



# Michigan Automotive Industry Update

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Governor's Economic Outlook Briefing

22 November 2016

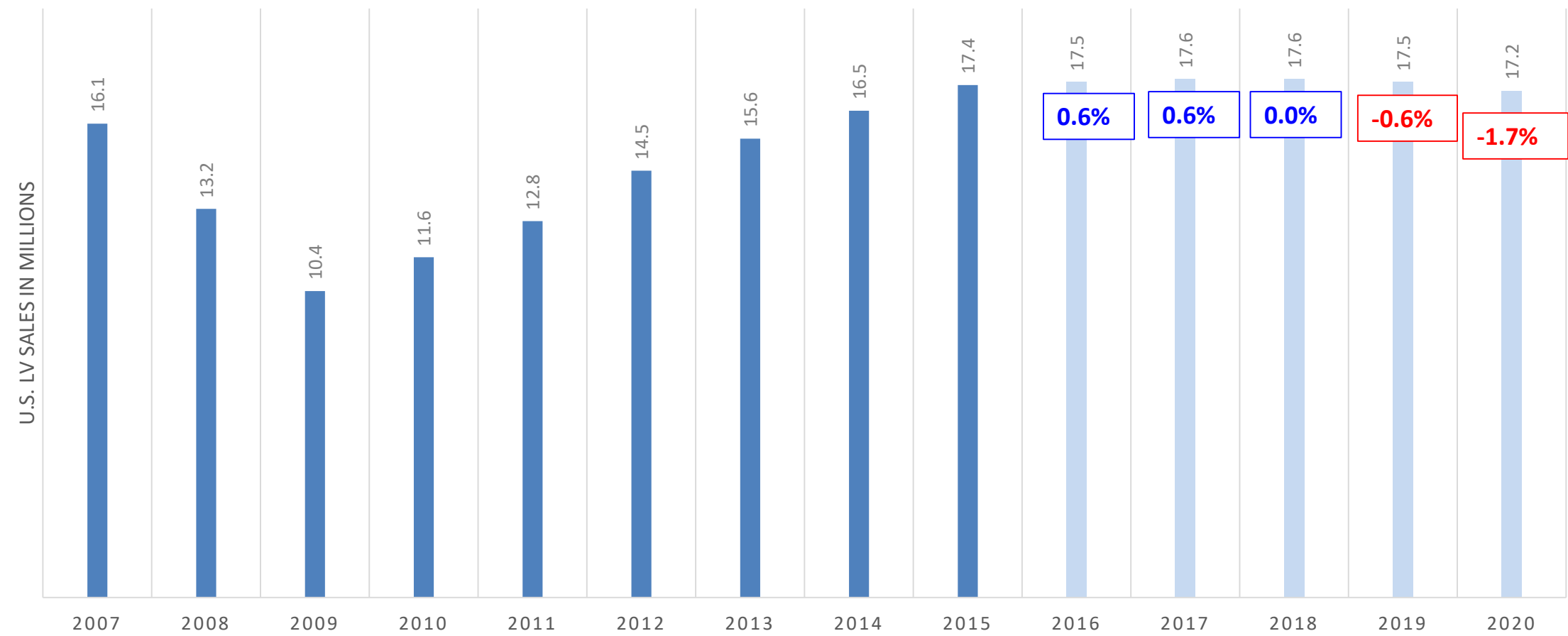
“...as we know, there are known knowns; there are things we know we know. We also know there are known unknowns; that is to say we know there are some things we do not know. But there are also unknown unknowns – the ones we don't know we don't know. And if one looks throughout the history of our country and other free countries, it is the latter category that tend to be the difficult ones.”

– Donald H. Rumsfeld  
12 February 2002

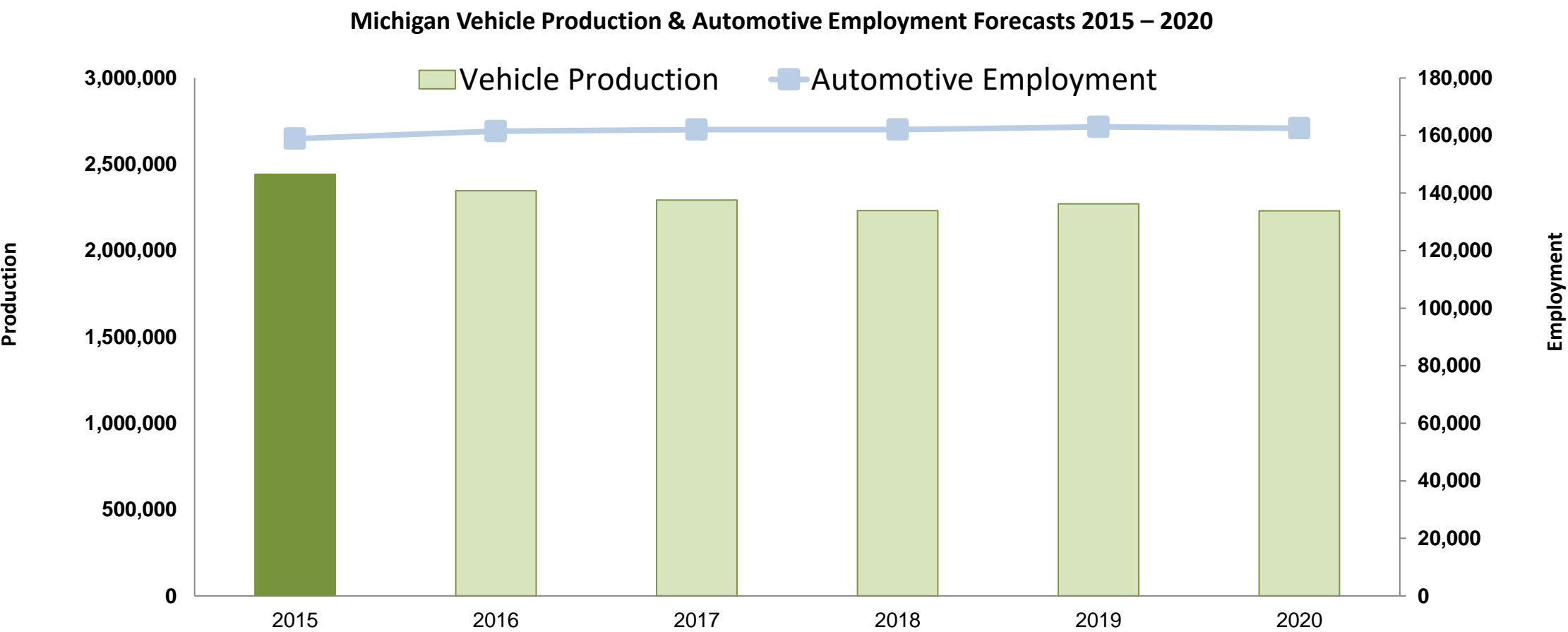


# CAR U.S. Light Vehicle Sales Forecast

2016 – 2020



# Michigan production and employment slow through 2020.



Sources: Production, LMC Automotive; Employment Forecast: CAR

# The Economic and Political Context of CAR's Forecast

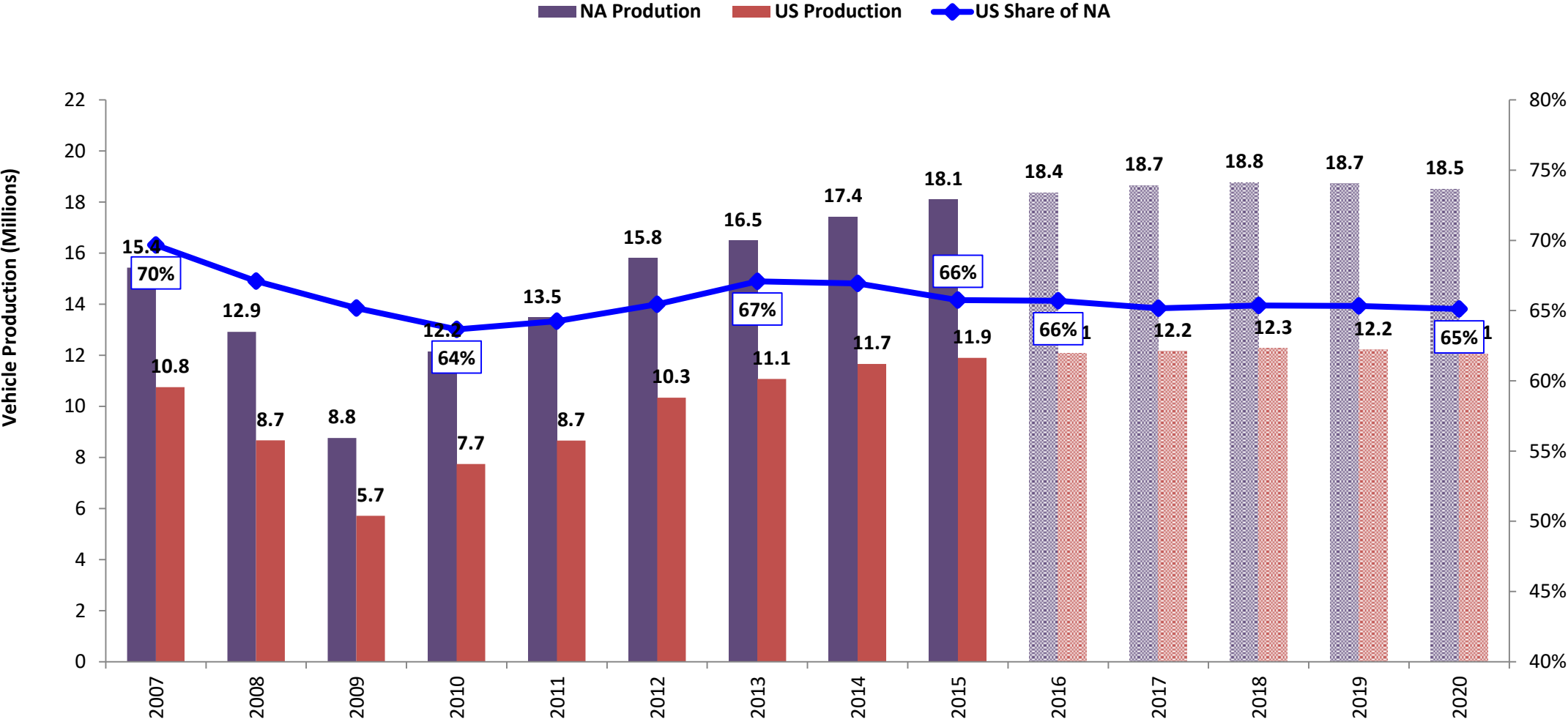
## On the positive side...

- +2.1 million full-time employees since October 2015
- Unemployment rate inched up to 5.0%, but labor force participation rate increased by 0.3 percentage point from a year ago
- Equity markets are at the historic high
- Gasoline is at low level and is expected to remain low
- U.S. housing starts maintained momentum at annual rate of 1.1-1.2 million units
- Light truck market share is over 60%—the highest level ever
- Auto loans are affordable for now, despite higher light vehicle prices

## Not so positive...

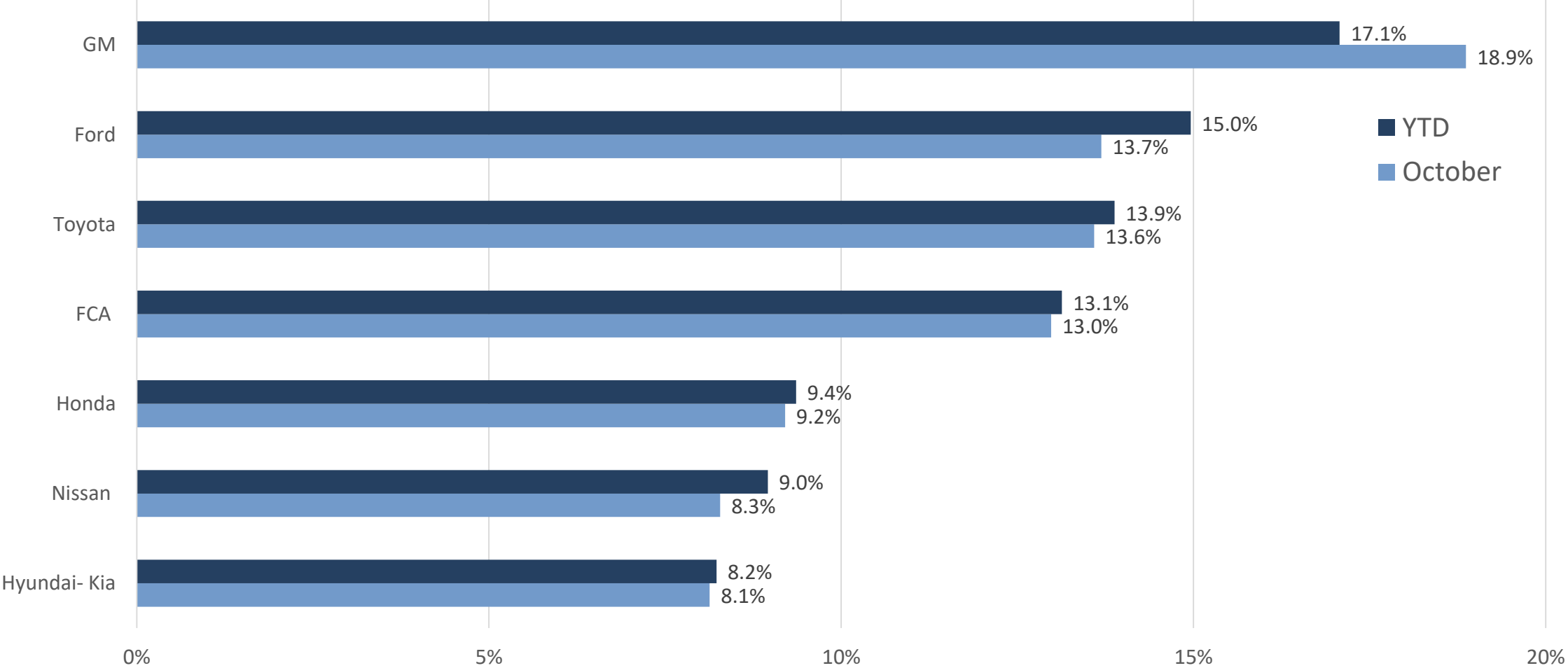
- Uncertainty over future Trump economic policies—what can he deliver?
- Toughening immigration policies could hinder domestic output and increase price inflation
- The first three quarters of 2016 economic growth was 1.7%—lower than expected
- Total consumption spending on motor vehicle declined
- Business investment contracted due to low energy prices
- Strong dollar will drive higher interest rates and inflation
- Vehicle affordability will drop
- What goes up, must come down...eventually

# U.S. Share of North American Production is Shrinking.



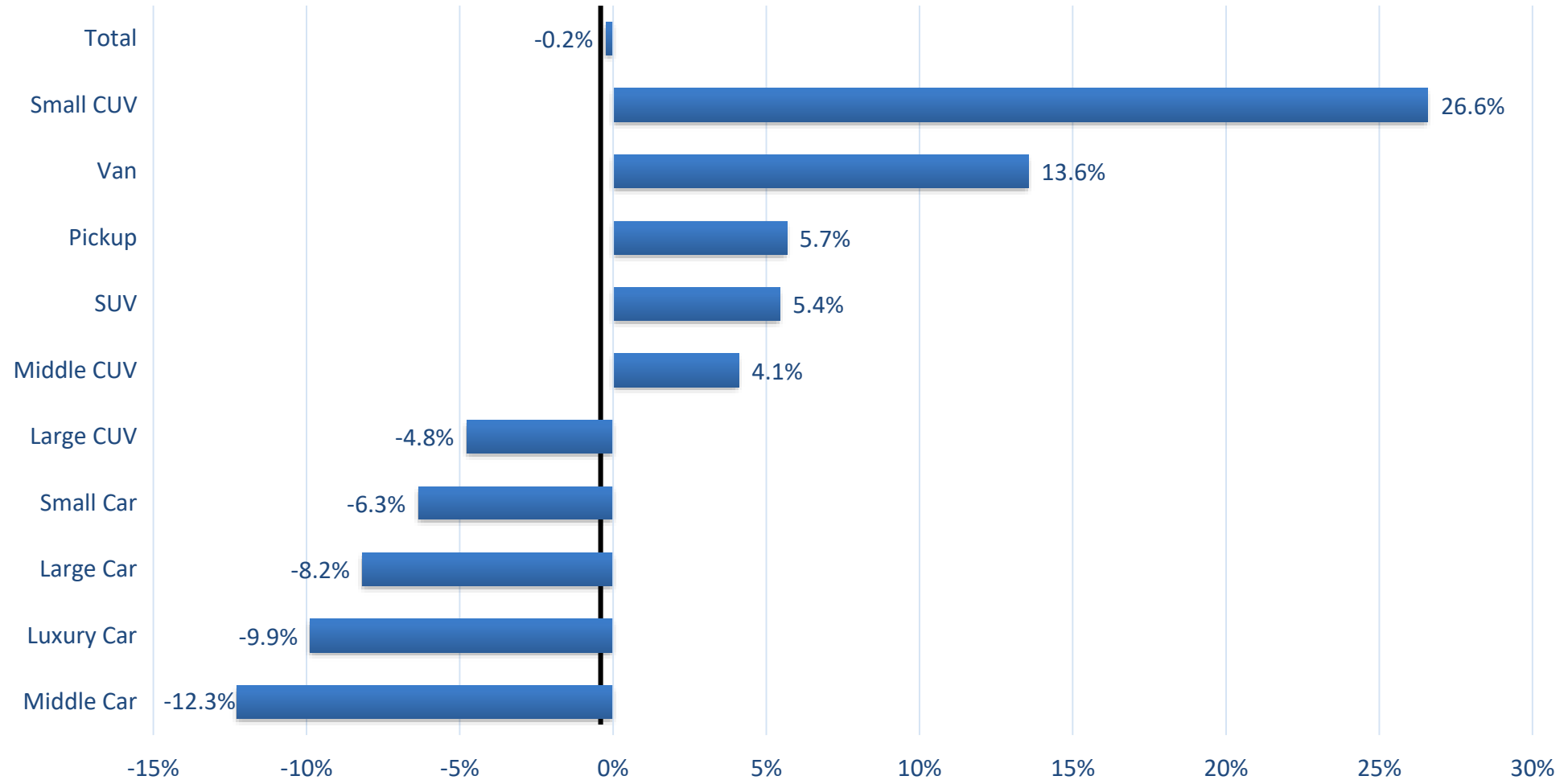
# Market Share Breakdown:

## U.S. Light Vehicle Sales by Automaker, YTD and October 2016



# Market Share Segment Breakdown:

U.S. YTD LV Segment Sales Y/Y Change – October 2016 vs. 2015

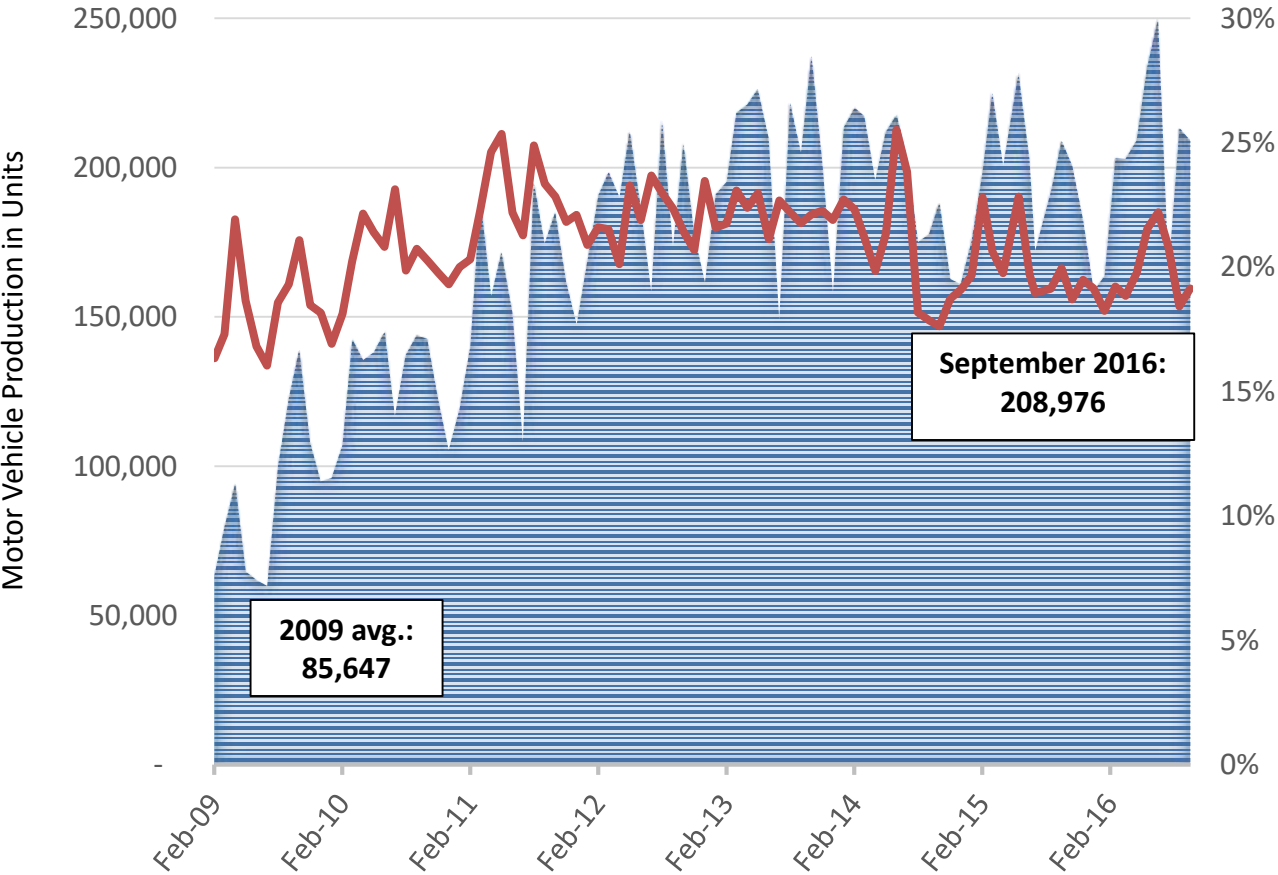




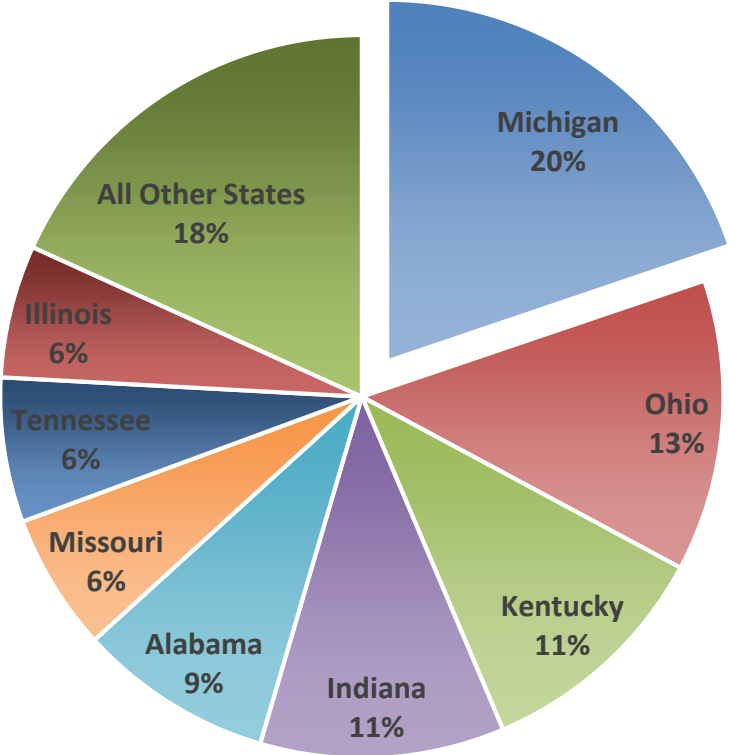
# Michigan Motor Vehicle Production: Unchanged from September 2015

MI Motor Vehicle Production

Production MI Share of U.S.

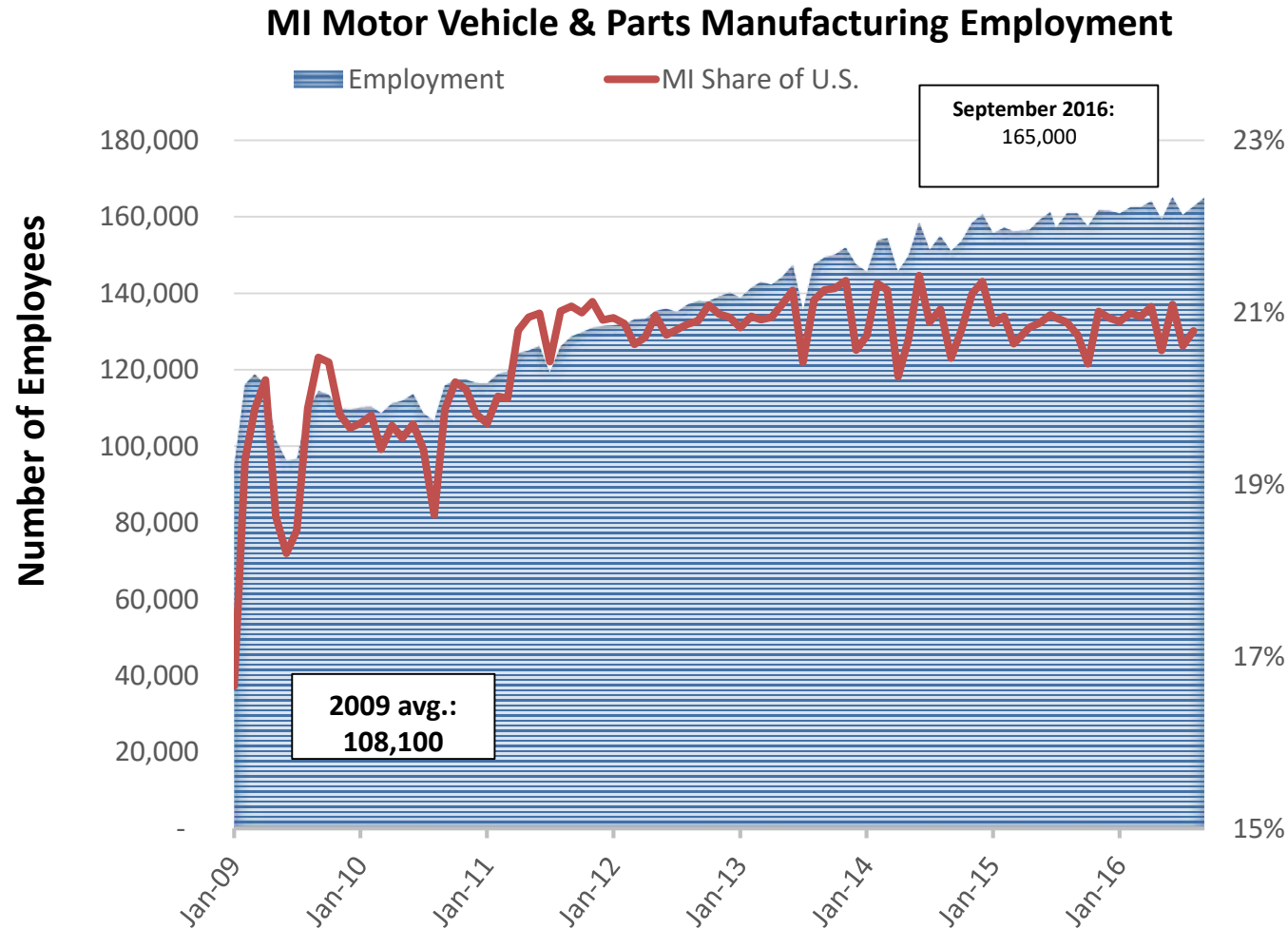


State Shares of U.S. Vehicle Production—2016 YTD (September)

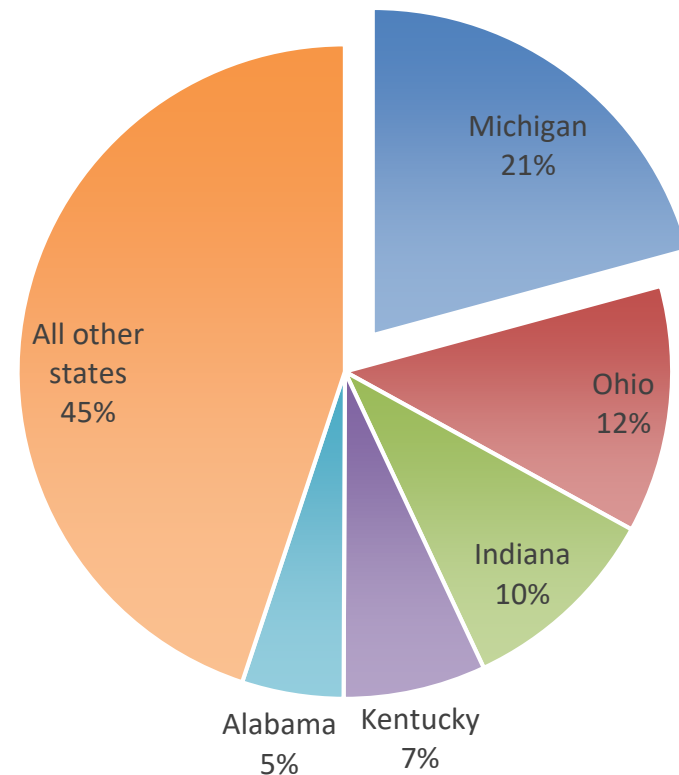


# Michigan Automotive Manufacturing Employment:

59,000 Jobs Added Since 2009, Up 53%



**State Shares of U.S. Motor Vehicle and Parts Manufacturing Employment—September 2016**



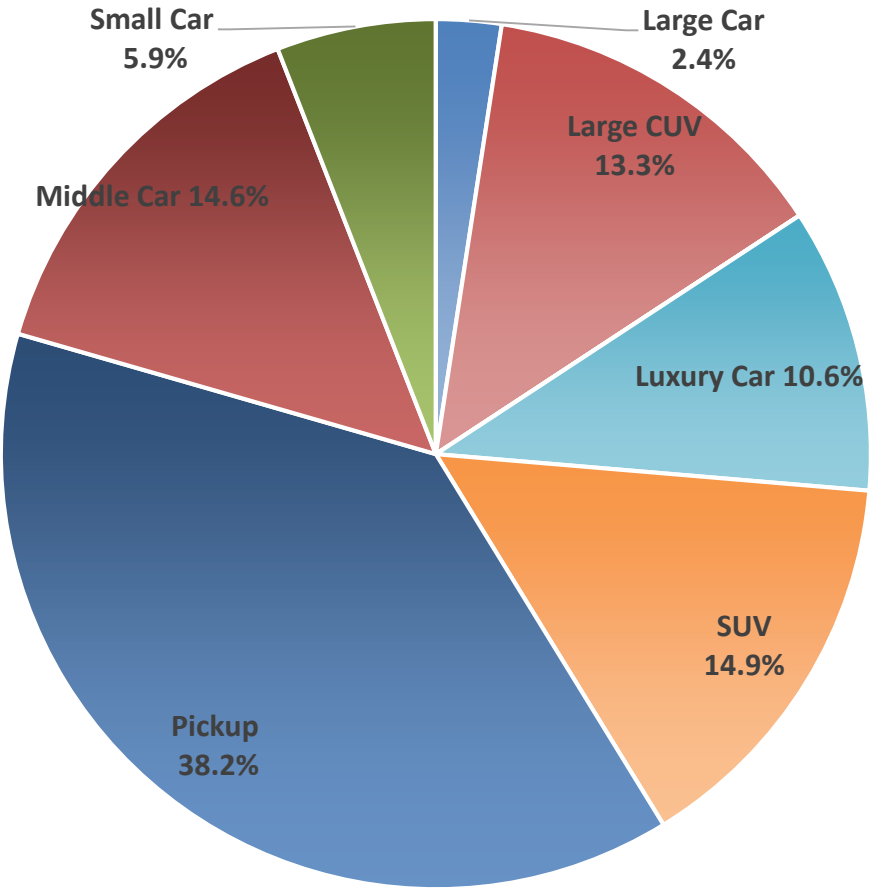
\*U.S. data is one month behind state data

Source: Current Employment Statistics, Bureau of Labor Statistics; NAICS 3361 & 3363

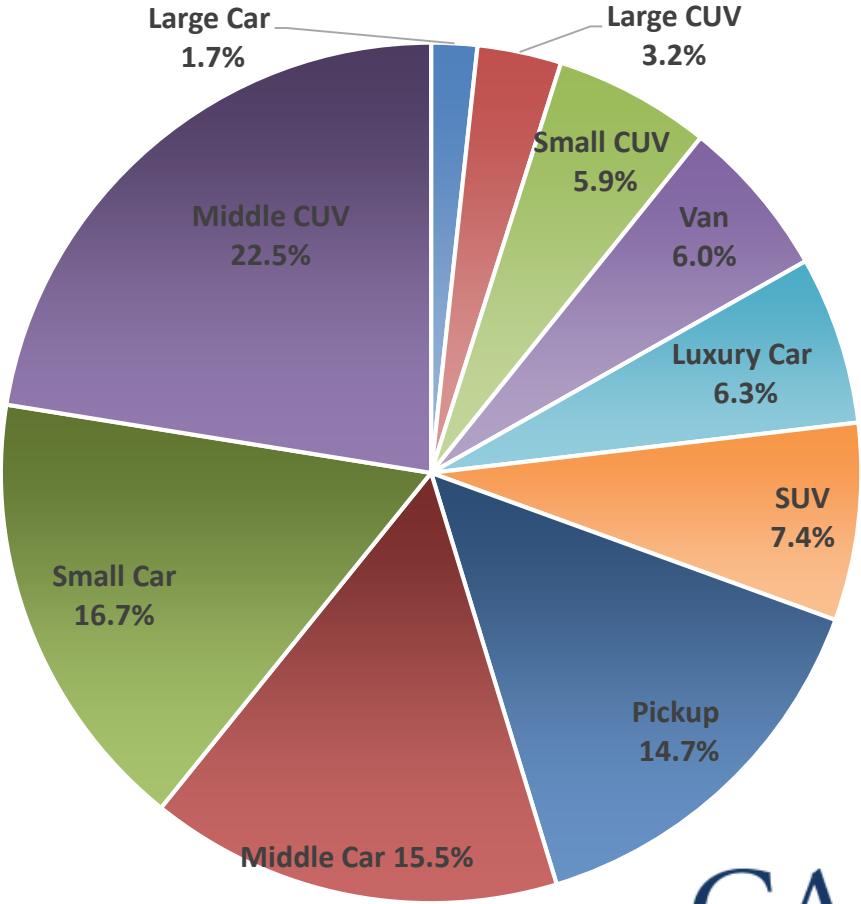
# Segment Breakdown of Michigan Production vs. U.S. Sales:

Michigan Production Concentrated on Pickups and SUVs (2016 YTD through September)

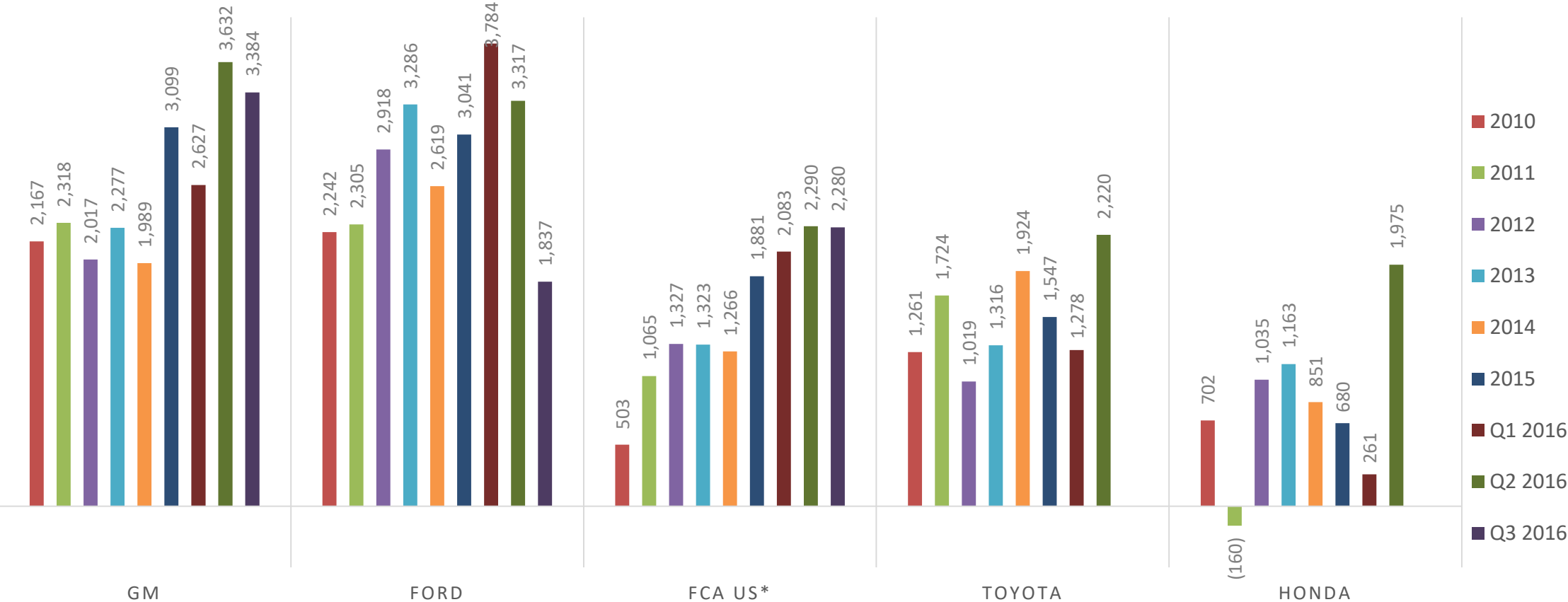
Michigan LV Production Share



U.S. Share

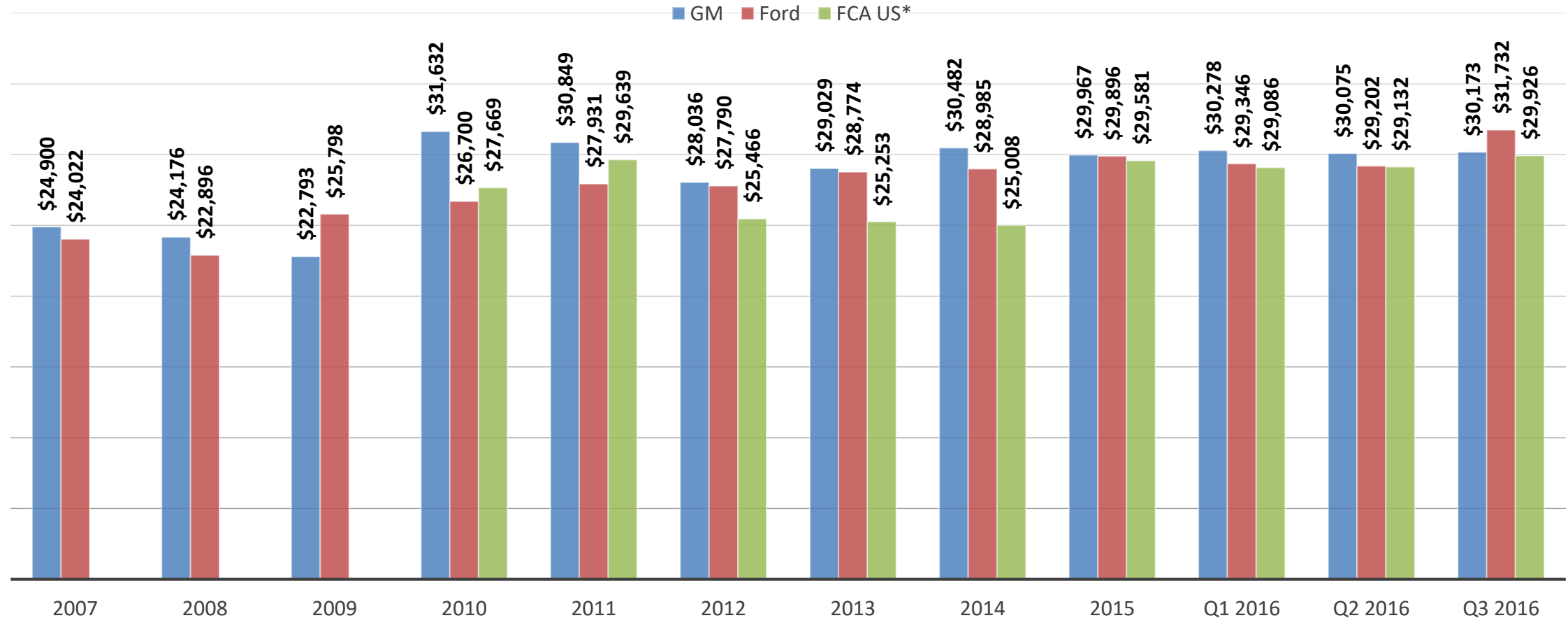


# North America Per Vehicle Operating Profits: 2010 – Q3 2016, USD Billions



\*Former Chrysler Group LLC after 2014 data is for FCA Group instead of FCA US  
\*\*Honda also excludes motorcycle, finance, and power products  
\*\*\*Honda and Toyota have yet to release Q3 figures

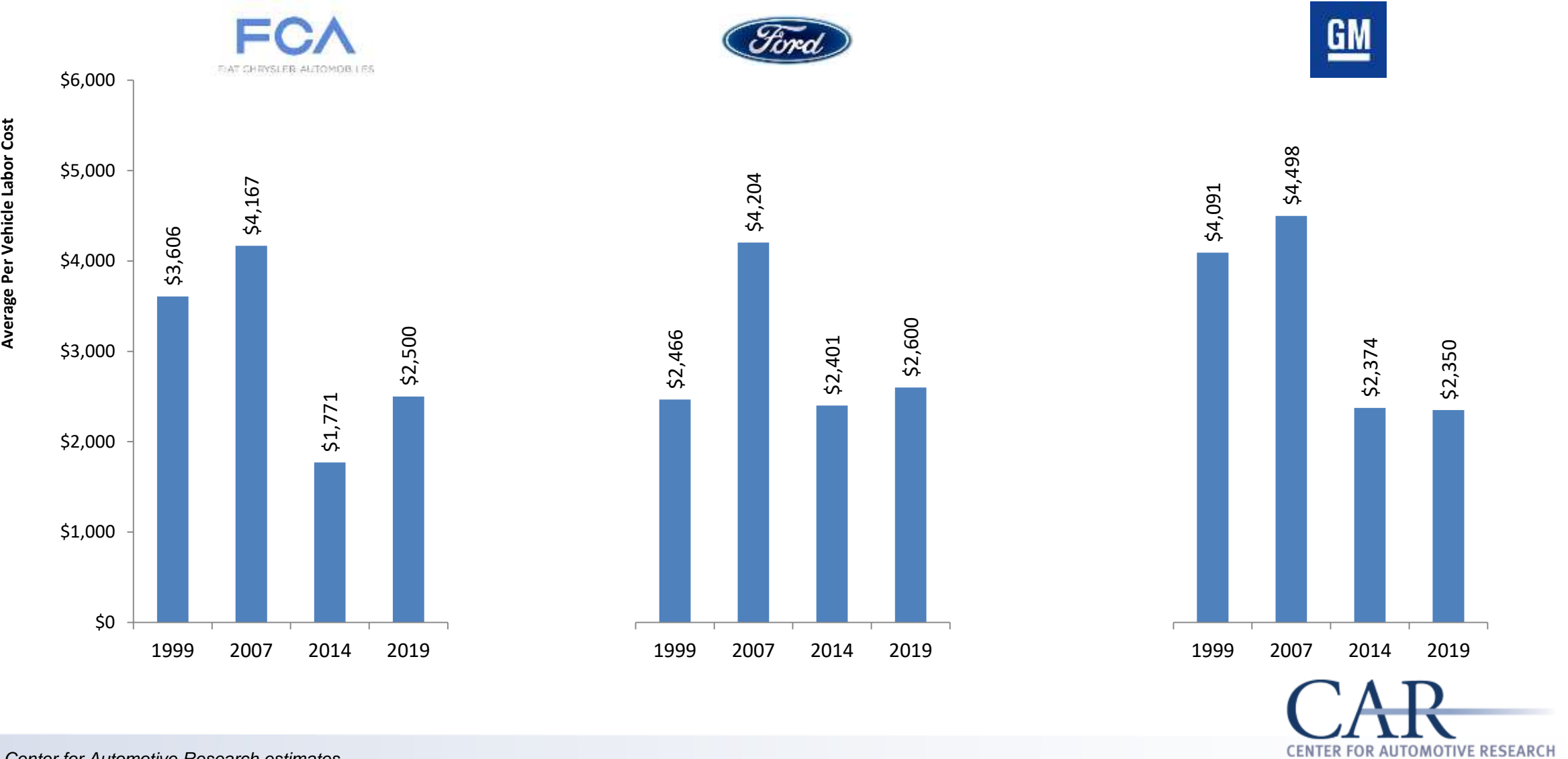
# North American Automotive Revenue Per Vehicle @ FCA, F, GM: 2007 – Q3 2016



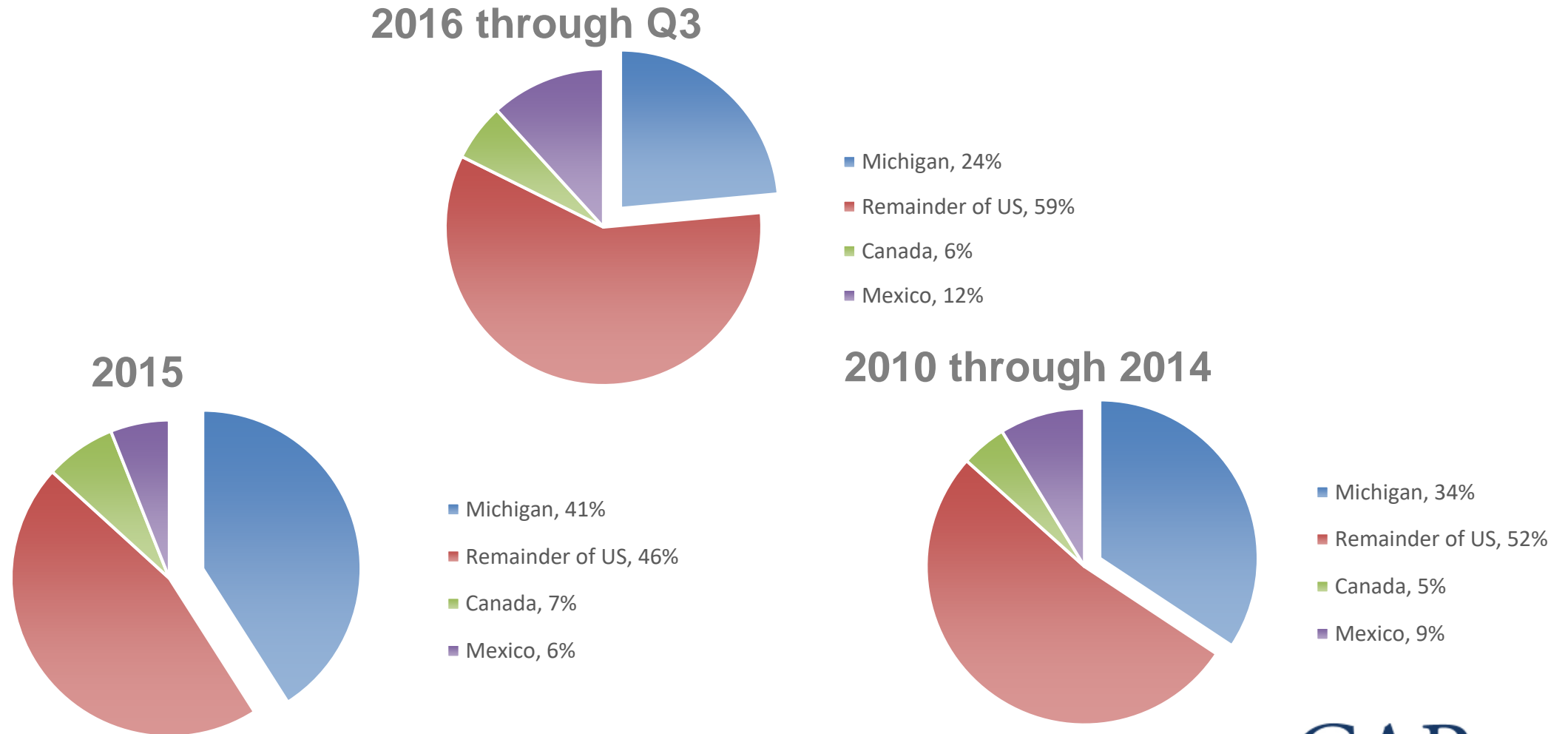
\*Former Chrysler Group LLC after 2014 data is for FCA Group instead of FCA US

Source: CAR Research based on companies' financial reports.

# Per Vehicle Labor Cost Changes, 1999-2019



# Announced Automotive Investment: Michigan Captured 24% of NAFTA Investment Through Q3 2016



# Recent Research from CAR

**Potential Cost Savings and Additional Benefits of Convergence of Safety Regulations between the United States and the European Union**

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**The Economic Implications of Potential NHTSA and EPA Regulatory Revisions on U.S. Light Truck Sales and Manufacturing**

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**The Growing Role of Mexico in the North American Automotive Industry - Trends, Drivers and Forecasts**

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**The Potential Effects of the 2017-2025 EPA/NHTSA GHG/Fuel Economy Mandates on the U.S. Economy**

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**Mixed Materials Solutions: Alternative Materials for Door Assemblies**

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**An Assessment of Powertrain Technology Costs Associated with Meeting CAFE and GHG Standards**

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**Impact of Automated Vehicle Technologies on Driver Skills**

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**Assessing the Fleet-wide Material Technology and Costs to Lightweight Vehicles**

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**The Impact of New Mobility Services on the Auto Industry**

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**Building Capacity and Capability in the Bio-based Materials Manufacturing Sector**

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# The Growing Role of Mexico in the North American Automotive Industry

## *Trends, Drivers and Forecasts*

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Prepared by



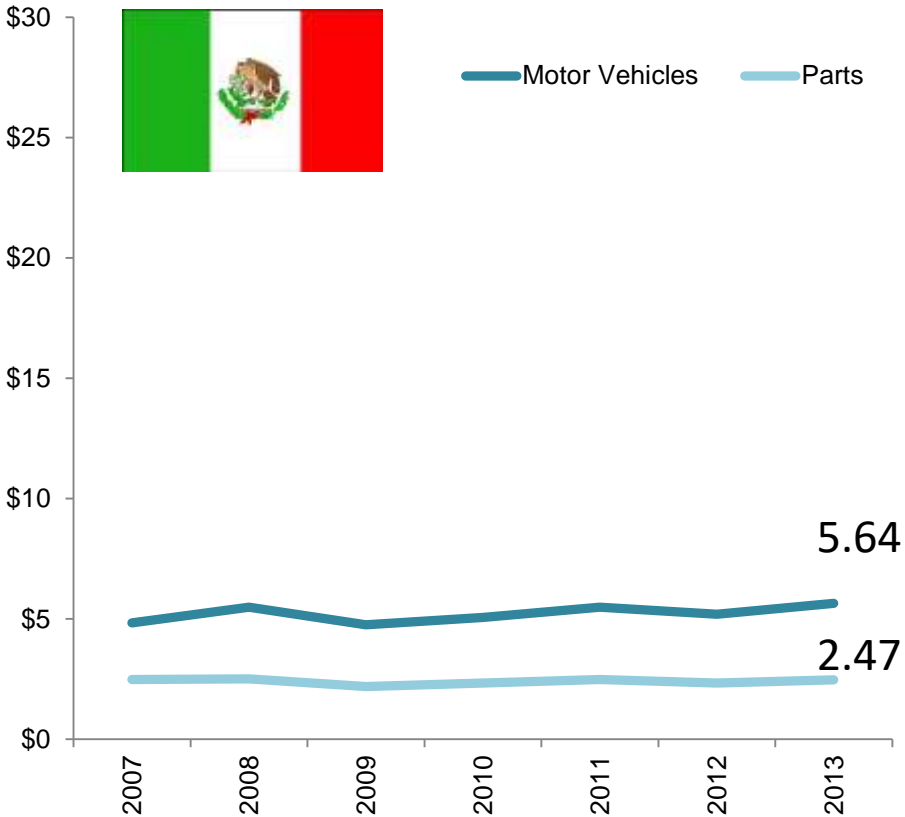
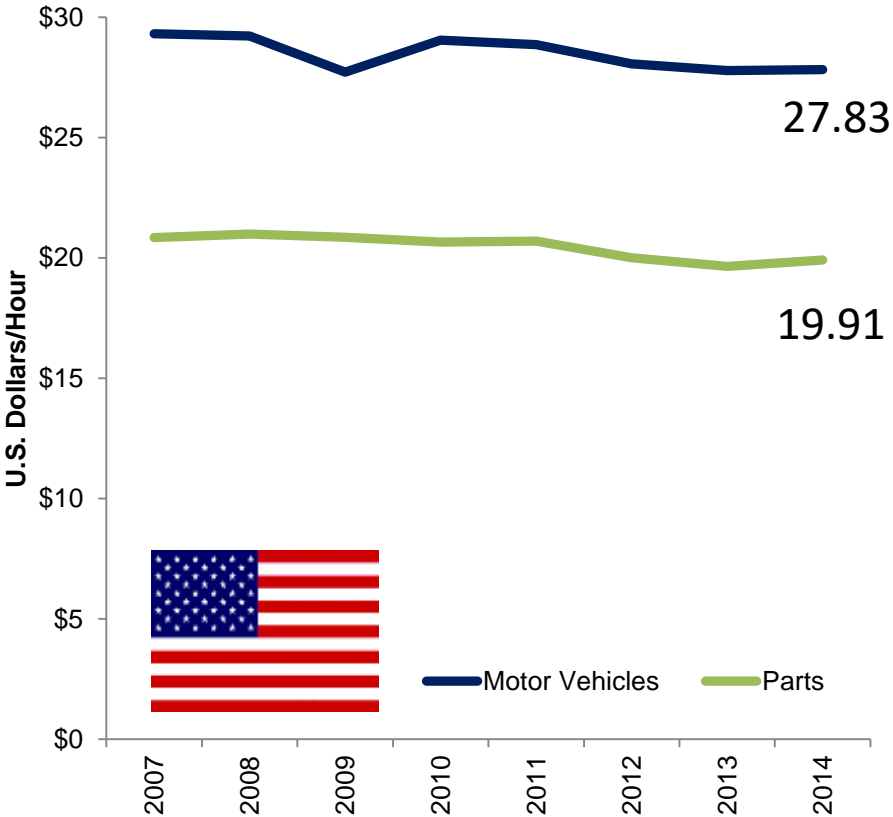
Prepared for



July 2016

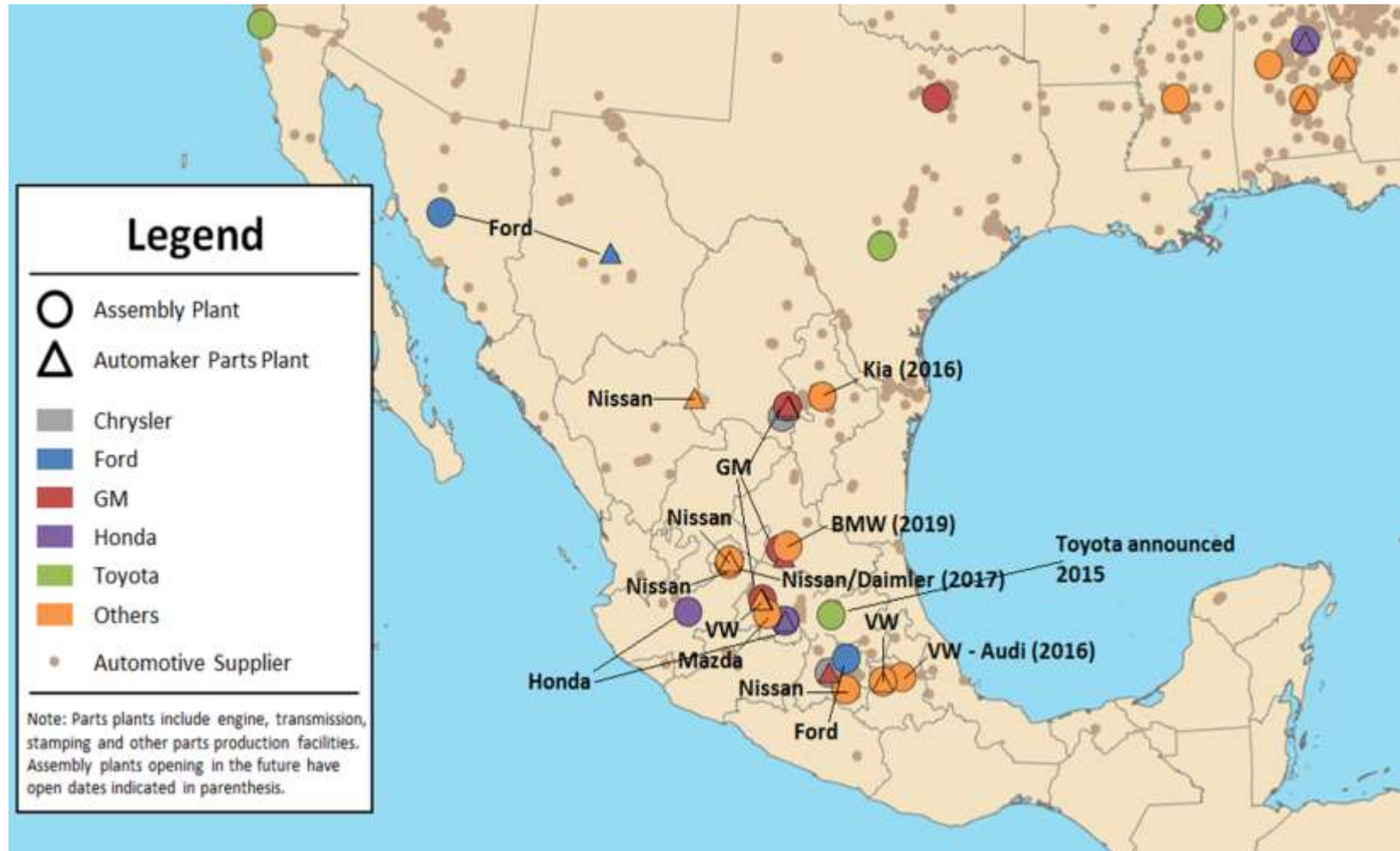
# Mexican Automotive Wages are One-Eighth to One-Fifth the Wages Paid to U.S. Hourly Auto & Parts Workers

Average Hourly Wages for Production and Non-Supervisory Workers in Motor Vehicle and Parts, 2007-2014



Sources: U.S. Department of Labor, Bureau of Labor Statistics;  
Mexico National Institute of Statistics and Geography (INEGI: Instituto Nacional de Estadística y Geografía)

# Mexico is a Global Export Base for Autos and Parts



## 13 FTAs, 44 Countries

North American Free Trade Agreement (NAFTA)

Colombia - Mexico

Costa Rica - Mexico

European Union - Mexico

Nicaragua - Mexico

Chile - Mexico

EFTA - Mexico

Israel - Mexico

Northern Triangle - Mexico

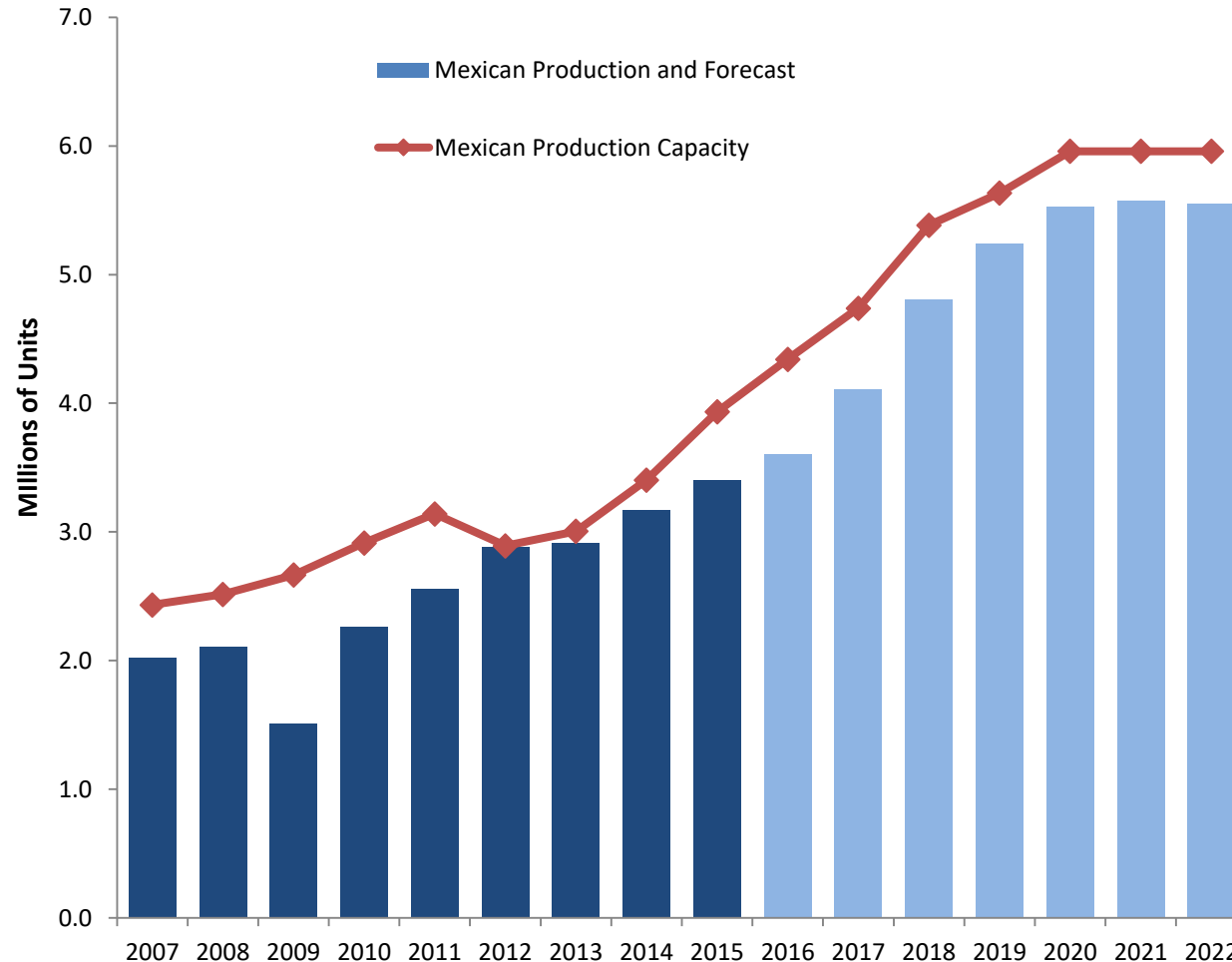
Uruguay - Mexico

Japan - Mexico

Peru - Mexico

Central America – Mexico

# Mexican Production and Exports



- Can reach 60% of global GDP tariff-free
- Nine new plants announced since 2009: \$10.6 billion (BMW, Ford, Honda, Hyundai-Kia, Mazda, Nissan-2, Toyota, VW/Audi)
- Exported \$46.2 billion in vehicles and \$39.9 billion in parts to U.S. in 2014 (Net \$63.6 billion)

# U.S.-Mexico Parts Trade: Top Five Categories, 2010-2015

Top Five Auto Parts Exported from the United States to Mexico, 2010-2015

Ranking By Volume 2015		2010	2011	2012	2013	2014	2015	5-year change
	Total Motor Vehicle Parts Exports (In million \$)	17,419	21,429	24,292	26,525	29,051	29,989	72.2%
1	PARTS AND ACESSORIES FOR VHCLS 8701 TO 8705, NESOI	2,795	4,842	4,981	4,186	3,172	4,596	64.4%
2	PTS AND ACCESSORIES,NESOI,OF BODIES HDG 8701,8705	2366	1,969	2,065	2,730	2,739	2,686	13.5%
3	COMPRESSION-IGNITION INTERNAL COMBUSTION PISTON ENGINES FOR PROPULSION OF VEHICLES OF CHAPTER 87, TO BE INSTALLED IN ROAD TRACTORS,BUSES,AUTOS,TRU CKS	1,216	1,693	1,863	2,228	3,779	2,635	116.7%
4	PARTS FOR SPARK-IGNITION INTERNAL COMBUSTION PISTON ENGINES FOR USE IN ROAD TRACTORS, MOTOR BUSES, AUTOMOBILES OR TRUCKS	546	934	1,018	1,126	1,257	1,296	137.4%
5	GEAR BOXES FOR VEHICLES OF HEADING 8703	811	805	941	1,113	1,021	1,100	35.6%

Top Five Auto Parts Imported to the United States from Mexico, 2010-2015

Ranking By Volume 2015		2010	2011	2012	2013	2014	2015	5-year change
	Total Motor Vehicle Parts Imports (In million \$)	28,436	34,134	39,376	42,432	46,772	50,142	76.3%
1	INSULATED IGNITION WIRING SETS & WIRING SETS FOR VEHICLES, AIRCRAFT OR SHIPS	3,774	4,743	5,510	5,686	6,522	7,074	87.4%
2	OTHER PARTS AND ACCESSORIES, NESOI, OF BODIES (INC CABS) OF HEADING 8701 TO 8705	2,250	2,654	3,316	3,732	4,082	4,482	99.2%
3	SEAT PARTS OF A KIND USED FOR MOTOR VEHICLES,NESOI	1,398	1,682	2,271	2,634	3,082	3,467	148.0%
4	SPARK-IGNITION RECIPROCATING PISTON ENGINES TO BE INSTALLED IN ROAD TRACTORS,MOTOR	820	1,533	1,832	2,458	2,432	2,279	177.9%
5	PARTS, NESOI, OF MOTOR VEHICLES, NESOI, OF HEADINGS 8701 TO 8705,	1,166	1,385	1,630	1,663	1,895	2,185	87.4%

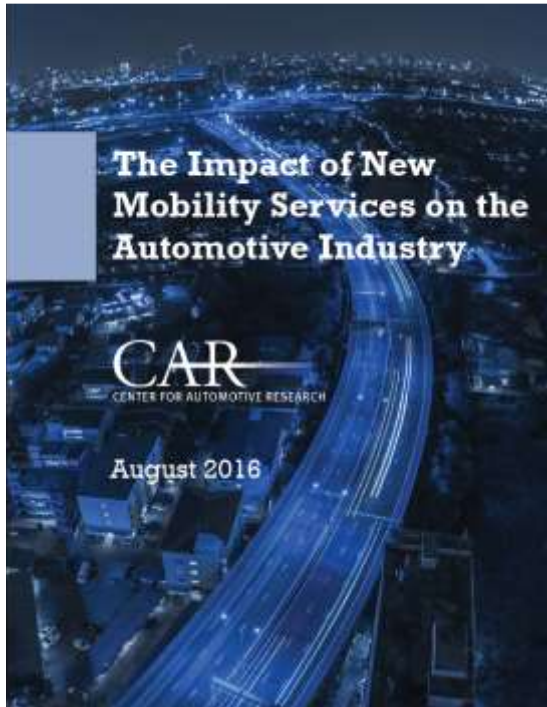
# Automaker Investment Announcements

2013-2016 YTD through October



Total North American Investment Announcements	\$68.5 billion
Canada	\$4.4 billion (6%)
U.S.	\$49.4 billion (72%)
Michigan	\$18.0 billion (26% of North America)
Mexico	\$14.8 billion (22%)





White paper and full report available on the CAR website, in the Publications section.

**New mobility services are enabled by emerging technologies and wireless connectivity that allow for more convenient, efficient, and flexible travel.**

Ridehailing



Ridesharing

Carsharing



Bikesharing

Microtransit



Mobility-as-a-Service

Shared Autonomous Vehicles



In North  
America,  
41 percent...

In Europe,  
32 percent...

In Australia,  
28 percent...

of carsharing  
members affirm  
they have foregone  
or postponed a  
vehicle as a result  
of using a  
carsharing service

**In 2021, one carsharing vehicle will  
replace**

7.7 private vehicles in North America

4 private vehicles in Europe

3.8 private vehicles in Asia - Oceania

## Effects on Light Vehicle Sales

### Net loss of new and used vehicle sales due to carsharing, 2010 to 2021

	Annual Average	Total (2010 to 2021)
North America	15,163	164,606
<i>United States</i>	<i>12,663</i>	<i>137,507</i>
Europe	28,844	267,533
Asia - Oceania	49,213	398,712
Total	93,220	830,850

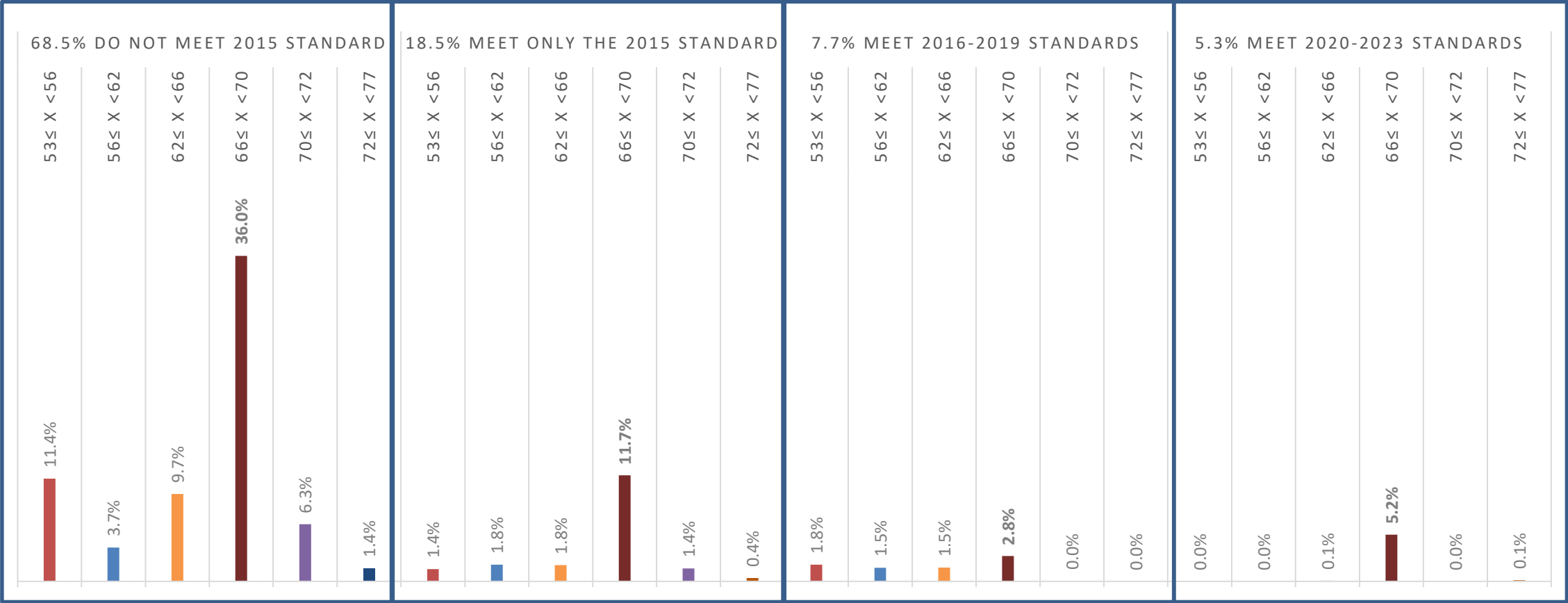


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**2016**

# The Economic Implications of Potential NHTSA and EPA Regulatory Revisions on U.S. Light Truck Sales and Manufacturing

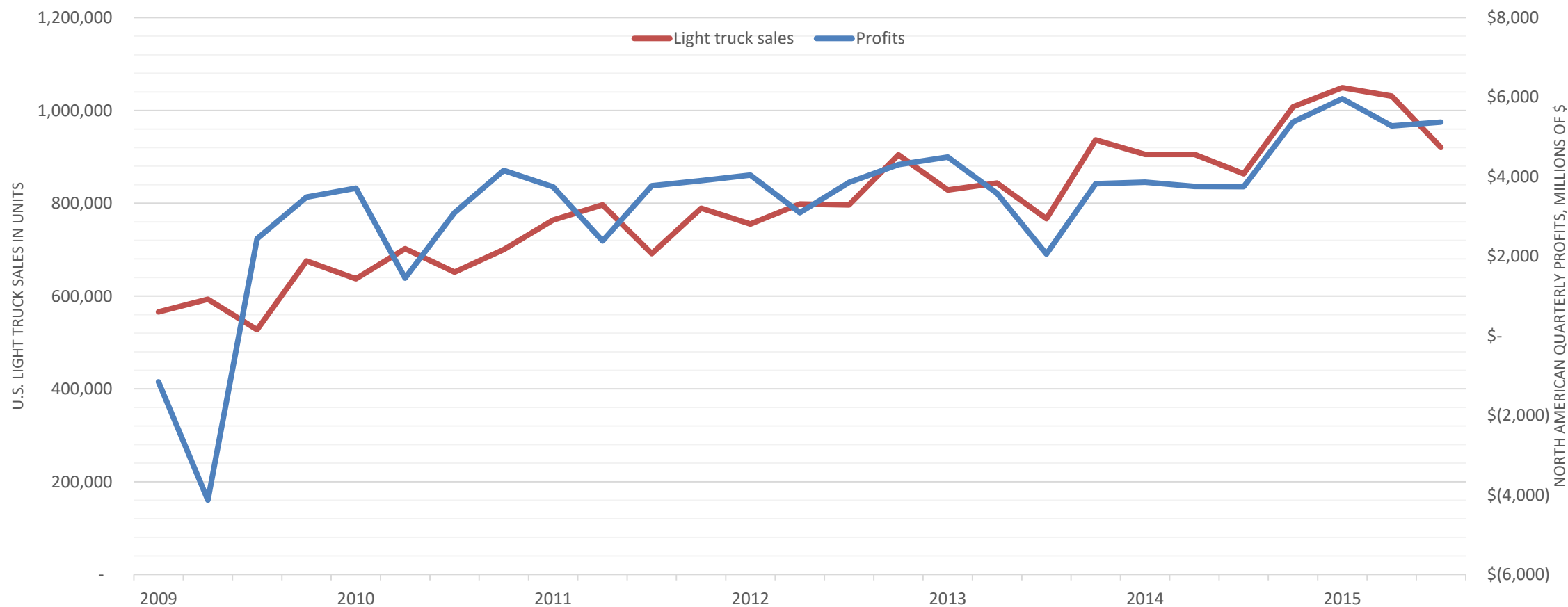


# U.S. Light-duty Truck CAFE Targets and 2015 Model Year Pickup Truck Performance Without Credits (Share of Pickup Truck Sales)



# U.S. Light Truck Sales Move in Step with N.A. Profits

Ford and GM Combined North American Profits and Combined U.S. Light Truck Sales, Q3 2009 – Q1 2016



Source: (Ford Motor Company, 2016) (General Motors Company, 2016) (LMC, 2016)

# What is at stake if they don't?

## Economic Contribution of U.S. Body-on-Frame Truck Manufacturing, 2015

Economic Impact	U.S. Body-on-Frame Truck Manufacturing
<b>EMPLOYMENT</b>	
Direct	84,200
Intermediate	437,300
Subtotal (Direct + Intermediate)	521,500
Spin-Off	821,400
Total (Direct + Intermediate + Spin-off)	<b>1,342,900</b>
<b>MULTIPLIER</b>	
(Direct+Intermediate+Spin-off)/Direct*	<b>15.9</b>
<b>TOTAL EARNINGS BY PLACE OF WORK, PRIVATE NON FARM (\$ BILLIONS NOMINAL)</b>	
	\$98.46
Less: Contributions for Government Social Insurance	\$10.51
Less: Personal Current Transfer Receipts	\$3.69
Less: Personal Income Taxes	\$12.36
<b>Equals Private Disposable Personal Income (\$ Billions Nominal)</b>	<b>\$71.90</b>
<b>CONTRIBUTION AS % OF TOTAL PRIVATE ECONOMY</b>	
Employment	0.82%
Compensation	1.06%

# Conclusions

- Known Knowns
  - U.S. auto sales are in the 7<sup>th</sup> year of a recovery in a highly cyclical industry—and what goes up, must come down
  - U.S. production involves global companies, using global platforms, and relying on global supply chains
  - Consumer acceptance of mobility services and automated driving features is high
  - EU, China and other regulators will move forward with FE/GHG regulations
  - Michigan and Michigan-based companies rely on “truck” production and sales
- Known Unknowns
  - When will the economy tip into recession? Will it be global? How deep will it be?
  - What will President-Elect Trump do to fulfill his promise to get tough on trade? Will others retaliate?
  - If Trump disrupts NAFTA or trade with China, how will automakers & suppliers respond—retrench in U.S., relocate to other low cost countries, or lie low and wait out the 4 (8?) years of this presidency?
  - What will be the impact of increasingly automated→autonomous vehicles on auto sales & production?
  - What will be the impact of new mobility business models on the auto industry?
  - Will Trump’s EPA and NHTSA pull back from FE/GHG regulations?
  - Is the EIA forecast on future low fuel prices correct?
- Unknown Unknowns
  - ???

# Discussion

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