Geography Matters: Challenges & Opportunities for Auto Suppliers

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Outline

- Motivation
- Our study
  - Data
  - The big picture
  - Supplier networks
  - Auto parts trade
- Conclusion

U.S. Parts Supplier Industry: Motivation

- Carmakers receive most of the attention
- But suppliers account for 4/5 of auto industry employment
- And 2/3 of vehicle value

U.S. Parts Supplier Industry: Motivation

- Suppliers face changing relationships with carmakers
- Resulting in layoffs, cost pressures, even bankruptcy

Our Supplier Study

- What are challenges and opportunities for auto suppliers?
- How are changes in the industry causing changes in geography?

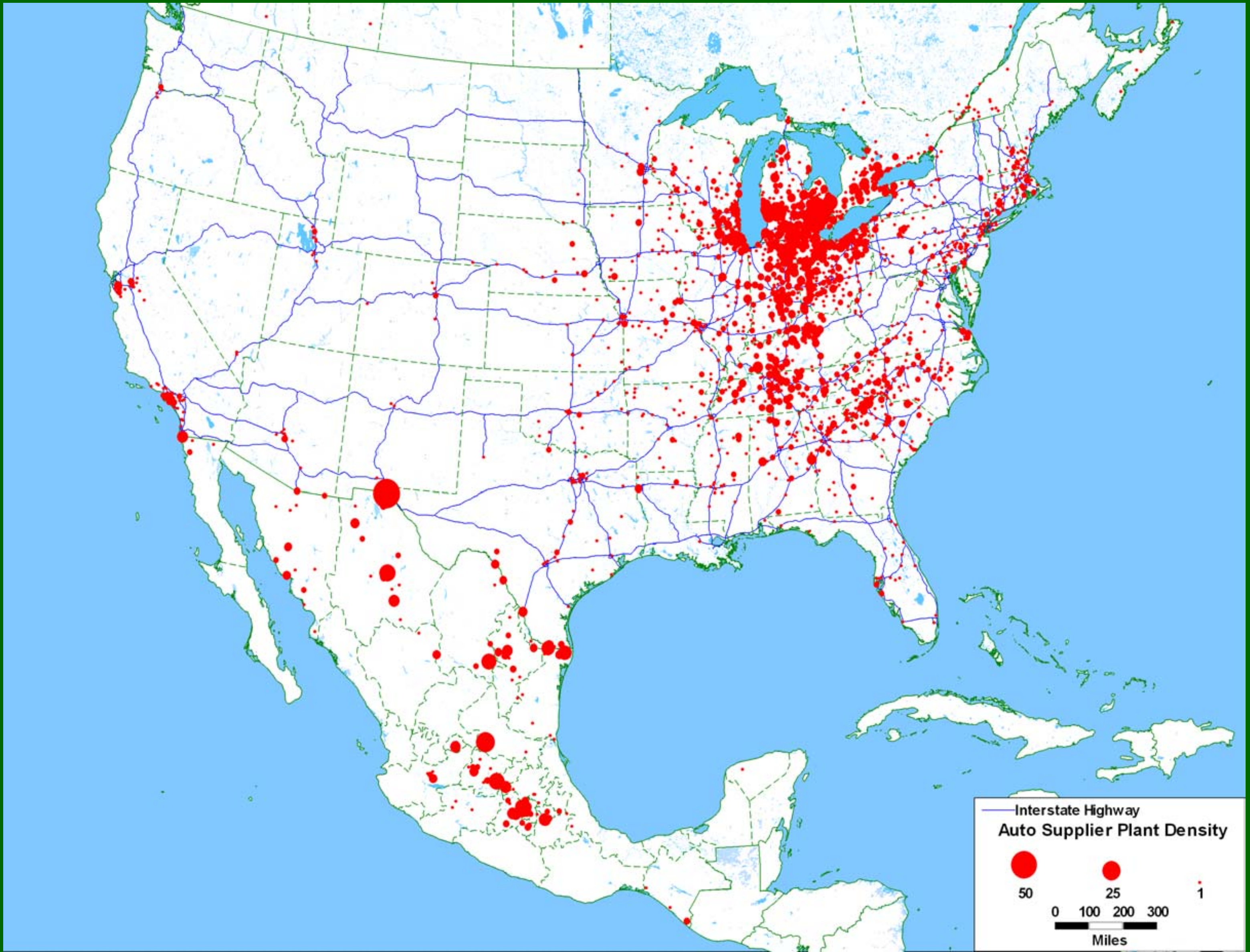
Principal Data Sources

- Records of 4,500 supplier plants in North America
  - –Considerably modified from ELM
- Government production and trade data
  - –Census
  - –BLS
  - –International Trade Commission

U.S. Parts Supplier Industry: The Big Picture

- Employment 740,000
  - 4 times larger than assemblers
- Sales (2002) $208 billion
  - $153 bn original equipment
  - $ 55 bn aftermarket

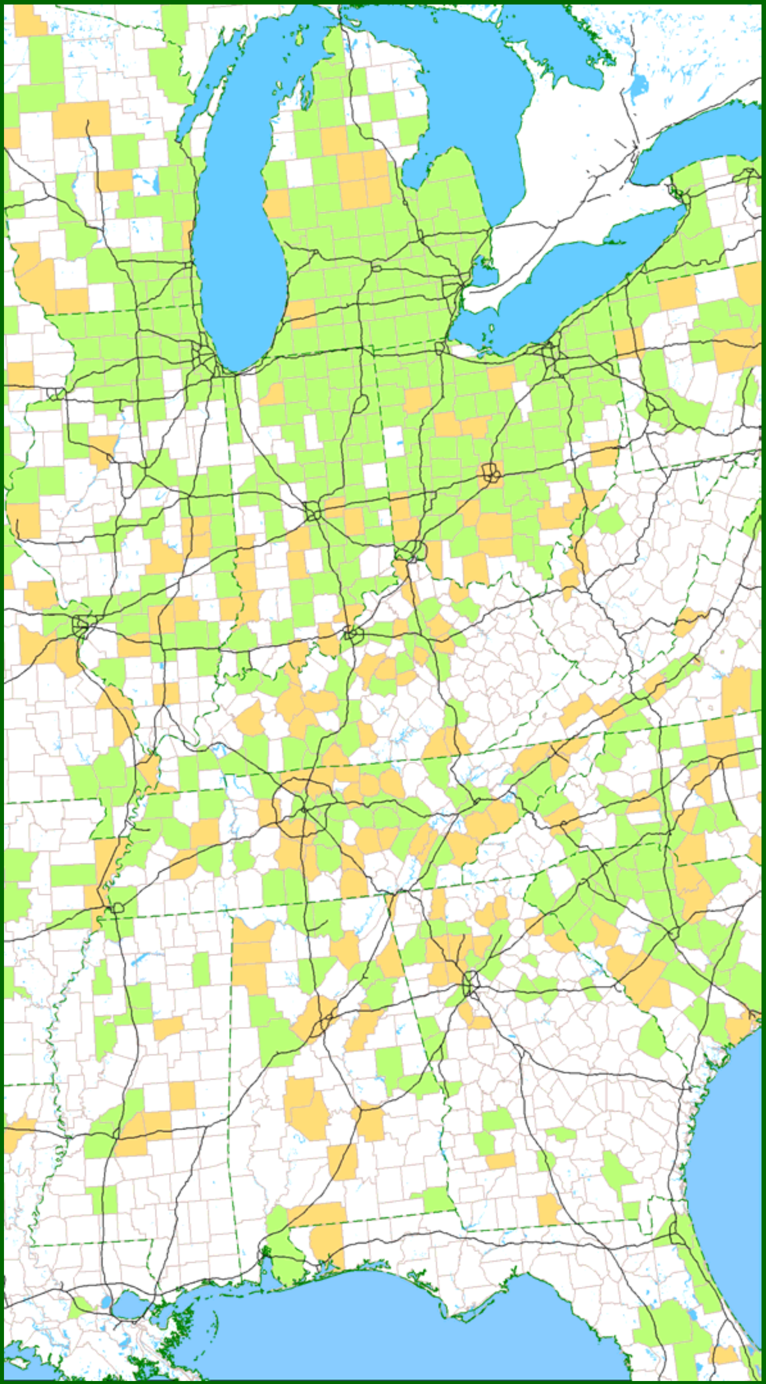
The Big Picture:
Suppliers are highly clustered



The Midwest continues to be the industry’s hub

Region	% supplier plants
Midwest	61%
Southeast	28%
Northeast	7%
West	4%

. . . But new supplier plants are heading South . . .



Interstate Highway

Year of First Supplier Plant Entry into County

1980-2003

1979 or earlier

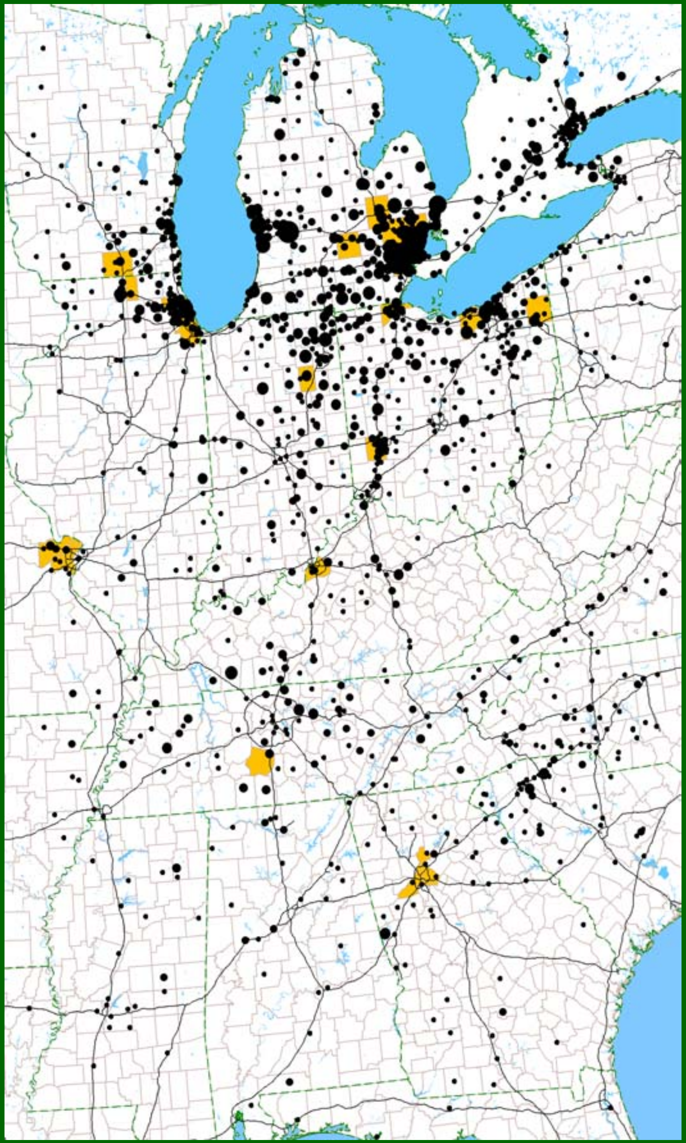
0 70 140 210

Miles

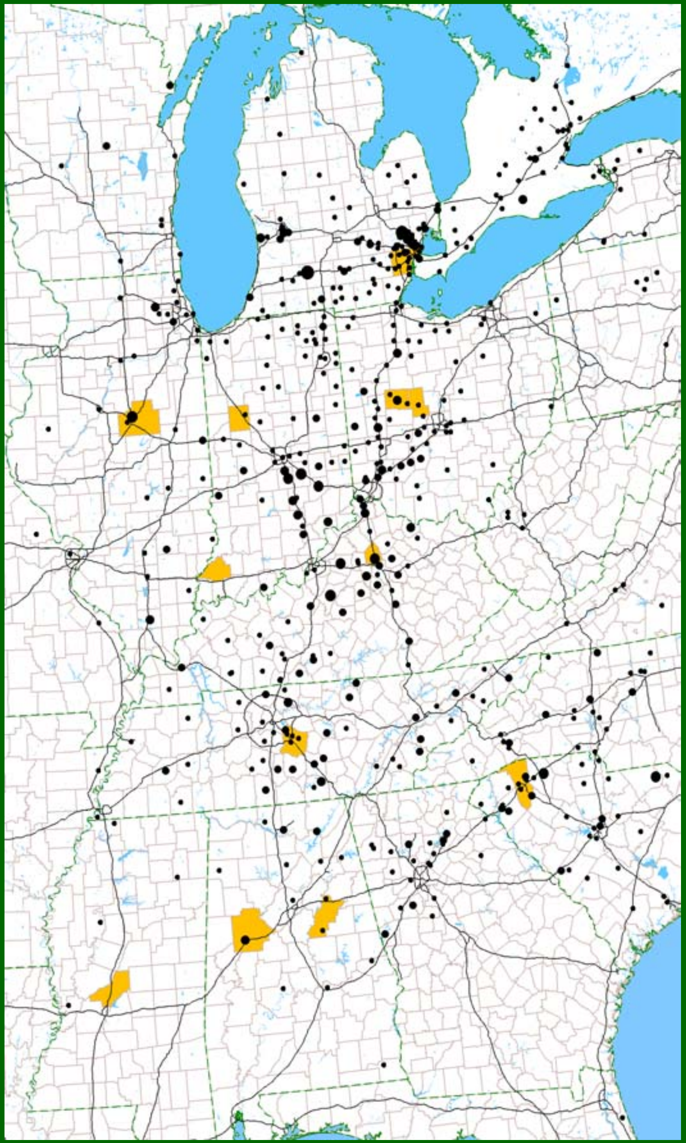
Especially foreign-owned suppliers

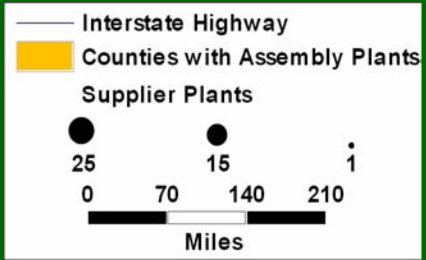
Region	Domestic	Foreign
Midwest	66%	47%
Southeast	23%	42%
Northeast	8%	6%
West	3%	5%

U.S.-owned suppliers are still centered around Detroit



But not foreign-owned suppliers





Drift southward also varies by type of part

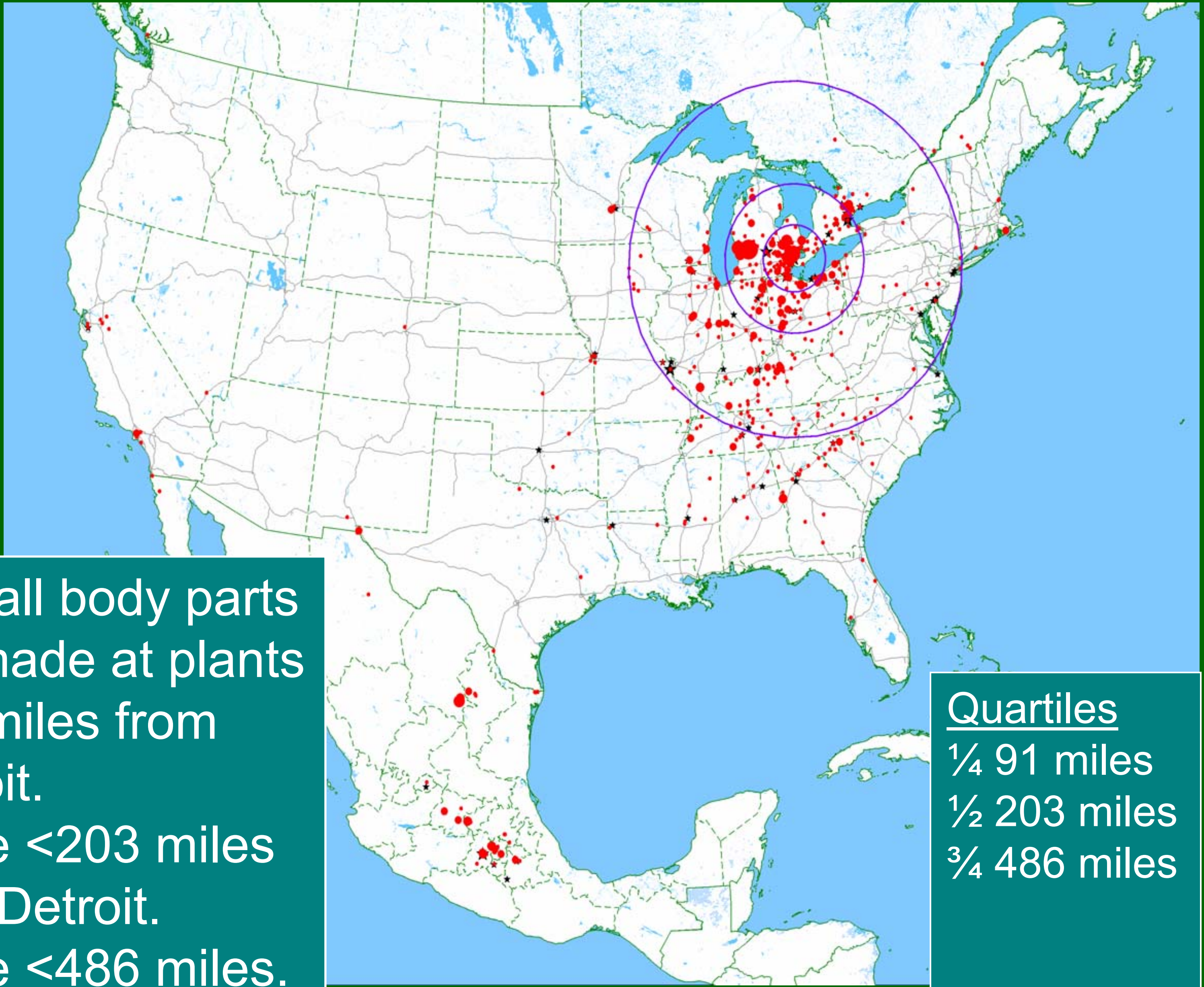
Most clustered

around Detroit

- Body
- Drivetrain
- Engine
- Air & fluid handling
- Interior
- Chassis
- Electrical

Most dispersed

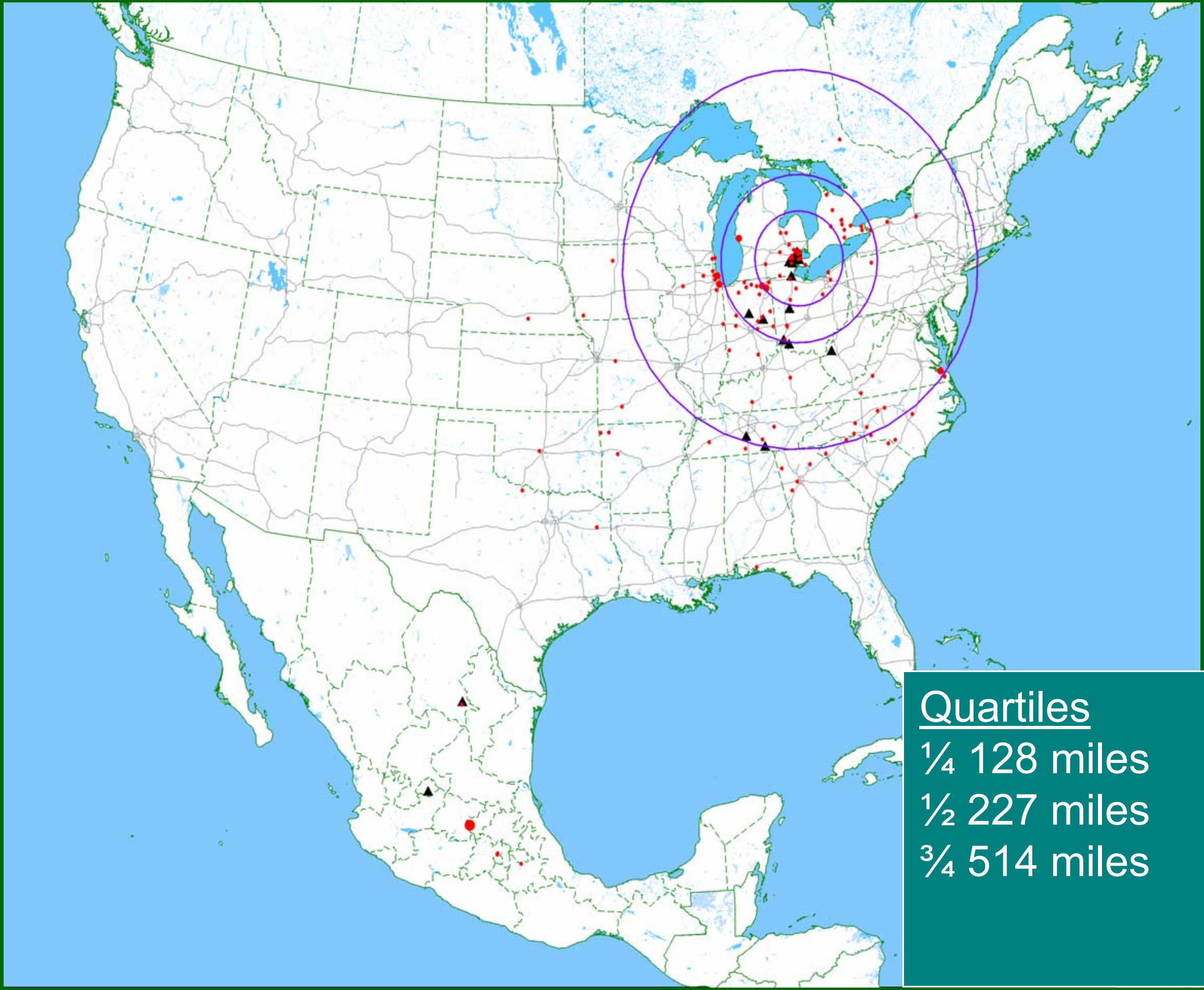
Body parts



¼ of all body parts are made at plants <91 miles from Detroit.
½ are <203 miles from Detroit.
¾ are <486 miles.

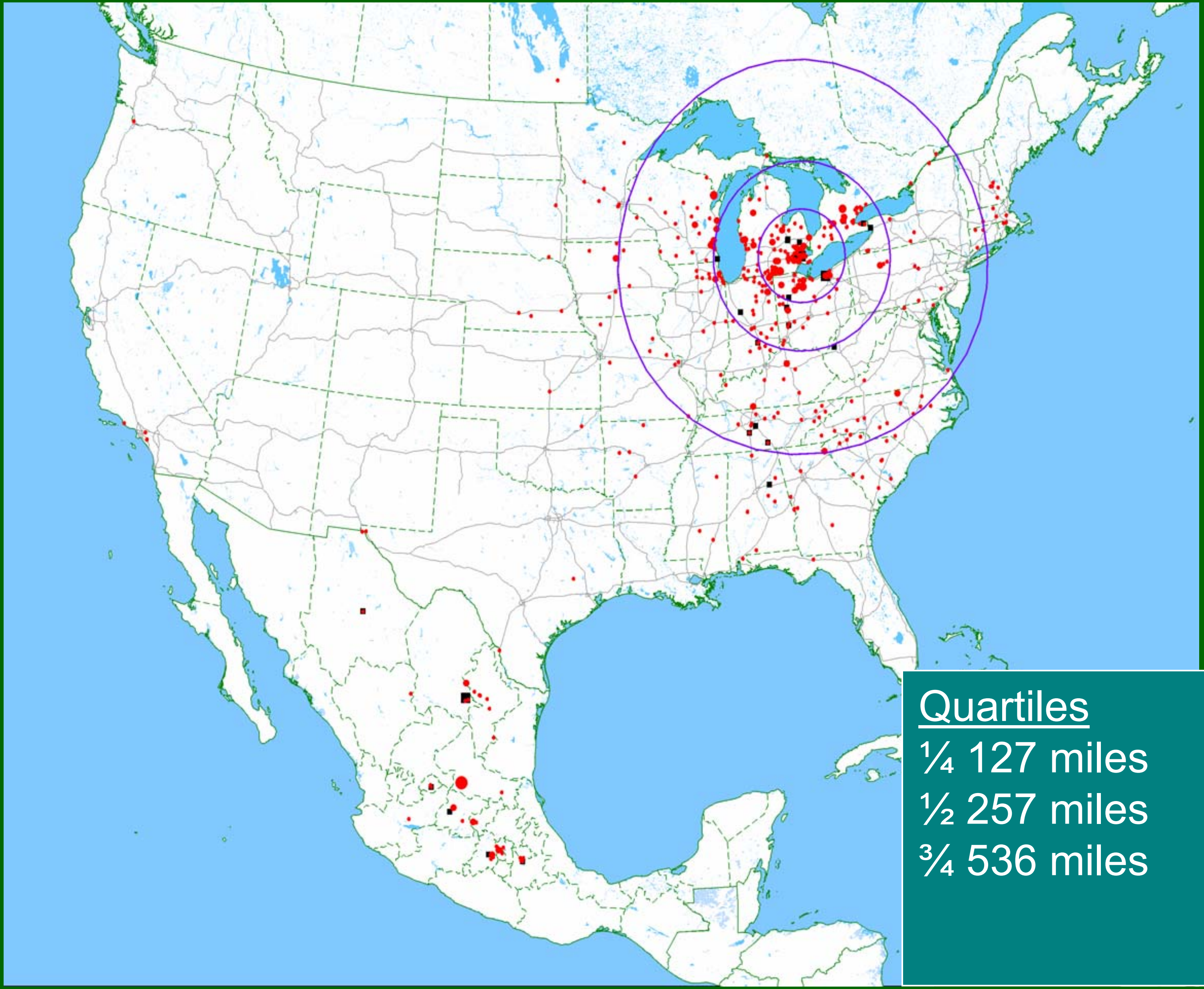
<u>Quartiles</u>
¼ 91 miles
½ 203 miles
¾ 486 miles

Drivetrain parts



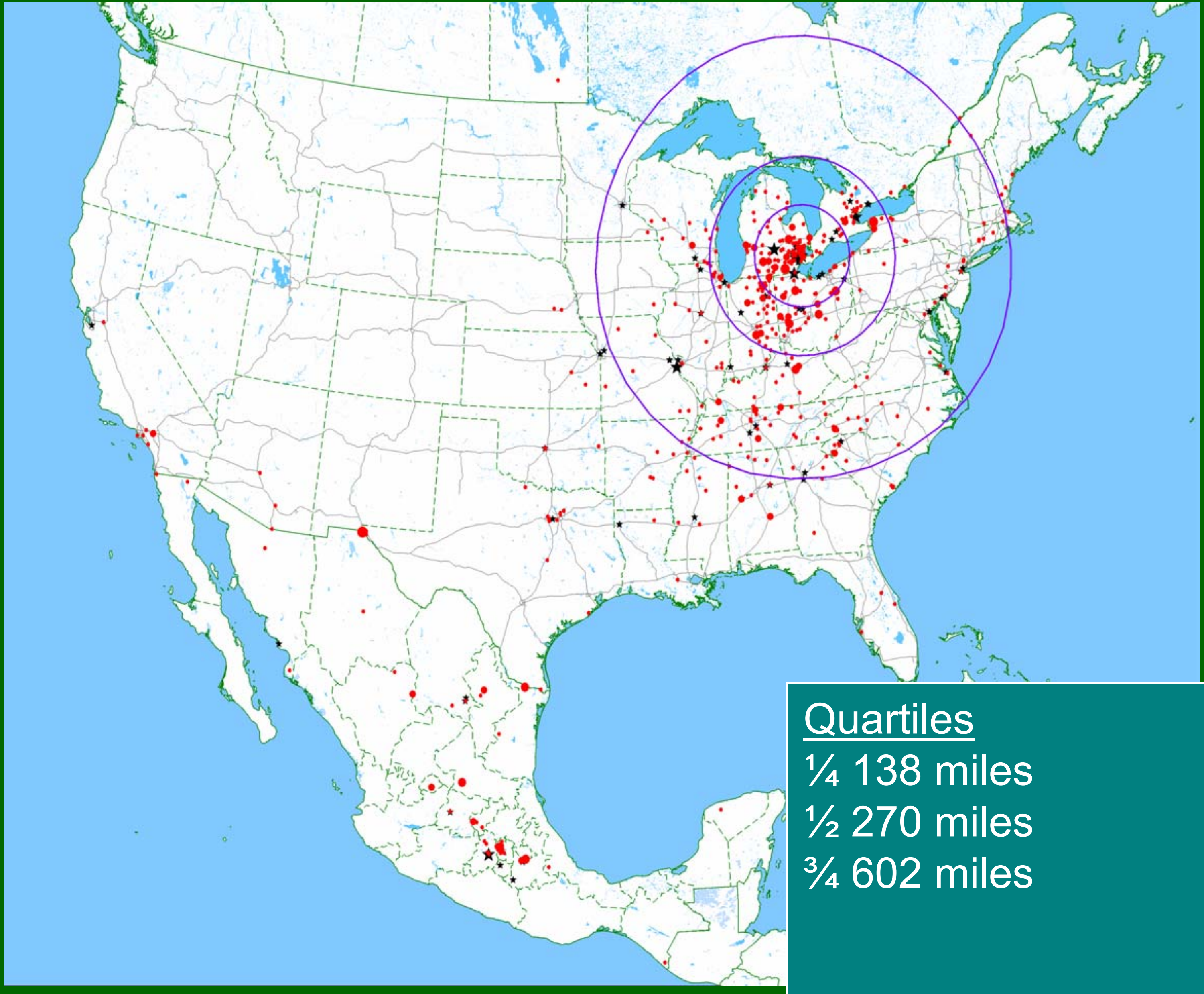
Quartiles
¼ 128 miles
½ 227 miles
¾ 514 miles

Engine parts



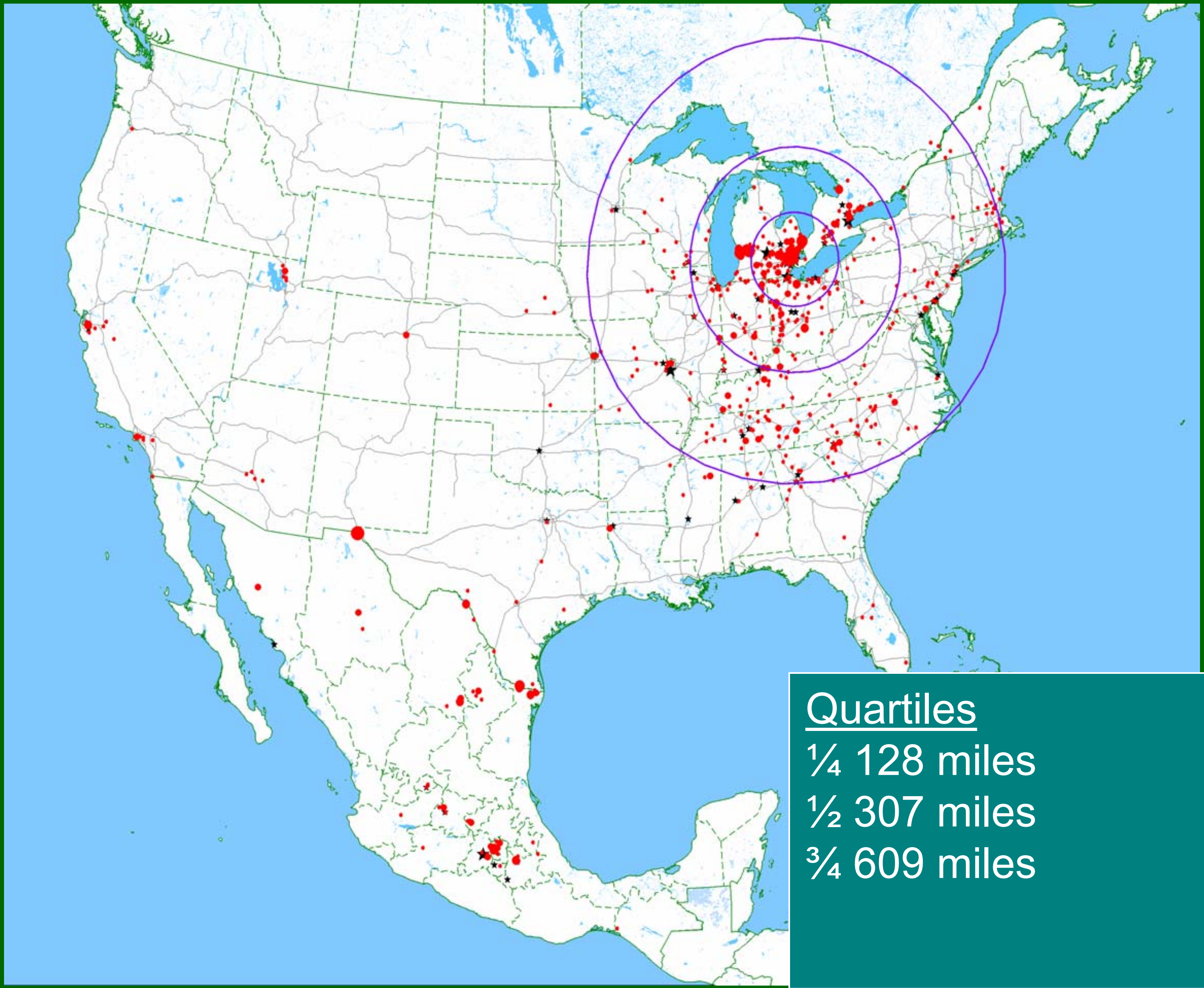
Quartiles
¼ 127 miles
½ 257 miles
¾ 536 miles

Air & fluid handling parts



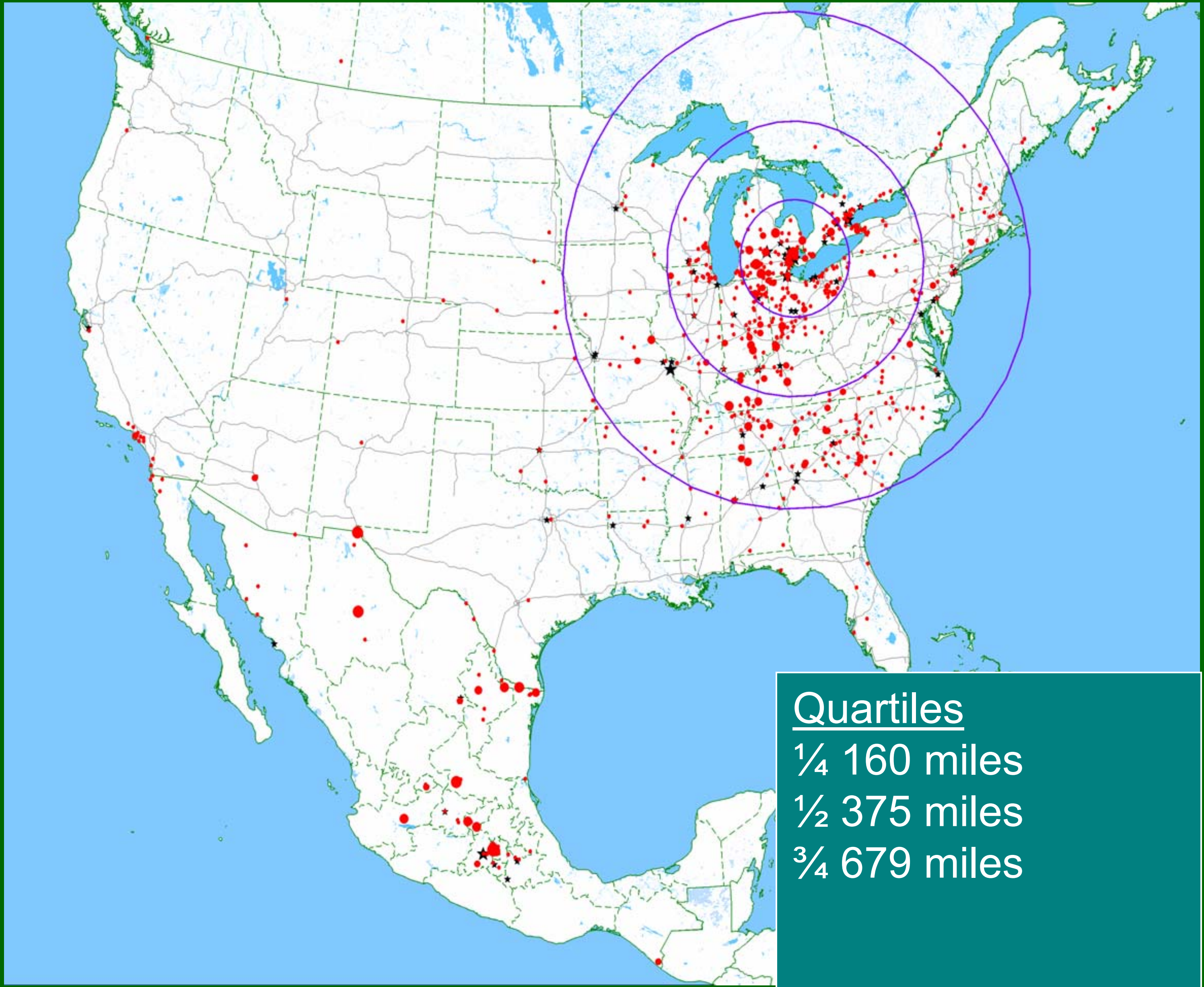
Quartiles
¼ 138 miles
½ 270 miles
¾ 602 miles

Interior parts



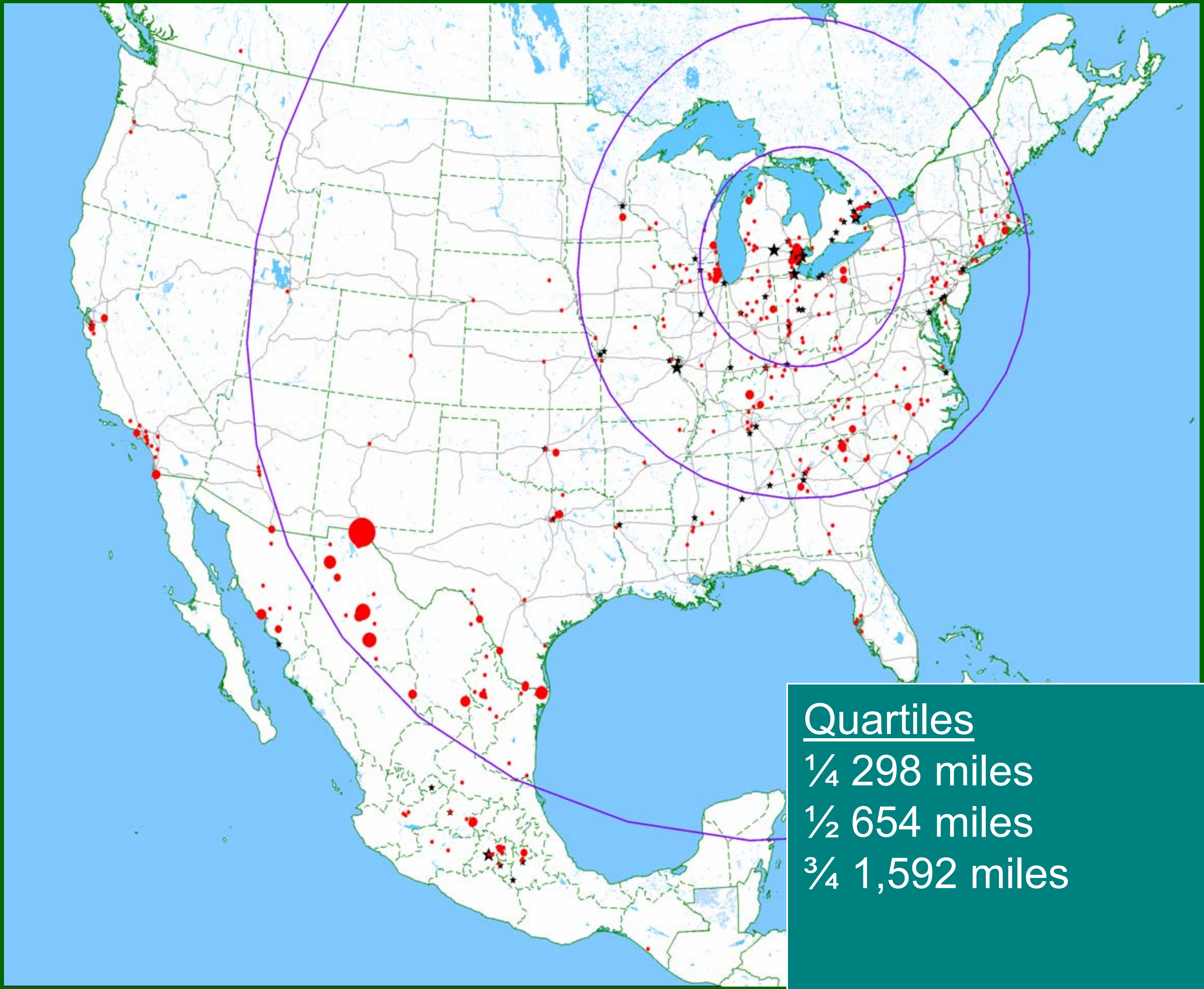
<u>Quartiles</u>
¼ 128 miles
½ 307 miles
¾ 609 miles

Chassis parts



Quartiles
¼ 160 miles
½ 375 miles
¾ 679 miles

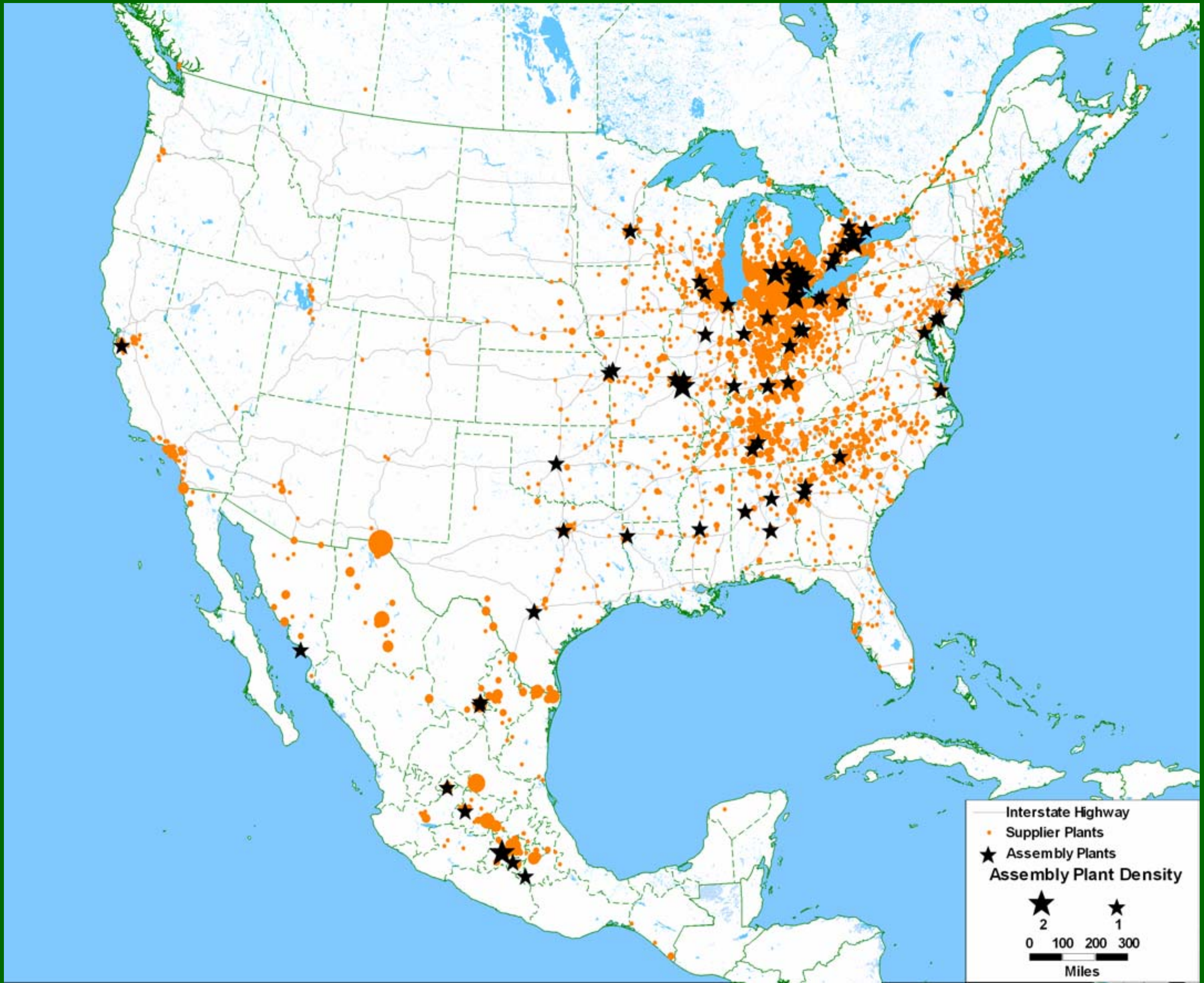
Electrical parts



__Quartiles__
¼ 298 miles
½ 654 miles
¾ 1,592 miles

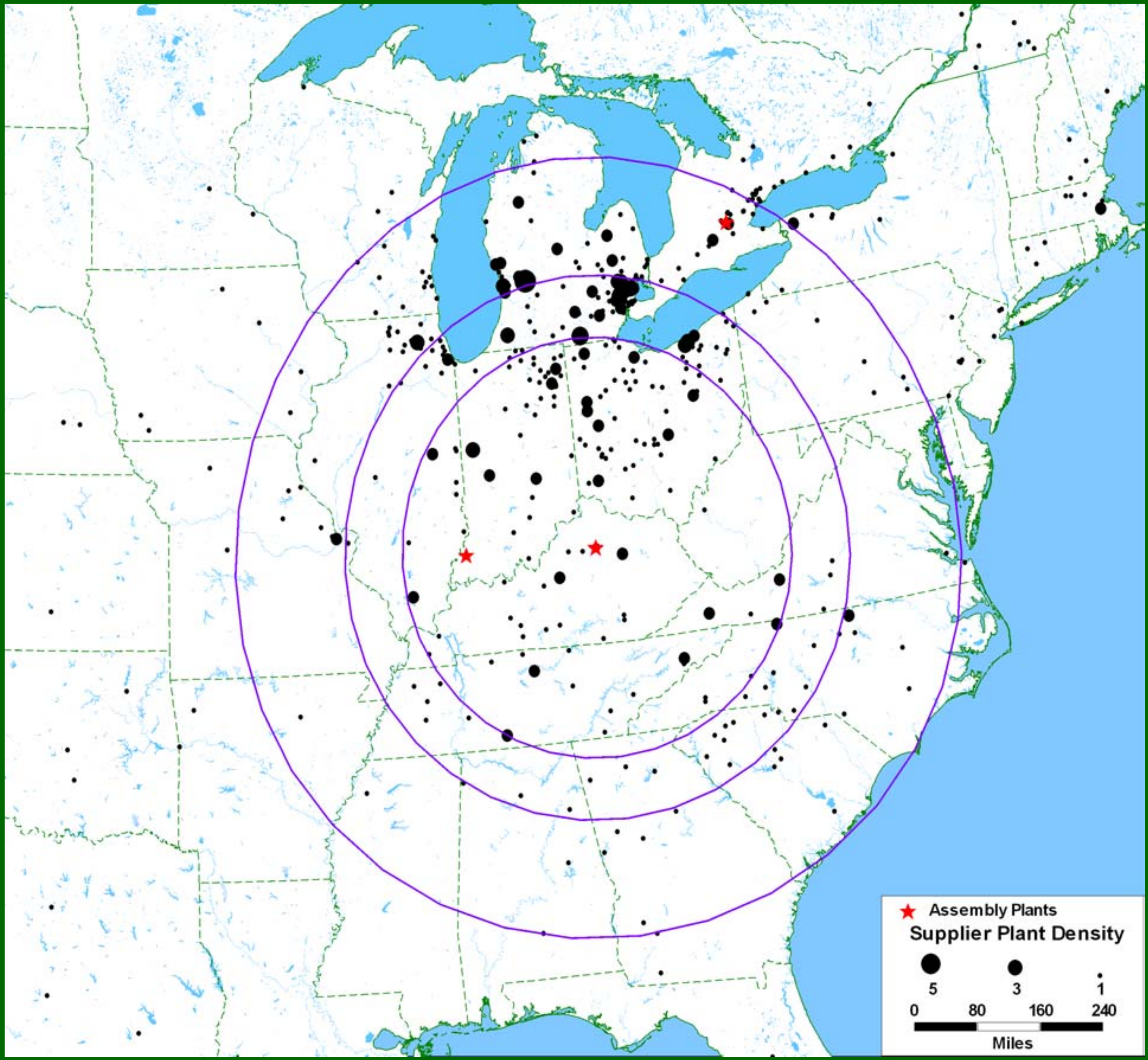
Supplier networks

Suppliers cluster near final assembly plants . . .



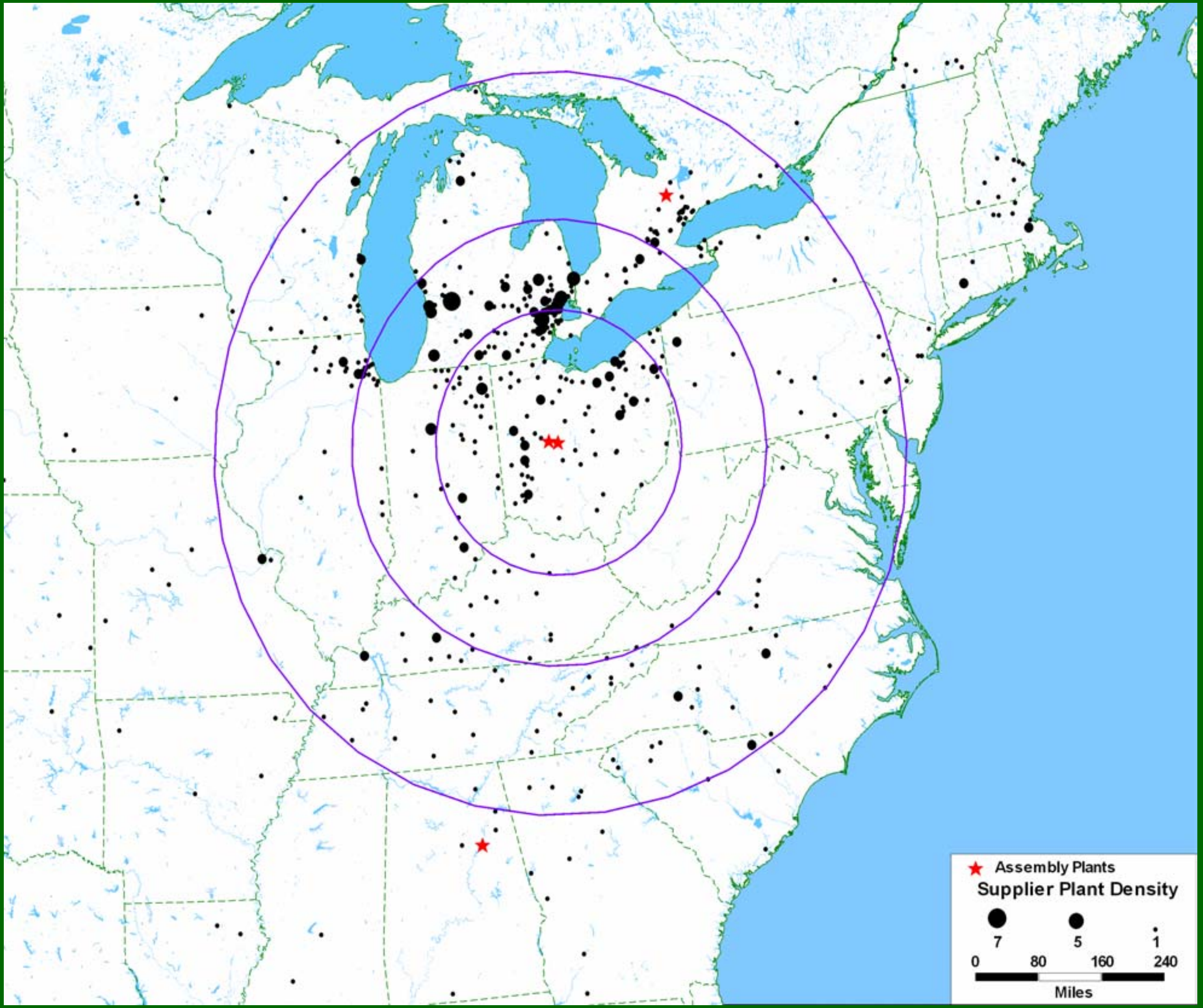
. . . Forming regional networks around assembly plants

Toyota's supplier network



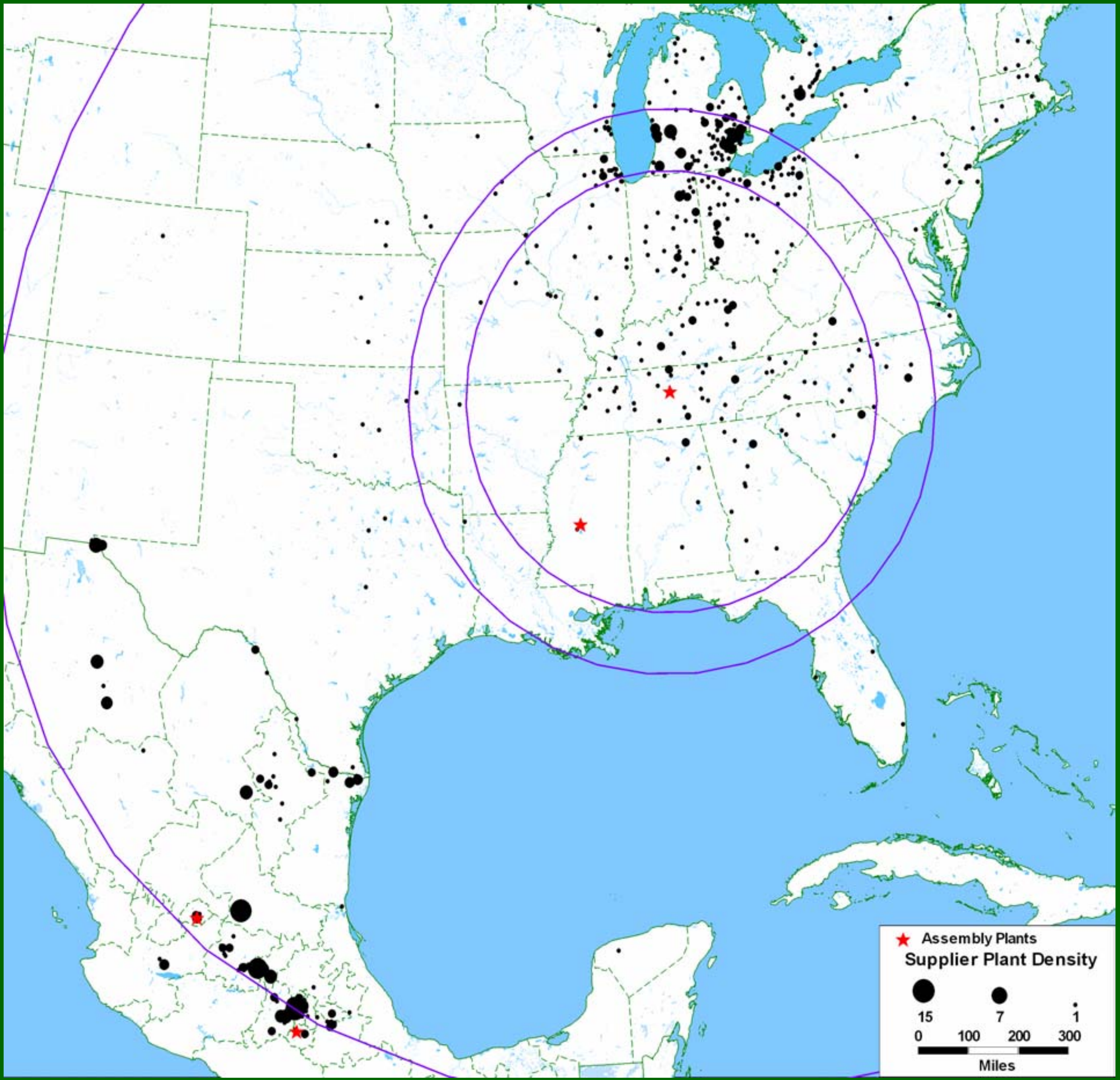
Honda’s supplier network

Tighter rings, because Marysville is closer to Midwest suppliers

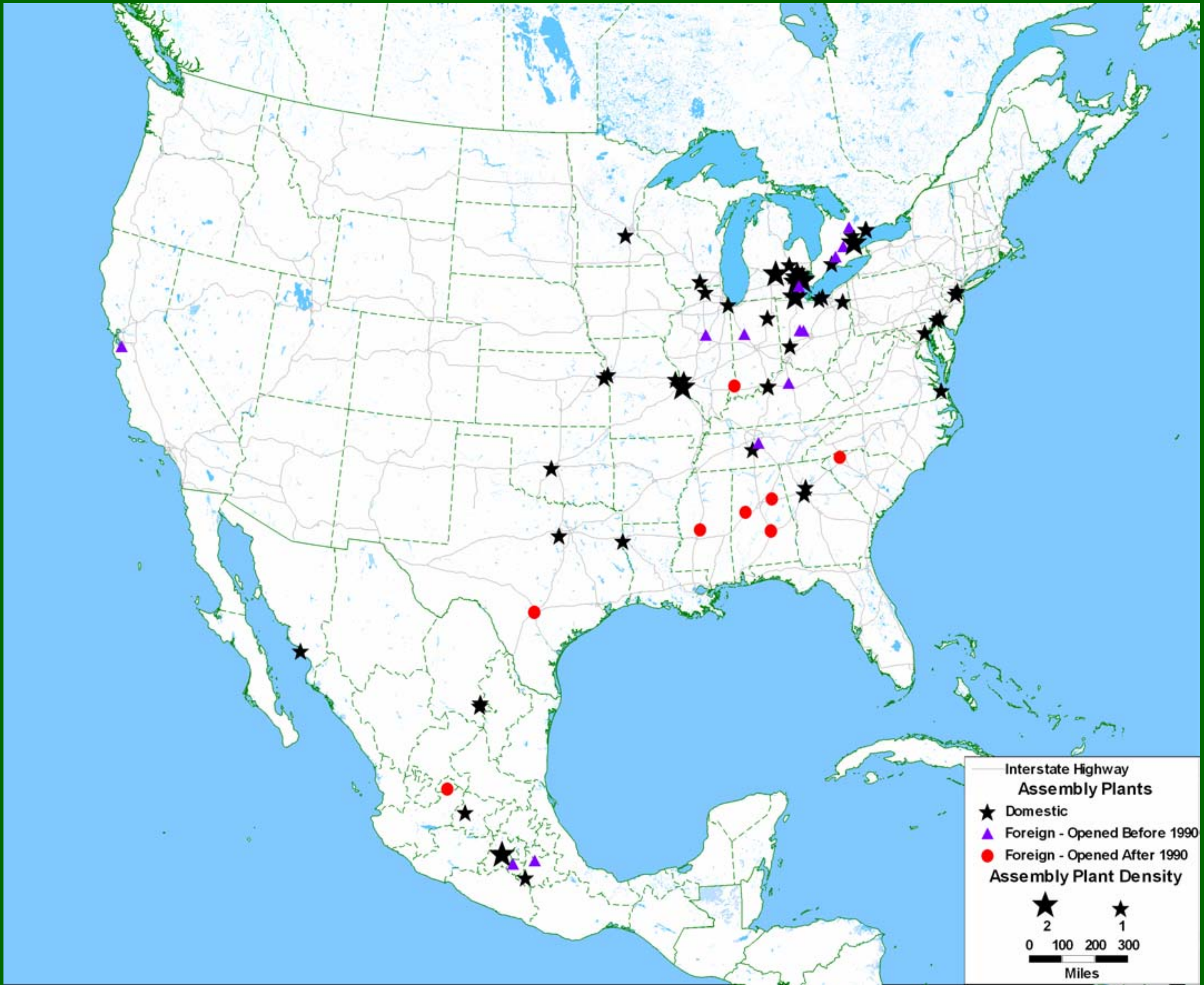


Nissan's supplier network

Further from Midwest suppliers, depends more on Mexico



Yet, assembly plants are moving south

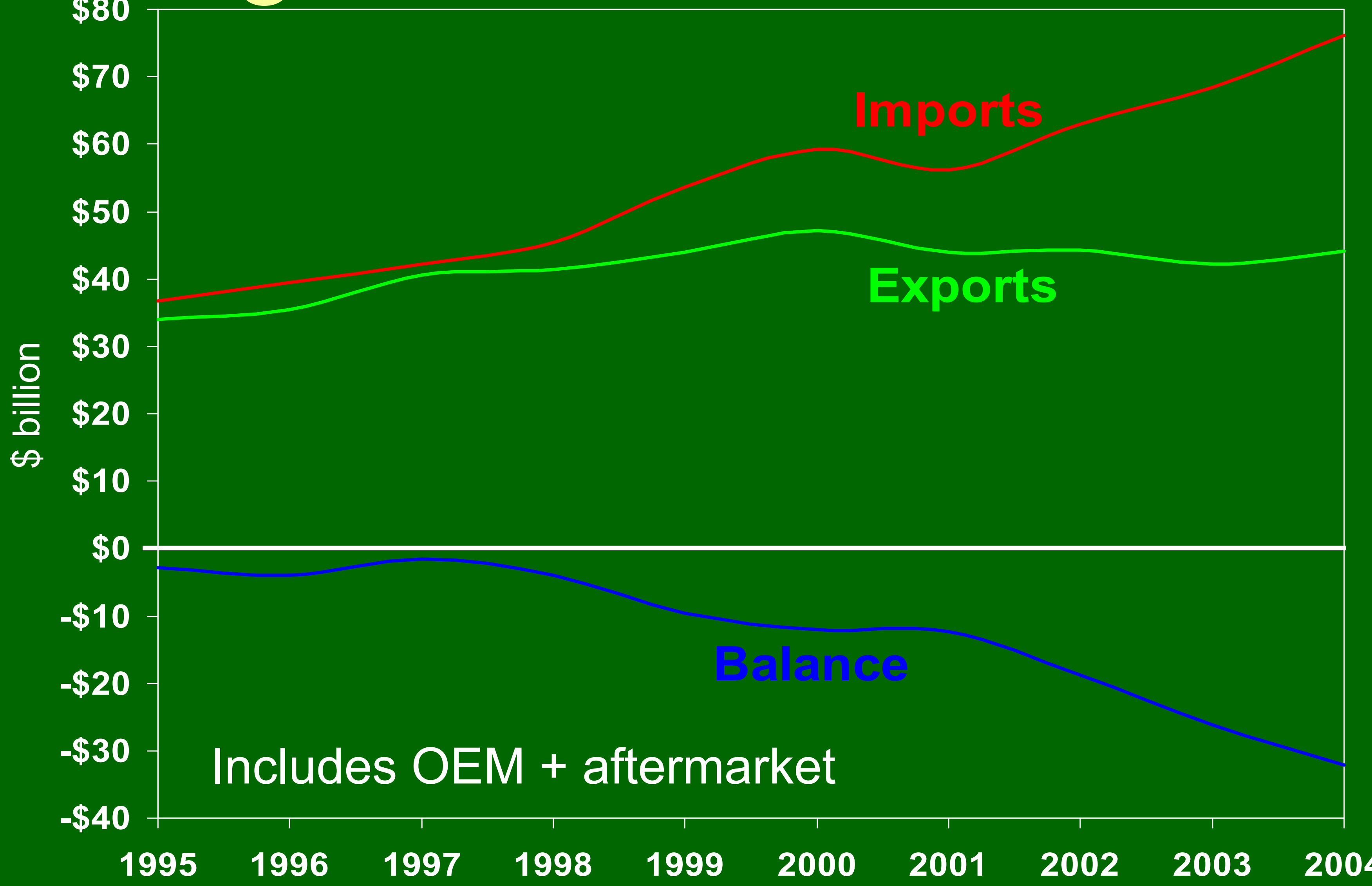


Future regional networks?

- Honda Marysville and Toyota Georgetown drew heavily on traditional Midwest supplier base. They weren't all that far away from Michigan.
- Newer transplants are further South. Will they pull supplier plants with them?
- Yes, some . . .
- . . . But fewer than are located near Marysville and Georgetown.

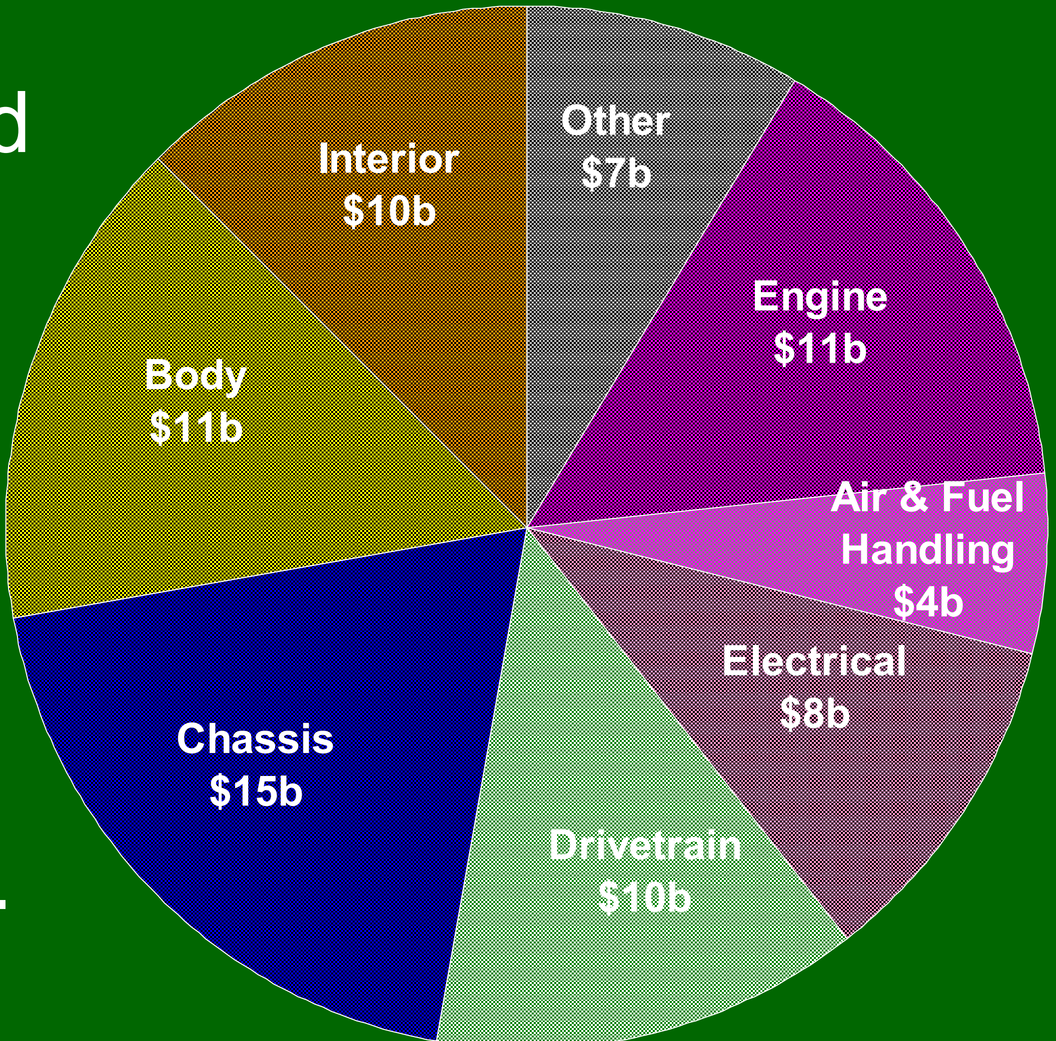
Auto parts trade

Auto parts trade deficit has grown faster since 2001



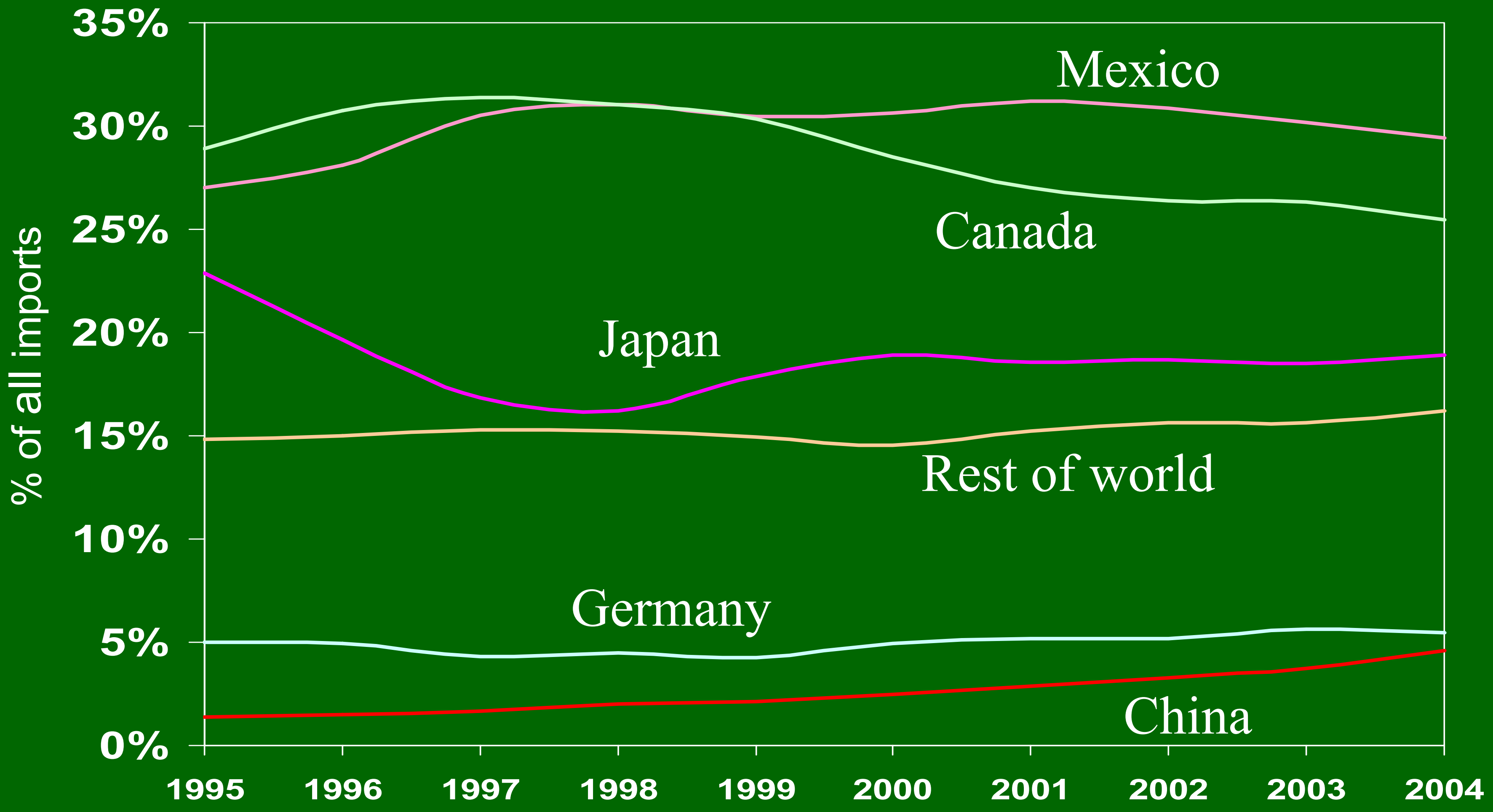
Imports by system 2004

- Chassis highest market share held by imports
- Engine largest $ increase in imports since ‘95
- Drivetrain largest % increase in imports since ‘95.

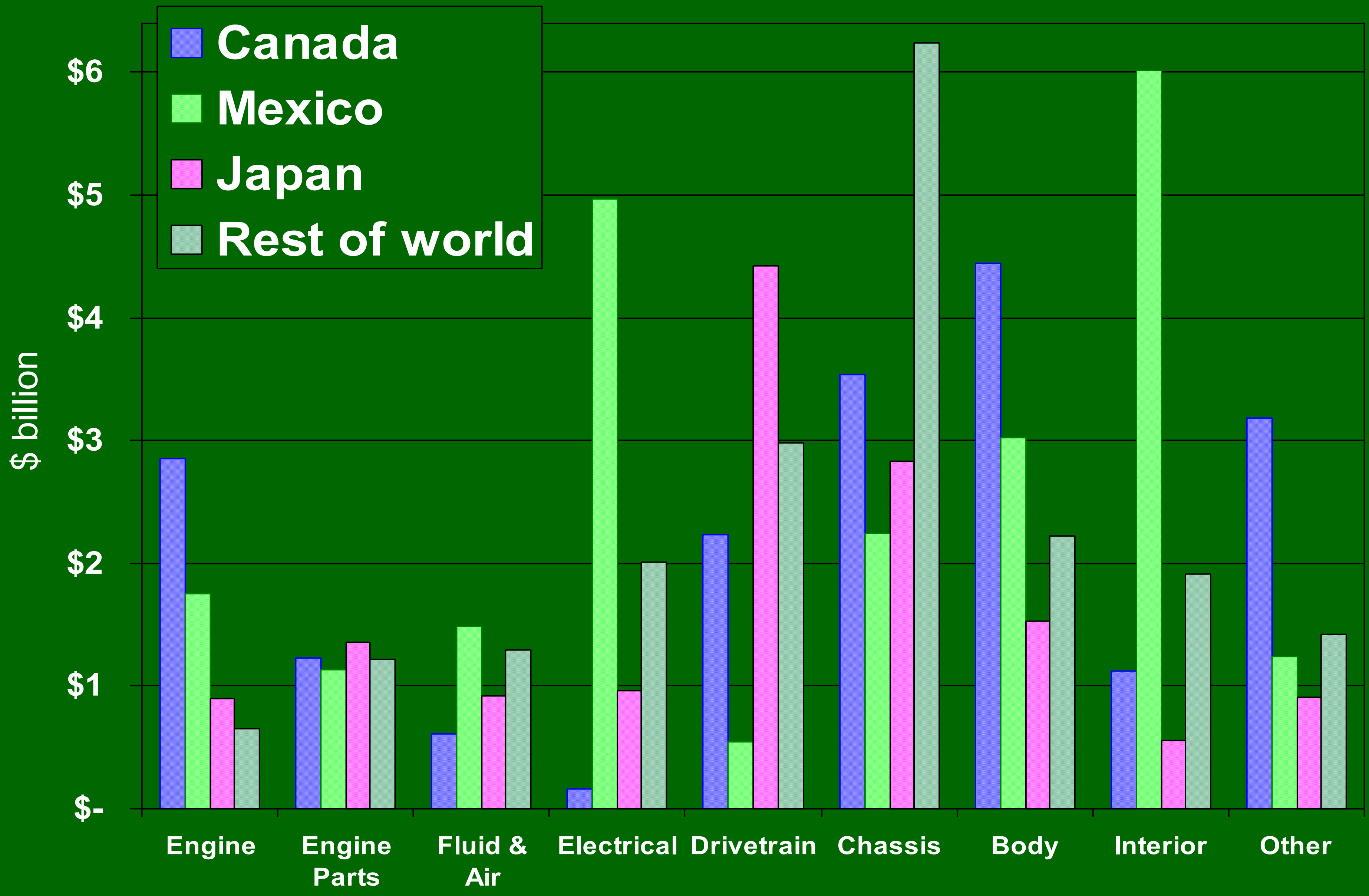


Source of imports

- Mexico passed Canada as #1 in 2000
- NAFTA accounts for 56%,China for 5%



Different parts from different sources



What about China?

- Imports up from \$2 bn in '95 to \$5 bn in'04
- For now mostly aftermarket parts

Top Imports 2004 (\$ million)	
Radios	\$493m
Wheels	\$449m
Tires	\$398m
Brakes	\$355m
Wiring	\$176m
Child safety seats	\$152m

Summary: Geography matters

Local scale:

- Networks form around assembly plants for just-in-time delivery.
- One-day drive permits many location choices.
- Some suppliers can serve new assembly plants from existing plants.

Summary: Geography matters

National scale:

- Suppliers highly clustered in Midwest.
- Especially powertrain suppliers.
- But suppliers are heading South.
- Especially foreign-owned and electrical suppliers.

Summary: Geography matters

International scale:

- ¼ of parts are imported.
- ¾ from NAFTA and Japan.
- Especially powertrain and chassis.
- China small but growing source.

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