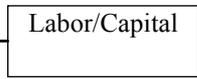
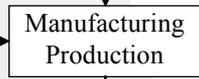
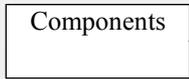
- Ripple effect smaller – especially from manufacturing sectors
- But....greater dependence on inputs and markets in the rest of the Midwest
- Transportation de-regulation resulted in significant decrease in costs of shipment
- Reorganization of production systems and value chains

Vertical-Specialization Based Trade (after Hummels et al., 1998)

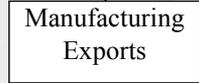
Region 1



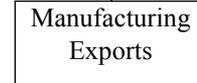
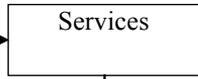
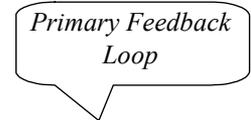
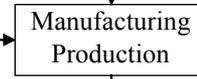
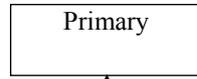
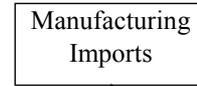
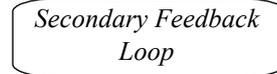
Region 2



Region 3

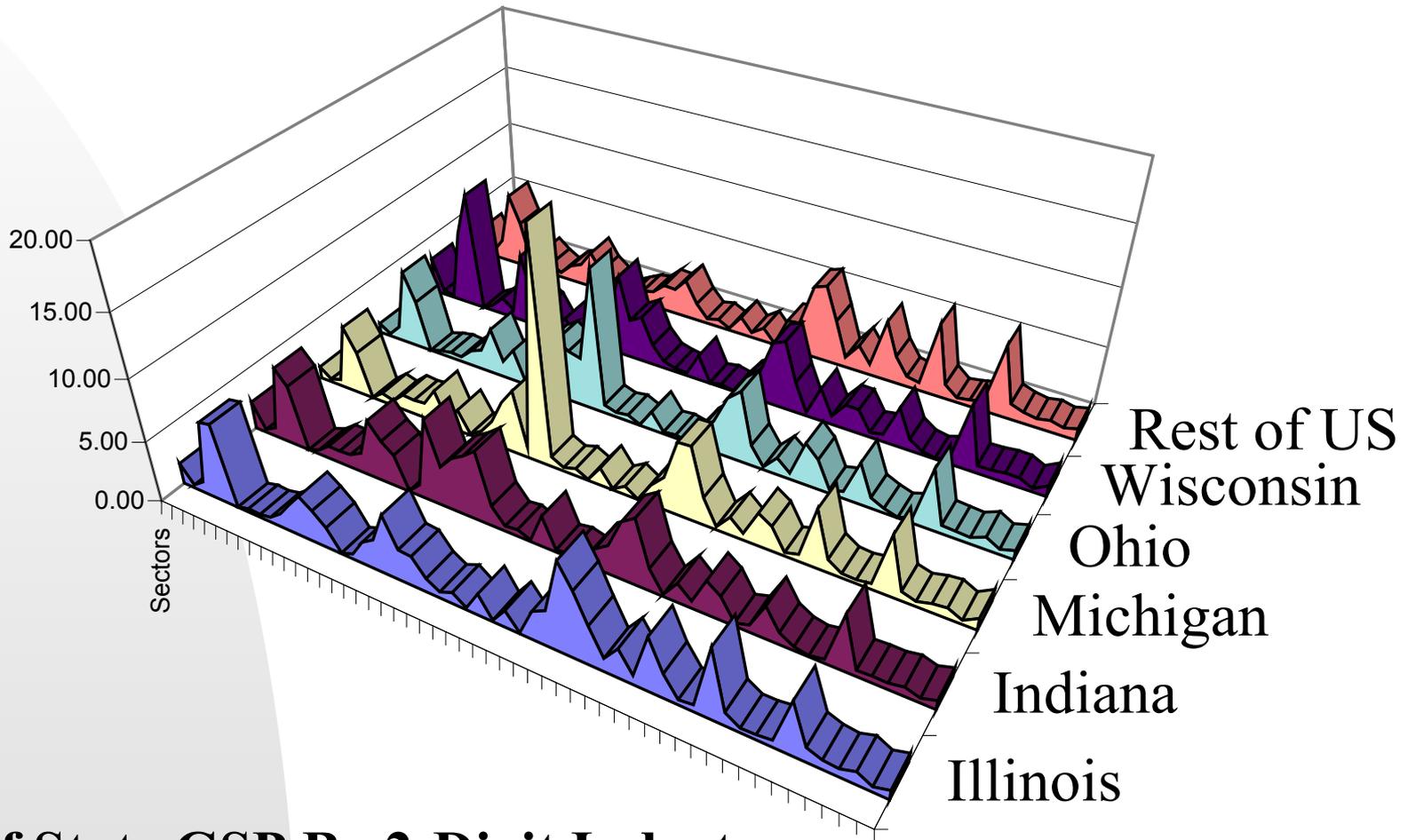


Feedback Loop Analysis



# But the Economies are Becoming More Alike

- With few exceptions, distribution of activity similar across Midwest

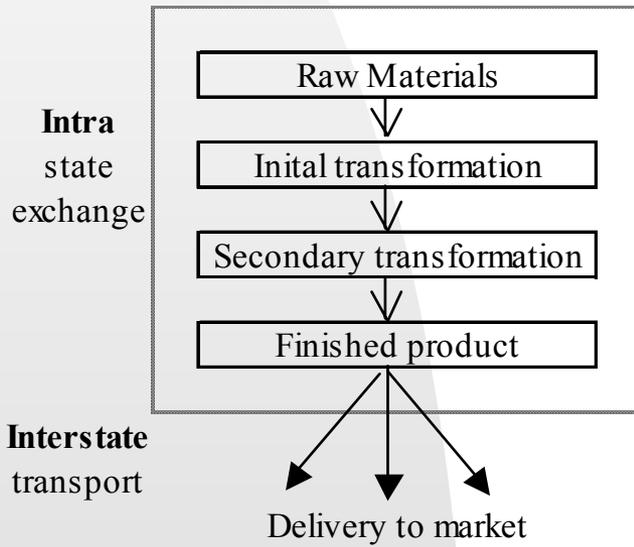


## Shares of State GSP By 2-Digit Industry

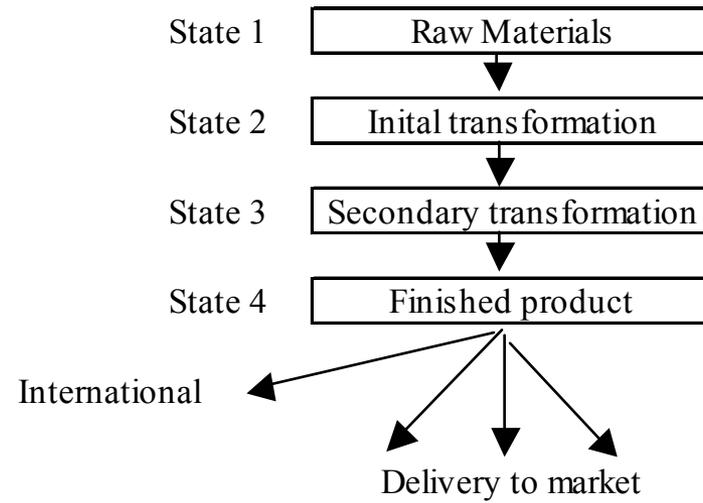
# Implications

- Firms are reorganizing production
  - ◆ Exploiting scale economies in individual establishments
  - ◆ Specializing within establishments
  - ◆ Trading across state lines
  - ◆ Agglomeration/cluster effects realized at level of Midwest

1960s/1970s



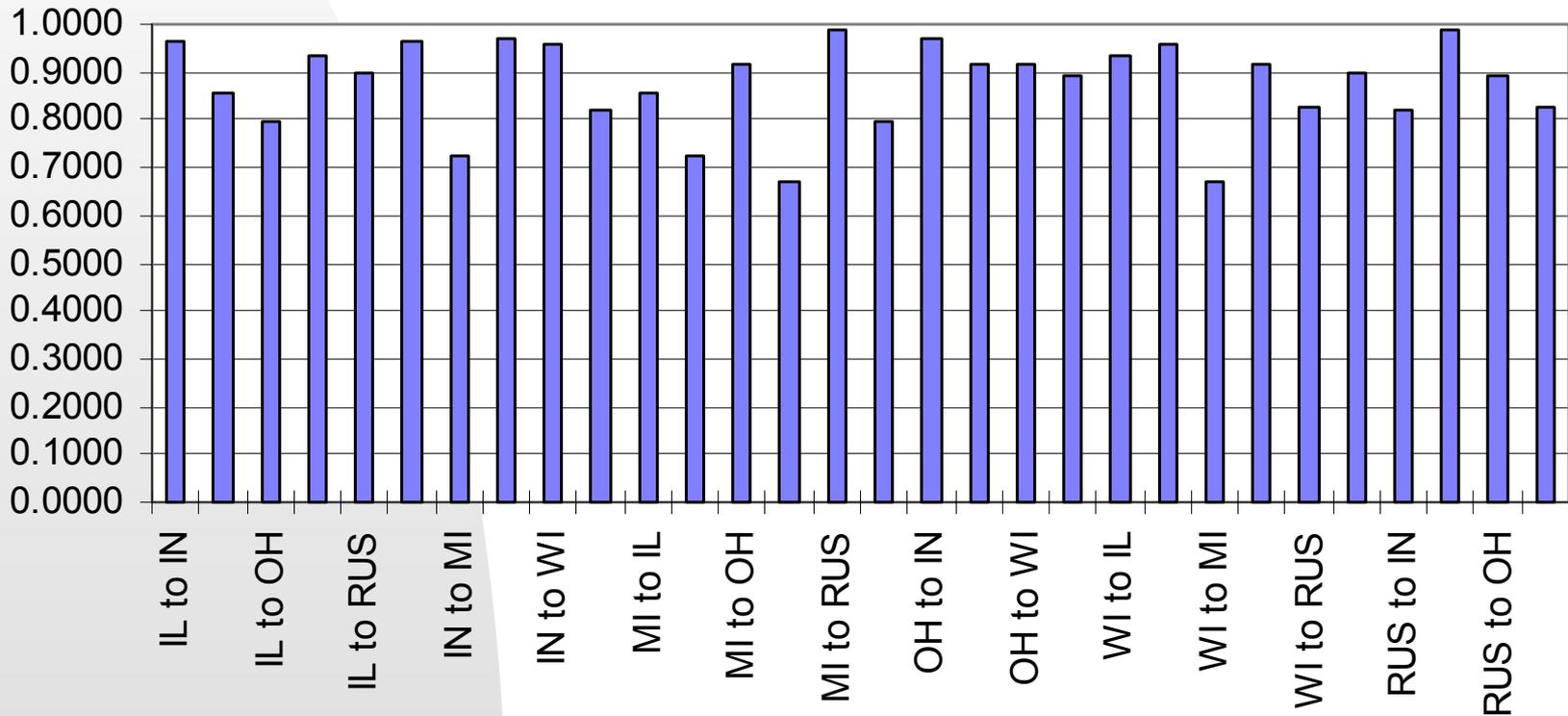
1990s/2000s



# Implications

- Trade concentrated in **intra-industry trade** – movement between one firm and another in the same sector

# What we Trade is Part of a Value Chain of Production - Cluster



# Implications

- Changes in one sector in one state in the Midwest have significant ripple effects on other states
- Loss of employment in manufacturing in any state likely to unravel activity somewhere in the rest of the Midwest.....

# Impact of \$1 million in Auto Production

	<i>Michigan</i>	<i>Percentage of Indirect</i>
<b>Illinois</b>	\$40,000	10%
<b>Indiana</b>	\$40,000	10%
<b>Michigan</b>	\$1,520,000	
<b>Ohio</b>	\$60,000	15%
<b>Wisconsin</b>	\$20,000	5%
<b>Midwest Total</b>	\$140,000	40%
<b>RUS</b>	\$240,000	
<b>TOTAL</b>	\$1,950,000	

# Summary Interpretation

- **While interregional trade still dominates international trade in the Midwest, increasing percentage of the state-to-state flows are part of value chain associated with exported goods and services**
- **According to FRBNY study loss of jobs in this cycle unlikely to be replaced**

# Summary Interpretation

- **Job losses combination of many factors**
  - **Productivity improvements**
  - **Competitive advantages of East Asian economies**
  - **Steel prices**
- **Currency exchange rates**

# Summary Interpretation

- **Policy implications?**
  - **Intervention**
    - **conflict with free trade ideals**
    - **Fiscal wars zero sum game**
  - **Labor force training**
  - **Infrastructure**
  - **Adoption of energy renewable and energy efficiency programs – significant job creation and reduction of dependence on imported oil**

# Summary Interpretation

- **Policy implications?**
  - **Adoption of energy renewable and energy efficiency programs –**
  - **significant job creation and reduction of dependence on imported oil**
  - **Increase efficiency of US business**