Interpreting recent trends in the US auto industry

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Contradictory news articles about the US auto industry have appeared in recent days. On the positive side:

> "Auto Sales Showed Powerful Gains Across the Board in June" (NYT 7/2/2013) and
> "A Revitalized Car Industry Cranks Up U.S. Exports" (WSJ 7/1/2013).

On the negative side, however, we have:

> "With Mexican auto manufacturing boom, new worries" (WP 7/1/2013).

Below is a brief attempt to reconcile these competing narratives. To summarize, we find:

1) U.S. light vehicle demand has recovered to near pre-recession levels; in fact, June's seasonally adjusted annual sales rate of almost 16 million vehicles was the highest since 2007. Assembly of light vehicles (passenger cars and light trucks) in the US has also returned to near pre-recession levels.

2) These figures show a remarkable turnaround from just four years ago, when the industry's major domestically owned firms were bankrupt. The US auto industry has fundamental strengths in demand, quality, and innovation.

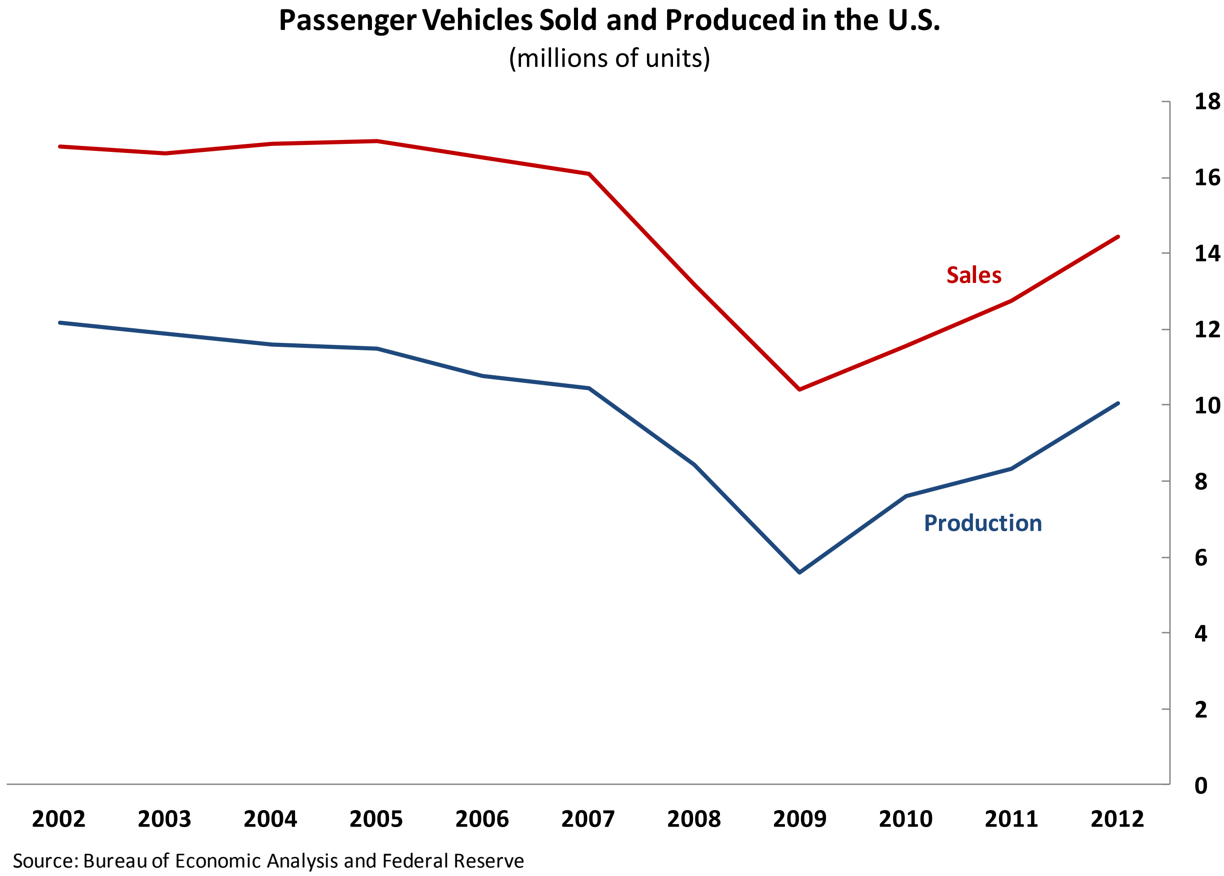
3) However, other nations are not standing still, leading to a growing US trade deficit in autos. In particular, Mexico accounts for 26% of the US trade deficit in passenger vehicles and parts (33% if heavy trucks are included). Germany accounts for another 16% of our auto trade deficit, despite significantly higher wages than in the US. Both of these nations could be partners as well as rivals. In particular, having Mexico and the US each specialize in what it does best could mean more total US employment in the industry, by making the overall North American industry more competitive. Policy could play a role in avoiding a race to the bottom, and instead promote growth that leads to higher wages and more innovation on both sides of the border.

I. The US auto industry has several fundamental strengths. For example, the industry is characterized by:

Stably growing US demand, due in part to high average age of cars on the road; at over 11 years, it is at record levels (Izzo, 2013). This demand (which has been growing despite overall weakness in the economy) gives firms that produce in the US a transportation cost advantage, since they are able to serve a large number of customers nearby. June's seasonally-adjusted annual sales rate of almost 16 million vehicles was the highest since 2007. Assembly of light vehicles in the US has also returned to near pre-recession levels (Figure 1).

The US came close to losing this industry. In late 2008, the most severe economic crisis since the Great Depression brought the US auto industry to the brink of collapse. As unemployment rose and credit dried up, Americans stopped buying cars; auto sales fell 47% between August 2008 and January 2009. Auto manufacturers and suppliers dramatically curtailed production; in the year before President Obama took office, the industry shed hundreds of thousands of jobs. The consistent record of growing US auto production since then, and the return to health of General Motors and Chrysler thus represents a substantial turnaround from those bleak days.

Figure 1. Sales and production of light vehicles in the U.S.



Quality. In 2013, General Motors ranked #1 in the influential JD Power Initial Quality Survey, a ranking long dominated by Toyota and European brands (Durisin and Trudell, 2013).

Innovation. Even though the auto industry is "old" – cars were introduced more than a century ago – the U.S. automotive supply chain remains a source of innovation that is important both inside and outside the auto industry. Modern vehicles contain 150 computerized controllers and 10 million lines of software code.[1] This technology allows airbags to do all of the following within 10 milliseconds – far faster than the blink of an eye: sense an impact, analyze incoming

[1] To meet increasing demands for IT capability, GM is hiring 4000 engineers and computer professionals (in addition to the 2000 it has already) (Colias 2012; AP 2013). There is a lot of code in a car: estimates range from 6 million lines of software code in a typical 2009 vehicle, to 10 million lines for a Volt, to 100 million for a premium car (Wilson 2011; Merritt 2011; Charette 2009; U.S International Trade Commission 2002).

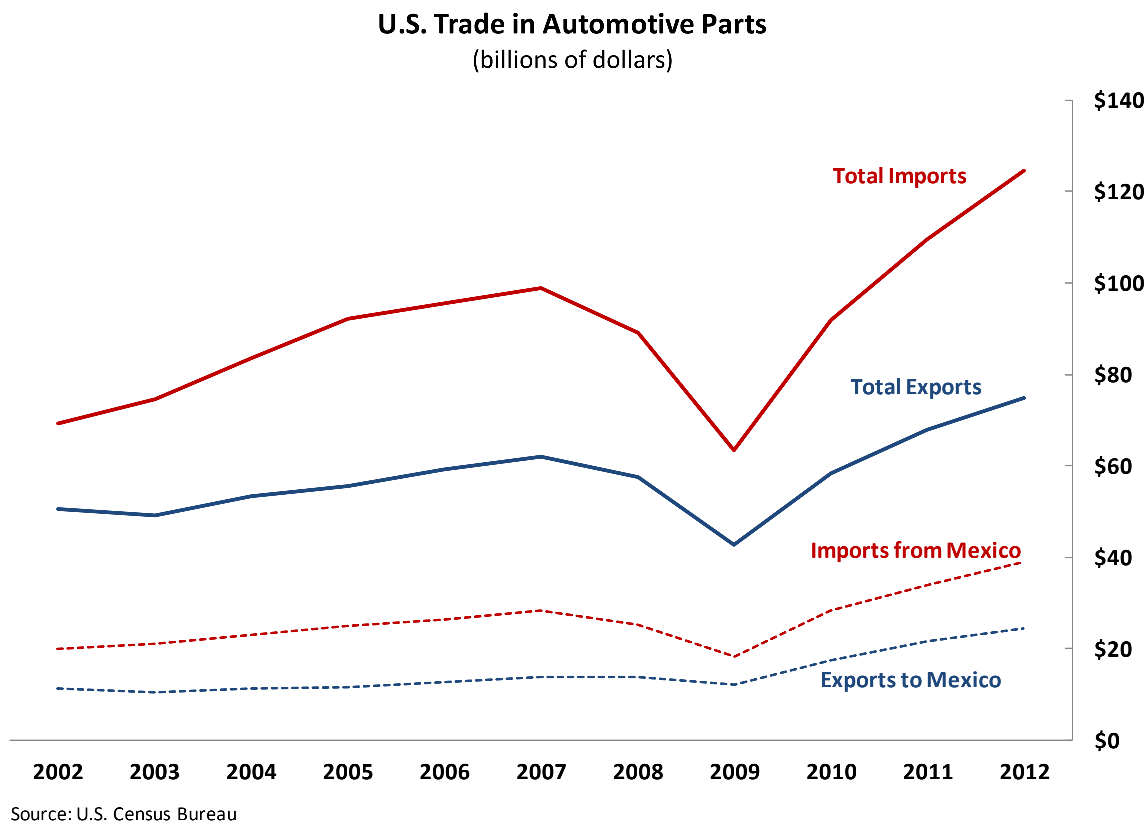
data (from brakes or the steering wheel), decide how fast to deploy, and inflate the airbag.[2] Advanced materials developed for autos, such as lightweight steels and innovative plastics, find uses in many other American industries.

II. However, competitors are not standing still.

Although the value of U.S. automotive exports has risen to record levels, imports have increased even more, leading to increasing auto trade deficits (Figures 2 and 3). Even among cars sold by the Detroit 3, well under two- thirds of the value of parts used comes from the US or Canada.[3]

Since 2009, U.S. automotive exports (passenger vehicles plus automotive parts) have increased from $75.8 billion to $135.9 billion, or 79%. However, imports have also increased, so the overall automotive trade deficit has increased from $74.1 billion to $146.0 billion, or 97%. A significant part of US automotive trade is with Mexico. Our southern neighbor accounts for 21% of US automotive exports and 24% of automotive imports. About 26% of the overall automotive trade deficit is with Mexico. (If heavy trucks are included, the automotive trade deficit has increased to $146.7 billion, of which Mexico accounts for 33%).

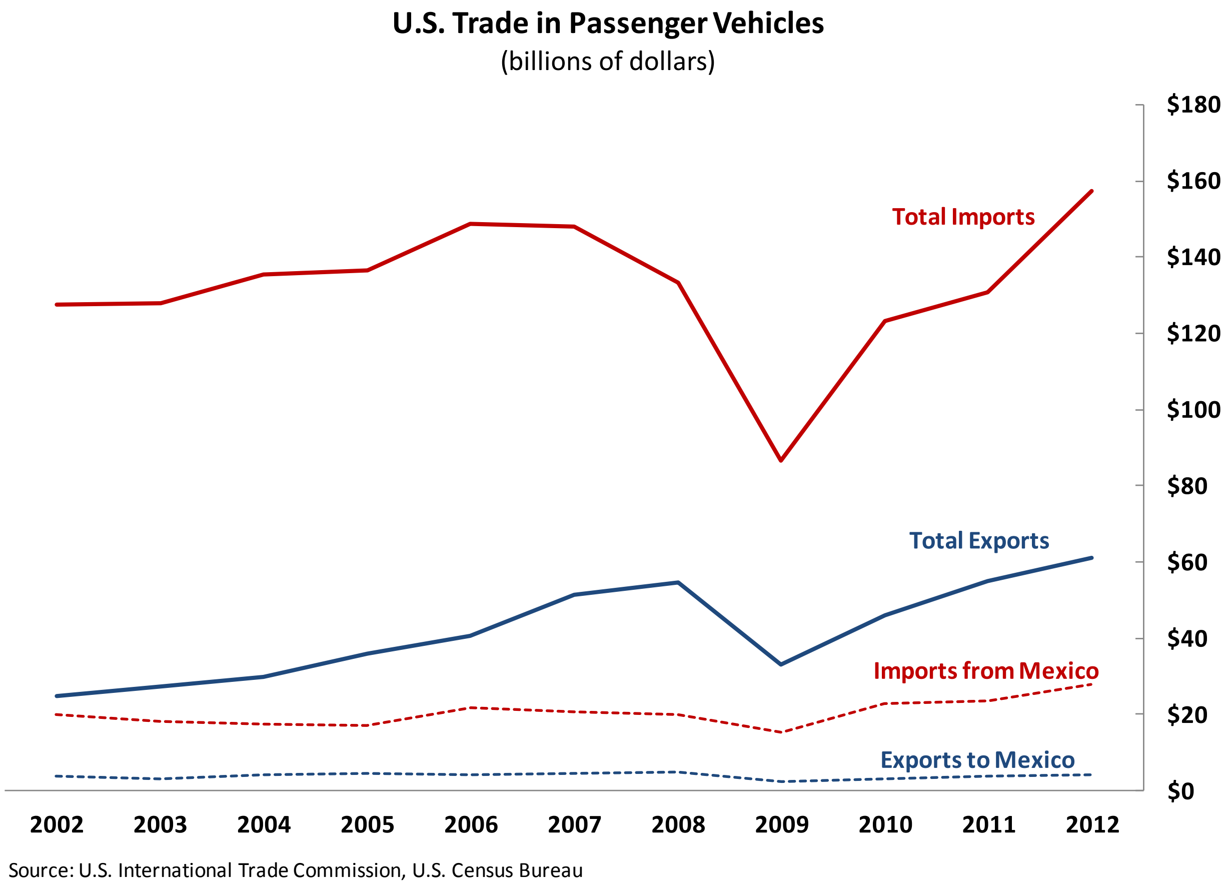
<u>Figure 2. U.S. Trade in Automotive Parts</u>



[2] Alliance of Automobile Manufacturers (2012).

[3] CEA calculations from American Automotive Labeling Act data (weighted by sales of car model); see Department of Transportation (2013). Note that this percentage refers to the domestic content of new cars. Trade figures also include aftermarket parts, a higher percentage of which are imported compared to parts used to make new cars.

Figure 3. U.S. Trade in Passenger Vehicles



These trade deficits may well increase in the future, since auto manufacturers have announced significant investments in Mexico. Audi will build a $1.3 billion luxury-car assembly plant in Puebla, and GM will invest almost $600 million in its Mexican assembly plants. These and other investments are expected to yield a 38% increase in vehicle production by 2016. This greater vehicle production, plus increased skills in Mexico, is spurring large investments in sophisticated automotive parts and materials, such as precision gears and galvanized steel (Steel Orbis 2012; Case 2013; Miroff 2013).

Most of this production will likely be for export; currently, 80% of Mexican vehicles are exported. In contrast to US workers, few Mexican auto workers can afford to buy a car on their salaries. At GM, for example, average hourly pay and benefits in 2012 were over $50 in the US, compared with less than $4 in Mexico (Miroff 2012).

However, low wages are neither necessary nor sufficient for a competitive auto industry. Direct labor costs make up less than 8% of US automakers' total costs, and can be offset by higher productivity and better management of suppliers (whose costs account for two-thirds of automakers' total costs)[4]. The capability of these suppliers and the smoothness of their coordination with automakers are key determinants of the quality and innovativeness of the car.[5]

Thus the US also runs a significant automotive trade deficit with Germany ($24 billion in 2012), even though German automotive wages are significantly higher than those in the US. (Including employees at auto suppliers, 2011 hourly pay and benefits were $38 in the US, significantly less than Germany's $60.)

III. Both Germany and Mexico could be partners as well as rivals.

In particular, having Mexico and the US each specialize in what it does best could mean more total US employment in the industry, as the overall North American industry becomes more competitive. Policy could play a key role in avoiding a race to the bottom and instead promoting growth that leads to higher wages, more innovation, and better environmental performance on both sides of the border.

[4] Calculated from http://www.cargroup.org/?module=Publications&event=View&pubID=36, slides 45 and 54. Average revenue per vehicle sold by US Detroit 3 in 2010 = $23,500; weighted average profit per vehicle = $2700, so cost/vehicle = $20,800. UAW labor cost /vehicle = $1600; price of purchased components and materials = $13,900.

[5] McKinsey (2012); MacDuffie and Helper (2006).

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