

Evolving Geography of Automobile Manufacturing in North America

**Global Economic Forum
San Antonio, TX
June 30, 2014**

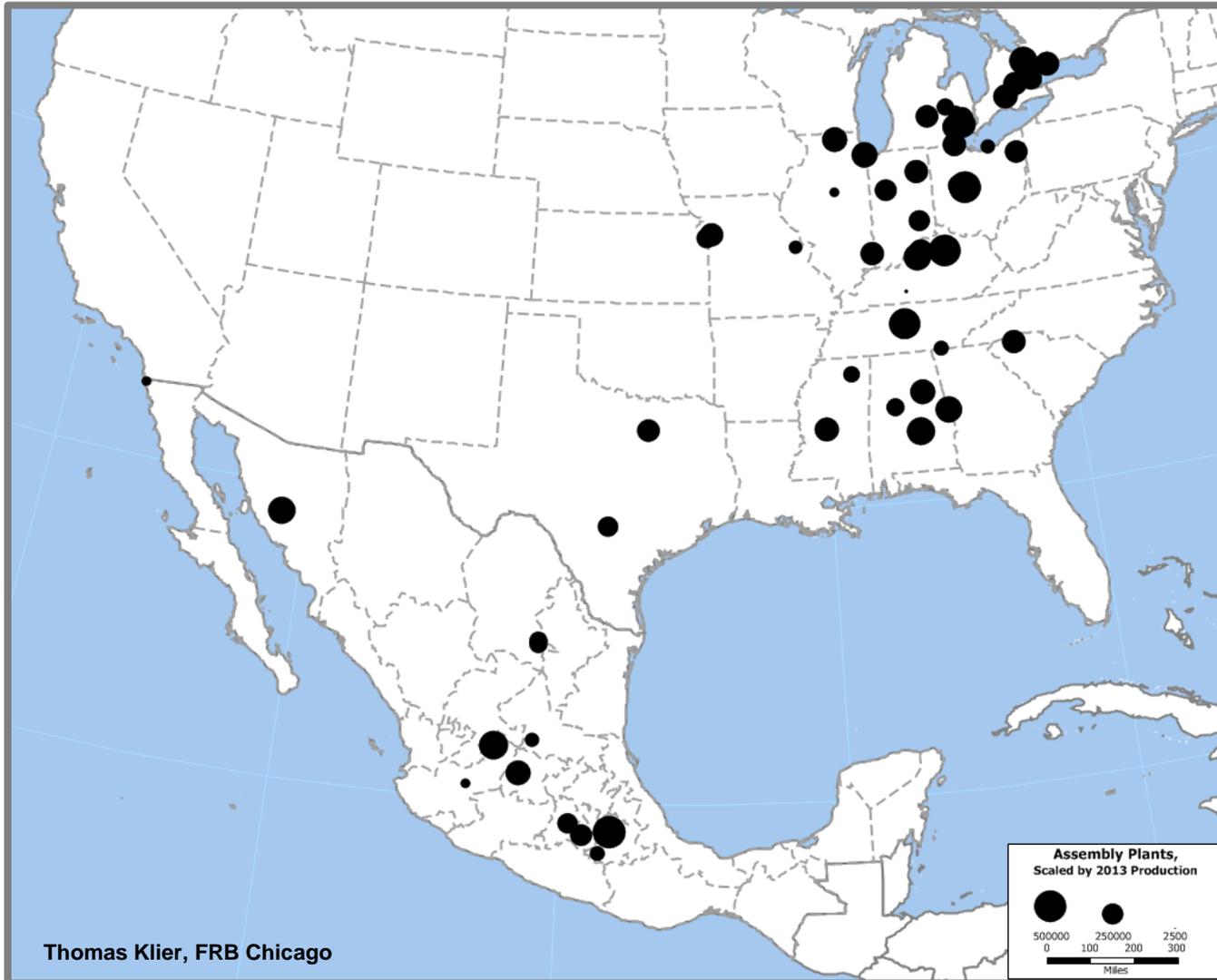
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Outline

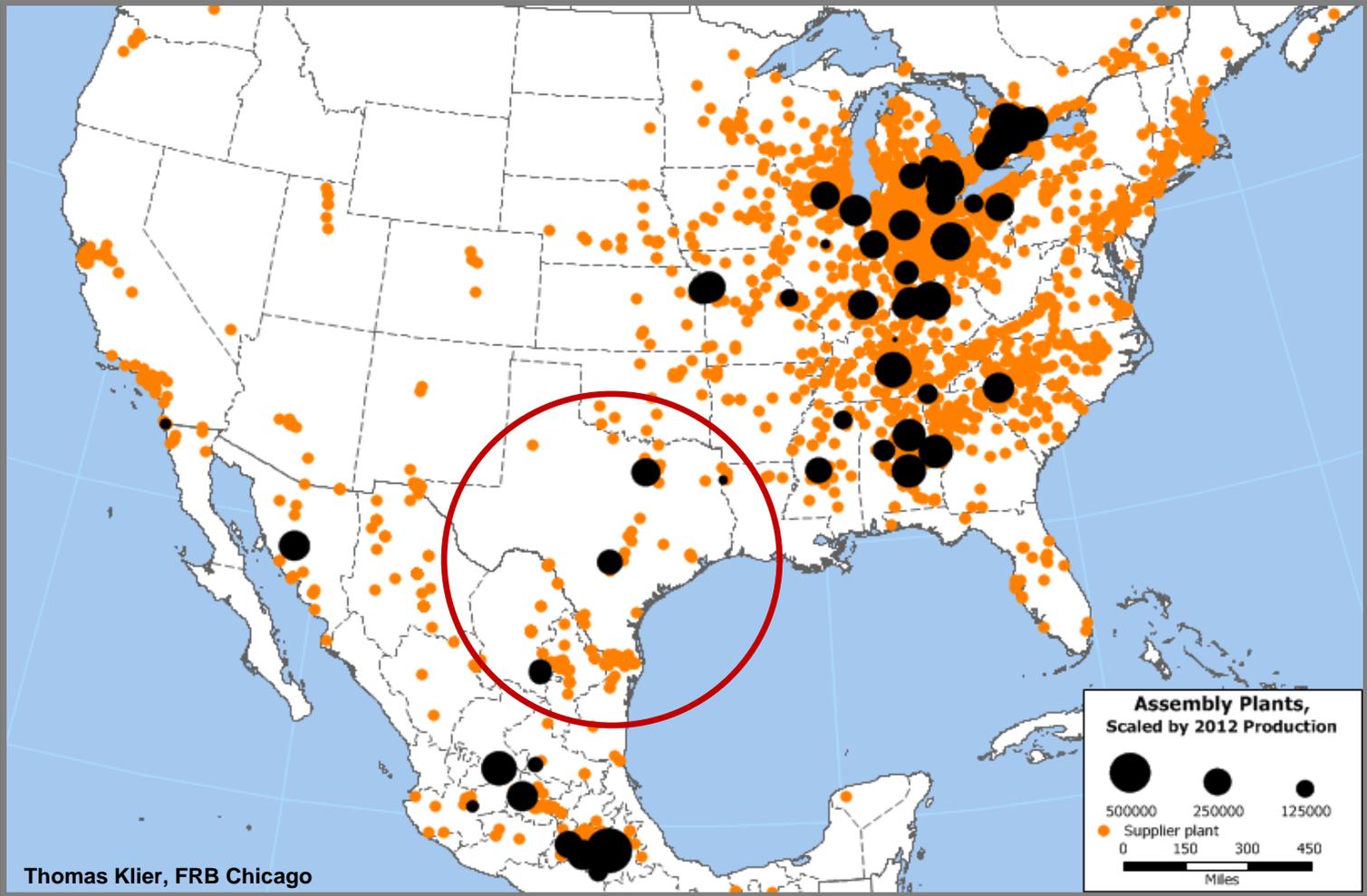
- **Three layers of auto industry geography**
 - North America
 - U.S. relative to Canada and Mexico
 - Industry footprint within the U.S.
- **Recap: Chrysler and GM Rescue of 2008/2009**
- **Vehicle assembly – a primer**
- **Summary**

Vehicle production in North America

2013

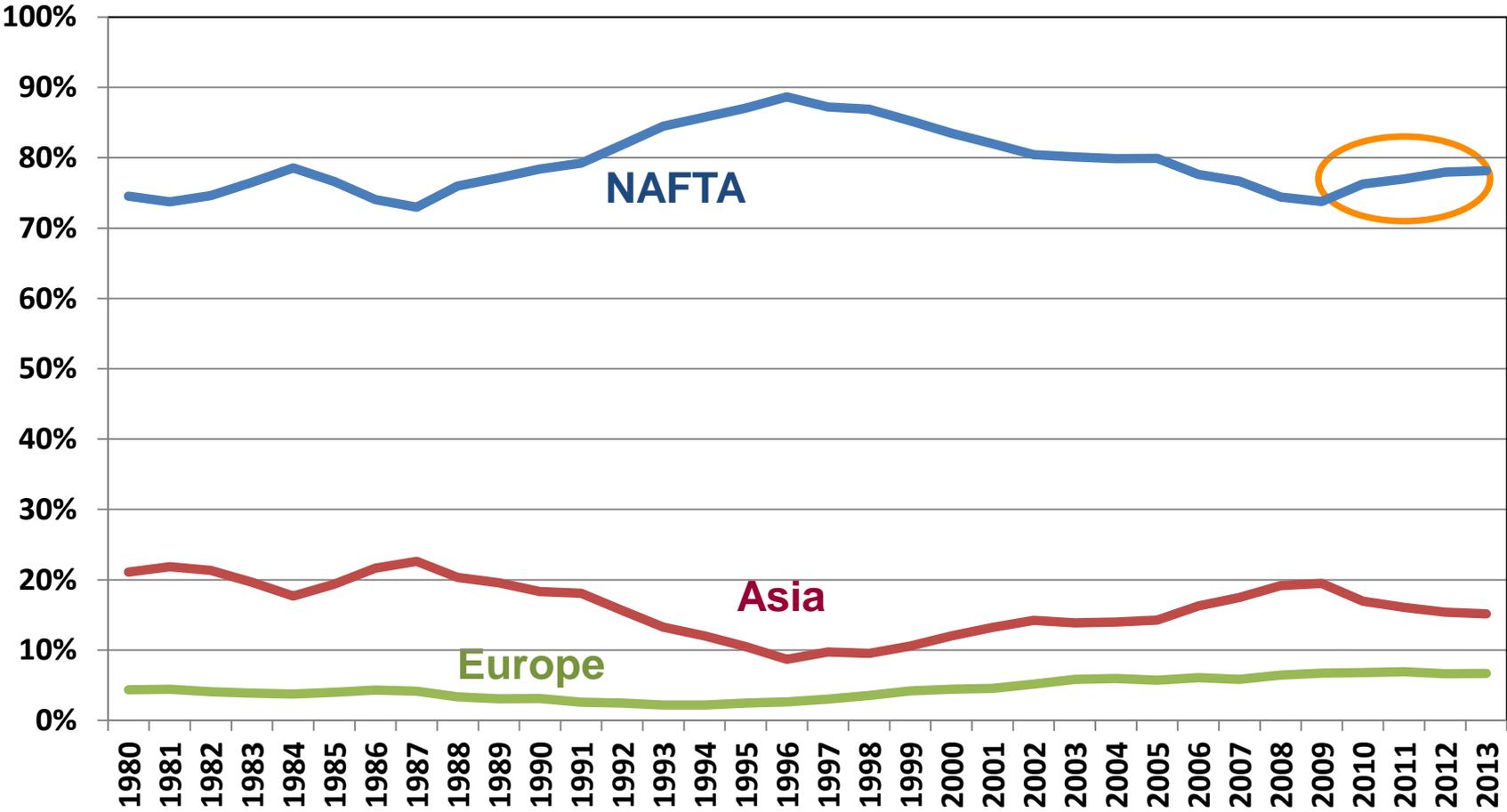


Parts and vehicle assembly co-locate



Most vehicles produced where sold

U.S. light vehicle sales by major production region



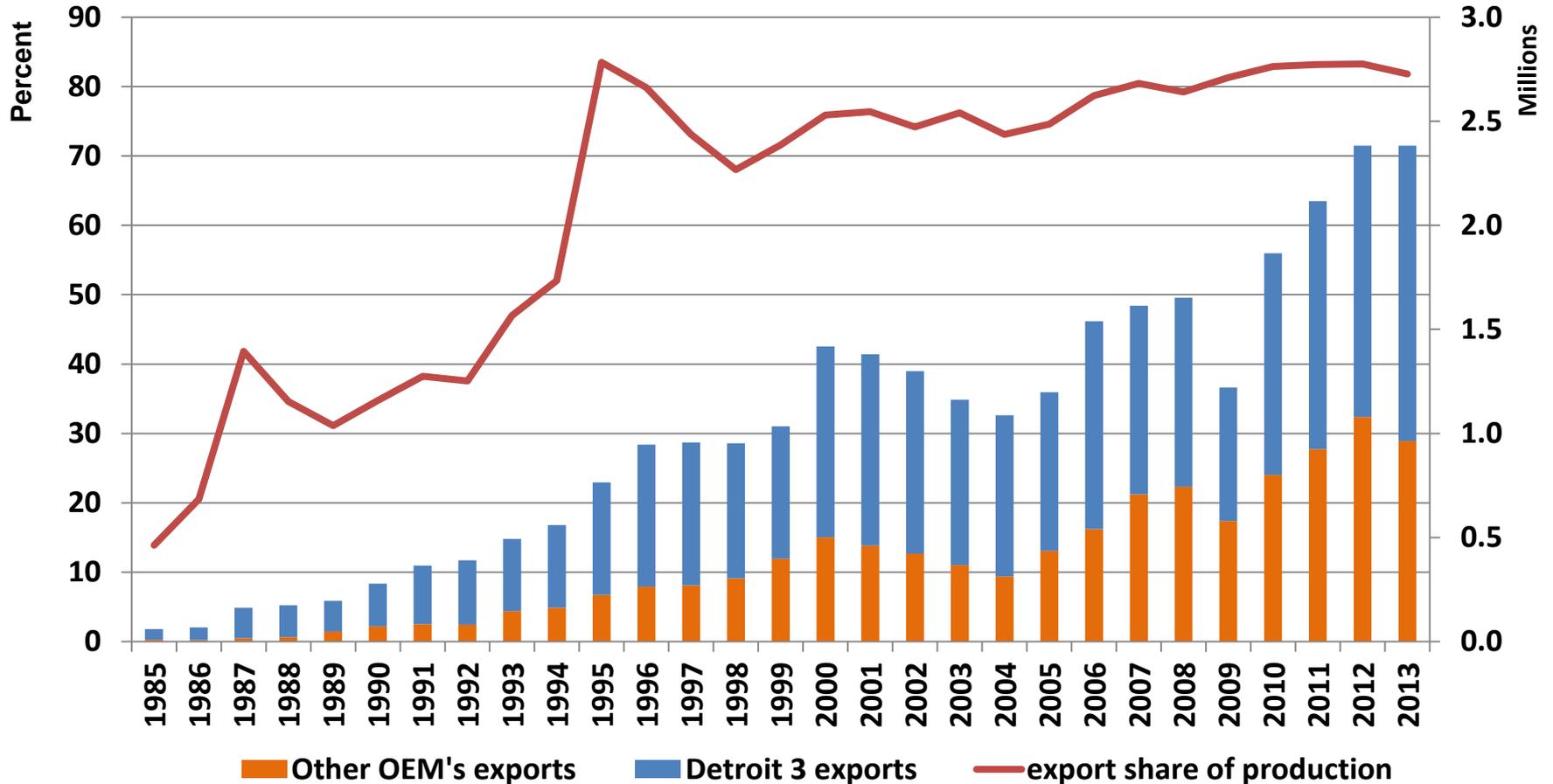
Within N. America, gains for Mexico

Share of light vehicle production

Country	1990	2007	2013
Canada	16	17	15
Mexico	6	13	18
U.S.	78	70	67
N. America	100	100	100

Exports drive Mexico's growth

Mexico's light vehicle exports



Annual exports have increased by 2.3 million units since 1985

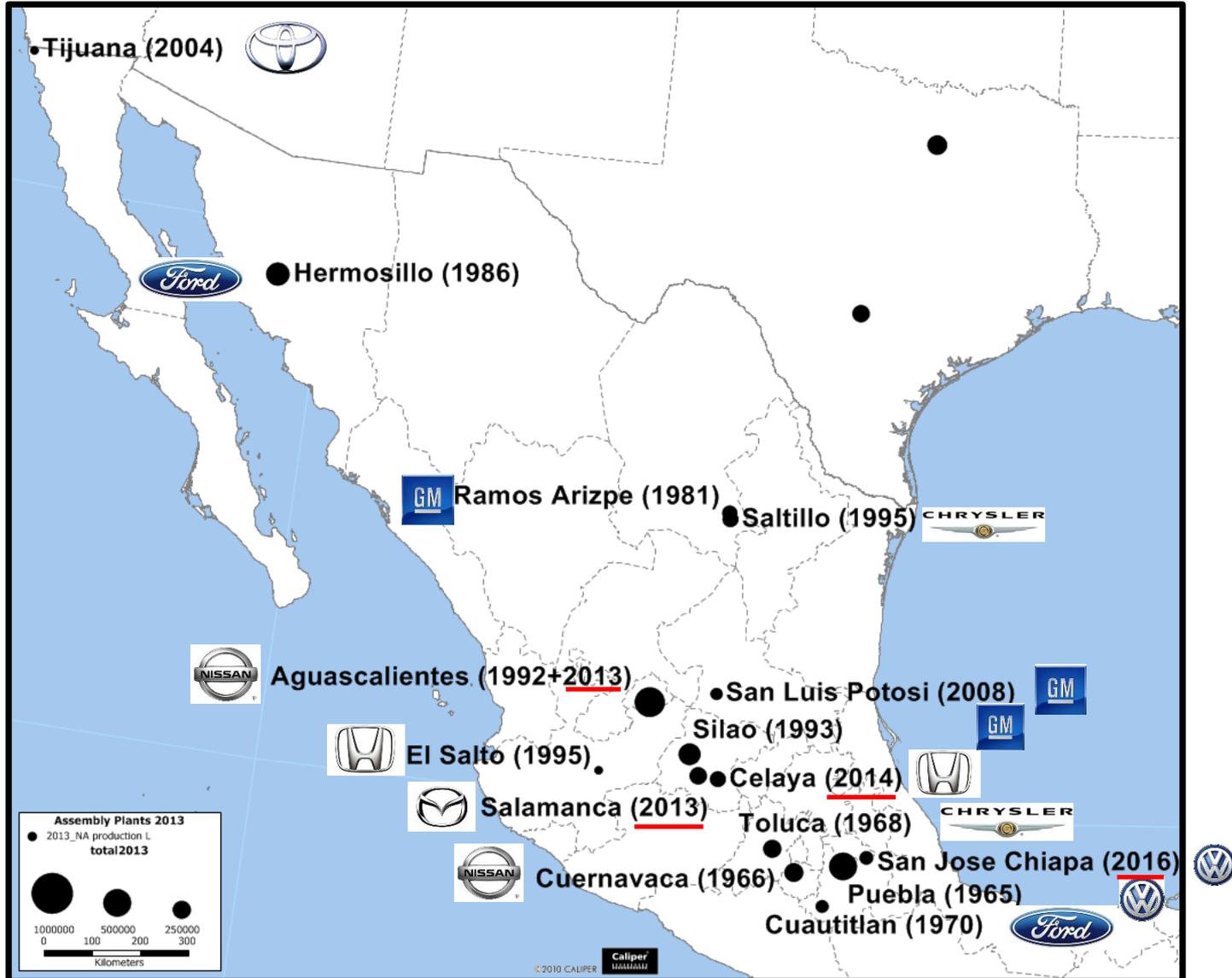
Those exports go north and south

Vehicle exports from Mexico by destination

Region	2012 export share
NAFTA	71%
Latin America	16%
Europe	9%
Africa	2%
Asia	2%

In 2013, 82% (2.38 million units) of Mexico's LV production was exported.

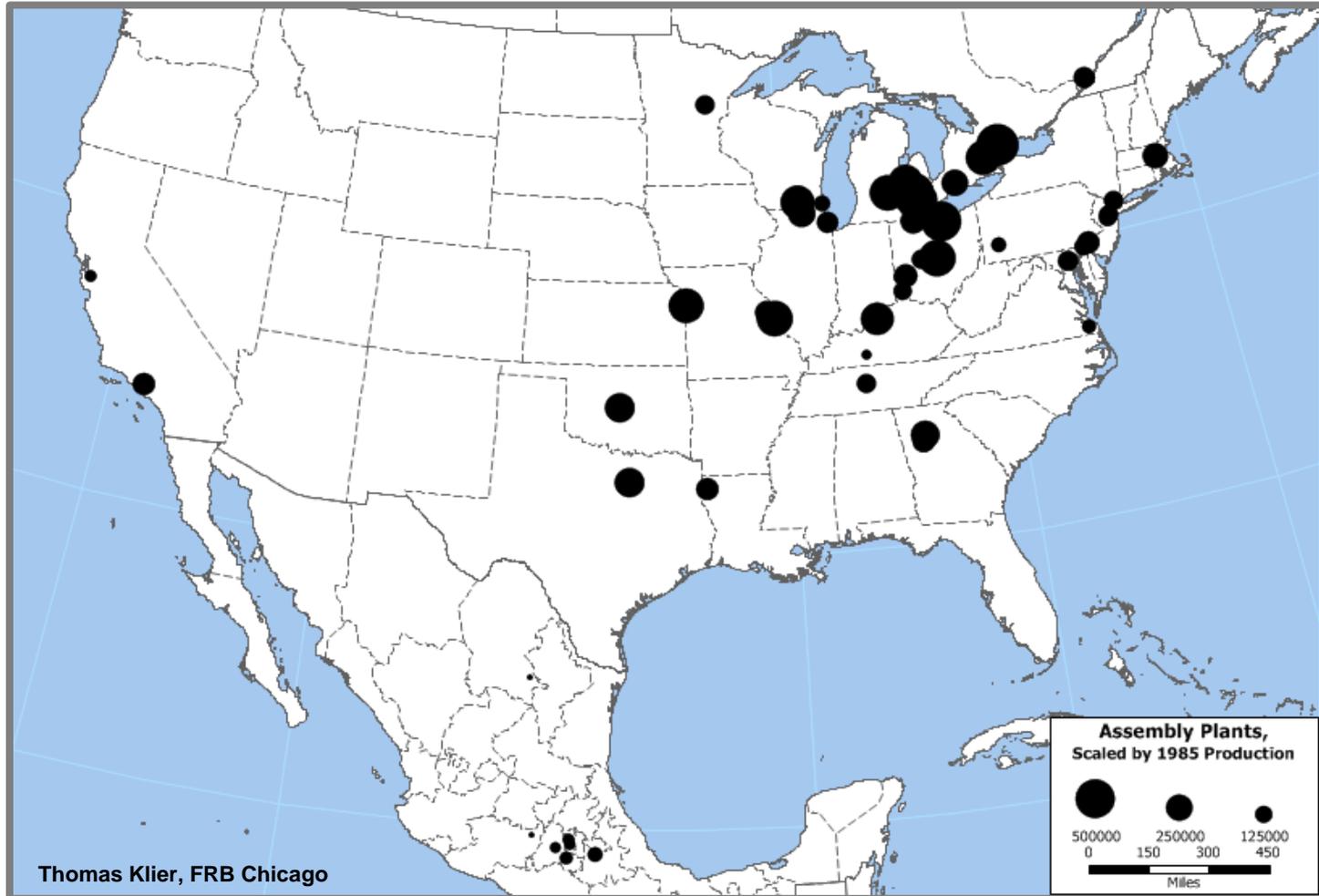
Mexico's assembly plants



Emergence of auto alley in U.S.

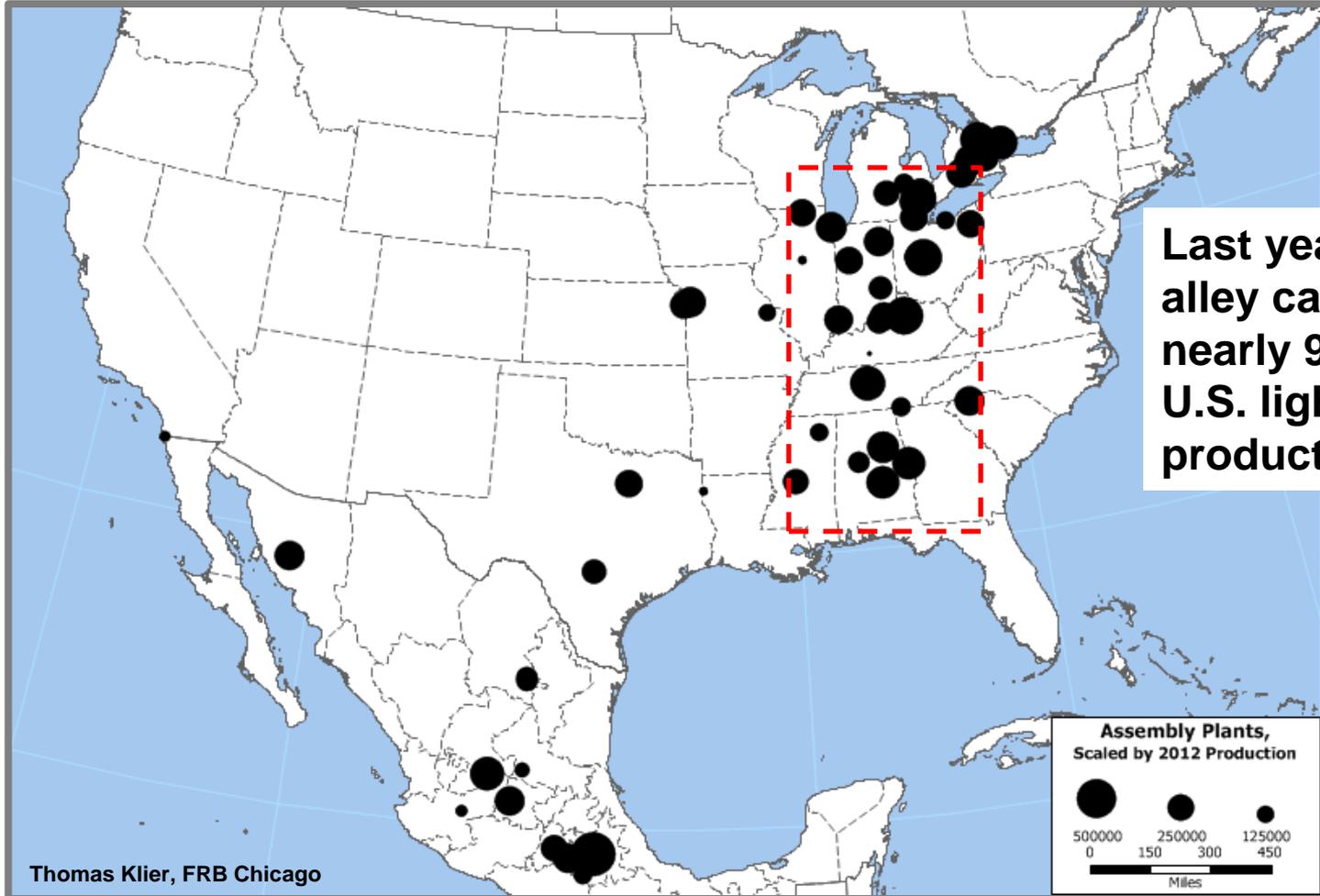
- **Two main factors:**
 - **Detroit carmakers abandon the “branch plant” assembly system.**
 - **Overseas-headquartered carmakers enter the U.S. and Canada as producers.**

From manufacturing belt...



1985

...to auto alley

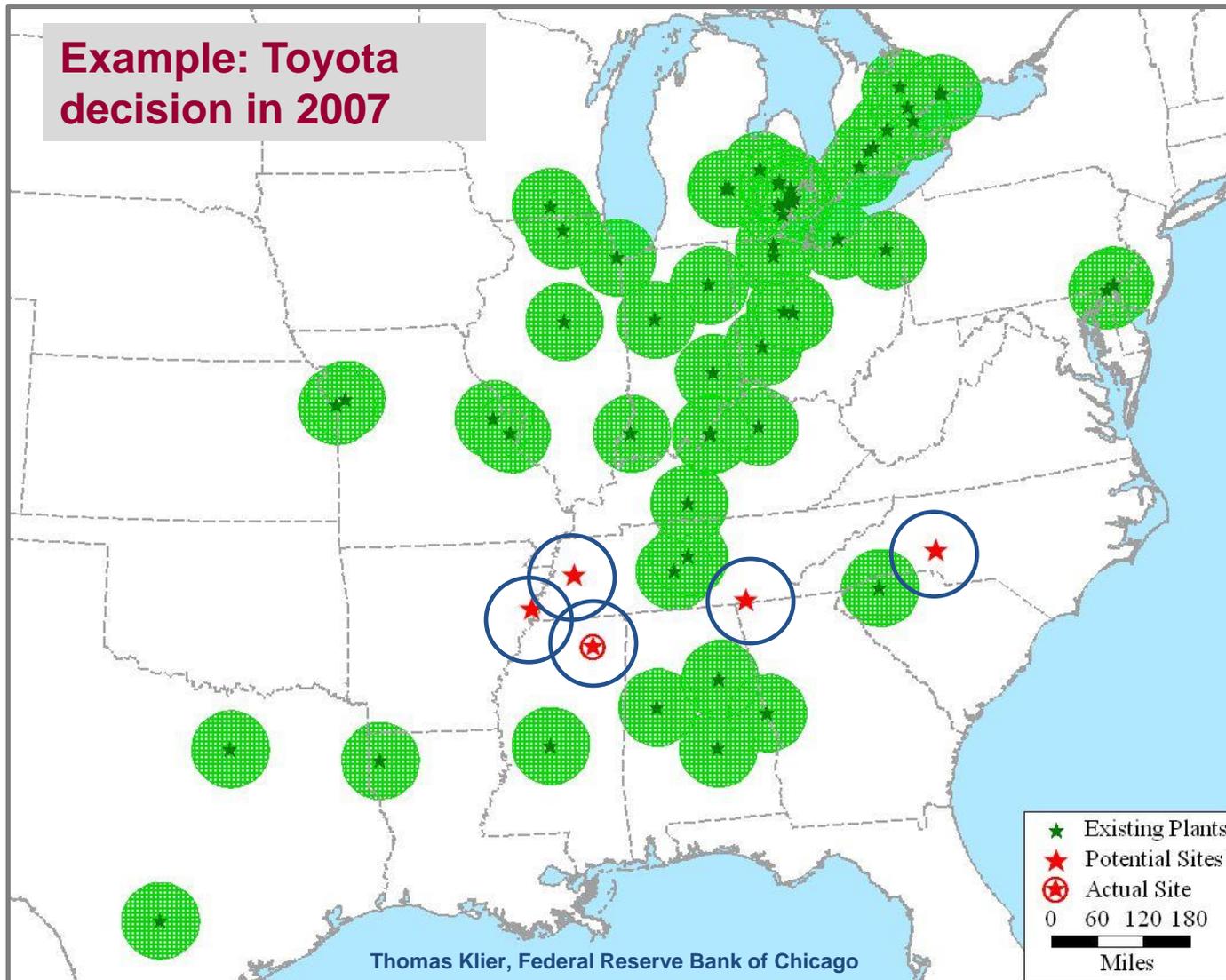


2013

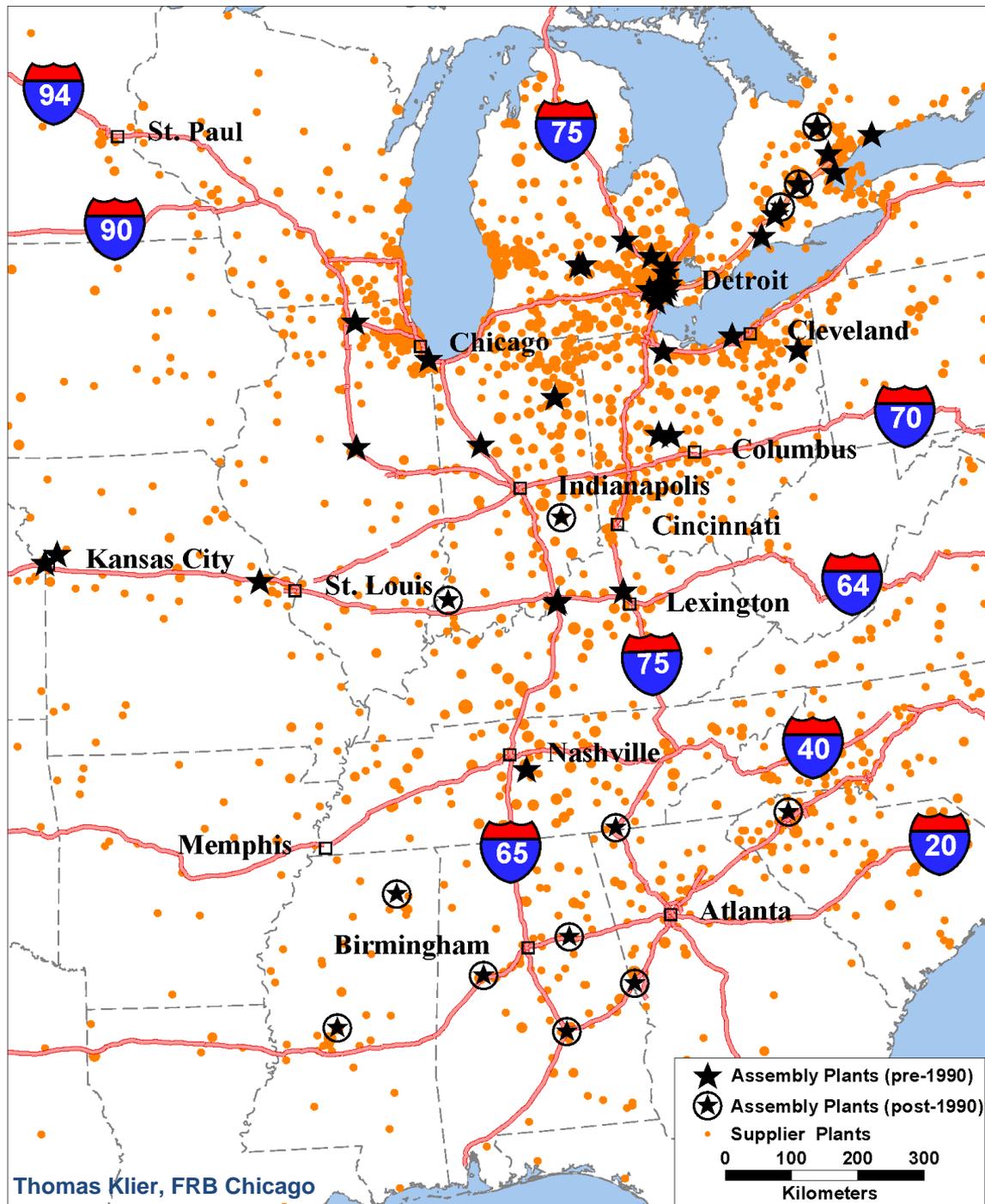
Last year, auto alley captured nearly 90% of U.S. light vehicle production.

Thomas Klier, FRB Chicago

Where to locate a new assembly plant?

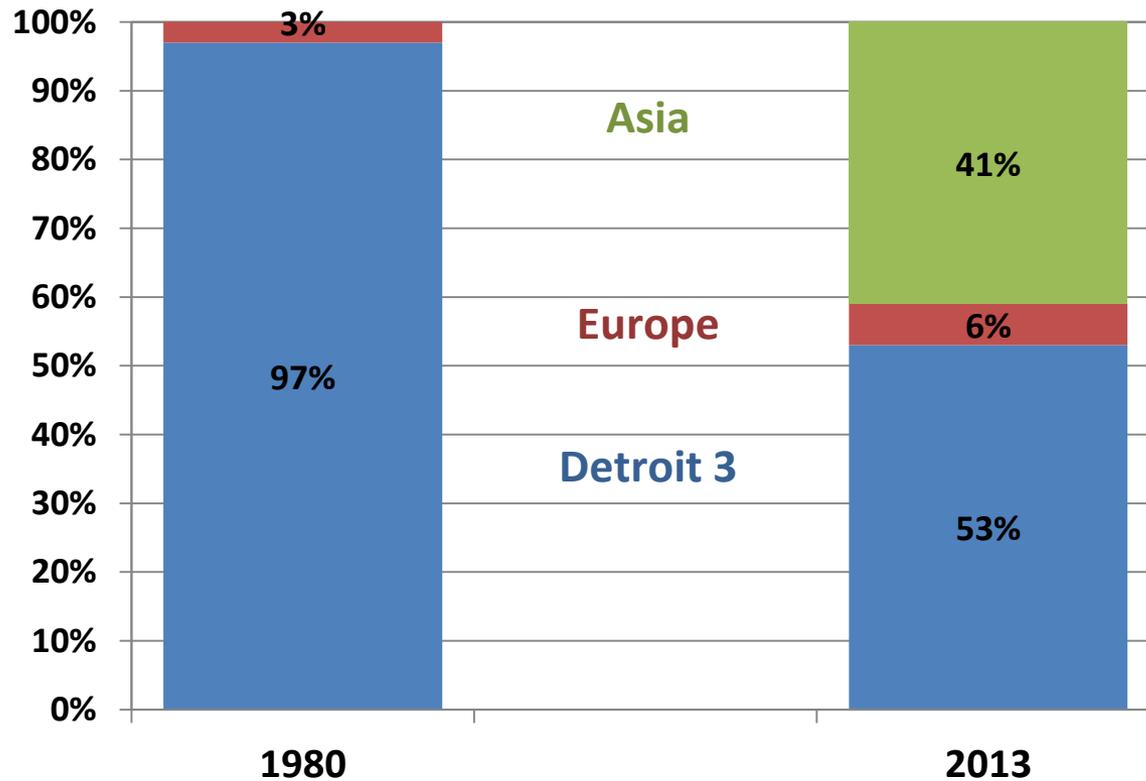


Close-up of auto alley



Production share and geography

U.S. light vehicle production share



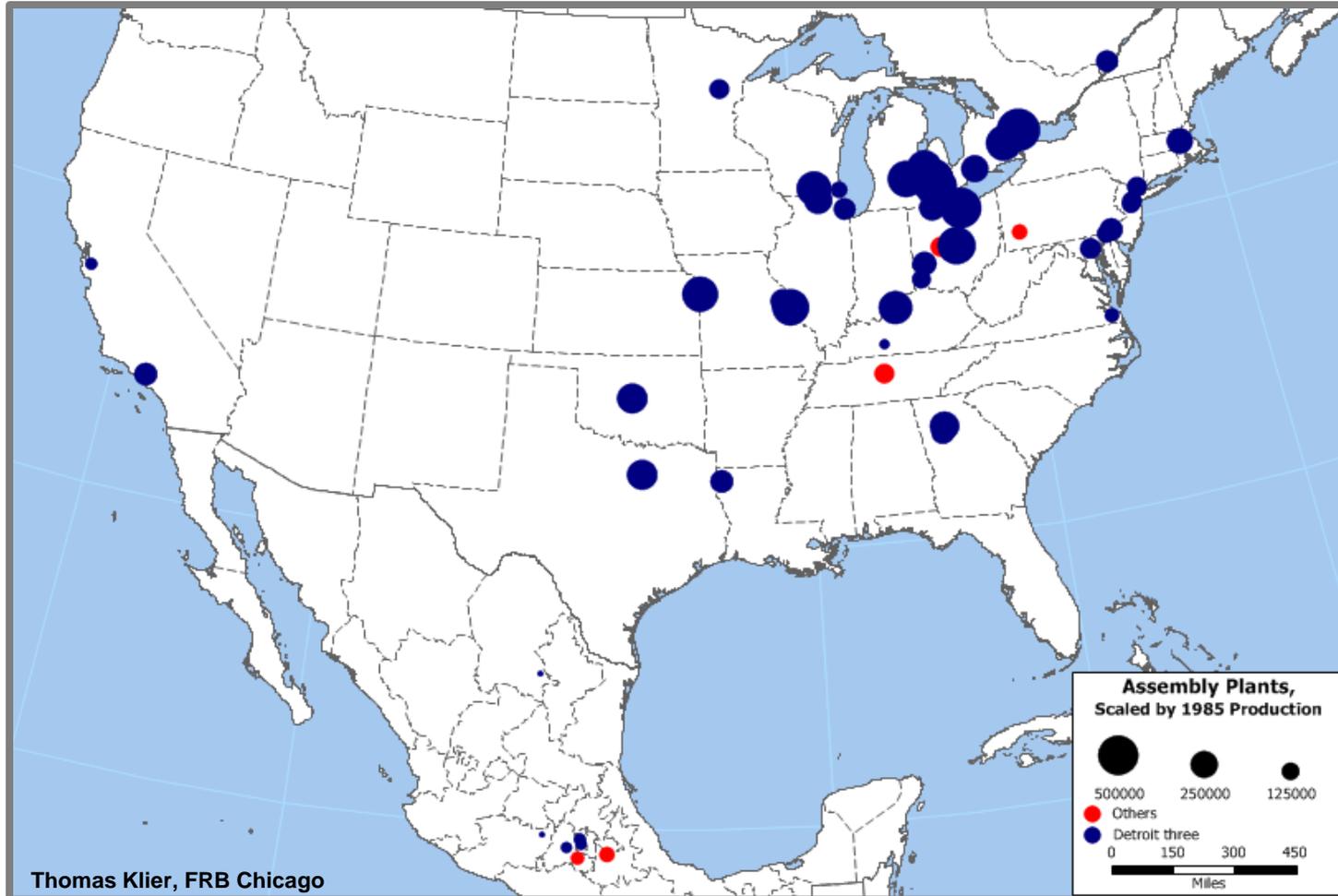
From 4 to 14 producers in 30 years

Foreign carmakers, by first year of producing in U.S.

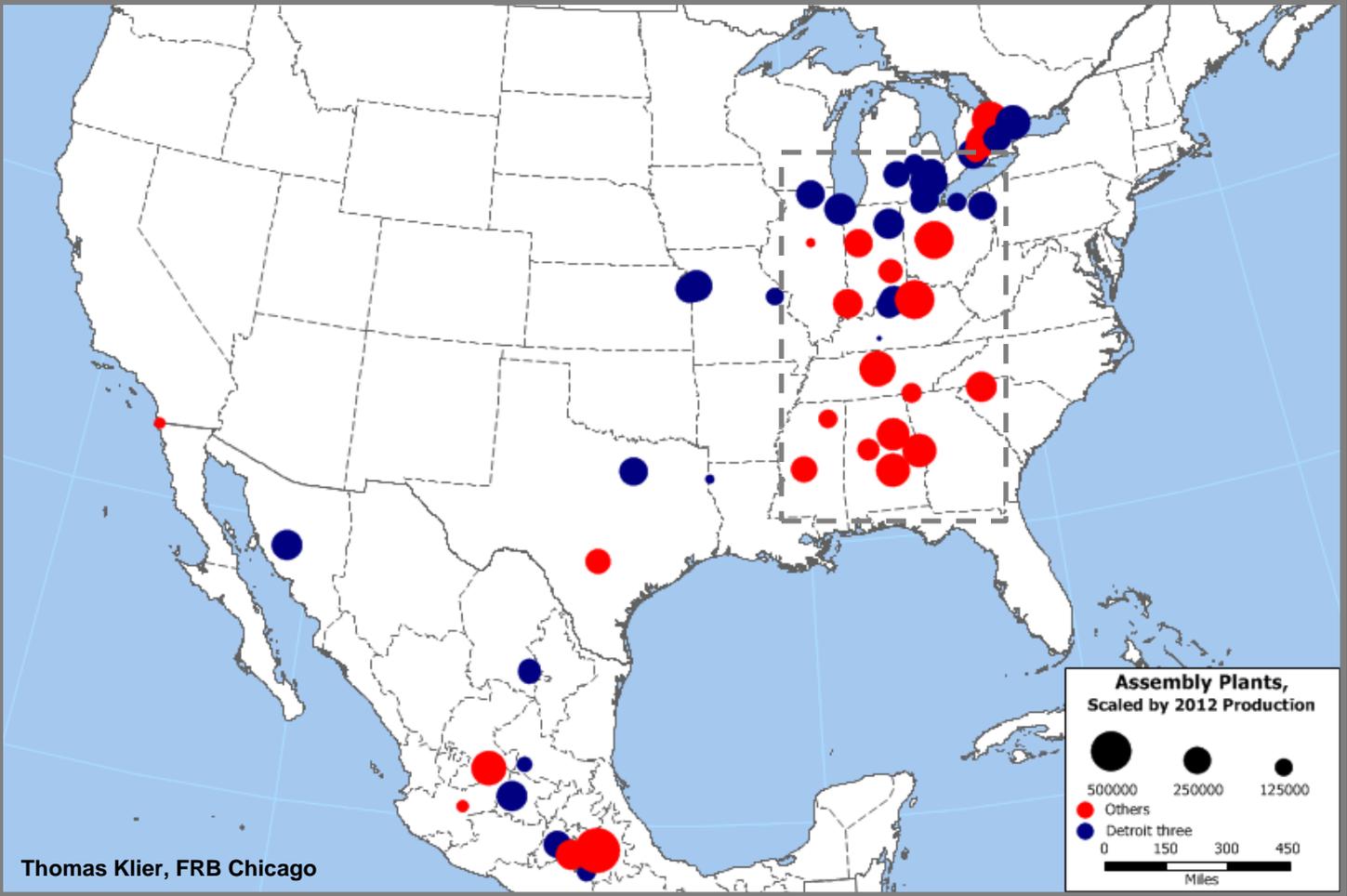
VW (1)	1978
Honda	1982
Nissan	1983
Toyota	1984
Mitsubishi, Mazda	1987
Subaru	1989
BMW	1994
Mercedes	1997
Hyundai	2005
Kia	2009

(1) Closed in 1989, new plant opened in 2011

In 1985 Detroit dominates

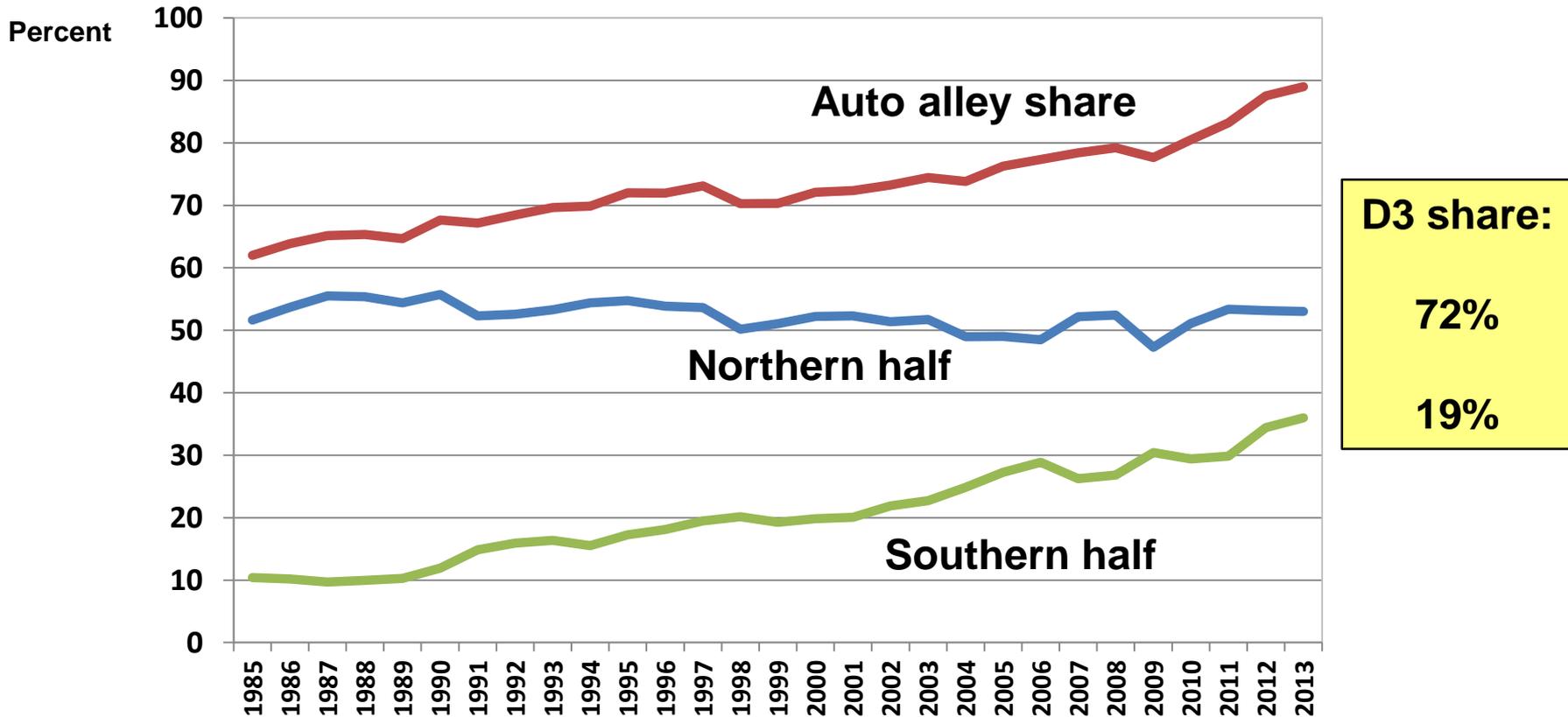


Today: two distinct footprints



Growth concentrated in the South

U.S. light vehicle production within auto alley

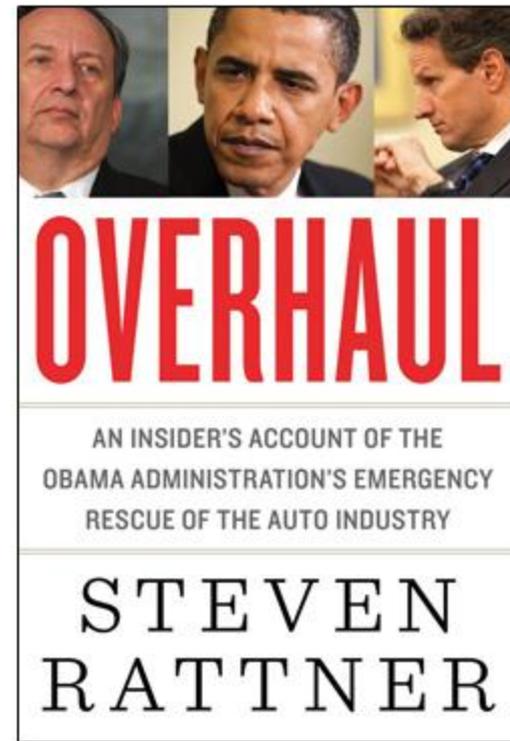


Note: North = WI, IL, MI, IN, OH South = KY, TN, AL, MS, GA, SC

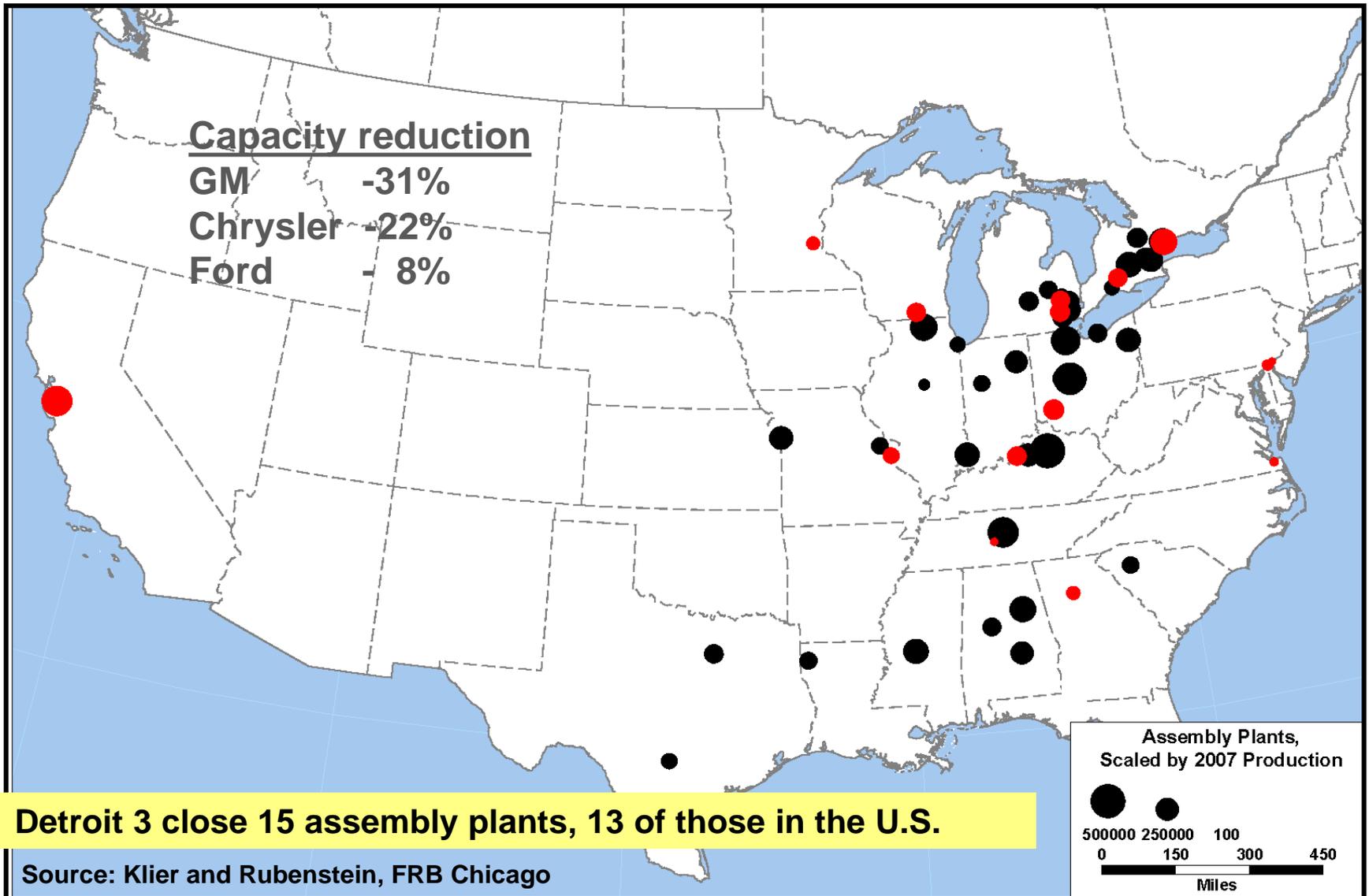
Recap: Emergency industrial policy



December 2007

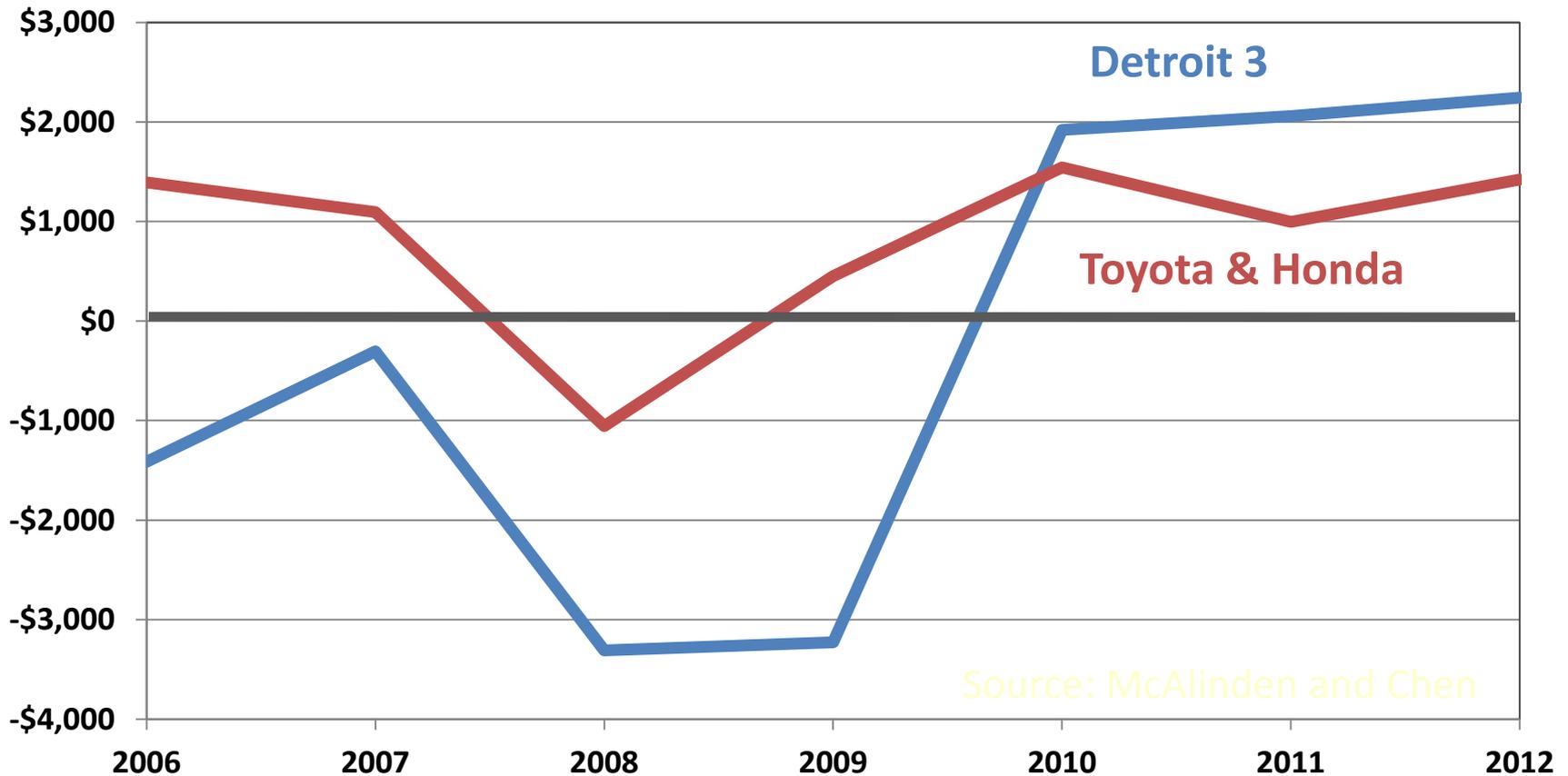


Key: Significant restructuring for Detroit



Profitability followed

Profit per vehicle, North America

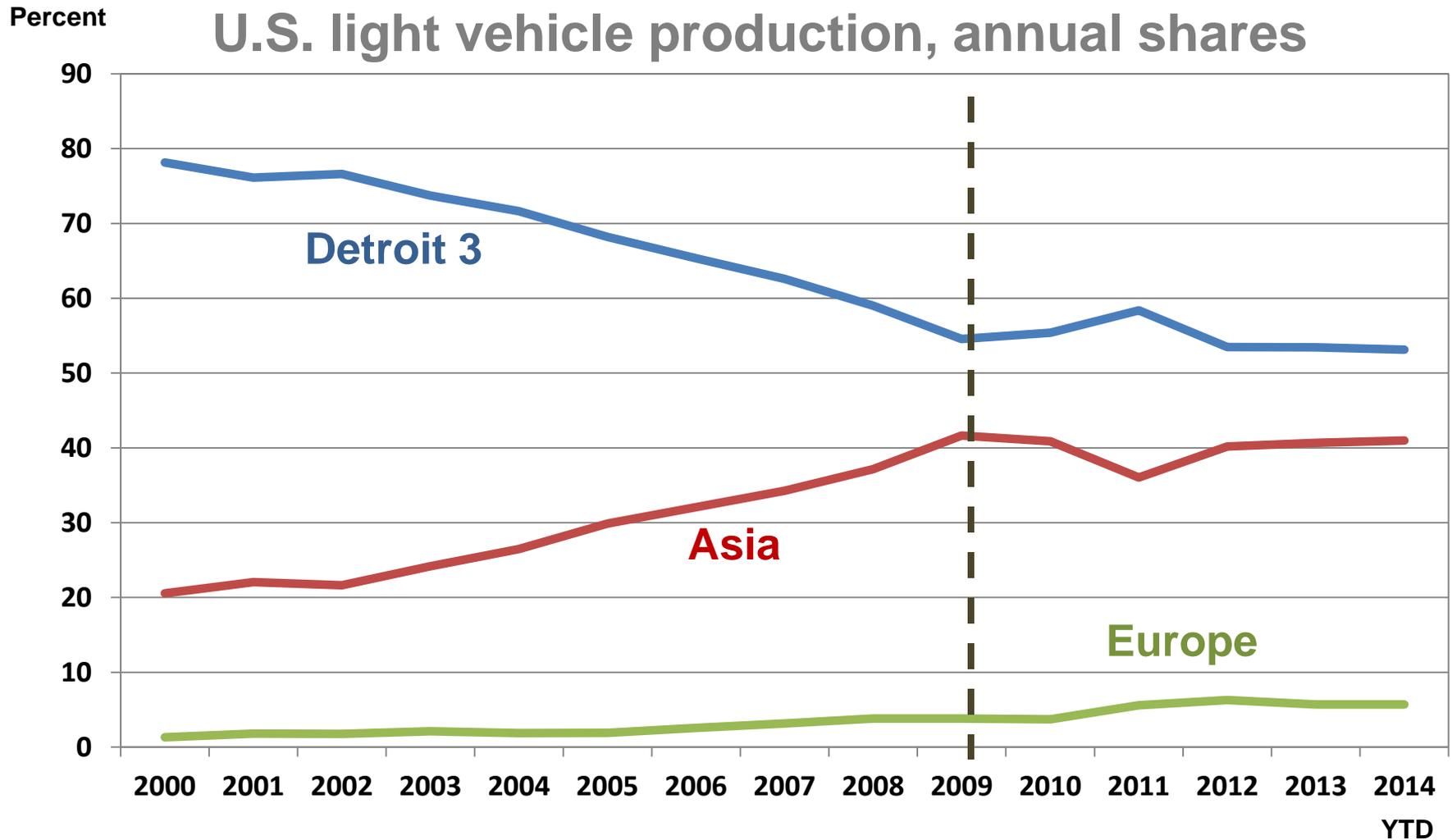


Source: McAlinden and Chen

Source: McAlinden and Chen, Center for Automotive Research

9 months

Is “flat” the new normal?



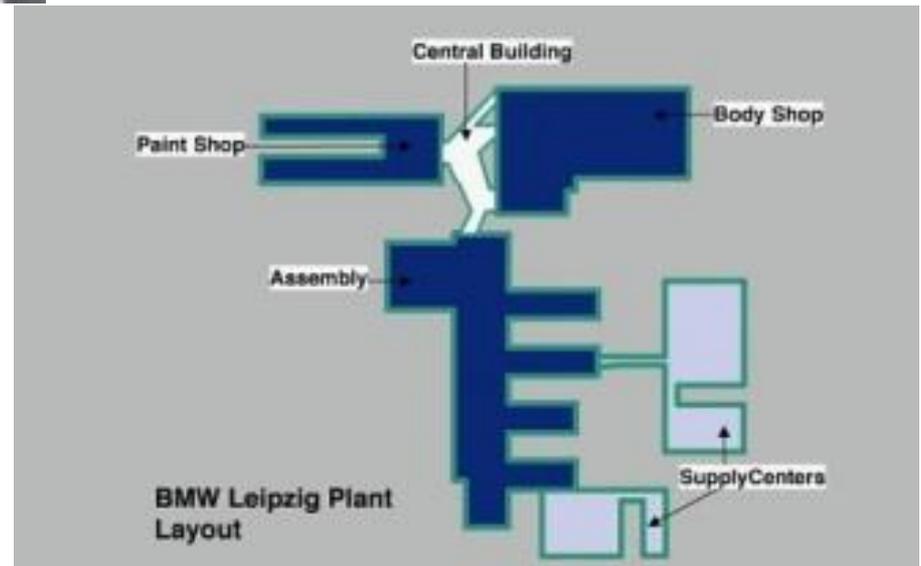
Assembly of vehicles



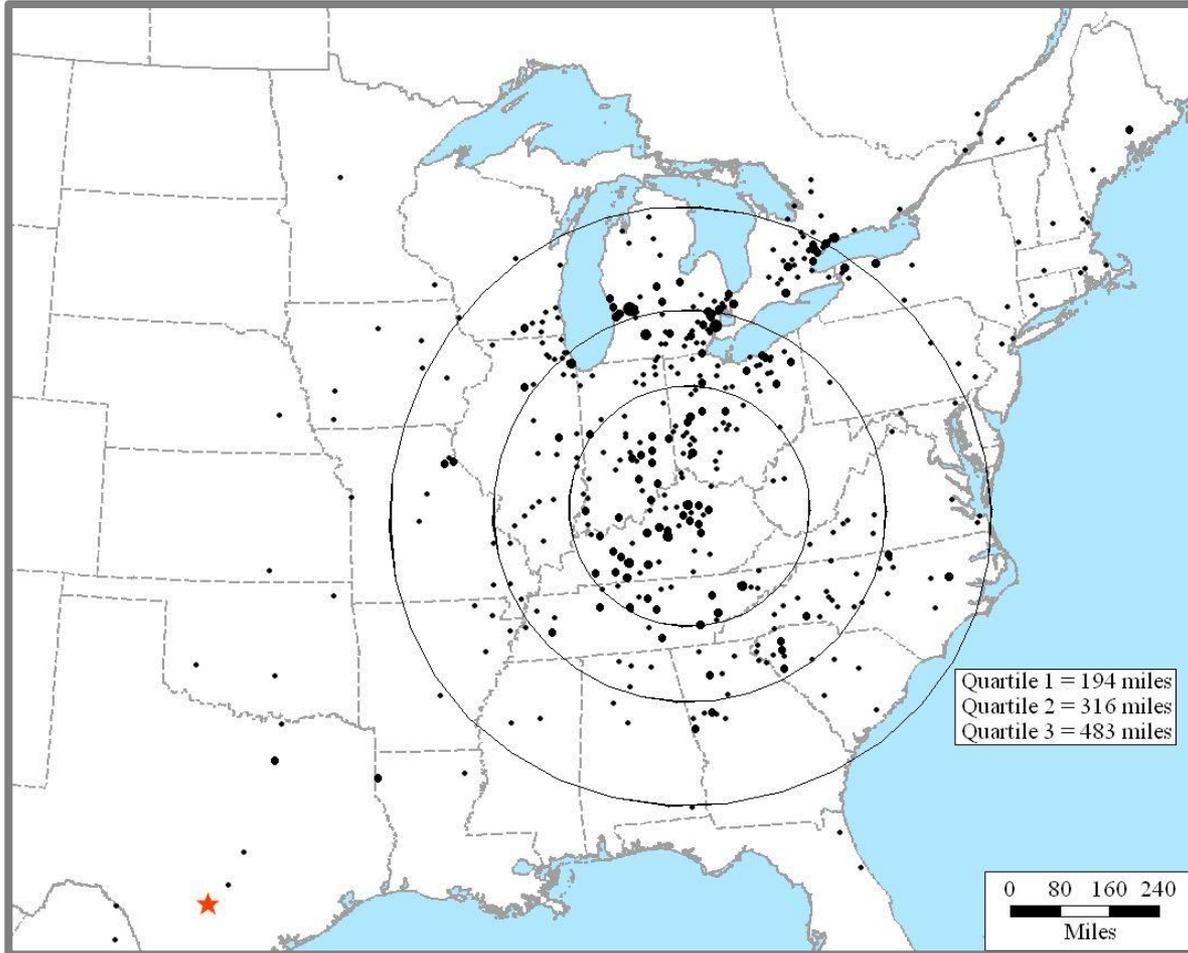
Assembly of vehicles



Assembly of vehicles



Supply networks are regional



Summary

- **North America remains a viable location of light vehicle production.**
- **Within North America, Mexico has been gaining vehicle production share. Currently, re-shoring from Asia to North America leads to Mexico, especially for small cars.**
- **Within the U.S., auto alley dominates vehicle production geography. Growth within auto alley is linked to the fortunes of carmakers.**

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