Chapter 3 analyzed China’s economic development approach by concentrating on each criterion of the East Asian Developmental State Model. The analysis showed that – as in the East Asian developmental states - institutional reform and industrial policy have guided China’s development process since 1978 and have had direct impact on changes in the real economy. At the same time, the analysis provides evidence that decisive differences between the development strategies of China and its East Asian neighbors exist.

In order to gain further insight into the Chinese model of economic development, Chapter 4 uses an empirical analysis of the auto industry. The global auto industry has entered a new phase. A combination of massive production overcapacity, together with structural-geographical shifts in market demand, continuing technological transformation, tightening environmental regulation, and changing relationships between auto assemblers and their component suppliers, have produced a crisis for most of the major auto manufacturers. At the same time, however, many developing countries have set up domestic auto production. They still see the auto industry as an important driver of industrial development and technological capability - not only because of its impact on the balance of trade, but also because of its potential for upgrading the various industries which feed into it. The auto sector is hence the object of continuing government intervention – particularly in China. This sector’s analysis consequently provides useful information on the outcome of state-led growth in China.

After elaboration of the research design, the chapter explores whether the criteria of the East Asian Developmental State Model can be found in China’s approach to modernizing its domestic auto industry. The analysis centers on the following determinants of state-guidance in the auto sector:

- Bureaucratic framework of the auto industry (organization and quality of state agents involved in the sector’s development).
- National industrial policy for the auto sector (foreign investment, trade, localism).
- Financial system as an industrial policy instrument to regulate the sector’s growth.
- Government-business cooperation and information-sharing in the auto industry.
- Outcome of two decades of distinctive government support for the sector.

Humphrey rightly poses the question as to how worthwhile an auto-centered development strategy might be under these circumstances. However, only few states reject building up a strong auto industry. In consequence of all these factors, interstate (and intrastate) competition has intensified. For further information on the impact of globalization and national development on the auto industry refer to Humphrey (2000) and Liu and Dicken (2006).
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Overall, the chapter analyzes the industrial policy for the auto sector, and the measures implemented to transform domestic auto manufacturers into global players. The analysis concentrates on the unique measures of the Chinese development strategy, and explores whether state-guidance in the auto sector has succeeded in building up internationally competitive auto companies and overall rapid economic development. The findings allow inferences on the effectiveness of the Chinese model of state-led development.

4.1 Design of research

Traditional economic approaches largely overlook the dynamic process of industrial development as well as the role of changing government policies and institutional settings. In order to overcome these problems, the empirical analysis of the Chinese auto industry uses a mixed methods research approach. The accuracy of judgments can be improved by collecting different kinds of data bearing on the same phenomenon.\(^{737}\) The research incorporates secondary statistics as well as qualitative and quantitative information in order to underpin theoretical arguments by empirical evidence. Triangulation is the superior method for identifying causal mechanisms and for process tracing.\(^{738}\) It combines investigative depth with the coverage of various facets of the chosen research object and enables the researcher to incorporate exploration and explanation in the study.\(^{739}\) As the secondary analysis approach and its sources have been discussed in Chapter 1.3, the following sections only highlight the qualitative and quantitative analysis used in Chapter 4.

The primary focus of research is one industry in a single country. The research methodology, however, also incorporates aspects of comparative analysis in order to examine whether any differences in the implementation of the national auto policies exist at the local level. Thus, variation at the sub-national level can be highlighted while the macroeconomic environment and the policy framework are set. The two municipalities that rank highest in auto production - Beijing, which is a “newly” industrializing area and Shanghai, which has been a traditional center of industrialization - are in the focus of analysis.\(^{740}\) In 2006, output of motor vehicles was 683,700 units in Beijing followed by Shanghai with 682,200 units (refer to Figure 21).

\(^{737}\) Refer to Jick (1979), p. 602.
\(^{738}\) Refer to Bennett (1999), Yin and Moore (1987), Yin (1993; 1994) and Hamel et al. (1993).
\(^{739}\) Refer to Creswell (2003), p. 208.
\(^{740}\) Beijing is the capital, and thus the political center, of China where the CCP’s Central Committee, the State Council, ministries and commissions are located. Shanghai, unlike Beijing, has thrived as a city of commerce and a window to the outside world. Due to its geographic position, situated on the banks of the Yangtze River Delta in East China, and its large harbor, the city was an ideal location for trade. It evolved into China’s economic center with a strong industrial base. The analysis of Beijing and Shanghai does not claim to be representative of all localities in China.
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Figure 21: Output of motor vehicles in provinces and municipalities, 2006.\(^{741}\)

Output of motor vehicles (units)

<table>
<thead>
<tr>
<th>Province/Municipality</th>
<th>Output of Motor Vehicles</th>
</tr>
</thead>
<tbody>
<tr>
<td>Beijing</td>
<td>720,000</td>
</tr>
<tr>
<td>Shanghai</td>
<td>650,000</td>
</tr>
<tr>
<td>Jilin</td>
<td>500,000</td>
</tr>
<tr>
<td>Guangdong</td>
<td>450,000</td>
</tr>
<tr>
<td>Hebei</td>
<td>400,000</td>
</tr>
<tr>
<td>Chongqing</td>
<td>350,000</td>
</tr>
<tr>
<td>Guangxi</td>
<td>300,000</td>
</tr>
<tr>
<td>Anhui</td>
<td>250,000</td>
</tr>
<tr>
<td>Tianjin</td>
<td>200,000</td>
</tr>
<tr>
<td>Liaoning</td>
<td>150,000</td>
</tr>
<tr>
<td>Jiangsu</td>
<td>100,000</td>
</tr>
<tr>
<td>Shandong</td>
<td>50,000</td>
</tr>
<tr>
<td>Hainan</td>
<td>50,000</td>
</tr>
<tr>
<td>Jilin</td>
<td>50,000</td>
</tr>
<tr>
<td>Beijing</td>
<td>720,000</td>
</tr>
</tbody>
</table>


The analysis draws upon Thun's (2004a, 2004b, 2006) findings of Beijing as a "Laissez-faire Local State" and Shanghai as a "Local Developmental State".\(^{742}\) Accordingly, qualitative and quantitative research in this study focus not only on central state-guidance in the auto sector, but also on different approaches to local development in Beijing and Shanghai. It can thus be explored whether the municipal governments have been able to create internationally competitive domestic auto companies within the policy framework set by the central state.

4.1.1 Qualitative analysis

Qualitative research means "any kind of research that produces findings not arrived at by means of statistical procedures or other means of quantification".\(^{743}\) It is largely an investigative process where the researcher gradually makes sense of a social phenomenon by contrasting, comparing, replicating, cataloguing and classifying the object of study.\(^{744}\) Qualitative research focuses on the process that is occurring, as well as the product or outcome.\(^{745}\) This may be changing policy approaches as well as the shifting of leader's decision-making or state-business relations. Qualitative analysis creates an understanding of relationships or complex interactions, participants' perceptions and experiences.\(^{746}\) In this line, qualitative research

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\(^{741}\) Only the 15 provinces and municipalities with the highest output volume of motor vehicles are listed.

\(^{742}\) Refer to Thun (2004a,b) for further information on his analysis of the auto and supplier industry at the local state and, in particular, Thun (2006) for an illustration of "Alternative Patterns of Development" in Shanghai, Beijing and Guangzhou as well as Changchun and Wuhan. Refer to Thun (2006), p. 29 ff.

\(^{743}\) Refer to Strauss and Corbin (1990), p. 17.

\(^{744}\) For further information refer to Miles and Huberman (1994).

\(^{745}\) Creswell (2003), pp. 198-199.

approaches are used when the research objective is to identify mechanisms behind phenomena which cannot be tested quantitatively.\textsuperscript{747} Qualitative research thus complements statistical analysis.\textsuperscript{748}

\textbf{4.1.1.1 Expert interviews as a method of qualitative research}

The interview is an important source of information, and a frequently-used and highly-developed instrument of qualitative, empirical data collection.\textsuperscript{749} Thus, it was chosen as an instrument for research in this study.

An interview is about communication between different persons in which different stimuli intend to cause reaction. It is a conversation that has a structure and a purpose. It uses a careful questioning and listening approach with the purpose of obtaining thoroughly-tested knowledge.\textsuperscript{750} No objective, universal results can be conducted, however, because each reaction is a result of the subject’s personal experiences. The instrument is most suitable, if experiences, and the opinions and assessments based on them, are to be covered, and when depth rather than breadth of understanding is necessary.

A specific form of applying interviews is the expert interview.\textsuperscript{751} The interviewee is an expert when he or she has a complex knowledge regarding a specific topic or aspect.\textsuperscript{752} The interviewer is responsible for initiating and directing the interview with regard to the question of research. The interviewer accordingly acts passively, while the interviewee has an active role, and is left with much leeway for the direction and the content of the interview. In this regard, the interviewee is of less interest than his or her capacity of being an expert in a certain field of activity. He or she is integrated into the study, not as an individual, but as representing a group (of specific experts). The interpretation of expert interviews mainly aims at analyzing and comparing the content of the expert knowledge.\textsuperscript{753}

As the aim of this study is to collect information on the effectiveness of the Chinese development path, opinions and experiences of experts in China are appropriate to gain information on processes in the auto sector, as well as interactions between the state and private entrepreneurs. The expert interview in this respect is the best method of primary research.

\textsuperscript{747} Refer to Edin (2000), pp. 8-9.
\textsuperscript{749} Refer to Yin (1994), p. 84.
\textsuperscript{751} Refer to Meuser and Nagel (1991), pp. 441-468 and Flick (2002), p. 89.
\textsuperscript{752} Refer to Flick (1995), p. 100. For further information also refer to Flick et al. (1991).
\textsuperscript{753} Refer to Schnell et al. (1989), p. 295 and Flick (2002), pp. 89-90.
4.1.1.2 Interview partners and questionnaires

Information on the effectiveness of the Chinese auto industrial policy and its implementation was derived from interviews with experts in Beijing and Shanghai who are familiar with the development of the auto industry in China. The individuals for the proposed study were selected purposefully. Interviewees were identified who would best help the researcher to answer the question of research.

Eleven of the nineteen interviewed experts are managers of leading MNCs headquartered in Germany. Thus, cultural differences among companies can be excluded. The phenomenon of technology transfer is only likely to appear in MNCs where important parts of the value chain are present in China. All MNCs included in the qualitative analysis have at least one manufacturing site in China. Among the MNCs are the two original equipment manufacturers (OEMs) DaimlerChrysler and Volkswagen (VW) as well as the two parts suppliers Bosch and ZF Friedrichshafen. DaimlerChrysler and VW both established production sites in Beijing and Shanghai, respectively, in the early 1980s, and have since then continuously expanded their China activities. Bosch and ZF Friedrichshafen also entered the market decades ago, and both now run more than 20 production sites in China. Their experience provides important information, as MNCs generally incorporate the Chinese government's trade, investment and industrial policies into their location and production decisions.

Eight experts come from different institutional organizations located in Beijing or Shanghai. Among those are three experts from the Delegations of German Industry and Commerce (GIC) in Beijing, and one expert from the GIC in Shanghai, one expert from the Association des Constructeurs Européens d'Automobiles (ACEA) in Beijing, one expert from the China Association of Automobile Manufacturers (CAAM) in Beijing, and two experts from the State Information Center in Beijing. All institutions conduct research on the Chinese auto market, and provide strategic consulting to their clients who may be businessmen or governments. For a complete list of interviewees' names and affiliation, refer to Appendix I and Appendix II.

Those who agreed to participate in the interview were sent a letter including an overview of the research to prepare them for the session, and also a subject index, so they knew what topics to expect (refer to Appendix III). The interviews involved on-site visits, and were conducted in face-to-face settings in the location of the

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754 In August 2007, DaimlerChrysler completed the closing for the transfer of a majority interest in the Chrysler Group and for the related financial services business in NAFTA to a subsidiary of Cerberus Capital Management, L.P. The German automaker, which was renamed Daimler AG in October 2007, retained a 19.9 percent interest in Chrysler. The company's reorganization, however, does not have any impact on the insights gained from the interviews conducted in Beijing.


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Face-to-face interviews with top executives ensure that the source of information is indeed the intended addressee. The problem with mail survey is that employees not directly in touch with the studied issue might reply instead. All interviewees agreed that the session was digitally recorded. The duration of the interviews ranged from 45 – 90 minutes. Interviews with the State Information Center and the CAAM were attended by a Chinese-English translator.

Different questionnaires were prepared: one for the experts from foreign auto companies, one for the Chinese, and one for the foreign institutes, according to their different backgrounds (refer to Appendix IV). With five pages, the questionnaires were complex. However, all questions were needed to fulfill the tasks of the research. The questionnaires used were semi-structured. The interview design allowed for movement in the formulation of questions, follow-up strategies and sequencing, and for posing subsequent questions that were not foreseen in the interview script.

The questionnaires consisted of two types of questions: first, open-ended questions, which allow the respondents to answer in their own frames of reference, entirely uninfluenced by any specific alternatives suggested by the interviewer, and second, semi-structured questions which provide the interviewee with different choices for an answer. These types of questions help to gather information, establish rapport and increase understanding. With regard to the open-ended nature of interviews, the respondent may assist as an “informant” rather than a respondent. Such persons not only provide the investigator with insights into a matter, but can also suggest sources of corroboratory evidence – and initiate the access to such sources. The researcher, however, has to bear in mind that the statements of the interviewees mirror only their personal opinions and might be influenced by an emotional context rather than a solely rational one. Moreover, the statements of the expatriates might differ from those of the Chinese experts working for governmental institutions, who do not want to or cannot speak as openly. Altogether, a potential poor fit between the research questions, the operationalized concepts and a respondent’s understanding could be avoided by conducting expert interviews with open-ended questions at on-site visits.

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757 One expert working for a German auto supplier company located in Shanghai was interviewed in Feuerbach, Germany.
758 The interviewees could choose between English or German questionnaires. Appendix IV contains only the English questionnaire for company representatives. The questionnaires were not handed over to the interviewees, but functioned as a guideline to the interviewer.
759 Pennings et al. (1999), p. 79.
761 Refer to Yin (1994), p. 84.
762 Refer to Hewstone and Fincham (1996), pp. 177-218.
763 This approach ensures construct validity.
4.1.1.3 Research design quality

It is generally hard to objectively evaluate qualitative information. Ensuring the suitability of qualitative research is central for the legitimacy of implications. Three criteria are used to judge the soundness of research:

- **External validity**: Qualitative research is concerned with testing the analytical soundness of a proposed conceptual framework and generalizing the results to a broader theory. External validity establishes the domain to which a study's findings can be generalized, and thus ensures the integrity of this process. It reflects how accurately the results represent the phenomenon studied, establishing generalizability of results. It can be achieved by including multiple interview partners with different backgrounds in the research design, as done in this study. This enables the researcher to apply replication logic.

- **Reliability**: Reliability is concerned with the repeatability of results. Will replication achieve the same results and conclusions? The objective of reliability is to minimize errors and biases in a study. Documentation of the procedures, methods and documents in each interview report is instrumental to reach that objective.

- **Construct Validity**: Construct validity ensures the adequacy of the operational measures for the concepts researched. In order to increase construct validity, the researcher combines multiple sources of evidence (expert interviews as well as documents from the interviewee's workplace that was not restricted to internal use). During data collection, the researcher focuses on analytical insights, however, rather than on ensuring construct validity.

The expert interviews were conducted according to the framework of Yin (1994) (refer to Figure 22). Although reports were written after each interview, conclusions are drawn across individual interview results. The virtue of analysis across single interviews is that it permits the aggregation of data and information respectively. The qualitative research design of this study guarantees external validity, reliability and construct validity.

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764 Internal validity is no further commented upon. It is necessary for experimental and quasi-experimental research (explanatory or causal research to establish causal relationships) and not for exploratory (descriptive) studies. Refer to Yin (1994), pp. 33-35.


766 Furthermore, triangulation or multiple methods of data collection and analysis strengthens reliability as well as internal validity. Triangulation is less a strategy for validating results and procedures than an alternative to validation which increases scope, depth and consistency in methodological proceedings. Refer to Creswell (2003), p. 204 and Flick (2002), p. 227.

767 Refer to Yin (1994), pp. 144-152.
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Figure 22: Qualitative research design.

### Research design of qualitative analysis

<table>
<thead>
<tr>
<th>Definition &amp; design</th>
<th>Analysis</th>
<th>Conclusion</th>
</tr>
</thead>
<tbody>
<tr>
<td>Chinese auto industry</td>
<td>Expert interviews in Beijing and Shanghai</td>
<td>Across individual interview results</td>
</tr>
</tbody>
</table>

- **Chinese model of economic development and state-guidance in the auto sector**
  - Select interview partners
  - Daimler/Chrysler (5)
  - VW (2)
  - Bosch (2)
  - ZF Friedrichshafen (2)
  - ACEA (1)
  - CAAM (1)
  - State Information Center (2)
  - GIC Beijing (5) & GIC Shanghai (1)

- **Compiling individual reports**
- **Draw conclusion across individual interview results**

Source: Own illustration according to Yin (1994), p. 49. Note: Number of interviewees in brackets.

### 4.1.2 Quantitative analysis

In addition to analyzing data from various issues of the China Statistical Yearbook, the China Automotive Industry Yearbook (2006) and other sources of statistical data, the World Bank survey "Competitiveness, Technology and Firm Linkages in Manufacturing Sectors" (2001) is evaluated statistically.

#### 4.1.2.1 The data sample

The World Bank conducted the survey "Competitiveness, Technology and Firm Linkages in Manufacturing Sectors" in 2001. The survey comprises 1,500 firms, 300 firms each from five large cities: Beijing, Chengdu, Guangzhou, Shanghai and Tianjin. Firms in the sample belong to five manufacturing sectors (apparel and leather goods, consumer goods, electronic components, electronic equipment, and vehicles and vehicle parts) and five service sectors (accounting and related services, advertising and marketing, business logistics, communication services, and information-technology services). The sample covers 216 companies (14.4 percent of

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768 Most accounting data cover the period 1998-2000, while interview data are only for the year 2000.
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total firms covered) in the auto ("vehicles and vehicle parts") sector. The statistical analysis of the survey data concentrates on three groups.

"Group auto sector – residual sectors":

Does the development of the auto industry differ significantly from that of the residual sectors covered in the sample? Did the government actively and effectively promote the auto industry in comparison with the residual sectors? To answer these questions, the first group built is "Group auto sector – residual sectors". 14.4 percent of the interviewees (n=216) are active in the auto sector; 85.6 percent of the interviewees are in the residual sector (n=1284).

"Group auto sector – electronics sector":

As China declared the auto and the electronics industry as pillar industries in 1994, the analysis explores whether there are any significant differences between the two sectors. The second group is hence "Group auto sector – electronics sector". While the World Bank sample covers the electronic components sector and the electronic equipment sector separately, in the following analysis, both are merged in the category electronics sector. 395 respondents of the World Bank survey come from the electronics sector (26.3 percent).

"Group auto sector Beijing - auto sector Shanghai":

What similarities and differences can be observed between the auto industry in Beijing and that in Shanghai? If there are significant differences, this might be traced to the local municipalities’ engagement in promoting the local auto industry. The third group is thus "Group auto sector Beijing and auto sector Shanghai". The World Bank sample includes 44 (2.9 percent) interviewed managers of the auto sector in Beijing and 40 (2.7 percent) respondents of the auto sector in Shanghai.

4.1.2.2 Methodology of the statistical evaluation

The World Bank data is analyzed by using the Statistical Package for Social Sciences (SPSS) (Version 12.0.1). Some string (alphanumeric) variables such as city and sector are converted into numeric variables. This guarantees the operationalization of the variables.

769 The auto sector includes vehicles and vehicle parts manufacturing. The residual sector comprises the following sub-sectors: apparel and leather goods, consumer goods, electronic components, electronic equipment, accounting and related services, advertising and marketing, business logistics, communication services, and information technology services.
The traditional classification of levels of measurement into different scales was developed by Stevens (1946).\textsuperscript{770} This remains the basic typology and is the one used throughout this analysis. The variables of the World Bank sample can be categorized in three types of scales: nominal scale, ordinal scale and metric (ratio) scale. For each variable, dependent on the scale, measures of central tendency, the mode, median or arithmetic mean, are calculated.\textsuperscript{771} The mode, median and mean are used to describe the location of a distribution.\textsuperscript{772} Furthermore, the standard deviation is calculated.\textsuperscript{773}

Crosstabulation tables (contingency tables) display the relationship between two or more categorical (nominal or ordinal) variables. The size of the table is determined by the number of distinct values for each variable, with each cell in the table representing a unique combination of values.

In order to measure statistic differences between central tendencies of two groups, different tests are used. Tests for statistical significance are made against a null hypothesis that asserts that there is no systematic relationship between the variables.\textsuperscript{774} When performing a significance test, the null hypothesis and alternative hypothesis are compared. In this analysis, p (probability) describes the level of significance. All p values of less than 0.05 are considered to be significant. A quite general test for the comparison of two nominal variables is the Pearson Chi-Square Test for cross tables.\textsuperscript{775} It is useful to see whether there is a statistically significant relationship between two samples from a nominal population distribution.\textsuperscript{776} When the cross table is reduced to a 2x2 table, the test may also be used to check whether there is an association between two dichotomous variables, and whether two proportions are different from each other.\textsuperscript{777} The Chi-Square Test assumes that the expected value for each cell is five or higher. The Fisher’s Exact Test or the Likelihood Ratio Test is used if one or more of the cells have an expected frequency of five or less.\textsuperscript{778} Additionally, the Fisher’s Exact Test can be only performed on a 2x2

\textsuperscript{770} For further information refer to Stevens (1946), pp. 677-680.
\textsuperscript{771} The central tendency of a variable is the value on that variable that “attracts” most of the cases. Refer to Benninghaus (2005), p. 22 ff and p. 36 ff and Heiler and Michels (1994), p. 86 ff.
\textsuperscript{772} The mode is the most frequently occurring value (or values). It indicates the central tendency of nominal variables. The median is the value above and below which one half of the observations fall. For ordinal data the median is usually a good measure of central tendency since it uses the ranking information. The mean, also called the arithmetic average, is the sum of the values of all observations divided by the number of observations. Refer to Norusis/SPSS Inc. (1988), p. 39, Pennings et al. (1999), p. 117 and Benninghaus (2002), pp. 38-50.
\textsuperscript{773} It is the result of summing the squared deviations of the ratios about the mean, dividing the result by the total number of ratios minus one, and taking the positive square root.
\textsuperscript{774} Refer to Bortz (2005), p. 108 ff.
\textsuperscript{775} The Pearson Chi-Square Test is calculated by summing over all cells the squared residuals divided by the expected frequencies. Refer to Norusis/SPSS Inc. (1988), p. 54.
\textsuperscript{776} Refer to Pennings et al. (1999), p. 159.
\textsuperscript{777} Refer to Benninghaus (2002), pp. 77 ff and Pennings et al. (1999), p. 159.
cross table. The Pearson Chi-Square Test and Fisher's Exact Test are only appropriate when the data in the table are independent. A one-sided and two-sided version of Fisher's Exact Test can be calculated. In this analysis, the two-sided version is generally used, as there is no prior alternative to independence.\textsuperscript{779}

The Mann-Whitney U Test is the most popular of the two-independent-samples tests.\textsuperscript{780} An ordinal scale is sufficient.\textsuperscript{781} The Mann-Whitney Test, also known as the Wilcoxon Test, does not require assumptions about the shape of the underlying distributions. It tests the hypothesis that two independent samples come from populations having the same distribution.\textsuperscript{782} If the number of cases is smaller than 30, SPSS calculates the exact significance p value.\textsuperscript{783}

An Independent-Samples T-Test is used when comparing the means of a normally distributed interval dependent variable for two independent groups.\textsuperscript{784} The two-sample T-Test is fairly resistant to departures from normality. In this respect, even when samples are taken from a nonnormal population, the distribution of the sample means is approximately normal for sufficiently large samples. As the size of the sample increases, the sampling distribution of the mean approaches normality.\textsuperscript{785} This assumes a number of cases larger than 30. By default, a 95 percent confidence interval for the difference in means is displayed. The column labeled Sig. (2-tailed) gives the smallest probability (largest confidence level) for which the null hypothesis can be rejected. One of the assumptions underlying the use of T-Test is the equality of variance. In SPSS homogeneity of variances is tested by "Levene's Test for Equality of Variances", with F value and corresponding significance. These are part of SPSS output for Two Independent Sample T-Tests. It tests the hypothesis that the variances of the two groups are equal. Provided the F value is not significant (p>0.05), the variances can be assumed to be homogeneous and the Equal Variance line values for the T-Test be used. If p<0.05, then the equality of variance assumption has been violated and the T-Test based on the separate variance estimates (unequal variances) should be used. The T-Test for unequal variances is an alternative way of computing the T-Test that accounts for heterogeneous variances and provides an

\textsuperscript{779} When both table variables are quantitative, Chi-Square yields the Linear-by-linear Association Test (Mantel-Haenszel-Test). Mantel-Haenszel Chi-Square, unlike ordinary and Likelihood Ratio Chi-Square, is an ordinal measure of significance. As the Mantel-Haenzel Chi-Square is not appropriate for nominal variables, it is left aside in this analysis. Refer to SPSS, Version 12.

\textsuperscript{780} It is equivalent to the Wilcoxon rank sum test and the Kruskal-Wallis test for two groups.

\textsuperscript{781} The Mann-Whitney Test checks whether two sampled populations are equivalent in location. The observations from both groups are combined and ranked, with the average rank assigned in the case of ties. The number of ties should be small relative to the total number of observations. If the populations are identical in location, the ranks should be randomly mixed between the two samples. The number of times a score from group 1 precedes a score from group 2 and the number of times a score from group 2 precedes a score from group 1 are calculated. The Mann-Whitney U statistic is the smaller of these two numbers.

\textsuperscript{782} Refer to Norusis/SPSS Inc. (1988), p. 137.

\textsuperscript{783} Refer to Bühl and Zöfel (2000), p. 259 ff.

\textsuperscript{784} Refer to Bortz (2005), p. 475 ff.

\textsuperscript{785} Refer to Norusis/SPSS Inc. (1988), pp. 79-80.
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accurate result even when the homogeneity assumption has been violated (as indicated by the Levene Test).\textsuperscript{786} The output for both formats shows the degrees of freedom (df) and probability (2-tailed significance).\textsuperscript{787} If the number of cases is less than 30, before conducting a T-Test, the Kolmogorov-Smirnov Test has to be applied to test for a normal distribution.

The normal distribution of a variable is given if p>0.05.\textsuperscript{788} In the analysis, the procedure remains virtually the same for tests of most hypotheses:

1. A hypothesis of no difference (called null hypothesis) and its alternative are formulated.
2. A test statistic is chosen to evaluate the null hypothesis.
3. For the sample, the test statistic is calculated.
4. The probability, if the null hypothesis is true, of obtaining a test value at least as extreme as the one observed is determined.
5. If the observed significance level is judged small enough, the null hypothesis is rejected.\textsuperscript{789}

\subsection*{4.1.3 Shortcomings of the research approach}

When conducting the empirical analysis of state-guidance in the auto sector, the following aspects have to be considered:

- Generalization of the results to a wider context should be undertaken with caution, as the analysis covers one industry setting in one emerging market. China’s auto industry has experienced a remarkable development in the last two decades, and its institutional environment is very different from a developed economy. Nevertheless, the research findings are generalizable to theoretical propositions rather than populations or universe. In this sense, the empirical analysis of the auto industry does not represent a “sample”, and the investigator’s goal is to expand and generalize theories (analytic generalization) and not to enumerate frequencies (statistical generalization).\textsuperscript{790} Therefore, in the trade-off between validity and generality\textsuperscript{791}, validity is of higher priority at the expense of generality. Triangulation is a rigorous

\textsuperscript{786} Ibidem, p. 80.
\textsuperscript{787} As in all statistical tests, the basic criterion for statistical significance is a “2-tailed significance” less than 0.05.
\textsuperscript{789} Refer to Norusis/SPSS Inc. (1988), p. 85.
\textsuperscript{790} Refer to Yin (1994), pp. 9-13.
\textsuperscript{791} Refer to Collier and Mahoney (1996), p. 69.
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approach which, based on a carefully chosen sector, the auto industry, yields a generally applicable explanation.\textsuperscript{792}

- The conducted expert interviews, as well as the World Bank survey, rely on voluntary information, and are thus subject to many sources of error: people deliberately distort the truth, inadvertently fail to recall events correctly, or refuse to participate. Refusals influence survey results by failing to provide information about a particular type of person – one who refuses to answer surveys at all, or avoids certain types of questions.\textsuperscript{793}

- Although the World Bank sample is the most recent one of the auto industry at the local level, the data covers only the period 1998 – 2000. Due to China’s rapid development, data from this time might be already outdated. Moreover, the sample’s variables are analyzed with respect to specific groups, and not all of the interviewees in one group responded to all interview questions. In consequence, despite the large population (1,200 companies) of the sample, the counted answers may be small. If conclusions have to be drawn from small counts they may not be representative for the whole group. The sample is, however, valuable as it allows a statistical evaluation, and thus a quantitative basis of the research analysis.

These shortcomings are taken into account when analyzing the development of the auto industry. As insights are gained from secondary statistics, the statistical evaluation of the World Bank sample and up-to-date expert interviews, informed conclusions can be drawn, incorporating and abstracting the results from the various sources.

4.2 Bureaucratic framework of the auto industry

Although the central government’s power over the auto industry diminished gradually in the reform era, a legacy of central planning has remained. Various central-level government agencies maintain strict control over the sector. In order to gain information on the effectiveness of policy-making and implementation in the auto sector, different indicators of bureaucratic competence are evaluated and international and regional comparisons drawn.

\textsuperscript{792} Refer to Hamel (1993), p. 51.
\textsuperscript{793} The totality of all cases about which conclusions are desired is called the population, while the observations actually included in the study are the sample. Refer to Norusis/SPSS Inc. (1988), p. 35 and p. 78.
4.2.1 Bureaucratic institutions shaping the auto sector’s development

The State Council, and the NDRC in particular, shape the development of the auto sector. The State Council sets the general goal of China’s industrial development by issuing five-year plans and approves (auto) JV or WFOE projects above USD 500 million investment volume.\textsuperscript{794} The NDRC controls the establishment of vehicle factories and is responsible for the examination and approval of auto projects exceeding an investment volume of USD 100 million.\textsuperscript{795} Sino-foreign auto projects usually exceed the threshold for State Council and NDRC approval; in consequence, both agencies have to approve each new auto project in China. The State Council and the NDRC subsequently wield extensive control over the sector. Foreign investors negotiate with the NDRC concerning their business plan, approval conditions, project timeline etc. The NDRC furthermore coordinates and implements national economic and social development plans, including auto industrial policies which guide the development of the sector. It issues public announcements with regard to legal regulations and standards for the auto sector.\textsuperscript{796}

Other agencies participate in auto policy-making through their respective functions such as the Ministry of Commerce, which issues regulations on FFEs and is responsible for auto distribution; the Ministry of Science and Technology, which makes strategic planning for auto technologies; the China Banking Regulatory Commission, which has control over auto financing companies; the Ministry of Public Security, which is responsible for vehicle registration and traffic regulation; the State Environmental Protection Administration, which issues model-specific fuel consumption standards and regulates emission compliance; and the State Administration of Taxation, which exercises taxes on auto manufacturers and consumers (auto consumption tax). In addition, the General Administration of Quality Supervision, Inspection and Quarantine is in charge of homologation, standards and certification in the auto sector.\textsuperscript{797} The General Administration of Customs regulates tariffs on imported components and completely knocked down (CKD)\textsuperscript{798} kits; and the State Administration for Industry and Commerce is accountable for auto manufacturer and dealer registration. Altogether, at least eleven agencies have power over the auto sector.

\textsuperscript{794} In the early years of reform, the State Council was also responsible for certifying import quotas for motor vehicles and disassembled vehicle kits. This duty was assigned to the Machinery and Electronics Import Inspection Office in 1990. Refer to Harwit (1995), p. 46.


\textsuperscript{797} Information based on official documents of respective agencies.

\textsuperscript{798} CKDs are sets of auto parts that are packaged in one country, then exported to another for assembly. It is a common practice among automakers to sell knocked down kits to their foreign affiliates in order to avoid high import taxes and/or receive tax preferences for providing local employment. An incomplete kit is known as semi knocked down (SKD).
In the organizational chart that shows the key bureaucratic institutions responsible for auto policy-making, the State Council is at the top (it has the highest bureaucratic rank), followed by the commissions, the ministries and the administrative organizations that are directly under the State Council. Commissions have a higher bureaucratic rank than the ministries, and unlike the heads of the commissions and the ministries, the leaders of the administrations do not belong to the State Council (refer to Figure 23).799

Beside these agencies, the Certification and Accreditation Administration of China (authorized by the State Department and responsible for issuing the China Compulsory Certificate, CCC)800 and the Standardization Administration of the People's Republic of China (under the General Administration of Quality Supervision, Inspection and Quarantine) also establish the policy process for the auto sector.801 The Standardization Administration carries out centralized administration for compulsory standardization in China. The China Auto Technology and Research Center also exerts influence on the sector. It was established in 1985 upon the approval of the China National Science and Technology Commission, and since 2003, it has been affiliated to SASAC of the State Council. It is accountable for standardization and technical regulations, product certification and testing research, quality system certification, information service and soft-science research, engineering management and design, enterprise management science research, auto high-tech development and application.802

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800 The CCC system was implemented in China on 01.05.2002 and became fully effective on 01.08.2003 as mandatory certification and marking. The aim of the certification system is to establish a uniform standard in China for selected products (19 product groups, 132 product categories). CCC has replaced the former “China Commission for Conformity of Electric Equipment” symbol for domestic products and the “China Commodity Inspection Bureau” symbol for imported products. This change ensures that domestic and international companies and their goods are treated equally in accordance with WTO rules. Both Chinese and foreign manufacturers are affected, therefore. The Chinese customs have been using CCC as the valid guidelines for the import into China of goods subject to certification. Refer to NDRC (2004), “Automobile Industry Development Policy No. 8 decree of the State Development and Reform Commission”, Chapter 5, Article 20, Internet Edition, reviewed 11.04.2006.

801 Both rank lower than the agencies at ministry-level. Interview conducted with an expert of a Chinese auto government institution in Beijing on 16.06.2006.

802 Information based on official documents of respective agencies.
SASAC has become the main body responsible for structural reform of the economy and for industrial policy. With the creation of SASAC, SOEs under the State Council (196 in 2003, when the commission was founded) became assets to be run by managers under market conditions rather than ministries.\footnote{Refer to Noble et al. (2005), pp. 11-12.} SASAC sees its mission not only in improving governance, transparency and ultimately performance of SOEs, but also in increasing the value of public assets. As the government agency charged with exercising the authority of ownership, but without a privatization mandate, SASAC understandably interprets "reform" in a way that is consistent with its own bureaucratic interests, which include maintaining a large state sector.\footnote{Refer to Naughton (2006), p. 2. Libecap contends that self-interested bureaucrats are likely to be influenced by the size of the budget made available to their bureaucracy. Cost or waste maximization is the assumption that self-interested bureaucrats maximize their budgets, which leads to quite different results in the polity compared with the results in private-market institutions. For further information refer to Libecap (1989).} As in 2003, 21.4 percent of SOEs were active in the auto industry; SASAC had subsequently obtained wide influence over the sector.\footnote{Refer to Lee (2006), p. 26.}

In addition to central level state agents, different local actors have influenced the development of the auto sector throughout the reform period. A local planning commission formulates long-term development schemes, and an economic
commission carries out these plans by regulating energy allocation, overseeing industrial laws etc. Foreign Economic Relation and Trade Commissions (such as the Shanghai Foreign Economic Relation and Trade Commission)\textsuperscript{806} are responsible for JVs and other foreign investment projects at the local level. However, they play a minor role in implementing projects.\textsuperscript{807}

In most cities, local leaders are actively involved in identifying and supporting JVs. Within the municipalities, the mayor generally has the most power to direct the development of the capital-intensive auto industry. Usually, one or two vice mayors also are instructed to work on the development of the sector. In 1990, "Auto Leading Small Groups" existed in municipalities such as Beijing, Shanghai, and Guangzhou. The small groups were composed of at least one vice mayor and representatives from the cities' economic, planning and international trade committees as well as representatives from the leading auto industrial corporations. The small groups offered a platform for information exchange between bureaucrats and businessmen. In the auto small groups, representatives of the state and the business sector acted officially as two separate groups, but were often merged. In Guangzhou, the board chairman of Guangzhou Peugeot, Xie Gancheng, was at the same time the vice chairman of the Machinery and Electronics Department under the Economic Committee.\textsuperscript{808} In Shanghai, the auto leading small group complemented the role of the municipal government. Municipal leaders increasingly used their expertise and knowledge of the bureaucratic bodies governing Chinese industry to serve as advocates for their local industry. A prime example is the protection of the capital collected by means of the Shanghai component localization tax from 1988 to 1994. In 1990, the State Planning Commission demanded from Shanghai to turn half of the proceeds from the component tax over to Beijing in the interest of "balanced growth". Mayor Zhu Rongji played the pivotal role in protecting the localization fund. He told the State Planning Commission officials that the primary problem of the auto industry was that investment was too dispersed, and if the localization fund did not remain in Shanghai, the municipality would fail to develop a strong supply base. In the end, Shanghai sent a nominal portion of the localization fund to the central government, but the vast majority remained in Shanghai. Overall, the auto leading small groups charted a general course for the local industry, and provided a forum for coordination among the disparate government bodies. The strength of the small groups in promoting the local industry was dependent on its officials chosen as leaders.\textsuperscript{809}

\textsuperscript{807} Refer to Harwit (1995), pp. 55-56 and p. 163.
\textsuperscript{808} Ibidem.
\textsuperscript{809} Refer to Thun (2006), pp. 110-133.
4.2.2 Policy-making and implementation

Policy-makers and academics agree that good governance matters in economic development. Governance consists of the traditions and institutions by which authority in a country is exercised. This includes the process by which governments are selected, monitored and replaced; the capacity of the government to effectively formulate and implement sound policies; and the respect of citizens and the state for the institutions that govern economic and social interactions among them.\textsuperscript{810} Scholars have discovered that high-quality institutions have the power, over the long run, to raise per capita incomes and promote growth in all parts of the world.\textsuperscript{811} An economy is expected to work much better when bureaucrats follow precise responsibilities and are more interested in enforcing efficient rules rather than in maximizing bureaucratic budgets.\textsuperscript{812}

In China, multiple state agencies conduct policy-making for the auto industry, either on the central or the local government level. The following analysis explores whether the institutional organization has been conducive to effective governance in China and to efficient state-guidance in the auto sector. Information on governance and the effectiveness of policy-making and implementation is gathered from the expert interviews conducted in Beijing and Shanghai. Moreover, the IMD World Competitiveness Yearbook and the latest governance indicators from the 2006 World Bank report “China Governance, Investment Climate, and Harmonious Society” are used to analyze government effectiveness in China.\textsuperscript{813} From the various sources, certain indicators provide valuable information on the effectiveness of government policy-making (coordination across institutions, adaptability of government policy to changes in the economy, policy transparency) and governance (regulatory quality, rule of law, and control of corruption).

The IMD ranking and the World Bank governance indicators are not sector specific, however. As overall government competence differs across regions,\textsuperscript{814} not sectors, the rankings and indicators can nevertheless be applied to gain information on bureaucratic efficiency in the auto sector. Overall, the combination of auto-specific information from expert interviews together with information from the IMD ranking and the World Bank indicators on national and regional government efficiency provide satisfactory insight into governance in China. From the general bureaucratic


\textsuperscript{812} For further information on the “grabbing hand” and the “helping hand” of the state refer to Shleifer and Vishny (1999).

\textsuperscript{813} The governance indicators are based on a longstanding research program of the World Bank Institute and the Research Department of the World Bank, initiated in the late 1990s.

\textsuperscript{814} Different indicators of government efficiency (taxes and fees, informal payments and bureaucratic interaction) are analyzed on a regional basis.
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efficiency one can judge the bureaucratic competence as well as policy-making and
implementation effectiveness in the auto sector.

As the previous analysis indicated, the Chinese government’s ability to enforce
industrial policy is weakened by China's bureaucratic organization. As various
ministries claim planning and management roles and aim to direct the sector's
development. If more than two contracting parties can affect the income flow from a
set of property rights, delineating each party's respective property rights becomes
difficult. Vested interests and imperfect information on existing political, social, and
economic positions of contracting parties lead to high transaction costs and markets
operating below the (Pareto) efficient levels. In addition, overlapping
responsibilities result in inter-ministerial rivalries, and complicate industrial policy
implementation.

Interviewees gave two examples of central-level coordination failure and revealed
that "the division of work between the various agencies involved in auto policy-
making is complicated". First, the NDRC and the Ministry of Commerce both have
to approve JVs. Although the two agencies cooperate closely, and their policy
approaches seem to be consistent, there are internal quarrels, as both pursue
different policy goals. While the Ministry of Commerce embarks on the strategy of
liberalization and is pro WTO, the NDRC is the planning agency which issues strict
regulations that sometimes do not conform to WTO law (e.g. local content
regulations). Accordingly, as explored by the interviewees, foreign investors might
obtain different information from NDRC and Ministry of Commerce bureaucrats on
the requirements they have to fulfill in order to receive approval of planned auto
projects. Second, three government bodies oversee certification and accreditation
in China: the Certification and Accreditation Administration of China, the General
Administration of Quality Supervision, Inspection and Quarantine and the China
National Certification and Accreditation Commission. Foreign interviewees reported
that the three agencies have overlapping responsibilities. They complained that in
order to receive the CCC, foreign companies have to make certain tests for the
central government twice. One test for the Public Announcement Administration
under the NDRC in order to get project approval, and another test for the Certification

(1999).
817 Interview conducted with an expert of a Chinese auto government institution in Beijing on 16.06.
2006.
818 After approval from NDRC and State Council, contract and regulations compliance documentation
must be submitted to the Ministry of Commerce for approval, after which the Ministry of Commerce will issue an authorization certificate. The auto manufacturer then receives the
certificate of approval from the Ministry of Commerce.
819 Interviews conducted with managers of a German OEM in Beijing between 08.06.2006 and 16.06.
2006.
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and Accreditation Administration of China, which monitors auto imports and domestic production with respect to Chinese standards.\footnote{820}

As each ministry tries to increase its influence and follows its own interests, coordination between the different agencies is complicated and time-consuming.\footnote{821} Given the manner in which many governmental structures in China are fragmented vertically along functional lines, bureaucratic authorities of equal rank bargain continually and intensely – any resource that is scarce will be subject to bargaining.\footnote{822} According to a study of AT Kearney (2005), ten agencies are accountable for the content of industrial policies for the auto industry; five different agencies are responsible for fuel consumption standards and auto dealership franchising, and four different agencies are in charge of vehicle recycling requirements, emissions compliance, used car appraisal processes, tariff regulations for imported parts and auto side collision safety regulations (refer to Table 10).\footnote{823} Overall, unlike the far-reaching competence of a single pilot agency in the developmental states, state agencies’ coordination effort negatively affects government efficiency in the auto sector.

At the same time, though, certain aspects of government policy-making and thus state competence are more pronounced in China than in the East Asian developmental states. The IMD World Competitiveness Yearbook (2007) indicates that China ranks ahead of Japan, Taiwan and Korea with regards to adaptability of government policy to changes in the economy and policy transparency. In detail, out of 55 countries, China ranks four with regard to the adaptability of government policy to changes in the economy, before Japan (rank 30), Taiwan (rank 33) and Korea (rank 34). Moreover, China ranks 19 regarding satisfaction of policy transparency compared with Japan (rank 32), Taiwan (rank 39) and Korea (rank 34) (refer to Table 11).

\footnote{820}{One foreign expert elaborated that the overlap of responsibility between different central level agencies is not limited to the auto sector. When it comes to decisions on the railway system, the Ministry of Construction is responsible for the metro railway system within one city. The Ministry of Railways is yet responsible for the metro railway system inbetween two cities. Interviews conducted with managers of a German supplier company in Shanghai on 19.06.2006.}

\footnote{821}{Interview conducted with an expert of a European auto association in Beijing on 16.06.2006.}

\footnote{822}{Refer to Thun (2006), p. 110.}

\footnote{823}{A German manager of a supplier company in Shanghai referred to the study of AT Kearny during the interview on 13.07.2006.}
Table 10: Coordination and agreement across policy-making organizations.

<table>
<thead>
<tr>
<th>NDRC</th>
<th>Ministry of Commerce</th>
<th>State Administration of Taxation</th>
<th>Ministry of Communication</th>
<th>China Customs</th>
<th>State Environmental Protection Administration</th>
<th>Ministry of Science and Technology</th>
<th>State Administration of Industry and Commerce</th>
<th>State Bureau of Quality and Technical Supervision and Quarantine</th>
<th>Ministry of Public Security</th>
</tr>
</thead>
<tbody>
<tr>
<td>China Auto Industry Policy</td>
<td>x</td>
<td>x</td>
<td>x</td>
<td>x</td>
<td>x</td>
<td>x</td>
<td>x</td>
<td>x</td>
<td>x</td>
</tr>
<tr>
<td>Vehicle fuel consumption standards</td>
<td>x</td>
<td>x</td>
<td>x</td>
<td>x</td>
<td>x</td>
<td>x</td>
<td>x</td>
<td>x</td>
<td>x</td>
</tr>
<tr>
<td>Vehicle recycling requirements</td>
<td>x</td>
<td>x</td>
<td>x</td>
<td>x</td>
<td>x</td>
<td>x</td>
<td>x</td>
<td>x</td>
<td>x</td>
</tr>
<tr>
<td>Emissions compliance</td>
<td>x</td>
<td>x</td>
<td>x</td>
<td>x</td>
<td>x</td>
<td>x</td>
<td>x</td>
<td>x</td>
<td>x</td>
</tr>
<tr>
<td>Auto dealership franchising</td>
<td>x</td>
<td>x</td>
<td>x</td>
<td>x</td>
<td>x</td>
<td>x</td>
<td>x</td>
<td>x</td>
<td>x</td>
</tr>
<tr>
<td>Common process for used car appraisal</td>
<td>x</td>
<td>x</td>
<td>x</td>
<td>x</td>
<td>x</td>
<td>x</td>
<td>x</td>
<td>x</td>
<td>x</td>
</tr>
<tr>
<td>Nationwide vehicle registration system</td>
<td>x</td>
<td>x</td>
<td>x</td>
<td>x</td>
<td>x</td>
<td>x</td>
<td>x</td>
<td>x</td>
<td>x</td>
</tr>
<tr>
<td>Tariff regulations for imported parts</td>
<td>x</td>
<td>x</td>
<td>x</td>
<td>x</td>
<td>x</td>
<td>x</td>
<td>x</td>
<td>x</td>
<td>x</td>
</tr>
<tr>
<td>Auto side collision safety regulations</td>
<td>x</td>
<td>x</td>
<td>x</td>
<td>x</td>
<td>x</td>
<td>x</td>
<td>x</td>
<td>x</td>
<td>x</td>
</tr>
</tbody>
</table>


Table 11: Government policy-making, 2007.824

<table>
<thead>
<tr>
<th>&quot;Out of 55 countries, China/Japan/Taiwan/Korea rank...&quot;</th>
<th>China</th>
<th>Japan</th>
<th>Taiwan</th>
<th>Korea</th>
</tr>
</thead>
<tbody>
<tr>
<td>&quot;Adaptability of government policy to changes in the economy is high&quot;</td>
<td>4</td>
<td>30</td>
<td>33</td>
<td>34</td>
</tr>
<tr>
<td>&quot;Transparency of government policy is satisfactory&quot;</td>
<td>19</td>
<td>32</td>
<td>39</td>
<td>34</td>
</tr>
</tbody>
</table>


In China, a counteractive set of laws is often necessary, as the auto industry has developed rapidly since 1978.825 While in 2000, the passenger car parc in China was less than 5,000 units, it reached 17 million units in 2006.826 Due to rapidly increasing passenger car sales, the central government regularly implements a raft of new legislative measures such as frontal and side crash tests to increase safety as well as emission standards (Euro norms) to combat rising pollution.827 China adopted

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824 The smaller the rank, the better government policy-making with regards to each indicator.
825 Interviews conducted with experts from a German public corporation in Beijing on 08.06.2006 and with experts from a Chinese state organization in Beijing on 13.06.2006.
827 Interview conducted with an expert of a Chinese auto government institution in Beijing on 16.06.2006.
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Euro II emission standards for all new cars in 2003.\textsuperscript{828} Euro III standards were adopted nationwide in July 2007. Euro IV emission standards are scheduled for nationwide adoption by 2010.\textsuperscript{829} The example shows that the standards and regulations domestic and foreign investors have to fulfil are transparent. Moreover, central level bureaucrats clearly target national regulations for the sector. They enact corrective regulations to adapt the development of the industry to changing macroeconomic, environmental or social conditions.\textsuperscript{830}

While policy-making demonstrates to be adaptable to macro-economic changes, and government policy is transparent to economic subjects, governance lacks quality. The World Bank's governance indicators confirm that the regulatory burden (measuring the incidence of market-unfriendly policies) is larger in China ("Regulatory Quality": 46.3 percentile rank) than in Japan (87.3 percentile rank).\textsuperscript{831} Further governance indicators such as "Rule of Law" (measuring the quality of contract enforcement, the police, and the courts, as well as the likelihood of crime and violence) and "Control of Corruption" (measuring the exercise of public power for private gain, including both petty and large-scale corruption and state capture) demonstrate that governance is far less pronounced in China ("Rule of Law": 45.2 percentile rank; "Control of Corruption": 37.9 percentile rank) than in Japan ("Rule of Law": 90.0 percentile rank; "Control of Corruption": 90.3 percentile rank) (refer to Table 12). The scale of corruption resulting from local governments' extensive economic regulatory rights\textsuperscript{832} is larger than that of the East Asian developmental states.\textsuperscript{833}

\textsuperscript{828} Euro I emission standards were adopted nationwide in China in 2000.
\textsuperscript{829} Refer to Global Insight (2007), Asian Automotive Industry Forecast Report, April 2007, p. 45.
\textsuperscript{830} Interview conducted with an expert of a European auto association in Beijing on 16.06.2006 and with managers of a German OEM in Beijing between 08.06.2006 and 16.06.2006.
\textsuperscript{831} The indicators are based on several hundred individual variables measuring perceptions of governance, drawn from 37 separate data sources constructed by 31 different organizations. The authors assign these individual measures of governance to categories capturing key dimensions of governance, and use an unobserved components model to construct six aggregate governance indicators in each period. The authors present the point estimates of the dimensions of governance as well as the margins of errors for each country and period.
\textsuperscript{832} Refer to Perkins (2001), p. 8.
\textsuperscript{833} With regard to bribery and corruption, the IMD World Competitiveness Yearbook also ranks China 44 among 55 countries and regions worldwide compared with Japan (rank 22), Taiwan (rank 27) and Korea (rank 29). Refer to IMD World Competitiveness Yearbook (2007), Survey question 2.3.15 ("Does bribing and corruption exist/do not exist in your economy?"). p. 348.
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Table 12: Governance indicators, 2006.

<table>
<thead>
<tr>
<th>Governance Indicator</th>
<th>Country</th>
<th>Percentile Rank (0-100)</th>
<th>Governance Score (-2.5 to + 2.5)</th>
<th>Standard Error</th>
</tr>
</thead>
<tbody>
<tr>
<td>Regulatory Quality</td>
<td>China</td>
<td>46.3</td>
<td>-0.19</td>
<td>0.18</td>
</tr>
<tr>
<td></td>
<td>Japan</td>
<td>87.3</td>
<td>+1.27</td>
<td>0.20</td>
</tr>
<tr>
<td>Rule of Law</td>
<td>China</td>
<td>45.2</td>
<td>-0.40</td>
<td>0.13</td>
</tr>
<tr>
<td></td>
<td>Japan</td>
<td>90.0</td>
<td>+1.40</td>
<td>0.14</td>
</tr>
<tr>
<td>Control of Corruption</td>
<td>China</td>
<td>37.9</td>
<td>-0.53</td>
<td>0.14</td>
</tr>
<tr>
<td></td>
<td>Japan</td>
<td>90.3</td>
<td>+1.31</td>
<td>0.14</td>
</tr>
</tbody>
</table>


Government efficiency varies widely across China. The World Bank (2006) report "China Governance, Investment Climate, and Harmonious Society" reveals that government efficiency (measured by informal payments in the form of travel and entertainment expenditures as a percentage of sales, days of bureaucratic interaction by managers and taxes and fees as a percentage of sales) is foremost in China's Southeast cities (Jiangsu, Shanghai, Zhejiang, Fujian, and Guangdong); followed by the Bohai cities (Shandong, Beijing, Tianjin, and Hebei); with Northeast (Heilongjiang, Jilin, Liaoning) and Central cities (Anhui, Henan, Hubei, Hunan, and Jiangxi) typically somewhere in the middle; and with Southwest (Yunnan, Guizhou, Guangxi, Sichuan, Chongqing, and Hainan) and Northwest cities (Shanxi, Shaanxi, Neimenggu, Ningxia, Qinghai, Gansu, and Xinjiang) lagging (refer to Table 13).

Taxes and fees as a proportion of sales revenue appear to be lowest in the Southeast (4.1 percent) and Bohai (4.5 percent) cities and highest in the Northwest (5.8 percent) and Southwest (6.3 percent) cities. Travel and entertainment relative to sales is highest in Northeast (1.4 percent) and lowest in Bohai (0.9 percent) cities. While laws and regulations tend to be consistent nationwide, enforcement is not. The amount of time enterprise staff must spend interacting with government bureaucracies (tax administration, public security, environmental protection, and labor and social security) varies widely. On a regional basis, firm interactions with major bureaucracies are highest in Northwest cities, followed by Bohai, Southwest and Northeast cities. Days of bureaucratic interaction are lowest in Central cities.

The governance indicators aggregate the views on the quality of governance provided by a large number of enterprise, citizen and expert survey respondents in industrial and developing countries. These data are gathered from a number of survey institutes, think tanks, non-governmental organizations, and international organizations. The aggregate indicators do not reflect the official views of the World Bank, its Executive Directors, or the countries they represent. Countries' relative positions on these indicators are subject to indicated margins of error that should be taken into consideration when making comparisons across countries and over time.


Ibidem.
The auto industry in the light of the Chinese development approach (51.7 days) and Southeast cities (51.6 days) (refer to Table 13). The low “time tax” for Southeast cities is in line with their pro-business reputation. The similarly low figure for the less developed Central cities is somewhat surprising. It is also noteworthy that the average for Northeast cities falls below that for Bohai cities, despite the Northeast’s legacy of greater government intervention in the economy. This may reflect Bohai cities’ greater interaction with tax administration which administers various tax preferences.

Table 13: Taxes and fees, informal payments and bureaucratic interaction, 2006.

<table>
<thead>
<tr>
<th>Region</th>
<th>Taxes and fees/sales (%)</th>
<th>Travel and entertainment/sales (%)</th>
<th>Days of bureaucratic interactions</th>
</tr>
</thead>
<tbody>
<tr>
<td>Southeast (Jiangsu, Shanghai, Zhejiang, Fujian, and Guangdong)</td>
<td>4.1</td>
<td>1.0</td>
<td>51.6</td>
</tr>
<tr>
<td>Bohai (Shandong, Beijing, Tianjin, and Hebei)</td>
<td>4.5</td>
<td>0.9</td>
<td>71.9</td>
</tr>
<tr>
<td>Northeast (Heilongjiang, Jilin, Liaoning)</td>
<td>5.4</td>
<td>1.4</td>
<td>63.1</td>
</tr>
<tr>
<td>Central (Anhui, Henan, Hubei, Hunan, and Jiangxi)</td>
<td>5.0</td>
<td>1.2</td>
<td>51.7</td>
</tr>
<tr>
<td>Southwest (Yunnan, Guizhou, Guangxi, Sichuan, Chongqing, and Hainan)</td>
<td>6.3</td>
<td>1.2</td>
<td>65.9</td>
</tr>
<tr>
<td>Northwest (Shanxi, Shaanxi, Neimenggu, Ningxia, Qinghai, Gansu, and Xinjiang)</td>
<td>5.8</td>
<td>1.3</td>
<td>78.3</td>
</tr>
</tbody>
</table>


The data indicate that entertainment and travel expenditures (measured as a ratio of sales), which can be a vehicle for corruption, tend to be higher where local governments provide poorer service or where the tax burden is higher. This also confirms a study of Cai et al. (2005) which finds that higher entertainment/travel expenditures tend to be associated with poorer firm performance, and that the “quality” of entertainment/travel expenditures is correlated with corporate governance. According to their study, firms make large payments to government officials to offset bureaucratic burdens and the threat of opportunistic behavior by governments. The results of Nee and Opper (2007) also show evidence that the power of government bureaucrats and party authorities over firm decisions is associated negatively with firm return on assets and equity. They analyzed a survey of 72 firms listed on the Shanghai Stock Exchange, asking about involvement either by government agencies or officials of the CCP in 63 different firm decisions, ranging from finance and investment to personnel and external relationships. On average, firms reported some involvement in all of these decisions. The foreign interviewees likewise showed concerns about bureaucrats with their political rather than business

837 For further information refer to Cai et al. (2005).
838 For further information refer to Nee et al. (2007).
background deciding on the feasibility of auto business projects.\textsuperscript{839} Political intervention is hence a concern for firm managers, and it affects business decisions.

Overall, unlike in the East Asian developmental states, various central level agencies are responsible for auto policy-making in China. This involves an extensive coordination effort between them, and increases transaction costs. The state agencies' policy goals and long-term direction of industrial policy are transparent and regulations are constantly adapted to the changed economic environment of China's fast economic development. In consequence, China ranks in an international comparison before its East Asian counterparts with regard to the adaptability of government policy to changes in the economy, and policy transparency. The central government's industrial policy is directed towards clear-cut, long-term development goals. At the same time, however, Chinese bureaucrats lack enforcement competence. The World Bank indicators show evidence of the hindrance of business activity by state bureaucrats, although varying across regions, and thus confirm the expert interviews' assessments. The incidence of market-unfriendly policies, disregard for the rule of law, and corruption, are factors that reinforce the conclusion that growth has proceeded despite a merely average governance environment.\textsuperscript{840}

4.3 National auto industrial policy

Since the 1980s, China has attempted to re-structure its auto industry through an industrial policy approach closely modelled on that of Japan and Korea. Korea's success in restructuring its auto industry, in the 1970s and 1980s can be attributed to strong government support granted to the industry and the government's ability to distribute rent, selectively and strategically, to a few key firms. This enabled the selected manufacturers to acquire economies of scale more quickly than firms outside the government's focus.\textsuperscript{841} The developmental states used variants of entry-restrictive policies, including industrial consortia, joint R&D programs, arranged mergers as well as licensing and granted direct and indirect support to business conglomerates.

Chinese state agents have actively regulated and directed the development of the auto sector throughout the reform period. Since the change to reform and openness

\textsuperscript{839} The conducted expert interviews in Beijing and Shanghai moreover indicate that senior managers have to spend more time for contingency plans than in other countries in case planned projects do not receive NDRC and State Council approval. One interviewee estimated that the management team of his company furthermore has to spend about 30-40 percent of its time for contingency plans (Hong Kong and Singapore: 2 percent and Malaysia 10 percent). Interview conducted with a manager of a German OEM in Beijing on 14.06.2006 and an expert of a Chinese auto government institution in Beijing on 16.06.2006.

\textsuperscript{840} Refer to Keefer (2007), p. 213.

\textsuperscript{841} For a descriptive account refer to Rodrik (1996).
at the end of the 1970s, the sector has been of strategic importance to China’s development process for the following reasons:

- **Prestige**: Not only for China, but also for many other developing countries, the auto industry is a visual symbol of a modern economy. "It represents China’s fast industrialization and the country’s economic and political strength."\(^\text{842}\)

- **Spillover effects to other sectors**: As extensive linkages create the potential for substantial positive spillover effects, state promotion of the auto sector aims to develop basic manufacturing capabilities in a wide variety of industries. The auto industry is related to many other industries such as metallurgy, petroleum, chemical, coal, light industry, electronics, and textiles. Auto production would consequently have positive spillover effects on other sectors. Moreover, as it is connected to different industries, it creates indirect jobs in services, aftersales etc. Thus, development of the auto sector is decisive for national economic growth.

- **Specialization and coordination among different companies and sectors**: The central leaders hoped that the development of the auto industry would encourage domestic manufacturers in many sectors to specialize and better co-ordinate their efforts. A complex network of relationships between firms, markets and governments would be set-up that would increase the country’s overall economic competitiveness.\(^\text{843}\)

Due to the auto sector’s far-reaching economic influence on the country’s overall development, state-guidance in the auto sector has been framed by industrial policy directives. Three policy documents have mainly shaped the sector’s restructuring since the mid-1980s:

- In 1986, the central government officially promulgated the auto industry to be a strategic sector of development in its Seventh Five-Year Plan (1986-1990). The first auto industrial policy was introduced before similar efforts in other industries.\(^\text{844}\) The Chinese government was determined to strengthen the presence of state-owned enterprises in the industry after the surge in auto demand and the establishment of initial JVs.

- In 1994, inspired by soaring motor vehicle sales by Japan and Korea (Japan sold more than 6.5 million vehicles worldwide in that year)\(^\text{845}\), and in anticipation of eventual entry into the WTO, the State Council promulgated the “Industrial Policy for the Automobile Industry”.\(^\text{846}\) It was the first stand-alone

\(^{842}\) Interview conducted with an expert of a European auto association in Beijing on 16.06.2006.


policy document that was sector-specific and not integrated in the national five-year plan.\textsuperscript{847} The main effect of the policy was a competitive rush by foreign auto assemblers and parts firms to enter the Chinese market, and to establish a favorable position before China entered the WTO.

- In May 2004, the NDRC released the “Automobile Industry Development Policy” which replaced existing guidelines implemented in 1994.\textsuperscript{848} The 2004 auto policy confirmed the central government’s goal of “\textit{making the auto industry a pillar industry in the national economy by the year 2010}” and updated its guidance from a decade before according to the rules of the WTO.\textsuperscript{849} At the same time, it raised barriers to entry to the market for auto assembly.

China has gradually shifted from overall central planning to market mechanisms in the auto industry during the reform period. The 2004 industrial policy confirms the government’s intent to reinforce its management of industrial development until 2010 and supposedly also beyond.\textsuperscript{850} The industrial policies for the auto sector concentrate on the transformation of state-owned auto manufacturers into exporting national champions with the help of foreign investors. The following analysis thus concentrates on the national policy approach towards FDI and trade in order to develop the domestic auto sector.

4.3.1 FDIs in the auto sector

The most important source of leverage for the state in the auto sector is its ability to regulate and control foreign investment. China has imported technology and established JVs between its key state-owned auto enterprises and well-established foreign partners since the early 1980s. The central government has attempted to use its regulatory control over FDI to promote the development of centrally sanctioned domestic firms. It was one of the few means by which state bureaucrats could give a tangible positive benefit to a particular firm. The three domestic auto groups that are at the core of the state’s focus have each at least two major foreign assembly partners: Dongfeng has Citroën and Nissan, First Auto Works (FAW) has VW and Toyota, and Shanghai Automotive Industry Corporation (SAIC) has VW and General Motors (GM). Reliance on foreign investment to buildup the domestic auto industry is in many respects the defining feature of China’s development approach for the sector.

\textsuperscript{847} Refer to Noble et al. (2005), p. 7.
\textsuperscript{849} Ibidem, Preamble.
\textsuperscript{850} This is reflected in the content of the 2004 industrial policy for the auto industry. The policy stipulates that by 2010 the auto industry will have been nurtured as a national pillar industry.
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4.3.1.1 Designation of nine auto groups

In 1981, Premier Zhao Ziyang announced that in order to achieve production at world standards, "large-scale development" was necessary. The sector should

"switch from self-reliance and the all-under-one-roof mentality of small-scale development, to a cooperative industrial complex system, centered around large-scale factories based on modern technology, which allows for specialization in order to mass produce high-quality autos".\(^{851}\)

The desire for large business groups was a response to genuine weaknesses in the Chinese economy - fragmented production (in 1978, China had 56 auto assembly plants), uncoordinated technology transfer and thus redundant investment, low R&D capability, weak brands, and poor overall quality.\(^{852}\) Large firms were thought to be a key element in the economic "miracles" of neighboring Korea and Japan. In Japan, industrial *keiretsu* were at the center of the development process, particularly in the sectors that were capital and/or technology intensive (primary products, construction, machinery, transportation, and electronics). Auto companies such as Toyota, Nissan, and Mitsubishi are Japanese *keiretsu*-groups.\(^{853}\) Central leaders envisioned domestic business groups becoming internationally competitive and representing the country in the global economy.\(^{854}\) Harwit (1995) and Thun (2006) report that in a series of meetings sponsored by the Ministry of Machinery Industry in 1986, Japan, Korea and Taiwan were cited as examples in which governments had successfully promoted industrial development through the establishment of large-scale indigenous firms that could compete on global markets, and thus should be imitated.\(^{855}\)

The 1986 policy confirmed the state’s effort to build large auto business groups and consolidate the existing production facilities under more centralized managerial structures.\(^{856}\) In the mid-1980s, the central government had thus created six auto enterprise groups that aimed at forging backward and forward integration with the help of foreign JV partners. The government’s preference, especially in passenger cars, has been to encourage SOEs to tie-up with foreign investors in JVs as a way to acquire technology, quality control, and managerial experience.\(^{857}\)

\(^{851}\) Refer to Zhao Ziyang in Iwagaki (1986), p. 11.

\(^{852}\) Refer to Thun (2004a), p. 454 ff.

\(^{853}\) Also in Korea, massive *chaebols* such as Hyundai were the agents of economic expansion.

\(^{854}\) Refer to Thun (2006), p. 7.


\(^{856}\) Refer to Huang (2002a), pp. 542-546.

In May 1983, Beijing Jeep Corporation, a JV between Beijing Auto Industry Corporation (BAIC) and American Motor Corporation (AMC), was established as the first JV for manufacturing utility vehicles. For the Beijing Jeep JV, Jeep Cherokee CKD kits were packaged in the USA by AMC, sold to Beijing Jeep, and then exported to China for assembly by the Beijing Jeep Corporation Chinese workers. One year later, Shanghai-Volkswagen (SVW) - a JV between SAIC and VW - was founded in Shanghai, followed by FAW-VW, Second Auto Works (SAW, later renamed Dongfeng)-Citroën, Guangzhou Peugeot and Tianjin Daihatsu. The designated domestic auto companies were to participate in global passenger car production networks through their JV partners. Central leaders hoped that technology in product development and production would be transferred from foreign to domestic state-owned producers. This was necessary, as Chinese automakers were of low proficiency, and were not able to meet the international technology standards of passenger cars. The sanctioned six major car assemblers became known as the "Big Three plus Small Three", the former referring to the three Sino-foreign JVs of SVW, FAW-VW and SAW-Citroën, while the latter were the two JVs of Beijing Jeep Corporation and Guangzhou Peugeot plus Tianjin Daihatsu.

In 1987, the government designated FAW, SAW and SAIC as China's passenger car production bases. FAW and SAIC were to handle mid-size autos, with smaller cars coming from SAW, which had previously mainly produced trucks. The three players were to become powerful business groups through mergers and alliances with existing small and medium-sized auto factories. Through the formation of business groups, the central government furthermore aimed to convert large single-vehicle firms into multi-vehicle conglomerates that explore economies of scope and amortize the price for R&D between their products. One reason why concentration ratios in Korea and Japan were much higher than in China is the multi-product nature of their large auto firms.

The policy approach did not result in the envisioned development of the Chinese auto industry, however. Local governments protected and bailed-out unprofitable auto SOEs within their jurisdiction in order to prevent them from bankruptcy or "hostile"

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858 Chrysler bought AMC in 1987 and merged with Daimler-Benz to become DaimlerChrysler in 1998.
859 Beijing Jeep Corporation was the first major manufacturing JV of any kind that was established between a Chinese company and a foreign firm after the Cultural Revolution. For a detailed analysis of the establishment of Beijing Jeep Corporation refer to Mann (1989).
860 Guangzhou Peugeot was closed in 1997 and Honda took over Peugeot's position in Guangzhou.
861 Refer to Chinese Academy of Engineering and National Research Council (2003), p. 38.
863 Refer to Ravenhill (2005), p. 17.
864 For further information on the economic theory of the multiproduct firm refer to Teece (1982).
865 The big Korean and Japanese auto makers are large producers of passenger cars as well as trucks and buses. Toyota accounted for 26 percent of Japan's truck production and 34 percent of buses in 1975. Hyundai accounted for 34 percent of Korean truck production in 1987 and 31 percent of bus output. Refer to Sit and Liu (2000), pp. 661-662.
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takeovers. In addition, the state did not maintain its promulgated restriction to six large groups. After the 1987 designation, the government revised its policy, and in the early 1990s, issued permission to establish two new firms of the defense-industry for minicar production (Chang’an Manufacturing Company and Guizhou Aircraft Auto Company) due to pressure from the Central Military Commission. The two companies were enterprises under the central Military Commission and their profit was subject to the military. Their parent companies were the China Ordnance Industry Corporation and the Guizhou Aviation Industry Corporation which both had strong bargaining power and close relationships with top government leaders, as the former Vice Premier Zou Jiahua had been a minister responsible for the defense industry. The central government thus extended its policy approach to “Three Large, Three Small and Two Mini”.

As the reform and opening policy propelled growth, more and more localities and military-related units established JVs with foreign assembly and parts firms. In consequence, although China intended to stimulate consolidation of the industry and passenger car sales growth through the domestic production of state of the art models with foreign partners, it had 125 auto factories, more than 600 auto refitting factories and about 2,300 auto parts factories in the early 1990s. All of these combined produced annually less than one month’s production of any one of the American “Big Three” (Ford, GM, Chrysler) auto companies. Although the six auto firms (plus Chang’an Manufacturing Company and Guizhou Aircraft Auto Company) accounted for 66 percent of vehicle production in 1995, their individual scale was small by international comparison: their average output volume was only 27,466 vehicles. This is far below a company’s efficient level of production, which is estimated to be between 250,000 and 300,000 vehicles, irrespective of location or segment.

4.3.1.2 Attraction of foreign investors

In 1994, the State Council promulgated the new “Industrial Policy for the Auto Industry.” The policy revised the approach of restriction to nine major auto projects and arranged to lift the ban on new JVs as well as new cars and light commercial

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866 Refer to Ravenhill (2005), p. 17.
869 Refer to Xia (2000), p. 90.
870 Refer to Tsuji (2004), p. 6.
871 Refer to Bain (1968), pp. 284-287.
872 Refer to State Council (1994), "Industrial Policy of China’s Automobile Industry".

vehicle projects by 1996. Central leaders aimed to construct a market structure that was characterized by competition among a small number of big firms. Through the JVs, selected local partners were to gain access to technology, managerial skills, and capital.

Construction plans of large scale and new investments from domestic sources needed the approval of the State Council which consulted with the State Development Planning Commission, the State Economics and Trade Commission and the Ministry of Machinery Industry. In addition, operational practices of FDI approval involved a set of requirements to promote domestic auto companies, but prevent foreign automakers from dominating the Chinese market:

- Foreign equity could not exceed 50 percent in assembly and engine JVs. Moreover, each foreign firm could only establish two international JVs for one product category. These regulations prevent foreign auto firms from operating without a domestic partner in China, and restrict their business activities in defined fields (limitation of JVs within one product category). The equity JV regulation guarantees that the Chinese partner has access to all crucial operations of the JV. In addition, foreign companies could not directly provide financing for vehicle purchase, offer after-sales services or distribute cars. The regulations hinder international OEMs from acquiring full control of their China operations.

- The JVs were required to produce products according to international technical standards, have product patents and trademarks, product development and manufacturing technology and establish an internal R&D department. In this way, the state encouraged foreign OEMs to produce their latest models in China.

- The JVs were obliged to have independent international sales organizations and were to export products. Thus, the domestic partner would gain access to international markets and obtain foreign exchange. China's leaders hoped to build up a remunerative export-oriented industry and emulate their more prosperous neighbors Japan and Korea.

- The minimum scales of production were 150,000 for passenger cars of engine capacity below 1,600 cc; 100,000 for light trucks; 50,000 for vans; 10,000 for

873 Refer to Lo (1997), p. 185.
874 Refer to Thun (2004a), pp. 455-456.
880 The state also actively manages the imports of motor vehicles, motorcycles and key components, as China's auto industry was still not internationally competitive. Refer to Harwit (1995), p. 3.
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heavy-duty trucks and 200,000 for motorcycles of engine capacity below 150 cc. Thus, the central leaders aimed to avoid diseconomies of scale and consolidate the fragmented auto market.

Despite China's ambitions to become a WTO member, the auto policy introduced local content requirements the foreign partner had to fulfill. The local content regulation was to raise the contribution of local parts and processes in assembled vehicles. Article 9.44 of the policy contends that preferential import tariff rates vary according to the localization rate of auto products. Passenger car ventures had to satisfy government-imposed local content requirements to qualify for preferential tariff rates on imported components. Import tariff rates were set according to the company's local content rate. The tariff on CKD kits (originally between 100-150 percent) was reduced if the local content rate was increased. Three levels of local content for passenger cars (40 percent, 60 percent and 80 percent) and three levels for commercial vehicles and motorcycles (50 percent, 70 percent and 90 percent) existed. For passenger cars with a local content rate of 60-80 percent, the tariff rate on imported parts was 32 percent. For a local content of 40-60 percent and below 40 percent, the tariff was 48 percent and 50 percent, respectively.

With the local content regulation, the central government aimed to create technological linkages between Sino-foreign manufacturers and domestic suppliers, and to ensure the indigenous capabilities of the entire car sector instead of turning it into an industry that only assembles auto parts for the international market. The state hoped to thus safeguard the national auto industry. At the same time, it could actively allow the globalization of its production by encouraging FDI inflow and advance its international competitiveness.

Indeed, the 1994 policy effectively forced manufacturers to use the expected percentage of Chinese-made parts and components. While in 1994 only 24 percent of the VW Jetta parts were made by Chinese companies, by 2000, 84 percent of its

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882 The local content regulation is prohibited according to WTO regulations. The local content clause stipulates that a certain percentage of the final product has to be from domestic production. Refer to WTO (2001), "Accession Protocol", (D) Judicial Review, Article 7-3, Internet Edition, reviewed 09.10.2006 and Krugman and Obstfeld (2004), p. 273.
883 The local content is also one of the prerequisites for permitting a firm to produce a second vehicle model. Refer to Wang (2001), p. 12 and Lo (1997), p. 189.
884 Refer to State Council (1994), "Industrial Policy of China's Automobile Industry", Article 9.44.
886 Refer to State Council (1994), "Industrial Policy of China's Automobile Industry", Article 9.44.
parts were produced domestically.\footnote{For further information refer to Shanghai Government (2005), “Volkswagen Leading New Way In China—Tribute to the 20th Anniversary of Shanghai Volkswagen”, Internet Edition, reviewed 21.07.2007.} Thus, the strategy of developing the domestic market had positive results.

### 4.3.1.3 Revised policy approach after WTO accession

One major policy development for the domestic auto industry was China's entry into the WTO in 2001. WTO regulations forced China to revise its 1994 industrial policy - the 2004 auto policy was the answer.

Following WTO accession, China eliminated some of the performance requirements imposed on foreign investors in 1994. In conformity with the WTO agreements on Trade-Related Investment Measures (TRIMs) and Trade-Related Intellectual Property Rights (TRIPs),\footnote{Refer to WTO (2001), “Accession Protocol”, (D) Judicial Review, Article 7-3, Internet Edition, reviewed 09.10.2006.} China agreed to abandon the local content regulation by 2004. In addition, the regulation that stipulated that foreign equity in auto engine ventures could not exceed 50 percent was dropped. Foreign investors could even avoid cooperation with domestic companies, and build wholly foreign-owned auto engine companies after 2004. Moreover, foreign investors were allowed to establish non-banking financing (captive auto financing) and engage in sales and distribution (sales and distribution had to be Chinese-owned pre-WTO) after 2004 (refer to Table 14). Furthermore, China's Accession Protocol provides that “all measures applicable to motor vehicle producers restricting the categories, types or models of vehicle permitted for production, would gradually be lifted” and completely removed two years after accession. After that phase, motor vehicle producers would be free to choose the categories, types and models they produced.\footnote{Ibidem, Article 8-(b).}

WTO accession stimulated investment in the auto sector. Foreign and domestic investment in the auto industry was RMB 19.4 billion on a yearly average during the Ninth Five-Year Plan (1996-2000).\footnote{Total investment in the auto industry increased from RMB 2 billion during the Fifth Five-Year Plan (1976-1980) to RMB 4 billion during the Sixth Five-Year Plan (1981-1985), RMB 17 billion during the Seventh Five-Year Plan (1986-1990) and RMB 76 billion during the Eighth Five-Year Plan (1991-1995).} The accumulated investment in the auto industry during the Tenth Five-Year Plan (CAGR 2001-2005: 39.4 percent) was RMB 235.1 billion – 2.4 times more than during the years of the Ninth Five-Year Plan before WTO accession (refer to Figure 24).
The auto industry in the light of the Chinese development approach

Table 14: China’s WTO entry – implications for the auto industry.

<table>
<thead>
<tr>
<th></th>
<th></th>
<th></th>
<th></th>
</tr>
</thead>
<tbody>
<tr>
<td>Local content</td>
<td>40% in first year of production, increasing to 60% and 80% in second and third years</td>
<td>No local content requirements</td>
<td></td>
</tr>
<tr>
<td>Foreign participation in sales and distribution</td>
<td>Limited to wholesaling through JVs</td>
<td>Limited to wholesaling through JVs</td>
<td>Will be allowed to own vehicle wholesale, retail organizations; integrated sales organizations permitted by 2006</td>
</tr>
<tr>
<td>Auto engine</td>
<td>Foreign companies can invest up to 49% stake</td>
<td>Up to 100% stake</td>
<td></td>
</tr>
<tr>
<td>Auto financing</td>
<td>Foreign non-bank financial institutions prohibited from providing financing</td>
<td>Four foreign financing institutions are expected to begin operations in 2004</td>
<td>Gradual roll-out of operations from selected cities to nationwide</td>
</tr>
</tbody>
</table>


Figure 24: Total investment in the auto industry (including parts and components), 1976-2005.

Total investment in the auto industry (RMB billion)

![Graph showing total investment in the auto industry from 1976 to 2005](image)


China’s WTO accession made a modification of China’s auto industry policy necessary. The auto industry faced the challenge of how to keep its independence in the aftermath of WTO accession and the liberalization of business activities of foreign investors. According to the goal of avoiding foreign investors’ domination in the market, China increased investment barriers with the promulgation of the 2004 auto policy. Although administrative screening had been simplified over the years, a series of criteria for investment projects of auto vehicle production were kept or newly introduced:

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892 All data from the China Automotive Industry Yearbook (2006) were translated by DaimlerChrysler.

893 Refer to NDRC (2004), “Automobile Industry Development Policy No. 8 decree of the State Development and Reform Commission”, Chapter 1, Articles 1-4.
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- Foreign investors are still granted 50 percent equity participation in JVs at maximum.

- The threshold investment level of new auto projects was raised to RMB 2 billion, and a R&D center with investment of over RMB 500 million has to be built.\(^{894}\) These conditions impose restriction on projects below the expected investment level. The central government also hopes that this regulation will encourage the industry's consolidation and act as a disincentive for smaller private firms to enter the market. The R&D requirement forces foreign investors to transfer technology know-how to China.

- The new industrial policy forbids the transfer of production licenses, and thus blocks the entry of mostly private firms through mergers of small incumbents.

- The policy stipulates the encouragement of auto enterprises' R&D and technical innovation capability. It supports enterprises that develop products with China's own intellectual property right (IPR), and promotes Chinese proprietary (newly created and established) brands.\(^{895}\) "The threshold for future auto projects will thus be whether foreign investors are willing to produce cars in China and sell them with their own brand." \(^{896}\)

The key of the auto industry policy was to rationalize the industry in order to maintain its independence after the phasing out of protectionist tariffs related to its WTO accession, and support major state-owned corporations.\(^{897}\) The revised approach, however, left the state with many policy tools. As stipulated by the 2004 auto policy, investors have to fulfil requirements on scale, local R&D and restrictions on kit imports and JV formation. Among the policy measures are also controls on tax breaks, preferential financing, as well as discretionary authority over a range of regulatory issues from distribution to pollution control, and compulsory labelling of domestic parts.\(^{898}\) Particularly, JVs approval of, and thus discretion over, domestic-foreign project formation is an important policy tool. The World Bank sample "Competitiveness, Technology and Firm Linkages in Manufacturing Sectors" (2001) confirms that the government is not only involved in project approval, but also participates in the setting-up of Sino-foreign auto projects by assisting auto companies in identifying foreign investors. A significant difference exists between the auto sector and the residual sectors (Pearson Chi-Square Test: p=0.036, 2-sided) in view of government assistance in identifying foreign investors in the year 2000. While 11.2 percent (n=24) of the managers in the auto sector answered that they received this form of official assistance, only 8.1 percent (n=104) of the interviewees in the residual sectors confirmed that they were granted state assistance in identifying

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\(^{894}\) Ibidem, Chapter 10, Article 47-5.

\(^{895}\) Ibidem, Chapter 1, Article 3.

\(^{896}\) Interview conducted with experts from a Chinese government institution in Beijing on 13.06.2006.


\(^{898}\) Refer to Noble et al. (2005), p. 10-14.
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foreign investors (refer to Table 15, Table 16). The government, moreover, assisted the auto sector significantly more (Pearson Chi-Square Test: p=0.006, 2-sided) than the residual sectors, in locating foreign technology to license (refer to Appendix V, Table A49, Table A50) and identifying potential foreign clients (Pearson Chi-Square Test: p=0.029, 2-sided) (refer to Appendix V, Table A51, Table A52).

Table 15: Descriptive Statistics: Government agency’s or official’s assistance in identifying foreign investors in the auto sector and in the residual sectors, 2000.

<table>
<thead>
<tr>
<th>Government agency’s or official’s assistance in identifying foreign investors</th>
<th>Yes</th>
<th>No</th>
<th>N.A.</th>
<th>Total</th>
</tr>
</thead>
<tbody>
<tr>
<td>Auto sec</td>
<td>24</td>
<td>162</td>
<td>29</td>
<td>215</td>
</tr>
<tr>
<td>% within Group_autosec_ressec</td>
<td>11.2%</td>
<td>75.3%</td>
<td>13.5%</td>
<td>100.0%</td>
</tr>
<tr>
<td>Residual sec</td>
<td>104</td>
<td>921</td>
<td>259</td>
<td>1284</td>
</tr>
<tr>
<td>% within Group_autosec_ressec</td>
<td>8.1%</td>
<td>71.7%</td>
<td>20.2%</td>
<td>100.0%</td>
</tr>
<tr>
<td>Total</td>
<td>128</td>
<td>1083</td>
<td>288</td>
<td>1499</td>
</tr>
<tr>
<td>% within Group_autosec_ressec</td>
<td>8.5%</td>
<td>72.2%</td>
<td>19.2%</td>
<td>100.0%</td>
</tr>
</tbody>
</table>


Table 16: Chi-Square Test: Government agency’s or official’s assistance in identifying foreign investors in the auto sector and in the residual sectors, 2000.

<table>
<thead>
<tr>
<th>Value</th>
<th>df</th>
<th>Asymp. Sig. (2-sided)</th>
</tr>
</thead>
<tbody>
<tr>
<td>Pearson Chi-Square</td>
<td>6.539³</td>
<td>2</td>
</tr>
<tr>
<td>Likelihood Ratio</td>
<td>6.906</td>
<td>2</td>
</tr>
<tr>
<td>Linear-by-Linear Association</td>
<td>6.569</td>
<td>1</td>
</tr>
<tr>
<td>N of Valid Cases</td>
<td>1499</td>
<td></td>
</tr>
</tbody>
</table>

* 0 cells (.0%) have expected count less than 5. The minimum expected count is 18.36.

Even after China’s WTO accession, state bureaucrats use industrial policy instruments to guide economic development. China’s WTO entry did thus not destroy industrial policy for the auto industry, but constrained and disciplined it. With its assistance in identifying foreign investors and locating foreign technology to license, the government helped domestic auto companies to cooperate with foreign firms. The World Bank sample “Competitiveness, Technology and Firm Linkages in Manufacturing Sectors” (2001) provides indication that licensing technology from foreign firms differs significantly between the auto sector and the residual sectors.
The auto industry in the light of the Chinese development approach (Pearson Chi-Square Test: p=0.000, 2-sided) (refer to Table 17, Table 18) and between the auto sector and the electronics sector in particular (Pearson Chi-Square Test: p=0.046, 2-sided) (refer to Appendix V, Table A53, Table A54). While in the auto sector 30.1 percent (n=40) of the managers confirmed that their company licensed technology from a foreign company, in the residual sector only 15.6 percent (n=91) of the managers stated the same (refer to Table 17, Table 18). Companies in the auto sector, moreover, licensed processes from a foreign firm significantly more often than companies in the residual sectors (Pearson Chi-Square Test: p=0.001, 2-sided), and in the electronics sector in particular (Pearson Chi-Square Test: p=0.035, 2-sided) (refer to Appendix V, Table A55, Table A56, Table A57, Table A58).

Table 17: Descriptive Statistics: Introduction of new products into the plant by licensing technology from a foreign firm in the auto sector and in the residual sectors since 1998.

<table>
<thead>
<tr>
<th>Licensed technology from foreign firm</th>
<th>Total</th>
</tr>
</thead>
<tbody>
<tr>
<td>Yes</td>
<td>No</td>
</tr>
<tr>
<td>Group_autosec_ressec</td>
<td></td>
</tr>
<tr>
<td>Auto sec</td>
<td>Count</td>
</tr>
<tr>
<td>% within Group_</td>
<td></td>
</tr>
<tr>
<td>autosec_ressec</td>
<td></td>
</tr>
<tr>
<td>Yes</td>
<td>40</td>
</tr>
<tr>
<td>No</td>
<td>30,1%</td>
</tr>
<tr>
<td>Total</td>
<td>133</td>
</tr>
<tr>
<td>Residual sec</td>
<td>Count</td>
</tr>
<tr>
<td>% within Group_</td>
<td></td>
</tr>
<tr>
<td>autosec_ressec</td>
<td></td>
</tr>
<tr>
<td>Yes</td>
<td>91</td>
</tr>
<tr>
<td>No</td>
<td>15,6%</td>
</tr>
<tr>
<td>Total</td>
<td>583</td>
</tr>
<tr>
<td>Total</td>
<td>131</td>
</tr>
<tr>
<td>% within Group_</td>
<td></td>
</tr>
<tr>
<td>autosec_ressec</td>
<td></td>
</tr>
<tr>
<td>Yes</td>
<td>18,3%</td>
</tr>
<tr>
<td>No</td>
<td>100,0%</td>
</tr>
<tr>
<td>Total</td>
<td>100,0%</td>
</tr>
</tbody>
</table>

Table 18: Chi-Square Test: Introduction of new products into the plant by licensing technology from a foreign firm in the auto sector and in the residual sectors since 1998.

<table>
<thead>
<tr>
<th></th>
<th>Value</th>
<th>df</th>
<th>Asymp. Sig. (2-sided)</th>
<th>Exact Sig. (2-sided)</th>
<th>Exact Sig. (1-sided)</th>
</tr>
</thead>
<tbody>
<tr>
<td>Pearson Chi-Square</td>
<td>15,161`</td>
<td>1</td>
<td>.000</td>
<td></td>
<td></td>
</tr>
<tr>
<td>Continuity Correction</td>
<td>14,208</td>
<td>1</td>
<td>.000</td>
<td></td>
<td></td>
</tr>
<tr>
<td>Likelihood Ratio</td>
<td>13,737</td>
<td>1</td>
<td>.000</td>
<td></td>
<td></td>
</tr>
<tr>
<td>Fisher's Exact Test</td>
<td></td>
<td>1</td>
<td>.000</td>
<td></td>
<td></td>
</tr>
<tr>
<td>Linear-by-Linear Association</td>
<td>15,140</td>
<td>1</td>
<td>.000</td>
<td></td>
<td></td>
</tr>
<tr>
<td>N of Valid Cases</td>
<td>716</td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
</tbody>
</table>

`a: Computed only for a 2x2 table
b: 0 cells (.0%) have expected count less than 5. The minimum expected count is 24.33.

Overall, the FDI strategy has been coherently oriented towards the long-term goal of establishing internationally competitive Chinese auto companies. The regulatory framework for the auto industry focuses on technology transfer from foreign investors to domestic auto companies. Therefore, the state encourages domestic auto companies to license foreign technology and establish JVs with foreign OEMs for technology transfer. The interviewees confirmed that China has been raising the threshold for approval of investment projects step by step, and only selectively approves FDI projects in order to "avoid China becoming a mere production base for MNCs." The design of the industrial policies for the auto industry demands that foreign auto investors fulfil strict requirements for project approval. Since 1994, central and local governments selected MNCs for cooperation according to their alleged willingness to engage in technology transfer. The difficulty for policymakers is drawing the distinction between legitimate competition and the crowding out of domestic carmakers by foreign competitors.

4.3.2 Trade policy for the auto sector

The East Asian developmental states have been successful examples of a dualistic trade policy. Korea has used entry quotas to protect its infant auto industry. The main constraint on allocating rent among domestic firms through administrative means is that their enforcement costs are high. If governments fail to coordinate their activities and restrict entry, financial resources and market opportunities might become dispersed among many firms leading to scale diseconomies, at least in the short run.

In addition to import substitution, export promotion was a central component in the development of Korea's auto industry. In the late 1980s, almost 50 percent of its total domestic auto production was destined for export markets. This success had been achieved by Korean companies exporting for the most part under their own brand names. The Hyundai Excel became the best-selling import model in the US market in 1987. The Korean government had followed the Japanese example of promoting

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899 Quotation comes from an interview conducted with an expert of a European auto association in Beijing on 16.06.2006. Moreover, interviews conducted with experts from a Chinese government institution in Beijing on 13.06.2006, with an expert of a Chinese auto government institution in Beijing on 16.06.2006 and with managers of a German OEM in Beijing between 08.06.2006 and 16.06.2006 confirm the central government's policy approach.


902 Excessive entry is costly in two ways in industries characterized by increasing returns. One is a static effect: excessive entry causes many plants to operate under minimum efficient scale and higher unit costs than otherwise, because financing or markets are dispersed among numerous producers. The other is a dynamic effect. When adjustment to competition is not instantaneous, protection delays the maturity of the infant firms, and increases the protected industry’s dependency on market-distorting policies, making temporary protection a long-lasting proposition.

auto exports in order to position its firms better in the international market. Export promotion was necessary to accelerate economies of scale. The size of the Korean domestic market for autos was small in the 1970s and 1980s, despite its rapid economic growth. Focusing solely on the domestic market would have limited auto firms' growth potentials and resulted in sub-optimal scales. Exporting forced Korean firms to compete overseas and prompted them to improve their products' quality by meeting international safety, fuel efficiency and emission standards. Auto firms export performance thus served as an objective criterion to assess firms' performance, and ensured economic rather than political allocation criteria.

4.3.2.1 Import substitution

With his theory of "national economics", List (1841) argued that a country entering the early stages of industrialization was at a disadvantage in relation to those nations that were already industrialized. The new, industrializing firms could not successfully compete against the established foreign industrial enterprises which had already incurred all the required start-up costs and which could sell their products at prices that reflected all the cost-efficiencies of mass production and an already existing highly-skilled labor force. The government of an industrializing nation had to erect protectionist barriers to keep the prices of foreign manufactured goods as high as the costs of production of the new industrializing domestic enterprises. Only in this way would those domestic firms have a chance to survive in the market and establish themselves firmly enough to finally face the older foreign industrial enterprises on an open field of free trade at some point in the future.

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904 In 1953, Japan revised its Anti-Monopoly Law to pave the way for the formation of more cartels and the protection of its export sector. For further information refer to Yamamura (1967). In 1980, 56 percent of the cars produced in Japan were exported. Data refer to Japan Automobile Manufacturers Association, “Japan’s Motor Vehicle Statistics (Production and Exports)”, Internet Edition, reviewed 07.09.2007.

905 The need to export in order to achieve economies of scale in Korea is illustrated by comparing Korea and Japan. In part because of a smaller domestic market, Korea pushed for export promotion harder than Japan. It took Korea only about five years after beginning auto production to export 15 percent of the output, whereas it took Japan more than ten years. For further information refer to Amsden and Kim (1989).


907 Refer to List (1841). For further elaboration on import substitution policies refer to Alexander (1987), Little et al. (1970) and Pazos (1987). For information on trade policy as an input to development refer to Krueger (1980).
4.3.2.1.1 Infant-industry protection of the auto sector through tariff barriers until 2001

With the 1986 auto policy, China chose an import substitution policy approach to promote the domestic auto industry.\textsuperscript{908} Entry barriers placed on foreign counterparts were to prevent nascent ("infant") domestic auto firms from being crowded out by MNCs and becoming foreign-part assembly plants. The 1986 policy expected to substitute for foreign cars by implementing trade barriers and thus protect domestic automakers.\textsuperscript{909} The central government set the tariff rate on autos at 200-220 percent in 1986, and introduced quotas that restricted the import of foreign vehicles to 30,000 units per year.\textsuperscript{910} Moreover, foreign auto companies were not allowed to act as vehicle importers or conduct marketing in the domestic market.\textsuperscript{911}

Tariffs remained above 200 percent until the early 1990s. Only in anticipation of eventual entry into the WTO, were tariffs on cars gradually lowered after the promulgation of the 1994 auto policy. Sectoral comparison, however, shows that tariff reductions for the auto sector were low - China maintained protection for the auto sector. While the average weighted tariff across all industries was 21 percent in 1995,\textsuperscript{912} in 1997, tariffs on autos were only lowered to 80 percent for vehicles with an engine size smaller than 3,000 cubic capacity and 100 percent for vehicles with an engine size bigger than 3,000 cubic capacity.\textsuperscript{913} In addition to high tariff rates, central leaders kept restrictive import licensing to a number of product categories including motor vehicles, key parts for vehicles, crane lorries, vehicle tyres, motorcycles, and key parts for motorcycles.\textsuperscript{914} Altogether, 89 items of auto products were subject to quotas, which represented 60 percent of Chinese machinery and electronic products. Besides, only Dalian, Tianjin, Shanghai and Huangpu ports were permitted to import complete vehicles. They were centrally controlled in order to keep imports within the state's planned quota, and functioned as an administrative barrier to foreign imports. Imports of used vehicles were prohibited.\textsuperscript{915}

Although the 1994 industrial policy emphasized the importance of passenger car production for industrial development,\textsuperscript{916} it neglected the demand side of the

\textsuperscript{909} Refer to Wang (2001), pp. 2-3 and Huang (2002a), pp. 542-546.
\textsuperscript{912} Refer to Chinese Academy of Engineering and National Research Council (2003), p. 27.
\textsuperscript{913} Refer to He and Yang (1999), p. 15.
\textsuperscript{914} Refer to Wang (2001), p. 7.
\textsuperscript{915} Refer to He and Yang (1999), p. 15.
\textsuperscript{916} Refer to State Council (1994), "Industrial Policy of China's Automobile Industry".
Given tariff protection and administrative barriers, the auto sector produced higher profits than other manufacturing industries. Rents created by the protection measures ballooned car prices as enterprises of both domestic and foreign investors reaped short-term profits through high prices. In the case of SVW, the domestic sales price in 1993 was around RMB 200,000 per car (and the production cost around RMB 85,000), which at the official exchange rate was double the world price.

As a result of high prices and profit expectations, 22 out of 30 provinces had declared their auto industry as the pillar sector of their economies for the 1996-2010 period as of January 1997. The 122 final assembly plants had a combined output volume of 11,888 units of motor vehicles in 1997. Small-scale projects (mostly assembly plants that relied heavily on CKD kits) became lucrative, and thus economies of scale were no more a necessary condition for profitability. In consequence, the protectionist regime caused the proliferation of inferior car producers in China.

Besides, due to high prices resulting from the protected market, demand for passenger cars was low. China’s production capacity for passenger cars (1.37 million units) was much higher than domestic demand (600,000 units) in 1997. Overcapacity was a consequence of redundant investment in the auto sector, and the high profit anticipation caused by persistent excess profits.

4.3.2.1.2 Reduction of tariff barriers and introduction of non-tariff barriers since 2001

The accession terms China had to agree upon to join the WTO were among the stiffest ever required and constituted massive challenges to existing practices. The accession commitments relevant to motor vehicles banned many of the most important industrial policy tools China had used to protect its domestic market (refer to Table 19):

- Tariff cuts on vehicles: At accession, tariffs on passenger cars were 70 percent (80 percent for cars with engines over 3.0 liters); by 2005 they fell to

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917 Not before 1984, the state had officially permitted private ownership of autos to help create a market for auto companies in China. Refer to Gallagher (2006), p. 38.
918 Refer to Nee (2002), p. 5.
920 Refer to Huang (2002a), pp. 558-559.
923 Refer to Huang (2002a), pp. 558-559.
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38-43 percent (depending on the engine size). Since July 2006, tariffs on passenger cars have been 25 percent.

- **Tariff cuts on auto components:** Auto parts tariffs, which averaged 17.4 percent on accession, dropped to 10 percent in July 2006.\(^925\)
- **Gradual elimination of quotas and licenses:** Aggregate import quotas covering motor vehicles and parts were gradually loosened (20 percent per year after 2004).\(^926\) All import licenses and quotas were phased out in January 2006.\(^927\)

### Table 19: Impact of WTO entry on the Chinese auto industry.

<table>
<thead>
<tr>
<th></th>
<th></th>
<th></th>
<th></th>
</tr>
</thead>
<tbody>
<tr>
<td>Import tariffs on vehicles</td>
<td>70-80%</td>
<td>38% -43%, depending on size of engine</td>
<td>25% for all vehicles</td>
</tr>
<tr>
<td>Import tariffs on auto components</td>
<td>15-50%</td>
<td>10-40%</td>
<td>10%</td>
</tr>
<tr>
<td>Import licenses and quotas</td>
<td>Annual quota of 30,000 vehicles per year from foreign OEMs</td>
<td>Quota decreased by roughly 20% per year</td>
<td>Quota to be phased out</td>
</tr>
</tbody>
</table>


Low passenger car imports as a share of domestic demand have been possible even after WTO accession and involved tariff reductions, because China still pursues a development approach to the auto industry that is dominated by import substitution. In line with the reduction of tariff rates, the price of an imported Mercedes Benz S600 fell by RMB 1.1 million in 2002. Other luxury cars were about 15-20 percent cheaper in 2003 than those sold before WTO accession.\(^928\) Indeed, auto imports increased after WTO accession: China imported 58,000 vehicles in 2000, and 166,000 vehicles in 2006. From the total numbers, however, one cannot infer that auto imports gained importance to meet increasing demand. While total passenger car imports accounted for 7.8 percent of demand in 2002; total passenger car imports as a percentage of demand have been decreasing since then. In 2006, only 3.4 percent of passenger car demand came from imports, because of high import tariff rates (refer to Figure 25). Even in 2007, import tariffs on cars are still substantially higher in China than in many other countries. Import tariffs on passenger cars are 25 percent in China,

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The auto industry in the light of the Chinese development approach compared with 10 percent in the European Union (EU), 8 percent in Korea and 2.5 percent in the USA.\textsuperscript{929}

**Figure 25: Imports of passenger cars after WTO accession.**

![Graph showing imports of passenger cars](image)


In addition to the 25 percent tariff rate on imported passenger cars, the central government has stipulated regulations that aim to diminish imports and favor domestic production since its WTO accession. The government has established nontariff barriers such as certification, licensing, and testing requirements on products and production materials in a number of areas which force foreign manufacturers to produce locally, rather than import vehicles.

In most cases, the requirements on imports involve government approval of all products and materials covered before they are allowed to enter the market. Due to the lack of capacity to administer the requirements, they often function as barriers to those products' and materials' access to the Chinese market. Particularly, mandatory certification (CCC) as well as local content regulations function as nontariff barriers in the auto sector:

1. **China Compulsory Certification:** Standard certification and testing are in effect barriers to imports. In spite of the WTO Agreement on Technical Barriers to Trade, additional tests in Chinese laboratories are required for vehicles and parts, although

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test results supported by foreign certificates are made available. China does not recognize any international certification standards, and importers must have their products retested in China. The European Commission (2007) contends that "additional testing and certification requirements are disproportionate as they would not seem to provide additional safety, health, or environment benefits."\textsuperscript{930} The certification process in China can be prohibitively expensive as CCC is typically subject to a number of (unpredictable) tests which usually have to be repeated every year. There is no way of predicting or influencing whether and when a commission will hand out the certificates. If a manufacturer has several manufacturing facilities, these must all be certified.\textsuperscript{931} The main difference between the certification system in China and those in other countries is that no foreign test agencies have the required accreditation. Type approval has to be carried out in Chinese laboratories only.\textsuperscript{932} The system tends to be "overbuilt", requiring that all products or materials covered, regardless of the presence of any indicators of non-compliance with Chinese law, undergo lengthy reviews. This procedure aims to encourage foreign companies to move production to China and avoid imports, as it is "time-intensive, costly and an administrative burden".\textsuperscript{933} In addition, China's designated testing bodies are not independent of the government. In many cases, testing facilities are closely connected with research institutes that engage in R&D activities related to foreign products. This raises IPR concerns among foreign companies.\textsuperscript{934}

2. Local content regulation: The localization regulation is another measure that aims at import substitution. Through the localization regulation, the national government discourages kit assembly using imported parts and subsystems. In this way, it tries to foster the development of the industry, as foreign companies have to invest domestically in core technology and vehicle subsystems. Officially, as part of its commitment to the WTO, China abandoned the 40 percent localization rate. The central government, however, issued new regulations for importing vehicles, auto systems and components. In this regard, the Customs General Administration, the NDRC, the Ministry of Commerce and the Ministry of Finance jointly issued the "Measures for the Administration of Import of Automobile Components and Parts

\textsuperscript{930} This applies to Standards, Sanitary and Other Technical Requirements. Refer to European Commission, Market Access Database, Internet Edition, reviewed 11.07.2007.

\textsuperscript{931} At the time the interviews were taken, the certification process took between three and seven months. Interview conducted with an expert of a Chinese auto association in Beijing on 16.06.2006.

\textsuperscript{932} China, however, also has to implement the regulatory framework necessary to allow foreign-invested testing and certification organizations to conduct conformity assessment services for the domestic market. Majority-owned ventures were to be allowed in this area by no later than 11.12.2003. Refer to China Business Review (2003), "Navigating China's Standards Regime", Internet Edition, reviewed 20.07.2007 and China Business Review (2004), "WTO: China enters year three", Internet Edition, reviewed 03.10.2006.

\textsuperscript{933} Interview conducted with an expert of a European auto association in Beijing on 16.06.2006.

Featuring Complete Vehicles” in 2005. Under the legislation, eight key parts (engine, vehicle body, transmission, driving axle, non-driving axle, frame, braking system, steering system) as well as CKD and SKD kits were taxed as completely built up (CBU) imports from April 1, 2005:

- If both vehicle body and engine are imported, the vehicle will be regarded as a CBU import.
- If either vehicle body or engine is imported, plus any three or more of a combination of transmission, driving and driven axles, chassis, steering and braking, the vehicle will be regarded as a CBU import.
- Alternatively, if any five or more of a combination of transmission, driving and driven axles, chassis, steering and braking are imported, the vehicle will be regarded as a CBU import.
- As of July 1st, 2008, if the total cost of imported components accounts for 60 percent or more of a complete vehicle retail price, the vehicle will be regarded as a CBU import.

China’s leaders claimed that the above policy aimed at curbing tariff evasion by importers who tried to avoid paying the 25 percent tariff. However, according to the foreign respondents, the Administrative Measures regulation was de facto a substitute for the pre-WTO local content regulation. The resulting additional charge penalizes imported components, and forces auto companies to source components locally rather than to import them. The stipulation of the regulation was to reach 40 percent local content after one year, and 60 percent local content after three years. Overall, the new law demanded production of the whole car in China, because imports of key components would have become too expensive to be profitable in China. The policy-makers’ key intention was to further improve the quality of FDI in the auto sector. They aimed to transform the sector into a “global auto manufacturing

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936 Vehicles are CBU if they are almost completely assembled in the country of origin, but partly disassembled before export. To gain some extra tax preferences, the manufacturer needs to further localize the car, i.e. increase the share of parts produced by local manufacturers, such as tires, wheels, seats, headlights, windscreens and glass, batteries, interior plastics, etc. down to the engine and transmission.


938 Interviews conducted with managers of a German OEM in Beijing on 14.06.2006.

base rather than assembly center” and propel the development and reorganization of the local auto parts industry.  

Trade lobby groups from different countries presented their objections to the WTO, as WTO law promulgates that members have to offer the same trade policies to all WTO members (most-favored-nation status). The European Commission considers that China has failed to comply with its obligations under the GATT 1994, the Agreement on Trade-Related Investment Measures, the Agreement of Subsidies and Countervailing Measures and the Protocol on the Accession of the Peoples Republic of China. The issue was referred to a WTO Panel by the Dispute Settlement Body in October 2006 at the request of the European Commission, Canada and the USA.

In July 2006 (one month after the interviews were conducted in China), following the complaints of the trade lobby groups, the Chinese government announced a postponement of the implementation of the Administrative Measures until July 1\textsuperscript{st}, 2008. The import duty on CBU imports is therefore 25 percent, while the import tariff on parts and components is 10 percent. After the postponement, it is still not entirely clear whether CKD and SKD kits will be subject to duty of 25 percent or 10 percent but the back-tracking implies that these will be subject to the lower rate. Large and luxury models typically have lower levels of local content. Consequently, production is particularly vulnerable to this regulation. While the Administrative Measures have been postponed, China has still not abandoned its 40 percent local content regulation for the auto sector. In November 2006, the US-China Economic and Security Review Commission stated in its report to the Congress, that “Chinese regulations still require automakers to exceed a 40 percent domestic content requirement or face higher tariffs on the imported auto parts”. These discriminatory tariffs pressure continuously China-based auto assembly companies to use parts manufactured in China.

Data of the World Bank survey “Competitiveness, Technology and Firm Linkages in Manufacturing Sectors” (2001) also indicate that the auto sector faces constraints on imports. There is a significant difference (Levene’s Test: \( p=0.000 \), T-Test: \( p=0.034 \) equal variances not assumed) between the auto sector and the residual sectors with respect to how many days consignments of a major imported raw material took on average to clear local customs. While it took 11.8 days in the auto sector (n=77), it took 7.0 days in the residual sectors (n=357) (refer to Table 20, Table 21) and 6.7

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940 Interviews conducted with managers of a German OEM in Beijing on 14.06.2006.
941 Refer to WTO Secretariat (1999), “Guide to the Uruguay Round Agreements”.
days in the electronics sector (n=194). The difference between the auto sector and the electronics sector is also significant (Levene’s Test: p=0.000, T-Test: p=0.025 equal variances not assumed) (refer to Appendix V, Table A59, Table A60).

The challenge for the Chinese government is consequently to come up with a strategy to encourage localization while keeping within the spirit of its WTO agreement. The interviewed experts explained that China’s cost structure and expanding scale are already encouraging greater localization (and thus competition) and the outsourcing of global operations. However, interviewees from auto companies added that their companies’ profitability considerations should decide about the products and the amount of localization in China. The Chinese government should therefore not rely on protection by a local content policy but on market forces.

Table 20: Descriptive Statistics: Days for consignments of a major input experienced before clearing local customs in the auto sector and the residual sectors, 2000.

<table>
<thead>
<tr>
<th>Group</th>
<th>N</th>
<th>Mean</th>
<th>Std. Deviation</th>
<th>Std. Error Mean</th>
</tr>
</thead>
<tbody>
<tr>
<td>Auto sec</td>
<td>77</td>
<td>11,831.2</td>
<td>19,088.71</td>
<td>2,175.6</td>
</tr>
<tr>
<td>Residual sec</td>
<td>357</td>
<td>7,042.0</td>
<td>8,362.97</td>
<td>0.44262</td>
</tr>
</tbody>
</table>


Table 21: Independent Samples T-Test: Days for consignments of a major input experienced before clearing local customs in the auto sector and the residual sectors, 2000.

<table>
<thead>
<tr>
<th>Levene’s Test for Equality of Variances</th>
<th>Levene’s Test for Equality of Means</th>
<th>95% Confidence Interval of the Difference</th>
</tr>
</thead>
<tbody>
<tr>
<td>F</td>
<td>Sig.</td>
<td>t</td>
</tr>
<tr>
<td>Days for consignments of a major imported raw material to clear local customs</td>
<td>Equal variances assumed</td>
<td>30.587</td>
</tr>
<tr>
<td>Days for consignments of a major imported raw material to clear local customs</td>
<td>Equal variances not assumed</td>
<td>2.157</td>
</tr>
</tbody>
</table>


Moreover, due to the continuous protection of the auto market, profits of auto manufacturers remain high. Profit expectations as well as the incentives for high-volume production have resulted in overcapacity in the auto market. While the actual

945 Interviews conducted with experts from a German public corporation in Shanghai on 19.06.2006.
946 Interview conducted with an expert of a European auto association in Beijing on 16.06.2006 and with a manager of an OEM in Beijing on 09.06.2006.
sales volume was 3.3 million passenger vehicles in 2005, capacity was more than 6 million (refer to Figure 26). The growth of auto production has been slowing since 2004 (growth of auto assembly was 72 percent in 2004 and 14 percent in 2005), and thus the operation rate has also been decreasing. In order to combat rising overcapacity in the auto industry, the NDRC issued another circulation on the restructuring of the auto industry in 2006. The focus of the document is on newly founded car projects. The circulation stipulates that if an existing auto maker applies to establish a new plant at any other place, its vehicle sales in the previous year should be 80 percent over its approved or filed production capacity. With this regulation, the state further increased the threshold for foreign projects. Altogether, the protective regime of the auto industry (imposing high tariffs on finished-vehicle imports together with licenses and quotas) persists despite extensive trade and economic liberalization in most other sectors in the late 1990s.

Figure 26: Overcapacity in the Chinese passenger car market, 1998 – 2005.


4.3.2.2 Export promotion

At the beginning of China’s reform path, central bureaucrats only needed to look at their prosperous neighbors Japan and Korea to see the stimulating effect a vibrant export-oriented auto sector could have on a nation’s economy. The 1994 auto industrial policy intended to encourage auto companies’ export activities. According to Article 3.12, exporting auto enterprises would enjoy preferential treatment, such as

948 Ibidem.
950 Refer to Harwit (1992), p. 141.
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tax exemptions, from the regulatory tax for fixed asset investments and special
permissions in utilizing foreign capital starting from 1996. The policy also clarified
that the state would provide preferential loans for exporting companies in order to
establish internationally competitive domestic auto manufacturers. Article 8.39
promulgated that

"The state encourages auto industry enterprises to make efforts to expand and
take part in international competition, which should be regarded as the
development objective of auto enterprises".

Despite preferential treatment for exporting enterprises, export volumes remained
low in the mid-1990s. In 1995, only 1.4 percent of passenger cars produced in China
were exported. In comparison, Korea exported almost 50 percent of its domestic
passenger car production in the same year. Until 2003, exports of passenger cars
as a percentage of domestic car production had not increased (1.3 percent of
domestic car production). High car prices due to import tariffs on parts, as well as
low quality, hindered domestic manufacturers from exporting.

Since the 2004 Auto Industrial Policy, the state has been aiming to increase exports
of cars and auto components 20 times by 2010, to USD 100 billion (2003: USD 4.7
billion). This policy encourages investment in export-oriented JVs, and uses the
following measures to increase auto companies' export activities. The government
issues special export loans via the Export-Import Bank of China, which is a fully
government-owned policy bank under the State Council. In 2005, the Export-
Import Bank of China loaned RMB 5 billion to domestic auto maker Chery for its
overseas business expansion. The loan was to aid Chery in its foreign investment
and overseas contracts for its cars, and other mechanical, electrical and high-tech

952 Ibidem, Article 8.39.
953 Ibidem, Article 8.40.
954 Chinese companies' products were not yet internationally competitive. Besides, with their
investments in China, foreign companies aimed to produce locally for the Chinese market instead
of using China as an export hub as most MNCs had production facilities in other markets from
where they exported worldwide. Refer to Global Insight (2002), Asian Automotive Industry
956 Refer to World Markets Analysis (2004).
957 Refer to NDRC (2004), “Automobile Industry Development Policy No. 8 decree of the State
Development and Reform Commission", Chapter 1, Article 2, Internet Edition, reviewed 11.04.
2006.
reviewed 27.08.2007.
products. In addition, central and local governments encourage exports by tax refund. FFEs established in Beijing can enjoy preferential policies formulated by the central government and Beijing Municipality. As provided in Articles 80 and 81 of the "Enforcement Regulations for the Law of the People's Republic of China on Income Tax of Enterprises with Foreign Investment and Foreign Enterprises", a foreign investor receives full refund of the charged income tax if he reinvests "directly earned profits in enterprises with advanced technology and export orientation within a period of not less than 5 years". Moreover, as provided in the Preferential Policies Provided by Beijing Economic and Technological Development Zone for Investors, export-oriented foreign enterprises enjoy a reduced corporate income tax rate of 10 percent even after the expiry of the corporate income tax exemption and reduction period "if the output value of export products in the current year has reached above 70 percent of the product output value of the enterprise in the same year". These regulations function as incentives for foreign auto companies to use China as an export hub, and at the same time discipline companies through strict requirements on the amount and period of exports.

MNCs are still limited to 50 percent ownership of domestic JVs, but, they can hold majority stakes in auto and motorcycle JVs if their operations are geared solely towards exports. The new guidelines followed the precedent when the NDRC allowed Honda to take a majority stake in its export-oriented JV with Guangzhou Auto in 2003. The regulation aims to encourage foreign manufacturers to expand their export activities and set up export-oriented plants.

To sum up, the analysis of China's national auto industrial policies showed that, unlike from policies in the East Asian developmental states, industrial policy for the auto sector and its signals aimed at foreign investors have been inconsistent in China during the reform period:

- After the opening to the world in the 1970s, industrial policy encouraged state-owned auto manufacturers to update the old 1960s Soviet technology by acquiring more advanced technology from MNCs. The government-owned

961 Ibidem.
963 Honda, in its export JV, has a 65 percent stake, while Dongfeng Motor and Guangzhou Auto hold 25 and 10 percent, respectively. Refer to People's Daily (2003), "China's Automobiles to Tap for Overseas Markets", Internet Edition, reviewed 21.07.2007. Chapter 4.3.3.1 discusses on how the Guangzhou Development District lobbied for the Honda export JV.
964 For further information refer to Amsden (2001), p. 151 ff.
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auto firms both licensed technology from the Japanese and negotiated JVs with US and European auto companies during that time.

- After several major Sino-foreign JVs had been established, the government reconsidered this strategy in its 1994 auto policy. Chinese auto firms had become mere assemblers of foreign CKD kits of their foreign JV partners. The central government wanted to cultivate indigenous technological capabilities so that domestic companies could become internationally competitive. With the auto policy of 1994, China erected even higher trade barriers for its infant industry and introduced strict demands on foreign investors with respect to technology transfer. In this regard, the 1994 auto policy was a landmark policy that imposed far-reaching technology-transfer requirements on foreign investors.

- After China’s WTO entry in 2001, the state had to abandon most of the requirements placed on foreign investors, and dismantle trade protections introduced in 1994. This indicates another turnaround in Chinese policy for the auto industry.

4.3.3 Localism in the auto industry

Local governments are increasingly the agents of industrial development at the level of the firm. The developmental role attributed to local governments is a direct result of economic decentralization, the dominant characteristic of China’s transition from central planning to a market economy. Local governments in China actively promote their localities’ growth and thus contribute to the nation’s industrial development. Local states are not nation-states, however. The central government sets the framework of rules within which local governments operate (such as taxation policy, environmental policy, corporate law etc.) and the form of interaction with the global economy (tariff policy, participation in international organizations etc.). During the reform period, local governments have experimented with new policy approaches within their jurisdiction, which have not always complied with national policy directives. The auto sector provides examples of both the positive and negative results of local developmentalism.

4.3.3.1 Incentives to boost the development of the auto sector

Local bureaucrats are responsible for the economic management of the auto sector. Except for the China National Heavy-Duty Truck Corporation, Dongfeng and FAW, which are under the direct authority of the central government, Chinese car manufacturers are under the direct control of a ministry or a provincial or municipal government. BAIC, SAIC, and Tianjin Auto Industry Group Corporation (TAIC) are under the jurisdictions of the respective municipalities of Beijing, Shanghai and


Provincial and municipal governments take a deep interest in the promotion of auto firms to enhance local industrialization. In competition with other provinces for foreign auto companies, local bureaucrats strive to attract foreign auto companies into their jurisdiction that should form JVs with local auto companies.\footnote{Refer to People’s Daily (2003), “China sets to put breaks on auto industry”, Internet Edition, reviewed 16.10.2006 and interview conducted with an expert of a Chinese auto government institution in Beijing on 16.06.2006.} In the mid-1980s, there were 17 Chinese parties negotiating simultaneously with Honda, and 22 others with Ford, to attract the respective firms to their local development zones.\footnote{Refer to Lo (1997), p. 177.} “Local level governments even have their staffs that are travelling around the world to attract foreign investors to local development zones.”\footnote{Interview conducted with a German manager of a supplier company in Shanghai on 13.07.2006.} Managers of industrial development zones give speeches at conferences and fairs, and praise the investment climate of their locality.\footnote{At the 2006 Global Business Forum in Hannover, representatives of the Suzhou High-Tech-Park, the Kunshan Development Zone and the Zhang Jiagang Development Zone explored the advantages of their parks and development zones for foreign investors (they held speeches and had standings at the fair). Refer to Global Business Forum (2006), “Sourcing Asia”, Internet Edition, reviewed 06.06.2007.}

Local administrative authorities use several policy instruments to support local firms.\footnote{Refer to Hebei Provinicial Department of Commerce (2002), “The Provisions of Hebei Province Concerning Further Optimizing of the Investment Environment and the Encouragement of Foreign Investment”, Chapter II, Article 4 (Examination, Approval and Registration), Chapter III (Investment Environment and Service) and Chapter IV, Article 22 (Key Sectors to Attract Foreign Investment and Preferential Policies), Internet Edition, reviewed 27.08.2007.} They provide preferential help for domestic and international investors in their jurisdictions, including favorable leasing fees for land, low rents for production halls, and administrative support in the form of fast approvals. Speedy approval of investments in facilities, marketing and financial products provide competitive advantages for cooperative companies. The approval process of Chang'an Ford Mazda Engine Company to build a plant near Nanjing took about one month. In contrast, Toyota had to wait several years for approval to assemble cars in Tianjin and in Guangzhou. Furthermore, local governments provide financing, infrastructure and free trade zones.\footnote{Refer to Noble et al. (2005), pp. 14-15.} The most important incentive is preferential tax treatment in the local development zones. Tax reliefs, however, are not solely directed towards the encouragement of auto companies, but are applicable to all encouraged investments. The China-Singapore Suzhou Industrial Park grants technologically advanced manufacturing enterprises a local income tax reduction (in addition to the...
already reduced tax rates in development zones) of 3 percent for two years and a reduced tax rate of 7.5 percent (instead of 15 percent) for the following three years. Thereafter, enterprises pay a rate of 10 percent for the next 3 years.\footnote{For a detailed listing of tax incentives refer to China-Singapore Suzhou Industrial Park Development Co., Ltd (2007), "Preferential Policies", Internet Edition, reviewed 17.01.2007.}

The World Bank sample "Competitiveness, Technology and Firm Linkages in Manufacturing Sectors, 1998 – 2000" (2001) also indicates that the primary reason for the location\footnote{The question was twofold, asking for "reasons the plant was located here when it was established" and for "advantages for locating plant here now".} of a plant is "fewer regulatory requirements and taxes based on government’s assignments" (refer to Table 22). There is no significant difference between the three groups in this respect (refer to Appendix V, Table A45, Table A46, Table A47, Table A48).\footnote{The only significant difference (Mann-Whitney U-Test: p =0.027) is between the auto sector and the electronics sector with regard to the proximity to other firms in the same line of business as an advantage for locating a plant in the same region now. While managers in the auto sector ranked this advantage two, managers of the electronics sector ranked it three. This difference is, however, obvious, as especially the vehicle parts manufacturers are heavily dependent on their customers, the vehicle manufacturers and locate their plants close to them. Refer to Appendix V, Table A45, Table A46, Table A47, Table A48.}

Table 22: Descriptive Statistics: Reasons for location of plant for companies in the auto sector, 2000.

<table>
<thead>
<tr>
<th>Reasons the plant was located here when plant was established</th>
<th>Advantages for locating plant here now</th>
</tr>
</thead>
<tbody>
<tr>
<td>Local market size</td>
<td>Proximity to other firms in the same line of business</td>
</tr>
<tr>
<td>N</td>
<td>Valid</td>
</tr>
<tr>
<td>Median</td>
<td>Missing</td>
</tr>
</tbody>
</table>


The foreign auto managers interviewed explained that local governments support foreign auto companies in order to benefit domestic manufacturers, create jobs, and promote the overall economic environment of the locality.\footnote{Interviews conducted with experts from a German public corporation in Beijing on 08.06.2006.} Foreign auto managers agreed that the subsidies and preferential conditions that local governments offer foreign companies, are a matter of negotiation between foreign investors and local bureaucrats. Incentives vary not only between localities but also between foreign companies in the same locality. Due to the aim of foreign companies to enter the growing Chinese auto market, local governments are in a good position to negotiate with foreign investors. Accordingly, the negotiations with domestic partners and the local governments of different provinces can make the negotiation process lengthy.
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for foreign investors.\(^{977}\) Moreover, regional inconsistencies in regulation and enforcement, coupled with sometimes weak communication between government ministries, complicate investment and the business planning decisions of foreign investors. With regard to the auto industry, regional inconsistencies exist in connection with emission standards. While Euro III standards were adopted nationwide in July 2007; Beijing and Shanghai had already adopted Euro III standards at the beginning of 2006. Euro IV emissions standards are scheduled for adoption in Beijing by 2008, in Shanghai by 2009.\(^{978}\) Whilst other emerging markets also show regional inconsistencies in regulations and enforcement, the sheer size of China and its economic growth, exacerbates the situation and presents major obstacles to foreign auto companies active in China.\(^{979}\)

As the economic performance of large auto groups is linked to the locality's growth – SVW contributed 8 percent of Shanghai's GDP in 2002\(^ {980}\) - local bureaucrats try to adjust central-government regulations to their companies' needs. Until 2004, the legislation regulating investment in the auto industry permitted a foreign manufacturer to have no more than 50 percent of ownership in a JV with a Chinese partner. In 2003, central bureaucrats approved the JV of Honda with Guangzhou Auto, in which the foreign partner would have a majority with 65 percent ownership, only because the local authorities of Guangzhou Development District appealed to central level agencies on the auto maker's behalf.\(^ {981}\) The export plant was designed to manufacture 50,000 "JAZZ" cars annually, which would be exported particularly to European markets. The export JV would not only increase the locality's tax revenue and provide new jobs, but would also enable its domestic producer Guangzhou Auto to gain experience with international market structures, regulations and sales networks. The application approval took only six months. Moreover, the municipal government granted the export JV preference and support on land price, electric and administrative charges etc.\(^ {982}\) The reason the central authorities made an exception was that the Honda production facility in Guangzhou Development District was established to produce exports. Export performance is the most persuasive evidence of technical upgrading; it is a standard "control" mechanism for governments that seek to assess the relative performance of domestic firms.\(^ {983}\) In the 2004 auto

\(^{977}\) Interviews conducted with German managers of two different supplier companies in Shanghai on 13.07.2006 and 19.07.2006.


\(^{983}\) Refer to Amsden (2001), p. 8.
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industrial policy, the new legislation came into force permitting foreign companies in the auto industry to have up to 70 percent of shares if their production was solely destined for export.\(^{984}\)

This example shows that local governments actively lobbied for their local auto manufacturers if this benefited their jurisdiction. The case also demonstrates that national directives are not perceived as direct orders at the local level. The authorities in Special Economic Zones make adjustments, negotiate with the central government on behalf of their investors, and generally approach the directives with pragmatic flexibility.\(^{985}\)

4.3.3.2 Protectionist measures to safeguard local auto companies

For industries that enjoy increasing returns to scale, there is a natural tendency to have production clustered in a few places. The scale-economies theory of international trade calls attention to the theory of regional specialization. In an industry where there is a significant fixed cost of production or a decreasing average variable cost of production, a firm would enjoy a low average cost of production by producing a large volume of goods and services, which in turn enhances the firm’s competitiveness and increases the demand for its products. The positive feedback eventually leads to a high (geographic) concentration of production.\(^{986}\) The empirical findings of Bai et al. (2004) show that regional specialization in China is low for industries that yield high profit and tax, and for industries with large shares of state ownership – both arguments apply to the auto industry in China.\(^{987}\)

The long-term goal of transforming domestic auto companies into global players is impaired by conflicts between the central government and local governments. While central bureaucrats pursue balanced growth of the national auto industry, local state agents promote fast economic industrialization irrespective of national inconsistencies.\(^{988}\) Due to the high degree of financial autonomy and local leaders’ peculiar incentive systems under the policy of fiscal federalism, local governments (especially those with small tax bases) safeguard and expand their licensing authority. Even after the central government’s attempt to rein in local investment after the tax reforms in 1994, creative local officials use different sources of capital for favored projects: foreign investment, extra-budgetary funds, control over local banks, even local curb markets.\(^{989}\) The incentives local governments grant foreign auto


\(^{986}\) For further information refer to Marshall (1920) and Krugman (1991).

\(^{987}\) Refer to Bai et al. (2004), p. 399 ff.

\(^{988}\) Interview conducted with experts from a Chinese government institution in Beijing on 13.06.2006.

\(^{989}\) For further information on the consequences of fiscal federalism refer to Tsai (2004).
companies thus do not always correspond to national regulations. Accordingly, there is no industrial policy in the sense of the selective and coordinated allocation of resources. Central agencies have no policy instrument for the control of resource allocation by provincial governments. It has been very difficult for the central government to identify one or several specific locations or provinces to promote specific industries. In this respect, the Eleventh Five-Year Plan criticizes local governments for attracting foreign investment, contrary to industrial policy regulations. Although NDRC approves the setting-up of new auto companies, local governments find ways to circumvent central approval procedures:

- Chery originated from the auto project of the local government of Wuhu City in Anhui province. As it did not get any central license approval to start a new auto company, the local government of Wuhu set up an auto parts company, Anhui Auto Part Industrial, in March 1997. Wuhu's mayor, Zhan Xialai, became the company's president. Although they had no license to produce cars, they never stopped the car production plan initialized in 1995. In 1998, the factory for entire car production began construction and in December 1999, the first "Qi Rui (Chery)" sedan rolled of its assembly line. The local government offered incentives in the form of tax reliefs to the cab companies in Wuhu city to purchase the first batch of Chery cars as taxis.

- In order to circumvent national directives, local companies buy licenses from other local players who are no longer active in the auto business, but have kept their license. Another option to get round from central establishment approval is, as the interviewed experts confirmed, to split the investment volume into different phases so that the promulgated investment volume is lower than the one which is necessary for NDRC approval. Between 1981 and 1995, more than 80 percent of the FDI projects that came from the USA, Japan or Hong Kong were approved at the provincial level with investment capitalization of less than USD 30 million. This contrasts with the national auto policy approach, which emphasized economies of scale. The threshold of


991 Chery did not receive central government approval to manufacture cars before 2001.

992 Refer to Luo (2005), "The Growth of Independent Chinese Automotive Companies", Internet Edition, reviewed 02.08.2007. Similarly, when FAW Group Corporation posted a net loss of RMB 570 million for the first quarter of 2005, the local government of Jilin province guaranteed FAW supply of energy and special treatment on land use and encouraged the purchase of FAW cars within the province by tax incentives. Refer to China Business Infocenter (2005), "FAW posts big loss, government tries to help", Internet Edition, reviewed 27.08.2007.

993 Interviews conducted with managers of a German OEM in Beijing between 08.06.2006 and 16.06.2006.

USD 30 million has hence reinforced the miniaturization of FDI projects (not solely auto projects) and provincial officials' rent-seeking behavior.\textsuperscript{995}

In order to reach high economic growth, local governments introduce protectionist measures to safeguard local auto companies from interregional competition and defend their tax base. Local governments "patronize local companies and protect their pet projects".\textsuperscript{996} Intraregional trade barriers have caused the fragmentation of markets and diseconomies of scale. A local government could protect the local market for autos simply by directing enterprises under its control to purchase from a particular manufacturer, or by attaching higher registration and licensing fees to cars manufactured in other localities (as the Wuhu city government did to promote Chery). Central agencies could prevent local manufacturers from expanding beyond their home jurisdiction - it used the security bureau to deny licenses to cars that were not manufactured by an approved plant - if a firm was content to stay within the home locality, however, the local government could provide it with all necessary approvals.\textsuperscript{997} Thus, local governments could raise the barriers of market entry for outside entrepreneurs, or impose a ban on the import of certain types of products to protect local business interests. In Hubei province, in late 1999, the Wuhan bureaucracy offered special tax relief to the purchasers of Citroën-Fukang cars which were produced within the province. Those who "imported" non-Fukang cars to the province had to pay a special fee of up to RMB 70,000.\textsuperscript{998} Similarly, a bus company in a city of Anhui province had already received approval from the city government before it purchased new buses. As soon as the city government discovered that the new buses were not manufactured in Anhui province, it banned the buses from being used within its jurisdiction.\textsuperscript{999}

Local trade barriers, indeed, affect the domestic market strongly: interprovincial trade fell from 37 percent of national retail trade in 1985 to about 25 percent in 2000.\textsuperscript{1000} As the central agencies have not been powerful enough to enforce central-government policies that prohibit interregional trade barriers, some local governments have used their political freedom to maintain substantial trade barriers to protect local auto manufacturers from other provinces' competitive products.\textsuperscript{1001} Particularly when the auto industry faced weak demand in the 1990s, some cities introduced local policies to restrict imports of compact cars from other provinces.\textsuperscript{1002} Cross-provincial

\textsuperscript{995} Refer to Wang (2001), pp. 9-10.
\textsuperscript{996} Interview conducted with an expert of a European auto association in Beijing on 16.06.2006. Also refer to Bai et al. (2004), p. 398.
\textsuperscript{997} Refer to Thun (2004a), p. 462.
\textsuperscript{998} Refer to Harwit (2001), pp. 668-669.
\textsuperscript{999} Refer to Chou (2006), p. 10.
\textsuperscript{1000} Refer to Tenev et al. (2002), p. 21.
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protectionism was appreciated by the MNCs and local governments alike, as both possessed controls over the share of auto JVs.  

Although the central government favored big assemblers, and discriminated against small operations in an attempt to achieve economies of scale, the auto market continues to be fragmented. The rivalry among provinces for generating high rates of growth has encouraged bureaucrats of many provinces and cities to establish the industrial policy for the auto industry according to their jurisdiction's conditions. Local states' ambitions to participate in the sector's growth spurred the establishment of auto assembly plants in almost every province. The protected local markets resulted in the survival of spatially dispersed small and inefficient indigenous assemblers. The state had insufficient capacity to regulate these defections from a unified common market. Local governments' independent FDI screening process (below the threshold of USD 30 million), and the increased inter-jurisdictional competition for FDI, have contributed to the fragmented auto market. In addition, as confirmed by the experts interviewed, local governments have often financially pepped up small-scale, unprofitable companies in their jurisdiction, because the bankruptcy of local companies would endanger social stability, local economic growth and the bureaucrats' political career.

Due to local protectionism and national local content regulations, joint-venture auto producers had to use locally-made parts in their vehicles and began to cultivate their own auto parts suppliers. Despite having the same foreign partner, SVW and FAW-VW established their own independent network of suppliers, promoting domestic suppliers within their locality. Foreign investors in JVs would also bring their own auto parts suppliers to China and establish JVs producing auto parts. As a result, China's auto parts industry became fragmented, like the industry of auto manufacturers. Most manufacturers were small or medium-sized, and economies of scale were almost impossible to achieve.

1005 Chapter 4.3.2.1.1 elaborated that protection resulted in high prices and thus profitability of small-scale auto manufacturers.
1006 Refer to Thun (2004a), pp. 461-462.
1007 Interviews conducted with an expert of a European auto association in Beijing on 16.06.2006 with experts from a German public corporation in Beijing on 08.06.2006. According to an interviewed Chinese expert, even the central government (NDRC) has been reluctant to issue proofs of insolvency, because stakeholders and employees would ask NDRC for aid, social payments, reimbursement and compensation. NDRC is seen to be responsible as it gave project approval. Interview conducted with an expert of a Chinese auto government institution in Beijing on 06.06.2006.
Overall, the development of the Chinese auto industry in the reform era has largely been influenced by local authorities and enterprises. Decentralization may lead to positive economic outcomes when local governments are forced by the central government to adhere to hard budget constraints. However, if central state agents do not have the ability to impose such budget constraints, local governments have little incentive to constrain spending (they continue to support and/or subsidize inefficient and unproductive enterprises), and economic results are likely to be worse. In China during the early to mid-1990s, this latter situation was more the norm. Decentralization was, in many respects, a result of central government weakness, and this made it difficult to impose discipline on local governments. Although the interests of local governments did overlap with national objectives to a certain extent, they were not identical. "Chinese-style federalism" and local governments' opposition and malfeasance undermined the central state's capacity to implement market reform. Fiscal arrangements create incentives for local governments to promote auto companies within their jurisdiction. As a result, they put local interests above national ones. Japanese firms were protected from international competition during their high-growth stage, but at least in some industries, glaring inefficiencies were kept in check by fierce competition within the domestic marketplace. Local governments in China attempt to benefit from the artificially high profits that result from a domestic auto market protected from international competition. This has in turn spurred distorted incentives and suboptimal outcomes in the auto industry. Local protectionism has impeded regional specialization and the progress of mass auto assembly. Domestic competition has been hampered by a weak central authority, which could not enforce market integration regulations effectively. The key problem of the central government's ability to direct auto sector development was hence its inability to properly constrain local governments.

4.3.3.3 Different development approaches for the auto sector - Beijing and Shanghai

There have been differences between local development approaches, as the structures of the auto sector in Beijing and Shanghai show. While Shanghai, together with Jiangsu, has successfully established the development of the auto industry with a broad supplier network, Beijing has been struggling. The development of the auto industry in Beijing and Shanghai has to be seen in the light of the state-directed development of the auto industry. Not only the national policy approach to guide the growth of the auto industry, however, but also local governments' ambitions to accelerate auto production within their jurisdiction, influenced the sector's development.
After 1978, central bureaucrats decided on auto production in different municipalities/provinces, and determined that JVs would be established. The earliest JV to assemble motor vehicles was Beijing Jeep Corporation (BAIC together with AMC) in 1983. In fact, it was the very first Chinese manufacturing JV signed with any foreign company after China reopened to the West in the late 1970s. BAIC is 100 percent owned by the municipal government of Beijing. The central government envisioned Beijing Jeep Corporation manufacturing light commercial vehicles and "Beijing developing a cluster for this segment." There was a strong motivation for the JV in the late 1970s. While the Americans wished to establish a base in Asia that would enable them to manufacture cars at low cost, and compete in the growing region, the Chinese hoped for technology. After the JV started in 1984, the two sides disagreed over the product to be produced. The Americans wanted the new product to be similar to AMC’s existing line of Jeeps, but Chinese bureaucrats wanted a newly-developed military Jeep for the army. Neither the government nor AMC, however, had the money to develop a new vehicle. The conflicting goals of the two partners restricted the development of the auto industry in Beijing. In addition, after the JV deal was signed, the Americans learned that the "real" negotiations had just begun. Chinese business people were much more accustomed to doing business based on personal relationships and the charisma of business leaders and tended to view concluded contracts as a base for negotiation. The Americans, on the other hand, viewed contracts as binding, and put much less emphasis on the aspects of personality in business. After long-winded discussions between the two partners and few sales, Beijing Jeep Corporation went bankrupt, and had to shut down its plant in early 1986.

Only after intervention by Premier Zhao Ziyang, did the central government provide large loans to cover the fact that the high-profile Beijing Jeep project was unable to expand or develop new models. Beijing Jeep was also given preferential import tariffs, and special permission to convert AMC’s share of dividends (RMB 6.9 million) into US dollars at the official government exchange rate. Moreover, the Public Security Bureau purchased the JV’s Jeeps to renew its fleet.

In 1987, AMC was acquired by Chrysler. Although Chrysler showed willingness to invest more in China, it did not obtain official permission to produce passenger cars in addition to utility vehicles. Besides, its main products failed to develop a mass market appeal, and sales peaked at only 26,000 vehicles in 1996. Gallagher (2006)

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1014 Interviews conducted with managers of a German OEM in Beijing between 08.06.2006 and 16.06.2006.
1015 For further information on Beijing Jeep and Western business activities in China refer to Mann (1989).
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contends that the JV was "strangled by its conservative state ownership", but "kept alive by Beijing's reluctance to let it fail".\textsuperscript{1019} During the years after the merger of Chrysler with Daimler-Benz in 1998, DaimlerChrysler was beset with merger challenges and did not focus much attention on Beijing Jeep Corporation, which played a small role in its corporate structure. Indeed, in 1998, Beijing Jeep's total revenues were approximately equivalent to USD 399 million, of which DaimlerChrysler's share was about USD 169 million. This represented 0.1 percent of DaimlerChrysler's total sales (USD 131.8 billion) in that year.\textsuperscript{1020}

In 1984, the central government planned the establishment of China's second auto JV, SVW, in Shanghai. With the VW – SAIC venture, the state intended to build an "auto cluster for passenger cars in Shanghai".\textsuperscript{1021} SAIC's primary purpose in establishing a JV was to increase its capabilities by catching up with the advanced world's level. "The interests of SAIC and the Shanghai municipal government were identical", because SAIC was 100 percent owned by the municipal government.\textsuperscript{1022}

SVW, like BAIC, started its operations, manufacturing CKD kits. Soon after SVW's foundation, it became market leader in China with a rise in sales volume from 7,000 vehicles in 1985 to over 200,000 cars since 2000. Due to an increase of passenger car demand during the late 1980s and early 1990s, and national import tariff barriers, the JV was able to dominate the Chinese auto market until the mid-1990s. In the early 1990s, SVW captured 70 percent of the Chinese market for passenger cars.\textsuperscript{1023} The Shanghai municipal government had spurred growth of SVW by buying much of the company's output of its Santana model for taxis and municipal vehicles.\textsuperscript{1024} Due to sustained tariff levels, prices remained high, and the JV was able to realize anticipated profit margins. In 1996, the Shanghai municipal government banned from municipal streets cars that had an engine capacity of below 1.6 liters in order to exclude cars from rival auto manufacturers in Tianjin.\textsuperscript{1025}

The growth of SVW, and the financial support of the municipal government suppliers (in the mid-1990s, about RMB 5 billion extrabudgetary funds were in the localization fund) cultivated a strong supply base in Shanghai. As SAIC owns the vast majority of supply firms in Shanghai, it has had strong bargaining power with foreign suppliers that aimed to follow VW. "VW's foreign suppliers had to venture with SAIC's

\textsuperscript{1019} Gallagher (2006), p. 49.
\textsuperscript{1020} Refer to Young and Tan (2001), p. 4 ff.
\textsuperscript{1021} Interviews conducted with managers of a German OEM in Beijing between 08.06.2006 and 16.06.2006.
\textsuperscript{1022} Interviews conducted with managers of a German OEM in Beijing on 14.06.2006.
suppliers, otherwise SAIC would have delegated the order to a competitor."¹⁰²⁶ "SAIC even negotiated the percentage of products that have to be exported by the supplier JVs."¹⁰²⁷ SAIC, furthermore, controls the finances and personnel of supply firms within its group. Besides, once one firm of SAIC’s conglomerate introduces a new technology, the group ensures that the technology will also be introduced in the other companies of the SAIC conglomerate.¹⁰²⁸

As a result of the municipal bureaucrats’ approach to developing its auto and supply industry, Shanghai is the only municipality that has been able to rely heavily on the local supplier sector. Within the domestic market, which continues to be the primary focus of most Chinese auto firms, the overall strength of the Shanghai supply sector has proven to be durable, as competition has increased. Not only was the value of Shanghai’s auto parts output three times greater than any other locality in 2003, but it has also helped to transform the neighboring provinces of Zhejiang and Jiangsu into major bases of component production. Compared with Shanghai, Beijing had about ten times less output of auto parts in 2003 (refer to Figure 27). The superiority of Shanghai (and its neighboring provinces) over Beijing with regard to auto parts production, is also indicated by the number of suppliers located in the two municipalities. In 2004, 64 auto suppliers were located in Shanghai and only 23 in Beijing. In consequence, 90 percent of the components for the SVW Santana, and well over 60 percent of the components for the Shanghai-GM Buick, are manufactured within the municipal borders of Shanghai. No other municipality has reached even 25 percent. In 2002, Beijing Jeep sourced 50 percent of its components (by value) from Shanghai.¹⁰²⁹

Figure 27: Output of auto parts by region, 2003.

![Output of auto parts by region, 2003.](image)


¹⁰²⁶ Interviews conducted with managers of a German supplier company in Shanghai on 19.06.2006.
¹⁰²⁷ Interview conducted with a German manager of a supplier company in Shanghai on 13.07.2006.
¹⁰²⁹ Refer to Thun (2006), pp. 71-72.
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The statistical analysis of the World Bank survey "Competitiveness, Technology and Firm Linkages in Manufacturing Sectors" (2001) also provides indication that the municipal government in Shanghai has more actively assisted its local auto manufacturers to develop. The government's assistance in identifying potential foreign suppliers is 4.5 percent (n=2) in the auto industry in Beijing and 7.5 percent (n=3) in Shanghai. The difference between the auto sector in Beijing and the one in Shanghai is significant (Likelihood Ratio Test: p=0.016, 2-sided) (refer to Table 23, Table 24).

Table 23: Descriptive Statistics: Government agency's or official's assistance in identifying potential foreign suppliers in the auto sector in Beijing and Shanghai, 2000.

<table>
<thead>
<tr>
<th>Group</th>
<th>Auto sec</th>
<th>Count</th>
<th>Yes</th>
<th>No</th>
<th>N.A.</th>
<th>Total</th>
</tr>
</thead>
<tbody>
<tr>
<td>Beijing/Shanghai</td>
<td>Auto sec Beijing</td>
<td>% within Group auto sec Beijing/Shanghai</td>
<td>2</td>
<td>41</td>
<td>1</td>
<td>44</td>
</tr>
<tr>
<td></td>
<td></td>
<td>4.5%</td>
<td>93.2%</td>
<td>2.3%</td>
<td>100.0%</td>
<td></td>
</tr>
<tr>
<td></td>
<td>Auto sec Shanghai</td>
<td>% within Group auto sec Beijing/Shanghai</td>
<td>3</td>
<td>29</td>
<td>8</td>
<td>40</td>
</tr>
<tr>
<td></td>
<td></td>
<td>7.5%</td>
<td>72.5%</td>
<td>20.0%</td>
<td>100.0%</td>
<td></td>
</tr>
<tr>
<td>Total</td>
<td>Count % within Group auto sec Beijing/Shanghai</td>
<td>5</td>
<td>70</td>
<td>9</td>
<td>84</td>
<td></td>
</tr>
<tr>
<td></td>
<td>6.0%</td>
<td>83.3%</td>
<td>10.7%</td>
<td>100.0%</td>
<td></td>
<td></td>
</tr>
</tbody>
</table>


Table 24: Chi-Square Test: Government agency's or official's assistance in identifying potential foreign suppliers in the auto sector in Beijing and Shanghai, 2000.

<table>
<thead>
<tr>
<th>Value</th>
<th>df</th>
<th>Asymp. Sig. (2-sided)</th>
</tr>
</thead>
<tbody>
<tr>
<td>Pearson Chi-Square</td>
<td>7.528*</td>
<td>2</td>
</tr>
<tr>
<td>Likelihood Ratio</td>
<td>8.276</td>
<td>2</td>
</tr>
<tr>
<td>Linear-by-Linear Association</td>
<td>2.748</td>
<td>1</td>
</tr>
<tr>
<td>N of Valid Cases</td>
<td>84</td>
<td></td>
</tr>
</tbody>
</table>

a. 4 cells (66.7%) have expected count less than 5. The minimum expected count is 2.38.


Both municipalities are characterized by extensive foreign participation through FDIs; however, Shanghai has been more open towards foreign investment than Beijing. In 2005, Shanghai used USD 6.2 billion foreign investments, while Beijing only used
The auto industry in the light of the Chinese development approach

USD 3.5 billion. In addition, while in Shanghai 23.1 percent of foreign capital were JV enterprises in 2005, only 19.7 percent of foreign capital were JVs in Beijing. With more than 70 percent, WFOEs absorbed the largest share of foreign capital in both municipalities (refer to Table 25). Markedly different between the two municipalities, however, is the share of gross output value of the auto industry. In Shanghai, the largest share of gross output value of industry (63 percent, USD 146.2 billion in 2006)\(^{1030}\) was generated by FFEs, which play a key role in industrial development. In Beijing, the largest share of gross output value of industry (56 percent, RMB 47.1 billion in 2005) came from domestic enterprises.\(^{1031}\)

### Table 25: Amount of foreign capital actually used grouped by investment manner in Beijing and Shanghai, 2005.

<table>
<thead>
<tr>
<th></th>
<th>Beijing</th>
<th>Shanghai</th>
</tr>
</thead>
<tbody>
<tr>
<td>Total amount of foreign capital actually used (In USD million)</td>
<td>3,525</td>
<td>6,174</td>
</tr>
<tr>
<td>Joint Ventures (as a percentage of total foreign capital used)</td>
<td>19.7</td>
<td>23.1</td>
</tr>
<tr>
<td>Cooperative Ventures (as a percentage of total foreign capital used)</td>
<td>6.7</td>
<td>2.6</td>
</tr>
<tr>
<td>Wholly foreign owned enterprises (as a percentage of total foreign capital used)</td>
<td>73.6</td>
<td>74.3</td>
</tr>
</tbody>
</table>


The Shanghai municipal government especially used its position to attract foreign investors. Municipal bureaucrats even made the investing MNCs compete with each other in providing capital and technology. The key contest took place in 1997, when GM obtained the license to establish a second JV (after VW) with SAIC, which Ford and Toyota had also envisioned. GM had already proven its commitment to China's auto market by establishing parts plants in China, many of them oriented to exports. GM agreed to make a USD 1.6 billion investment in a high-tech facility to produce modern models (Buick Regal and Century), and to help SAIC build an R&D center. In return, the Shanghai municipal government helped GM to complete construction in less than two years (by issuing construction approvals fast, and providing land), and gave GM much greater freedom to choose suppliers and handle labor than VW had enjoyed. Stimulated by GM's entry, SVW also invested in the development of new models, and hoped for similar treatment from the municipal government.\(^{1032}\)

The World Bank sample also shows that the municipal government of Shanghai has more actively assisted local auto companies in attracting foreign technology into their jurisdiction than the Beijing municipal government. 10.0 percent (n=4) of the managers in the auto sector in Shanghai stated that they received government assistance in locating foreign technology to license, while only 6.8 percent (n=3) of

\(^{1030}\) The number includes enterprises from Hong Kong, Macao and Taiwan.

\(^{1031}\) Refer to Beijing Statistical Yearbook (2006) and Shanghai Statistical Yearbook (2007).

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the managers of the auto sector in Beijing answered the same. The difference is significant (refer to Table 26, Table 27).1033

Table 26: Descriptive Statistics: Government agency's or official's assistance in locating foreign technology to license in the auto sector in Beijing and Shanghai, 2000.

<table>
<thead>
<tr>
<th>Group_auto_Beijing_ Shanghai</th>
<th>Auto sec Beijing</th>
<th>Count</th>
<th>Yes</th>
<th>No</th>
<th>N.A.</th>
<th>Total</th>
</tr>
</thead>
<tbody>
<tr>
<td>% within Group_auto_Beijing_Shanghai</td>
<td>6,8%</td>
<td>90,9%</td>
<td>2,3%</td>
<td>100,0%</td>
<td></td>
<td></td>
</tr>
<tr>
<td>N</td>
<td>3</td>
<td>40</td>
<td>1</td>
<td>44</td>
<td></td>
<td></td>
</tr>
<tr>
<td>Group_auto_Beijing_ Shanghai</td>
<td>Auto sec Shanghai</td>
<td>Count</td>
<td>Yes</td>
<td>No</td>
<td>N.A.</td>
<td>Total</td>
</tr>
<tr>
<td>% within Group_auto_Beijing_Shanghai</td>
<td>10,0%</td>
<td>67,5%</td>
<td>22,5%</td>
<td>100,0%</td>
<td></td>
<td></td>
</tr>
<tr>
<td>N</td>
<td>4</td>
<td>27</td>
<td>9</td>
<td>40</td>
<td></td>
<td></td>
</tr>
<tr>
<td>Total</td>
<td>Count</td>
<td>Yes</td>
<td>No</td>
<td>N.A.</td>
<td>Total</td>
<td></td>
</tr>
<tr>
<td>% within Group_auto_Beijing_Shanghai</td>
<td>8,3%</td>
<td>79,8%</td>
<td>11,9%</td>
<td>100,0%</td>
<td></td>
<td></td>
</tr>
<tr>
<td>N</td>
<td>7</td>
<td>67</td>
<td>10</td>
<td>84</td>
<td></td>
<td></td>
</tr>
</tbody>
</table>


Table 27: Chi-Square Test: Government agency's or official's assistance in locating foreign technology to license in the auto sector in Beijing and Shanghai, 2000.

<table>
<thead>
<tr>
<th>Value</th>
<th>df</th>
<th>Asymp. Sig. (2-sided)</th>
</tr>
</thead>
<tbody>
<tr>
<td>Pearson Chi-Square</td>
<td>8.695a</td>
<td>2</td>
</tr>
<tr>
<td>Likelihood Ratio</td>
<td>9.853</td>
<td>2</td>
</tr>
<tr>
<td>Linear-by-Linear Association</td>
<td>2.991</td>
<td>1</td>
</tr>
<tr>
<td>N of Valid Cases</td>
<td>84</td>
<td></td>
</tr>
</tbody>
</table>


In order to improve local auto companies’ innovation capabilities, the Shanghai municipal government encouraged the cooperation of domestic and foreign companies with local universities. In June 2000, VW donated RMB 5 million to jointly set up an auto research center with Tongji University.1034 Four years later, VW und Tongji University signed a memorandum of their joint R&D efforts on fuel cell

1033 Footnote a of the Chi-Square Test indicates that three cells have expected count less than five, therefore, the Likelihood Ratio Chi-Square Test is used (instead of the Pearson Chi-Square Test). The differences are significant (Likelihood Ratio Test: p=0.007, 2-sided).

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technology. Among the leaders of fuel cell-related research is the Pan Asia Technical Automotive Center in Shanghai, a JV with GM and SAIC. The 2001 World Bank survey also indicates the close cooperation between auto companies and universities located in Shanghai. According to the World Bank data, 13.6 percent (n=6) of the managers of the auto industry in Beijing confirmed that the local university performed R&D for their plants in the year 2000. In the auto industry in Shanghai, in 2000, 37.5 percent (n=15) of the companies instructed the local university to perform R&D for them. The difference between the auto industry in Beijing and Shanghai is significant (Pearson Chi-Square Test: p=0.012, 2-sided) (refer to Table 28, Table 29).

Although the municipality of Beijing, similar to that of Shanghai, has promoted the development of the local auto industry, its development approach seems to be less targeted towards auto manufacturers and suppliers, as the statistics of the World Bank sample show. In addition, Beijing's disadvantage was the central leaders' decision to establish a production hub for light duty trucks in Beijing. The Beijing Jeep venture never found a mass market for its utility vehicles, and the company struggled to produce more than 15,000 – 20,000 vehicles in the 1990s. After 1995, light commercial vehicle production in Beijing decreased, while passenger car production in Shanghai increased. Light duty trucks did not correspond to customers' demands to the extent passenger cars did. Accordingly, from the mid-1990s until 2004, the production of motor vehicles in Shanghai grew faster than the production of motor vehicles in Beijing (refer to Figure 28).

Table 28: Descriptive Statistics: Contractual or long-standing relationship with the local university to perform R&D for the plant in the auto sector in Beijing and Shanghai, 2000.

<table>
<thead>
<tr>
<th>Group, autosec &amp; Beijing/Shanghai</th>
<th>Auto sec Beijing</th>
<th>Count</th>
<th>% within Group, autosec</th>
<th>Local university</th>
<th>Total</th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td></td>
<td></td>
<td></td>
<td>Yes</td>
<td>No</td>
</tr>
<tr>
<td>Beijing</td>
<td>Auto sec</td>
<td>6</td>
<td>13.6%</td>
<td>6</td>
<td>38</td>
</tr>
<tr>
<td>Shanghai</td>
<td>Auto sec</td>
<td>15</td>
<td>37.5%</td>
<td>15</td>
<td>25</td>
</tr>
<tr>
<td>Total</td>
<td></td>
<td>21</td>
<td>25.0%</td>
<td>21</td>
<td>63</td>
</tr>
</tbody>
</table>


Table 29: Chi-Square Test: Contractual or long-standing relationship with the local university to perform R&D for the plant in the auto sector in Beijing and Shanghai, 2000.

<table>
<thead>
<tr>
<th>Test</th>
<th>Value</th>
<th>df</th>
<th>Asymp. Sig. (2-sided)</th>
<th>Exact Sig. (2-sided)</th>
<th>Exact Sig. (1-sided)</th>
</tr>
</thead>
<tbody>
<tr>
<td>Pearson Chi-Square</td>
<td>6.364</td>
<td>1</td>
<td>.012</td>
<td></td>
<td></td>
</tr>
<tr>
<td>Continuity Correction</td>
<td>5.155</td>
<td>1</td>
<td>.023</td>
<td></td>
<td></td>
</tr>
<tr>
<td>Likelihood Ratio</td>
<td>6.496</td>
<td>1</td>
<td>.011</td>
<td></td>
<td>.022</td>
</tr>
<tr>
<td>Fisher’s Exact Test</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td>.011</td>
</tr>
<tr>
<td>Linear-by-Linear Association</td>
<td>6.288</td>
<td>1</td>
<td>.012</td>
<td></td>
<td></td>
</tr>
<tr>
<td>N of Valid Cases</td>
<td>84</td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
</tbody>
</table>

a. Computed only for a 2x2 table

b. 0 cells (.0%) have expected count less than 5. The minimum expected count is 10.00.


As a consequence of passenger car growth in China, the municipality in Beijing also "aimed to develop a passenger car cluster in its jurisdiction and supported local passenger car manufacturers". The municipal government in Beijing has granted BAIC, formerly Beijing Jeep Corporation, and its JV company Beijing Benz-DaimlerChrysler Automotive Ltd. (BBDCA), special support in spurring development and passenger car production. However, the NDRC did not approve the production of Mercedes-Benz C- and E-class passenger cars by the JV partners DaimlerChrysler and BAIC before May 2004. According to a foreign interviewee, among the local subsidies the JV receives, is the provision of property at preferential rental fees in the Beijing Development Area. BBDCA is, however, only slowly advancing, and its production volume is still low (BBDCA has a production capacity of 100,000 vehicles and sold 30,000 units in 2006). It seems as if the central government imposed requirements on the foreign partner DaimlerChrysler in order to improve BBDCA’s business performance before the NDRC would approve further projects of DaimlerChrysler’s in China. Indeed, the NDRC did not issue approval of DaimlerChrysler cooperation with the Beijing-based Chinese commercial vehicle manufacturer Beiqi Foton before DaimlerChrysler sold the 50 percent stake of its Yaxing Benz bus JV in Yangzhou.

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1037 Interview conducted with an expert of a Chinese auto government institution in Beijing on 16.06.2006.
1039 Interview conducted with a manager of a German OEM in Beijing on 08.06.2006.
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While the municipal government in Shanghai has concentrated its support on SAIC in particular, Beijing has not only ambitions to develop BBDCA, but also aggressively promotes Beijing Hyundai Motor Corporation, a JV between Korea's Hyundai Motor Company and municipal Beijing Automotive Industry Holding. Beijing Hyundai was established in 2002. "The municipal government provides the JV cheap land for its production base and promotes the JV's Sonata as Beijing's official taxi model." Due to the municipality's effort to promote passenger car production in its jurisdiction, motor vehicle production in Beijing has increased since its slump in 1998, and has caught-up with Shanghai. Passenger car sales growth in Beijing was in line with the increase in passenger car (rather than light commercial vehicle) demand after WTO accession in 2001 (CAGR 2001-2006 of passenger cars: 38.3 percent, CAGR 2001-2006 of light commercial vehicles: 13.7). In 2005, auto production in Beijing amounted to 586,000 vehicles – representing 10.3 percent of China's total auto production (5.7 million vehicles). Shanghai's output of motor vehicles was 484,500 units in 2005. However, it increased to 652,800 units in 2006 (refer to Figure 28).

Overall, due to the competition for foreign MNCs, municipal governments invest in the construction of industrial parks, and offer bureaucratic services and fast approvals as well as a well-established infrastructure. With the settlement of foreign MNCs within their jurisdiction, and the setting-up of Sino-foreign JVs, local governments aim to promote local auto companies. Since the establishment of its first auto JV in the 1980s, the Shanghai government has more actively assisted the development of domestic auto companies than has the Beijing municipal government. Shanghai has been successful in establishing an auto cluster in its jurisdiction. Its JV SVW is manufacturing on a large scale. With pressure and support from the Shanghai municipal government, SVW fostered the development of a group of local suppliers that grew into the heartland of the Chinese auto industry. The Shanghai municipal government actively followed an integrated development path towards establishing an auto industrial base in its location, and building a tight network between OEMs and suppliers. As a result, the Shanghai, and Jiangsu area has developed into an auto cluster, integrating OEMs and suppliers. Almost half of the parts manufacturers in China are located in Shanghai and in nearby provinces such as Jiangsu and Zhejiang. Hardly any auto suppliers are located in the Beijing area yet. The municipal government in Shanghai has been able to use its power and resources to advance the auto sector within its jurisdiction. Beijing did not succeed in

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1042 Interview conducted with a manager of a German OEM in Beijing on 08.06.2006 and with an expert of a Chinese auto government institution in Beijing on 16.06.2006.
1043 Interviews conducted with experts from a Chinese government institution in Beijing on 13.06.2006, with managers of a German OEM in Beijing on 14.06.2006 and with an expert of a Chinese auto government institution in Beijing on 16.06.2006.
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its objective of promoting the auto sector as a core industry. The gross output value of the auto industry was RMB 68.8 billion in Beijing (in 2005) compared with RMB 146.2 billion in Shanghai (in 2006). The findings are in accordance with those of Segal and Thun (2001), which contend that Shanghai rather than Beijing was essentially a local developmental state. Most of all, however, Shanghai benefited from the national plan of establishing an auto cluster for passenger cars in Shanghai, and one for light duty trucks in Beijing, as passenger cars rather than light duty trucks experienced high growth rates during the reform period. Beijing has only "recently" focused on passenger car production within its municipality. However, neither the municipal bureaucrats in Beijing nor those in Shanghai have been able to create internationally competitive domestic passenger car producers. In this segment, both municipalities are dominated by Sino-foreign JVs (SVW in Shanghai, BBDC and Beijing Hyundai in Beijing).

Figure 28: Production of motor vehicles in Beijing and Shanghai and national new light vehicle registrations, 1995-2006.


4.4 Financial system as an instrument to regulate the auto sector's growth

The Chinese state wields power over the financial system by specifying credit quotas for each sector. The experts interviewed confirmed that credit is allocated to key sectors in the government's focus for development. The larger the company's share of capital from bank loans, the more influence the state can exert on its business activities by regulating the credit volume. Among the companies in the World Bank sample "Competitiveness, Technology and Firm Linkages in Manufacturing Sectors" (2001), 27.1 percent (n=215) of the auto companies' capital share was from bank loans. This was significantly higher than in the residual sectors where bank loans only amounted to 17.5 percent (n=1271) of the companies' capital (Levene's Test: p=0.000, T-Test: p=0.000 equal variances not assumed) (refer to Table 30, Table 31). The same trend applies to the electronics sector that received significantly fewer bank loans than the auto sector (Levene's Test: p=0.003, T-Test: p=0.032 equal variances not assumed) (refer to Appendix V, Table A61, Table A62).

Table 30: Descriptive Statistics: Approximate shares of capital from different sources in the auto sector and the residual sectors (in percent), 2000.

<table>
<thead>
<tr>
<th>Group</th>
<th>Retained earnings/internal funds</th>
<th>Bank loans</th>
<th>Loan from a parent or partner company</th>
</tr>
</thead>
<tbody>
<tr>
<td>Auto sec</td>
<td>43.0372</td>
<td>27.0884</td>
<td>5.2651</td>
</tr>
<tr>
<td>Residual sec</td>
<td>52.8961</td>
<td>27.0884</td>
<td>8.9119</td>
</tr>
<tr>
<td>N</td>
<td>215</td>
<td>215</td>
<td>215</td>
</tr>
<tr>
<td>Mean</td>
<td>37.48718</td>
<td>31.95816</td>
<td>18.73149</td>
</tr>
<tr>
<td>Std. Deviation</td>
<td>2.55660</td>
<td>2.17953</td>
<td>1.27748</td>
</tr>
<tr>
<td>Std. Error Mean</td>
<td>1.12372</td>
<td>.75642</td>
<td>.71422</td>
</tr>
</tbody>
</table>


1048 Interviews conducted with experts from a German public corporation in Beijing on 08.06.2006 and with managers of a German OEM in Beijing between 08.06.2006 and 16.06.2006.

1049 In all sectors, retained earnings and/or internal funds were the biggest share of companies' capital, this share was significantly higher in the residual sectors (52.9 percent, n=1271) than in the auto sector (43.0 percent, n=215) (Levene's Test: p=0.013, T-Test: p=0.000 equal variances not assumed). Loans from a parent or partner company were significantly higher in the residual sector (8.9 percent, n=1271, Levene's Test: p=0.000, T-Test: p=0.013 equal variances not assumed) than in the auto sector (5.3 percent, n=1271) (refer to Table 30, Table 31).
Table 31: Independent Samples T-Test: Approximate shares of capital from different sources in the auto sector and the residual sectors (in percent), 2000.

<table>
<thead>
<tr>
<th>Source of Capital</th>
<th>F (Equal variances assumed)</th>
<th>Mean Difference</th>
<th>Std. Error of Difference</th>
<th>95% Confidence Interval of the Mean Difference</th>
<th>Levene’s Test for Equality of Variances</th>
<th>Lavarue’s Test for Equality of Means</th>
</tr>
</thead>
<tbody>
<tr>
<td>Bank loans</td>
<td>18.529</td>
<td>9.54392</td>
<td>2.04579</td>
<td>5.53097 13.55687</td>
<td>Equal variances assumed</td>
<td>.000</td>
</tr>
<tr>
<td>Loan from a parent or partner company</td>
<td>15.056</td>
<td>-3.64676</td>
<td>1.81450</td>
<td>-7.20602 -0.08751</td>
<td>Equal variances assumed</td>
<td>.000</td>
</tr>
</tbody>
</table>


Since the late 1990s, banks have accepted indirect finance for car purchase and auto investments, because auto markets were developing quickly. Indirect finance means that businesses and individuals make use of normal bank lending to purchase vehicles, and use business assets or property as collateral. During the boom years of 2002 and 2003, the credit volume increased and much credit was risky, because the fluctuation and instability of personal incomes in some sectors and regions was severe. Due to the absence of a reliable credit screening system and personal credit history, banks often allocated credit to small-scale unprofitable local companies or customers that were not credit-worthy.\textsuperscript{1050}

According to a national directive, credits have been reduced, to avoid financial institutions’ dead debts, and to circumvent overcapacity and traffic collapse in the big cities since the beginning of 2004. Cars purchased on credit accounted for only 10 percent of total car purchases in China in 2006, representing a steep fall from 2003, when auto-financing arrangements accounted for 30 percent of total sales.\textsuperscript{1051}

Indeed, the government’s credit tightening measures had a negative effect on car buying behavior, especially at the top end of the market. This resulted in decelerating car sales growth rates in 2004. While the growth in passenger car sales was 57 percent in 2002 and 77 percent in 2003, it was “only” 17 percent in 2004. Quarterly data in particular show the government’s influence on the deceleration of passenger car sales growth in 2004. The growth in passenger car sales is usually the largest in the fourth quarter of each year (90 percent in the fourth quarter of 2002, and 101 percent in the fourth quarter of 2003). Passenger car sales growth was, however, -4

\textsuperscript{1050} Refer to Global Insight (2007), Asian Automotive Industry Forecast Report, April 2007, p. 23.

\textsuperscript{1051} In more developed markets, approximately 70 percent of car sales are financed through loans, suggesting that there is potential for a big increase in car sales if the government allows a further increase in lending to consumers. Refer to Global Insight (2007), Asian Automotive Industry Forecast Report, April 2007, p. 23.
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percent in the fourth quarter of 2004 (refer to Figure 29). The state’s credit policy
has successfully spurred auto growth when the financial system set credit below
market prices; it triggered a deceleration of growth when economic slowdown was
targeted. The state uses the financial system as an industrial policy instrument to
regulate the auto market, by either extending or restricting credit for auto companies
and purchasers. In addition to specifying credit quotas, bureaucrats exert strong
influence on the development of the auto market by restricting and controlling
companies' vehicle financing activities.

Figure 29: Chinese quarterly passenger car sales, 2002-2005.

Source: Own illustration based on data from the German Association of Automobile Manufacturers (VDA) (2005).

According to a WTO regulation, China is “forced” to open the non-bank auto
financing sector. The central government aims to gradually expand market
mechanisms for the financial sector. Since 2004, the state has allowed foreign auto
manufacturers to establish finance companies and provide car-financing deals. In
August 2004, GM was the first foreign auto company to obtain government approval
for establishing a JV car-financing company. Other foreign car companies,

1052 Quarterly growth rates refer to changes to the same quarter of the previous year.
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including VW, Ford, Toyota and DaimlerChrysler have followed suit since. Altogether, seven auto finance companies operate in China.\textsuperscript{1055}

Membership of the WTO resulted in lower tariffs on imports, and consequently lower prices on many locally-made models. Finally, economic gains in China have produced a large and growing middle class that can afford a new car. While consumer finance has had a limited role in auto sales in recent years,\textsuperscript{1056} the approval of captive auto finance operations in the country has opened the market to an even greater number of buyers. The surge in auto sales has positively contributed to national economic growth during the last decade; in the meantime, however, overcapacity and the fear of an overheating economy, as well as environmental and social costs (pollution, roadway-accident deaths) are forcing central and local leaders to shift their economic growth targets, and address the costs of expansion. In response to the growing Chinese urban middle class eager to purchase private vehicles, the Shanghai municipal government now "sells" license plates at auctions every month for about RMB 40,000 each (which is more than the RMB 39,800 price tag for Chery Automobile's 1.1 liter-engine QQ subcompact car) in order to regulate the growth rate of auto sales within the municipality.\textsuperscript{1057}

Overall, the Chinese government uses the financial system as an industrial policy instrument and steers the growth of the auto sector by regulating the volume of auto loans. It fears the domination of foreign captive financing (and thus a loss in state power) as well as unbalanced growth in the sector. Hence, state agents have only gradually reduced the restrictions on foreign auto financing companies since WTO accession.

4.5 Government-business cooperation and information sharing in the auto sector

Information between government and business representatives of the auto sector is shared in a formalized way. First, NDRC holds hearings or seminars to inform auto companies on special topics, or to ask foreign OEMs for their assessment of the development of the Chinese auto market. NDRC also sends "\textit{red head letter}" papers to companies.\textsuperscript{1058} These letters provide formal notice on major national guidelines.


\textsuperscript{1056} Between January and October 2006, 223,688 passenger cars were registered in Beijing, however, only 3.8 percent of these were financed by loans. Refer to China Auto (2007), p. 9.


\textsuperscript{1058} Interview conducted with an expert of a Chinese auto government institution in Beijing on 16.06.2006.
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Moreover, NDRC organizes forums and expert panels, where information on relevant auto topics is announced, and drafts of laws and regulations are discussed with experts.\textsuperscript{1059}

The state does not announce all information relevant to auto companies to the same extent, however.\textsuperscript{1060} Thus, being a member of a business association is important for gaining market information. The World Bank survey "Competitiveness, Technology and Firm Linkages in Manufacturing Sectors" (2001) shows that membership in business associations differs significantly (Pearson Chi-Square Test: $p=0.016$, 2-sided) between companies in the auto sector and companies in the residual sectors. While 62.0 percent (n=134) of the auto managers interviewed confirmed that their company is a member of a business association, in the residual sectors only 53.2 percent (n=683) of the respondents confirmed this (refer to Table 32, Table 33).

\begin{table}[h]
\centering
\begin{tabular}{|c|c|c|c|}
\hline
\textbf{Group\textunderscore autosec\textunderscore ressec} & \textbf{Auto sec} & \textbf{Residual sec} & \textbf{Total} \\
\hline
\textbf{Count} & \textbf{134} & \textbf{683} & \textbf{817} \\
\textbf{% within Group\textunderscore autosec\textunderscore ressec} & \textbf{62.0\%} & \textbf{53.2\%} & \textbf{54.5\%} \\
\hline
\textbf{Count} & \textbf{82} & \textbf{601} & \textbf{683} \\
\textbf{% within Group\textunderscore autosec\textunderscore ressec} & \textbf{38.0\%} & \textbf{46.8\%} & \textbf{45.5\%} \\
\hline
\textbf{Total} & \textbf{216} & \textbf{1284} & \textbf{1500} \\
\hline
\end{tabular}
\caption{Descriptive Statistics: Firm's membership in a business association in the auto sector and in the residual sectors, 2000.}
\end{table}


\textsuperscript{1059} Interviews conducted with managers of a German OEM in Beijing on 08.06.2006.
\textsuperscript{1060} Ibidem.
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Table 33: Chi-Square Test: Firm’s membership in a business association in the auto sector and in the residual sectors, 2000.

<table>
<thead>
<tr>
<th></th>
<th>Value</th>
<th>df</th>
<th>Asymp. Sig. (2-sided)</th>
<th>Exact Sig. (2-sided)</th>
<th>Exact Sig. (1-sided)</th>
</tr>
</thead>
<tbody>
<tr>
<td>Pearson Chi-Square</td>
<td>5,831</td>
<td>1</td>
<td>.016</td>
<td></td>
<td></td>
</tr>
<tr>
<td>Continuity Correction a</td>
<td>5,480</td>
<td>1</td>
<td>.019</td>
<td></td>
<td></td>
</tr>
<tr>
<td>Likelihood Ratio</td>
<td>5,896</td>
<td>1</td>
<td>.015</td>
<td></td>
<td></td>
</tr>
<tr>
<td>Fisher’s Exact Test</td>
<td></td>
<td></td>
<td></td>
<td>.018</td>
<td>.009</td>
</tr>
<tr>
<td>Linear-by-Linear Association</td>
<td>5,827</td>
<td>1</td>
<td>.016</td>
<td></td>
<td></td>
</tr>
<tr>
<td>N of Valid Cases</td>
<td>1500</td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
</tbody>
</table>

a. Computed only for a 2x2 table
b. 0 cells (0%) have expected count less than 5. The minimum expected count is 98,35.


Indeed, the World Bank sample shows that the most important reason to be a member of a business association is to gain market information. 90.3 percent (n=121) of the members whose business is in the auto sector confirm this. Significantly fewer members active in the residual sectors (79.4 percent, n=542) gave the same answer (Pearson Chi-Square Test: p=0.003, 2-sided) (refer to Table 34, Table 35). The World Bank sample furthermore shows that being a member of a business association is one way to gain information on the development of the auto market, and future laws and regulations.

Table 34: Descriptive Statistics: Helping members to get market information is one function the most important business associations perform on a regular basis for companies in the auto sector and in the residual sectors, 2000.

<table>
<thead>
<tr>
<th>Group_autosec_ressec</th>
<th>Auto sec</th>
<th>Helps members get market information</th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td>Count</td>
<td>Yes</td>
</tr>
<tr>
<td>% within Group_autosec_ressec</td>
<td>121</td>
<td>90.3%</td>
</tr>
<tr>
<td>Residual sec</td>
<td>Count</td>
<td>542</td>
</tr>
<tr>
<td>% within Group_autosec_ressec</td>
<td>141</td>
<td>683</td>
</tr>
<tr>
<td>Total</td>
<td>Count</td>
<td>663</td>
</tr>
<tr>
<td>% within Group_autosec_ressec</td>
<td>154</td>
<td>100.0%</td>
</tr>
</tbody>
</table>

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Table 35: Chi-Square Test: Helping members to get market information is one function the most important business associations perform on a regular basis for companies in the auto sector and in the residual sectors, 2000.

<table>
<thead>
<tr>
<th></th>
<th>Value</th>
<th>df</th>
<th>Asymp. Sig. (2-sided)</th>
<th>Exact Sig. (2-sided)</th>
<th>Exact Sig. (1-sided)</th>
</tr>
</thead>
<tbody>
<tr>
<td>Pearson Chi-Square</td>
<td>8,769</td>
<td>1</td>
<td>.003</td>
<td></td>
<td></td>
</tr>
<tr>
<td>Continuity Correction</td>
<td>8,068</td>
<td>1</td>
<td>.005</td>
<td></td>
<td></td>
</tr>
<tr>
<td>Likelihood Ratio</td>
<td>9,985</td>
<td>1</td>
<td>.002</td>
<td></td>
<td></td>
</tr>
<tr>
<td>Fisher’s Exact Test</td>
<td>8,759</td>
<td>1</td>
<td>.003</td>
<td>.002</td>
<td>.001</td>
</tr>
<tr>
<td>Linear-by-Linear Association</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>N of Valid Cases</td>
<td>817</td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
</tbody>
</table>

a. Computed only for a 2x2 table
b. 0 cells (.0%) have expected count less than 5. The minimum expected count is 25.26.


Foreign auto companies can give feedback to the relevant central level agencies not only via business associations, but also via auto working groups, as one interviewee indicated. The Auto Working Group under the European Chamber of Commerce in China (of which the Chief Representative of ACEA in China is the Vice Chairman) compiles yearly position papers on the development of the Chinese auto business environment. The paper is in Chinese and English and is officially given to the Chinese government and the European Commission. Its content is a review of market development and prospects, and contains suggestions on regulatory reform. Its impact on China’s policy decisions is, however, questionable.1061

An interviewee of a European auto association in Beijing stated that auto companies usually obtain timely information from central agencies on upcoming technical standards/norms. However, some laws “fall from the sky”, and are an “unpleasant surprise” for foreign investors. While the time-horizon for emission standard requirements is provided until 2010, the “Measures for the Administration of Import of Automobile Components and Parts Featuring Complete Vehicles” were implemented as a reaction to the official phase-out of local content regulations, with only short notice for foreign investors. The regulation was discussed only with Chinese companies in advance, to the disadvantage of foreign investors.1062 Therefore, managers of auto companies rely on informal lobbying activities to acquire information on the state’s latest regulations, or try to informally discuss specific regulations and their interpretation with government officials. There are no institutionalized regular meetings between government representatives and foreign business associations; they rather meet irregularly and ad hoc.1063

1061 Interview conducted with an expert of a European auto association in Beijing on 16.06.2006.
1062 Ibidem.
1063 Ibidem.
An interviewee from a Chinese government institution explained that, as the auto sector is still dominated by SOEs, central-level auto companies such as FAW and Dongfeng report their production data to SASAC; and local companies such as BAIC and SAIC give reports to their municipal governments.\footnote{1064} The central government also negotiates all subject terms of contracts FAW and Dongfeng sign. Some general managers of the large auto companies even sit on the CCP Central Committee.\footnote{1065}

At the local level, the municipal governments of Beijing and Shanghai are involved in the businesses of BAIC and SAIC, respectively. A foreign interviewee explained that the chairman of the Supervisory Board of BAIC, which is owned by the municipal government, Lu Hao, is also the vice mayor of Beijing. Furthermore, Chairman An Qingheng who is the CEO of BAIC and of BBDCA, is at the same time a civil servant.\footnote{1066} Even private companies such as Chery are backed by high-ranking officials. The Congressional-Executive Commission on China reports that Chery Automobile received millions of US dollars in subsidies from the Ministry of Science and Technology in 2004.\footnote{1067} Accordingly, there is no purely private sector in the Chinese auto industry. In addition, high-ranking managers of Chinese state-owned auto companies are often at the same time local-level bureaucrats. As a result of this close interaction between the state and domestic auto companies, information flows directly from the (state-owned) auto companies to the responsible bureaucrats. In China, an institutionalized form of information exchange between the state and the business sector - as set up in the East Asian developmental states – is less important than informal information flow.

The central government does not envision insulation of the elite bureaucracy from business activities. Politics, bureaucracy and private businesses build a symbiosis. Most domestic auto companies have the support of central or local bureaucrats (in 2005, 33 percent of the assets of the total auto sector were state-owned) and are thus powerful in negotiations with foreign companies.\footnote{1068} This may have advantages or disadvantages for foreign investors, depending on the respective interests of the partners. The interviewees in the supplier sector agreed that, once the local bureaucracy no longer required operation in JVs, they chose to establish WFOEs.\footnote{1069} The interviewees of the OEMs asserted that their domestic partner was dominant.

\footnote{1064}{Interview conducted with experts from a Chinese government institution in Beijing on 13.06.2006.}
\footnote{1065}{Refer to Liu and Dicken (2006), p. 1235.}
\footnote{1066}{However, An Qingheng had no government post at the time the interview was conducted. Interview conducted with a manager of a German OEM in Beijing on 08.06.2006.}
\footnote{1067}{Refer to Congressional-Executive Commission on China (2005), “Annual Report, V. Development of Rule of Law and the Institutions of Democratic Governance”, Internet Edition, reviewed 27.08.2007.}
\footnote{1069}{Only auto suppliers are allowed to build WFOE, OEMs have to establish joint-venture companies with a Chinese partner. Interviews conducted with supplier companies in Shanghai on 19.06.2006 and 20.06.2006.}
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because of advocates in the municipal government and the resulting selective state assistance. In this respect, one challenge to their investment in China is the cooperation with state-owned companies and the responsible state officials when doing business with a Chinese state-owned company.

For foreign auto companies, the most effective way to lobby for their interests is still to stay in close contact with the Ministry of Commerce and the NDRC. Both agencies grant especially big MNCs personal meetings and early information on upcoming regulations and laws, as large-scale auto OEMs are decisive for domestic growth. For smaller companies, it is very difficult to get an appointment. Central agencies' subsidiaries on the local level have not enough power although they are part of the central level agency. Therefore, all companies have representative offices or holdings in Beijing. A Chinese interviewee of a German auto company revealed that "only direct contact to the central level government agencies enables companies to lobby for details of enacted laws". The World Bank survey "Competitiveness, Technology and Firm Linkages in Manufacturing Sectors" (2001) also confirms that managers in the auto sector do not expect business associations to (formally) represent their members' concerns to the government. 39.8 percent (n=53) of the auto managers who are members of business associations specified that they are members of a business association because it represents its members' views and concerns to the government. In the residual sectors, 47.4 percent (n=324) of the members of business associations confirmed this and in the electronics sector, 48.7 percent (n=109) of the members of business associations confirmed this (refer to Table 36 and Appendix V, Table A63). There is no significant difference between any of the three groups.

Table 36: Descriptive Statistics: Representation of members' views to the government as one function the most important business association performs on a regular basis for companies in the auto sector and the residual sectors, 2000.

<table>
<thead>
<tr>
<th>Group</th>
<th>Count</th>
<th>% within Group</th>
<th>Representation of members' view and concerns to the government</th>
<th>Total</th>
</tr>
</thead>
<tbody>
<tr>
<td>Auto sec</td>
<td>53</td>
<td>39.8%</td>
<td>Yes: 53, No: 50, Total: 133</td>
<td></td>
</tr>
<tr>
<td>Residual sec</td>
<td>324</td>
<td>47.4%</td>
<td>Yes: 324, No: 359, Total: 683</td>
<td></td>
</tr>
<tr>
<td>Total</td>
<td>377</td>
<td>46.2%</td>
<td>Yes: 377, No: 439, Total: 816</td>
<td></td>
</tr>
</tbody>
</table>


1070 Interview conducted with a Chinese manager of a German OEM in Beijing on 14.06.2006. The same was stated by experts from a German public corporation in Beijing on 08.06.2006.
The data confirm that, although formalized consultations and briefings on auto issues take place between state organs and private businesses, information exchange between foreign auto companies, and between foreign auto companies and state officials, take place rather informally. Personal contacts between company employees and bureaucrats in charge are most effective with regard to information exchange and company lobbying. In foreign auto enterprises, the position of company representative thus needs to be filled by Chinese managers who have a broad network with central-level agencies. This network often dates back to university (Qinghua University, Beijing University). Lobbying then functions via direct calls and meetings, instead of business associations or official seminars etc. “Official seminars are rather used to network and keep contact to important persons”, as one Chinese employee in a foreign auto company confirmed. “Seminar breaks are more important than speeches and presentations.” 1071 In general, good government relations are a central determinant of doing business, and entrepreneurs make significant financial investments in maintaining political connections. Auto companies’ performance is subsequently not solely dependent on their ability to respond to market signals, but also on the quality of relations with state representatives.

Overall, bureaucrats’ far-reaching involvement in the business activities of (state-run) domestic auto firms has enabled them to gain detailed information on the sector’s development and companies’ needs. The institutionalization of information exchange, as in the East Asian developmental states, has been less important, however, than informal and ad-hoc consultations between foreign investors and state representatives. China’s institutional design has, in consequence, facilitated favoritism (and thus opportunities for corruption) in auto enterprises with widespread guanxi networks, and informational asymmetry between domestic and foreign companies, putting foreign OEMs and suppliers at a disadvantage.

4.6 Two decades of state-promotion in the auto sector

The industrial policies for the auto sector indicate that there is a long tradition of government intervention in the Chinese auto industry. State guidance has had mixed results. In fact, when the objectives of the industrial policies for the auto sector – employment growth, concentration of production in key manufacturers, high local content and high production volumes of passenger cars – are compared with the current state of the industry, it can be seen that the central government has achieved its objectives in some respects. The ultimate goal of the policies for the auto industry has been to establish internationally competitive Chinese “proprietor” brands with the help of foreign JV partners. Proprietor brands include brand name, R&D facility, supplier base and production facility owned by Chinese OEMs. Policy success can

1071 Interviews conducted with managers of two German OEMs in Beijing on 08.06.2006 and 14.06.2006.
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be measured by the structure of the auto market, as well as technology know-how, market share and the export activities of domestic auto companies.

4.6.1 Achievements

During the 20 years of state-guidance in the auto sector, China has successfully climbed up the global ranking of the largest passenger car markets. While China ranked seven in 2001 (sales: 0.8 million units), it was the third largest market for passenger cars in 2006 (sales: 4.3 million units) – ranking before Germany where 3.5 million passenger cars were sold in the same year. At the same time, China has not relied on imports to meet its growing demand for passenger cars. Passenger car production rose from 0.4 million units in 1996 to 4.3 million units in 2006. In 2006, passenger car production accounted for 64 percent of total vehicle production in China (compared with 26 percent in 1996) and for 9.3 percent of passenger car production worldwide. Domestic auto production has created jobs for Chinese workers in the auto and supplier industry. Already in 2001, 1.5 million people were employed in the auto industry in China. The number increased to almost 1.7 million people by 2005. In line with increased auto production volumes (and thus economies of scale) and cheaper imports, pre-tax profit in the auto industry has risen since the 1990s, and particularly after WTO accession (pre-tax profit in 1990: USD 0.9 billion, in 2003: USD 12.5 billion). Between 2000 and 2003, the CAGR of total pre-tax profit was 37.5 percent (refer to Figure 30).

In order not to lose control over the industry to foreign investors, bureaucrats have regulated inward investment in various ways: screening, foreign equity limits and local content requirements to narrow the technology gap etc. Due to the maximum-equity regulation, foreign auto manufacturers have been unable to dominate the Chinese auto market. While granting foreign firms access to the growing domestic auto market, the state has been able to aggregate support in key firms (in the form of JV partnerships) and concentrate domestic car production. Since

1074 The gross output value of auto production as a share of total production rose from 2.1 percent in 1990 to 4.1 percent in 2005. Refer to China Automotive Industry Yearbook (2006).
1076 Refer to China Automotive Industry Yearbook (2006).
1077 Refer to Wang (2001), p. 3.
2004, thirteen auto manufacturers (nine of them foreign-invested JVs) have produced over 90 percent of the total output of passenger cars in China.\textsuperscript{1079}

Moreover, the JV and the localization requirements on foreign investors have forced the FDIs of auto-producing MNCs to establish passenger car production locations in China (mostly in coastal provinces, refer to Figure 31). Due to an almost stagnating triad (Japan, USA, and Europe),\textsuperscript{1080} foreign investors were eager to set up assembly plants in the Chinese auto market, and participate in the rapid sales growth of the domestic auto market. China’s auto industry is thus becoming integrated into the global production networks of transnational corporations.\textsuperscript{1081} In addition, MNCs have had to localize manufacturing in China in order to circumvent high tariffs on imports, and fulfill local content requirements. This investment has benefited auto parts suppliers because demand for local auto parts and components has increased. These "backward linkages" from Sino-foreign JVs, and the Chinese auto industry in general, are contributing to economic growth in China.\textsuperscript{1082}

\textit{Figure 30: Total pre-tax profit in the auto industry (foreign and domestic invested, complete vehicles and components), 1990-2003.}


Note: Data in RMB were converted into USD using FERI exchange rates for each year.

\textsuperscript{1079} Refer to VDA (2005), "International Auto Statistics", p. 65.
\textsuperscript{1080} Global Insight expects that the CAGR of passenger cars sales in the period 2007 until 2017 will be 6.4 percent in China, compared with 0.2 percent in Japan, 0.4 percent in Western Europe and 1.3 percent in the United States. Refer to Global Insight (2007), World Car Sales Forecast Report, April 2007, p. 33.
\textsuperscript{1081} Refer to Liu and Dicken (2006), p. 1230.
\textsuperscript{1082} Refer to Gallagher (2006), p. 23.
Today, as envisioned by the state, most manufacturers in China assemble domestically made vehicles rather than CKD kits, and have set up the whole value chain of vehicle assembly in China. Accumulated production figures in December 2006 show that only 4.6 percent of total vehicle production in China was CKD production (338,125 units). While the production of domestically made vehicles increased by 27 percent (sales of domestic made vehicles: +25.1 percent) in the period January-December 2006 compared with the same period in the previous year, CKD production decreased by 20.1 percent (CKD sales: -20.4 percent) (refer to Table 37). In this regard, the policy approach of combining FDI attraction (and guidance) and import substitution (high tariffs, local content requirements) has successfully forced foreign manufacturers to produce and source in China, and thus support the development of domestic OEMs and suppliers.

Table 37: Auto production and sales, 2006.

<table>
<thead>
<tr>
<th>Production</th>
<th>Sales</th>
</tr>
</thead>
<tbody>
<tr>
<td>Total</td>
<td>7,279,726</td>
</tr>
<tr>
<td>Domestic made</td>
<td>6,941,601</td>
</tr>
<tr>
<td>CKD</td>
<td>338,125</td>
</tr>
</tbody>
</table>

The central government has gradually increased the threshold for foreign auto investments in China. State regulations have forced MNCs to introduce and produce their most recent car models in China (125 new models came on the market between 2000 and 2006). The latest regulations on foreign investment in the auto sector even force foreign auto manufacturers to develop new brands in China. In this regard, Guangzhou Honda and SVW announced in July 2007 that they would set up R&D facilities and develop self-branded vehicles in China. Furthermore, competition among foreign auto manufacturers and the reduction of import tariffs have lowered car prices. The average price for an entry-level compact car in China, which ranges from USD 8,000 to USD 16,000, fell by 28 percent between 2000 and 2005. In general, intense price competition and promotional activity by virtually all auto manufacturers, as well as production localization, are drivers of auto technology modernization and overall growth of auto sales in China.

Increasing competition and overcapacity have contributed to overseas expansion by Chinese OEMs since China further opened its market. While in 2001, the total export volume of passenger cars from China was 3,579 units, it was 123,245 units in 2006. In 2005, the total export volume of vehicles and parts even exceeded the corresponding imports for the first time. This achievement was not only a milestone for the domestic auto industry, but also confirmed China's ambition to become a leader in the global auto market. However, China's export volume represented only 2.4 percent of its output volume in 2006. While OEMs in Japan and Korea focused on exports, due to their small domestic markets, OEMs producing in China have concentrated on sales in the domestic market, with its large population and the high number of cities with strong purchasing power (especially in the coastal areas).

The FDI-led growth strategy for the auto sector has contributed to the economic success of the auto industry in China in a number of ways. The regulatory framework in combination with the race for market share in the growing auto market, has attracted investment from almost all top global OEMs, who are committed to

1089 As demand in major cities slows or begins to saturate, the large number of second-tier and third-tier cities will drive growth. Refer to Global Insight (2007), World Car Sales Forecast Report, April 2007, p. 14.
The auto industry in the light of the Chinese development approach introducing their latest models onto the market. Through the JV regulation, Chinese auto firms could acquire manufacturing expertise from their foreign partners; and tariff protection and subsidized credit have helped domestic producers to increase economies of scale. Moreover, fierce competition among OEMs subsequently contributed to a sudden modernization of auto technology. Domestic auto companies have achieved greater product development capability and China has shifted from importing all manufacturing technology to developing some technology. New vehicle products have been developed jointly with foreign partners.\(^{1090}\)

4.6.2 Shortcomings

While rapid industrialization was achieved with the help of foreign investments, the auto sector remains fragmented, as small-scale manufacturers are protected by local governments. Furthermore, China's original plan of developing its auto industry through trading market access for technology, has had limited results. State regulations could not provide domestic firms with technology know-how and independent design skills. In consequence, international competitiveness is still limited.

4.6.2.1 Fragmentation of the auto market

The policy framework for the sector aimed to develop the infant Chinese auto industry by protecting domestic auto producers through import barriers.\(^{1091}\) In order for infant industry protection to work, it is important for governments to have reliable information about how large the protective tariffs should be, and over what period of time the tariff should be imposed. If governments set tariffs for too short a period, then firms may not learn enough to compete with the rest of the world once the tariffs are removed. If tariffs are imposed for too long a period to protect infant industries, then firms might not have incentives to improve efficiency. Protection may then dampen the competitive edge of domestic firms, either in terms of costs or pricing. It may also encourage new entry into the industry by domestic firms that aim to benefit from deterred competition and rents arising from high prices for locally produced vehicles.\(^{1092}\) In consequence, the number of entrants expecting high returns on investments increases. Either of these developments could mean that the hoped-for improvements in competitiveness through learning and economies of scale do not materialize. Strong policy capacity and powerful institutions are necessary to implement countermeasures. While in a free market economy, effective competition encourages mergers and acquisitions, within the protected market, governments

\(^{1090}\) Refer to Chinese Academy of Engineering and National Research Council (2003), pp. 12-13.


\(^{1092}\) Berglas and Razin introduced the element of profits into the Stolper and Samuelson (1941) analysis of protection. They contend that in the short run, protection is likely to increase profits. For further information on protection and real profits refer to Berglas and Razin (1974).
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have to encourage or directly organize mergers in an effort to concentrate rent in a few firms.\textsuperscript{1093} As experience from other emerging economies such as Korea and Thailand shows, policies to protect the domestic market must be combined with strict control of new entrants in order to promote the rapid growth of key firms in the industry.\textsuperscript{1094}

While the industrial policies for the auto sector have supported concentration of production in a few companies, consolidation of the sector has not proceeded, but more companies have entered the lucrative auto market. During the 1980s, local states assisted (state-run) firms to enter the auto business. They aimed to participate in the high profits of the auto market, resulting from high tariff barriers. While 56 OEMs existed in 1980, 114 OEMs had entered the auto business by 1985.\textsuperscript{1095} Although the state reiterates in its industrial policies for the auto sector the importance of a consolidated auto market, the number of auto manufacturers has been relatively stable throughout the last two decades (the number of OEMs only decreased from its high point of 124 OEMs in 1992/3 to 117 OEMs in 2005) (refer to Figure 32). Out of the 117 OEMs in 2005, 104 OEMs produced fewer than 100,000 vehicles. 60 OEMs produced between 100 and 10,000 units and 22 OEMs even produced less than 100 vehicles (refer to Figure 33) which is far below the efficient level of production.

\textit{Figure 32: Number of OEMs in the auto industry, 1980-2005.}

\begin{figure}[h]
\centering
\includegraphics[width=\textwidth]{figure32}
\caption{Number of manufacturers}
\end{figure}


\textsuperscript{1093} Refer to Huang (2002a), pp. 538-540.

\textsuperscript{1094} For further information refer to Auty (1996), Wait! (1993) and Chaudhuri (1989).

\textsuperscript{1095} In 1985, Japan only had 49 vehicle manufacturers. Refer to VDA (1990), “International Auto Statistics”, p. 132.
China's protective import tariffs have fueled redundant investment in the auto sector. Moreover, central level agencies have been too weak to enforce competition within the protected domestic market and control of new entrants, due to its decentralized and fragmented administrative planning power.\textsuperscript{1096} Provincial and local governments have tried to protect their indigenous auto sector, often bargaining successfully for special permission that circumvents national regulations.\textsuperscript{1097} For the same reason, the central government has never ceased to reduce excess capacity, and never succeeded in eliminating it.\textsuperscript{1098} Local protectionism also prevented mergers and acquisitions of domestic firms and resulted in the survival of spatially dispersed small indigenous assemblers. The numbers suggest that local governments protected even uncompetitive auto firms from insolvency and covered their operating losses with ongoing access to funds for unprofitable companies. Thus, employment and social stability could be ensured within the locality.

Even after China's WTO accession and the lowering of tariffs, nontariff barriers and local protectionism of small scale auto companies have hindered the auto sector's consolidation process. In an attempt to cut the number of domestic producers, the government raised the minimum investment for a manufacturing plant to RMB 2 billion in 2004. The threshold for auto investments was to be a disincentive for smaller private firms to enter the market. The introduction of new regulations to consolidate the market indicates that the state refuses to reduce intervention and

\textsuperscript{1096} Producers of vehicle parts are as fragmented as vehicle manufacturers. Many world-class auto parts suppliers followed the MNCs to China: Delphi Auto Systems, Bosch, Valeo, Siemens, Dana, Allied Signal, Lucas Varity, United Technologies, ITT, TRW, Rockwell, Tenneco, Cooper etc. Suppliers invested in upstream and (or) downstream industries in order to supply complementary services. Refer to People's Daily (2004), "Problems linger in auto parts sector", Internet Edition, reviewed 06.10.2006.

\textsuperscript{1097} Refer to Sit and Liu (2000), p. 663.

\textsuperscript{1098} Refer to Noble (2006), "Overcapacity, Contract Design and the Emergence of Independent Auto Firms in China", Internet Edition, reviewed 01.08.2007.
strengthen market mechanisms, because domestic auto companies are still in an infant stage of development. If market principles expanded, non-competitive domestic companies would be replaced by an increase in imports and the local presence of foreign companies. Moreover, being linked to a broad range of industries such as parts, machine tools, steel and chemistry, the auto industry has a large impact on the national economy. The auto industry not only influences the production, but also the technology levels of the entire country. As long as local governments are able to eliminate competition within their jurisdiction, and the central government does not ease protection of the whole sector (non-tariff barriers, local content and equity regulations), consolidation of the market will proceed slowly.

A fragmented industrial structure is costly. Auto plants are highly capital-intensive, and the high fixed costs mean that, for any given output level, a production structure with a few producers is more capital-saving than one with numerous, independent producers. This is reflected by the amount of profit made by OEMs and suppliers in the auto industry. Out of 2,637 enterprises in the auto industry (OEMs and suppliers), the profit of 985 enterprises was less than RMB 0.1 million in 2005. Only 80 enterprises were able to make more than RMB 100 million profit in the same year (refer to Figure 34).

Figure 34: Number of OEMs and suppliers in the auto industry making x amount of profit, 2005.


Compared with the Japanese auto market, too, the performance of the Chinese auto industry (as indicated by total revenue and total revenue per employee ratio) has been low. Between 2001 and 2004, the total revenue of the auto industry increased

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1099 Refer to Huang (2002a), p. 545.
1100 As data for OEMs only is not available, the aggregate of OEMs' and suppliers' profit is taken into account.
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from USD 51.4 billion to USD 110.0 billion. The total revenue of the auto industry in Japan, however, was four times that of China in 2004 (USD 442.1 billion). Although in China the total revenue of the auto industry per employee also increased in the period 2001-2004 (2001: USD 34,100, 2004: USD 64,900), the total revenue of the auto industry per employee was "only" USD 64,900 in China in 2004 — compared with Japan where it was nine times higher (USD 586,100) in the same year (refer to Table 38).

Table 38: Total revenue and total revenue per employee in the Chinese and Japanese auto industry, 2001-2004.

<table>
<thead>
<tr>
<th>Manufacture of motor vehicles and motor vehicle parts</th>
<th>Unit</th>
<th>2001</th>
<th>2002</th>
<th>2003</th>
<th>2004</th>
</tr>
</thead>
<tbody>
<tr>
<td>China</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Total revenue</td>
<td>USD billion</td>
<td>51.4</td>
<td>71.8</td>
<td>98.4</td>
<td>110.0</td>
</tr>
<tr>
<td>Total revenue per employee</td>
<td>USD 1,000</td>
<td>34.1</td>
<td>45.7</td>
<td>61.3</td>
<td>64.9</td>
</tr>
<tr>
<td>Japan</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Total revenue</td>
<td>USD billion</td>
<td>332.7</td>
<td>344.8</td>
<td>388.7</td>
<td>442.1</td>
</tr>
<tr>
<td>Total revenue per employee</td>
<td>USD 1,000</td>
<td>462.3</td>
<td>475.0</td>
<td>521.3</td>
<td>586.1</td>
</tr>
</tbody>
</table>

Source: VDA International Auto Statistics, various issues. Note: Data on China in RMB and on Japan in Yen were converted into USD using FERI exchange rates for each year.

The sector is not competitive at an international level, as the comparison between China and Japan indicates. The Chinese auto sector is catching up quickly, however: between 2001 and 2004, the CAGR of total revenue per employee was 23.9 percent in China, and 8.2 percent in Japan.  

Overall, protectionism in China's auto industry has been inspired by Japan's and Korea's development pattern. The East Asian developmental states pursued import substitution policies, using high tariff rates to protect local auto manufacturers. In Korea, institutional centralization was used effectively to force firms to compete abroad, thus mitigating the anti-competitive character of certain aspects of import substitution policies.  

Export contests, in which bureaucracy allocates rents based on the export orders firms received, ensure that rent is assigned on the basis of objective and monitorable criteria, and of criteria that cannot be easily manipulated by policy-makers. However, there is an institutional context to administration of the export contests: export contests are more easily set up under a system in which the monitoring functions, and where the rent controls and disbursement are all lodged in one agency, as in the case of the Korean government in the 1970s and 1980s. Refer to Huang (2002a), p. 551.

1101 Calculation based on data from the VDA International Auto Statistics, various issues.

1102 Export contests, in which bureaucracy allocates rents based on the export orders firms received, ensure that rent is assigned on the basis of objective and monitorable criteria, and of criteria that cannot be easily manipulated by policy-makers. However, there is an institutional context to administration of the export contests: export contests are more easily set up under a system in which the monitoring functions, and where the rent controls and disbursement are all lodged in one agency, as in the case of the Korean government in the 1970s and 1980s. Refer to Huang (2002a), p. 551.
for the auto industry are dispersed among several government agencies at the central and local level, making policy implementation harder to enforce.\textsuperscript{1103} Fragmentation, miniaturization and low revenue per employee are a consequence of protectionism combined with weak central level institutions, and of short-termism – the focus on short-term profits instead of, and often at the expense of, long-term development.

4.6.2.2 Limited market share and technology know-how

In China’s Eleventh Five-Year Plan, which was published in November 2006, the government notes that monopolies of foreign businesses have emerged in certain industries because of inflowing foreign investments and that “\textit{independent innovation}” of Chinese companies has to be strengthened.\textsuperscript{1104} This is true for the domestic auto industry, which is dominated by foreign companies. Between 2000 and 2006, Chinese OEMs have only been able to increase their domestic market share by 3 percentage points, and reached 22 percent market share in 2006. Foreign JVs still account for the majority of the auto market (refer to Figure 35).

\textit{Figure 35: Market share of Chinese OEMs and foreign JVs, 2000 and 2006.}

![Market share of Chinese OEMs and foreign JVs, 2000 and 2006.](image)


\textsuperscript{1103} The Chinese Ministry of Machinery Industry oversees the manufacturing aspects of the auto industry, but has no authority over the trade sector. Domestic trade of final auto products is regulated by the Ministry of Internal Trade. Foreign trade in auto products is similarly outside the power of the Ministry of Machinery Industry, and is subject to regulatory power and administrative restrictions imposed by the Ministry of Foreign Trade and Economic Relations. Refer to Huang (2002a), p. 551.

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The passenger car market in particular is dominated by Sino-foreign JV companies. Of the eleven manufacturers that sold more than 200,000 passenger cars in 2006, eight were JVs (Shanghai-GM, SVW, FAW-VW, Beijing Hyundai, Guangzhou Honda, FAW-Toyota, Dongfeng-Nissan, Dongfeng Peugeot Citroën; total market share 53.4 percent) and three were independent manufacturers (FAW, Chery, Geely Automotive; total market share: 18.4 percent) (refer to Table 39). Independent manufacturers are the ones that operate without a foreign partner. The biggest state-owned automakers (SAIC, FAW and Dongfeng) all have foreign auto partners. SAIC together with its JV partners GM and VW, and FAW-VW sold more than 1.1 million passenger cars in 2006, and had 26 percent of total passenger car market share in the same year. SAIC, although successful with its JV partners, has not yet been able to introduce self-branded models. The manufacturer has invested USD 1.7 billion in its attempt to have own-brand cars as it hopes to penetrate developed markets. In 2007, SAIC started mass production of its first own luxury model, Roewe 750. SAIC has set a target to sell more than 200,000 passenger cars a year under its own brand by 2010. The model is based on the design of the Rover 75 sedan, which the company purchased from UK's now-defunct MG Rover Group Ltd. FAW is also producing on a large scale together with its JV partner VW. Independent manufacturer FAW sold more than 300,000 vehicles in total in 2006 (market share: 7.7 percent). Of the 343,000 cars produced, only 4,562 vehicles, however, were of its own car brand Red Flag, but 47,265 Mazda 6 and 164,792 Daihatsu Charade sedan cars.

Particularly noticeable is the dynamic development of independent local Chinese auto manufacturers. The biggest independent producers are Chery and Geely. Chery has little government ownership, and Geely is privately-owned. Chery and Geely have market shares of 6 percent and 5 percent respectively, and sales volumes of more than 200,000 passenger cars in 2006 (refer to Table 39). Neither has ever ventured with any foreign partner. They sell own-brand cars and have

1105 Independent manufacturers are the ones that operate without a foreign partner.
1106 Shanghai-GM sold about 450,000 passenger cars and SVW and FAW-VW sold almost 350,000 passenger cars each.
1107 Global Insight expects that SAIC will produce about 11,000 cars of its own Roewe brand in 2007. Refer to Global Insight (2007), Asian Automotive Industry Forecast Report, April 2007, p. 145.
1109 Other Roewe vehicles will follow: the next one being the W2, based on the smaller Rover 25.
1110 FAW-VW sold 345,300 passenger cars in 2006 (market share: 7.9 percent). Refer to Table 39.
1112 China Brillance and Harbin Hafei only had sales volumes of 73,100 and 65,400 passenger cars in 2006, respectively.
1113 Chery, based in Anhui province, transformed itself from an auto parts company into a car manufacturer. Geely, based in the south-eastern province of Zhejiang, was originally a motorcycle company. The expansion of the auto market provided various motorcycle companies with new business opportunities. Its experience of producing motorcycles was an advantage in making this transition.
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They produce small, cheap cars and have about 50 percent of this segment's market share. Independence does not necessarily mean isolation, however. Private companies are similarly integrated into guanxi networks, which incorporate companies, organizations and institutions. Moreover, they often enjoy the same support from local political authorities as state-run firms, because they are prime drivers of many local economies.\textsuperscript{1115}

Table 39: Passenger car sales by manufacturer, 2006.\textsuperscript{1116}

<table>
<thead>
<tr>
<th>Sales of passenger cars (1,000 units)</th>
<th>Market Share (%)</th>
</tr>
</thead>
<tbody>
<tr>
<td>Shanghai-GM</td>
<td>446.9</td>
</tr>
<tr>
<td>SVW</td>
<td>349.1</td>
</tr>
<tr>
<td>FAW-VW</td>
<td>345.3</td>
</tr>
<tr>
<td>FAW</td>
<td>333.8</td>
</tr>
<tr>
<td>Beijing Hyundai</td>
<td>280.0</td>
</tr>
<tr>
<td>Chery</td>
<td>280.0</td>
</tr>
<tr>
<td>Guangzhou Honda</td>
<td>260.1</td>
</tr>
<tr>
<td>FAW-Toyota</td>
<td>219.2</td>
</tr>
<tr>
<td>Dongfeng-Nissan</td>
<td>211.3</td>
</tr>
<tr>
<td>Geely Automotive</td>
<td>204.3</td>
</tr>
<tr>
<td>Dongfeng Peugeot Citroën</td>
<td>201.3</td>
</tr>
<tr>
<td>Changan Ford</td>
<td>135.6</td>
</tr>
<tr>
<td>Dongfeng Yueda Kia</td>
<td>115.0</td>
</tr>
<tr>
<td>Changan Suzuki</td>
<td>112.1</td>
</tr>
<tr>
<td>China Brilliance</td>
<td>73.1</td>
</tr>
<tr>
<td>Harbin Huaisi</td>
<td>65.4</td>
</tr>
<tr>
<td>Dongfeng Honda</td>
<td>63.4</td>
</tr>
<tr>
<td>Other</td>
<td>791.9</td>
</tr>
<tr>
<td><strong>Total</strong></td>
<td><strong>4,349.9</strong></td>
</tr>
</tbody>
</table>

Source: Global Insight (2007), Asian Automotive Industry Forecast Report, April 2007, p. 32. Note: Passenger car sales now include all multi-purpose vehicles and all sports-utility vehicles. Others include CBU imports. Chery sales exclude exports. Due to rounding errors, percentage numbers add up to 103 percent.

While no satisfactory evidence can be provided, one can conclude from the market shares and sales of Chinese passenger car manufacturers, that without brands and independent product technologies, the Chinese partners of the JVs lost their independence. They have few self-developed products. Domestic manufacturers'


\textsuperscript{1116} Domestic companies without foreign JV partner are marked bold.
prospects of producing their own-brand cars have been stifled by the dependence of their partners' technology and brand reputation.\(^{1117}\)

Limiting the maximum equity stakes of the foreign partner in share holding companies does not achieve the objective of management control and technology enhancement set by the central authorities. These results are in line with Mansfield and Romeo (1980). They contend that parent firms transfer technology to wholly-owned subsidiaries in developing countries one third faster, on average, than to JVs or licensees.\(^{1118}\) Technology transfer is thus relatively limited under the pattern of JV. Nearly all foreign investors have tremendous influence on the operation of JVs, even though they only have minority equity shares. The foreign JV partner usually controls important management activities such as sales, purchasing and finances, as well as technology transfer, production control, and quality control. The spill-over effect is so far limited to the achievement of mastering production techniques and imitating designs. Foreign firms have fought for the protection of their key technologies, and have mostly relocated the manufacturing of simple products.\(^{1119}\)

Yet it is questionable, how successfully foreign manufacturers can protect their core technology. The past years have seen a sharp increase in IPR disputes in China's auto industry between domestic and foreign manufacturers. The following two examples illustrate some of the legal issues involved:

- **Toyota versus Geely for trademark infringement and unfair competition:** At the end of 2002, Toyota filed a lawsuit against Geely for trademark infringement and unfair competition. Geely used terms such as "Toyota's power" and "equipped with Toyota engines" for sales promotion, because Geely's engines are manufactured by a third party with Toyota's authorization. Geely was China's first domestic car manufacturer to be sued for IPR infringement. The court did not sustain the claims raised by Toyota. Through the lawsuit, however, Toyota succeeded in distinguishing its trademark from Geely's trademark through media coverage.

- **GM versus Chery for unfair competition:** In June 2003, GM's accusation was that Chery's QQ model was a copy of GM's Spark (known as Matiz in Korea), a model manufactured by GM's Korean subsidiary GM Daewoo. In 2004, the State Intellectual Property Office stated that, as GM Daewoo did not file for patents for its designs, these designs were not protected in China. In November 2005, the parties reached a settlement. GM Daewoo was not able to sue and win, because it did not have patents for its designs in China.\(^{1120}\)

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\(^{1117}\) This conclusion is in line with Gallagher's research results. For further information refer to Gallagher (n.d.), p. 2, Internet Edition, reviewed 25.04.2007.

\(^{1118}\) For further information refer to Mansfield and Romeo (1980).

\(^{1119}\) Refer to Wang (2001), p. 11 ff.

While China’s effort to address IPR problems must be recognized, IPR infringements remain widespread. Recent news on cyber-spies in German, British and US government institutions suggest that hackers have also infiltrated thousands of company computers with Trojan horses to acquire technology know-how. The TRIPS Agreement requires China to implement effective enforcement procedures, and to provide civil and criminal remedies that have a deterrent effect. However, IPR enforcement is weak (particularly at the local level) due to lack of coordination between Chinese government ministries and agencies, local protectionism and corruption, high thresholds for criminal prosecution, and weak punishments.

In a reforming socialist economy like China, as in any other complex modern economy, the main progress of technical generation and innovation is the enterprise, in which in-firm or externally-generated new knowledge is applied to market-oriented production, and eventually commercialized. Indeed, Chinese auto manufacturers have started to set up their own R&D facilities. However, China’s leading passenger car producer, SAIC, did not set up its first own R&D center before 2002, despite revenues of RMB 120 billion that year (and despite mass-producing with its JV partners since 1984).

The long-term development of the industry is particularly harmed by insufficient R&D investment by domestic auto companies. The expenditure of Chinese auto companies on R&D usually accounts for less than 1 percent of their sales volume, whereas the amount is between 3-5 percent for foreign auto companies. While GM invests USD 5-6 billion in R&D every year, the total development budget of the domestic auto industry is USD 0.27 billion. In addition, the industry has been suffering from a severe shortage of R&D personnel. The R&D staff of FAW accounts for 2.6 percent of the total staff number. This is small compared to Toyota, where 9.8 percent of the total staff are R&D. Out of ten independent Chinese passenger car manufacturers, with an investment of 6.8 percent of total sales revenues in R&D,

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1123 A SAIC spokesperson said that the establishment of the Automotive Engineering Academy of SAIC signified the beginning of China’s efforts to develop auto technology independently. Refer to People’s Daily (2002): “China’s Leading Car Producer Sets up R&D Center”, Internet Edition, reviewed 03.09.2007.
1124 Kokko and Blomström contend that the negative relationship between technology transfer requirements and technology inflows result from the deficiency of local content policy and accompanying protectionist measures. The combination of high domestic content requirements and the protected Chinese auto has reduced competition between domestic and foreign suppliers. In consequence, both domestic suppliers and carmakers might have less incentive to update their technology and continuously adjust their operations and technologies to changing market conditions. For further information refer to Kokko and Blomström (1995).
1127 Ibidem. Note: Calculation based on recent FERI exchange rates.
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Chery invested the largest share of revenue to expand its R&D capabilities (Hafei Auto: 2.9 percent, Geely: 0.6 percent and Great Wall: 0.8 percent) (refer to Table 40).\textsuperscript{1128}

Table 40: Key figures of independent passenger car manufacturers, 2004.

<table>
<thead>
<tr>
<th>Amount</th>
<th>Chery Auto</th>
<th>Geely Auto</th>
<th>Hafei Auto</th>
<th>Great Wall Motor</th>
</tr>
</thead>
<tbody>
<tr>
<td>Net Sales</td>
<td>RMB million</td>
<td>5,110.7</td>
<td>3,425.4</td>
<td>6,101.6</td>
</tr>
<tr>
<td>Export Value</td>
<td>USD million</td>
<td>31.0</td>
<td>22.3</td>
<td>35.3</td>
</tr>
<tr>
<td>Number of employees</td>
<td>Persons</td>
<td>7,441</td>
<td>7,760</td>
<td>5,047</td>
</tr>
<tr>
<td>Number of R&amp;D Engineers</td>
<td>Persons</td>
<td>728</td>
<td>180</td>
<td>217</td>
</tr>
<tr>
<td>R&amp;D Expenses</td>
<td>RMB million</td>
<td>348.16</td>
<td>20</td>
<td>177.74</td>
</tr>
<tr>
<td>R&amp;D Expenses/Net Sales Ratio</td>
<td>Percent</td>
<td>6.8</td>
<td>0.6</td>
<td>2.9</td>
</tr>
</tbody>
</table>


The World Bank sample indicates that joint research with government institutions is less pronounced in the auto sector than in the electronics sector. While 9.9 percent (n=39) of the companies in the electronics sector had a contractual or long-standing relationship with government institutions to perform R&D, only 5.2 percent (n=11) of the auto sector had such a relationship with a state institute in 2000. The difference is significant (Pearson Chi-Square: 0.041, 2-sided) (refer Table 41, Table 42). The R&D requirements on foreign investors have had a negative impact on the government’s effort to provide financing for state-run R&D institutes.

Table 41: Descriptive Statistics: Contractual or long-standing relationship with a government research institution to perform R&D for the plant in the auto sector and in the electronics sector, 2000.

<table>
<thead>
<tr>
<th>Auto sec</th>
<th>Count</th>
<th>% within Group_autosec_electronicssec</th>
<th>Yes</th>
<th>No</th>
<th>Total</th>
</tr>
</thead>
<tbody>
<tr>
<td>Group_autosec_electronicssec</td>
<td>11</td>
<td>5.2%</td>
<td>202</td>
<td></td>
<td>213</td>
</tr>
<tr>
<td>Electronics sec</td>
<td>39</td>
<td>9.9%</td>
<td>353</td>
<td>90.1%</td>
<td>392</td>
</tr>
<tr>
<td>Total</td>
<td>50</td>
<td>8.3%</td>
<td>555</td>
<td>91.7%</td>
<td>605</td>
</tr>
</tbody>
</table>


\textsuperscript{1128} Among the ten independent car manufacturers considered here are furthermore Tianjin FAW Xiali, Chang’an Auto, Brilliance Jinbei, BYD Auto, Lifan Auto and Beiqi Foton.
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Table 42: Chi-Square Test: Contractual or long-standing relationship with a government research institution to perform R&D for the plant in the auto sector and in the electronics sector, 2000.

<table>
<thead>
<tr>
<th></th>
<th>Value</th>
<th>df</th>
<th>Asymp. Sig. (2-sided)</th>
<th>Exact Sig. (2-sided)</th>
<th>Exact Sig. (1-sided)</th>
</tr>
</thead>
<tbody>
<tr>
<td>Pearson Chi-Square</td>
<td>4,167</td>
<td>1</td>
<td>.041</td>
<td></td>
<td></td>
</tr>
<tr>
<td>Continuity Correction</td>
<td></td>
<td></td>
<td>.041</td>
<td></td>
<td></td>
</tr>
<tr>
<td>Likelihood Ratio</td>
<td>4,468</td>
<td>1</td>
<td>.059</td>
<td></td>
<td></td>
</tr>
<tr>
<td>Fisher's Exact Test</td>
<td></td>
<td></td>
<td>.035</td>
<td></td>
<td>.045</td>
</tr>
<tr>
<td>Linear-by-Linear</td>
<td>4,160</td>
<td>1</td>
<td>.041</td>
<td></td>
<td>.027</td>
</tr>
<tr>
<td>Association</td>
<td>605</td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
</tbody>
</table>

a. Computed only for a 2x2 table
b. 0 cells (.0%) have expected count less than 5. The minimum expected count is 17.60.


Industrial collaboration and horizontal networking are also uncommon in China. In the National Industrial Statistics of the 2000 R&D Census, Chinese industrial firms reported that they spent 93 percent of their USD 2.7 billion total R&D outlay in-house, but only less than 1 percent on projects with other domestic firms. The 2001 World Bank sample shows that 3.8 percent (n=8) of the auto companies and 5.3 percent of the companies of the residual sectors (n=67) had long-standing joint R&D programs with private companies (refer to Table 43). There is no significant difference between the auto sector and the residual sectors. The numbers suggest that few Chinese firms develop alliances with, or invest in, companies in other provinces due to strong political ties to their local state officials. In consequence, firms and localities are "isolated" from the rest of the economy.

Altogether, domestic auto companies are still depend on foreign OEMs' technology and brands. The foreign JV partners have granted SOEs only marginal insight into core technologies. It remains debatable how much help Chinese auto manufacturers will receive from their foreign partners in terms of developing their own brands, as this could turn partners into competitors. Accordingly, the domestic partners have made little progress in transferring technology and design know-how from their JV operations to (their wholly-owned) non-JV operations. The dynamic, autonomous development has rather come from independent local firms such as Chery and Geely. Realizing that JVs may not be the best way for Chinese auto makers to

1129 China's research institutes are increasingly insular, too, especially since market reforms have forced them to commercialize their operations. In 2000, only 38 of China's 292 national industrial research institutes devoted more than one-third of total activities to collaborative projects, even though these institutes are specifically tasked with diffusing technology. Refer to Gilboy (2004), "The Myth Behind China's Miracle", Internet Edition, reviewed 16.10.2006.

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develop their product-development capability, the Chinese government is revisiting
its policy, and calling for more self-developed products and self-owned technology.
The government has urged the largest state-owned OEMs to establish internally-
driven product development. However, it will certainly take time until domestic OEMs
are able to fully develop their own products, rather than imitate the products of
MNCs.

Table 43: Descriptive Statistics: Contractual or long-standing relationship with private
companies to perform R&D in the auto sector and in the residual sectors,
2000.

<table>
<thead>
<tr>
<th>Group</th>
<th>Auto sec</th>
<th>Count</th>
<th>Yes</th>
<th>No</th>
<th>Total</th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td>% within Group_</td>
<td></td>
<td>8</td>
<td>205</td>
<td>213</td>
</tr>
<tr>
<td></td>
<td>autosec_ressec</td>
<td></td>
<td>3.8%</td>
<td>96.2%</td>
<td>100.0%</td>
</tr>
<tr>
<td>Residual sec</td>
<td>Count</td>
<td></td>
<td>67</td>
<td>1208</td>
<td>1275</td>
</tr>
<tr>
<td></td>
<td>% within Group_</td>
<td></td>
<td>5.3%</td>
<td>94.7%</td>
<td>100.0%</td>
</tr>
<tr>
<td></td>
<td>autosec_ressec</td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Total</td>
<td>Count</td>
<td></td>
<td>75</td>
<td>1413</td>
<td>1488</td>
</tr>
<tr>
<td></td>
<td>% within Group_</td>
<td></td>
<td>5.0%</td>
<td>95.0%</td>
<td>100.0%</td>
</tr>
<tr>
<td></td>
<td>autosec_ressec</td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
</tbody>
</table>

Source: Data compiled from World Bank survey "Competitiveness, Technology and Firm Linkages in

4.6.2.3 International competitiveness

Neither foreign OEMs nor Chinese auto manufacturers export on a large scale. Given
the size of the domestic market, foreign producers focus on domestic sales; and
Chinese auto manufacturers cannot yet meet international production and design
standards.

The managers of German auto companies interviewed explained that, despite
government export promotion measures, such as tax reliefs or majority ownership,
foreign car manufacturers in China largely engage in marginal export activity with
their JV partners, but rather focus on sales in the growing domestic market.\textsuperscript{1131}
DaimlerChrysler, VW, Bosch and ZF Friedrichshafen produce domestically solely for
the Chinese market. The low quality of parts available in China, and business risks
such as the high cost structure due to tariffs and nontariff barriers, unfavorable
regulatory framework, insecure IPRs etc. discourage foreign OEMs and suppliers
from exporting. In consequence, foreign auto OEMs still focus on the domestic
market rather than on export from China. According to the foreign interviewees,
OEMs suffer from overcapacity in the Chinese market, which pressures foreign

\textsuperscript{1131} Interviews conducted with managers of OEMs in Beijing between 08.06.2006 and 14.06.2006.
OEMs to export in the mid- to long-run.\(^{1132}\) Exports will only increase when MNCs make China the global production hub for selected models. This is unlikely to happen in the current policy environment. Foreign OEMs and suppliers might export from China in the future, in order to improve their cost structures, and encounter increasing overcapacity in the Chinese market by using China as a low cost production base – not because of government export promotion incentives, such as loans from the Export-Import Bank, tax exemptions or majority ownership.\(^{1133}\)

The Chinese SOEs that have a foreign JV partner are not equipped to become international global players, although they are the backbone of the auto industry policy and are promoted by the state. FAW exported 13,903 units in 2005.\(^{1134}\) SAIC is still focussing on establishing itself in China, and consequently a major push in export markets is unlikely in the medium term. Most passenger car exporters are domestic manufacturers (refer to Figure 36), who produce small cars they sell for less than USD 10,000 (average price of exported cars from China in 2006: USD 7,400)\(^{1135}\). Among the top ten exporters are Chery, which exported 51,638 units, and Geely, which exported 9,171 units. Both manufacturers started their exports soon after their first product launch in order to meet the challenge of competition and overcapacity in the domestic market.\(^{1136}\) Chery and Geely proactively follow the path towards international competitiveness, and are looking to expand in export markets.

**Figure 36: Top ten exporting companies, 2006.**

<table>
<thead>
<tr>
<th>Exports (1,000 units)</th>
<th>Chery</th>
<th>Harbin Hafei</th>
<th>Great Wall</th>
<th>Honda</th>
<th>Changan</th>
<th>FAW</th>
<th>Jiangling</th>
<th>Anhui Jianghuai</th>
<th>Changhe</th>
<th>Geely</th>
<th>OEM</th>
</tr>
</thead>
<tbody>
<tr>
<td>50</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
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<td>40</td>
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<td>10</td>
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</tbody>
</table>


\(^{1132}\) Interview conducted with a manager of a German OEM in Beijing on 09.06.2006.

\(^{1133}\) In the near term, the main thrust of auto exports will be in the area of components, engines and transmissions. However, exports of built-up vehicles will grow more gradually.


\(^{1135}\) Ibidem, p. 57.

\(^{1136}\) Chery exported its first vehicles to Syria in October 2001; Geely started exporting in November 2003.
Moreover, car export volumes are low, because domestic companies cannot meet international production costs yet. First, total production costs in China are not competitive, due to high import tariffs on auto parts. Mostly due to quality reasons, about 70 percent of passenger car manufacturing equipment in China is still imported.\textsuperscript{1137} Second, as the state aimed to attract foreign companies to invest in China, it granted foreign OEMs tax exemptions which at the same time put domestic auto manufacturers at a disadvantage.\textsuperscript{1138} High tax rates reduced domestic auto manufacturers' international price competitiveness. Unlike domestic enterprises, foreign-owned enterprises were exempted from urban construction tax, regional and additional education tax, property tax, land-use tax and water conservancy fund. Moreover, foreign-owned enterprises enjoyed a reduced income tax rate of 15-25 percent, while the income tax rate for a domestic enterprise such as Chery was 33 percent in 2005 (refer to Table 44). Income tax from domestic enterprises accounted for more than 17 percent of the total income tax collected in China in 2006 – compared with 4 percent from foreign invested enterprises. In order to establish a level playing field for foreign and domestic enterprises, the National People’s Congress has passed a new Enterprise Income Tax Law which sets the income tax rate for domestic and foreign companies at 25 percent from January 2008 (refer to Chapter 3.3.5.4).\textsuperscript{1139}

<table>
<thead>
<tr>
<th>Items</th>
<th>Chery Automobile Co., Ltd.</th>
<th>Foreign-owned companies</th>
</tr>
</thead>
<tbody>
<tr>
<td>Urban construction tax</td>
<td>(value-added tax + consumption tax + business tax) x 7%</td>
<td>None</td>
</tr>
<tr>
<td>Additional education tax</td>
<td>(value-added tax + consumption tax + business tax) x 3%</td>
<td>None</td>
</tr>
<tr>
<td>Property tax</td>
<td>12%</td>
<td>None</td>
</tr>
<tr>
<td>Land-use tax</td>
<td>RMB 0.5 / square meter</td>
<td>None</td>
</tr>
<tr>
<td>Regional education tax</td>
<td>(value-added tax + consumption tax + business tax) x 1%</td>
<td>None</td>
</tr>
<tr>
<td>Water conservancy fund</td>
<td>sales revenue x 0.0006</td>
<td>None or less</td>
</tr>
<tr>
<td>Income tax</td>
<td>33%</td>
<td>15-25%</td>
</tr>
</tbody>
</table>


Global Insight (2007) reports that in 2006, around 1,175 manufacturers exported vehicles from China. However, over 669 of these exported fewer than 10 units, and 204 companies exported just 1 unit.\textsuperscript{1140} The exporting domestic auto manufacturers mainly sell their cars to developing countries, for the most part to the Middle East and Africa. Of the vehicles that FAW exported in 2005, 21 percent were passenger cars

\textsuperscript{1137} For example, over 80 percent of the robots used in auto production lines are imported. Refer to China Business Press, “China’s dependence on imported manufacturing equipment up to 70%”, reported in CAND (2007a), p. 5.

\textsuperscript{1138} Interviews conducted with experts of a Chinese government institution in Beijing on 13.06.2006.


\textsuperscript{1140} Ibidem.
exported to Syria, and 10 percent were trucks exported to North Korea.\footnote{\textsuperscript{1141}} Domestic auto companies cannot yet fulfil the international safety and emission standards of developed countries. According to the J.D. Power Initial Quality Study - which measures product quality, using a metric called "PP100\textsuperscript{1142}" or problems per 100 vehicles - China's industry average PP100 rating stands at 231, or almost twice the US average of 124. With domestic Chinese brands, quality problems are almost twice as frequent as with locally-built international brands (an average of 368 PP100 for domestic brands, compared with 189 for international brands). These gaps are particularly significant in such critical components as powertrain, driving experience, and handling - areas that require heavy investment in R&D and production management systems. However, in 2000, when J.D. Power first started measuring initial quality in China, domestic brands reported more than 800 PP100, on average, and international or JV brands showed more than 400. In the past six years, the quality of cars has increased, resulting in a more than 50 percent reduction in quality defects for both domestic and international brands.\footnote{\textsuperscript{1143}} Recent landmark examples have, however, reinforced consumer doubt about potential design and quality issues with Chinese cars. The Jiangling Motors Group envisioned exporting its Landwind model to Europe. However, it had to stop exporting when the German ADAC rated the Chinese-made sports-utility vehicle as "not meeting European safety standards" in September 2005.\footnote{\textsuperscript{1144}} The Landwind crash test delivered the worst result ever in the history of ADAC crash testing. The Brilliance BS6 also failed the German crash test in June 2007. The BS6 sedan won only one out of five possible stars in the crash test carried out in accordance with European New Car Assessment regulations.\footnote{\textsuperscript{1145}}

In order to accelerate international competitiveness and overseas expansion, Chinese OEMs have taken different approaches. Some Chinese OEMs have recruited functional experts from MNCs experienced in international markets:

- Chery employed a former DaimlerChrysler executive as its international business division head, and a former Ford Motor manager to lead its engineering institute. Moreover, the former director of the Production Optimization Technology Department of VW (China) Investment Co. has assumed the position of Vice General Manager at Chery.\footnote{\textsuperscript{1146}}

\footnote{\textsuperscript{1141} Refer to Global Insight (2007), Asian Automotive Industry Forecast Report, April 2007, p. 59.}
\footnote{\textsuperscript{1142} The smaller the rating of PP100 the better the quality of the car.}
\footnote{\textsuperscript{1143} Refer to Businessweek (2007), "The Quality Drag on China's Car Industry", Internet Edition, reviewed 18.07.2007.}
\footnote{\textsuperscript{1144} Refer to ADAC (2005), "Das erste chinesische Auto im ADAC-Crashtest", Internet Edition, reviewed 13.09.2006.}
\footnote{\textsuperscript{1145} Most European-made cars win four or five stars in the crash test, so the result is not encouraging for the BS6, which aimed to compete against the likes of the VW Passat and Audi A6 when it was launched at the Geneva Motor Show in March 2007. Refer to Spiegel Online (2007), "Brillance versagt im Crashtest", Internet Edition, reviewed 03.09.2007.}
\footnote{\textsuperscript{1146} Refer to CAND (2007b), pp. 6-7.}
Chinese OEMs have also used global mergers and acquisitions to enter foreign auto markets. SAIC acquired Ssangyong to gain access to the Korean auto market. Chinese auto manufacturers, moreover, enter into cooperation with foreign auto producers, to use their expertise and sales and distribution networks to enter global auto markets. Chery is to produce small-cars for Chrysler. These low-cost cars under Chrysler brand names (Dodge and Jeep) will be exported to the USA and Europe starting in 2009. Some of the Chinese OEMs are negotiating JVs with local partners to assemble pre-made CKD kits in developing markets such as Malaysia or Iran. Other manufacturers are hiring agents to establish networks for penetrating export markets. As more Chinese OEMs go international, management will become more experienced. This trend will be accelerated by the influx of returning talent from the sizable pool of Chinese working abroad.

Overall, the promotion of exports by internationally competitive local Chinese producers has not advanced in the way expected by central leaders. Overseas expansion by domestic and foreign OEMs is still quite limited. Although the Chinese government announced that it would promote exports of motor vehicles, its policy focus has been import substitution. However, in the coming years, autos “made in China” by Chinese and foreign manufacturers will increasingly be oriented towards exports due to rising overcapacities. While the government pushes for more exports and overseas expansion in the near term, most OEMs consider that exporting from China is more of a long-term objective.

1151 Since 2005, Chery has produced its QQ in Iran and announced plans to assemble sedans and sports-utility vehicles in Kaliningrad, Russia. Geely also plans to start building its Free Cruiser in Malaysia, and is plans to set-up factories in Russia and Mexico to eventually supply cars to Western Europe and the USA. Refer to Businessweek (2006), “China’s Drive for Local Car Brands”, Internet Edition, reviewed 08.08.2007.
4.7 Conclusion

Modelled on Korea’s and Japan’s industrial development, central leaders want to build up China’s auto industry. The state has played an important role in the development of the auto industry in the transition period from a planned to a socialist market economy. As in the East Asian developmental states, China’s industrial policy documents for the auto industry have set concrete goals and strategies for stimulating the growth of the industry, and focused on developing internationally competitive domestic companies.

At the core of the East Asian developmental state concept was the idea that the state could help firms overcome the obstacles of late development. The question is whether China’s development strategy for the auto sector has succeeded in building up strong Chinese firms. Chinese policy-makers have used various instruments of industrial policy to reach this target: regulation of trade, attraction and control of foreign investment, subsidies and credit quotas issued by the state-controlled financial system etc. The World Bank sample “Competitiveness, Technology and Firm Linkages in Manufacturing Sectors” (2001) indicates that the electronics sector has received less government attention than the auto sector although the central government declared both to be pillar industries in 1994. China has a strong comparative advantage in electronics assembly (high value parts manufactured at low labor costs) so that the government does not fear abandonment or marginalization. In this sense, as the empirical analysis revealed, auto companies received more bank loans and more government assistance in locating foreign technology and processes to license from foreign firms. This resembles the East Asian developmental state approach of granting preferential policies, particularly to industries and companies in need of state support.

Even after China’s WTO accession, government intervention and regulation has been central to the development of the auto sector. The government’s policy for the auto sector has managed to prevent domestic manufacturers from being crowded out by large MNCs, which have been competing for market share since the 1990s. The MNCs have been willing to venture with domestic manufacturers, produce in large scale, source locally, introduce their latest products to the market, invest in R&D facilities, and spur the development of the domestic auto industry. Chinese companies have gained production know-how from foreign JV partners, and began to gain expertise in R&D and design after the introduction of the latest regulations on foreign investors. The sector’s growth has, moreover, provided new jobs and contributed to overall economic growth.

Despite the size of the auto market and intensive government support in developing domestic state-owned auto firms, the Chinese auto industry remains in the infancy stage of development.1153 The domestic auto market is fragmented, and domestic manufacturers’ technical skills are not yet fully developed - they are still dependent on their foreign partners for advanced technology. While evidence is limited, from the

1153 For further information on five successive stages of development in the auto sector refer to Abrenica (1998), pp. 13-14.
The auto industry in the light of the Chinese development approach

analysis one can conclude that regulation of FDI for the benefit of state-owned auto manufacturers has reduced the incentive for indigenous Chinese technological innovation. Moreover, Chinese products face challenges in meeting international standards. In consequence, domestic auto manufacturers have failed to export on a large scale so far.

It is too early, however, to be pessimistic about the central government’s policy to develop its domestic auto industry. The major players of the Chinese auto industry (FAW, SAIC and Dongfeng) have large-scale production volumes and are seeking for independent brands and export expansion. It took Japanese and Korean OEMs, such as Toyota and Hyundai, almost 30 years to build up and optimize their product-development process to the point of launching self-developed products onto the global market. Given their current status, it might similarly take Chinese OEMs another 10 to 15 years before they can fully master the product development skills required to compete in European, US or Japanese markets.

To sum up, the Chinese state has not been able to implement and enforce a consistent strategy for the acquisition of technological capabilities from foreign investors in the auto industry. Besides, local authorities have a strong position in local economic policy-making. They own most of the Chinese auto companies, and have successfully resisted central-government intervention and regulation. State ownership in the auto sector, and government interference in business activities, has enabled ruling elites to convert their political power into economic wealth and privilege at the expense of equity and efficiency.

\footnote{It is though also premature to believe that Chinese OEMs are strong enough to challenge the major global OEMs today.}
\footnote{It might take “only” four to five years more for Chinese OEMs to increase their export volume from levels of thousands of units annually to hundred thousands of units that would justify a fully functioning global network. It might then take another five to seven years for those local OEMs to fully master the new product development know-how to launch new products into mainstream markets.}
\footnote{With the 1994 auto industry policy, an attempt was made by the Chinese government to articulate such a strategy, but the government had to gradually reverse its policies in the aftermath of WTO accession. For further information on how the Korean auto industry progresses technologically, refer to Amsden (1989b) and Lee and Lim (2001).}
\footnote{Refer to Gallagher (2006), p. 24.}