THE NORTH AMERICAN AUTO INDUSTRY:
EXTRAORDINARY HISTORY, UNCERTAIN FUTURE

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OVERVIEW

• For more than century, U.S. auto industry has been at center of manufacturing, providing jobs benefitting tens of millions of people
  – Also, skills, mobility into middle class, health benefits, retirement security
  – 50 years ago, Detroit had the highest per capita income of any city in U.S. and the highest rate of home ownership
  – Over the last 30 years, spillovers to Canada, Mexico

• Extraordinary record unmatched by any other industry
• In 2008, GM celebrated its 100 year history (Ford did in 2003)
• As GM kicked off a corporate centennial celebration:
  – Market share in steady decline
  – GM share price down to $25 from 2000 peak of $94
  – On its way to a loss of $30 plus billion
MARKET SHARES OF U.S. VEHICLE SALES
• And *then* the overall market collapsed
MARKET COLLAPSE

• Effect of auto market collapse was immediate and dramatic
  – GM sales fell 45% in the first four months of 2009 from the same period in 2008
  – Ford sales down 42%
  – Chrysler sales fell by 46%
  – After initially holding up, sales of Toyota, Honda, and others followed suit

• GM’s share price now down to $1.15 (May 12 close)
  – Lost $6B in latest quarter
  – Now surviving only on government support
ISSUES TO BE ADDRESSED

1. Multiple causes of crisis in auto industry
   Short run vs. long run
2. Differential impact on various sectors and players
3. Policy interventions and the likely future
PROBLEMS OF U.S. AUTO COMPANIES

• The short run problem is simply the sudden and enormous collapse of sales

  Unprecedented in magnitude

  Predictably dramatic effect in a high fixed cost industry
SHORT RUN PROBLEMS

• Macro:
  1) Great recession
  2) Credit Crunch

• Micro:
  1) “Overselling” of cars, especially in U.S., due to cheap credit, discounting, sales to rental fleets
  2) Postponable purchases
LONG RUN PROBLEMS

• Long run problems deeply structural
  – Largely unaddressed by U.S. companies
  – Have left U.S. companies exposed to many threats

• Need to analyze these in order to understand the “but-for” industry, i.e., what was happening even before short run problems
PRODUCT PROBLEMS

1. Quality differential
2. Inferior designs
3. *Fixation on one-off profitable vehicles*
ONE-OFF PROFITABLE VEHICLES

U.S. Vehicle Sales (millions of units)

Minivan

Sport Utility Vehicle
PRODUCTION PROBLEMS

1. Operating costs

2. Legacy costs
OPERATING COSTS

North American Plants, Total Hours per Vehicle
LEGACY COSTS

- GM legacy costs driven by high number of retirees and dependents per active worker

<table>
<thead>
<tr>
<th></th>
<th>Active</th>
<th>Retired</th>
<th>Spouse</th>
<th>Total</th>
<th>Retiree Ratio</th>
</tr>
</thead>
<tbody>
<tr>
<td>Chrysler</td>
<td>48,927</td>
<td>55,183</td>
<td>23,252</td>
<td>127,362</td>
<td>1.6</td>
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<tr>
<td>Ford</td>
<td>58,300</td>
<td>94,824</td>
<td>28,183</td>
<td>181,307</td>
<td>2.1</td>
</tr>
<tr>
<td>GM</td>
<td>73,454</td>
<td>269,614</td>
<td>69,288</td>
<td>412,356</td>
<td>4.6</td>
</tr>
<tr>
<td>Totals</td>
<td>180,681</td>
<td>419,621</td>
<td>120,723</td>
<td>721,025</td>
<td>3.0</td>
</tr>
</tbody>
</table>
PER-HOUR EMPLOYEE COSTS

**Ford, General Motors and Chrysler**

- **TOTAL:** $71 to $74
- **Wages:** $29-30
- **Wage-related costs:** $14
- **Benefits:** $12
- **Legacy costs:** $16-18

**Toyota, Honda and Nissan**

- **TOTAL:** $48 to $51
- **Wages:** $25-28
- **Wage-related costs:** $9
- **Benefits:** $11
- **Legacy costs:** $3
CORPORATE PROBLEMS

• Management weaknesses
• Governance failures

GOVERNMENT POLICY

• Cheap gas policy
• Alternative technology diversion
RESULTS OF LONG RUN PROBLEMS

• Core U.S. auto companies have been in long term decline
  – Loss of sales, especially in passenger cars
  – Loss of plants
  – Loss of employment
  – Loss of dealers
PROMINENT CAR SALES DECLINE

U.S. Car and Light-Truck Sales by Type of Company

- Cars, Big Three
- Cars, Other
- Trucks, Big Three
- Trucks, Other
LOSS OF PLANTS

North American Car and Truck Assembly Plants

- Big Three
- Others

Year:
- 2001
- 2007
LOSS OF DEALERSHIPS

Total Light-Vehicle Dealerships in U.S.
# LOSS OF EMPLOYMENT

<table>
<thead>
<tr>
<th>Employees (in thousands)</th>
<th>September 2001</th>
<th>September 2008</th>
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</thead>
<tbody>
<tr>
<td>Motor Vehicles</td>
<td>277.8</td>
<td>196.0</td>
</tr>
<tr>
<td>Motor Vehicles Bodies and Trailers</td>
<td>155.7</td>
<td>128.7</td>
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<tr>
<td>Motor Vehicle Parts</td>
<td>767.6</td>
<td>531.9</td>
</tr>
<tr>
<td><strong>Total Motor Vehicle Manufacturing</strong></td>
<td><strong>1201.1</strong></td>
<td><strong>856.6</strong></td>
</tr>
<tr>
<td>Wholesale Distribution</td>
<td>348.6</td>
<td>340.1</td>
</tr>
<tr>
<td>Auto Dealers</td>
<td>1227.8</td>
<td>1180.3</td>
</tr>
<tr>
<td>Auto Parts and Accessories</td>
<td>496.9</td>
<td>504.5</td>
</tr>
<tr>
<td>Gasoline Stations</td>
<td>921.2</td>
<td>833.9</td>
</tr>
<tr>
<td>Auto Repair and Maintenance</td>
<td>902.2</td>
<td>864.1</td>
</tr>
<tr>
<td><strong>Total Services</strong></td>
<td><strong>3896.7</strong></td>
<td><strong>3722.9</strong></td>
</tr>
</tbody>
</table>
DECLINING UNION MEMBERSHIP

UAW Members

![Bar chart showing declining membership from 1995 to 2006. The membership peaks in 1996 and 1997 and steadily decreases until 2006.]
LONG RUN DECLINE

• This decline seems to have been tacitly accepted by companies, unions, governments
  – Detroit was in slow secular decline toward new equilibrium
  – Census Bureau estimates that in 2007 Detroit had lowest median income per household ($28,097) and one of highest poverty rates (33.8%), among large counties and places
  – Flint MI now has 5000 employees (down from 100,000) with parts of city abandoned and proposal to downsize it by bulldozing
PREMISES OF DECLINE

• Acceptance may have been recognition that:
  Decline of U.S. industry to new equilibrium of smaller size is inevitable
  Slower rate of decline useful for individuals and cites to adjust
    Adjustment is really the only factor within policy control
• Great sales collapse undermined even this modest plan
SEGMENTS OF THE AUTO INDUSTRY

• The “Big Three”—GM, Ford, and Chrysler—attract most attention
  — Deservedly, since they are at foundation

• Entire industry consists of numerous important segments
  — Transplants
  — Suppliers
  — Canada and Mexico
CANADA & MEXICO PRODUCTION

Light-Vehicle Production by Country

Millions


Canada
Mexico
POLICY IN U.S.

• Policy now combination of principle and necessity
  – Focused on the Detroit 3
  – Emphasizes support for suppliers
    • Customer warranties
    • Stranded assets
    • Spillovers
  – Proposal for vouches for replacement sales
COSTS OF ASSISTANCE

- Loans to auto makers $22.9B
- Assistance to finance companies 7.4
- Supplier Support Program 5.0
- Warranty Commitment Program 1.1

- TOTAL $36.4B
UNANSWERED QUESTIONS

• New industry equilibrium unclear
  – Fate of Chrysler uncertain
  – Prospects for GM in bankruptcy
  – Fate of large vehicles
  – Merits of switch to alternative technologies

• Key troublesome question
  – What if Detroit 3 collapse following government's directives?
THE REST OF THE FUTURE

• Plants, production, jobs will continue to close in upper Midwest
  – Unions will continue to lose members even if total employment holds up
  – Number of dealers will fall dramatically

• Winners will include:
  1) Transplant and imports, including new sources
  2) Southern states
  3) Consumers
SUMMARY

• US auto industry deteriorating for long time
  – Past efforts have not altered course of events
  – Rather, have slowed and smoothed adjustment

• Events have now taken over
  – Policy is now seeking far greater role in transforming industry than any prior outside force
  – Will policy now be able to fundamentally alter equilibrium, not just the process of adjustment?