Midwest Auto Industry - Performance and Outlook

Is Midwest Manufacturing at a Crossroads?
Federal Reserve Bank of Chicago
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Outline

- Industry Concentration
- Trends and Challenges
- Outlook
The Midwest is auto intensive

- 7th District share of

  Population 13%
  Manufacturing Production 18%
  Motor Vehicles and Equipment Production 40%
  Passenger Car Production 47%
  Light Truck Production 28%
  Foreign Nameplate Production 18%
The Bird’s Eye View: Assembly Plants

Auto assembly plants
The Bird’s Eye View: add Captive Suppliers

Captive supplier plants
The Bird’s Eye View: The Entire Industry
Zoom: Detroit Area as Hub of Auto Industry
In the Midwest, all roads lead to auto...

<table>
<thead>
<tr>
<th>Shares of Plants within 400 miles of Detroit</th>
<th>U.S.</th>
<th>CDN</th>
</tr>
</thead>
<tbody>
<tr>
<td>Assembly plants</td>
<td>58%</td>
<td>100%</td>
</tr>
<tr>
<td>Captive Plants</td>
<td>84%</td>
<td>91%</td>
</tr>
<tr>
<td>Tier 1 suppliers</td>
<td>65%</td>
<td>94%</td>
</tr>
</tbody>
</table>
Challenges
While Sales have been trending up during the 90s...
...the Big Three Share has been declining
More detail, same result: Down to 60%...
…despite rising marketing incentives

Sales price discount plus reduced financing costs, average per light vehicle. Source: J.D. Power and Associates
Shifting fortunes in market impact location of industry

Auto Share of GSP by State

US Average
IL
IN
WI
MI
OH
KY
TN
Assemblers and suppliers are tightly linked across the U.S.-Canadian border. Yet physical movement of goods relies on few crucial border crossings. Ambassador Bridge alone is gateway for 27% of all US Canada US border traffic.

Security measures implemented in light of 9/11 increased the potential for delay at the border and have raised costs across the supply chain.

Situation continues to be tenuous.
Recent UAW-BIG Three agreements allow for capacity reductions by Big Three.

Short term impact: closure of several assembly and captive parts plants, most in Midwest:

- DCX will close McGraw Glass in Detroit and Indianapolis Foundry
- GM expected to close Baltimore, MD assembly plant and parts plant in Saginaw, MI
- Ford expected to close Lorain, OH assembly plant, and parts plants in Michigan and Ohio

Over life of 4-year contract job reductions are expected to continue for Big Three as well as Delphi and Visteon
At the same time, foreign producers are still adding capacity in US at the southern end of the auto corridor. Currently under construction or announced:

- Hyundai, Montgomery AL
- Toyota, San Antonio TX
Big 3 dominate the northern end of the auto corridor (WI, IL, MI, IN, OH). Today over half of all US light vehicle assembly plants remain in that region - 81% of these are Big Three facilities. Southern end of auto corridor is home to about 20% of assembly plants, half of which are foreign producer facilities.

Future Big Three capacity reductions will disproportionately impact the northern end of the auto corridor.

What about supplier base?
Supplier locations

- Emerging shape of industry matters for suppliers:
  - Who is your customer?
  - Where is your customer located?
**Who is your customer?**

The auto corridor has two halves

<table>
<thead>
<tr>
<th>Domestic supplier plants</th>
<th>Japanese supplier plants</th>
</tr>
</thead>
<tbody>
<tr>
<td>Customer</td>
<td>All</td>
</tr>
<tr>
<td>MI</td>
<td>31.3</td>
</tr>
<tr>
<td>IN</td>
<td>10.9</td>
</tr>
<tr>
<td>OH</td>
<td>10.4</td>
</tr>
<tr>
<td>TN</td>
<td>6.3</td>
</tr>
<tr>
<td>KY</td>
<td>4.1</td>
</tr>
<tr>
<td>Top 3</td>
<td>52.6</td>
</tr>
</tbody>
</table>

Supplier plants that opened between 1980 and 1997
Where is your customer?

- Reliability of delivery crucial for operation of tight supply chains.

- Auto corridor’s transportation infrastructure is well developed and allows suppliers to serve multiple assembly plants from one location.

- Over what distance? Can ship from Grand Rapids, Michigan, to Louisville, Kentucky within a day (450 mile delivery radius), but not to San Antonio, Texas.
# Supplier networks are regional

Spatial Characteristics of supplier networks

<table>
<thead>
<tr>
<th>Assembly company</th>
<th># suppliers</th>
<th>Median Distance</th>
<th>% &lt; 100 miles</th>
<th>% &lt; 400 miles</th>
</tr>
</thead>
<tbody>
<tr>
<td>Honda</td>
<td>507</td>
<td>251</td>
<td>17</td>
<td>77</td>
</tr>
<tr>
<td>Toyota</td>
<td>452</td>
<td>285</td>
<td>10</td>
<td>76</td>
</tr>
<tr>
<td>A.-Alliance</td>
<td>360</td>
<td>242</td>
<td>29</td>
<td>65</td>
</tr>
<tr>
<td>Nissan</td>
<td>460</td>
<td>423</td>
<td>10</td>
<td>45</td>
</tr>
<tr>
<td>Saturn</td>
<td>300</td>
<td>477</td>
<td>8</td>
<td>35</td>
</tr>
</tbody>
</table>

Source: ELM, state manufacturing directories
...for more on this subject

- CHICAGO FED CONFERENCE: Geography of Auto Production - Will Detroit Continue to be the Industry’s Hub?
- November 3 2003
- Detroit, 160 W. Fort Street
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