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Co-Evolution in Relation to Small Cars and Sustainability in China: Interactions Between Central and Local Governments, and With Business

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Ans Kolk¹ and Stephen Tsang¹

Abstract

This article explores how the institutional context, including central and local governments, has co-evolved with business in relation to small cars and sustainability. This issue is very relevant for business and society in view of the environmental implications of the rapidly growing vehicle fleet in China, the economic importance attached to this pillar industry by the government, and citizen interest in owning and driving increasingly larger cars. The interactions between different levels of government, and with business (both domestic and foreign-invested) in countries with a large role for the state is a novel area of study in the business-society area and a complex one given the multitude of objectives and interests involved in industry competitiveness, economic development, energy security, and sustainability. The article shows that the central government has adopted policies to further the production and use of small cars, which it perceives as serving environmental, economic, and social goals. Concurrently, however, many local governments imposed restrictions on small cars and

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have, implicitly or explicitly, favored larger cars. There seems to be a clear linkage to municipal ownership of those domestic automobile companies which, via joint ventures with foreign firms, focused more on larger cars. By adopting a co-evolutionary approach focused on macro-level interactions, the case helps to shed some more light on concrete sustainability challenges, and broader government–business interactions in a highly institutionalized setting, contributing insights on issues that have remained underexposed in business and society research.

Keywords

local–central government, sustainability, automobile, co-evolution, business-government

In examining the role of government in a holistic approach toward environmental problems, two complexities, relevant to the business and society debate, frequently emerge. First, multiple policies exist with often conflicting objectives as governments aim to serve a large variety of societal, economic, and environmental goals. Second, various levels of government are involved, which especially in large countries can lead to coordination problems and contradictory policies as local interests and political coalitions may diverge from those at the central level. These issues have received some attention in the policy-oriented literature, *inter alia*, from the perspective of so-called “wicked”—intractable and complex—problems. Wicked problems are difficult to solve, also because they cross organizational boundaries, particularly government agencies at local, national, and/or regional levels (Ayoub, Batres, & Naka, 2009; Head, 2008). The complexities of coordination between local and federal states have come to the fore in the case of developed countries such as the United States and Germany, especially in relation to climate change (Carlane, 2010; Selin & VanDeveer, 2009). These debates have, however, paid only limited attention to the crucial role of business in addressing these issues. Concurrently, the business and society literature has underexposed the intricacies of government at various levels, in its focus on the company perspective (*vis-à-vis* government, such as corporate lobbying and corporate political activity) in mostly market-based Western settings (Doh, Lawton, & Rajwani, 2012; Getz, 1997; Kolk & Pinkse, 2007; Wilts & Skippari, 2007; Windsor, 2007).

This article aims to help fill these research gaps by focusing on the interactions between different levels of government and companies in a “highly institutionalized” context (*cf.* Tian, Hafsi, & Wu, 2009), in which there is a

large role for the government in the economy. The authors do so by focusing on central and local governments in China in relation to automobile companies in the case of small cars. This issue is very relevant for business and society in view of the environmental implications of the rapidly growing vehicle fleet in China, the economic importance attached to this pillar industry by the government, and citizen interest in driving increasingly larger cars. To explore the interactions between central and local governments as well as companies in countries with a large state influence, a novel area of study in the field of corporate social responsibility (CSR), the authors adopt a co-evolutionary perspective inspired by Lewin, Long, and Carroll (1999). A co-evolution approach aims to study the interconnections between companies and their external environment, as will be explained below. Lewin et al. (1999) and others involved in an emerging stream of co-evolution studies (following Volberda & Lewin, 2003), however, started from micro-developments at the firm level. We add to this literature by paying attention to the macro-level, considering the co-evolution between (extra-)institutional developments and business actors in their industry context. A second contribution is that this article helps to shed light on the interactions between different levels of government, and thus a new dynamics in the field of business and society, which have been underexposed. Furthermore, it adds insights into a “new” context, one that has received very limited attention in business-government relations, especially concerning central and local authorities as well as domestic and foreign-owned firms in China. With a “state-centric” approach to CSR (Harper Ho, 2013), the country offers a specific perspective on the broader debate, which has tended to focus on implicit and explicit CSR in Western contexts and the move away from command and control there.

The set-up of this article is as follows. The next section will explain the embeddedness in the broader literature and the framework adopted in some more detail, in relation to the specific empirical context of this study. This is followed by an overview of the methodology used for this case study, and the more generic evolution of the automobile industry in terms of policies and actors. The co-evolutionary dynamics in relation to small cars and sustainability are presented subsequently, considering the interactions between central and local governments, and with business. The final section contains conclusions and reflections on broader implications and limitations.

A Co-Evolutionary Perspective on Government–Business Sustainability Interactions

The relations between government and business, and especially companies’ political activity, have received substantial research interest over the years,

sometimes through dedicated special issues on business-government interactions, and companies' non-market strategies (Doh et al., 2012; Getz, 1997; Wilts & Skippari, 2007; Windsor, 2007). The business and society literature has paid most attention to developed-country contexts, initially the United States in particular, with later extensions to Europe and some other countries, also in comparative studies, as part of a "globalization" of the subject (Wilts & Skippari, 2007; Windsor, 2007). Understandably, given the focus on business in market-based settings, the company perspective, including corporate lobbying and public affairs, has been central. As a result, however, the intricacies of government at various levels have remained underexposed, which is a limitation when aiming to understand business-government relations in countries where government is much more dominant, such as in emerging/transition economies. China is a case in point, as a "highly institutionalized setting" with a long tradition of central planning, and a transition from a command to a market economy that is still ongoing (Tian et al., 2009).

These country-peculiarities reflect on the role of government in social and environmental issues as well. Not only has the concept of CSR emerged more recently in China than in developed countries (Kolk, Hong, & Van Dolen, 2010), but it is also characterized by a clear "state-centric" approach, as Harper Ho (2013) characterized the situation post-2006 (compared with the "socialist model" that prevailed in pre-reform China). As CSR in general (in Western settings) has been said to involve a move away from command-and-control to other approaches, leading to uncertainty as it requires new rules, targets, and approaches (Lepoutre, Dentchev, & Heene, 2007), this point applies even more to China, where the conceptualization of CSR has been government-internally focused, not even including a role for companies—only for government bodies and so-called "government NGOs" (Harper Ho, 2013). At the same time, the financial decentralization set in motion by the central government has not only had economic implications for its interactions with local governments as they evolved over the years, but also for CSR and sustainability issues—aspects that have not received research attention thus far.

The very specific Chinese context also influences the relevance of notions originating from developed countries, such as the distinction between "implicit" and "explicit" CSR. Although Matten and Moon (2008) ventured to explain the relevance of these two forms, which vary in the degree to which CSR is an explicit/implicit element in the institutional framework, beyond, respectively, the United States and Europe for which the approach was developed, the position of traditionally government-dominated countries such as China is mentioned to be beyond the scope of their article. This lack of applicability characterizes the CSR literature in general, despite the ample

number of studies on the institutional level of analysis, as a recent overview study showed (Aguinis & Glavas, 2012). Concepts such as a “moral free space,” which underline the room for managerial discretion for companies operating across borders, acquire a different meaning in countries with business–government–society interactions that diverge so hugely from what Western multinationals are used to at home (Kolk, 2010). Scholars investigating business–government relations in sustainability issues, including climate change and the environment in the automobile industry, also face the limits of the applicability beyond the U.S. or European institutional contexts that have prevailed in the literature thus far (Kolk & Levy, 2004; Pinkse & Kolk, 2009).

China’s culture, history, and institutions have shaped a CSR development trajectory that differs from its Western counterparts, with practices unique to the country (L. Wong, 2009). At the same time, however, and despite growing attention for CSR, including the environment, which seem to top all other CSR problems in China (Kolk et al., 2010), there are only few investigations from the business–government perspective in this realm. The environmental aspects of the booming Chinese automobile sector have received considerable attention but research has mainly focused on the role of policies at the central level. These studies include macro-analyses of current and future oil consumption and the environmental implications of road transportation, accompanied by different types of technical, financial, and/or policy measures to be taken at the national level (Calkins, 2009; He et al., 2005; Jahiel, 2006; Ou et al., 2010; Wagner, An, & Wang, 2009; H. Wang & Ouyang, 2007; Zhao & Melaina, 2006). The role of companies has not been studied systematically; the role only came to the fore in the case of fuel-economy standards, where corporate influence turned out to have been limited (Oliver et al., 2009).

Neither CSR nor sustainability studies have focused on the interaction between different levels of government in China, which is somewhat surprising given that attention has been paid more generally to the dynamics of fiscal decentralization from central to local governments. The process of decentralization of revenue collection and expenditure started in the 1980s, giving local authorities higher stakes in supporting business development in their areas (Jin, Qian, & Weingast, 2005; Ma, 1995, 1996; Tsui, 2005; Tsui & Wang, 2004; West & Wong, 1995; Zheng, 2006). Although more market-oriented behavior ideally leads to greater efficiencies through competition and specialization, studies noted that neighboring localities also mimicked each other by creating similar firms, inciting competition and local protectionism as well (J. Park, 2006; Yang, 1997). Tensions and conflicts with the central government occurred as well, as local governments tended to implement policies that served their own interest and that could contradict central

Figure 1. Co-Evolutionary Perspective Adopted in this Article.

Source. Inspired by Lewin, Long, and Carroll (1999, p. 537).

objectives (Chen, 2011; Ding, 1998; L. C. Li, 2010; Wu et al., 2007; Yang, 1997).

CSR and sustainability issues should be considered in this context as well, adding further trade-offs (cf. Hahn, Figge, Pinkse, & Preuss, 2010; Kolk, 2010). In the Chinese setting, as in other emerging economies (C. M. L. Wong, 2012), there have been tensions with other policy objectives such as competitiveness of domestic companies, economic growth and employment, and energy security (Tsang & Kolk, 2010), which have played out at the different levels of government as well as their respective interactions, also with business (see Figure 1). It is here that this article aims to make a contribution by considering how the institutional context, including central and local governments, has co-evolved with business. As will be explained in more detail below, the case of small cars, in relation to sustainability concerns of automobile use, has been selected as empirical setting.

It should be noted that the literature on management and organization has seen the emergence of the concept of co-evolution, in an attempt to move beyond a frequent tendency to take firms “external (institutional) environment” as given, or as mere exogenous variable (Cantwell, Dunning, & Lundan, 2010; Tan & Tan, 2005). A co-evolutionary view aims to understand the interconnections between firms and their external environment, as part of a research agenda outlined by Lewin et al. (1999) and Volberda and Lewin (2003) in particular. Most of this work has, understandably given its embeddedness in

the business field, started from micro-developments at the firm level (the right-hand side of Figure 1), and considered interactions from that perspective in the industry context. This also applies to specific recent studies on China, which focused on organization-environment evolution in state-owned enterprises (SOEs; Tan & Tan, 2005), local business systems in three provinces focused on tax (Krug & Hendrichske, 2008), and organization-government power interactions in the case of a joint venture (JV) operating a container terminal (Child, Rodriguez, & Tse, 2012). More general corporate political activity has been studied as well, also in specific industries (steel, consumer electronics, and software; Kennedy, 2005), but mostly concentrating on the role of multinationals (Kennedy, 2007; Luo & Zhao, 2013) vis-à-vis the central government.

In view of the topic and the country context, macro-level interactions are crucial. Figure 1 specifies the components that are highlighted in this study. They include co-evolution between country-level factors (various policies with often divergent objectives, economic, social, and environmental—at different levels of government) and business actors in their industry context (particularly considering domestic companies and foreign-invested JVs). Our study adds to the existing literature, which stems not only from the macro-evolutionary approach but also from the attention to policy trade-offs and the interactions between central and local governments as well as domestic companies and JVs with foreign involvement.

Method

Given the lack of empirical research, the authors used an exploratory case study approach to obtain more insight into the co-evolution of the institutional context, including central and local government interactions, with business in relation to small cars and sustainability. A case study methodology is seen as best suited given the complex relationships involved, the longitudinal nature of the issues at hand and the importance of shedding light on the dynamics of central-local interactions. In line with Dubois and Gadde (2002), the approach was to build on and help develop existing theories and conceptual frameworks, and confront the evolving case phenomenon with evolving frameworks through a process of systematic combining—this method has also been characterized as an abductive approach to case research (cf. Kovács & Spens, 2005; Shepherd & Sutcliffe, 2011).

The authors selected a specific industry for the analysis, following suggestions by Kennedy (2005) that, although China as a whole is moving away from a planned economy, it is necessary to account for industry-specificity as market conditions and characteristics do differ. The automobile industry has

been a pillar industry and was first identified as such by the central government in its 7th five-year plan (1986-1990), emphasizing passenger cars in particular (Noble, Ravenhill, & Doner, 2005). In addition to strong central direction, local governments have become key players as well in influencing manufacturing and sales in their provinces/municipalities, especially after the opening of the market, which allowed entry of foreign firms and creation of independent domestic companies.

Besides the economic importance of the industry, the sustainability implications of increasing car use have been of growing concern. This is especially the case because China follows the same transportation model as in Western countries with its well-known problems of congestion, energy consumption, emissions and pollution, and increasing numbers of roads that diminish natural areas and/or arable land (Calkins, 2009; Jahiel, 2006). Vehicle ownership in China is still well below those of developed countries: in 2010, China had 41 passenger cars per 1,000 adults, whereas that amounted to 961 in the United States, 606 in Western Europe, and 532 in Japan (Waldmeir & Reed, 2011). Ownership in China is only around 5% of the population, compared with 70% in the United States. If China would grow to similar rates as in the United States, then that would mean around 1 billion cars on the road (compared with the United States with 220 million cars on a similar land area; Waldmeir & Reed, 2011). In view of growth rates, China will have more automobiles on the streets than the United States well before 2020.

The choice for small cars in particular stems from perceptions of the central government that such a focus would help to alleviate the problems indicated above. In the course of the development of the automobile industry, the central government has emphasized the importance of small cars, which were deemed to “consume less fuel, occupy less space and cost less” (Chang, 1996). As such, this assumed lower environmental burden is in line with views often expressed in Western Europe, where smaller cars are more prevalent than in the United States. This argument holds that vehicle size, weight, engine size, and power (performance) are closely related to its material use, fuel consumption, and therefore, environmental impact and greenhouse gas emissions. Or, as a 5-year study by the MIT Laboratory for Energy and the Environment suggested, if large cars could be downsized to mid-size, and mid-size to small, 9% to 12% weight reduction could be achieved (Bandivadekar et al., 2008).

The authors selected 1996-2010 as time frame in view of the key characteristics of the policy context. This period includes two key moments for the topic studied. In 1996, the central government for the first time called for the development of small cars (or small-displacement cars as they are called in

the Chinese context, see below), while in 2006, restrictions for these cars were finally removed in major cities, including Beijing and Shanghai. This period also covers a major expansion of the Chinese car market from only three major sedan-making JVs in 1996, as well as the announcement and implementation of a number of emission and fuel-economy standards. The period thus enables conclusions about the dynamics of central-local interactions regarding automotive industry development, which have had a lasting impact on average car size and weight of vehicle fleet, energy consumption, and the environment. Given ongoing decentralization, these insights allow for a certain degree of generalization in this way beyond the specific case.

As to data sources, it should be noted that the investigation of business-government relations in China is even more difficult than in Western settings, given the different (much more limited) public disclosure requirements and the high sensitivity of the topic (Child et al., 2012; Tian et al., 2009). This study therefore uses several secondary sources, most of which are in Chinese, collected and analyzed by the second author of this article. The information regarding the evolution of small-car policies in China was collected through three major sources in Chinese: the China Automotive Industry Yearbooks, the China's Auto Market Almanac, and Chinese national news media for the period 1996-2010. These sources will be referenced in the text and tables in this article where appropriate.

The first two sources were chosen as they were issued by the state research institute China Automotive Technology and Research Center (CATARC) and the China Federation of Logistics and Purchasing (CFLP).¹ These two annual publications represent the most authoritative automotive industry information and data source. They provide detailed information about administrative and regulatory measures at both the central and local levels that influence the evolution of the automobile industry and automobile market during the period of analysis. In particular, both sources summarize the restrictions imposed by local governments on car (engine) sizes. Furthermore, ownership is an important channel through which governments can influence, and are influenced by, automobile firms. Ownership data of the top 10 passenger vehicle manufacturers by production volume were obtained from the China Automotive Industry Yearbooks, information that was checked with company websites.

For the third source, a search was carried out in online archives of the Chinese national media, including the official news sources People's Daily and Xinhua News Agency. People's Daily and Xinhua News Agency were chosen because they are the most influential and set the agenda for Chinese media outlets (Tolan, 2007). Keyword searches were performed using the term *small displacement* (*xiaopailiang*) for these news archives for the full

period, resulting in a total of 526 articles. As local governments and domestic automobile producers are key actors in the co-evolution research, keyword searches were also done in local Chinese newspapers for the period 2001–2010 (online archives are not available before 2001), namely, *Beijing Evening News*, *Xinmin Evening News*, *Today Evening Post*, and *Chongqing Morning Post* from four municipalities—Beijing, Shanghai, Tianjin, and Chongqing, respectively. These four municipalities have their own automotive industries covering foreign-invested JVs and domestic companies, producing foreign and local brands passenger vehicles. Information from local Chinese newspapers provides a useful lens to grasp views of domestic companies and local governments. A total of 1,286 news articles were extracted from these four local newspapers. Finally, other literature and secondary sources were used to obtain a general picture of the institutional backgrounds, and considerations of various actors involved.

News articles from the two national and four local Chinese newspapers were stored in qualitative data analysis software Dedoose, which can handle large data sets and enables users to code the excerpts. Not all articles were found to be useful; in the end, around 1,100 excerpts were coded and used for the analysis. As a first step, the second author looked at all excerpts related to administrative and fiscal policies at the central level relevant to the development of the automobile industry in general and small cars in particular. Sustainability and economic concerns addressed by these central policies were highlighted. The China Automotive Industry Yearbooks were used to validate the information from the news articles and to obtain further policy details. The second step covered excerpts on administrative measures and policies regarding small cars by local governments, particularly considering motives as well as social and environmental concerns of local governments for launching these initiatives. The China Automotive Industry Yearbooks and the China's Auto Market Almanac were used to validate the information from the news articles, as both publications provide a detailed account on all local restrictions on small-displacement cars imposed by different regions and cities. Finally, excerpts related to industry and market developments were analyzed to understand the dynamics between shifting consumer demand and producers' strategies under the influence of changing policies at both central and local levels. Here as well, annual production and sales data from the China Automotive Industry Yearbooks and the China's Auto Market Almanac were used to help provide a good picture. In each step, the evidence was confronted with the initial framework (Figure 1), which in the end evolved into Figure 2 that also guides the "Findings" section that follows next.

Figure 2. Co-Evolution in Relation to Small Cars and Sustainability in China.

Findings

Below, the authors present and discuss the key findings of the study, which are summarized in Figure 2. As a specification of the more generic framework in Figure 1, Figure 2 shows the details of the interactions between the evolving extra-institutional environment (which includes technical, international socio-political, and economic developments; Box 1), the evolving institutional environment (Box 2), and companies in their industry context (Box 3). Before moving to a more detailed analysis of co-evolutionary dynamics in relation to small cars and sustainability, considering the interactions between central and local governments and with business, the next section first discusses the more generic evolution of the automobile industry in terms of policies and actors, as included in Figure 2 as well.

The Evolution of the Automobile Industry in Its (Extra-) Institutional Environment

A strong automobile industry in China has been explicitly promoted by the government. The key actor at the highest level in the central policy-making

processes for the automobile sector in China is the National Development and Reform Commission (NDRC), a high-ranking macro-economic agency under the State Council that can issue binding orders to all other ministries (NDRC, n.d.; Tsang & Kolk, 2010). The establishment of Sino-foreign automobile JVs, for example, requires approval from the NDRC. Moreover, it is involved in setting policies for vehicle recalls and for the development of so-called “new-energy” (low-emission) vehicles. In addition to formal policy-making and regulation by NDRC and other related ministries, the state also exerts less directly visible control over state-owned automobile companies via the influence of the Chinese Communist Party on the appointment of (top) managers of these companies (Yeo, 2007).

While initially fully under central-state control, the realization grew that modern automotive technologies, not available in China, would be needed to really further the industry. At the same time, foreign automakers eyed the huge potential of the Chinese car market and also wanted to gain access to the low-cost supply chain opportunities. In 1987, China officially adopted an import-substitution policy. Foreign companies were allowed to enter the Chinese market, but only if they formed JVs with a limited number of state-owned domestic companies (Holweg, Luo, & Oliver, 2005; Z. Li, 2009), as the Chinese government hoped to create national champions with high economies of scale by restricting entry to the market (Thun, 2004, 2006). High tariffs were imposed on imported vehicles, thus stimulating domestic production.

All major foreign companies have entered China since, with a main focus on the production of passenger cars, particularly sedans. With better technology and design, JVs quickly dominated the market and earned good profits by selling their models at a price higher than in the rest of the world. Passenger cars were still unaffordable for most households, and private consumers thus represented a very small portion of the market (Z. Li, 2009). In 1996, respectively, 60% and 20% of the total production was sold to institutional buyers and taxi fleet (Thun, 2004). Competition was very low as there were only a handful of producers: Shanghai Volkswagen, Guangzhou Peugeot, FAW-Volkswagen, Dongfeng Peugeot, Changan, and Tianjin Motors. Changan and Tianjin are two early Chinese producers that have been producing small cars with technology licensed from Japanese producers Suzuki and Daihatsu, respectively. Models were also limited as introducing new models needed NDRC's approval. Until 2000, the sedan market was dominated by foreign models Santana, Jetta, Audi (all from Volkswagen), and domestic models Xiali (from Tianjing Motor) and Alto (from Changan Alto).

At the turn of the century, the government allowed more domestic players in the passenger car market. A handful of independent domestic companies became active, with initially fairly small production numbers in passenger cars. These domestic companies' entry strategy was to produce affordable small cars

for general households and price them at a fraction of the JV's products (Z. Li, 2009). Undeniably, they put pressure on JVs, forcing Shanghai GM to introduce Sail (with engines of 1.6 L) at the end of 2001 and Shanghai Volkswagen to introduce Polo (with engines of 1.4 L) in early 2002. Before that, no JVs were interested in producing subcompact models in China (Thun, 2004). The share of domestic brands has increased steadily over the years. By 2011, one third of Chinese passenger vehicles were local brands, predominantly produced by independent domestic companies (Chrysler, 2011; Waldmeir, 2011). State-owned companies have also started to launch a few local brands but are still overwhelmingly engaged in JV global-brand activities (Chrysler, 2011).

The growth of domestic companies has often been stimulated by local governments, which wanted this pillar industry to become strong in their own territory as well to boost economic growth (Francois & Spinanger, 2004; Lee, 2007; S. H. Park, Li, & Tse, 2006). An example includes the emergence of Chery, which was supported by the Anhui government (Chu, 2011). The privately owned Geely developed from a motorcycle producer into a major car manufacturer, overcoming many blockades by the central government. Local governments have a repertoire of policies at their disposal. They can provide land, loans from local state banks, or capital input to support local automobile firms, or direct local taxi companies to purchase specific brands from local automakers. Through various administrative measures, they can boost or restrict the registration of a certain vehicle type. Protectionist measures by local governments led to the establishment of own automobile companies, with limits being erected for cars imported from other regions (S. H. Park et al., 2006). Provincial governments can also use their own fiscal resources to support local firms or the adoption of a particular vehicle type. The involvement of multiple government agencies at different levels has often led to coordination problems and tensions that affected the development and consolidation of the industry (Huang, 2002; Thun, 2004, 2006).

By 2011, there were more than 50 automobile companies that produced more than 90 brands. The 10 largest manufacturers accounted for approximately 60% of the sales volume in both 2009 and 2010; 7 of them are JVs. The overview in Table 1 does not only show volumes and the large growth, but also the dominant position of the Shanghai Automotive Industry Corporation, owned by the Shanghai municipal government. This company is the Chinese JV partner in the largest three manufacturers, and it is the largest automobile group in the Chinese market in terms of sales volume overall. The independent domestic companies (two in the top ten) and the (indirectly) central-state owned Chongqing-based Changan have created a clear position in the market by focusing on small and relatively inexpensive cars. For example, in March 2007, Chery once surpassed Shanghai General Motors at the top of China's car sales league (with, respectively, 44,568 and 40,750 units; KPMG, 2007).

Table 1. Top 10 Passenger Vehicle Manufacturers by Sales Volumes in Units in 2009 and 2010.

Company	2009	2010	Type	Foreign partner	Local partner
1. SAIC GM Wuling	978,600	1,135,600	JV	GM China (34%)	SAIC (50.1%), Liuzhou Wuling (15.9%)
2. Shanghai Volkswagen	728,200	1,012,100	JV	Volkswagen AG (40%), Volkswagen China (10%)	SAIC (50%)
3. Shanghai GM	708,400	1,001,400	JV	General Motors (49%)	SAIC (51%)
4. FAW- Volkswagen	669,200	870,000	JV	Volkswagen AG (20%), Volkswagen China (10%), Audi AG (10%)	FAW (60%)
5. Changan	518,500	710,000	Majority ownership by China South Industries Group Corporation (owned by the central government)		
6. Beijing Hyundai	570,300	703,000	JV	Hyundai (50%)	Beijing Automotive (50%)
7. Chery	500,300	674,800	Independent domestic company owned by Anhui Provincial Government		
8. Dongfeng Honda	519,000	661,000	JV	Honda Motor (50%)	Dongfeng Motor (50%)
9. BYD	448,400	519,800	Independent private domestic company		
10. FAW Toyota Motor	417,300	505,900	JV	Toyota (32%)	FAW (38%), Sichuan FAW (5%)
				Tianjin FAW Toyota Motor Co. Ltd. (25%)	

Source: China Automotive Technology and Research Center (2010), for 2009 figures; <http://www.caam.org.cn/zhengche/20110112/1405051220.html> for 2010 figures; other information from company websites [in Chinese].

Note: Passenger vehicles figures in this table encompass sedans, multi-purpose vehicles (MPVs), sport utility vehicles (SUVs), and minivans. BYD = Build Your Dream; FAW = First Automotive Works; SAIC = Shanghai Automotive Industry Corporation; JV = joint venture.

Co-Evolutionary Dynamics in Relation to Small Cars and Sustainability

As a prelude to the discussion of the dynamics, it is worthwhile to pay attention to the concept of small (or small-displacement) car in China in the context of the evolution of domestic policies over the years. China's vehicle classification is based on engine displacement. Engine displacement is used

to determine excise tax and vehicle purchase tax rates, and for official statistical data collection and sometimes traffic management. As stated above, smaller vehicles are generally lighter and therefore equipped with engines with small displacement, as the power needed to overcome inertia forces and accelerate the car is lower. Although there were frequent discussions both within governments and in the media about the promotion of small-displacement cars, there has been no formal or legal definition of a “small-displacement car.” For the purpose of this article, the authors define cars with engine displacement not exceeding 1.3 L as “small(-displacement) cars.”

This parameter originates from the 10th five-year plan issued in 2001, in which the NDRC indicated that the emphasis for auto sector development would be on small sedans with engine size not exceeding 1.3 L, priced at around 80,000 RMB (approximately US\$9,500) and with the best fuel-saving technology available in the domestic market (China Automotive Technology and Research Center, 2001). Its choice for the specific number of 1.3 L was largely shaped by the differences in product portfolio between domestic producers and JVs. Before 2001, domestic producers, mainly Tianjin Motors and Changan, specialized in manufacturing minicars (with engine size below 1.0 L) based on technology and design licensed from two Japanese producers specializing in small cars: Daihatsu and Suzuki. Due to their relatively cheap prices and good fuel economy, they experienced significant growth just before the turn of the century whereas JVs experienced stagnation. Although these domestic automakers later introduced models equipped with larger engines (more than 1.0 L), most of them focused on producing small cars with an engine size below 1.3 L.

By contrast, JVs produced larger cars which came, logically, with bigger engines as well. This larger sizing was particularly true before 2000 when engine technologies including electronic fuel injection and turbo charge (which could boost power output without increasing engine displacement) were not yet introduced in China. At the time, the best-selling JV sedans were Santana (produced by Shanghai VW), Jetta (by FAW-VW), and Fukang (by Dongfeng Peugeot). The smallest engine size among these JV models was 1.4 L (Fukang). No JVs went into the segment below 1.3 L in view of their low profitability (Xu, 2006). Thus, products with engines smaller than 1.3 L were viewed by the government as an “indigenous” segment that should be promoted, aiming to achieve two objectives: stimulate household consumption due to their relatively low prices and boost domestic brands.

These considerations clearly played a role in the small-car policies adopted by the central government, which started with a notification issued in 1996. As Chang (1996) put it in the *China Daily* at the time,

In a document describing measures proposed by the State Planning Commission, the State Council demands that regional authorities revoke “immediately” regulations that restrict the purchase and use of economy cars. The document has just reached related government departments and State companies. Regional authorities are not allowed to adopt policies that restrict small vehicles or vehicles made in other provinces. Nor may they ban people from possessing economy cars or set quotas on the number of drivers’ licences issued in any given period. Any such existing policies should be immediately rescinded. Reports should be submitted to superior organizations explaining how the new document is being implemented. New controlling measures, if any are needed to alleviate heavy traffic, should be examined and approved by the relevant ministries before becoming policies or regulations (p. 2).

State media openly criticized local governments for implementing protectionist measures that inhibited the development of the national auto market, in particular highlighting the discriminative measures against small cars. Or, as it was put in “Small Displacement Cars Hailed” (2005), “The media have launched an almost national campaign to defame local policies to limit the use of small cars, which, they say, runs counter to the national industrial policy and the long-term program for energy conservation.” As small cars consume less fuel per kilometer, they were seen to be in line with China’s ambition to develop into a resource-saving (*jiyuexing*) and well-off (*xiaokang*) society. Local governments’ “unfair” control on the purchase and use of small-displacement cars was viewed to be against this development target. Energy security and growing dependence on imported oil were often highlighted as the key rationale for small cars. As an official at the policy research office of the party’s central committee put it (“Beijing’s Broad Chang’an Boulevard,” 2004),

The focus of China’s automobile development should be small displacement and low petrol consumption. Last year China imported around 100 million tons of petroleum. Cars with big displacement could only bring more burdens to China’s energy supply.

The rationale of the notification issued in 1996 was to further household adoption of automobiles, which had been slow due to high prices; small cars that came with a lower price tag could encourage consumption and thus speed up desired automobile industry development. Economic considerations were seen as prevailing over environmental concerns. Nevertheless, the central government also acknowledged the environmental benefits of small cars in comparison with their larger counterparts, in view of fuel-economy and concomitant emission-reduction aspects. Table 2 presents a compilation, for the

Table 2. Overview of Main Policies Relevant to (Small) Cars.

Year	Developments for automobile sector in China
1996	Notification by the Office of the State Council that limited local authorities in imposing restrictions on minicars.
2000	The European system for controlling automobile emissions is adopted. Leaded fuels are banned and catalytic converters required.
2001	The 10th five-year plan put the emphasis of auto sector development on small sedans with engine size not exceeding 1.3 L, priced at around 80,000 RMB (approximately US\$9,500) and with the best fuel-saving technology available in domestic market. Restrictions on minicars notable in increasing number of Chinese cities.
2003	"Notification on rectification of the automobile market's development" issued by nine ministries including the Ministry of Commerce, the Ministry of Public Security, and NDRC.
2004	Promulgation of an Automotive Industrial Policy, which encourages the development of energy-efficient and environment-friendly small-displacement vehicles. China's Medium- and Long-Term Energy Conservation Plan, which encourages small-car development, is adopted. New fuel-economy standards for cars are announced. Emission controls upgraded to Euro II Standard.
2005	Implementation of Phase I of fuel-economy standards.
2006	New excise duties for vehicles are introduced (with higher tariffs for larger cars). Notification on encouraging the development of energy-saving and environment-friendly small-displacement automobiles is issued. Removal of restrictions on minicars by local authorities, including Beijing and Shanghai
2007	State III (equivalent to Euro III) Emission Standards came into effect on July 1.
2008	Implementation of Phase II of fuel-economy standards. Revision of excise duties for vehicles (decreases for minicars and increases for gas guzzlers).
2009	Vehicle purchase tax is halved (from 10% to 5%) for engine displacement below 1.6 L.
2010	Vehicle purchase tax for engine displacement below 1.6 L increased from 5% to 7.5%.
2010	State IV (equivalent to Euro IV) Emission Standards came into effect.

Note. NDRC = National Development and Reform Commission.

period 1996-2010, of various industrial policies that also encompass sustainability concerns, of which quite some revolved around cars.

Over the years, the central government repeatedly took steps to forbid restrictive measures on small cars by local governments. Another notification to this end was issued in 2003, by nine ministries, including those of commerce and of public security, and the NDRC. It abolished local rules and laws that gave preference to locally produced automobiles over those from other provinces (Zimmerman, 2010). The NDRC's 2004 automobile industry development policy promoted the use of small and fuel-efficient cars. That policy was echoed in China's medium- and long-term energy conservation plan, released that same year, which also encouraged the development of small cars (Tsang & Kolk, 2010; W. Wang, 2006). From the mid-2000s onwards, a series of state policies came together that promoted small cars through various ways, taking effect in the course of 2005 and 2006 in particular. Below we explore the dynamics that unfolded in relation to local governments and automobile companies (i.e., especially the co-evolution between Boxes 2 and 3), considering the period until 2006 and the subsequent years, respectively.

The period until 2006. China's decentralized institutional structure allows local governments to implement own administrative measures to suit local conditions. Restrictive policies on small cars were often taken by cities (see Table 3), with local authorities claiming that safety was an important reason, as well as the need to avoid traffic congestion. However, doubts were raised whether protection of local automobile producers did not play a much larger role, as may have been the desire to raise cities' image by welcoming only large and high-end cars (Qin, 2006). Restrictions on minicars could include higher registration fees or a rejection of licensing requests or other limitations on use (see Table 3). Even if a minicar got a license, it might be forbidden to run in designated city areas, usually downtown or on arterial roads (J. Wang & He, 2005). For example, as early as 1994, Beijing banned cars with engines below 1 L to enter Changan street and, in 2000, Shanghai singled out the same type of cars, prohibiting them to go through Yanan East Tunnel (Zhao, 2006). To build an "international" image, some cities forbade the use of small sedans as taxis. In a few extreme cases, even the registration of vehicles below 100,000 RMB (US\$12,000) was not allowed (China Federation of Logistics and Purchasing, 2003).

On the basis of the overview in Table 3, it can be concluded that the regions of Jiangxi, Guangxi, and the municipalities of Chongqing and Tianjin—the location of top minicar producers Changhe, Wuling, Changan, and Tianjin Motor, respectively—did not impose any restrictions on minicars

Table 3. Restrictions on Small Cars in China by 2005.

Province/ municipality/ autonomous region	City/county	Policy	Major passenger vehicles producers ^a	
			Joint ventures	Domestic companies
Tianjin	—	—	Tianjin FAW Toyota	Tianjin FAW Xialj ^{b,c}
Chongqing	—	—	Changan Suzuki, ^c Changan Ford Mazda	Dongfeng Yuan, ^b Changan, ^{b,c} Lifan
Jiangxi	—	—	—	Changhe Auto ^b —A subsidiary of Changan (Jingdezhen)
Hebei	—	—	—	Great Wall Motors (Baoding), Red Star Auto ^c —A subsidiary of ShuangHuan (Xingtai)
Fujian	—	—	—	Soueast Motor
Guangxi	—	—	Shanghai GM Wuling ^{b,c} (Liuzhou)	—
Hainan	—	—	—	Haima
Guizhou	—	—	—	Guizhou Youngman Yueque ^c
Beijing	—	Seven-seater bread van forbidden in second ring road and third ring roads. In certain road sections of the city, minisedans, jeeps, light coaches are forbidden for certain period each day.	Beijing Hyundai, Beijing Benz-Daimler Chrysler	Beijing Automobile Works
Shanghai	—	Vehicles below 2.0 L forbidden on elevated highways; From May 15, 2000, vehicles below 1.0 L forbidden to pass through East Yan An Road Tunnel.	Shanghai VW, Shanghai GM	SALC, Shanghai Maple—A subsidiary of Geely

(continued)

Table 3. (continued)

Province/ municipality/ autonomous region	City/county	Policy	Major passenger vehicles producers ^a	
			Joint ventures	Domestic companies
Guangdong Province	Guangzhou	From 2000, vehicles below 1.0 L forbidden from obtaining license plates. From May 1, 2000, vehicles below 1.0 L forbidden to enter certain road sections.	Guangzhou Honda (Guangzhou), Guangzhou Toyota (Guangzhou), Dongfeng Nissan (Guangzhou)	BYD ^c (Shenzhen), Guangzhou Automobile
	Zhuhai	Vehicles below 1.0 L forbidden from obtaining license plates. Vans or trucks below 1.0 L forbidden to enter urban area, except when a fee is paid and for each entry, vehicles must leave urban areas within 3 days.		
Shandong Province	Jinan	Newly registered taxis must be 3-box sedans and above 1.6 L.	Shanghai GM Wuling ^{b,c} (Qingdao), Shanghai GM Dong Yue Motors (Yantai), Youngman Lotus (Jinan, Taian)	Geely ^c (Jinan)
Jilin	Changchun	A “capacity expansion fee” of 3,000 RMB (approximately US\$350) levied upon each purchase of minitrucks.	FAW-VW (Changchun)	FAW Jilin ^b (Jilin City), FAW Car (Changchun)
Sichuan Province	Chengdu	Starting from 2000, taxis below 1.0 L were to be phased out within 2 to 3 years. New taxis must be above 1.0 L.	FAW-VW (Chengdu), Sichuan FAW Toyota (Chengdu)	—
	Neijiang, Nanchong, Mianyang	Minicars forbidden for taxi purposes.		

(continued)

Table 3. (continued)

Province/ municipality/ autonomous region	City/county	Policy	Major passenger vehicles producers ^a		
			Joint ventures	Domestic companies	
Heilongjiang	Daqing	From June 1, 2000, taxis and private vehicles below 1.6 L forbidden to enter arterial roads.	—	Harbin Hafei ^b —A subsidiary of FAW (Harbin)	
	Qiqihar, Mudanjiang	Minicars forbidden for taxi purposes.			
Hubei	Wuhan, Jingzhou	Taxi's displacement must not be smaller than 1.3 L.	Dongfeng Nissan (Xiangyang), Dongfeng Peugeot Citroen (Xiangyang, Wuhan), Dongfeng Honda (Wuhan)	Dongfeng Passenger Vehicle (Wuhan)	
		From January 2002, vehicles with displacement equal to 1.3 L or below forbidden on Yangzi River Bridge, Jianhan Bridge, and several other arterial roads; in certain road sections of the city, minicars forbidden for certain period each day.			
Hunan	Shiyan	Minivans forbidden for taxi purposes.			
	Huanggang	Minicars forbidden from obtaining license plates.			
Hunan	Changsha	Vehicles below 1.3 L forbidden for taxi purposes. Minivans forbidden on arterial roads in urban area.	Zhengzhou-Nissan (Zhengzhou)	Dongfeng Auto (Zhengzhou), GAC Chengfeng Motor (Changsha, Yongzhou, Hengyang), Geely ^c (Xiantan), Zhengzhou Haima ^c	
	Yueyang Yiyang	Taxi must be above 1.3 L. Minicar buyers need to pay City Construction Fee (2,000-4,000 RMB, approximately US\$250-500).			

(continued)

Table 3. (continued)

Province/ municipality/ autonomous region	City/county	Major passenger vehicles producers ^a		
		Policy	Joint ventures	Domestic companies
Zhejiang		License plates are only issued to taxis with engines above 1.5 L.	Youngman Lotus (Jinhua, Quzhou)	Geely ^c (Ningbo, Linhai, Taizhou)
	Hangzhou	From June 2003, existing taxis operating in urban area must be replaced with vehicles above or equal to 2.0 L upon renewal.		
	Ningbo, Wenzhou	Minitrucks forbidden from obtaining license plates.		
	Cixi	Minicars forbidden from obtaining license plates.		
	Huzhou, Deqing county, Anji county, Yiwu county, Taizhou	Minivans forbidden from obtaining license plates.		
Anhui		Various restriction policies for minitrucks at different districts.	—	Changhe Auto ^b —A subsidiary of Changan (Hefei), Chery ^c (Wuhu), JAC Motor (Hefei)
	Wuhu	Minivans forbidden from obtaining license plates.		
	Tongling, Huainan, Huaibei, Chuzhou, Bengbu, Fuyang, Huangshan	Minivans forbidden for taxi purposes.		

(continued)

Table 3. (continued)

Province/ municipality/ autonomous region	City/county	Policy	Major passenger vehicles producers ^a	
			Joint ventures	Domestic companies
Jiangsu	Nanjing	Minivans and minitrucks forbidden from obtaining license plates. Minivans and minitrucks not allowed in urban area at peak hours. New taxis must be 1.4 L or above.	Dongfeng Yueda Kia (Yancheng), Youngman Lotus (Liangyun Gang)	Changan ^{b,c} (Nanjing), Nanjing Auto—A subsidiary of SAIC (Nanjing)
	Zhenjiang	Minicars must obtain temporary permission for entering urban areas.		
Liaoning	Anshan, Jinzhou, Yingkou	Minicars forbidden from obtaining license plates.	Brilliance BMW (Shenyang)	Brilliance Jinbei (Shenyang)
	Shenyang	Minicars forbidden to enter urban areas during day time.		
Xinjiang	Dalian	Minicars below 1.0 L forbidden on arterial roads.		
	Urumqi	New minicars forbidden from obtaining license plates. Existing minicar prohibited from certain road sections.	—	Dongfeng Xinjiang (Urumqi)
Inner Mongolia Shanxi Province	Baotou	A “bridge fee” of 1,000 RMB (US\$120) levied on each purchase of minicars.	—	—
	Changzhi	From January 1, 2000, minivans forbidden for taxi purposes.	—	—
	Datong	Minitrucks forbidden in urban areas within the third ring road.		
Taiyuan Linfen		A “vehicle increase fee” of 2,000 RMB (US\$250) levied on every purchase of minicars.		

(continued)

Table 3. (continued)

Province/ municipality/ autonomous region	City/county	Policy	Major passenger vehicles producers ^a	
			Joint ventures	Domestic companies
Shaanxi	Baoji	Minicars forbidden for taxi purposes after 1998.	—	—
Gansu, Lingxia, Qinghai Provinces	Lanzhou Xiling, Yinchuan, Tianshui, Wuwei Bazhou, Yili, Hami	Registration of minicars as taxis suspended. Restrictions on minivans used as taxis. Minicars forbidden from obtaining license plates.	—	—

Source. Translated and adapted from China Federation of Logistics and Purchasing (2005, pp. 175-176).

Note. Minicars include all vehicles below 1.0 L, that is, minisedans, minivans, and minitrucks. FAW = First Automotive Works; SAIC = Shanghai Automotive Industry Corporation; BYD = Build Your Dream.

^aThe cities where the manufacturing sites of the producer are located are specified in brackets.

^bMinivan producers.

^cMinisedan producers.

by 2005. Other provinces and municipalities put limits on using and licensing minicars. Common to these provinces and municipalities are their governments' interests in and ownership of the automobile manufacturing companies within their territories. Prominent examples are Beijing Automotive Works (Beijing) and its JVs with Hyundai and Daimler, SAIC (Shanghai) and its JVs with Volkswagen and General Motors, Guangzhou Automobile (Guangzhou) and its JVs with Honda and Toyota, and the centrally state-owned Dongfeng Motors (Wuhan, Hubei province) and its JVs with Honda, Nissan, and PSA Citroen. The relations between local governments and the automotive sector have distorted central government objectives to promote small cars.

The general pattern is that local governments are more likely to introduce small-car restrictions if these help to protect their local automobile companies from outside competition and/or ensure that their interests are not harmed. Instead of helping to promote a common national automobile market, local governments often imposed restriction on certain small cars, thus acting against the intention of the state. Local protectionism sometimes resulted in "trade wars" that appeared to reduce the competitiveness of Chinese companies more generally. For example, in 2000, the Shanghai government levied a license fee of 80,000 RMB (approximately US\$9,500) for Fukang sedans produced by Dongfeng Peugeot in Wuhan, whereas the license fee for Shanghai sedans was only 20,000 RMB (US\$2,400). In response, Hubei Province ordered all institutes and departments receiving state funding to buy the local Fukang sedans, or to make a 70,000 RMB (US\$8,500) contribution to the "Enterprise poverty relief fund" for buying non-Fukang sedans (J. Park, 2006).

When small-car restrictions became widespread, minicar leaders Tianjin Motor and Changan suffered the most, as consumers turned away. In 2001, Xiali (Tianjin Motor) and Alto (Changan) recorded sales decreases of 38% and 10% (China Federation of Logistics and Purchasing, 2002). This decline was part of an overall shrinkage of the segment in these years, as shown in Table 4. In response, domestic producers started to offer variants of their minicar models equipped with slightly bigger engines, such as 1.1 L and 1.3 L, to eschew local restrictions on minicars. Concurrently, some small-car producers also appealed to the central government; most visible was Yin Jiaxu, the chairman of Changan, who consistently called for removal of small-car restrictions (see also below). By contrast, small-car restrictions did not affect JVs. However, faced with competition from emerging domestic small-car producers (such as Chery and Geely), the two key foreign automakers started to launch models with relatively smaller engines (yet still more than 1.3 L) and lower price tags. Sail and Polo were the first subcompact

Table 4. Market Share of Sedans Produced in China by Engine Displacement (2000-2010).

Engine displacement in liters	2000	2001	2002	2003	2004
L > 4.0	—	0.0%	0.1%	0.0%	0.0%
2.5 < L ≤ 4.0	5.8%	6.0%	4.9%	3.9%	2.9%
1.6 < L ≤ 2.5	46.8%	47.6%	41.0%	41.9%	40.3%
1.0 < L ≤ 1.6	26.6%	31.9%	40.6%	44.1%	48.3%
L ≤ 1.0	20.85%	14.49%	13.41%	10.12%	8.44%
Total sales	610,792	716,248	1,079,875	1,984,217	2,322,458
Market growth		17.3%	50.8%	83.7%	17.0%

Engine displacement in liters	2005	2006	2007	2008	2009	2010
L > 4.0	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%
3.0 < L ≤ 4.0	0.2%	0.1%	0.3%	0.2%	0.0%	0.0%
2.5 < L ≤ 3.0	2.7%	1.2%	1.1%	0.6%	0.6%	1.0%
2.0 < L ≤ 2.5	8.3%	10.2%	10.6%	10.4%	7.5%	6.7%
1.6 < L ≤ 2.0	27.8%	26.2%	28.8%	27.7%	22.5%	20.5%
1.0 < L ≤ 1.6	45.7%	51.6%	53.9%	56.0%	63.6%	64.4%
L ≤ 1.0	15.28%	10.68%	5.32%	5.04%	5.71%	7.34%
Total sales	2,782,588	3,830,270	4,726,593	5,048,522	7,476,021	9,573,862
Market growth	19.8%	37.7%	23.4%	6.8%	48.1%	28.1%

Source. Compiled and calculated from China Automotive Technology and Research Center (2001-2011).

Note. The vehicle classification by engine displacement was broken down into finer categories after 2004.

models introduced by GM and Volkswagen in 2001 and 2002, respectively. This introduction had implications for the further developments on the market in the context of evolving government policies, especially from 2006 onwards.

Developments from 2006 onwards. In early 2006, the NDRC and five other state ministries jointly issued the “Notification on encouraging the development of energy-saving and environmentally-friendly small-displacement automobiles” (Liao & Wang, 2006). It requested local governments to remove all restrictive and discriminative policies on small cars (including minicars) before the end of March 2006. The notification as such exemplified the state’s intention to hit two birds with one stone: first, promoting small cars fit the state’s objectives to save resources and improve air quality, for which they took also other measures (see below); second, helping the development of domestic automobile brands and raising their international competitiveness (Liu & Nan, 2006).

The 2006 notification was a turnaround that some had long asked for, as already indicated above. The Changan chairman had requested changes for seven consecutive years; his last effort dated August 2005, when he sent a letter to relevant state ministries, asking for the immediate removal of all discriminative policies on small cars "in view of national energy security" (Nan, 2005). His move attracted huge attention, with almost all national media unanimously supporting the plea. Like Changan, other small-car producers such as Geely, were positive about the expected policy changes related to small cars in 2006 (C. Wang, 2006). However, Geely also noted that, with more competition and lower profit margins for minicars in particular, innovation would be the only way to increase the quality-to-value ratio and market shares, as well as reducing costs and improving economies of scale (Cheng, 2006).

The 2006 notification differed from previous efforts that promoted small cars in terms of implementation. Local governments as such complied with the notification, but frequently also imposed more stringent emissions and safety standards, or took other, more indirect measures to hinder small cars. For example, Shanghai could still control the total number of vehicles through licensing as it has operated a bidding system for auto license plates since 1994. Therefore, the number of small vehicles was not expected to increase sharply in Shanghai (W. Y. Wang, 2006). Beijing lifted traffic restrictions but tightened the environmental standards for minicars. Local governments could also resort to more implicit green and/or technological protectionism. By enforcing more stringent emission controls and/or specifying certain technical parameters, local governments could effectively create barriers to entry and reduce competition, giving preference to local producers that have the capabilities to meet the environmental and technical requirements that were imposed. These measures increased in importance when the central government became stricter in prohibiting explicit small-car restrictions in 2006 in particular.

To address rising fuel consumption by automobiles, the central government adopted increasingly stricter fuel-economy standards, which aimed to reduce step-wise the average fuel economy of new vehicles by 15% in 2010 (as compared with 2003). China now has the third most stringent fuel-economy standards in the world, after Japan and Europe. Introducing more stringent fuel-economy standards was apparently seen as a good way to push auto manufacturers to bring more efficient cars to the market as well as alleviate the dilemma between growing the auto industry and China's concerns about oil security, with co-benefits of carbon dioxide (CO₂) emission reductions. To deal with worsening air quality in cities, the central government also tightened emission standards for vehicles to reduce other pollutants in addition to CO₂.

Both fuel-economy and emission standards were intended to incentivize domestic manufacturers to innovate as well as force foreign-invested JVs to bring more modern and fuel-efficient technology to China. This incentivization seemed all the more necessary because Gallagher (2006) showed that international auto companies did not automatically transfer their existing clean and efficient technologies to products they made for the Chinese market if regulation was not in place. Furthermore, without continued effort in strengthening fuel-economy standards, advanced vehicle technologies are commonly used for weight and performance (such as power and acceleration) rather than for fuel-economy improvements. The new fuel-economy standards were expected to disrupt automakers' plans to introduce larger and more powerful vehicles in the Chinese market.

In addition to environmental standards, the central government has also imposed fiscal restrictions on cars, including excise duties levied on automobile manufacturers and vehicle purchases taxes directed at buyers. They have also revealed a preference for small cars that consume less fuel. Table 5 summarizes the tariffs over the years for both types of taxes. Excise duties were fine-tuned from April 2006 onwards to favor smaller cars and discourage gas guzzlers. In particular, the excise tax reduction from 5% to 3% gave automakers more room to lower sales price for cars with engines between 1.0 L and 1.6 L.

Adjustments to vehicle purchase taxes started in 2009, reflecting the government's overall shift to give preference to smaller cars (see Table 5). However, it also fell in line with attempts to encourage domestic consumption (in this case of vehicles) after the slowdown resulting from the financial crisis. Such a buying stimulus drove another program as well, called "automobiles to rural areas," launched in March 2009. Both resulted in a large overall growth in units sold, with a car market that appeared to become overheated as sales rose by 50% in 1 year (CATARC, 2010; Y. Zhang, 2009). In 2010, the government increased the vehicle purchase tax for smaller cars first, to subsequently abolish the reduction at the end of that year altogether, moving back to a flat rate of 10%. This example illustrates the contradictions at the level of the central government, where ongoing growth of the economy and its industries has been pursued alongside policies to increase the share of small cars in the country's fleet.

Table 4 underlines industry observations mentioned above, by Geely, that the minicar market (below 1.0 L) faces difficulties. This development can be illustrated by the following quote, that also contains concrete (profit) numbers ("Analysis: Why Sales of Small Cars Decline," 2007):

Changan Motors realized 10.351 billion renminbi yuan [equivalent to approximately US \$1.36 billion] in sales revenue under the rocketing growth of

Table 5. Overview of Fiscal Policies Relevant to (Small) Cars.

Vehicle type by engine displacement in liters	Until April, 2006		1 April 2006 – September 2008		October 2008 – December 2009		2010	
	Excise duty	Vehicle purchase tax	Excise duty	Vehicle purchase tax	Excise duty	Vehicle purchase tax	Excise duty	Vehicle purchase tax
	≤ 1.0 l	3%	10%	3%	10%	1%	5%	No changes; similar as excise duties in 2009
1.0 < l ≤ 1.6	5%	5%		3%		10%	10%	
1.6 < l ≤ 2.0				5%				
2.0 < l ≤ 2.5				9%				
2.5 < l ≤ 3.0				12%				
3.0 < l ≤ 4.0	8%		15%		25%			
>4.0 l			20%		40%			

Source: Excise duties adapted from Zhang (2010); vehicle purchase taxes from State Administration of Taxation (2009); Nanjing Government (2010)

production of small cars, and the gross profit rate stood at only 11.78 percent, down a hefty 26.37 percent, which means that profits of 50,000-yuan [US \$6,575] small car is only about 1,000 yuan [US \$130]. Other small car makers such as Chery, Xiali and Geely are facing the same situation. So, automakers have rushed to the high and medium-grade car market for seeking higher rate of profits.

Hence, over the years, smaller domestic companies, with lower economies of scale, have started to focus on “larger” cars and avoid the smallest segment (W. Wang, 2006). This focus has to do with the growing gap between small cars and their bigger counterparts regarding safety, quality, and comfort. Although we have seen a shift of fleet portfolios in Europe and Japan toward smaller car sizes as a result of various industrial policies, rising fuel prices, and changing consumer attitudes, the Chinese market still welcomes larger cars (Sun, 2011). Chinese vehicle fleet fuel consumption is increasing, due to growing vehicle size and weight (Z. Wang, Jin, Wang, & Wei, 2010). Consumer preferences for large, sporty, and luxury vehicles have offset the positive impact of more efficient engine technologies. These developments point at underlying changes in the Chinese car market in terms of competition and consumer preferences that need to be considered as well when evaluating the effects of the co-evolutionary dynamics addressed in this article.

Discussion

The article adopted a co-evolutionary perspective, inspired by Lewin et al. (1999), and focused on macro-evolution with particular attention to the role of institutional, country factors, which seems a valuable addition to the more micro-oriented co-evolution studies and the approaches used in the literature thus far on business-government relations. In the case of China, as in other larger countries, the most relevant country-specific aspects involve the interactions between central and local governments, and between different policy objectives. By highlighting these elements in the context of a specific industry and its peculiarities, the analysis aimed to further our understanding of the interrelationships between domestic companies, local governments, JVs, and the central government. The small-car case was instrumental in bringing out the interactions as well as the trade-offs between economic and sustainability considerations. This analysis is briefly summarized in Figure 2, which the authors developed from the interaction between the initial framework (in Figure 1) and the evolving case phenomenon following an abductive approach (Dubois & Gadde, 2002; cf. Kovács & Spens, 2005).

In China and other emerging countries, car ownership has become the norm for the rapidly growing middle class, with automobile use being seen as a sign of modernization more generally within society. Both central and local governments have viewed the automobile industry as a pillar of and driver for economic growth, resulting in a range of measures for its further development. The adoption of administrative decentralization, automotive import-substitution policies, and the JV mandate for foreign carmakers (see Figure 2, Box 2), coupled with globalization and China's entry into the World Trade Organization (Figure 2, Box 1) contributed to a booming automotive industry and the world's largest automotive market. Like in many other countries, automobiles, initially regarded as a mobility solution, also became a problem of its own, considering congestion, emissions, air pollution, and urban sprawl. To address these issues, the central government's policies have aimed to improve fuel-economy and emission standards and to realize a shift to cars with smaller engines (Figure 2, Box 2a). As shown in our article, this shift has not been without tensions and contradictions, between central and local governments, and with different types of automobile companies and their respective interests related to small cars. Local governments have traditionally tended not to follow central policies to further small cars. After the 2006 notification issued at the central level, many cities removed existing restrictions, but implemented new ones related to stricter standards and limits on the number of license plates allowed, often still ruling out smaller cars. There is a clear linkage to municipal ownership of those domestic automobile companies which, via JVs with foreign firms, focused more on larger cars. Although not all cities put restrictions on small cars, the general pattern is that local governments turned out to be more likely to introduce small-car restrictions if these helped to protect their local automobile companies from outside competition and/or ensure that their interests were not harmed.

These variations reflect divergent views on sustainability and its priority amidst other economic and social objectives (Figure 2, Box 2c). When China became a net oil-importing country, the central government started to pay attention to cars' energy consumption. It has taken steps to further the production and use of small cars, thus serving energy efficiency and sustainability goals. Although local governments are also concerned with sustainability, they tend to focus on air pollution and traffic congestion. Small cars, mainly produced by independent domestic producers and associated with low-tech and poor quality, became easy targets for local governments. Minicars were thus ruled out from major cities even if they met national emission and safety standards. If we compare small-car policies with those to enforce a series of more stringent emission standards, there was much less resistance by local governments to the latter. From the central government's perspective, new

emission standards could force foreign automakers to bring more advanced engine technologies to China, and induce domestic producers' technological improvements. Local governments also saw the imminent need to clean up the air in their regions. Big cities such as Beijing and Shanghai applied for earlier implementation of emission standards in view of large international events (the Beijing Olympics and Shanghai World Expo, respectively). Decentralization as such was thus not an issue for implementing more stringent emission standards because interests of central and local governments did not really conflict. It did, however, strongly undermine the central government's policy to promote the development of small cars as local government took a range of administrative measures that effectively undermined the objective to make small cars a dominant portion of the vehicle fleet.

Implications From a Policy Perspective

Through a co-evolutionary lens, this case study showed the dynamics of multi-level governance on a state-centric approach to CSR. Policy-makers should be aware that environmental and social priorities may be different between levels of government, which could cripple efforts to support CSR. To further the environmental cause discussed in this article, the central government not only needs to come up with a consistent sustainability agenda for the automobile industry, but also ensure that local governments have clear incentives to align all policies with those at the central level. Weaknesses in policy implementation, as uncovered in the case of small cars, are rooted in China's decentralized institutional structure. Although attempts have been made to build a market economy based on the rule of law, the bureaucratic administrative system remains highly influential (Q. Wu, 2007). Local automobile markets are directed by local government leaders, who exert substantial influence on local state-owned companies through the appointment of corporate management (Figure 2, Box 2b). Advancement of (political) careers of local government officials and managers of state firms is linked to their economic achievements, with incentive structures that do not take sustainability performance sufficiently into account. Unless this imbalance is redressed, any state policy to further the sustainability of the automobile industry, for example, via small cars or new-energy (low-emission) vehicles, will encounter resistance or be distorted at local levels.

Although reforming the institutional set-up for better regulatory control and policy implementation is the long-run goal, the inclusion of environmental dimensions of the local automobile sector in the performance evaluation of officials and managers appears to be a necessary step in the shorter term. In recent years, a comparable system has been set up, with some success, by the central

government to reduce the country's energy intensity. Local provincial leaders are evaluated not only on economic development but also on their performance in achieving the energy reduction target assigned to them by the central government (Tsang & Kolk, 2010). Such a system makes local officials accountable for environmental performance and can be instrumental in helping to mainstream a sustainable development agenda at local levels. How this accountability could work effectively in the light of the present central-local relations and beyond emission reduction *per se*, is a topic for further investigation.

As shown in the co-evolutionary framework, business responses to CSR issues depend not only on the institutional environment, but also on evolving consumer attitudes and growing social and environmental awareness that are beyond immediate regulatory and administrative control. In the case of small cars, while the government is the main actor through regulatory guidance of the demand for fuel-efficient and environment-friendly vehicles (Box 2), it also has some influence on the extra-institutional level (Box 1) in relation to social perceptions associated with car ownership and car sizes. Government officials can be role models by taking the lead in using fuel-efficient models. This approach is quite a change compared with the past when government officials drove large luxury sedans, apparently as reflection of their (perceived) social status. This "larger is better" mentality is deeply rooted within Chinese society and its influence on consumer preference for larger, expensive, and foreign luxury brand cars should not be overlooked.

Decentralization means that provincial and local governments are adopting different approaches to CSR and have different issues as priorities (Harper Ho, 2013), posing challenges to companies operating on a nation-wide scale. Although Chinese carmakers had only a few manufacturing bases near their headquarters in the early days, the rapidly expanding automotive market prompts many to develop manufacturing facilities in various parts of the country to optimize logistics and gain market access to other regions and provinces. A firm's specific response to CSR issues at its different localities depends on a number of factors, including its scale and resources, relations with local governments, ownership structure, and experience with CSR issues in its home province/city. For example, many CSR initiatives are first launched within SOEs controlled by the central government (Harper Ho, 2013), making SOE leaders more familiar with CSR issues than others. How different types of companies vary in terms of their reaction and strategies to CSR issues in China deserves further attention.

Implications From a Research Perspective

Environmental and social issues should not only be dealt with by regulatory and fiscal incentives, but also seem to require different attitudes and habits.

More insight into the drivers for consumer behavior, and the (expected) role of leaders in government and business in this regard would be helpful. Follow-up research might also venture to deepen the empirical basis from the secondary data on which this article relied. Although the authors used a range of sources that have not been used for a study of this kind before, additional information from fieldwork including interviews with managers from different types of companies and government officials at different levels would be worthwhile. Although very difficult to collect in view of the sensitivity of the topic and the complex political context, such data could help to review detailed interactions in policy-making between government officials and managers. They might also reveal variations between localities in terms of how small-car restrictions were formulated and which considerations played a role, and mechanisms of influence by domestic car companies and JVs in the process (co-evolution between Boxes 2 and 3 in Figure 2). In this study, we could only present a more aggregated picture, concentrating on macro-evolutionary processes, but firm-internal, micro-evolution insights (evolution within Box 3) would be a good complement to our findings. Despite the limitations, this study made a contribution to a better understanding of the role of government in the business and society debate, especially in countries in which the state has been more prominent, and that could be extended to other industry and country settings.

Although some of the findings are idiosyncratic and specific to the China case, others are not. Aspects that lend themselves to generalization include the trade-offs related to sustainability issues in general and the case of automobiles in particular. Moreover, the complex interactions between actors at multiple levels can also be found in other layered systems. This complexity not only applies to countries with relatively large state influence, such as emerging economies (cf. Child et al., 2012), but also those in which local governments adopt policies that may not always match higher level objectives. For example, cities in many countries are increasingly involved in low-carbon initiatives (Bulkeley, Broto, Hodson, & Marvin, 2011), which raises issues related to multi-level governance and nested structures within one and the same country or even within specific states/provinces (see the study by Krause, 2011, on the United States). Implications, and thus avenues for further research, stretch beyond sustainability considerations into the broader realm of CSR, as here as well local initiatives are often taken in a context of institutional uncertainty about the best interaction processes and strategic uncertainty about the behaviors of the actors involved (cf. Lepoutre et al., 2007). Although China has a specific, much more state-centric model than other countries, many of the market-based and state-based policy instruments are found to be comparable (Harper Ho, 2013). This comparability points at

a range of opportunities for further investigation and for cross-institutional learning by both researchers and practitioners.

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1. Before 1999, the China's Auto Market Almanac was called the China's Auto Trade Almanac. It was published by the State Administration of Domestic Trade until 2001, when this duty was taken over by the China Federation of Logistics and Purchasing.

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