



The characteristics and historical development path of the globalizing Chinese automobile industry

Chinese
automobile
industry

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Abstract

Purpose – The purpose of this paper is to analyze the historical development and characteristics of the globalizing Chinese automobile industry.

Design/methodology/approach – This study is positioned as an exploratory case study, using data triangulation techniques based on archival research and published reports of statistical agencies both at central government and single industry level.

Findings – China's automobile industry represents an extraordinary case of a development path toward globalization in a transitional economy. One of the obvious characteristics of the auto industry is that it necessitates technology transfer and innovative learning, which can be regarded as an important aspect of maintaining competitiveness in industrialization and global competition. The automobile industry in China is also characterized by state intervention and industrial regulations. The state initiated open-door reform has led to a mixed regulatory mechanism including both market-based competition and the legacy of a command economy. Other major features are demonstrated as follows: state-owned auto enterprises have been gradually given more freedom in the decision-making processes; the Chinese auto industry has shown phenomenal growth in the country's economic development with an average annual rate of about 9 percent. This achievement combined with the increasing impacts of globalization of production and market expansion has undoubtedly led to the increasing inflows of foreign direct investment in the form of international partnerships between the auto-producing MNCs and major local Chinese firms as per the industrial policies in the Chinese automobile industry.

Originality/value – This paper addresses an important topic, the historical development path of the Chinese automobile industry, but to date, it has received very little research attention. It advances the institution-based perspective and therefore develops a better understanding of changes in China's automobile industry over the past decades since 1949 and concludes that the combination of the influences of foreign technology, China's industrial policies and institutional dynamic processes has resulted in a unique dynamic development path for the globalizing Chinese automobile industry.

Keywords China, Automobile industry, Technology transfer, Industrial policies

Paper type Case study



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Introduction

China has emerged to become one of the key economic players in the process of globalization, representing an important case of economic development in an emerging market (Wang and Hong, 2012). The number of economic reforms introduced by government was with the intention of facilitating the transition from a command economy to a market economy (Huang, 2008, 2010). China's economy is growing at an annual rate of about 9 percent within the two decades. The increase in the China's gross domestic product (GDP) has also been dramatic when compared to other markets. China's GDP reached 47.16 trillion RMB Yuan (approximately US\$7 trillion) in 2011, up 9.2 percent from a year earlier. It is currently ranked number two in its GDP and number one of exporter in the global economy.

The GDP per capita was 23,979 RMB Yuan (National Bureau of Statistics of China, 2012). As the largest technology importer in the world (Chan and Daim, 2012), China generates many business opportunities. The lucrative Chinese market is a focal interest worldwide not only because of its growing rate and size, but also due to its involvement in the global economy. A major driver of this impressive economic performance has been the development of China's manufacturing sector, such as the automobile industry.

The main purpose of this paper is to describe how, from a historical perspective, the Chinese automobile industry has sought to acquire the capabilities and skills from foreign carmakers under the rubric of government industrial policies. The Chinese automobile industry has been experiencing impressive changes over the past decades. It is a contributing factor to the growth of China's GDP, and also shows the characteristics of "path dependency" (David, 1985; Fetscherin and Sardy, 2008). One important characteristic is that foreign technology has actually influenced the development of China's automobile sector since its inception. Another characteristic of the Chinese automobile industry is that the Chinese Government has traditionally played a key role in the formulation of policy (Yan, 2000). Even after extensive economic liberalization and reform, the authorities still exert their influence by intervening in business activities to meet the specified targets in various industrial sectors (Chan and Daim, 2012), as the government wants to achieve a balanced effect – not only to increase economic and industrial modernization through these liberalized policies (Huang, 2008, 2010), but also that these national achievements should be regulated in an appropriate way (Henderson *et al.*, 1994). These series of industrial policies did help the Chinese automobile industry to learn from the foreign giant automakers in a consistent manner, so there is no surprise to see that in recent years Chinese indigenous automobile companies have begun to grow steadily. They have not only acquired shares in the domestic market and but increasingly they have been competing overseas (the indigenous Chinese automaker Geely's acquisition of Volvo is an exceptional example). One important truth is some of the Chinese indigenous carmakers did see what international joint ventures could do and "copied" those explicit and tacit knowledge through spill over effect and/or demonstration effect during these years to become internationally competitive even though they are not in the form of joint ventures with foreign giant players (Huang, 2010). This fact also evidently shows the willingness and courage of the Chinese Government in the process of "Open up and Reform" when facing global competition and cooperation in the automobile industry, although it is also argued by some scholars (such as Chan and Daim, 2012; Tang and Hussler, 2011) that

China still needs to improve its industrial policy through balancing foreign technology learning and indigenous innovation.

This study was positioned as an exploratory single industry case study, a method that is appropriate where the boundaries between phenomenon and context are not clearly evident (Yin, 1994). Yin (1994) points out, the case study is often helpful when asking how or why questions which are concerning set of contemporary events or a particular phenomenon under circumstances that researchers have difficulties in controlling. The case study method is well suited when the phenomenon under examination is hard to separate from its natural settings (Yin, 1994). Since, phenomenon and context are not always distinguishable in real-life situations; the case study approach can deal with the technically distinctive situations in which there will be many more variables of interest than data points. A major distinguishing feature of the exploratory case study is the role of theory development, prior to the data collection phase. In this case theory development, identified from prior research, ensured that the case study's purpose was to develop or test theory. There are obvious limitations on findings drawn from a single case analysis. However, this approach allows in-depth analysis of the complex issues inherent in the research topic, enabling the researcher to peep behind the formal aspects of industrial and/or organization settings (Bryman, 1989). It is especially useful when the research subject is still ongoing, or "live" in business terms. Evidence from a single case analysis can serve well in "analytic generalization" (Yin, 1994).

Literature review

An institutional arrangement is defined as a set of behavioral rules that governs a specific pattern of actions and relationships (Lin, 1989). Institutions include formal legal framework (rules, law, and regulatory regimes) and informal restrictions (behavioral norm, customs, and self-imposed behavioral rules), which cannot come into being alone (Peng *et al.*, 2009).

Institutions have played an essential role in an economy affecting functioning of the market mechanism, such that industries, firms and individuals can engage in business transactions in an effective way (Peng *et al.*, 2008).

McMillan (2008) suggested where institutions are strong in developed economies their role may be almost invisible. Conversely, when markets malfunction, as in some emerging economies, the absence of market-supporting institutions is obvious. Meyer *et al.* (2009, p. 63) further argued institutional arrangements to be "strong" if they support the voluntary exchange underpinning an effective market mechanism, and referred to institutions as "weak" if they fail to ensure effective markets or even undermine markets.

Taking government policies as an example, they encompass a wide range of activities, including the degree of intervention in the economy (Thun, 2004). The political environment of a country is influenced by the political organizations, such as, the philosophy of political parties, ideology of the government or party in power and the nature and extent of bureaucratic influence on primary groups (Huang, 1999). The political and legal environment includes flexibility and adaptability of law and other legal rules governing the business (Thun, 2004). The legal environment serves to define what organizations can and cannot do at a particular point in time. The government passes and enforces legislation for the entire country, so political decisions made by the government

will have a significant impact on many vital areas for business (McGunagle, 2007), and the automobile industry in China is not an exception.

The industrial policies of a country are its official strategic efforts to encourage the development and growth of the manufacturing sector of the economy (Graham, 1994). The government takes measures “aimed at improving the competitiveness and capabilities of domestic firms and promoting structural transformation” (UNCTAD and UNIDO, 2011, p. 34). Industrial policies are sector specific, unlike broader macroeconomic policies. They are sometimes labeled as interventionist as opposed to laissez-faire economics. An example of a typical industrial policy is import-substitution-industrialization, where trade barriers are temporarily imposed on some key sectors, such as manufacturing (Krugman, 1987). By selectively protecting certain industries, these industries are given time to learn (learning by doing) and upgrade. Once competitive enough, these restrictions are lifted to expose the selected industries to the international market (Gereffi and Wyman, 1990). Chan and Daim (2012) also point out that in developing countries, governments can develop policies to encourage the transfer of advanced technologies from developed countries, although as a developing country, the establishment of technology policy has been lagging behind those in the developed world.

Lerner (2012) argues that industrial policy is often inefficient and governments are often quite simply incompetent in implementing industrial policy and serious losses result. He selects a typical case of the Danish Business Development Fund, which lost 60 percent of the money it put into 900 business projects in its early years – an extraordinary waste of taxpayers’ money (Booth, 2010). Jaffe and Lerner (2006) and Lerner (2012) further suggest that the market could allocate resources more efficiently, to the benefit of society. Some researchers have similarly commented that industrial policy could be a government’s prevention of certain business ventures which would otherwise be illegal (Booth, 2010). However, Booth (2010) also suggests that industrial policy always fails, but only in economic terms. When other criteria (national security, for example) are of importance then it can be argued that industrial policy can be useful.

Scholars such as Li and Tsui (2000) suggest that policies matter, but how they matter remains contentious. Chan and Daim (2012) emphasise that since China’s political regime carried many characteristics of planned economy, technology policies in the new decade are often implemented along with national level technology development strategy, which has been switching toward innovation, and catching up with the developed world.

Sun *et al.* (2009) and Yang and Stoltenberg (2008) further propose that understanding and systematically analyzing the complexities and continuing policy changes in China is the key, as the different industrial development patterns are embedded in this complex environment, with its economic reforms and industrial transformation in China over the past decades.

The Chinese automobile industry

Pre-Chinese civil war: static automobile production (before 1949)

Although the phenomenon of Chinese automobile industry development has attracted the attention of scholars only recently, the roots of its growth and expansion can be traced back some five decades. Before the establishment of the People’s Republic of China (PRC) in 1949, there was actually no automobile production in China during the

early twentieth century. The whole country was largely poor and backward in social, economic and industrial aspects, with a low technological base (Gallagher, 2006; Zhang and Taylor, 2001). Initially automobiles were imported from abroad, mostly from the USA. Imports served the Shanghai market and were driven by the Chinese business and political elite. It was expensive for foreigners to ship the vehicle products to China, so parts-and-components companies sprang up in Beijing, Tianjin, and Shanghai to provide some elements of the automobiles, such as the heavy bodies. This experience led to the construction of a few crude assembly plants to put Chinese-made parts together with the other imported components (Harwit, 1995). For the most part, however, foreign automobile companies did not invest in China during the early twentieth century to the extent that they did in other developing countries.

The Chinese Government appeared to be content to import automobiles from abroad and lacked any real initiative to establish a domestic industry at the time during the first half of the twentieth century (Harwit, 1995). This was a time of inconsistent policy and little economic development in China, due to the constant social chaos, leadership struggles and successions, the war with Japan during the 1930s and 1940s, and then the civil war (1946-1949).

The early post-civil war years (early 1950s)

After Chairman Mao Zedong's communist revolution in 1949, Chinese society began a radical transformation through industrialization. In order to achieve the national goal of radical industrial transformation, the Chinese Government made several attempts to approach the Soviet Union, China's close northern neighbour and ally, for the purpose of introducing the Soviet industrialization experience – the so-called “Stalinist heavy-industry development model” which was considered suitable at that time (Zhang and Taylor, 2001). As argued by Feinstein and Howe (1997, p. 2), “for China, they had no reason to suspect the Soviet technological and industrial systems' superiorities”. China relied heavily on the Soviet Union during this period, and as a result, the combination of the internal abundant labour resources and external technical assistance from the Soviet Union played a significant role in helping China to complete many large projects during 1950-1960. China realized most of its economic plans during its first five-year period (1953-1957).

In July 1953, with the objective of developing a Chinese automobile industry, the Chinese Government reached an agreement with the Soviet Union to introduce Soviet automobile technology and assembly lines (Harwit, 1995). As a result, First Auto Works (FAW), China's first automobile plant, was built and designed in Changchun (a north Eastern city in Jilin Province) in 1953. The construction of FAW was an example of industrial success, marking the real birth of China's automobile industry, although the automobile manufacturing knowledge, equipment, vehicle designs and relevant training programs were transferred from the Russians. In 1956, FAW's first product Jiefang (liberation) truck was released with 1,600 assembled units, and this version was based on the Russians' ZIS 150 Model (Gallagher, 2006; Harwit, 1995). The Russians also transferred the design for a smaller all-terrain utility vehicle to China, following up with careful training of Chinese workers to ensure that they could actually manufacture the design.

Two years later in 1958, both FAW and Shanghai Automotive Assembly Plant (which has now been renamed the Shanghai Automotive Industry Corporation), made the Chinese-brand Hongqi (Red Flag) and the Phoenix sedan for the exclusive use

of senior government officials. However, the production costs required huge central government subsidies; the resource allocation and even end-products deliveries were all centrally planned.

Small-scale industrialization (1958-1960)

Shortly after FAW opened, the Great Leap Forward campaign (1958-1960) began which was characterized by rash industrialization with the encouragement of central planning decentralization. Chinese automobile firms adopted the path of small-scale industrialization, which ultimately proved untenable since they ignored the advantages of resource consolidation and mass production. This was in striking contrast to the European and American automobile companies and resulted in the establishment of more than a 100 small sized vehicle assembly plants (Holweg *et al.*, 2005).

The whole Chinese automobile industry thus ran at low levels of productivity and efficiency with a fragmented production system, absence of competition, diseconomies of scale and a lack of product scope. Taking FAW as an example, between 1959 and 1981, FAW only produced 1,542 units, on average 67 units per annum, and in 1961 only one unit came off the production line (Newman, 2004). The Chinese automobile industry gradually lagged behind other international automobile producers and the technological gaps widened considerably from the 1960s onwards (Harwit, 1994). Coincidentally, the Japanese and Korean automobile firms began to grow rapidly and they developed their own indigenous capacities at this time, aiming to catch up with the European and American automobile firms.

Two decades of independent development (1960s and 1970s)

During the 1960s, the international political circumstances also changed greatly – the final deterioration of Sino-Soviet friendship (due to the respective communist ideological differences and conflicts of national interest) in 1962 put China in opposition to both the two world superpowers at that same time, the USA and the USSR. A Third Line defence campaign was promulgated in 1964, its main purpose being to resist potential war attacks, through the relocation and dispersal of heavy industry and military bases in remote mountainous regions. Meanwhile, as the USSR ended their technology and experts' assistance after 1960, China was consequently forced to pursue two decades of self-reliance and independent automobile production capability development (Gan, 2003). All new automobile factories were then designed and constructed with the support of the existing automobile plants; those newly-built automobile plants included Dongfeng Automobile Company which is also named the Second Auto Works (SAW)[1] (Shapiro, 2001).

During the period of the Cultural Revolution (1966-1976) (MacFarquhar and Schoenhals, 2008), the production of passenger cars was entirely shut down when there was no investment in the automobile industry (FBIS, 1994). Sedans were regarded as luxury products, so they were not produced (Gallagher, 2006). According to government statistics, China's annual entire automobile production was less than 700 units, and there was no investment in the automobile industry during this period (CATARC, 2002).

Conversely, the 1970s represented the "Golden Age" of European, American, and Japanese automobile manufacturers, as they were massive producers of automobile units, profiting from increasing sales of vehicles year-by-year with the combination of "learning-by-doing" strategy to increase their innovation capabilities, thus

strengthening their competitiveness in the world automobile market. For example, each American automobile plant was manufacturing 200,000-400,000 units a year, and the total output of the automobile industry in the USA accounted for roughly one quarter of the country's gross national product (GNP) (Halberstam, 1986). Hence the lost opportunity to the Chinese in terms of automobile-related technological and economic development was probably enormous.

Opening-up and reform period (since 1978)

Since the opening-up and reform from 1978 onwards, the predominant concern of the Chinese Government was to develop a "socialist market economy", with an emphasis on "developing productive power", market-based competition and a gradual decentralization of economic planning rather than political and ideological correctness (Gan, 2003). These rapid economic reforms and business systems development have created significant opportunities as well as unprecedented challenges for the Chinese automobile industry.

China's automobile industry then began to experience its second "infancy" after China reopened its door to the world after the Cultural Revolution in the late 1970s (Gallagher, 2006, p. 37). For years, automobile production had essentially been at a standstill. Not only had expertise been forgotten or lost, but there had been no development of new technologies, cultivation of skilled and innovative workers, or acquisition of technological capacity since the 1960s. Meanwhile, imported cars outnumbered domestic production during the 1980s. One of the negative effects was the impact of the cost of imported cars on the country's foreign reserves which was about US\$2.64 billion in 1985 (Zhang, 2004). The shortage of car supplies in the early 1980s made the Chinese Government realize the need to develop its own automobiles. It began to consider the feasibility of import substitution by encouraging Chinese automobile firms to acquire technical assistance and capability from foreign automobile companies through technology licensing and the formation of joint ventures. Initially, China asked the Japanese for assistance. In response to China's requests, the Japanese exported a large amount of trucks during the early 1970s and agreed to provide some technical assistance to the Chinese (Harwit, 1995). But the Japanese were wary of generating potential competitors to their own automobile companies in the future, so the extent and duration of their technology support and assistance was limited.

The first major manufacturing joint venture of any kind to be established between a Chinese company and a foreign firm after 1978 was an automobile joint venture (Gallagher, 2006). This was the Beijing-Cherokee joint venture signed between state-owned Beijing Automobile Industry Corporation (BAIC) and American Motors Corporation (AMC) in January 1984 (Mann, 1997). AMC was later taken over by Chrysler in 1987 and then Chrysler merged with Daimler Benz to become DaimlerChrysler in 1998, which still continues this partnership with BAIC. This joint venture was very important for the Chinese as it reflected how the country could absorb foreign investment and technology while moving towards industrialization, but without compromising key domestic influence (McGunagle, 2007). In this joint venture, AMC was to provide all the new technology for Beijing-Cherokee. The Chinese Government decided to limit foreign ownership to no more than 50 percent for automobile joint ventures, and AMC duly took a minority stake. For this first joint venture, technology was transferred in the form of "completely knockdown" (CKD) kits. CKDs are sets

of automobile parts that are packaged in one country; then exported to another for assembly (Gallagher, 2006). For the Beijing-Cherokee joint venture, Cherokee jeep CKD kits were packaged in the USA by AMC, sold to Beijing-Cherokee, and then exported to China for assembly by the JV Chinese workers.

Shortly after the establishment of Beijing-Cherokee, a second joint venture was established between Shanghai Automotive Industry Corporation (SAIC) and Volkswagen in October 1984. The total capital was US\$4,483 million and Volkswagen took a 50 percent stake. Production started with the model of Santana, then added the Passat in 1999, Polo in 2001, and the Santana 3000 in 2003 (McGunagle, 2007). This joint venture's business operations have been more profitable than that of Beijing-Cherokee, and Shanghai-VW has proved to be the leading international joint venture in China ever since the mid-1980s (Gallagher, 2006). It produces 450,000 units of passenger cars annually; this production capacity is equal to the size of Volkswagen's major manufacturing site based in Wolfsburg, Germany. Volkswagen gained an early-mover advantage and dominated China's automobile market for quite a long time, although the joint venture still mainly produces the old Santana model (albeit a face-lift version). This dominance was only lost in 2005, when Shanghai-GM overtook other rivals with the highest automobile production volumes (Ho, 2009).

In sum, between 1984 and 1989, five influential international joint venture agreements were subsequently established, namely Beijing-AMC, Shanghai-VW, Guangzhou-Peugeot, FAW-VW, and Tianjin-Daihatsu. These joint ventures helped reduce the consumption of foreign reserves due to the previous heavy imports of foreign cars, although they were still in the stage of import substitution. Meanwhile, because of these joint partnerships, China's automobile industry attracted a large amount of foreign investment – to those foreign automobile-producing investors, China's untapped market potential was irresistible (Zhang and Taylor, 2001). These joint projects were relatively successful during the 1990s, especially the Shanghai – VW project, which strengthened the confidence and interests of both the Chinese Government and foreign automobile firms, and there was a flood of investment from both foreign and domestic sources into the Chinese automobile industry. Based on government-issued statistics, total investment from various sources was estimated at US\$60 billion in the passenger car sector in the 1990s (CATARC, 2002). With relaxation of central planning, domestic market demand for cars increased rapidly (Newman, 2004).

Catching-up and adjustment period (since 1995)

Although both domestic and foreign investment in China's automobile industry began in earnest during the 1980s, substantial growth in production and sales did not occur until the mid-1990s. Since 1995, the average annual growth rate of motor vehicle production in China has been around 15 percent, compared to a world average of 1.5 percent during the same period (Luo, 2005). During the 1990s, the average annual growth rate of passenger car production was 27 percent. Passenger car production was doubling about every two and a half years. The Chinese automobile market was at a standstill until the mid-1990s, and the big jump in car manufacturing and sales did not begin until 1995. In 1991 and 1992, the production of cars only reached at 81,055 and 162,725 units, respectively[2] (Buckley *et al.*, 2007).

During this period, there were two new joint ventures were established. The first one was between FAW and German VW in 1990 with a total capitalisation of

US\$2,925 million. The FAW-VW project located in both Changchun and Chengdu City with a strong industrial base, designed to produce the Jetta model followed by the Audi model[3]. The second joint venture was a 50/50 partnership agreement between Dongfeng Motor and French Citroen in Wuhan, Hubei Province. It was designed to produce the Fukang compact with a total capitalisation of US\$1,765 million (McGunagle, 2007).

There were many differing views within the government at this time about whether China should try to foster its own domestic industry or whether it was too late for China to possibly catch up with the foreigners (Gallagher, 2006). After all, if foreigners were willing to manufacture and sell the cars in China, then at least China benefited from the jobs and tax revenues associated with those joint ventures. China's Government officials finally came to an agreement and issued the first real industrial policy for the automobile industry in 1994 (which will be discussed in the following subsection), more than ten years after the announcement of the first automobile joint venture.

Overall, the 1990s saw the passenger car production grow at an average growth rate of 27 percent annually (*China Automotive Industry Yearbook*, 1996). After the flurry of activity in the 1980s and early 1990s, the government began to reconsider its automobile industrial strategy. China had not gained much knowledge from the foreign firms, which essentially selected what would be transferred and how, without necessarily teaching their Chinese partners anything significant. The only real requirement for the foreign companies was to get the technology into production, and there were no specific stipulations for technology transfer (Gallagher, 2006). For example, while the government wished to increase the production and availability of passenger cars, as late as 1990 few were actually being produced. At this time, the output of automobiles still only accounted for less than 10 percent of total motor vehicle output (Gan, 2003).

WTO entry impacts after 2001

After 2001, the Chinese automobile market grew even faster than before. China's WTO accession in 2001 particularly played an important role in regulating Chinese automobile industry. Historically, the Chinese Government adopted certain important policy tools to regulate internal automobile industry development and protect local firms. Now, being one of the WTO member countries, China had to conform with the WTO agreements such as "the trade-related investment measures (TRIMs)" and "the trade-related intellectual property rights (TRIPs)", aiming to further open Chinese domestic market to foreign operations, to seriously consider internationally standardized and more transparent procedures and to liberalize many of the past restrictions such as high tariffs on imported vehicles in the early 1980s (Newman, 2004). Thus, China's accession to the WTO actually placed significant constraints on state policy towards the automobile industry. Some major impacts upon the Chinese automobile industry after entry into WTO are demonstrated in Table I.

However, some researchers point out that whatever effort foreign producers are making to ally with domestic Chinese automobile firms, "the Chinese Government will continue to protect its domestic market despite WTO rules that encourage developing countries to open up their markets to competition" (Conybeare, 2004, p. 11).

Entering into the period of fast development (2001-2008)

After 2002 and 2003, the Chinese automobile market attracted considerable foreign investment. Those giant foreign automakers whether they already had previous

Table I.
Key issue comparisons
(pre- and post-WTO
membership)

	Pre-WTO	Post-WTO
Tariff rates	Was 200 percent in 1980s Changed to 80-100 percent in the 1990s	10-13 percent for parts/ accessories; and 25 percent for complete cars on 1 July 2006
Auto import limitations	30,000 units per year	Eliminated after 2006
Local content requirements of automobile products	40 percent for the initial year 60 percent for second year 80 percent in third year operation	Cancelled
Foreign financing for Chinese customers	Prohibited	Permitted
Technology transfer imposed on foreign firms	Required	Eliminated

Source: McGunagle (2007)

operations in China or not all had ambitions to further increase their local capacity and production. In 2003, there were over ten automobile joint ventures operating in the domestic passenger car sector[4], dominating most of China's passenger car production (Newman, 2004). Production volumes increased by about 39 percent in 2002 and by almost 37 percent in 2003. The total automobile output exceeded 5 million units in 2004, which was a 15.5 percent increase from 2003 (*China Automotive Industry Yearbook*, 2005). This made China the fourth largest vehicle production country and the third most important national automobile market at that time (Newman, 2004).

During recent years, China has been still rapidly growing in terms of production share of the world's automobile market, and 2008 saw over 8 million motor vehicles manufactured in China compared with 0.5 million in 1996 (Automotive News, 2008). A total of 14.5 million cars were sold in 2011, making China the world's first largest car seller (*Chinadaily*, 2012).

Meanwhile, as China has become one of the largest markets globally, the world's automobile makers from Europe, the USA, Japan and Korea were attracted to this market, particularly as demand for automobiles in their home country market was stagnant or declining. Almost all of the global automaker giants like General Motors, Ford, Chrysler, Volkswagen, PSA Peugeot Citroen, BMW, Toyota, Nissan-Renault and Honda have selected cooperative Chinese partners, established a foothold in the market, and set up automobile production sites in China. As far as the Chinese companies are concerned, more than 90 percent of Chinese state-owned automobile companies have formed strategic alliances with foreign players to produce mainstream passenger cars (Alon and McIntyre, 2008). Early movers, such as Shanghai-VW and Beijing-Cherookee have been enjoying significant benefits since the early 1990s. For Volkswagen (VW), with five joint ventures to manufacture cars in China, China represents its largest market after Germany at the moment (Ho, 2009). VW has been one of the top 50 foreign-invested companies listed by Chinese authorities for almost 24 years since 1985 (Ho, 2009).

However, some observers have commented that China's automobile industry is still young (Davis and Diegel, 2002). Chan and Daim (2012) explained that although China has become the largest FDI receiving developing country, which has been encouraging new technologies transfer from advanced countries, the negative impacts exist as China lacks the capability for sustainable innovation. Taking the automobile industry

as an example, most local car companies learned very few from technology transfer, but the market is dominated by foreign companies (Gallagher, 2006).

For years, China's automobile industry had essentially suffered from diseconomies of scale, limited model ranges, low technological capacities, and limited cultivation of skilled and innovative workers. China's automobile industry also suffers from overcapacity (or some would call "hyperinvestment" – too many small, duplicated-effort plants). Many automobile companies in China still produce fewer than 100,000 automobiles a year (CATARC, 2008). Some industrial analysts comment, under the existing circumstances, various costs are rising in Chinese automobile industry. As far as accessories are concerned, China has no advantage in high quality accessories. Medium quality accessories have only been developed in recent years (PRLog, 2009). It seems that Chinese vehicle manufacturers were more like "truck-makers rather than car-makers" (Zhang and Taylor, 2001, p. 264). Existing production systems thus offered neither the quality nor the diversity of products to satisfy this promising demand. Although the government had already been encouraging automobile makers to acquire more advanced technology and assistance from foreign automakers since the 1980s (Newman, 2004), there were still no formal and systematic policies for regulating the automobile industry, which will be analyzed in the following sections.

The influence of relevant industrial policies

The above sections reviewed the historical development path of China's automobile industry over the past decades since 1949. The following sections will take an institution-based perspective linking with the industrial policy to explain how political decisions made by the government affect the development path of China's automobile industry.

Traditionally the Chinese Government has played a key role in the formulation of policy. Even after extensive economic liberalization and reform, the authorities still exert their influence to intervene in business activities to meet the specified targets in various industrial sectors (Yan, 2000), as the government want to achieve a balanced effect – not only to increase the economic and industrial modernization through these liberalized policies (Harrigan, 1985; Henderson *et al.*, 1994; Yan, 2000), but also that these national achievements could be regulated in a healthy way. China's automobile industry has proven to be no exception (China Association of Automobile Manufacturers, 2004).

Apart from the "pillar industry" concern, the automobile industry was actually the first sector to be fully supported by industrial policies. Back in the late 1970s, Chinese leaders realized the necessity of modernizing its automobile industry and at a minimum, to establish a more flexible program of vehicle import substitution, as they found the China's urban streets and country roads were largely crowded with inefficient, unattractive, and often unreliable automobiles designed in the early 1960s or even decades earlier (Harwit, 1994). By promoting the indigenous car industry and accelerating its modernization, the legitimacy for transferring foreign technology and management expertise has been established since 1978. The demand-led increase of imported cars in the mid-1980s combined with the globalization trends since the end of the 1990s forced the government to formulate much more new and systematic legislations to deal with the economic relationships with foreign companies (Sit and Liu, 2000). In recent years, since the Chinese Government wanted to strengthen the SOEs

automakers competitiveness in the industry, it initiated various regulations, including foreign equity limits and local content requirements as mentioned in the next subsections.

The 1989 Outline of National Industrial Policy

The Chinese Government initially issued the “Outline of National Industrial Policy” in 1989, and identified five “pillar industries” in its seventh Five-Year Plan (1986-1990) which was drafted in 1984, consisting of machinery, electronics, petrochemicals, automobiles and construction sectors. It was the first time that an industrial policy relevant to the automobile sector had been formulated (Child, 2000; Zhang and Taylor, 2001). Pillar industries referred to those industries that were in the highest stage of national industrialization, intending to drive the national economy growth, possessing the potential for high productivity, aiming to reach international quality standards, increasing market share internationally, and reflecting a certain degree of “comparative advantage” (The World Bank, 1997, p. 39).

The “pillar industry” positioning of the automobile was based on the following major considerations (CATARC, 2002, 2003): first, there was the value-added effect – the value contribution of the Chinese automobile industry was calculated at nearly US\$12 billion in the fiscal year of 2001, accounting for 5 percent of the added value brought by the China’s manufacturing sector. Second, there were employment-related considerations – there were about 1.6 million Chinese working in the automobile industry in 2002. Third, there was related industrial development – the automobile industry has related connections with many other industries such as metallurgy, petroleum, chemistry, coal, light industry, electronics, and textiles (an automobile is composed of more than 10,000 various components). It was thus reasoned that a better-coordinated automobile industry would facilitate the growth of many other industrial manufacturing sectors in China.

The 1994 Automobile Industry Policy

On 19 February 1994, the State Planning Commission (SPC) completed the first real and fundamental industry-specific document – “1994 Automobile Industry Policy”. This policy took a radically different approach to the de facto policy of the 1980s in three significant ways.

First, this 1994 policy intended to consolidate the scarce resources and investment to set up a few large-scale, internationally competitive national automobile groups instead of the scattered small producers by 2010 (Newman, 2004), calling for long run consolidation and integration. The Chinese authorities sought to form a strategic arrangement of “Big Three, Small Three and Mini Two” (Holweg *et al.*, 2005), which was roughly similar to the American “Big Three Auto Group” model (Xia, 2002). The Chinese “Big Three” refers to FAW, Shanghai Automotive Industrial Corporation (SAIC) and Second Automotive Works/Dongfeng Motor Company, the “Small Three” includes the Beijing Automotive Industrial Corporation, the Tianjin Automotive Industrial Corporation and the Guangzhou Automotive Industrial Corporation, and the “Mini Two” comprises of Chang’an and Guizhou Aviation (McGunagle, 2007).

Second, this policy, for the first time, placed strict and integrated restrictions on automobile-related FDI. It clearly specified localization and knowledge transfer requirements for setting up joint ventures with foreign automakers. Foreign automobile firms with their own product patents, strong manufacturing capabilities,

ample financing resources and independent global marketing channels would be regarded as potential cooperative partners. Joint ventures are required to have their own R&D centres, and balance their foreign exchange requirements independently. JV products must comply with international technical standards. Chinese equity in the joint ventures must be at least 50 percent to be able to exert more control and bargaining power. Finally, the parts and components in the joint ventures must be localized by at least 40 percent. More preferential status may be granted according to the level of local content achieved (Holweg *et al.*, 2005).

Third, this 1994 Auto Policy re-affirmed the legitimacy of private car ownership and purchasing with the intention of stimulating market creation and consumption further. The Automobile Industry Policy issued in 1994 was implemented successfully, and all of the foreign automakers were required to go through the confirmatory procedures to gain government approval. However, it seems that this scrutiny did not discourage foreign investment into China's automobile industry at all. In fact, after the 1994 policy was implemented, almost all of the giant multinational automakers entered into China to capture the fast growing market opportunities. For instance, in 1997, General Motors established the joint venture Shanghai GM with Shanghai Automobile Industry Corporation (SAIC); this project was GM's largest single foreign investment in China at that time. Also in 1997, Honda replaced Peugeot and entered into negotiations with Guangzhou Automotive Company. In 1999, Ford cooperated with Chang'an Manufacturing Group. During the 1990s, there was a veritable flood of investment into the Chinese auto industry from both Chinese Government and foreign sources. According to Chinese Government statistics, total investment into the motor vehicle and related industries from all sources amounted to nearly US\$60 billion during the 1990s (CATARC, 2002).

Thus, it seemed that the promulgated 1994 automobile industry policy had yielded mixed results. The consolidation of the automobile industry into a handful of big firms was not realized. Instead of six major firms, there are still 13 out of a total of 118 total manufacturers (Gallagher, 2006). The high degree of protection given to the industry by the government was not repaid by concerted and effective efforts within the industry to become more competitive in the world market.

The Tenth Five-Year plan (2001-2005)

In order to reduce the side effects of overheated investment and to cool down the whole auto market, the Chinese Government adopted a series of effective measures since the beginning of 2004, such as discouraging further investments, slowing down bank lending to the potential car buyers, and price discounting (Gallagher, 2006). At the same time, the Chinese Government issued the Tenth Five-Year Plan (2001-2005) for the automobile industry.

According to the Tenth Five-Year Plan, the general guidelines for developing the automotive industry in China during the period (2001-2005) were to meet the ever-increasing needs of the domestic market through opening up and accelerating self-development. The development of economy cars was regarded as the focus of development. The plan states that large corporations should serve as the backbone to realize the optimization of the structure of the automotive industry and achieve mass production. More national technical centres should be set up to enhance technique-innovation and production-development abilities. Market surroundings

would thus be improved and management based on the legal system to promote fair competition (BIZChina, 2006).

Other certain stated objectives include: to emphasize the environmental protection and promote harmonious industrial development; to build a few local famous brands based on Chinese independent intellectual property rights; to increase the China-made vehicle production volume to satisfy the domestic demands and be ready to compete globally; and to be the dominant auto manufacturing country. This plan confirmed that China should, step by step, enhance its independent ability to develop and spread new products and techniques. Strategic reorganization of the automotive industry should also be promoted. Cooperation between influential corporations and distribution of resources were to be encouraged and supported (Thun, 2004). Thus, the plan definitely reaffirmed the principles for the sharpening the competitive edge of China's automotive industry.

The 2004 Auto Industry Policy

In May 2004, the Chinese National Development and Reform Commission issued its ten-year update to the 1994 Auto Industry Development Policy. This 2004 policy indicated a significant change in role of the Chinese Government dealing with economic development matters in a certain industry. The government was attempting to use market-oriented mechanisms to influence the industry's strategic directions, rather than simply administrative intervention (Thun, 2004).

The new 2004 policy stated several new objectives above and beyond the 1994 policy (CATARC, 2004a, b). This policy stated that the industry should actively conduct research on electric and hybrid-electric vehicles, and that the state should take measures in the areas of scientific research to create an enabling policy environment for the production and use of hybrid vehicles. The government would emphasize harmonious industrial development and environmental protection with a goal of reducing average fuel consumption by passenger vehicles by 15 percent by 2010 (CATARC, 2004a, b). For the first time, the government noted the emerging contradictions between the development of the auto industry and the encouragement of auto consumption by individual consumers on the one hand, and urban traffic infrastructure and environmental protection on other hand. Also for the first time, foreign investors would be allowed to control stakes of more than 50 percent in automobile and motorcycle joint ventures with Chinese partners if the joint ventures are built in China's export-processing zones and aimed at overseas markets (Gallagher, 2006).

The new policy generally encouraged the improvement of the Chinese firms' international competitiveness. China hoped to accelerate the development of the independent capabilities of its automobile firms to safeguard the national interest of its auto industry while continuing to support domestic firms in cooperation with foreign partners.

Chinese Auto Policy After 2009

After February 2009, the Chinese Government promulgated "The Revitalization of Chinese Automobile Industry". It was stipulated that all Chinese domestic automobile manufacturers must have certified automobile products offering new energy and energy alternatives (Yan, 2009). Most importantly, the development focuses on Chinese new energy automobile industry such as pure electric automobiles, plug-in hybrids,

special engines, power modules, driver components and optimal design. The aim is to produce 0.5 million pure electric power automobiles, plug-in hybrids and normal hybrids in three years, accounting for 5 percent market share in China (Wang, 2009). The Chinese Government promises that they will provide finance and tax relief for new energy automobiles. The Chinese Government promises to invest 10 billion RMB Yuan (US\$1.46 billion) during 2009-2011, in order to support the development of new energy automobiles, technological innovations and the research of special parts (Chen, 2009). It is estimated that the sale volumes of new energy automobile will account for 5-10 percent in the whole Chinese automobile sale volumes in 2013 (PRLog, 2009).

Discussion

This paper has provided an overview and the key characteristics of the industrial policies which impacts on the historical development path of China's automobile industry. The description of the historical development and the current features of the industrial policies portrayed the rise of the automobile industry in China. This paper also depicted the key Chinese FDI policies in the auto industry, which is an important context in understanding the sources of success and failure in this emerging and promising auto market. The unique industrial policies emphasised the importance of knowledge resources for industry and the auto market growth. This paper thus advanced the institution-based perspective in emerging economies (Peng *et al.*, 2008; Meyer *et al.*, 2009) and concluded that these series of industrial policies did help the Chinese auto industry to learn from the foreign giant automakers in a consistent manner. These industrial policies also show the willingness and courage of the Chinese Government in the process of "Open up and Reform" when facing global competition and cooperation in the automobile industry.

Industrial policies in China have generally experienced several major changes in recent decades. The first change was the weakening of central government's role in the economic decision-making process, with a gradual shift towards a market-based economy rather than central planning control (Huang, 2008, 2010). Thus, the open-door reform actually led to a mixed regulatory mechanism including both market-based competition and the legacy of a command economy. State-owned auto enterprises (SOEs) have been given more freedom in the decision-making processes.

The second change was that, in spite of the highly fragmented industry structure in the past, the central authority started to use market mechanisms to foster the formation of corporation groups to compete with global players, for example, the FAW, Second Auto Works (SAW) and Shanghai Automotive Industry Corporation (SAIC), which now have a dominant share of the major auto market in China.

The third change referred to the encouragement of setting up JVs and foreign-owned enterprises, which were usually given preferential treatments such as a two-year exemption and a three-year tax reduction starting from 1979. The Chinese Government has emphasised the development of an appropriate infrastructure as a high priority and it is quite willing for foreign investors to add to these facilities – in transportation and communication, in energy capacity, and even in education. Due to the strict auto-related regulations, in certain strategically important or pillar industry sectors (such as the automotive industry), the Chinese Government puts pressure on foreign MNEs to use equity joint ventures rather than wholly-owned foreign enterprises (WOFEs) (Conklin, 2006).

The development of industrial policy in China's automobile industry follows a top-down structure, which is rooted from the traditional planned economy (Chan and Daim, 2012).

The government initially began to encourage the formation of joint ventures to acquire more advanced technology and assistance from foreign automakers in the 1980s. After 1992, the issue of Chinese technology policies has speeded up gradually and the policy power has increased quickly (Sun *et al.*, 2009).

However, there were still no formal and systematic policies for regulating the auto industry until late 1989 (Newman, 2004), followed by 1994, 2004 industry policies, respectively. Some scholars (such as Chan and Daim, 2012; Peng *et al.*, 2009; Sun *et al.*, 2009) criticized that the Chinese auto industry has been utilizing a disputed policy – “market in exchange for technology”. The central government expects foreign auto technologies can be transferred to China through joint ventures; however this strategy did not really contribute toward indigenous innovation capability of the Chinese automakers. Meanwhile foreign MNEs did not transfer the necessary core technology for the sake of intellectual property protection. It is also claimed that the market share of domestic companies have actually been undermining, as favorable terms have been given to foreign auto giants. It is thus necessary for China to reassess these industrial policies and to investigate how the local auto industry can benefit more to achieve sustainable innovation (Chan and Daim, 2012).

In summary, the combination of the policy change processes and actions to stimulate this industry through partnering with foreign automobile companies has led to the development of an unique dynamic development path for the Chinese automobile industry.

Limitations and future research directions

This automotive industry research setting offers several strengths. First, the automotive industry in China is a rapidly changing industry in which the wide range of knowledge transfers have been demonstrated as a result of the dominance of extensive FDI activities (Buckley *et al.*, 2004), and Chinese authorities have already issued some industrial policies concerning knowledge transfer in joint ventures formed between foreign multinational enterprises (MNEs) and local Chinese companies. Therefore, the use of a single auto industry helps control for industry-level factors. However, as the researchers have used only one industry/market setting in a transition economy, the generalisation of results to other contexts should be done cautiously. Transition economies have some common features, such as “gradual transformation from a planned economy to a market economy, opening up to the outside world, embracing the inward foreign direct investments, and state-owned enterprises’ privatisation” (Tsang, 2005, p. 442). However, there are still differences among transition economies and other emerging economies because of cultural, political, social, and historical factors. Research findings “collected in one transition economy may not be wholly generalisable to another” (Tsang, 2005, p. 442).

Therefore, the implications drawn from the literature and the choice to focus on one industry initiated in one transitional economy – China – does limit generalisation of the results to other settings, and it is necessary to expand the geographical scope and study other transition economies. By so doing, it is possible to obtain a more in-depth understanding of the common characteristics of transition economies as a whole.

Future research could be done using multiple industry case analysis techniques. Extending this research model to other industries in China or automobile industry in other transition economies such as Mexico, Brazil, Poland, and the Czech Republic is thus a further possibility.

Concluding remarks

The Chinese auto industry has been experiencing impressive changes over the past decades and become one of the major contributing factors for the growth of China's GDP, which shows characteristics of "paths toward globalization" (Fetscherin and Sardy, 2008). With limited automobile production before 1978, the government issued industrial policies in the 1980s, then reaffirmed the regulations in 1994, and finally reemphasized accordingly in 2004 (Sit and Liu, 2000). Being short on technological know-how and management skills, China has been continuously relying on the introduction of foreign technology and assistance for encouraging a modern auto industry development (Huang, 2008, 2010), from the original help of the Soviet Union in the 1950s until the current mushrooming presence of Sino-foreign joint ventures. With continuing economic growth and political stability, the emerging Chinese auto market demonstrates spectacular consumption patterns and potentially very attractive opportunities globally (Holweg *et al.*, 2005). These institutional environment dynamics have enhanced FDI inflows however the Chinese Government has now turned its attention to foster a comparatively independent auto industry with self-developed local brands and is encouraging the "implementation of innovation strategy in a dynamic globalizing world" (Wang and Hong, 2012, p. 92).

This paper has reviewed the historical "stop-go" development path of the Chinese automobile industry since 1949, which clearly has been circumscribed by both the gradual institutional reform in the country and global industrial changes. This paper has also provided an overview of the key characteristics of the institutional environment in China and its impact on the globalization paths of China's automobile industry. The description of the historical development and the current features of the industrial policies portray the rise of the automobile industry in China. The unique policy changing environment combined with the globalizing trend of the automobile market emphasizes the importance of knowledge resources for industry and automobile market growth.

Notes

1. Its headquarters were once located in Shiyan, Hubei Province. Now it is based in Wuhan, Hubei Province.
2. From 1993 to 1996, the production of cars reached at 229,697, 250,333, 325,461 and 391,099 units, respectively (*China Automotive Industry Yearbook*, 1996, 1999).
3. Full-scale production started in July 1996, with the Jetta CL and City-Golf. In 1996, Audi production began with the Audi A6. Production of the Bora started in 2002. In 2003, the Audi A4 model was added, along with the Caddy in 2005. Now besides Volkswagen, FAW also has a licensed technology tie-up with Toyota for several models (McGunagle, 2007).
4. Involving Shanghai-VW, FAW-Volkswagen, Shanghai-GM, Dongfeng-Citroen, Guangzhou-Honda, Chang'an-Suzuki, Chang'an-Ford, Beijing-Jeep, Beijing-Hyundai, Dongfeng-Nissan, and FAW-Tianjin-Toyota (Newman, 2004).

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