The growing importance of Mexico in North America’s auto production

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Mexico’s share of automotive production has grown relative to those of its neighbors to the north because the country has become more integrated with North America and pursued trade agreements with numerous other countries. Those developments have boosted Mexico’s motor vehicle production by way of raising exports.

1. Light vehicle production in Mexico, 2012

<table>
<thead>
<tr>
<th>Company</th>
<th>Plants in operation</th>
<th>Share of all auto production</th>
<th>Share exported by company</th>
<th>Share of all auto exports</th>
</tr>
</thead>
<tbody>
<tr>
<td>General Motors</td>
<td>3</td>
<td>20</td>
<td>82</td>
<td>20</td>
</tr>
<tr>
<td>Ford</td>
<td>2</td>
<td>16</td>
<td>96</td>
<td>18</td>
</tr>
<tr>
<td>Chrysler</td>
<td>2</td>
<td>15</td>
<td>92</td>
<td>17</td>
</tr>
<tr>
<td>Volkswagen</td>
<td>1</td>
<td>21</td>
<td>86</td>
<td>22</td>
</tr>
<tr>
<td>Nissan</td>
<td>2</td>
<td>24</td>
<td>68</td>
<td>20</td>
</tr>
<tr>
<td>Honda</td>
<td>1</td>
<td>2</td>
<td>60</td>
<td>2</td>
</tr>
<tr>
<td>Toyota</td>
<td>1</td>
<td>2</td>
<td>99</td>
<td>2</td>
</tr>
</tbody>
</table>

Notes: In addition, the following plants have been announced: Mazda in Salamanca (to open in 2013); Nissan in Aguascalientes (to open in 2013); Honda in Celaya (to open in 2014); and Audi (Volkswagen) in San José Chiapa (to open in 2016). Most of them are currently under construction; see note 14 for more details. The last column does not total to 100% because of rounding.

Source: Authors’ calculations based on data from WardsAuto InfoBank.

Chicago Fed Letter puts recent developments in Mexico’s automotive industry into historical perspective.

Role of trade policy

Mexico has a long history of motor vehicle production. Two Detroit-based automakers, Ford and GM, were assembling vehicles there by the mid-1930s. Several additional producers, such as Chrysler, VAM (Vehículos Automotores Mexicanos), and Renault, entered the Mexican market over the years, yet no dominant Mexican vehicle producer emerged. A key factor shaping the development of Mexico’s automobile industry was the country’s auto-industry-specific trade policy. During the first half of the twentieth century, vehicles sold in Mexico were either imported as finished products or put together from kits (made up of domestically produced and imported components) at small-scale assembly plants. In 1960, a dozen assembly plants in Mexico produced a total of about 50,000 vehicles; back then, local content in the vehicles assembled in Mexico amounted to less than 20%. In 1962 the Mexican government started implementing a policy that favored domestic production over imports. The new policy prohibited imports of finished vehicles, engines, and many other auto
parts, significantly raising trade barriers for Mexico’s auto industry. This policy required that at least 60% of the parts in vehicles assembled in Mexico be produced in Mexico and that the parts suppliers have at least 60% Mexican ownership. Thus, Mexico’s 1962 auto decrree enticed producers that wanted to sell in Mexico to set up production operations in the country. For instance, it stimulated the construction of several vehicle assembly and engine plants by foreign firms near Mexico City, the country’s largest city, where the majority of the vehicles were going to be sold. Notably, during the mid-1960s both Nissan and VW first entered the Mexican market as vehicle producers by establishing plants in Aguascalientes and Puebla, respectively; both plants were located fairly close to Mexico City. The new policy succeeded in raising the level of Mexico’s vehicle production to 250,000 units by 1970, yet those vehicles “were of poorer quality and entailed higher production costs than their foreign counterparts.”

By 1983, the Mexican government shifted its auto industry policy again, this time focusing on export promotion. Vehicle producers responded by opening modern and competitive plants. For example, two assembly plants were opened during the 1980s—one by GM at Ramos Arizpe in 1981 and another by Ford at Hermosillo in 1986. These plants also altered the traditional footprint of Mexico’s auto industry. Earlier plants had all been located near Mexico City, where most customers for new vehicles produced in Mexico were concentrated. The two new plants were located much farther north, closer to the United States, where most of their output was headed as exports.

### Integration with North American market

Mexico’s trade restrictions were loosened, with the implementation of the North American Free Trade Agreement (NAFTA) in 1994. That agreement included several key provisions affecting Mexico’s auto industry:

- Import duties on light vehicles were cut from 20% to 10% in 1994 and eventually phased out over ten years.
- The minimum requirement for Mexican content in Mexico’s auto production was reduced from 34%–36% in 1993 to 29% in 1999 and eventually eliminated in 2004.
- The level of the trade compensating ratio for vehicles was reduced from 1.75 to 0.80 in 1994 and eventually to zero in 2004.

In addition to reducing trade barriers within North America, NAFTA introduced barriers to the vast majority of competitors that were not already producing vehicles in any of the three North American countries by 1994. The five automakers that were operating production facilities in Mexico prior to the implementation of NAFTA—namely, Chrysler, Ford, GM, Nissan, and VW—received a head start in the free trade era. Until 2004, only those five automakers could import vehicles duty-free into Mexico. In addition, in order to qualify for duty-free exports from Mexico after 2004, at least 62.5% of a vehicle’s content had to be made somewhere in North America.

NAFTA’s passage stimulated another round of investment by these five producers. For example, Nissan opened a second assembly plant in Aguascalientes during the NAFTA ratification process, and within a year of NAFTA’s implementation, Chrysler and GM opened plants in Saltillo (in northern Mexico) and Silao (in central Mexico), respectively. NAFTA also required that some production be located in Mexico in order to be able to import vehicles there. Subsequently, both Honda, in 1995, and Toyota, in 2002, established small-scale production plants in Mexico.

With the implementation of NAFTA, Mexico had opened up its market. As a result, auto manufacturers optimized their production operations within North America. Indeed, vehicle assembly plants in Mexico implemented state-of-the-art technology and became, more or less, interchangeable with those in the United States and Canada (e.g., note that since the launch of the North American version of the Ford Fusion in model year 2006, it has been exclusively produced at Ford’s Hermosillo plant in Mexico). Since 1994, the country’s production has on balance steadily increased, in step with the rising volume of vehicle exports (see figure 2). By the end of 2012, light vehicle production had reached an annual level of 2.86 million units, with 2.38 million of those representing exports.

### Recent developments

Mexico’s vehicle production capacity is soon to be boosted further by a number of additional vehicle assembly plants. In 2011, Mazda and Honda announced the construction of their first full-size assembly plants in Mexico (Mazda at the same time ended a production agreement at a former Ford facility in southern Michigan). Mazda’s and Honda’s plants are scheduled to begin producing small cars in 2013 and 2014, respectively. Nissan is currently building its third assembly plant in Mexico, also designated for...
Producers with overseas headquarters accounted for 45% of Mexico’s light vehicle exports in 2012, compared with 16% in 1985.

What are the reasons behind this remarkable expansion in auto production capacity? The primary drivers of this growth are low production costs, changing consumer preferences in automobiles prompted primarily by rising gasoline prices, and country-specific export opportunities.

Mexico’s auto industry wage rate (starting at $40 per day for assembly line workers in 2012) is low relative to its ing at $40 per day for assembly line Mexico’s auto industry wage rate (start- ing at $40 per day for assembly line Mexico’s auto industry wage rate (starting at $40 per day for assembly line workers in 2012) is low relative to its neighbors to the north as well as other industrial nations, so it continues to help attract international automakers. Auto manufacturers choosing to produce vehicles in Mexico instead of the United States (or Canada) face a trade-off between somewhat lower labor costs and somewhat higher shipping costs for vehicles produced in Mexico and sold north of the border. However, for automakers choosing between producing in North America and producing overseas and shipping vehicles from there to North America (and sometimes other markets), Mexico appears to have a clear advantage over the rest of the world of late. For example, the substantial appreciation of the yen against the U.S. dollar and other currencies has made Japan a much more expensive place in which to produce vehicles than Mexico.

As the mix of vehicle production is shifting toward small vehicles on account of rising gasoline prices and consumers’ concerns about vehicle fuel efficiency, Mexico has become the location of choice for Asian-headquartered automakers to produce vehicles destined primarily for the Americas. Notice how all of their newly announced assembly plants in Mexico, which were mentioned earlier, are slated for the production of small vehicles.

Furthermore, Mexico has become a very attractive location for automakers because of the country’s aggressive pursuit of free trade agreements. Indeed, that all the new assembly plants are being located in the interior of Mexico, which has easier access to ports than locations farther north. This access enables exports of finished vehicles to several global markets, as opposed to just the United States and Canada.

Summary

Mexico’s auto sector has been growing strongly. The country is on track to account for 22% of North American light vehicle production by 2020. A distinctive feature of Mexico’s rapidly growing auto industry is the importance placed on exporting vehicles rather than selling them in Mexico. Exports accounted for 83% of Mexico’s light vehicle production in 2012, representing a higher share of auto production than in any other major car-making country in recent years. In terms of volume, Mexico was the fourth-largest exporter of motor vehicles in 2012, behind only Germany, Japan, and South Korea. In contrast to the other major car-exporting countries, Mexico has no domestically owned automakers to spearhead the export strategy. And so, Mexico’s role is unique among automotive export hubs.
1 Unless otherwise noted, the automotive statistics presented in this article are from authors’ calculations based on data from WardsAuto, Auto Bank.


3 VAM was a Mexican auto producer from the mid-1940s to the late 1980s. In 1983 the Mexican government decided to sell its 100% stake in VAM to Renault; see Juan Carlos Moreno Brid, 1992, “Structural change in Mexico’s motor vehicle industry (1977-89),” in Industry on the Move: Causes and Consequences of International Relocation in the Manufacturing Industry, Gijsbert van Lient (ed.), Geneva, Switzerland: International Labour Office, pp. 259–278 (in particular, p. 269).


6 Moreno Brid (1996).


8 Unless otherwise noted, NAFTA details are from Moreno Brid (1996).

9 The trade compensating ratio specifies the share of Mexico-produced vehicles to be exported. It had been implemented to provide incentives for the auto sector to become competitive internationally (see Moreno Brid, 1996).


12 Honda’s plant was located in El Salto (in central Mexico), and Toyota’s was located in Tijuana (near the Mexico–U.S. border).

13 For example, the export share of vehicles produced in Mexico jumped from 52% in 1994 to 84% in 1995 (see figure 2).


15 Casey (2012).

16 In 1992, the U.S. Department of Commerce found that the total cost of producing a 1992 Ford Escort in Mexico and exporting it to the United States slightly exceeded the cost of assembling the same vehicle at a Michigan assembly plant. Higher labor costs in Michigan (relative to those in Mexico) were more than offset by lower shipping costs; see Max Gates, 1999, “Great debate: Pending free-trade pact has automakers, UAW arguing over ramifications,” Automotive News, Vol. 67, No. 5519, September 27, p. 1.

17 Note that Honda is planning to produce its smallest car—the Fit—at its new plant in Mexico. That vehicle is currently being imported to North America from Japan. See www.autoblog.com/2012/03/30/honda-announces-fit-production-moving-to-mexico/.

18 Mexico’s free trade policy contrasts with the policies of Brazil and Argentina—both of which represent possible alternative production locales for automakers serving the Latin American market. These two countries, after running up substantial deficits in light vehicle trade with Mexico, last year reached separate agreements to freeze the level of Mexico’s vehicle exports to their shores for the next three years (Casey, 2012).


22 Export shares of auto production are from authors’ calculations based on data from www.mexicotradeandinvestment.com/pdf/2012/abril/17/Presentacion%20Automotriz%20mizuho.pdf.

23 Casey (2012).