Appendix B: China’s Auto Sector in Sectoral and International Perspective

1 Autos in Perspective: Comparison with Other Sectors

Foreign brands dominate the Chinese auto sector, and Chinese firms do not export. This is quite anomalous in the Chinese industrial landscape - even in sectors that similarly have large domestic markets and large state-owned firms. Chinese firms in sectors with roughly similar levels of technical difficulty have been successful in building major domestic brands with large volumes of exports to industrialized countries; examples include shipbuilding, mobile phones, computers, solar panels, wind turbines, and white goods. Figure 1 shows Chinese firms’ global market share, mostly in terms of revenue, for a number of high-tech sectors. While the figure is constructed from a variety of data sources, it provides a sense of the extent to which autos have not followed the exponential trends of other Chinese industries. Figure 2 shows 2012 sales from Chinese shipbuilders in 2012 (Clarkson 2013). State-owned firms have been very successful in this sector both domestically and abroad, even though they compete with private domestic firms.

It is, in fact, important to understand how pervasive state ownership is - the vast majority of listed enterprises in China have a significant portion of their shares owned by the state, even though a portion of the firm is privately traded (Szamosszegi and Kyle 2011). The SOE share of the economy is estimated at 30 to 40 percent (Lee 2009). Most of the state-owned auto firms in my data are partially listed. For example, the Chinese wind turbine company Goldwind is partially listed but majority state-owned, and in 2013 achieved a 10% global market share, second only to Vestas, with its share of revenue from non-Chinese projects at about 16% (Goldwind 2013). This provides anecdotal evidence that the failure of domestic Chinese auto firms is not simply due to the fact that (1) they operate in a protected and large domestic market nor that (2) many of them remain majority state-owned. Recent work suggests Chinese SOEs are gaining in size and profits relative to the private sector.

Further, the high proportion of SOEs in the domestic auto sector does not immediately imply very low performance. SOEs are concentrated in certain sectors, such as telecom, mining and minerals, aviation, construction and steel; 11 “pillar” and “strategic” sectors (which include automotive manufacturing) account for over 50% of state assets (Batson 2014). In the first part of the reform period, between 1978 and 1998, Brandt and Zhang
(2010) find that the state-owned sector was vastly less productive than the non-state non-agriculture sector. However, this gap narrowed after 2007, and they find essentially the same productivity growth for both SOEs and private firms between 1998 and 2007. Brandt et al. 2012’s aggregate growth decomposition found higher productivity growth among state-owned firms between 1998 and 2007 than either private or foreign firms (12.5% compared to 11.3% and 11.8%, respectively). They suggest that one reason is a reallocation of inputs towards more productive SOEs, as well as entry by much more productive SOEs. New SOEs between 1998 and 2007 - which includes most of the locally owned automotive SOEs in my data - produced almost five times the value-added of exiting SOEs, despite much lower employment and low growth of real capital stock (Brandt et al. 2012). More recent work confirms that Chinese SOEs appear to be gaining in size and profits relative to the private sector. Hsieh and Song (2015) show that in the 2000s SOEs had faster total factor productivity growth than private firms and higher labor productivity, but lower capital productivity.

2 China in Comparison to other Countries

Compared to other countries, China’s passenger vehicle consumption level is grossly disproportionate to vehicle export share. Figure 3 shows the share of vehicles in 15 countries’ total exports (UNIDO 2013). Although in 2010 China was the largest consumer of vehicles by value, at around $375 billion, the share of motor vehicles in its exports is negligible. This contrasts strongly with every other country that has a significant auto industry. Cross-sectionally, China’s auto industry is not only an outlier both among manufacturing sectors in China, but also among countries that produce autos.

In a panel sense, China's auto development also contrasts with that of Japan and Korea in previous decades. China’s industrial policy in the reform period shares important characteristics with its two largest East Asian neighbors: heavy state involvement, considerable protection, and reliance on acquiring technology by learning from foreign firms. All three countries prioritized the auto sector in their industrial policies from the beginning of their growth periods. Japan and Korea generated world-class automakers whose lean manufacturing capabilities and innovative skills disrupted the global industry. Table 1 shows production by country in the first year of each decade from 1960 (Chinese production is divided by foreign and domestic brand). From zero in their respective starting years of 1960 and 1980,
Japan and Korea became major players in the global auto industry within two decades, and they both exported within one decade. Thirty years after initiating their auto industrial policy, both had overseas production. For example, by 1999 South Korea’s Kia had dealer-ships in all 50 U.S. states; only nine years earlier, South Korea produced merely 1.5 million vehicles. Chinese firms did not produce significant volumes until their third decade, and no Chinese brand is sold in meaningful quantities in Europe, Japan or the U.S. No Chinese firm has overseas LDV production, although this may change soon. (BYD has built an electric bus factory in California.)

Japanese and Korean automotive firm development in the 1960s and 1980s, respectively, both relied on learning from foreign counterparts in large part via technology licensing (Kim 2001, Bell and Pavitt 1997). Neither encouraged FDI via JVs with foreign enterprises. Specifically, the Japanese and Korean auto development had five important characteristics:

1. Licensing foreign component technologies
2. Protecting the small domestic market from foreign imports
3. Restricting FDI
4. Local firm indigenous model development
5. Learning-by-exporting

In contrast, China’s industrial policy has relied on the JV structure, imitating, and reverse engineering. An unintended consequence of the JV structure is that the domestic firms were able to earn large profits from car sales while doing little themselves. Chinese firms’ reliance on JVs for vehicle design and the ability to serve a large, growing, and unsophisticated domestic market are key differences from the Japanese and Korean experiences. As the Chinese market has matured and grown more competitive, there is increasingly less room for poor quality vehicles, and this is reflected in domestic automakers’ consistent failure to gain market share.
Figure 1:
Chinese Firms' Global Market Share in Various Sectors

Figure 2:
Chinese Shipbuilders 2012 Sales in DWT
Figure 3:

Motor Vehicle* Consumption & Export Share (2010)

*SITC 3-digit codes 781-783 and ISIC 4-digit codes 3410,3420

Table 1: Domestic brand in-country production (millions of vehicles)

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<td>0.1</td>
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Appendix B 5
References


