The North American Automobile Industry

Kim Hill
Director, Sustainability and Economic Development Strategies
Center for Automotive Research
Ann Arbor, Michigan

FTA Revenue Estimating Conference
Hilton Springfield, Springfield, IL

October 7, 2013
The Center for Automotive Research conducts leading-edge research that impacts the future of the global automotive industry.

- Automotive industry contract research and service organization
- CAR is a standalone Non-Profit 501(c)3 since 2003
- Based in Ann Arbor, MI – 30+ Employees
- CAR forecasts industry trends, advises on public policy, and sponsors multi-stakeholder communication forums
CAR Research and Analysis includes industry impact, economics and forecasting:

- Manufacturing, Engineering and Technology
- Transportation Systems Analysis
- Industry & Labor Analysis Group
- Sustainability & Economic Development Strategies
Automotive Industry Economic Analysis

Long Range Sales, Production, Employment Outlook

CAR Research and Analysis focuses on industry impact, economics and forecasting.
CAR Research & Contribution Examples:

- Collaboration & Partnership Development
- OEM & Supplier Relationships
- Automotive Industry Economics
- Forecasting; Sales, Production, Employment
- Manufacturer Investment Analysis
- National Academies of Science – National Research Council (NRC), Fuel Economy Technologies & Strategies
- Supply Base & Supply Chain
- Economic Impact Assessments
- Applied Research & Co-Development
- Supplier Benchmarking
- Product Timing Charts
- Tooling / Materials & Lightweighting
- Safety Regulations
- Bio-Materials & Green Manufacturing
- CAR’s Book of Deals, N.A. Manufacturing Facilities
- Economic Development
- 50 State Tax Contributions
- Automaker & Supplier Job Multipliers
- Automotive Communities Partnership
- Southern Automotive Research Agenda
- Connected Vehicle & ITS, HMI, Driver Distraction
- Autonomous Vehicles
- Consumer Perceptions of Connected Vehicle Technologies
- Mobile Computing Applications
- Alternative Powertrains and Electrification
- Workforce, Skills Gap, Education and policies
- Employment & Labor Statistics
The Automotive Communities Partnership

Companies and communities working on enhancing the automotive endowment

- Widespread participation from Ontario to Illinois, with diversity of participants
  - 35 regional ED organizations—representing 50 counties
  - 7 utility companies, 5 automobile companies (DCX, Honda, GM, Ford, Toyota), numerous suppliers (ArvinMeritor, Dana, Denso, JCI, etc.)

- Specialized analyses
- Objective advice
- Best practices
- Forum for topical issues and actions
- Providing communities with much needed industry information
- Collaborating on a common mission
2012 North American Automaker & Part Supplier Footprint
U.S. Light Vehicle Sales
Percent Change YTD Through September: 2013 vs. 2012

<table>
<thead>
<tr>
<th>Category</th>
<th>2013</th>
<th>Change</th>
<th>2012</th>
<th>Change</th>
</tr>
</thead>
<tbody>
<tr>
<td>Total</td>
<td>11,773,338</td>
<td>+ 872,677</td>
<td>10,900,661</td>
<td></td>
</tr>
<tr>
<td>Light Trucks</td>
<td>5,791,648</td>
<td>+ 591,554</td>
<td>5,199,084</td>
<td>49.2%</td>
</tr>
<tr>
<td>Passenger Cars</td>
<td>5,981,690</td>
<td>+ 281,123</td>
<td>5,700,537</td>
<td>50.8%</td>
</tr>
</tbody>
</table>

Source: Automotive News; CAR Research
Percent Change in Sales of Light Vehicles Per OEM:
YTD Through September: 2013 vs. 2012

<table>
<thead>
<tr>
<th>OEM</th>
<th>Percent Change in Sales of Light Vehicles</th>
</tr>
</thead>
<tbody>
<tr>
<td>TOTAL</td>
<td>9.5%</td>
</tr>
<tr>
<td>Ford</td>
<td>12.8%</td>
</tr>
<tr>
<td>Fiat-Chrysler</td>
<td>11.0%</td>
</tr>
<tr>
<td>GM</td>
<td>10.3%</td>
</tr>
<tr>
<td>Nissan</td>
<td>9.8%</td>
</tr>
<tr>
<td>Honda</td>
<td>9.6%</td>
</tr>
<tr>
<td>Toyota</td>
<td>9.5%</td>
</tr>
<tr>
<td>Hyundai-Kia</td>
<td>0.6%</td>
</tr>
</tbody>
</table>

Source: Automotive News; CAR Research
Big 7 Monthly U.S. Market Share
1999 – 2013 YTD (September)

Source: Automotive News; CAR Research
U.S. Light Vehicle Monthly Sales and SAAR
September 2011 – September 2013

Source: Automotive News; CAR Research
Detroit Three at 45.3% in September 2013
U.S. Market Share:
September 2013 & YTD Total

Source: Automotive News; CAR Research
Unemployment Rate
January 2008 – July 2013

Source: Bureau of Labor Statistics
Motor Vehicle & Parts Manufacturing Employment
1999 – July 2013

Source: BLS, U.S. DOL
Auto Sales and Economic Growth are Disconnected
U.S. GDP Growth Rate and Vehicle Sales Growth Rate
1952 – Q2 2013

Source: Bureau of Economic Analysis
Household Net Worth and Vehicle Sales 1978-2013*

Source: Federal Reserve Statistical Release, Z.1, Flow of Funds Accounts of the United States
*Net worth as of Q1 2013; sales as of 1H 2013 SAAR.
Real Household net worth is deflated by CPI.
<table>
<thead>
<tr>
<th>Question</th>
<th>Answer</th>
</tr>
</thead>
<tbody>
<tr>
<td>Product?</td>
<td>Yes</td>
</tr>
<tr>
<td>Productivity?</td>
<td>Yes</td>
</tr>
<tr>
<td>Profitability?</td>
<td>Yes</td>
</tr>
<tr>
<td>Investment?</td>
<td>Yes</td>
</tr>
<tr>
<td>Production?</td>
<td>Not quite yet</td>
</tr>
<tr>
<td>Sales?</td>
<td>Not quite yet</td>
</tr>
<tr>
<td>Employment?</td>
<td>No</td>
</tr>
</tbody>
</table>
Per Vehicle Profits*, North America 2006—2013/1stH

*EBIT or automotive operating income per vehicle sold. Global average for Chrysler figure. Honda excludes motorcycle, finance, and power products.
U.S. Auto Sales Are Still Improving

Good:

- Net Household Wealth is improving
- Unemployment rate at 7.3%
- Used Vehicle prices and age of fleet are still high – scrappage low
  Auto density increasing . . .
- Sales up despite high prices – pent-up demand! Increased leasing
- Credit is very available/interest rates almost record low
- Consumer confidence steady... House prices improving
- The Cliff turned out to be a molehill so did the Sequester: Deficit down

But . . .

Bad:

- Economy still growing at “stall speed”? Or reaching “escape velocity?” More Fiscal Cliffs?
- Still 12 million unemployed, or more . . .
- States/Cities cutting spending and employment
- Corporations nervous to hire
- Developing economies in trouble
- Europe is stagnant
They are Getting Old . . .
U.S. Light Vehicle Age and Scrappage Rate

<table>
<thead>
<tr>
<th>Year</th>
<th>Average Age</th>
<th>Scrappage Rate (%)</th>
</tr>
</thead>
<tbody>
<tr>
<td>1997</td>
<td>8.6</td>
<td>6.78</td>
</tr>
<tr>
<td>1998</td>
<td>8.8</td>
<td>5.88</td>
</tr>
<tr>
<td>1999</td>
<td>8.8</td>
<td>5.76</td>
</tr>
<tr>
<td>2000</td>
<td>8.9</td>
<td>6.74</td>
</tr>
<tr>
<td>2001</td>
<td>8.9</td>
<td>6.40</td>
</tr>
<tr>
<td>2002</td>
<td>9.0</td>
<td>6.19</td>
</tr>
<tr>
<td>2003</td>
<td>9.1</td>
<td>5.50</td>
</tr>
<tr>
<td>2004</td>
<td>9.4</td>
<td>4.76</td>
</tr>
<tr>
<td>2005</td>
<td>9.5</td>
<td>4.35</td>
</tr>
<tr>
<td>2006</td>
<td>9.7</td>
<td>5.03</td>
</tr>
<tr>
<td>2007</td>
<td>9.8</td>
<td>5.24</td>
</tr>
<tr>
<td>2008</td>
<td>10.0</td>
<td>5.66</td>
</tr>
<tr>
<td>2009</td>
<td>10.3</td>
<td>4.12</td>
</tr>
<tr>
<td>2010</td>
<td>10.6</td>
<td>5.21</td>
</tr>
<tr>
<td>2011</td>
<td>10.9</td>
<td>4.90</td>
</tr>
<tr>
<td>2012</td>
<td>11.2</td>
<td></td>
</tr>
<tr>
<td>2013</td>
<td>11.4</td>
<td></td>
</tr>
</tbody>
</table>

Source: R.L. Polk
# 2013 U.S. Sales Forecasts (Units in Millions)

<table>
<thead>
<tr>
<th>Source</th>
<th>Forecast</th>
<th>Date</th>
</tr>
</thead>
<tbody>
<tr>
<td>CAR</td>
<td>15.7</td>
<td>9/13</td>
</tr>
<tr>
<td>LMC</td>
<td>15.6</td>
<td>7/13</td>
</tr>
<tr>
<td>Kelley Blue Book</td>
<td>15.6</td>
<td>7/13</td>
</tr>
<tr>
<td>KeyBank</td>
<td>15.6</td>
<td>7/13</td>
</tr>
<tr>
<td>Wells Fargo Advisors</td>
<td>15.2</td>
<td>4/13</td>
</tr>
<tr>
<td>KeyBank</td>
<td>15.5</td>
<td>4/13</td>
</tr>
<tr>
<td>Morgan Stanley</td>
<td>16.0</td>
<td>1/13</td>
</tr>
<tr>
<td>IHS Global Insight</td>
<td>15.4</td>
<td>7/13</td>
</tr>
<tr>
<td>Edmunds.com</td>
<td>15.5</td>
<td>4/13</td>
</tr>
<tr>
<td>AutoNation</td>
<td>15.5</td>
<td>7/13</td>
</tr>
<tr>
<td>PWC Autofacts</td>
<td>15.5</td>
<td>3/13</td>
</tr>
<tr>
<td>Polk</td>
<td>15.5</td>
<td>8/13</td>
</tr>
</tbody>
</table>
### 2013 U.S. Sales Forecasts

(Units in Millions)

<table>
<thead>
<tr>
<th>Brand</th>
<th>Forecast</th>
<th>Range</th>
</tr>
</thead>
<tbody>
<tr>
<td>Ford</td>
<td>15.75*</td>
<td>(15.5 – 16.0)</td>
</tr>
<tr>
<td>GM</td>
<td>15.25</td>
<td>(15.0 – 15.5)</td>
</tr>
<tr>
<td>BMW</td>
<td>14.8</td>
<td></td>
</tr>
<tr>
<td>Honda</td>
<td>15.2</td>
<td></td>
</tr>
<tr>
<td>Toyota</td>
<td>15.3</td>
<td></td>
</tr>
</tbody>
</table>

* Includes heavy duty trucks

Source: CAR Research, Jan. 2013

Source: CAR Research, July 2013
Economic Contribution Study: Michigan Assembly Plant
Michigan Assembly Plant and Purchases from Independent Suppliers

• In the past two years, Ford Motor Company has invested over $770 million at Michigan Assembly Plant (MAP)
  • convert the former truck plant to produce Focus and C-MAX
• The plant purchases over $1 billion in parts annually from Michigan-based businesses each year;
  – $1.8 billion throughout the U.S.
  – $3.2 billion total
• The Michigan Assembly Plant is served by 179 Tier 1 suppliers from across the United States
  – 80 of these firms located in Michigan.
Economic Contribution of MAP to the Michigan Economy

• Direct employment at MAP is over 5,000
• When supplier and spinoff jobs are taken into account, the facility supports another 19,000 jobs within Michigan
  – 48,000 total jobs in the United States (counting the assembly plant employees)
• These jobs generate annual wages of $1.8 billion in the state of Michigan
  – $3.6 billion nationally.
• MAP and its suppliers add $3 billion to the State Gross Product and almost $5.7 billion to national GDP.
• MAP and its suppliers generate $70 million in Michigan state taxes annually
MAP Independent Supplier Spending by State (Millions of Dollars), 2011

Source: Center for Automotive Research analysis of data supplied by Ford Motor Company
Assessment of Tax Revenue Generated by the Automotive Sector
Study Findings

• Auto industry generated over $130 billion in government tax revenue in 2010, including $91.5 billion for state governments and $43 billion for the federal government.

• The sources of these revenues include:
  • Sales taxes ($30 billion)
  • Income taxes ($15 billion)
  • Taxes and fees on use ($89 billion)
  • Business taxes and fees ($750 million)
State Government Revenue Overview

- Auto industry generated at least $91.5 billion in state government tax revenue in 2010, which is 13 percent of state government tax revenues.
- $30 billion from taxes on vehicle sales and service
- $860 million from taxes on direct employment
- $60 billion from taxes and fees on use of vehicles
- $750 million from taxes on businesses
Automotive Tax Revenues as a Percentage of Total Taxes Paid to State Governments

- Oklahoma: 23.4%
- Texas: 19.3%
- Florida: 19.9%
- Michigan: 12.6%
- Indiana: 15.9%
- Ohio: 16.7%
- Illinois: 16.2%

Color key:
- < 5%
- 5 to 10%
- 10 to 15%
- 15 to 20%
- > 20%
Small Suppliers:
Backbone of the Industry, but Constrained
Assembly

Tier 1

Tier 2

Tier 3
New Investment Announced!

$ ___ Million
___ New Jobs To Be Created
___ Unit Production Increase

But who will staff that new capacity? Where do those workers come from? Who has the needed skills and background?

Better cancel my vacation...
Questions?

Kim Hill
Director, Sustainability and Economic Development Strategies
Center for Automotive Research
Ann Arbor, Michigan
khill@cargroup.org