

Fulbright-Hays Seminars Abroad
Automobility in China
Dr. Toni Marzotto

“The mountains are high and the emperor is far away.” (Chinese Proverb)¹

Title: The Rise of China's Auto Industry: Automobility with Chinese Characteristics

Curriculum Project:

The project is part of an interdisciplinary course taught in the Political Science Department entitled: *The Machine that Changed the World: Automobility in an Age of Scarcity*. This course looks at the effects of mass motorization in the United States and compares it with other countries. I am teaching the course this fall; my syllabus contains a section on Chinese Innovations and other global issues. This project will be used to expand this section.

Grade Level:

Undergraduate students in any major. This course is part of Towson University's new Core Curriculum approved in 2011. My focus in this course is getting students to consider how automobiles foster the development of a built environment that comes to affect all aspects of life whether in the U.S., China or any country with a car culture. How much of our life is influenced by the automobile? We are what we drive!

Objectives and Student Outcomes:

My objective in teaching this interdisciplinary course is to provide students with an understanding of how the invention of the automobile in the 1890's has come to dominate the world in which we live. Today an increasing number of individuals, across the globe, depend on the automobile for many activities. Although the United States was the first country to embrace mass motorization (there are more cars per 1000 inhabitants in the United States than in any other country in the world), other countries are catching up. This project looks specifically at the

¹ A modern version of this proverb -- the authorities have their measures and the people have their countermeasures -- describes both central-local government and government-business interactions in China

growth of China's car culture. The following four student outcomes are adapted to track with outcomes designated by the university for all Core courses:

1. Substantive Knowledge - to be able to describe historically the growth of the Chinese automobile industry emphasizing the political and economic factors and comparing those with factors found in the development of the U.S. automobile industry.
2. Critical Thinking Skills - to be able to identify the key events that led to the development of Chinese automobility.
3. Affective Meanings - to be able to explain the policies that affect the growth of automobility in China.
4. Skills for Learning and Life - to be able to present persuasive arguments about Chinese automobility in written and oral communications.

Materials:

The following is an excerpt of the syllabus that will be handed out to students. This portion tracks with a 3 week module that will focus on Chinese automobility. The attached bibliography lists only English language sources on China.

Required Texts:

Anderson, G.E., 2012. *Designated Drivers: How China Plans to Dominate the Global Car Industry*. Singapore: John Wiley & Sons.

Sperling, D. & Gordon, D. 2009. *Two billion cars: Driving towards sustainability*. New York: Oxford University Press.

Volti, R. 2004. *Cars and Culture: The Life Story of a Technology*. Baltimore: The Johns Hopkins University Press.

Other Reading and Viewing Material:

1. Global Car: Who Really Builds the American Automobile?
<http://digital.films.com/PortalViewVideo.aspx?xtid=41400> (Cook Library – Films on Demand)

2. Canis, B. & Morrison, W.M. 2013. U.S.-Chinese Motor Vehicle Trade: Overview and Issues. Congressional Research Service (August 16). At <http://www.fas.org/sgp/crs/row/R43071.pdf>
3. Seiler, C. 2012. "Welcoming China to Modernity: U.S. Fantasies of Chinese Automobility." In *Public Culture* 24:2, 357-384.
4. Branigan, T. 2012. "China and cars: a love story." *The Guardian* (December 14). At <http://www.theguardian.com/world/2012/dec/14/china-worlds-biggest-new-car-market/print>
5. Students should also consider reading the following English language news source about cars and China on-line: China Car Times www.chinacartimes.com

Week 1 - History of Automobility

Assignment:

After reading Anderson and Volti - write a 5 page paper comparing and contrasting the growth of the automobile industry in the U.S. and China. This paper will be due at the end of the semester. You are encouraged to do additional research as needed.

- What role did the federal government play in the U.S. and the central government in China?
- Why did China want to promote certain companies and not others?
- Why were foreign companies eager to partner with Chinese companies?
- What advantages did joint ventures hold for U.S. companies?
- Why did Beijing initially discourage the entrance of purely Chinese automobile companies into the market; and then encourage the growth of indigenous Chinese brands?

Week 2 - Joint Ventures and Independents

Assignment: After reading Anderson's discussion of joint ventures (Chapter 4), pick one of the joint ventures found in Appendix A. Do not pick out a joint venture that has dissolved. Do some research on the each of the companies that make up the joint-venture. Prepare a class presentation in which you discuss:

- who are the partners & when was the partnership formed;
- what did the foreign partner hope to gain from the arrangement;
- what type and how many automobiles are produced;
- are the cars for internal consumption or export;
- are the cars foreign brands or Chinese or both;
- anything else you found interesting from your research.

OR

Assignment: After reading Anderson's discussion of Independent Automobile manufacturers in China (Chapter 5), pick one of the companies and prepare a class presentation in which you discuss:

- when and how was the company founded;
- what type and how many automobiles are produced;
- what role, if any, did the central government play during the formation or continuation of the company;
- what role did the provincial government play in the formation/continuation;
- are the cars for internal consumption or export;
- anything else you found interesting from your research.

Week 3 – Chinese Automobility: Car Crazy Like Us?

Assignment: Project. Students will be assigned by the instructor into groups. You will have one class period to meet; it is expected that additional work will be done outside of class.

After reading Seiler (2012), Branigan (2012), and Sperling and Gordon (2009), select **one** of the following topics and prepare a class presentation in which you discuss the intended and unintended consequences of automobility. What options are mentioned in the readings or in any additional research the group has done to deal with the issues?

- traffic congestion and the built environment;
- environmental and physical footprint;
- national security and alternative fuels;

- traffic accidents & road rage;
- growing inequality and loss of community.

Lectures

I. Week 1 – History of Automobility in China

Background

Prior to 1979, China, under the leadership of Chairman Mao Zedong, maintained a centrally planned, or command, economy. A large share of the country's economic output was directed and controlled by the state, which set production goals, controlled prices, and allocated resources throughout most of the economy. During the 1950s, all of China's individual household farms were collectivized into large communes. To support rapid industrialization, the central government undertook large-scale investments in physical and human capital during the 1960s and 1970s. As a result, by 1978 nearly three-fourths of industrial production was produced by centrally controlled, state-owned enterprises (SOEs), according to centrally planned output targets. Private enterprises and foreign-invested firms were generally barred. A central goal of the Chinese government was to make China's economy relatively self-sufficient. Foreign trade was generally limited to obtaining only those goods that could not be made or obtained in China. Government policies kept the Chinese economy relatively stagnant, mainly because most aspects of the economy were managed and run by the central government. Competition was virtually non-existent, foreign trade and investment flows were mainly limited to Soviet bloc countries, and price and production controls caused widespread distortions in the economy. Chinese living standards were substantially lower than those of many other developing countries.

The Chinese government in 1978 under Deng Xiaoping decided to break with its Soviet-style economic policies. Deng began by gradually reforming the economy according to free market principles and opening up trade and investment with the West. The idea was that foreign investments would significantly increase economic growth and raise living standards. The auto industry was one of the first industries targeted for growth and development.

The automobile industry, long a major driver of the U.S. and other developed economies, was considered an important force to propel the Chinese economy and its workforce. Although Chinese domestic automotive assembly firms appear unlikely to become significant exporters of automobiles to the United States in the short term, the Chinese government appears to be taking a long-run view of the sector's development. In fact, rising incomes and central government stimulus have made China into the world's largest automobile markets, in terms of both production and unit sales. Chinese vehicles have become increasingly sophisticated since the 1980s, as a result of partnerships with major foreign automakers (Volkswagen, GM, Toyota, Honda, Nissan, Mazda, Hyundai and Kia). An activist government policy has liberalized the Chinese automotive sector in some key respects, but it requires foreign manufacturers to undertake joint ventures with local partners in order to obtain market access. The stated goal of the Chinese government in the 1980s was to create a market dominated by a limited number of internationally competitive joint venture assemblers, supplied by local parts manufacturers,

producing to world standards. In 1994, the automobile industry was declared a pillar industry by the central government.

After two decades of rapid economic growth, the domestic Chinese auto industry has made substantial progress. China's annual output of cars and light trucks increased from less than 9 million in 2007 to more than 19 million in 2012, largely destined for domestic consumption. By comparison, in the United States, just over 10 million vehicles were produced in 2012. Despite China's late entrance into mass motorization, it is experiencing some of the same problems that are facing the United States. Sperling and Gordon (2009), co-author of *Two Billion Cars*, believe that Chinese authorities should seize their chance to curb car usage. They should focus on better-designed cities, improved public transportation, and more efficient cars and promote the development and use of more electric or hybrid vehicles. If China grows to accommodate autos as the priority form of mobility, it will be very difficult and expensive to reverse these investments. (Branigan, 2012).

The rise of China's auto industry suggests that the country and its citizens may have already accepted a motorized future. This first section looks at the development of the Chinese automobile industry.

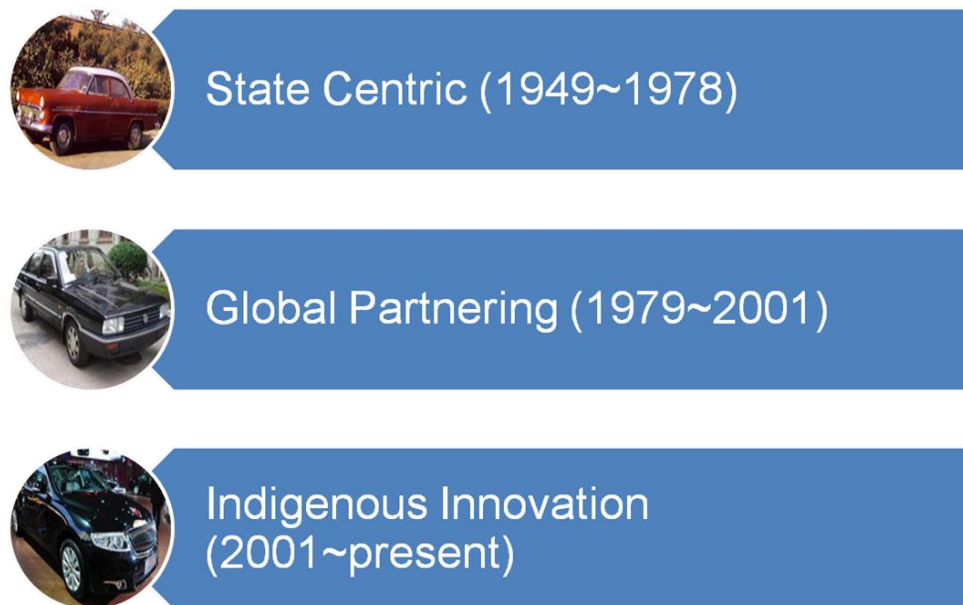


Figure 1 Development of Automotive Industry in PR China

Source: Dr. Guo's Presentation for Fulbright Delegation 2013

PART I Development of the Automotive Industry in China

There are a number of ways to divide the story of China's automobile industry into manageable pieces. In this section, I am incorporating information from a presentation by Dr. Hongwei Guo (2013), from the Beijing Institute of Technology. Although he proposed four periods in China's development of automobility, I have consolidated these periods into three that are more descriptive of the central government's policy focus.

The first stage is the state-centric stage, which lasted roughly 30 years, from the founding of the People's Republic of China (PRC) in 1949 until 1978, the year that Deng Xiaoping launched China's economic reforms. The second stage is the global partnering stage, which lasted from 1978 until China entered the World Trade Organization (WTO) at the end of 2001. And the third stage, the indigenous innovation stage, has existed from 2002 to the present. Most of the growth of the car industry took place during the last two stages.

All three stages involve a push and pull between central and local governments, between the state and industry, and between Chinese companies and foreign multinational companies (MNCs).

A. Stage One: State Centric

China's automotive industry was established in the 1950s, under the guidance of the Chinese Communist Party Central Committee and with the assistance from the then Soviet Union. Although the automotive industry has always been viewed as a strategically crucial sector to move the country into the modern industrial age, there were no legal private businesses in the decades prior to the start of Deng Xiaoping's reforms in 1978. There was no consumer market for passenger cars aside from taxi services in the major cities and personal cars for China's leaders. Because the early focus of the PRC was on industrialization, central planners in Beijing aimed to ensure a steady supply of commercial vehicles - trucks and buses -- that were needed to help the country get back on its feet after decades of war.

The first site for an auto factory was Changchun, capital of Jilin Province. The First Auto Works (FAW) began producing trucks from Soviet designs in 1953. By 1958, FAW also began producing Hongqi ("Red Flag") limousines for state leaders, and that same year an auto factory in Shanghai began producing a Phoenix model sedan.

The political events and disastrous economic policies of the Great Leap Forward (1958-1961) ensured that production of passenger cars never reached significant scale. The Sino-Soviet split, which began in the late 1950s and became public in the early 1960s, led to the departure of Soviet experts, including those teaching the Chinese how to manufacture automobiles.

Not long after the Great Leap, Mao Zedong's Third Front campaign of 1964 led to the dismantling of entire factories on China's east coast and their reconstruction far inland to protect China's industries against military attack. While the factories may have been better protected, their scattered inland locations (along with China's underdeveloped transport infrastructure) ensured that the supply chains of China's auto factories became even more inefficient. Prior to 1964 the auto industry had been overseen primarily by the First Ministry of Machine Building (FMMB) that would continue to oversee the industry until 1982. Then in the mid-1960s an experimental automotive trust called the China National Automotive Industry Corporation (CNAIC) was given authority over some 75 industrial plants including China's main auto factories. According to Anderson (2012), this trust was a decision-making body that could approve the establishment of additional automobile manufacturing locations. Under CNAIC, China's auto industry prospered. But, success was short lived, as it was interrupted by the Cultural Revolution (1966-1976). Annual vehicle production declined, and CNAIC was disbanded.

During the Mao era, passenger cars were an afterthought as were many other consumer goods. From 1958 until 1978, China's entire auto industry barely managed to produce more than 600 cars in an average year. The cars that were produced went either to China's leaders or to taxi fleets in the larger cities.

Once Deng Xiaoping consolidated his power after Mao's death, there was new hope for auto industry supporters.

B. Stage Two: Global Partnering

Initially China was flooded with auto imports from Japan and Korea. However, Deng soon made it clear that he wanted China to **learn** from the West, not **import** all cars from the West.

It was under Deng's leadership that the auto industry shifted towards partnerships with foreign automakers. The hope was that Chinese workers would not only learn from foreigners how to assemble cars, but also how to design them from the ground up. During the 1980s joint ventures were formed between Chinese and foreign companies: American Motors Corporation (AMC), Volkswagen, and PSA Peugeot-Citroen.

It should be noted that not all of China's senior leaders agreed on the importance of a robust automobile industry. Personal ownership of vehicles would remain technically illegal until 1984, and even if ownership had not been illegal, few Chinese could afford to buy a car. Nevertheless, the Ministry of Machine Building Industry along with local government officials in Beijing and Shanghai continued to pursue their respective joint ventures with AMC, Volkswagen and General Motors (GM).

Among the problems China encountered during this time were: industry fragmentation, outdated technology, and limited foreign exchange. Even at this early date, the central government (Beijing), was concerned that there were too many factories. The planners already had in mind how the joint venture (JV), system would operate. Enterprises were to make use of exports to get foreign exchange, and make use of JVs to get technology. But without first mastering the technology, it would be impossible for China to sell exports, so the system never fully materialized. None of the early joint ventures ever successfully exported fully assembled cars.

The first year in which passenger cars were exported from China was 1989 when a total of 6 cars were exported. From 1989 to 2000 China exported an average of 838 cars per year. According to Anderson (2012, p. 61), most of these cars were exported to Iraq, Vietnam, and Turkey.

If JVs were not exporting cars, then where did the foreign exchange come from? Some came from exporting parts such as diesel engines and gears to other developing countries. The Chinese were good at manufacturing some parts but not at assembling an entire automobile.

Although there was some concern during this period about the fragmented nature of China's auto industry, it was not until 1988 that the central government began to formulate a clear policy. The policy that emerged was referred to as a big three and small three plan. The big three would be First Auto Works (initially located in Changchun but later moved to Beijing), Second Auto (initially established in Shiyan, Hubei, and later moved to Dongfeng in Guangzhou), and

Shanghai Auto. The three small joint ventures were: Beijing-Jeep, Guangzhou-Peugeot, and Tianjin Auto which had a licensing agreement with Japan's Daihatsu.

In an effort to restrict market entry, the State Council passed a notice in late 1988 stating that aside from the approved six enterprises, no other passenger car manufacturers could be established. The notice seemed to imply that no other auto enterprises existed; however, the auto industry's own statistics demonstrate that several manufacturers not listed among the 6 companies existed and introduced new passenger car models in both 1991 and 1994. Among the local governments that approved production of passenger car models were Guizhou province, Guangxi autonomous region and the cities of Chongqing and Xian. Though each of these companies entered production on a very small scale, knowledge of this may have been a signal to other local governments that Beijing was not serious in its attempts to limit market entry. This is where the saying "they have their measures and we have our counter-measures" might fit.

It is during this period that several independent private companies (for example, Geely and Chery), got their foot in the automotive industry door. Both defied, or perhaps we should say figured out how to get around, central government measures with their own counter-measures.

In fact, despite the new central policy, the number of enterprises producing complete vehicles (including cars, trucks, and buses) had increased from 55 at the beginning of the reforms in 1978 to 120 in 1991. These figures bear a remarkable similarity to those of the U.S. auto industry at the turn of the 20th century: in 1900 the U.S. had 57 automakers, and by 1905 there were 121 (Volti, 2004). While this may seem like a huge jump in automakers, as Volti notes most built only a few cars and went out of business within a decade or two.

The 1994 Automotive Industry Policy, promulgated by the State Planning Commission, was not only China's first official comprehensive policy statement aimed at the auto industry, but it was also modern China's very first industrial policy for any industry. The first sentence acknowledges that, in China's auto industry at the time, "investment is scattered, production is still small-scale, and product technology is backward." The aims of the policy were to, "strengthen the development capability of the enterprises, lift product quality, rationalize industrial organization... to make China's auto industry a pillar industry of the people's economy by 2010" (Anderson, 2012 p. 65).

The 1994 policy was also the first in which the state began to offer specifics on which auto firms the state would support going forward. The criteria for receiving state support continued to be focused on production capacity, not market demand. The state also began to recognize the importance to the Chinese auto industry of being able to offer Chinese-designed vehicles, though aside from some trucks and buses, practically none were available to consumers at the time.

In an attempt to discourage small players from entering the industry, the policy set a minimum production capacity of 150,000 cars annually for firms producing passenger cars with engine sizes 1.6 liters or smaller. The policy also introduced a system of product certification, that, while ostensibly focusing on ensuring safety, pollution control and energy conservation, was also used as a tool for preventing market entry by small local enterprises.

By 1997, the phenomenon of entrepreneurs skirting the rules to enter the auto industry began to draw the attention of China's senior leaders. Despite these stricter policies, Beijing had a hard time limiting the entrance of new Chinese car manufacturers. It was well known that auto companies with the support of local governments had been surreptitiously conducting negotiations with foreign automakers and starting their own joint ventures, only later presenting the central government with a *fait accompli*. [The Chery case study in part II illustrates this point.]

Towards the end of 1999 the State Machinery Industry Bureau released a notice announcing that the state would continue to support the consolidation of the auto industry into three main players: First Auto Works (FAW), Shanghai Automotive Industry Corporation (SAIC) and Dongfeng. At this time these three State Owned Enterprises (SOEs), had remained the top three assemblers in the industry since their founding. The bureau expressed its disappointment that the technology of China's big three still relied on foreign partners and that their competitive position was still relatively weak. This concern was predicated on the knowledge that in the new millennium import tariffs on cars and parts would decrease, and market protection policies would be reduced (due to China's entry into the World Trade Organization in 2001).

Anderson (2012, p. 72) points out that China's Tenth 5-year plan (2001-2005) contained the following instructions: "develop ... economy cars and improve manufacturing standards of both automobiles and critical components. Actively develop engines and hybrid systems for energy efficient and low-emission vehicles. Promote the integration of mechanical and electrical components.

Prior to this time, there was little mention of electric or hybrid technology. GM had developed an electric car (the EV1) during the 1990s, and then unceremoniously killed the project in 1999. The Toyota Prius and Honda Insight were the only hybrid vehicles on the market; only Japan was beginning to test the market for alternative vehicles. It should be noted that the 12th Five Year plan, 2011-2015, reiterates the goal of China becoming a leader in electric technology.

C. Stage Three: Indigenous Innovation

This final stage began in approximately 2002 with China's accession to the World Trade Organization (WTO), an event that resulted in a rapid increase of auto sales among Chinese consumers. The massive sales increase, which occurred primarily among foreign-branded cars, served to highlight for China's leaders the fact that Chinese-branded cars were far less innovative and competitive than those of the foreign multinationals.

There was increasing acceptance that Chinese automakers might never catch up with multinationals in terms of traditional internal combustion engine development. This led to a determined effort for Chinese automakers to gain a competitive position with respect to the development of electric and hybrid vehicles. Presumably, hybrid and electric vehicles would be the technologies of the future.

The anticipation of lower import tariffs pushed China's manufacturers to compete on price, and the lower prices suddenly made passenger cars, long out of reach of the average Chinese affordable for many urban dwellers.

By 2004 it had been 10 years since the State Planning Commission (SPC) introduced China's first auto industry policy, and the SPC's successor, the National Development and Reform Commission, introduced a new policy to take its place. The 2004 update, entitled the Automotive Industry Development Plan, reflected an expanded goal of growing and combining Chinese auto firms into several auto groups with global scale. Reflecting China's curious fascination with rankings compiled by foreigners, the 2004 policy also called for the industry to create several groups large enough to be listed among the Fortune Global 500 by 2010. But China would not need to wait until 2010: Shanghai Auto debuted on the Global list at 461 in 2004. However, only two percent of the passenger cars produced by Shanghai Auto in 2004 were developed in China, the remaining 98 percent were primarily Volkswagen or GM-branded cars.

The central government was seeing the sales of its SOEs increase, but up to half of the profits generated per vehicle flowed out of the country. This realization led to a sharpening of auto policy. The new direction pushed towards not merely an improvement in quality and efficiency but towards the development of indigenous Chinese brands. The Chinese would hold autonomous intellectual property rights to these brands. From this point forward the term "indigenous brands" and "indigenous innovation" would become regular features of China's automobile policy.

A final policy provision from the 2004 document worth noting involves the state's plans to encourage the development of credit and insurance products to support the auto industry. Until this time, Chinese customers were unaccustomed to borrowing money for auto purchases, but the state introduced rules to encourage both bank and nonbank financial institutions to support the auto industry by producing credit products, allowing consumers to procure loans to buy their new vehicles.

In 2006, GM manufactured 2.3 million vehicles in China, compared to 4.1 million in the United States. GM now sells more Buicks in China than in the United States. Most of the GM cars manufactured in China are sold in China. Some of the GM cars manufactured in China are exported mostly to other Asian countries. The cars manufactured in the United States are sold in the United States and also exported throughout the world. This remarkable growth is the result of enthusiastic government support for the automobile industry and an almost desperate desire by the world's automotive giants to gain a foothold in the potentially huge Chinese market.

The Chinese automotive industry is now a mix of joint ventures and purely domestic Chinese companies. The domestic companies have the support of provincial governments with deep pockets. The Chinese auto industry has arguably become the most competitive market in the world with virtually every major automaker present. The turnaround of this industry is occurring at lightning speed. How did this happen? Part II looks at several examples of the joint ventures (JVs) and independent automobile manufacturers in China to help explain how China became a major player in the automobile industry in a little more than thirty years.

PART II How China's Automobile Industry Works: The Joint Ventures & Independents
"China's auto industry is like an ecosystem. All of the players have an important function. Originally, the joint ventures were intended to bring technology. That didn't work, so instead

they are bringing cash – and lots of it. The SOEs use that cash to fund development of their own brands.” [East Asia auto industry analyst as quoted in Anderson, 2012, p. 103]

The introductory quote goes a long way in highlighting China’s problem at the beginning of its automobile industrialization: it had no industrial base, and did not know how to manufacture automobiles. But once the reform period began in 1978-80, foreign companies were eager to invest in China. Initially, they were just interested in selling (exporting) to China. But they soon learned that this was not what the Chinese wanted. China wanted technology – teach us how to build cars. China also needed foreign exchange; exports would produce hard currency to develop new industries. The Chinese knew that their biggest calling card was their large population eager for consumer goods.

One of the conditions that the Chinese government put on JVs was that at least 50 percent of the joint venture would have to be Chinese owned. What the Chinese government hoped was that the companies would put up half of the cost of production and also share their technology. The Chinese correctly assumed that foreign businesses would be interested in getting access to the Chinese market. Another important factor was that one of the conditions for accession to the WTO was that China could not demand technology transfer as a condition for approving foreign investments. The central government had to become more creative in how it attempted to acquire technology from the industry’s foreign partners.

Beijing-Jeep (China’s first joint venture)

When China launched its economic reforms in the late 1970s, there was a sense that China had fallen behind much of the world in its industrialization. As a result, most of the major industries in China embarked on modernization programs with at least one eye on what had been done in other countries. The automobile industry was no exception.

Beijing Automotive Industry Corporation (BAIC), was the first to reach out to a foreign company, American Motors Corporation (AMC), owner of the Jeep brand. The idea was to build Jeeps in Beijing. After some negotiations the final agreement was signed in 1983.

This would be the first Chinese-foreign manufacturing joint venture formed since China’s reopening to the world. AMC would own 31 percent of the JV with Beijing Auto holding the balance. The duration of the contract was 20 years. The Chinese agreed initially to import all the parts, but expected a gradual shift toward local production.

The initial method of manufacturing was to import “complete knock-down” (CKD) kits of Jeep Cherokees that would be assembled in the Beijing factory. The contract also required technology transfer, and fully one half of AMC’s contribution to the JV consisted of intellectual property; the rest was cash.

In 1986 the joint venture essentially ran out of foreign exchange, and AMC refused to extend any more credit to the JV for the purchase of more CKD kits. Production ground to a halt as the Americans and Chinese attempted to work out a solution. This slowdown was followed by a series of buy-outs that changed AMC’s ownership. In 1987, AMC was purchased by Chrysler Corporation. Then in 1999 Chrysler was purchased by Daimler Corporation of Germany. In

2007, Daimler sold Chrysler to a private equity firm Cerberu. Following this change the Cherokee ceased to be made in China, but in early 2011 BAIC introduced a new SUV named the Qishi that is essentially a rebadged Jeep Cherokee.

BAIC also introduced its first-ever own brand sedan in late 2010. The awkwardly named BC301Z bears a striking resemblance to the BAIC partner Daimler's Mercedes-Benz B Class car though it is slightly smaller.

Though China's original joint venture, Beijing-Jeep, no longer exists, it continues to be cited in China's auto industry official documentation as an example of successful technology transfer.

Shanghai-GM (Still Going Strong)

Another joint venture that has had better success in terms of staying power is the General Motors JV with Shanghai Automotive Industry Corporation (SAIC). SAIC already had a JV with Volkswagen but was looking for another foreign partner to produce a domestically made luxury sedan for state leaders. SAIC did not like the fact that senior leaders were being driven around in imported Mercedes-Benz sedans.

So in 1995 GM and SAIC signed an agreement with a 50-50 split, with neither GM nor SAIC having absolute control. Though the JV would not begin full production until April 1999, the first car a Buick New Century rolled off the lines in 1998.

This JV focused initially on building low-end micro-vans and small trucks including the Wuling Sunshine, a popular micro-van that sold in China's rural areas for about \$3,700. GM committed to upgrading the JV's technology which eventually began to assemble small vehicles for sale both in China and in emerging export markets under the Chevrolet brand.

Towards the end of 2010 this JV (now called the Shanghai - General Motors - Liuzhou Joint Venture - SGMW) [the W was added to the acronym because the JV was also manufacturing low-end micro-vans including the Wuling Sunshine] took a step towards the latest trend for joint ventures in China, building JV brands. The idea behind a JV brand is that the foreign partner contributes to the joint venture older, slightly outdated, yet recognizably foreign, vehicle designs which are then manufactured under a Chinese brand name.

In the case of the SGMW, the new Chinese brand, Baojun, is applied to a design from General Motors' South Korean subsidiary, Daewoo. China auto industry consultant, Michael Dunne (2011), notes that this trend is being driven indirectly by industry regulators. Foreign automakers that apply for a capacity increase are "indirectly pressured" to include with their application plans to help their SOE partners develop "indigenous brands" (p. 116).

Dunne (2011) also wrote in an *Automotive News China* editorial, "Getting involved [with development of indigenous brands] is strictly voluntary, of course. There is no Chinese law requiring formation of an indigenous brand. It's only a recommendation" (p.116). But, says Dunne, requests from central government officials for production of these brands appear to be connected to requests from foreign automakers for permission to increase production capacity in

China. The purpose is to create brands that are JV-owned but Chinese-branded, which will eventually move up-market and compete directly with foreign brands.

Other foreign auto makers are, not coincidentally, following a similar strategy in China. Honda and Nissan are both pursuing similar paths, building the Everus and the Venucia, with their respective partners, Guangzhou Auto and Dongfeng. The strategy appears to be designed to address the perception gap Chinese consumers have between domestic and foreign brands. The consensus among many China experts is that given the choice, most Chinese consumers would prefer to purchase a foreign-branded car, as they perceive foreign brands to be of higher quality. The JV-brand strategy seems intended to fill this perception gap by offering foreign technology with a Chinese brand. So is China's central government breaking the spirit, if not the letter, of its WTO accession agreement by tying approval of expansion to introduction of these JV brands?

What is interesting about the SAIC - GM JV is that when GM filed for bankruptcy and became majority owned by the U.S. Treasury, SAIC helped GM get access to funding so that it could expand its offshore entities. In fact, SAIC and GM with the help of a Hong Kong investment company were able to expand into India, another emerging market. The English name for this JV is SAIC-GM Automotive Investment Co while the Chinese name is GM-SAIC Automotive Investment. It is almost as if the two partners wanted to remind their respective parent companies of the importance of the other partner.

Anderson (2012) notes that the SAIC-GM JV is more of a marriage than a partnership. According to Anderson, a marriage is based on trust and mutual interests. In short, the partners want to work together in other markets. A partnership is economic from start to finish. GM already had an established presence in India with two vehicle factories and an engine factory. SAIC and GM both felt that some of the micro-vehicles might do well in India. GM could contribute its fixed assets in India and the Chevrolet brand; SAIC would contribute cash, and the JV would contribute vehicle designs.

The Independents

This section will look at two private or independent auto companies that have become well known for essentially bucking the central government and doing it their way -- Geely Automotive and Chery.

The word "private" does not have the same connotation in China as it does in the U.S. A private company in the United States is one whose shares are not publicly traded. In China, a "private" company is one that is not state-controlled. However, just because a Chinese company is nominally "private" does not mean it is beyond the influence of the state. But then we could say the same thing in the United States. In China, however, the nature of state influence over private companies often goes beyond simple regulation. The heads of China's largest companies are often invited to become members of the Chinese Communist Party. The Party tends to target only the largest and most successful entrepreneurs for membership, thereby ensuring that the members of society most able to assemble enough resources to challenge the Party's leadership are kept firmly within its grasp (Anderson, 2012).

In the auto industry this is evidenced by the fact that the leaders of China's four largest private automakers have each been appointed to political positions. Geely Chairman Li Shufu is a delegate to the Chinese People's Political Consultative Conference. Whether Li Shufu has any real power might be debated, but he has access to those who do have power. In China perception opens doors. This is my own personal opinion. Just as it is difficult to say that interest groups have real power over policy in the United States, the perception is that access is power.

The key points to look for in the case studies of Geely and Chery are the struggles of entrepreneurs to establish their companies and gain access to funding, a shift in the central government's attitude toward independents from one of antagonism to one of tolerance, the contribution of independents to achievement of key central government objectives, and the efforts of the independents to become more innovative companies. The very fact that the independents exist is evidence that the central government is not getting its wish for consolidation of the industry, but this may not be a bad thing.

Geely

Geely is best known outside China for its purchase of Volvo from Ford in 2009. Inside China it is known for being China's first and largest privately-owned automaker. In business and political circles, Geely is also known for its charismatic chairman, Li Shufu.

Li was born in Zhejiang Province where his company, Geely Automobile Holdings, is headquartered. His first foray into business was manufacturing refrigerators, then motorcycles, but when he decided to build cars, he was stopped because Beijing was of the opinion that only state-owned firms had access to capital necessary to afford the plant and equipment needed to manufacture automobiles.

How to get around this mandate? In 1997, Li bought a prison-owned factory in Deyang, Sichuan, that was on the verge of bankruptcy. Though the factory did not produce passenger cars, the factory did have an official vehicle production certificate. The certificate only allowed production of vans and buses (not cars), and it only allowed production in Sichuan. These restrictions did not seem to bother Li.

Li decided to build small economy cars, with models from Xiali, an automaker in Tianjin that manufactured small Daihatsu cars under license from Toyota. Li (with the help of the Zhejiang provincial government) was able to build a factory in his home province and build small cars. The Haiqing rolled off the assembly line of Geely's Linhai, Zhejiang, factory in August 1998.

Geely was sued by Toyota over the logo, but in the end the court ruled against Toyota and even made Toyota pay the court costs. Despite the outcry from foreign companies, the point was made that access to the Chinese market would require some compromises or concessions.

Geely exhibited no qualms about borrowing liberally from the designs of others. Over the years Geely moved up the ranks of China's largest automakers because it chose to compete on the bottom end of the scale where the foreign JVs had little to offer, and in Tier 3 and 4 cities, where foreign producers had yet to go.

By producing small, fuel-efficient cars, Geely was able to capture the attention of a growing segment of consumers (middle-income workers) just as they were becoming able to afford cars of their own.

Accordingly, local governments in China, not unlike local governments in the U.S. and other developed countries, are usually eager to provide all manner of incentives to new or existing firms that will build in their localities. However, local governments in the developed world tend to be unable to simply transfer state-owned assets to private businesses.

In the case of Geely, the Zhejiang provincial government transferred public wealth during the critical start-up phase, allowing the company to grow faster than would have been possible otherwise. For example: tax breaks, inexpensive or rent-free land, inexpensive utilities, paving of roads to factories, and even low interest loans from local state-owned banks helped the company grow faster than expected.

Finally, the central government recognized Geely's achievements. In 2009, Premier Wen Jiabao paid a visit to a Geely plant, met with Li Shufu, and was quoted in the press as saying "I am asking Geely to submit a special report to the State Council again after six-months. At that time I will ... give instructions to continue to support Geely's industrial development (Anderson, 2012, p. 78).

Chery

Another automaker that bucked the central government and became a successful indigenous car manufacturer is Chery. Today this company is one of China's leading car makers with more than 2 million cars on the roads.

Chery is not a private company, but rather a local-owned enterprise. However, it is often thought of as a private company. When asked why this point of ownership is so confusing, insiders remark that Chery's approach resembles that of a private company (Anderson 2012, p.34)

From the beginning the controlling shareholders were the city of Wuhu and the Anhui Provincial Government. However, the story of how the company got around central government prohibitions illustrates the evolution of business-government relations in China during the reform era.

The idea of starting Chery was first promoted in 1992 by Zhan Xialai, an assistant to the mayor of Wuhu City in Anhui Province, one of China's poorer areas. Zhan was among the state officials known as "red-hat businessmen," a term used to describe state officials who also engage in commerce. Zhan recruited Yin Tongyao, an engineer from Volkswagen's joint venture with a major state-owned enterprise, First Automobile Works (FAW).

The following hypothetical dialogue is taken from Michael Dunne's book, *American Wheels, Chinese Roads* (2011, pp. 126-27). It cleverly illustrates the dictum, "they have their measures, and we have our counter-measures." The discussion between the central government and the local company may begin like this:

Central Government: You are forbidden from building cars. Don't even think about it.
Wuhu Secretary General: No cars? Okay, but is it alright to build engines?
Central Government Official: Yes, engines are permitted.
Wuhu Secretary General: O.K. I will build engines.

Then a year later the conversation starts anew:

Wuhu Secretary General: Look, I cannot find any buyers for my engines, can I build a car to put them in?
General Government Official: Absolutely not. We told you already last year.
Wuhu Secretary General: But the people in our city need jobs. It is not fair that Shanghai can give its people jobs and we cannot. How about if we build cars but promise to sell them only in our city.
Central Government: To be sold only in your city?
Wuhu Secretary General: Yes, only here in Wuhu.
Central Government: Okay, but not a single sale beyond your city limits!
Wuhu Secretary General: Yes, of course. We will strictly control the sales.

And so....

Initially, Chery had all the appearances of a harmless local enterprise located in a remote Chinese province. Few people in the industry had ever heard of the company and fewer still had heard of its chairman, Yin Tongyao. Two years later Chery had received permission to make a small car. And a few years after that, Chery would take both GM and Volkswagen by surprise when the company started making cars that looked suspiciously like cars manufactured by GM (the Spark) and Volkswagen (Jetta).

Chinese customers could buy a new Chery for just over \$10,000, far below the Jetta price of \$15,500. Yin and Chery were able to offer such aggressive pricing because they incurred almost no research and development costs. A new car typically requires a billion dollars or more to design and engineer. But Chery was simply taking an existing design and parts and cobbling them together into a new car.

GM attempted to sue Chery three times for its apparent violation of intellectual property. But the suits ended up working in Chery's favor.



Figure 2: Chery QQ vs. Chevy Matiz 0.8S

At Volkswagen headquarters and inside China, the Germans were understandably vexed when they saw the Jetta cousin first appear on the streets of Shanghai and Beijing. Technically, the cars could only be sold in Wuhu, but, in fact, they could be driven outside of Wuhu. This was not the original plan. But the central government was slow to react. Volkswagen's joint ventures in China controlled 50 percent of the market in China and profits kept getting bigger year after year. Chery was a nothing company from a nothing town, a government enterprise with no genuine expertise in developing cars. The prevailing thought within VW was that Chery would soon collapse under the weight of its own ineptitude and poor quality.

By the end of the 2009, China's central government, having been somewhat antagonistic towards independent automakers, changed its tune. The independent companies, particularly Chery and Geely, began to receive encouragement from the central government not only in the form of visits from state leaders, but also through access to state-owned bank funding.

Beijing had achieved its goal of creating an indigenous automobile industry. While this goal has been achieved with the help of joint ventures, the outcome seems to have benefited both partners. For example GM and VW are the leading non-Chinese automakers in China. Both companies sell more cars in China than they do in their respective home countries.

Moreover, rising incomes and central government stimulus have made China into the world's largest auto market, in terms of both production and unit sales of vehicles. China's annual output of cars and light trucks increased from less than 9 million units in 2007 to more than 19 million in 2012, largely destined for domestic consumption. By comparison, in the United States, just over 10 million vehicles were produced in 2012.

Sales are expected to continue rising, as China's ownership rate of 58 cars per 1,000 people is half the global average of 175 per 1,000 people and well below the U.S. rate of 797 per 1,000 people. A major project under way to build a network similar to the U.S. Interstate Highway system may also support sales growth. It has been forecast that as many as 30 million vehicles will be sold annually in China by 2020, with most being produced in China (Canis and Morrison, 2013, p.2).

PART III The Car Culture

China's love affair with cars began late, but the country is making up for lost time. In 2000, there were 4 million cars for 1.2 billion people. Experts at the time predicted that that number would be six times higher by the end of the decade. Instead, the number soared 20-fold. In 2009, the country became the world's largest new car market. The kingdom of the bicycle is now the land of the car (Branigan 2009).

Michael Dunne (2011), the author of *American Wheels, Chinese Roads: The Story of General Motors in China*, believes that people are looking for freedom and convenience, but it is different from the U.S. experience: open roads, rolling down your windows, putting music on. Dunne says in China, it is more about social status, look at my new car. It is much more about the thrill you get pulling up in front of your golf club or workplace and being seen in a new, high end car. SUVs are one of the fastest-growing sectors, thanks to buyers such as Zhao [one of those interviewed by Branigan (2009), who see them as smarter than four-door sedans. But Dunne thinks there is something more to the passion for SUVs: "It's symbolic of the aspiration to project the image of a free spirit... They may not use the vehicles off-road, but they want to say: I am an explorer" (Dunne, 2011, p. 94).

Dunne's view is supported by newspaper articles spotlighting the growing Chinese car culture. According to Fan (2008), car clubs and tuning shops are on the increase in China. Every year thousands of new car owners are hitting the road, buying imported luxury cars. She highlights the story of a former insurance broker who founded the K-One-Car Club in Beijing; he now spends most of his time organizing unofficial road races that attracts hundreds of spectators in Beijing's distant suburbs. As one Chinese car enthusiast confessed, "I really like what the car brings to my life – convenience, freedom, flexibility, a quick rhythm. I can't imagine life without it" (Fan, 2008, p. D1). On the one hand, we see the Chinese car buyer pushed by the desire for status and recognition as well as that sense of freedom. On the other hand, a report from the automotive management consultants, McKinsey (Aggarwal, et al, 2009), paints a different picture of the car buyers in China. This quantitative survey conducted of 2,400 car buyers in 2007 found that a "pronounced shift away from emotion-laden purchasing triggers towards functional attributes" (Aggarwal, et al, 2009, p. 2). The study also found that first-time and experienced new-car buyers made similar shifts from emotional to functional buying attributes. Differences between the two groups included the fact that first-time buyers seek reassurance

regarding vehicle service and other product aspects, while experienced shoppers look for an established brand and vehicles that provide driving pleasure (Aggarwal, et al, 2009).

The government has encouraged car sales as part of the Chinese dream. A major project under way to build a network of roads similar to the U.S. Interstate Highway system should also increase sales. Forecasts predict that as many as 30 million vehicles will be sold annually in China by 2020, with most of them being produced there. Chinese production capacity is expanding even faster than demand, resulting in a drop in average vehicle prices (Canis and Morrison, 2013, p. 2). This is good for the Chinese car buyers and will put many more new cars on the roads in the next few years. If Beijing's six ring roads are striking, the national networks expansion is likely to be more so. Figure 3 depicts the steady stream of traffic in Beijing. The congestion is such that two-car households often spurn the western one-vehicle-one-user model on practical grounds. As one Beijing resident explained, "The traffic is so bad, we drive one car and he will drop me off halfway so I can get the subway. It is more efficient than taking two cars to work" (Branigan, 2012, p. 2)



Figure 3: Traffic in Beijing (photo by author – Toni Marzotto)

China's leaders are aware of the unwanted consequences of encouraging car production and consequently car usage, and have imposed new fuel economy standards (43 mpg), far more stringent than those of the US, while also promoting smaller cars. [Although the Chinese use kilometers and liters rather than miles and gallons, information about fuel economy is in miles

per gallon.] Chinese manufacturers are racing with other global car companies to produce electric, low-carbon cars. Billions are also being spent to improve public transport in big cities.

In addition to traffic congestion, air pollution has become a serious consequence of China’s car culture. The problems are so bad that Beijing has banned motorists from driving one day a week and limited new car registrations through a lottery system. The government has also ordered odd and even numbered license plates to drive on alternate days in specified areas. Other large cities such as Shanghai and Guangzhou have adopted similar measures as well as increasing the cost of car registration. Chongqing, a south-western metropolis, is considering adding a congestion charge. Although most of the car growth is in small cities and newly urbanized areas, it is expected that 15 or 20 cities are likely to reach congestion levels that will prompt policy changes (Branigan, 2012).

Despite the central government’s efforts to promote indigenous car companies, the most popular cars in China continue to be foreign brands. Table 1 lists the 10 most popular cars in 2012 in terms of vehicle sales. Joint ventures between foreign companies and Chinese partners still produce the majority of cars sold -- about 70 percent of new passenger cars. GM and VW are the leading non-Chinese automakers, and China is also the biggest market (in terms of number of cars sold) in their respective global portfolios.

2012 Vehicle Sales

10 Most Popular Makes in China	Unit Sales
General Motors	2,821,720
Volkswagen	2,608,896
Hyundai-Kia	1,367,303
Dongfeng	981,419
Nissan	778,793
Toyota	751,317
First Automotive Works (FAW)	739,318
Honda	627,610
Great Wall Zhongxing	624,602
Chery	563,305

Table 1²
 Source: Ward’s Automotive Database, released February 2013.

The Chinese car culture is illustrated by the following interview with a young professional couple in the market for a new car by Branigan (2012):

Zhang and her husband – a fresh-faced, sporty couple in their early 30s – have already added a Peugeot 206 to their 4x4 Subaru Forester. “Families want different cars for different uses” she explains. “One for daily use, one for weekends.” The bigger

² Includes passenger cars; sport utility vehicles; light, medium, and heavy trucks

Subaru is ideal for getting out of the city so that Wang can fish or the pair can ride their bikes together, they say. The Peugeot is fine, too, and only a few years old. But they like the idea of getting something newer and hipper, so they have come to a Mini showroom. The Mini “looks very cool and quite British, and this brand has been bought by BMW, so we trust its quality,” Wang says. “And, of course, we like the personalisation aspect. We want to add stripes after we buy it, and colourful paintwork.”

They have plenty of choice as they stroll through the vast new Mini emporium in west Beijing. The store spans 9,000 square metres across two floors, with espresso points and a miniature Zen garden. There’s a pool table beneath the scrawled command BE SEXY – BE MINI and giant copies of Andy Warhol’s Marilyn and Mao portraits lean against a wall. Around the floor, potential buyers settle into the seats of Coopers and Countrymen, while returning owners ponder new ways to distinguish their cars. One motorist shows off the chequerboard roof, racing stripes and new wing-mirror covers that he’s added; he is disappointed that there is, as yet, no checked glove compartment cover for his model (Branigan, 2012, p.2).

Branigan’s account of a Chinese couple’s search for the perfect third car seems to confirm that much has changed in China. A related story that Branigan (2012), recounts is that of a young single man in the market for a car because, “if you don’t have a house or a car, you can’t get a wife” (Branigan, 2012, p. 1). Cars are, therefore, not just symbols of freedom; they are a necessary prerequisite for finding a spouse. Chinese motorists know they must impress, whether they are seeking partners for romance or business. According to Branigan (2012), roll up in an Audi and you ensure a basic degree of respect. Arrive in a domestic Chery QQ hatchback and you are doomed. Although Cherys do sell, the Chinese seem to view them as “cheap” cars.

Finally, the car culture has led to a proliferation of non-state institutions attending to automobiles and drivers. There is an increase in the number of dealerships, insurance companies, rental agencies, mechanic shops, driving schools and car clubs. Peter Hessler’s humorous account of a road trip through China introduces the reader to rental car agencies and driving tests (2010). The automobile has altered the landscape in much the same way it did in the United States. Gas stations, fast-food outlets, and car-dependent residential and shopping districts are common sights.

China is installing the apparatus of automobility. This term describes the interlocking set of economic, social, philosophical, legal, political and aesthetic structures and psychological dispositions that facilitates automobile use on a grand scale. Given the potential effects of China’s automobility on its economy, politics, and environment, and on those of the entire world, it is not surprising that its growth has been marveled at and fretted over around the world.

Though highways stretch out across the country, there are as yet no road movies. Young men and women cruise around town, but no anthems celebrate today's Chinese equivalent of a T-bird. Branigan (2012) asked a car buyer if Chinese authors or musicians might one day celebrate automobiles as Americans have. The respondent looks bewildered when she replied, "that things like washing machines and refrigerators are part of our life in China, but we don't really have songs about them. We don't think because refrigerators are popular that maybe someone has to write a book about them" (Branigan, 2012, p 4). Well, maybe not. But many books and articles have been and will be written about China's growing automobile culture.

Appendix A

List of Passenger Vehicle Assembly Joint Ventures

This list does not include joint ventures for components, sales distribution, R&D, finance, or other non-assembly-related purposes. It is reproduced from Anderson (2012, pp. 267-269). The spelling of the Chinese names may vary in different books and articles due to variations in English and American spelling habits.

JV Name	Chinese Partner (s)	Foreign Partner(s)	Formed	Dissolved
Beijing-Jeep	Beijing Auto	AMC/Chrysler	1984	2004 ³
Shanghai Volkswagen	Shanghai Auto	Volkswagen	1984	---
Guangzhou- PSA	Guangzhou Auto	PSA Peugeot- Citroen	1985	1997
FAW-VW	First Auto Works	Volkswagen	1991	---
Shenlong Automotive	Dongfeng Auto	PSA Peugeot- Citroen	1992	---
Zhengzhou-Nissan	Dongfeng Auto	Nissan	1993	---
Chongqing Chang'anSuzuki	Chang'an Auto	Suzuki	1993	---
Jiangxi Changhe Suzuki	Changhe Auto	Suzuki	1995	---
South East (Fujian) Motor ⁴	Fujian Motor Ind. Group	China Motor (Taiwan), Mitsubishi	1995	---
Shanghai - General Motors	Shanghai Auto	General Motors	1997	---
Guangqi-Honda	Guangzhou Auto	Honda	1998	---
Jinbei General Motors	Jinbei Holdings	General Motors	1999	2004 ⁵
Hebei Zhongxing Auto (ZXAuto)	Tianye	Taiwan Unite	1999	---
Nanjing-Fiat	Nanjing Auto	Fiat	1999	2007
Tianjin FAW-Toyota	First Auto Works	Toyota	2000	---
Chang'an-Ford	Chang'an Auto	Ford, Mazda	2001	---
Shanghai-GM-Wuling	Shanghai Auto, Liuzhou, Wuling	General Motors	2002	---
Beijing-Hyundai	Beijing Auto	Hyundai	2002	---
BWM-Brilliance Automotive	Brilliance China Auto	BWM	2003	---

³ Merged into Beijing Benz-Daimler-Chrysler in 2004.

⁴ Mitsubishi joined in 2006. The JV produces both commercial and passenger vehicles and also assembles Chrysler models under license.

⁵ Merged with Shanghai-GM in 2004.

Dongfeng Yueda-Kia	Dongfeng Auto, Yueda	Kia Motors	2002	---
Dongfeng Auto Ltd. ⁶	Dongfeng Auto	Nissan	2003	---
Dongfeng- Honda	Dongfeng Auto	Honda	2003	---
Honda Automobile (China) Co. ⁷	Guangzhou Auto, Dongfeng Auto	Honda	2003	---
Guangqi-Toyota	Guangzhou Auto	Toyota	2004	---
Beijing Benz-Daimler-Chrysler ⁸	Beijing Auto	Daimler-Chrysler	2004	---
Guangzhou-Fiat	Guangzhou Auto	Fiat	2009	---
Guangzhou-Mitsubishi	Guangzhou Auto	Mitsubishi	2011 ⁹	---
Shenzhen-BYD Daimler New Technology Co. ¹⁰	BYD	Daimler	2011	---

⁶ Manufactures both commercial and passenger vehicles.

⁷ Honda owns 55 percent of the JV which produces vehicles for export.

⁸ Daimler sold Chrysler in 2007.

⁹ Not finalized as of June 2011

¹⁰ BYD is the first independent Chinese automaker to form a JV with a major foreign multinational. The JV will initially develop an electric car. Announcements thus far have been unclear as to whether this JV would also manufacture the car.

Bibliography

- Aggarwal, S, Bal, N., Dhawan, R, Jayaraman, K. & Sun, A. (2009). Cracking China's changing car culture. [hereafter Aggarwal, et al, 2009] Retrieved from http://csi.mckinsey.com/Knowledge_by_region/Asia/China/Cracking_Chinas_changing_car_culture.aspx
- Anderson, G.E., 2012. *Designated drivers: How China plans to dominate the global car industry*. Singapore: John Wiley & Sons..
- Automotive News. (2004). 2004 guide to automakers in China. Beijing: Automotive Resources Asia.
- Bradsher, K. (2006, November 18). Too many Chinese cars, too few Chinese buyers, so far. *The New York Times*, p. B4.
- Branigan, T. (2012, December 14). China and cars: a love story. *The Guardian* Retrieved from <http://www.theguardian.com/world/2012/dec/14/china-worlds-biggest-new-car-market/print>
- Canis, B. & Morrison, W.M. (2013, August 16). U.S.-Chinese motor vehicle trade: Overview and issues. *Congressional Research Service*. Retrieved from <http://www.fas.org/sgp/crs/row/R43071.pdf>
- Carson, I. & Vaitheeswaran, V.V. (2008). *Zoom: The global race to fuel the car of the future*. New York: Penguin.
- Dickson, B.J. (2008). *Wealth into power: The Communist Party's embrace of China's private sector*. Cambridge, UK: Cambridge University Press.
- Dunne, M. J. (2011). *American wheel, Chinese roads: The story of General Motors in China*. Singapore: John Wiley & Sons.
- Economy, E. (2007). The great leap backwards: The cost of China's environmental crisis. *Foreign Affairs*. September/October, 38-59.
- Fan, M. (2008, January 21). Creating a car culture in China. *The Washington Post*. Retrieve from <http://www.washingtonpost.com/wp-dyn/content/article/2008/01/20/AR2008012002388.html>
- Gallagher, K. S. (2006). *China shifts gears: Automakers, oil, pollution, and development*. Cambridge, MA: MIT Press.
- Gao, P. (2002). A tune-up for China's auto industry. *The McKinsey Quarterly*. Retrieved from <http://www.questia.com/library/journal/1G1-82535811/a-tune-up-for-china-s-auto-industry>
- Gao, P. (2003). Capturing the growth opportunities in China's automotive market, Retrieved from <https://autoassembly.mckinsey.com>
- Guo, H. (2013, June 24). Development of the Automotive Field in China. Lecture at Beijing Institute of Technology for Fulbright-Hays Delegation.
- Harwit, E. (1995). *China's automobile industry: Policies, problems, and prospects*. Studies on Contemporary China. Armonk, NY: M.E. Sharpe.
- Harwit, E. (2001). The impact of WTO membership on the automobile industry in China. *China Quarterly* 167(1), 655-670.
- Hessler, P. (2010). *Country driving: A journey through China from farm to factory*. New York: Harper.
- Huang, Y. (2008). *Capitalism with Chinese characteristics: Entrepreneurship and the state*. Cambridge, UK: Cambridge University Press.
- Jensen, L.M. & Weston, T. B. (2007). *China's transformations: The stories beyond the headlines*. Lanham, MD: Rowman & Littlefield.
- Mann, J. (1989). *Beijing jeep: The short, unhappy romance of American business in China*. New York: Simon & Schuster.
- Noble, G. W., Ravenhill, J. & Donor, R. F. (2005). Executioner or disciplinarian: WTO accession and the Chinese auto industry. *Business and Politics* 7(2), 45-62.

- Pearson, M.M. (1991). *Joint ventures in the People's Republic of China*. Princeton: Princeton University Press.
- Rattner, S. (2010). *Overhaul: An insider's account of the Obama Administration's emergency rescue of the auto industry*. Boston: Houghton Mifflin Harcourt.
- Seiler, C. (2012). Welcoming China to modernity: U.S. fantasies of Chinese automobility. *Public Culture* 24:2, 357-384.
- Sperling, D. & Gordon, D. (2009). *Two billion cars: Driving towards sustainability*. New York: Oxford University Press.
- Tang, R. (2009). The rise of China's auto industry and its impact on the U.S. motor vehicle industry. *Congressional Research Service*. Retrieved from <http://www.fas.org/sgp/crs/row/R40924.pdf>
- Thun, E. (2006). *Changing lanes in China: Foreign direct investment, local government, and auto sector development*. New York: Cambridge University Press.
- Thurow, L. (2007, August 19). A Chinese century? maybe it's the next one. *The New York Times*, p.A4.
- Volti, R. 2004. *Cars and culture: The life story of a technology*. Baltimore: The Johns Hopkins University Press.
- Wang, H. & Kimble, C. (2010). Betting on Chinese electric cars? analyzing BYD's capacity for innovation. *International Journal of Automotive Technology and Management* 10(1), 77-92.
- Zhao, J., & Melaina, M.A. (2006). Transition to hydrogen based transportation in China: Lessons learned from alternative fuel vehicle programs in the United States and China. *Energy Policy*, 34(3), 1299-1309.