



China's Second-Hand Car Market

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INTRODUCTION

1.1 Overview of China's car market

With the rapid social and economic development, China has become No.1 market in the world for the automotive industry since 2010. Fast expand was observed in China's auto industry. From 2002 to 2019, auto trade volume rose from 3.25 million to 25.77 million, increasing almost 7 times.

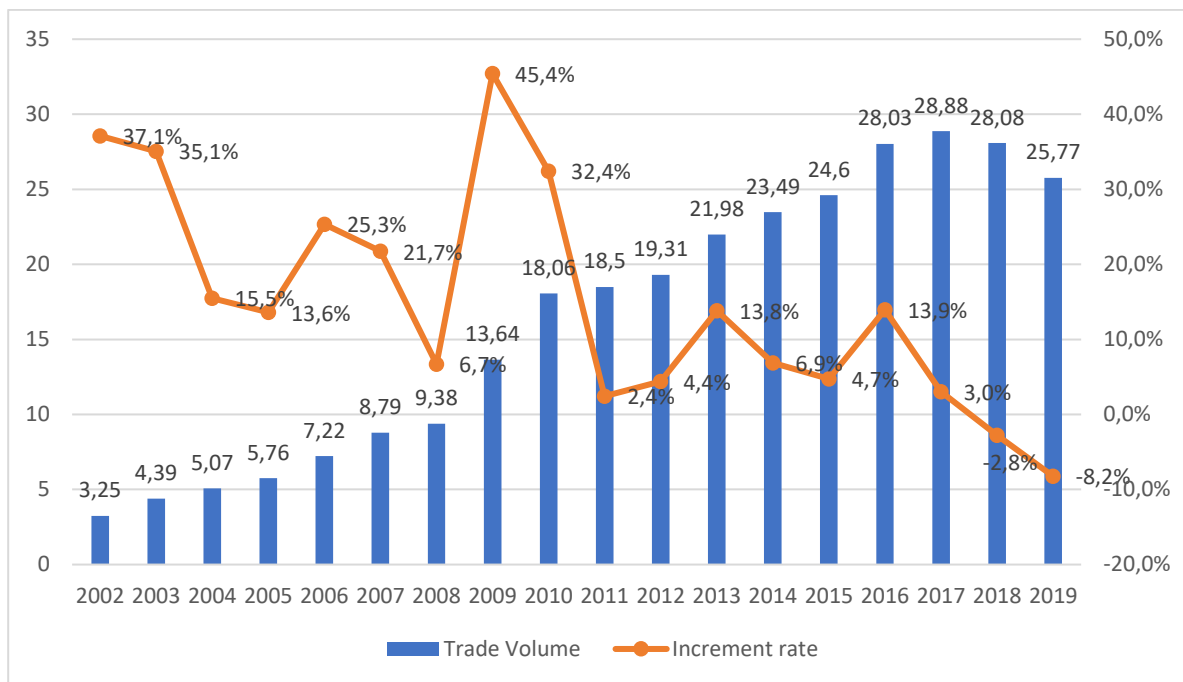


Figure 1.1.1 Auto trade volume (Million) and increment rate. [China Association of Automobile Manufacturers, CAAM]

Hit by trade war and other unfavorable factors, In the second half of 2018, China's auto market began to show an inflection point, experiencing negative growth for the first time since 1990. In 2019, the auto market continued to decline. It is forecasted by Chinese official media "21st Century Economic Times" that in the next three years, China's automobile consumption curve will still maintain an "L"-shaped development trend, and it is difficult to have a "V"-shaped reversal.

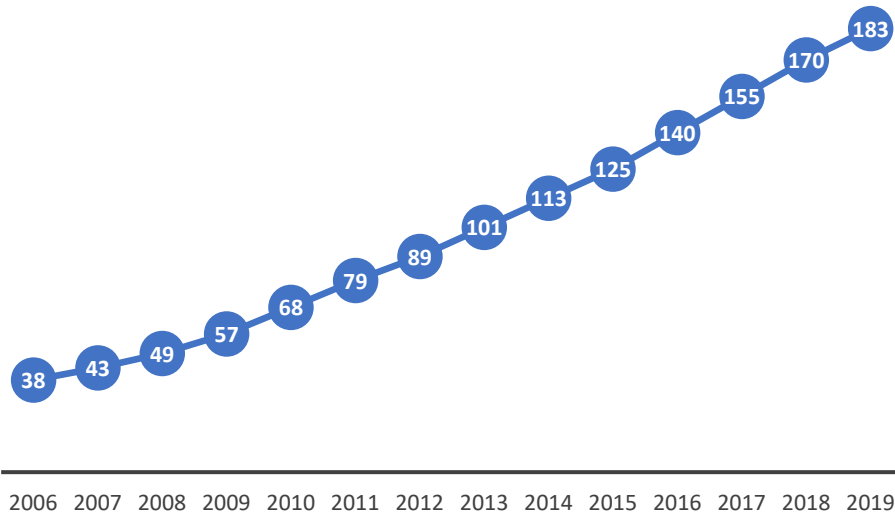


Figure 1.1.2. Car volume per thousand people from 2006 to 2019 in China. [CAAM]

During the second half of 2015, stimulated by tax cuts, the already weak China auto market stretched strongly in the fourth quarter, with the growth rate achieving 8.2%. The tax policy since 2016 has continuously stimulated auto market and we expect that the growth rate will reach 14% at the end of the year. We believe that with the withdraw of tax policy, China auto market will gradually return to moderate growth in the next year. This may be a sign of the “new normal” in China. (pwc-auto-industry-blue-book)

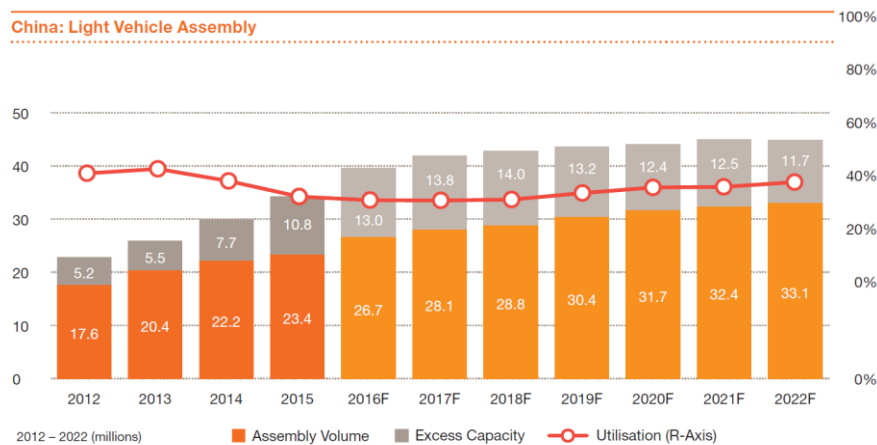


Figure 1.1.3. Autofacts 2017 Q1 Forecast Release

In 2017, a total of 10.85 million Chinese branded passenger vehicles were sold, an increase of 3.02% year-on-year; it accounted for 43.88% of the total passenger car sales, and the occupancy rate increased by 0.69 percentage point from the same period of last year. The German, Japanese, American, Korean, and French manufactures sold 4.8 million, 4.2 million, 3.0 million, 1.1 million, and 0.45 million units. Respectively, which accounted for 19.62%, 17.01%, 12.30%, 4.63% and 1.84% of the total passenger car sales. Compared with the same period of last year, the sales volume of Korean and French brands both declined rapidly, other

foreign brands showed a certain growth, and Japanese brands grew faster. (CAAM, China Association of Automobile Manufactures).

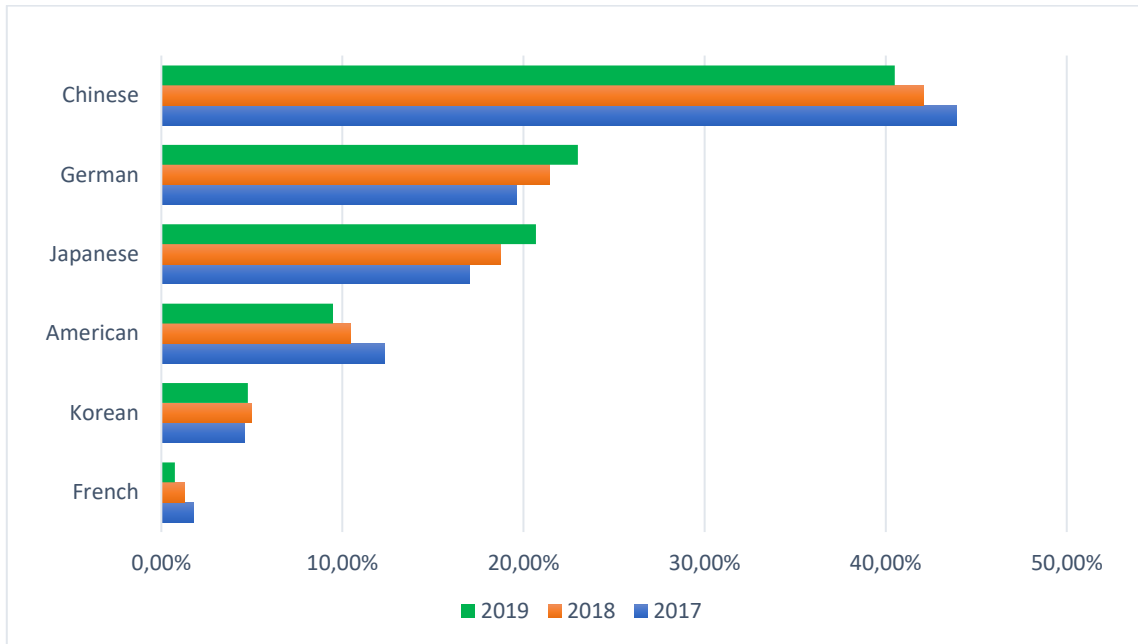


Figure 1.1.4. Market share of local and foreign brands [CAAM]

As for new cars' average selling prices for the respective brands, from the below graph, by observing the three quite flat lines, It could be found that the average selling prices never have changed a lot during these last eight years. Foreign brands, with their higher word-of-mouth, higher quality and better after-sale services, prevail against the Chinese local brands on the selling prices.

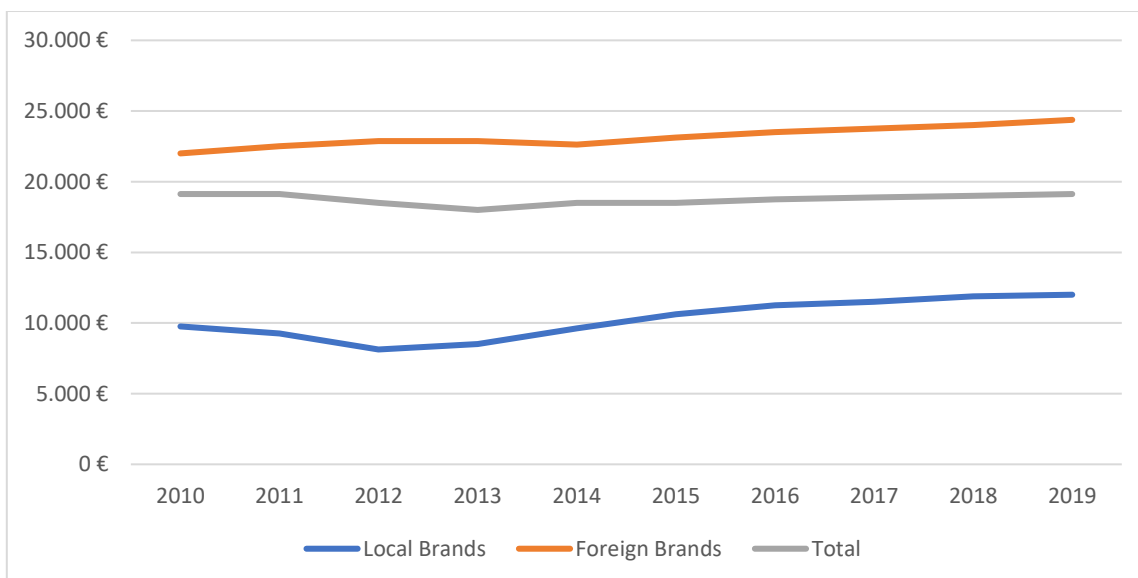


Figure 1.1.5. New cars' average selling price in Euro of local and foreign brands on the Chinese market [CAAM]

According to the standards of China Mainland, the cars are segmented by their displacements: minicars (less than 1L), ordinary cars (1.0 to 1.6L), compact cars (Between minicars & Medium cars), medium cars (1.6 to 2.5L), and high-class cars (2.5 ~4.0L), limousine (4L or more displacement).

If segmented by their prices, In general: minicars (10,000 RMB), ordinary cars (10,000 – 15,000 RMB), Medium cars (15,000 – 20,000 RMB), high-class cars (over 20,000 RMB). (Current exchange rate: 1Euro=7.77 RMB).

Correspondingly, minicar on the Chinese markets by European market Segmentation is A class, the representative models in China are Chery QQ, Chevrolet Spark.



Figure 1.1.6. Chery QQ

The representative models of ordinary car (B class) are Honda Jazz, Chevrolet Lova, Aveo, Peugeot 206.



Figure 1.1.7. Honda Jazz

The representative models of compact car (C class) are Ford Focus, Peugeot 307, Toyota Corolla, Honda Civic, Volkswagen Jetta, Hyundai Elantra.



Figure 1.1.8. Toyota Corolla

The representative models of medium car (D class) are Volkswagen Passat, Toyota Reiz, Camry, Mazda 6, Buick LaCrosse, Nissan Teana, Audi A4, BMW 3 Series, Benz C class.



Figure 1.1.9. Volkswagen Passat

The representative models of high-class car (E class) are Toyota Crown, Nissan Fuga, BMW 5 Series, Benz E class, Lexus GS, Audi A6, Volvo S80, Jaguar S-type, Peugeot 607.



Figure 1.1.10. Toyota Crown

The representative models of limousine car (F class) are BMW 7 Series, Benz S class, Audi A8, Jaguar XJ, Lexus LS.



Figure 1.1.11. Lexus LS

Sedans will still command 70 percent of the total car market by 2020. Within the sedan segment, the “C” model will remain the main choice for many Chinese consumers looking to buy a car for the first time and will account for 55 percent of the market by 2020. (Mckinsey China Auto Market 2020)

Preference for bigger cars will increase the market share of E and F models while squeezing A and B’s share. The A and B models, as a share of the total sedan market, will shrink to 19 percent, from 23 percent, while the E and F models will increase to 8 percent, from 5 percent. The Chinese consumer will choose a bigger car, as long as he or she can afford it. Even in the budget segment, we expect consumers increasingly to choose larger cars, especially as Chinese-multinational joint ventures aggressively enter the market with C models. Local automakers currently dominate the budget car segment, especially the A model. Although “going bigger” is clearly a trend, there are still strong sales opportunities in the small car segment, especially as a new urban lifestyle emerges. The premium small-car price segment, such as Smart, represented only 2 percent of the A model market in 2011. Our study suggests, however, that this niche will reach 8 percent of the total segment in 2020. (Mckinsey China Auto Market 2020)

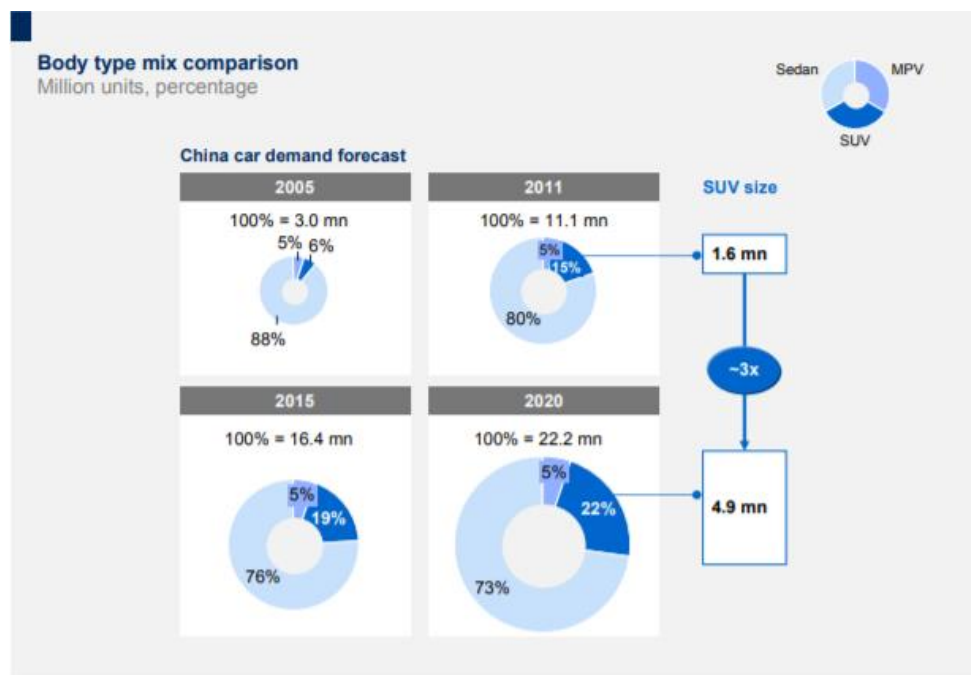


Figure 1.1.12. Volume & market share of Sedan, SUV and MPV [Mckinsey China Auto Market 2020]



Figure 1.1.13. Volume & Market share by segment [Mckinsey China Auto Market 2020]

There are currently six kinds of car sales channels:

First, Exclusive System. Mainly the current popular "4S" shop. The channel model can be expressed as manufacturer → store → end user. The exclusive system is a channel model introduced into China by Europe since 1998 and was first established by brands such as Buick, Toyota, Audi, etc. It is mainly based on the model "three-in-one" ("3S", including vehicle sales, spare parts supply and after-sales service) and "four in one" ("4S", vehicle sales, spare parts supply, after-sales service and information feedback). 4S stores in Europe and the United States are gradually going into recession, but they are still in the rising phase in China. They also have Chinese characteristics: the hardware is very strong, and the scale and grade of Chinese 4S automobile brand stores are also second to none in the world. The most developed US 4S stores cannot be compared with the hardware facilities of Chinese 4S automobile brand stores; however, they are much worse in terms of software construction (this is also in line with our current trend of selling light services in car marketing). The quality of business, the creation and maintenance of dealers' own brands, the establishment of mature sales processes, and the customer-oriented provision of possible facilities are still far from the expectation.

Second, General Agent. The channel model can be expressed as manufacturer → general agent → regional agent → (lower agent) → end user. Imported cars mainly use this model, such as Mercedes-Benz, BMW, Rolls-Royce and so on.

Third, Franchising Distribution. The channel model can be expressed as manufacturer → franchisor → end user. This is due to the fact that automobile manufacturers gradually find it difficult to regulate the distributor's distribution behavior, such as Fukang.

Fourth, Car Outlets & Car Supermarkets. Such as the Beijing Asian Games Village Auto Market and Chengdu Hongpailou Auto Trading Market, strictly speaking, this type of marketing cannot be considered a separate vehicle sales channel, but auto outlets and auto supermarkets can also relatively integrate market resources and promote sales (eg, , even in the 4S shops one cannot buy fare-increased updated cars such as Guangzhou-Toyota, in the car supermarkets as long as the clients are willing to pay, they can get it).

Fifth, Regional Agency. The channel model can be expressed as a manufacturer → regional agent → lower agent → end user. This model is basically consistent with the regional agency system for IT channels. This is the earliest model adopted by the automotive channel. Due to the problem of poor control over dealers, there are fewer manufacturers currently using this model.

Sixth, Other Ways. In the Internet era, sales through the Internet have become more and more valued by consumers. The latest J.D.Power survey report stated that the company's website has become an important channel that affects car sales.

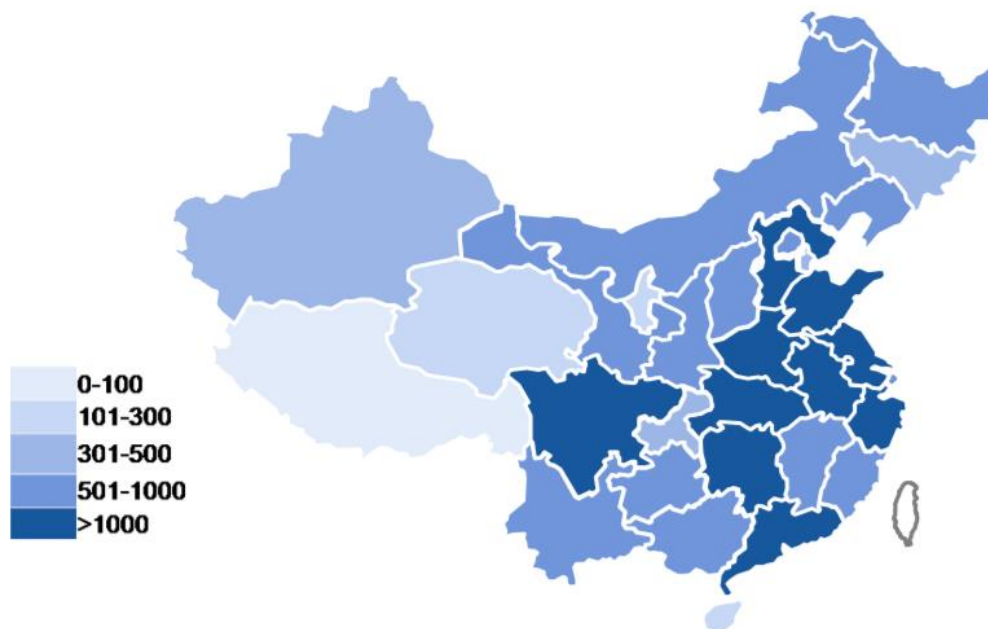


Figure 1.1.14. No. of Commercial networks of new & used cars in China in 2016 [CADA]

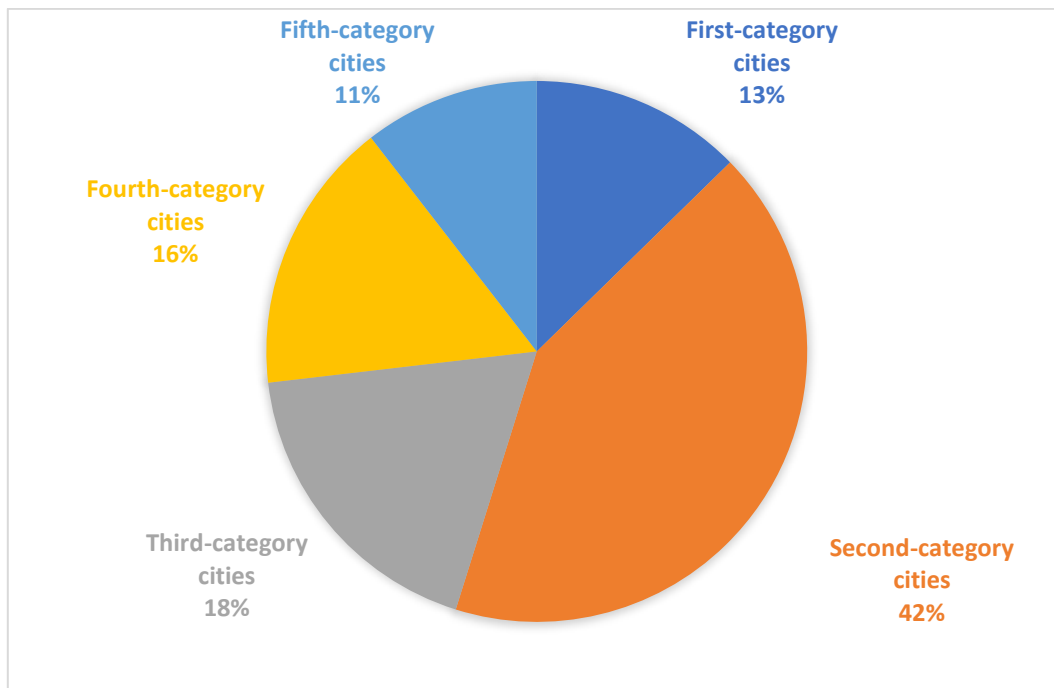


Figure 1.1.15. Average Share of No. of Commercial networks in China in 2019 [CADA]



Figure 1.1.16. A sale point of new cars of a Chinese local brand at Luoyang, China

The world's automobile emission standards are aligned and divided into European, American, and Japanese standards systems. European standards test requirements are relatively broad and are the exhaust gas emission systems that most of the developing countries use. And, because most of the models of cars in China are imported from Europe, China generally adopts the European standard system.

Emission standards for light vehicles were issued in July 1999 and revised in 2001.

The first stage: GB18352.1-2001 "Limits and measurement methods for emissions from light-duty vehicles (I)", using the equivalent EU Directive 93/59/EC, referring to the use of 98/77/EC Directives, equivalent to Euro I, released and implemented on April 16, 2001;

The second stage: GB18352.2-2001 "Limits and measurement methods for emissions from light-duty vehicles (II)", the equivalent use of the EU 96/69/EC directive, reference to the use of 98/77/EC Directive, part of the technical content equivalent to Euro II, from 2004 Implemented on July 1;

The third stage: GB18352.3XII2005 "Limits and measurement methods for emissions from light-duty vehicles (China III, IV Phase)", which is equivalent to Euro III, implemented in 2007;

Phase IV: Partially equivalent to Euro IV, implemented in 2010.

China's light vehicle emission standards III and IV have the same pollutant emission limits as EU III and EU IV standards. However, some improvements have been made in the experimental methods. There exist also big differences Between Chinese III & IV and EU III & IV standards in the regulatory format.

The fifth stage: GB18352.5-2013 "Limits and measurement methods for emissions from light-duty vehicles (China V stage)", will be implemented on January 1, 2018.

Since the end of 2016, it has been announced that all light-duty vehicles must comply with the Emission Standard China 6a until 01.07.2020 and with the China 6b as of 01.07.2023.

The Ministry of Environmental Protection (MEP) has issued relevant renewals together with AQSIQ, that in the future automobile exhaust catalysts, fuel injection and combustion chamber of engine must be upgraded. Besides, the N2O limits is planned in China 6b, that in comparison to China 5 the pollutant CO should be further reduced by 50%, the THC be reduced by 50%, the NOx reduced by 40% and the PM by 33%. Furthermore, it is implemented that tests should be tested under Worldwide harmonized Light vehicles Test Procedure (WLTP).

In the following an overview about China IV will be given and afterwards it will come to the relevant regulations with technical requirements.

The Chinese Emission Standards were published together by the MEP and SAC. They comply with the European Emission Standards and are mandatory for the following type of motor categories in new vehicles:

- Passenger vehicles and heavy-duty vehicles
- Motorcycles
- Off-road diesel engines
- Bus engines
- Marine engines

Since the introduction of the guideline "National Stage I Emission Standard" in 2001, China's emission standards have been developing over the past 17 years rapidly. From 2018 China V will implemented throughout the country and from 2020 China VI. More strict emission

standards should reduce more than 90% carbon emissions and thus promote the technical development in the automobile industry.

The following tests must be carried out by China VI:

- Type test I: Verifying the exhaust emissions after a cold start by normal ambient temperature
- Type test II: RDE test
- Type test III: Emission of crankcase gases
- Type test IV: Evaporation emissions
- Type test V: Verifying the durability of pollution control devices
- Type test VI: Verifying the exhaust emission of CO, THC and NO_x after a cold start by low ambient temperature
- Type test VII: Verifying evaporative emissions by refuelling

The development of type test I Verifying the exhaust emissions after a cold start by normal ambient temperature by China 4, China 5 and China 6 shows how the emission standards have been developing and how the requirements are becoming more and more strict.

GB 18352.3-2005 Limits and measurement methods for emissions from light-duty vehicles (China III, IV)

Type test I: Verifying the exhaust emissions after a cold start by normal ambient temperature by China IV											
			Limits(g/km)								
Category	Class		CO		HC		NOx		HC+ NO _x		PM
			L ₁		L ₂		L ₃		L ₂ +L ₃		L ₄
			PI	CI	PI	CI	PI	CI	PI	CI	CI
Type 1		all	1.00	0.50	0.10	-	0.08	0.25	-	0.30	0.025
Type 2	I	RM≤1305	1.00	0.50	0.10	-	0.08	0.25	-	0.30	0.025
	II	1305≤RM≤1760	1.81	0.63	0.13	-	0.10	0.33	-	0.39	0.040
	III	1760<RM	2.27	0.74	0.16	-	0.11	0.39	-	0.46	0.060
Source: GB 18352.3-2005 Limits and measurement methods for emissions from light-duty vehicles (China III, IV)											

In comparison to China IV the limits of CO and HC remain the same by China V, while the limit values of NO_x and PM are reduced. Besides the limit values of NMHC and PN will be added.

GB 18352.5-2013 Limits and measurement methods for emissions from light-duty vehicles (China 5)

Type test I: Verifying the exhaust emissions after a cold start by normal ambient temperature by China V																
RM/kg			Limits(g/km)													
Category	Class		CO		THC		NMHC		NOx		THC+NOx		PM		PN	
			L ₁		L ₂		L ₃		L ₄		L ₂₊ L ₄		L ₅		L ₆	
			PI	CI	PI	C _I	PI	C _I	PI	CI	P _I	CI	PI ⁽¹⁾	CI	P _I	CI
Type 1	-	all	1.00	0.50	0.100	-	0.068	-	0.060	0.180	-	0.230	0.0045	0.0045	-	6.0×10 ¹¹
Type 2	I	RM≤1305	1.00	0.50	0.100	-	0.068	-	0.060	0.180	-	0.230	0.0045	0.0045	-	6.0×10 ¹¹
	II	1305≤RM≤1760	1.81	0.63	0.130	-	0.090	-	0.075	0.235	-	0.295	0.0045	0.0045	-	6.0×10 ¹¹
	III	1760<RM	2.27	0.74	0.160	-	0.108	-	0.082	0.280	-	0.350	0.0045	0.0045	-	6.0×10 ¹¹
(1) Only applicable to motor vehicles with GDI-Engine																
Source: GB 18352.5-2013 Limits and measurement methods for emissions from light-duty vehicles (China 5)																

GB 18352.6-2016 Limits and measurement methods for emissions from light-duty vehicles (China 6)

In comparison to China V remain the limit values of HC, NMHC, NOx and PM by China 6a unchanged, while the limit values of CO are reduced and furthermore the limit value of N2O will be introduced.

Type test I: Verifying the exhaust emissions after a cold start by normal ambient temperature by China 6a								
		Limits						
Category	Classes	CO	THC	NMHC	NOx	N ₂ O	PM	PN ⁽¹⁾
		mg/km	mg/km	mg/km	mg/km	mg/km	mg/km	/km

Type 1	-	all	700	100	68	60	20	4.5	6×10^{-1}
Type 2	I	TM≤1305	700	100	68	60	20	4.5	6×10^{-1}
	II	$1305 \leq TM \leq 1760$	880	130	90	75	25	4.5	6×10^{-1}
	III	1760<TM	1000	160	108	82	30	4.5	6×10^{-1}
⁽¹⁾ Transitional limits for gasoline vehicles of 6×10^{-12} \uparrow / km before 1.7.2020 permitted									
Type test I: Verifying the exhaust emissions after a cold start by normal ambient temperature by China 6b									
Limits									
Category	Class		CO	HC	NMHC	NOx	N ₂ O	PM	PN ⁽¹⁾
			mg/km	mg/km	mg/km	mg/km	mg/km	mg/km	/km
Type 1	-	all	500	50	35	35	20	3.0	6×10^{-1}
Type 2	I	TM≤1305	500	50	35	35	20	3.0	6×10^{-1}
	II	$1305 \leq TM \leq 1760$	630	65	45	45	25	3.0	6×10^{-1}
	III	1760<TM	740	80	55	50	30	3.0	6×10^{-1}
⁽¹⁾ Transitional limits for gasoline vehicles of 6×10^{-12} / km before 1.7.2020 permitted									
Source: GB 18352.6-2016 Limits and measurement methods for emissions from light-duty vehicles (China 6)									

The limit values of CO, HC, NMHC, NOx and PM based on China 6a will have to decrease significantly and only the limit values of N₂O and PN remain the same.

Here below are the number of cars that respect different emission standards on the Chinese roads according to the “China Motor Vehicle Environmental Management Annual Report” released by MEE (Ministry of Ecology and Environment of the People’s Republic of China)

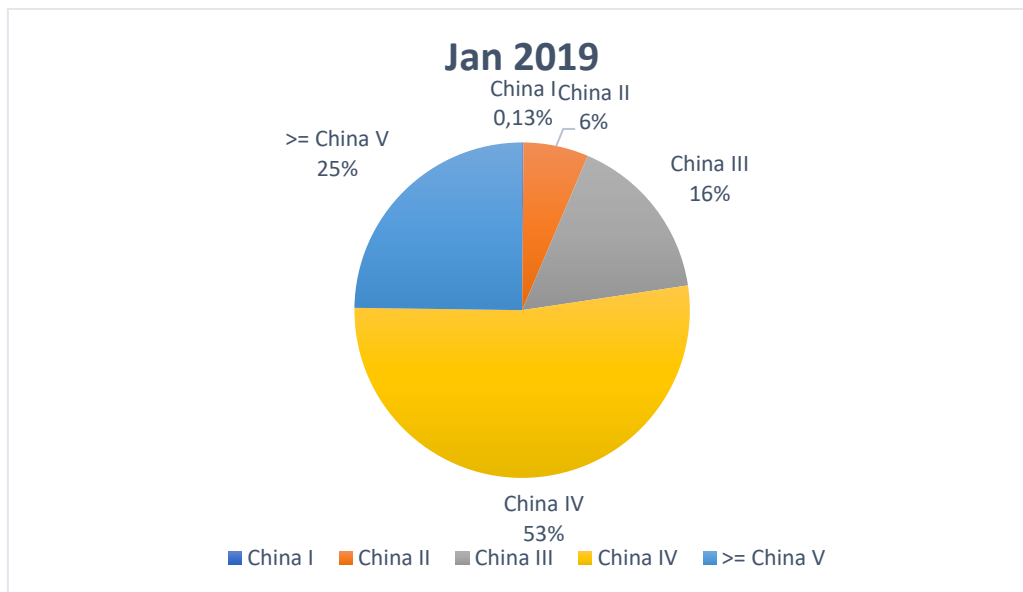


Figure 1.1.17. Auto in circulation under different emission standards (Jan 2019)

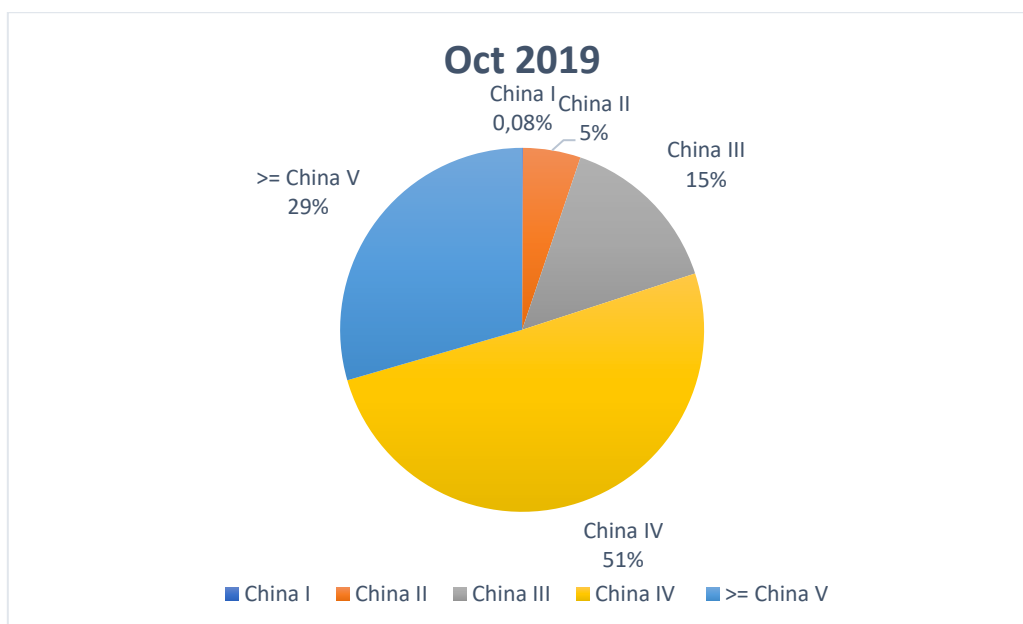


Figure 1.1.18. Auto in circulation under different emission standards (Oct 2019)

With the continuous increase of the total number of china's civil vehicles, it is time for a huge amount of cars to enter into a period of replacement, witch without question will set up a solid foundation for the development of Second-hand car's market.

On October 1, 2005, The Administrative Measures on the Trading of Used Cars, or the Used Cars Measures, jointly issued by the Ministry of Commerce (MOFCOM), the Ministry of Public Security (MPS), the State Administration for Industry and Commerce (SAIC), and the State Administration of Taxation (SAT) was formally implemented. The second article of the general rule of this document defines a used car as: “a used car is a registered car, trailer, and motorcycle which has been traded and whose ownership has been transferred before the

deadline stipulated by the Motor Vehicle Compulsory Scrap Standards.” Interestingly, In China, no rules or regulations have defined very clearly the used car in a “technical way” such that in Europe the definition of a used car is “over 6 kilometers of mileage of use and 6 months from its first registration.”

According to the data released by CADA (China Automobile Dealers Association), in six years (from 2011 to 2016), the overall trade scale of Second-hand car’s market has reached to 10.39 million units from 6.82 million units. That means Second-hand car’s market has stepped into the new period of “Ten Million”. The State Development Center and Auto Engineering Association estimated that the total vehicle demand in 2030 will be 32.43 million, with 8.8% annual increment.



Figure 1.1.19. An outlet of used cars in North-East China

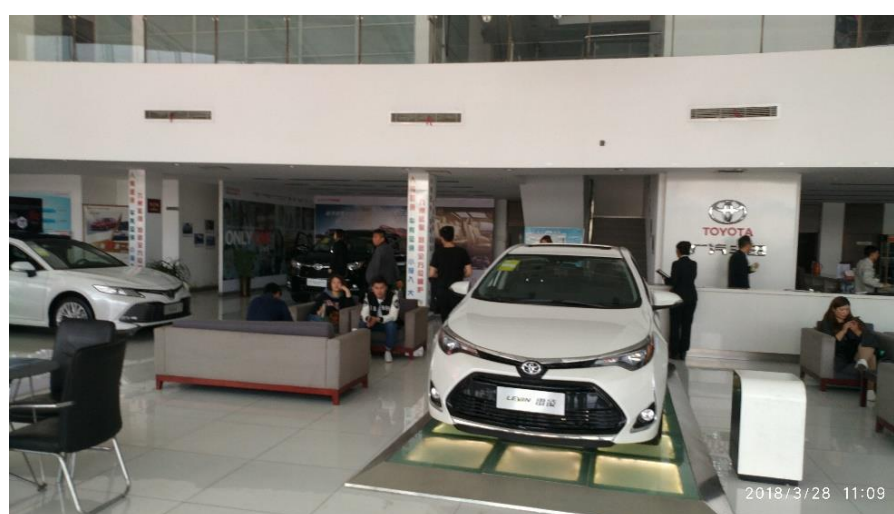


Figure 1.1.20. Service area of a used car sale point of Guangzhou Toyota Motor at Luoyang, China



Figure 1.1.21. Outside area of a used car sale point of FAW-Volkswagen Automotive at Luoyang, China

The average trading ratio between used car and new car sales in China for 2019 is 0.58, which indicates the growing proportion of used car in auto industry. In recent years, such operating models as used car brokers, used car auction and used car replacement have emerged in the market successively. The alteration of trading models provides new engines for the development of the used car market in China. It is estimated that the trade volume ratio between used and new car would reach 1:1 in the next ten years.

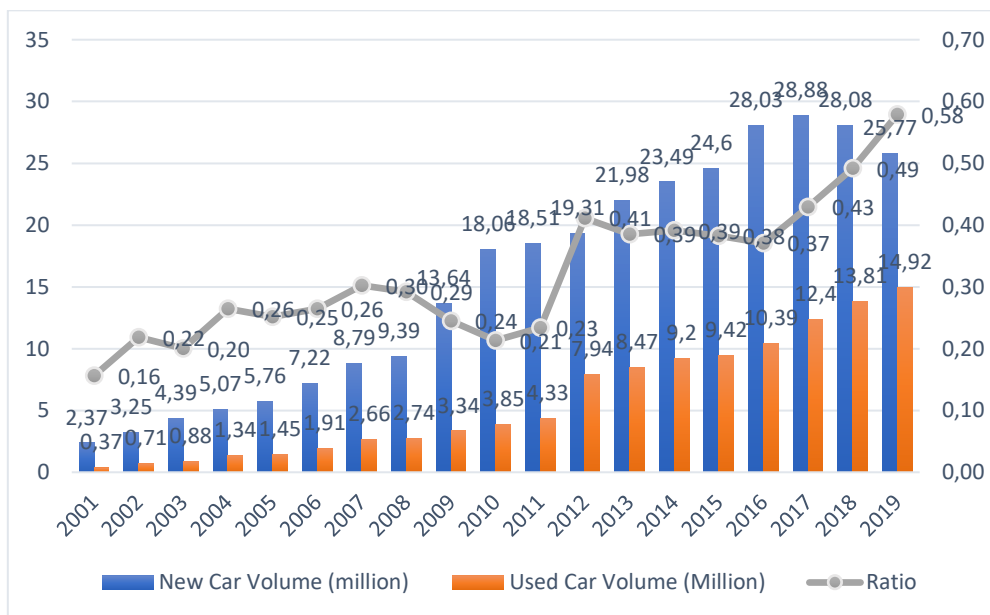


Figure 1.1.22. Volumes of used & new cars and the ratio. [CAAM & CADA]

However, China's used car trade market is still in low proportion in the auto industry, even with its rapid growth. According to the experience of western advanced countries, taking USA as an example, the benefits from used car sector accounts for 45% of the whole auto industry, and the average profit from one used car is around 20%.

Tremendous differences can be noted between the Chinese cities of first and second categories and those of third and fourth categories. The main factors are the different policies applied on different zones and various economic development levels of the numerous cities.

To scientifically reflect the socio-economic development situation in different regions of China and provide basis for the Party Central Committee and the State Council to formulate a regional development policy, according to the “Some Opinions of the Central Committee of the Chinese Communist Party and the State Council on Promoting the Rise of the Central Region” and the “State Council issued a number of policy measures on the development of the Western Region”. The "Implementation Opinions" and the spirit of the Party's 16th National Congress report now divide China's economic regions into the four major regions: Eastern, Central, Western, and Northeast regions.

North-East China: Liaoning Province, Jilin Province, Heilongjiang Province.

East China: Beijing, Tianjin, Hebei Province, Shanghai, Jiangsu Province, Zhejiang Province, Fujian Province, Shandong Province, Guangdong Province, Hainan Province.

Central China: Shanxi, Anhui, Jiangxi, Henan, Hubei , Hunan Province.

West China: Inner Mongolia Autonomous Region, Guangxi Zhuang Autonomous Region, Chongqing Municipality, Sichuan Province, Guizhou Province, Yunnan Province, Tibet Autonomous Region, Shaanxi Province, Gansu Province, Qinghai Province, Ningxia Hui Autonomous Region, Xinjiang Uygur Autonomous Region.

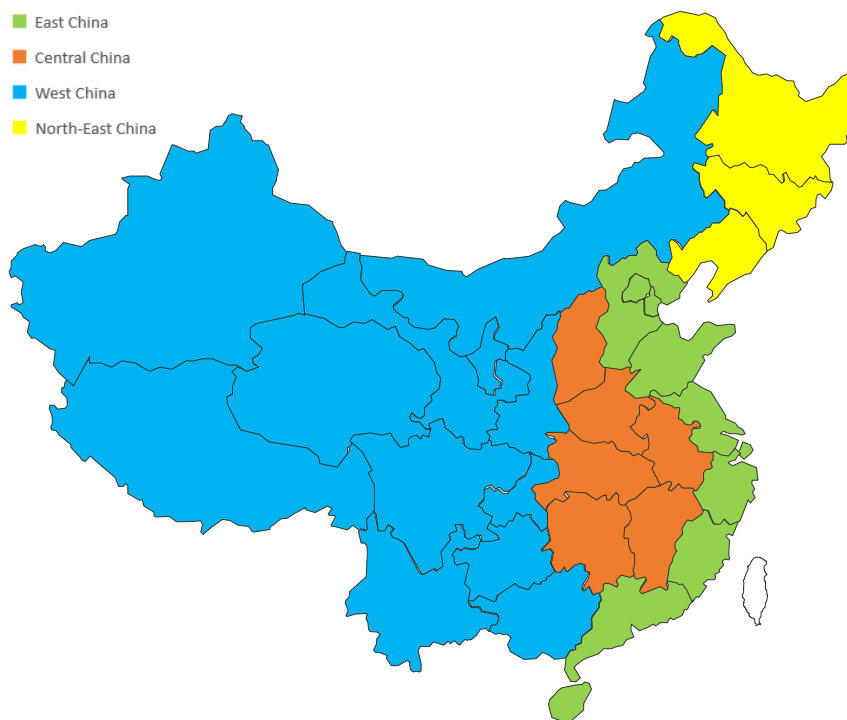


Figure 1.1.23. China's major Four Economic Regions

In those highly developed zones, such as eastern (its market share in 2019 is 33.21%), northern (19.8%) and middle-southern areas (20.17%), the second-hand car market has expanded remarkably in recent years. While in some third or fourth category cities, the second-hand car market is still a very small sector. Taking an example, at Luoyang, a third-category city, the ratio between the trade volume of second-hand cars and that of new cars is still around 1:10.

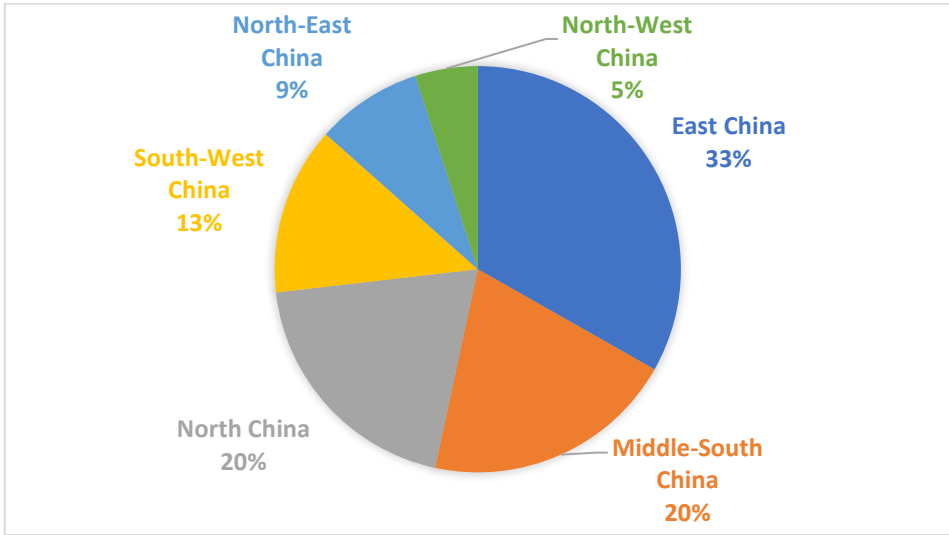


Figure 1.1.24. Trade volume distribution of used cars in March 2019 [CADA]

With regards to the popular segments trade on the second-hand car market, among the passenger vehicles, used “basic passenger vehicles”, name of sedans in China (including small, compact, medium and large segments) are as always dominating the market. The other popular segments, like SUV and MPV) are also playing important roles on the market.

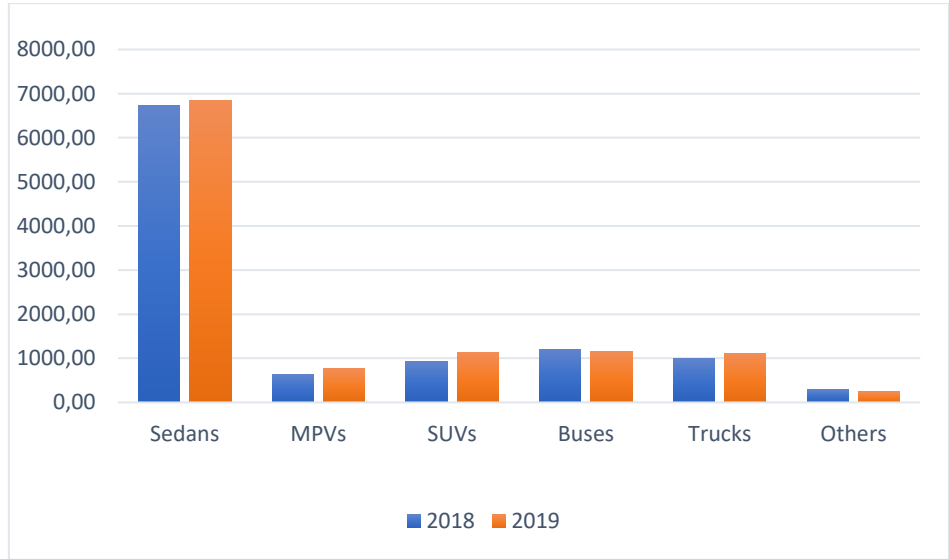


Figure 1.1.25. Trading volume of used cars’ classes in 2018 & 2019 (Thousand) [CADA]

In October of 2019, the used cars with an age between three years and six years are traded the most (its market share is 39%), then the followers are those with an age under three years (25%), between seven and ten years (24%), over ten years (12%).

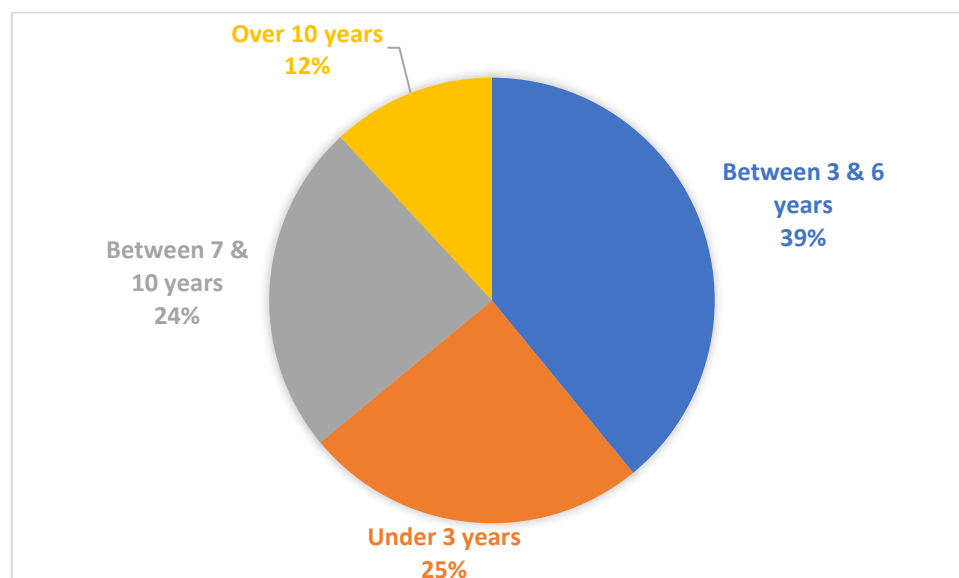


Figure 1.1.26. Car longevity of used cars in October 2019 [CADA]

The price of used cars in China is still relatively low. The used cars whose values are under 80 thousand RMB (1 RMB = 0.13 EURO, according to current exchange rate) have a good lead in the game over the others (their market share in 2017 is 73.36%). Among them, the used cars whose values are under 30 thousand RMB are the most appreciated by Chinese consumers.

By comparison of the new car price and the used car price during the last 8 years, we found that the ratio between the two average prices is placed inside of the range 0.3-0.45 and the ratio value has been increasing during these years.

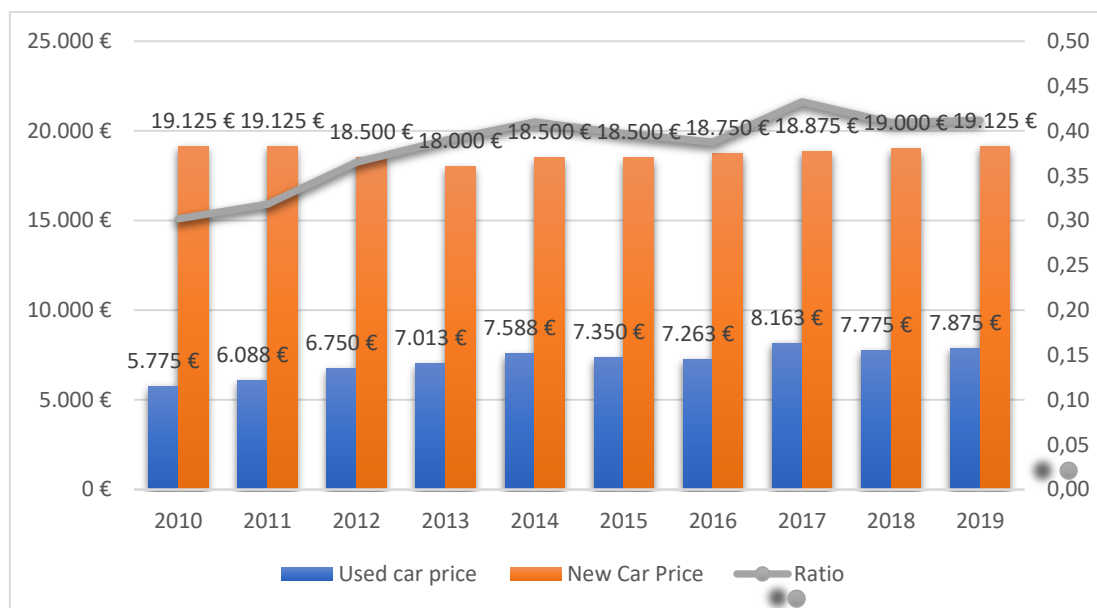


Figure 1.1.27. Sale prices comparison of used and new cars [CADA]

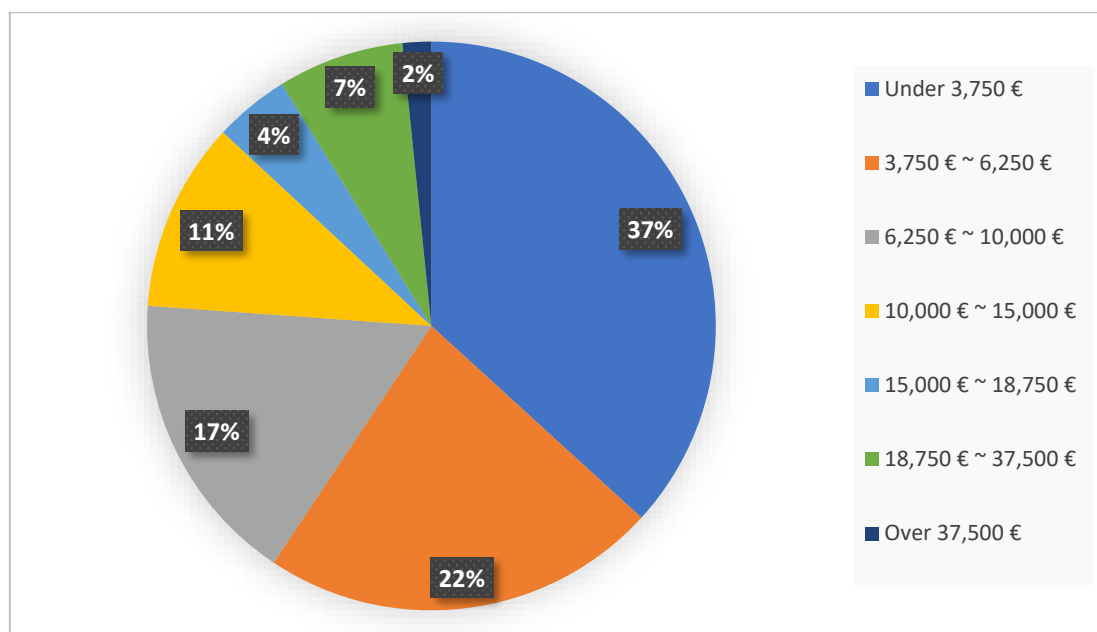


Figure 1.1.28. Sale prices of used cars between Jan & Apr in 2019 [CADA]

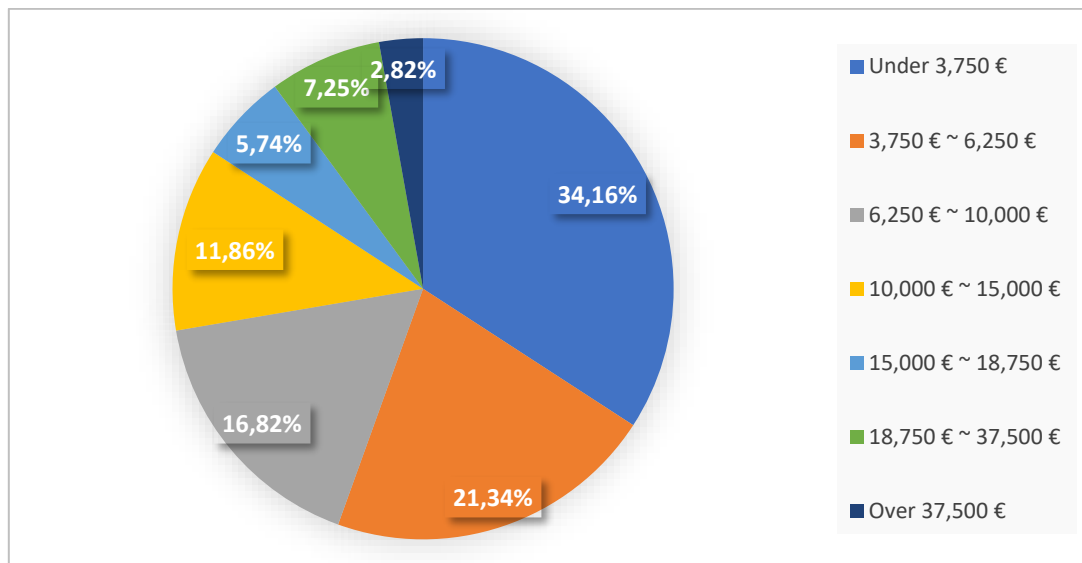


Figure 1.1.29. Sale prices of used cars between Jan & Apr in 2020 [CADA]

With regards to the most popular brands of used-cars, the following figures show both the trade volume on the e-commerce platform and that of off-lines. On the e-commerce platforms, The top tens are Honda Accord, BMW 5 Series, Buick Excelle, Audi A6L, Chevrolet Cruze, Toyota Camry, Wuling Hong Guang, Ford Focus, Volkswagen Lavida and Bora. Instead, on the off-line markets, Volkswagen Jetta makes itself ahead of all others. The top ten brands on the e-commerce platforms account for 11.65% of the market. Instead, the top ten brands on the off-line market occupy 15.67% of market share.

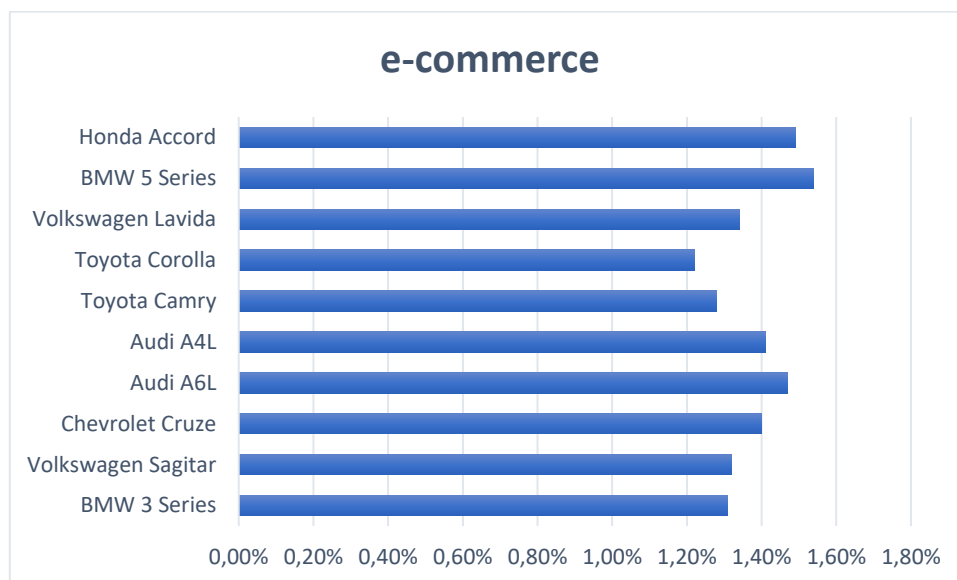


Figure 1.1.30. Popular brands of used cars in 2019 (e-commerce) [CADA]

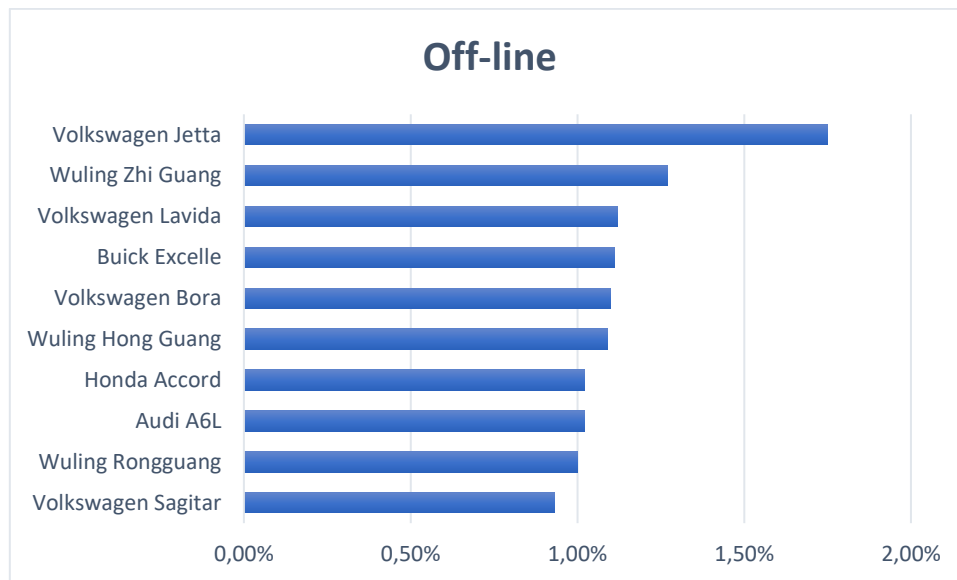


Figure 1.1.31. Popular brands of used cars in 2019 (Off-line) [CADA]

CHAPTER 2

ENVIRONMENTAL ANALYSIS

2.1 Political factor

Due to the particularity of Chinese market structure, without any doubt, political factor has been always a dominant factor with respect to all others.

The Administrative Measures on the Trading of Used Cars, or the Used Cars Measures, released in 2005, are the primary regulation governing the used-car market. The measures introduced a competition mechanism that allows OEM-authorized auto dealerships to run used-car businesses. The measures also regulate different parties—including trading markets, agents and operators—and strengthen the administration of organizations that appraise the value of used cars.

The Notice on Upgrading the Used-Car Trade Market was announced by the ministries of Commerce and Finance in July 2009. The circular aimed to improve the used-car industry. Initially, the PRC government selected 10 provinces and municipalities—Beijing, Hubei,

Jiangsu, Jiangxi, Liaoning, Shandong, Shanghai, Shenzhen, Tianjin and Zhejiang—to receive fiscal funding to conduct pilot programs that focused on the management and information on used-car transactions to improve transparency.

The Auto Industry Revitalization Plan, released in 2009 by the State Council, calls for the establishment of a national appraisal and evaluation standards system and a temporary ownership registration system. The plan also calls for adjusting the value-added tax rate on used car transactions and encourages dealer- ships to participate in vehicle replacement programs.

The Twelfth Five-Year Plan encouraged consumer to purchase energy saving and environment vehicle. Series vehicle subsidy and tax reduction on low emission and new energy vehicle were implemented, which have direct influence on the future used car market. There would be increase in low emission and new energy used car in the future. (China Automobile Dealers Association, “2011 China Used Car Industry Development Report,” Beijing, 2011)

Some Opinions on Promoting Convenience Trading of Used Vehicles released in March 2016 by the State Council, requires local governments to remove limits on the inflow of second-hand vehicles from other regions. By June 2017 about 135 Chinese cities in 13 provinces and regions had ended the policy of limiting the inflow of second-hand vehicles.



Figure 2.1.1. In the light blue areas the restriction of cross-border trade has been abolished.

Previously, nearly 90 percent of major cities in China imposed emission limits on incoming second-hand vehicles, and some cities set much higher emission standards for incoming second-hand vehicles than for local ones, according to China Automobile Dealers

Association. Such limits almost blocked all trade in second-hand vehicles, reducing the value of second-hand cars and raising the cost for owners to buy new ones (CADA).

In the past few years, used-car operating companies were required to pay value-added tax in accordance with the transaction price of used cars. Unreasonable tax policies made market transactions mainly based on direct transactions and didn't form the scale effect of used car companies. On April 3rd, 2014, CADA submitted to the General Office of the State Administration of Taxation a "recommended report on adjusting the way to collect value-added tax for used car transactions." It is expected that the tax policy will push the used car market into a new stage of development, and the used vehicle business will develop from the current small-scale/self-employment model to brand management, scale management, and chain operation.

	Policy	Effect
Before the Reform	1, Regular second-hand car operating companies are required to pay VAT at 2% of the vehicle's transaction price. 2, Brokerage companies and individual traders only need to pay 200-400 RMB invoicing fee to the market organizer to issue a second-hand car transaction invoice for transfer.	1, Tax costs are quite different, and most used car operating companies also use the old car trading market for billing during the transaction process. 2, While avoiding taxation, used car dealers have also evaded the responsibility for after-sales service to second-hand car consumers. The chaos caused by the used car market caused a large loss of state revenue.
After the Reform	The second-hand car transaction tax will be calculated on the basis of the current 2% of the transaction amount and adjusted to the value-added portion.	1, Incentive to motivate used car companies. 2, Adjust and purify the used car market

Table 2.1.1 The Value-added tax policy adjustment and its effects

2.2 Economical factor

The development of Auto's market of one country is positively related to its economy's development and its people's income level. China's economy, after many years' high-speed development, is now suffering from its industrial structure transition. The so-called "New Normal" period has come, which as the Chinese central government says, the national economy will keep developing steadily at a slow-medium rate.

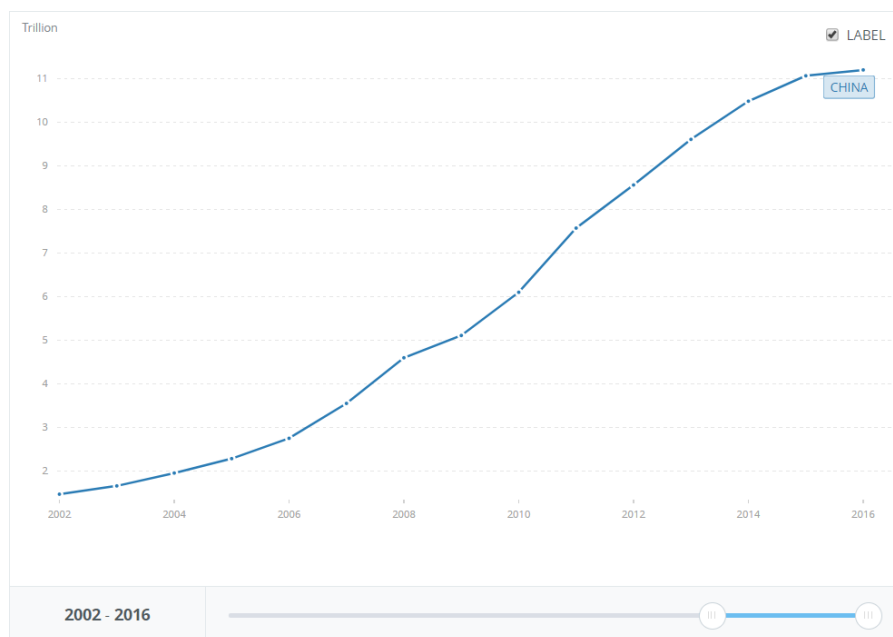


Figure 2.2.1. GDP (current US\$) in China [The World Bank]

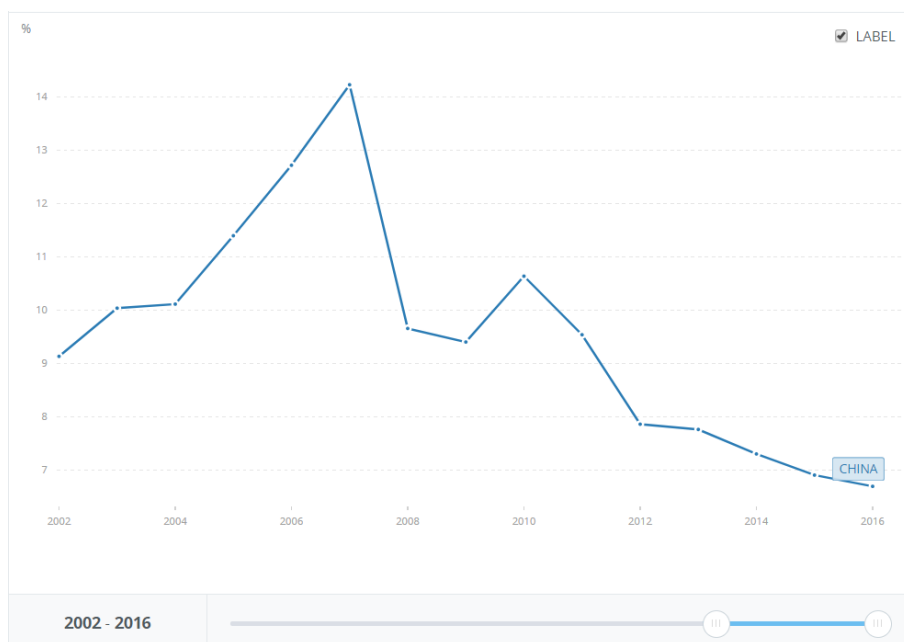


Figure 2.2.2. GDP growth (annual %) in China [The World Bank]

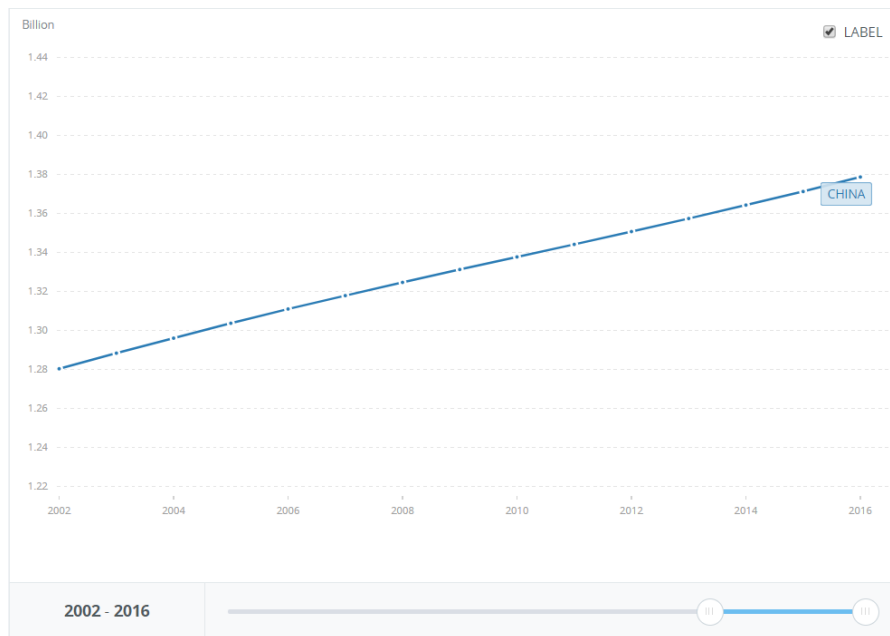


Figure 2.2.3. China's population [The World Bank]

Resident's income level is the key factor for auto population. Even though People's income level in China is still low with respect to the mature markets, the growth in recent years is remarkable, which is a good sign for the development of Second-hand car's market considering that the Chinese consumers can make a choice between an entry-level new car and a medium-class used car.

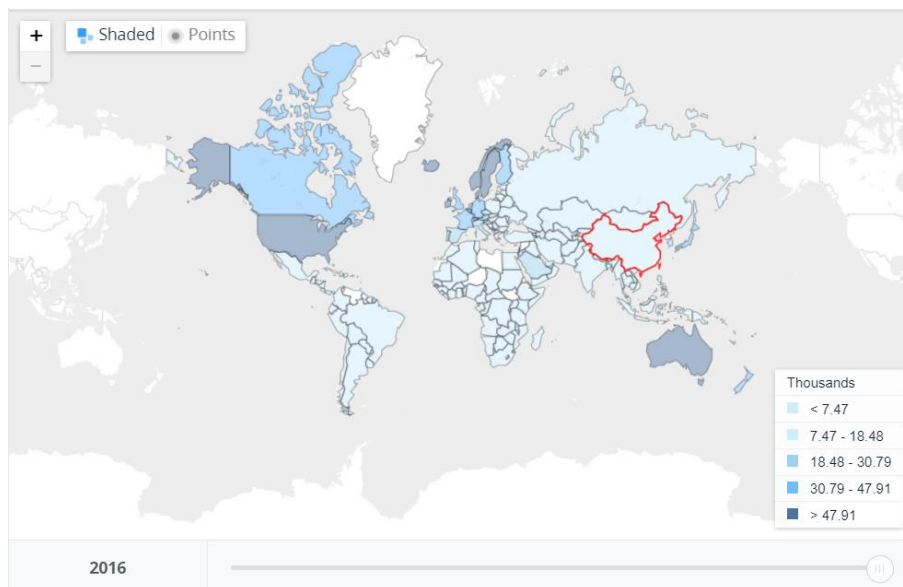


Figure 2.2.4. Map of GDP per capita (current US\$) in China [The World Bank]

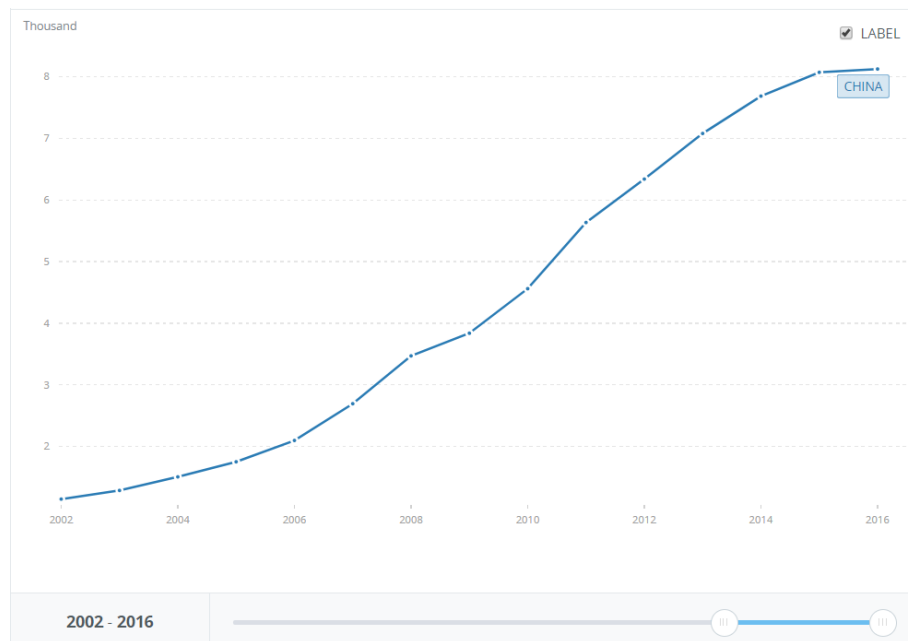


Figure 2.2.5. Line of GDP per capita (current US\$) in China [The World Bank]

In a relatively long period, the auto and used car demand will keep a vigorous stage. The State Development Center and Auto Engineering Association estimated that the total vehicle demand in 2030 will be 32.43 million, with 8.8% annual increment.

2.3 Social factor

In China today, for every five new cars sold one used car is sold. Compare that to the U.S., where for every five new cars sold more than twelve second-hand cars are sold! Why is this? According to one report of Mckinsey, 2014, among the reasons for the small scale of the used car market are:

1. There are few places to readily source quality used cars. The standard place to go, the OEM dealer, is in China heavily focused on new car sales and takes a very low proportion of trade ins. He doesn't want to handle used cars as he needs a license to do so and is then forced to pay VAT on the transaction which independent dealers can avoid.
2. Chinese owners keep their cars a long time, typically 5-plus years versus 3-4 years elsewhere.
3. Chinese owners like new cars (as they like new build apartments). There is a negative stigma attached to used cars. With more low-price domestic vehicle models coming to market, options for an inexpensive new car have expanded recently.
4. There is no systematic, trusted pricing system available for consumers to turn to, although online portals are starting to address this. Equally there is a lack of certification of the vehicle's current status.
5. In many markets it can be a challenge to understand a vehicle's history. Good luck trying to do so in China.

Even though the policies from the government have sprung out in recent years, it still will take some years to release completely the Second-hand Car’s market due to the change of local governments’ own policies and consumers’ psychology.

A standard and professional appraisal system for second-hand cars has been called out in China, hundreds of institution structures have appeared overnight. CADA, as a Chinese government-approved organization is taking the responsibility to issue the certificates to the qualified appraisers.



Figure 2.3.1. An example of the Second-hand car appraiser’s certificate. [CADA]

In 2017, in total, 28512 used cars were tested, and among them 22916 units were authenticated. It has been forecasted that in 2018, monthly about 6000 used cars will be tested and authenticated.

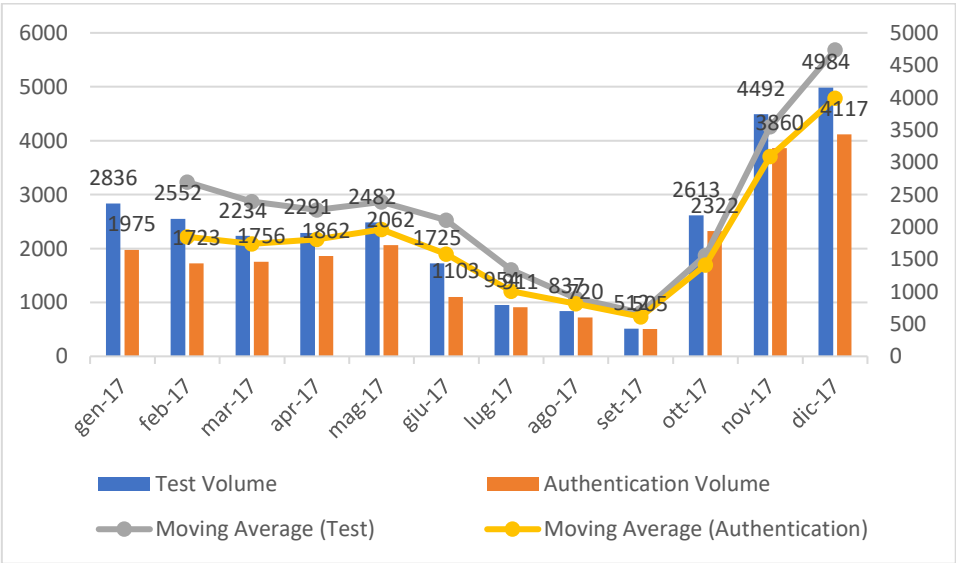


Figure 2.3.2. Number of used cars were tested and authenticated in 2017. [CADA]

2.4 Technological factor

In the online auction technology, people in the Internet information age are all transparent people. In the past, the information of the used car market was blocked to the consumers and the information was not transparent. In recent years, the trading platform for used cars has developed rapidly.

The wild history of used car sales in the era of mobile Internet will become a thing of the past.

First, it broke the information barrier.

The vehicle condition information is completely transparent to the buyer and the seller, and transparent information between them avoids misunderstandings and losses caused by information asymmetry in the past. In the full transparency of the information, the true value of the car may be fully discovered.

Second, the use of big data and credit files.

The price of traditional offline used cars is highly subjective. Instead, Shanghai's new Internet product platform has unique advantages in terms of big data, such as specific vehicle conditions, quotation list of different companies, trading volume, mileages, etc., all of which can be adopted. Data storage, and with the continuous accumulation of transaction data, the database can basically predict the entire second-hand car market trends, give accurate evaluations of vehicle conditions of used cars, provide buyers and sellers with more reference information and thereby increase trading volume.

CHAPTER 3

STATE OF SECOND-HAND CAR MARKET

3.1 Mature markets

In mature markets, there are relatively few truly “incremental” new cars sold. The majority of new cars are a replacement for existing cars – as the money tied up in the current car normally has to be released to help fund the purchase of a new car or newer used car. Given the current uncertain economic climate and the pressure on new car sales, the used car sector is changing rapidly and becoming an ever more important element of the automotive industry in many countries.

3.1.1 European Market

The used car market in Europe forms two groups – Western European (EU15/EFTA) countries and the newer EU member states that together, make up the EU27. The former are essentially mature car markets which have developed a competitive used car sector over many years – the most sophisticated of these are the United Kingdom, Germany, France and the Netherlands. In these mature markets, probably as few as 5% of new cars sold are truly “incremental” new car sales, the remainder are replacement units. As such, there needs to be an efficient used car market for car owners to sell or part exchange their current car. In contrast, in most new member EU states the used car market is generally less well developed. Although there may be emerging used car industries in place, they still have some considerable ways to go to achieve the same level of sophistication as used car markets in Western European countries. (The European Used Car Market Report 2012 – A Report by BCA)

The absence of a well-developed used car industry in the new member EU states is due, in part, to the lower number of cars owned per person in these countries. Historically, there has been insufficient disposable income to create a mass market for new cars, combined with a culture of passing existing cars on to friends or family members, rather than allowing a third party to profit from selling them. This can only be a short-term situation, however, as friends and family will ultimately seek to own newer cars of their own. In developing EU countries, there is often no reliable used car pricing structure. This makes it very difficult to establish reasonably reliable used car price benchmarks for buyers and sellers, and accepted quality norms for used cars at different stages in their life cycle. Essentially, newer EU countries are playing “catch-up”. Indeed, some went through a period of importing used cars, particularly from Germany, France and Belgium to plug the pricing gap between new and used cars in line with what car buyers could afford. This era can now be said to be more or less over, with many Central European Markets starting to develop their own used car market. (The European Used Car Market Report 2012 – A Report by BCA)

The Principal findings of the European Used Car Market Report 2012 by BCA are the following:

- While there is a wide range of alternative routes to the used car market, not all are in place in all European markets. Perhaps the key is to have alternative routes for vehicles of different ages – so transaction costs can be kept low.
- In some European markets, the used car industry is three times larger than the new car sector. To achieve these levels, the used markets are generally mature and buyers and sellers trust the system. In the new EU countries, used car markets are smaller and less well developed.
- The ratio of used:new cars varies significantly within western EU15 countries. Generally, those countries with efficient mechanisms for “recycling” used cars have the highest used:new car ratios.
- By and large, newer EU countries have yet to fully develop their used car market and infrastructure. Suffice to say, they are likely to offer the biggest opportunities for growth in used car activities over the next few years.

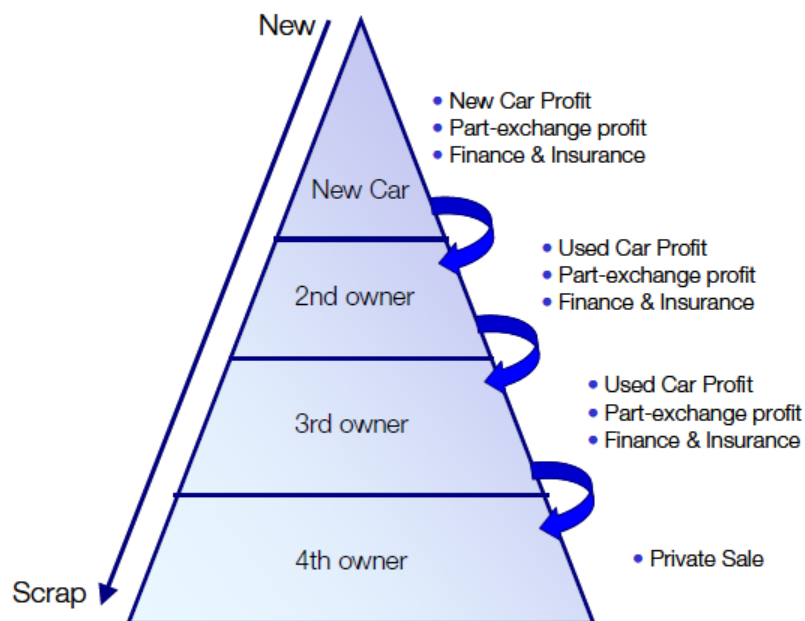


Figure 3.1.1. Used car supply pyramid (Buckingham for illustrative purposes)

Europe's new car registrations peaked at 16 million in 2007, falling 1.3 million units to 14.7 million the following year as recession hit the new car market. While wide-spread scrappage incentive schemes held EU new car sales at 14.5 million in 2009, they fell by 713,000 units to 13.8 million in 2010, as scrappage programmes were phased out. The number of cars ultimately entering the used car market for the first time will follow a similar trend, even though the feed-through will run on a different timescale and will vary considerably in by country. (The European Used Car Market Report 2012 – A Report by BCA)

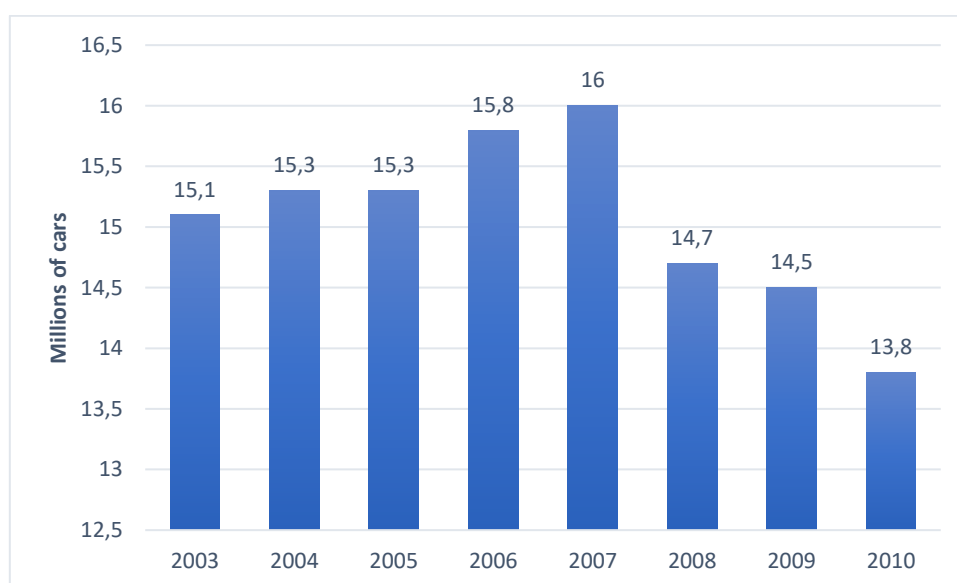


Figure 3.1.2. EU27/EFTA new car volumes; 2003-2010 [ACEA]

Figure 42 shows new and used car volumes for the principal western EU markets. The most obvious conclusion from this chart is that new and used car markets are dominated by the “big four” – the UK, Germany, France and Italy, with the Netherlands and Spain also showing a strong used car sector. Equally important, in every mature market, used car volumes exceed the sale of new cars by a considerable margin.

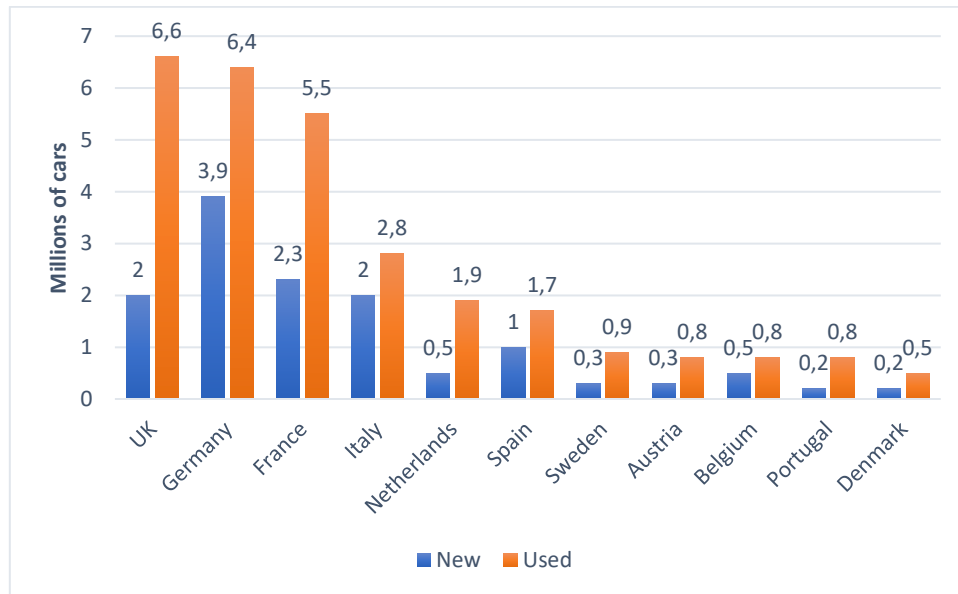


Figure 3.1.3. Principal European markets new and used car sales in 2010 [ACEA/National Trade Bodies]

Figure 44 shows five markets sell more than three used cars for every new one. The Netherlands tops the list at 3.7:1, followed by Denmark (3.6:1) and Portugal at 3.4:1. The UK, with a used:new car ratio of 3.3:1, is the only major volume used car market within this “higher ratio group”.

The UK has not been able to export high numbers of right-hand drive cars to its immediate neighbours and so has developed a sophisticated internal infrastructure to manage the volume. In other markets, such as the Netherlands, Denmark and Portugal there have been issues of non-recoverable tax costs that have driven the development of efficient used car markets. (The European Used Car Market Report 2012 – A Report by BCA)

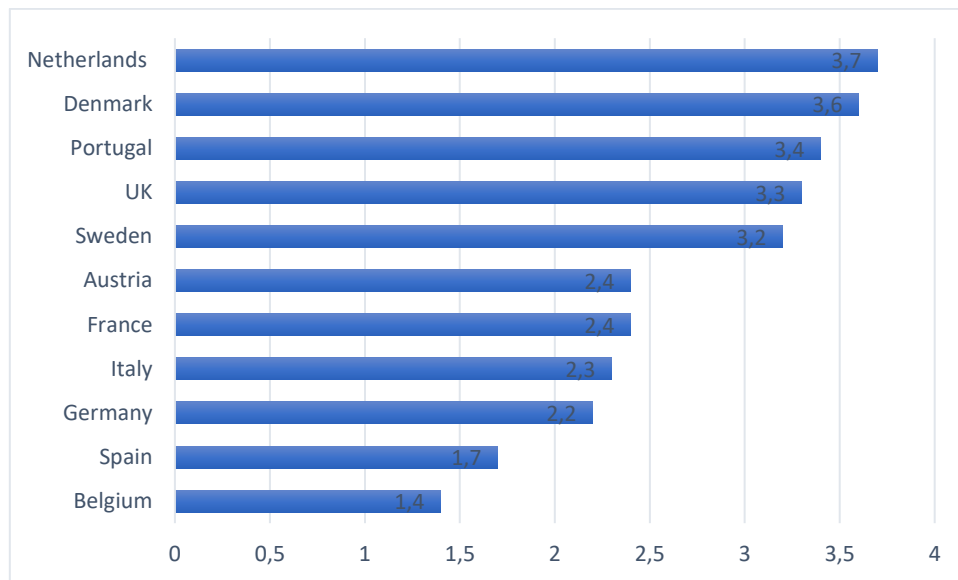


Figure 3.1.4. Used:New sales volume ratios in 2010 [ACEA/National Trade Bodies]

One further comparison is the relationship between used car sales and a country's population. Figure 45 shows the leading players, in terms of used car sales per 1,000 people, are the Netherlands (109), the UK (106) and Sweden at 99. At the lower end of the churn, in Italy and Spain, there is a culture of cars being passed down through family members without a formal sales transaction being recorded. Over time, some cars might have just one owner until they are scrapped yet have several users during their life. (The European Used Car Market Report 2012 – A Report by BCA)

Some initial conclusions can be reached. In every major market in Europe used car market volumes are remarkably higher than new car sales, by a factor of more than three in some instances.

The economic and employment implications of the used car industry require little comment beyond stating that, from an employment and post-manufacturing viewpoint, the used car industry may well be of great significance than the sale of new cars.

Some of the similarities and differences between the different mature markets have been highlighted. Such differences are driven by a range of different issues – tax, maturity, ownership characteristics among others. (The European Used Car Market Report 2012 – A Report by BCA)

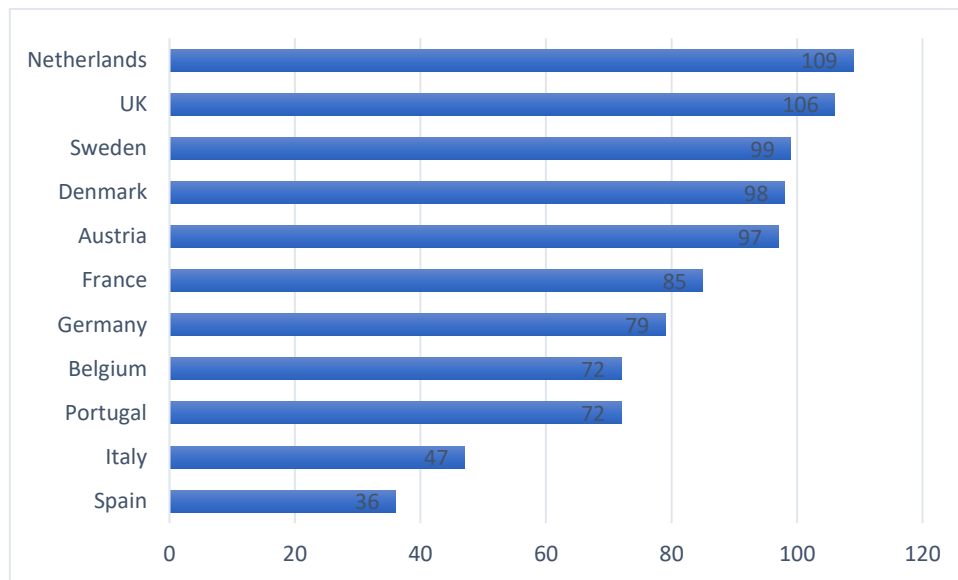


Figure 3.1.5. Used car sales per 1,000 population in 2010 [National Trade Bodies]

In the west, the new units sold constitute the used market in more than the 75-80% of the cases. The duration of the first possession of the new is 5-6 years, depending on the country. In the life of a new vehicle, there are in average other owners.

In Italy during 2007 the change of ownership of the used cars have been more that 5 million. Of these, around 2 million were with temporary transfer, that is without the final transfer to the end user. The increase year after year is continuing, but the ratio of new / used remains well below the european average.

The “Km 0” –which some consider a type in itself, and still represents a common phenomenon everywhere – exceeded 200000 units in 2008. The radiations have been beyond 1800000.

Almost similar to the application of the new cars, that of the used cars is articulated in 3 lines:

- a) first supply application
- b) request for an additional car in the family.
- c) application for a used car to replace a used one already owned.

In addition, in the last years the devaluation curves in the used market have become worse, also for the attention given to the units with or without ecological devices (for which the price varies not only according to the state of use, but also to the adherence of the Euro 1/2 standards, etc, according to the adopted catalysation).

For information, considering that the driving restrictions and also the current incentives are set on the standards of the environmental containment, note that in Italy, in a park of about 34ml of cars, at the end of 2006 we still had:

Euro 0	4.800 000	15%
Euro 1	6.000.000	17.8%
Euro 2	9.470.000	28.1%
Euro 3	8.380.000	24.8%
Euro 4	5.100.000	15.1%
Bz	22.450.000	66.5%
Diesel	9.400.000	27.9%
GPL	1.500.000	4.4%
Methane	400.000	1.2%

Tactics and strategies

The Companies, for the reasons outlined above, are very attentive to the marketing tactics of this business, supporting the dealership network in many ways.

Strategically, there still is a lot to do: let's cite however, as an example of such efforts, that the Companies have invented brands ad hoc (Autoexperct, Eurocasion, etc) in order to create a valid and guaranteed stock image.

3.1.2 American market

It's hard to believe that seven years ago automotive retailing was in the depths of the recession — suffering record losses, franchise terminations, and bankruptcies. The survivors have done more than just “live to fight another day.” They have triumphed — establishing an industry that effectively and efficiently meets the needs of today's customers while maintaining the flexibility, and embracing the innovation needed to meet the coming transformation in the way cars are bought, sold, and owned.

To be sure, automotive retailing is not a monolithic industry, and as such, some segments have not fared as well, or advanced as far, as others. But there is a common thread for all dealers: When labor market and credit conditions are favorable, it is inevitable that dealers will tap into America's love affair with automobiles and mobility to create new growth opportunities. Since 2010, jobs and credit availability have been growing, and thus, the success of dealers comes as no surprise.

In 2016, new vehicle sales broke the 17.5 million mark, after being only slightly shy of that level in 2015. Having sold 35 million units in two years, new vehicles are clearly outperforming the overall economy — and one reason is product. Manufacturers are offering quality products with the physical attributes, technology, and features that consumers desire. As a result, customers (aided by attractive finance options) have been willing to pay higher transaction prices; but as sales plateaued in 2016, manufacturers were forced to up incentive spending.

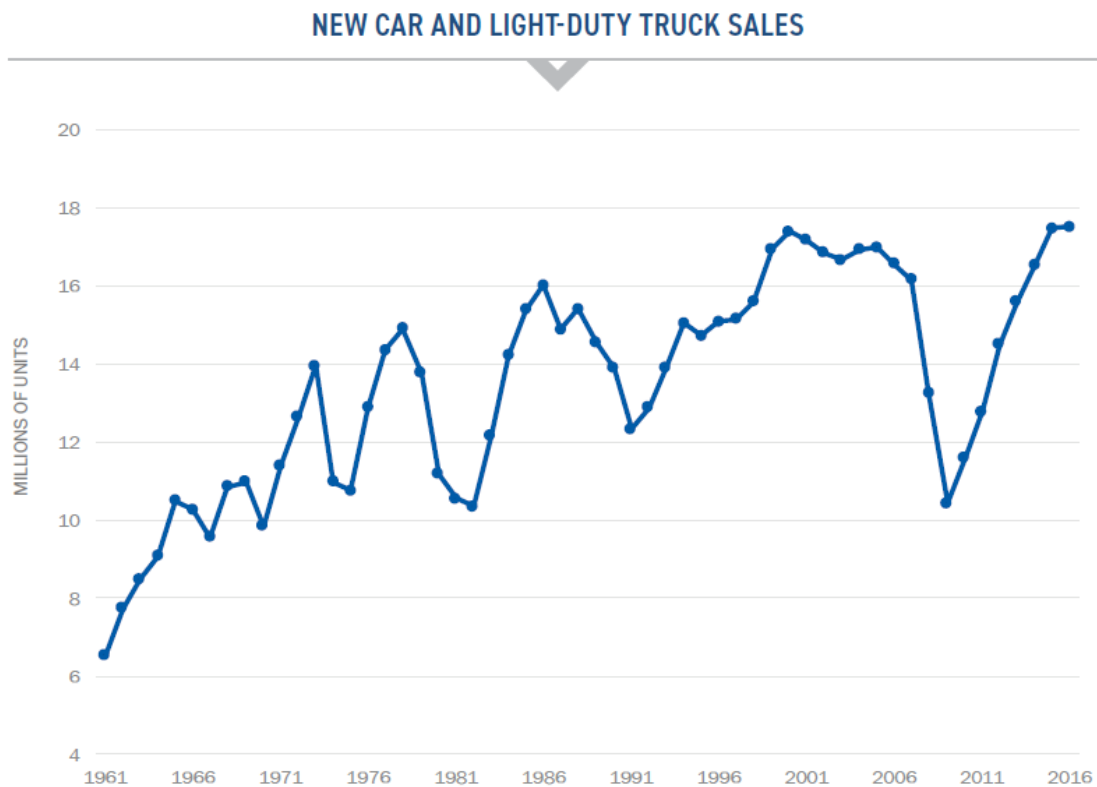


Figure 3.1.6. New car & Light-Duty truck sales in U.S. [Automotive News]

One of the growing headwinds for new vehicle sales comes directly from the used market in the form of off-lease vehicles. Leasing's share of total sales has grown rapidly since the Great Recession, rising from 17 percent of the total market in 2010 to nearly 25 percent in 2016 and 2017. A result of this sales strategy by OEMs is that a large number of off-lease vehicles have been coming back to dealers in recent years and providing a steady supply of high-quality, high-content products. Cox Automotive estimates that there will be nearly 3.9 million off-lease vehicles over the next year. They will provide growing competition for the new vehicle market.

The threat to new sales comes not only from the sheer volume of off-lease vehicles coming back to dealers, but also the types of products that will be available. During the early years of the market recovery, the car segment share of the entire market was 47 percent. However, within leasing, the car share was much higher at 56 percent. In fact, car share of both leasing and fleet has been much higher than the overall market during the recovery period as OEM leasing and fleet strategies were slow to respond to changing consumer preferences. Thus, the off-lease vehicles coming back to dealers in recent years consisted of many car products that consumers today are less interested in.

In 2017, the U.S. was home to more than 123 million households. More than 112 million households owned at least one vehicle, which means that the U.S. vehicle ownership rate was 91 percent. Three Western states – Idaho, Utah and Wyoming – had the highest vehicle ownership rate for the country at 96 percent. The lowest vehicle ownership rate of 64 percent was in the District of Columbia.

The average U.S. household owns 1.8 vehicles. Wyoming is home to the highest average vehicles per household with 2.2, while D.C. has only 0.9 vehicles per household.

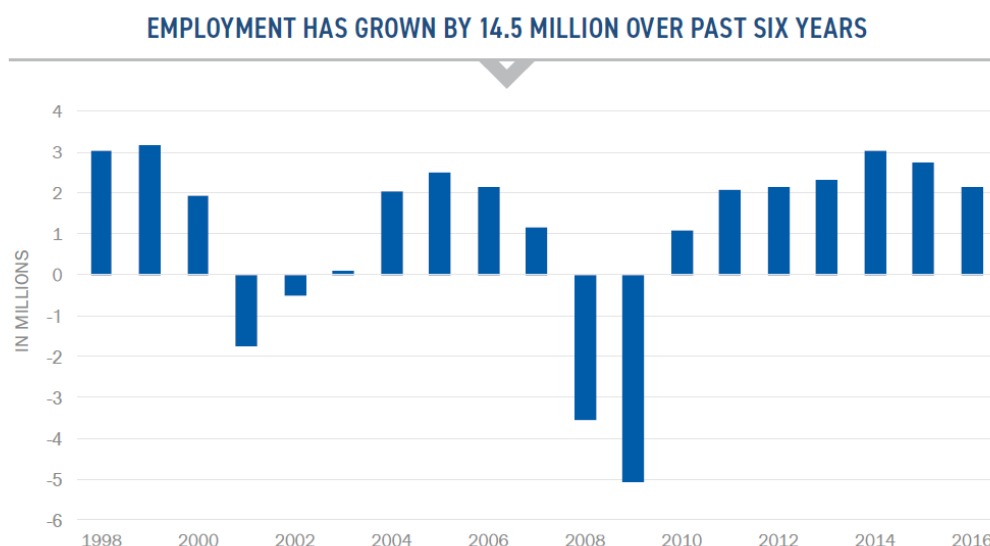


Figure 3.1.7. Employment change in U.S. [Bureau of Labor Statistics]

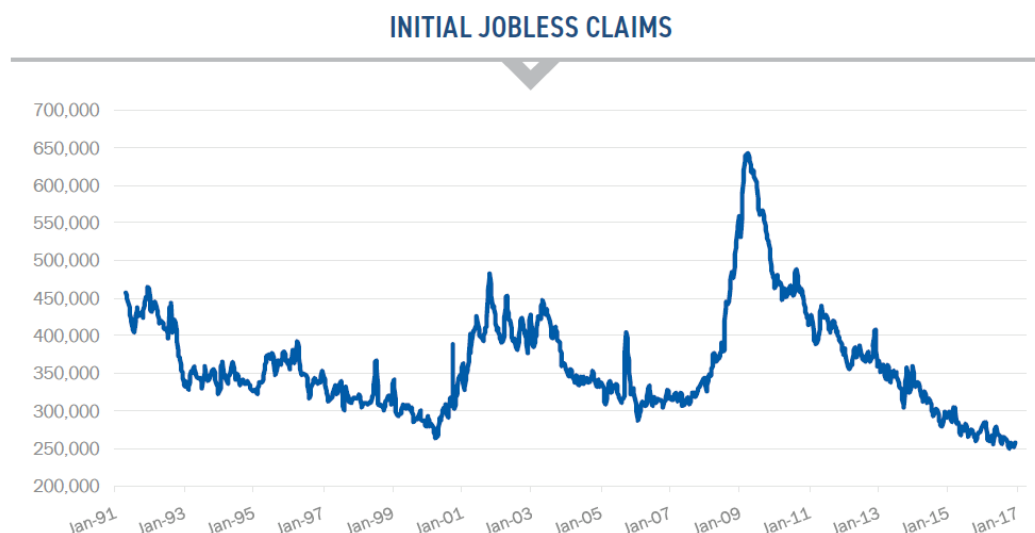


Figure 3.1.8. Initial Jobless Claims in U.S. [Bureau of Labor Statistics]

Housing and autos are the two most important sectors of the economy, they respond to the same fundamental economic forces, and up until this recovery, they tended to move in lockstep. A more robust rebound in housing during this recovery would have meant significantly better overall growth and personal income, but it might not necessarily have been better for the retail automotive markets. Although these two industries have been complementary for decades, they appear to have taken on more of a substitution role recently. For example, there is no way that households could have taken on a 55 percent increase in auto loans outstanding over the past five years if mortgage obligations were also quickly rising. (In fact, mortgage debt outstanding declined slightly during this period.)

As we enter the later stages of this recovery, it is important that housing make a more significant contribution; but at the same time, the auto industry can ill afford a wholesale shift in consumer debt originations. With mortgage rates set to rise by more than a point from all-time lows (and with no significant shift in mortgage lending standards), we suspect the housing recovery will remain restrained and allow consumers to continue to take on more auto debt. Housing will, however, grow faster than autos in 2017 due to greater pent-up demand for homes and a cost-to-rent versus a cost-to-buy equation that increasingly favors the latter. Downpayment requirements and mortgage lending standards will keep the growth in check. If there is a wild card, it would be commercial real estate, where there is always a large amount of debt that needs to be continually rolled over, and at a cost that may exceed current expectations.

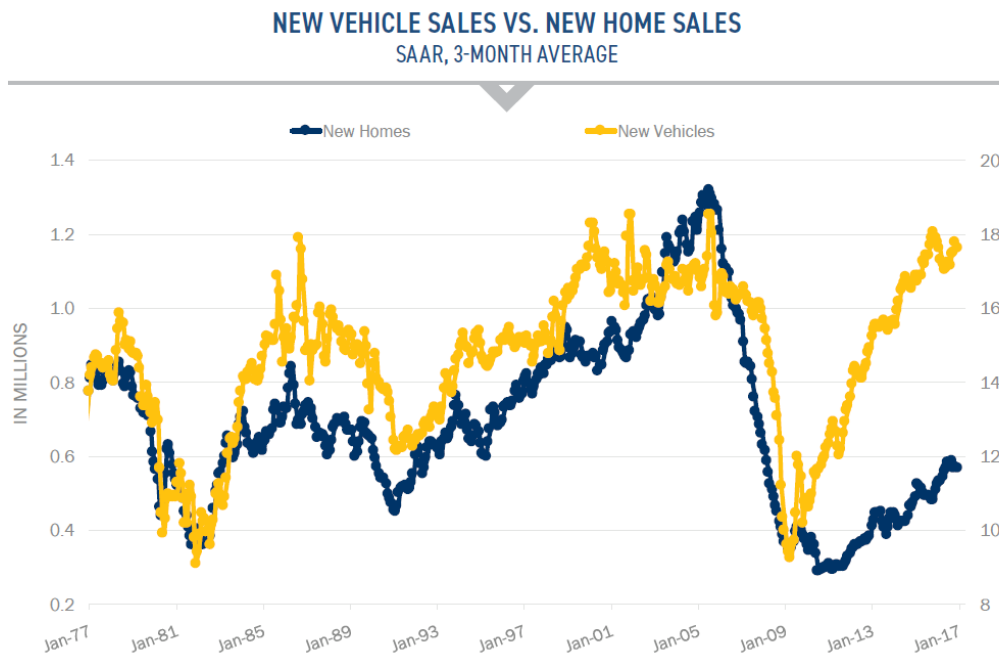


Figure 3.1.9. New Vehicle sales VS New Home Sales. [U.S. Census Bureau & Automotive News]

Total employment growth in 2016 was half a million less than in 2015 (2.2 million versus 2.7 million), but that was to be expected given the low level of unemployment (4.9 percent at the beginning of the year and 4.7 percent at the end). And, for college graduates, the unemployment rate was a mere 2.5 percent. To be sure, the labor force participation rate hovers near 40-year lows (despite a small uptick recently); but much of that decline was structural and probably won't be significantly reversed under any economic environment.

A little less than half of vehicle-owning households will purchase a vehicle in a given year, with most purchasing a used vehicle. Only about one of eight vehicle-owning households is likely to purchase a new vehicle in 2018, but at least one of three will purchase a used vehicle.

Used vehicle sales finished near 39.3 million units in 2017, up 1.8 percent from the previous year. However, new vehicle sales fell nearly 2 percent. Given that the new vehicle market is in the late stages of the recovery, the modest weakening in demand for new vehicles is not surprising after reaching record peaks in 2015 and 2016. Cox Automotive's expectation is that this divergence trend will continue into 2018, with the used market reaching 39.5 million sales while new sales decline further to 16.7 million. Although buying conditions are strong for all vehicle markets, growth in used supply from off-lease vehicles, coupled with record high prices for new products and a modest pull-back in fleet activity, is steering new and used products in different directions.

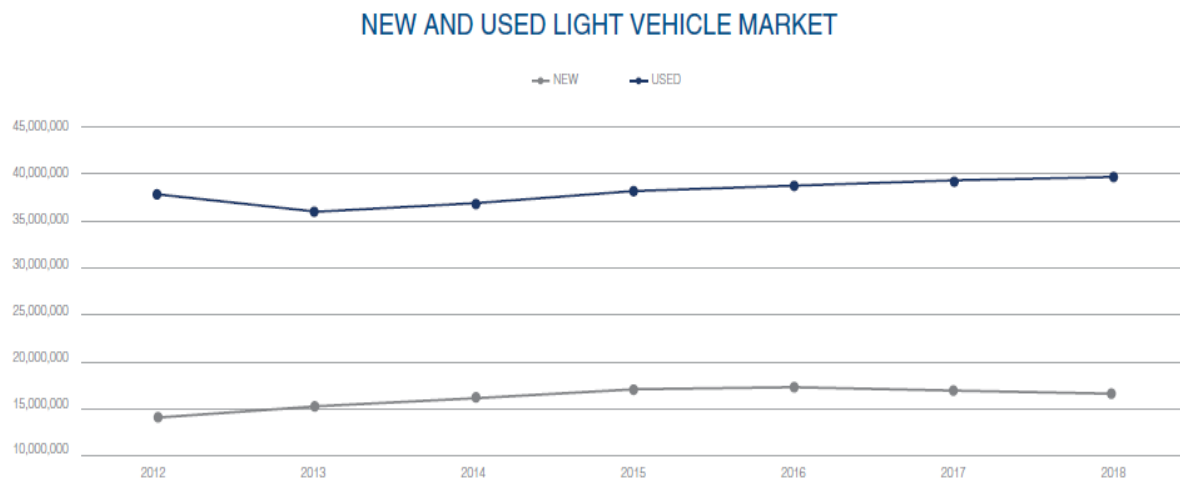


Figure 3.1.10. New & used light vehicle sales in U.S. [Cox Automotive analysis of HIS Registrations]

In regard to gross margins, however, the trend is not as pretty; but it has started to stabilize. With higher throughput, quicker inventory turns, higher transaction prices, reduced selling expenses, and good F&I income, the reduced margins did not prevent record profits. View the narrower used vehicle margins as a sign of a competitive industry's passing on some of its efficiency gains to consumers. The narrowing of margins will, however, present a problem to dealers who have not yet adapted to the changing marketplace.

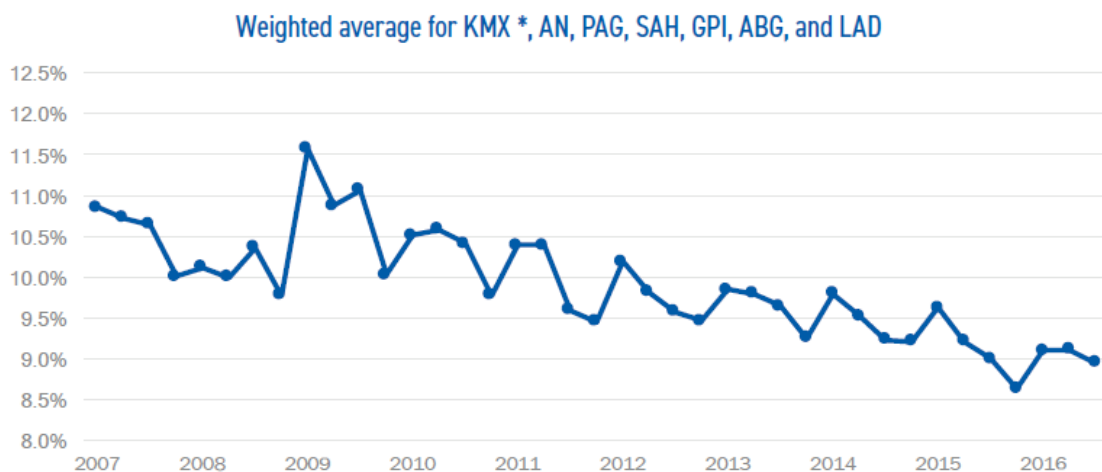


Figure 3.1.11. USED VEHICLE RETAIL GROSS MARGIN in U.S. [Company filings]

In 2016, sales of manufacturer-certified pre-owned (CPO) units totaled a record 2.64 million units. It was the sixth consecutive year in which sales reached a new high, and 2017 promises to be the seventh such year as growing off-lease volumes provide both the need and ability for further growth. There is also the desire to grow CPO sales, since they enable dealers to protect gross margins, improve turn rates, or boost F&I and service income. And, when CPO programs are properly structured and effectively marketed by manufacturers and dealers, the programs can provide all three of those benefits simultaneously.

The ratio of CPO sales to the number of new vehicle sales in the prior four years is now more than 4 percent, up from slightly over 2 percent 10 years ago. And the share of total franchised dealer used vehicle sales that were CPO units rose from 14 percent in 2010 to 21 percent in 2016, based on data from NADA and Autodata.

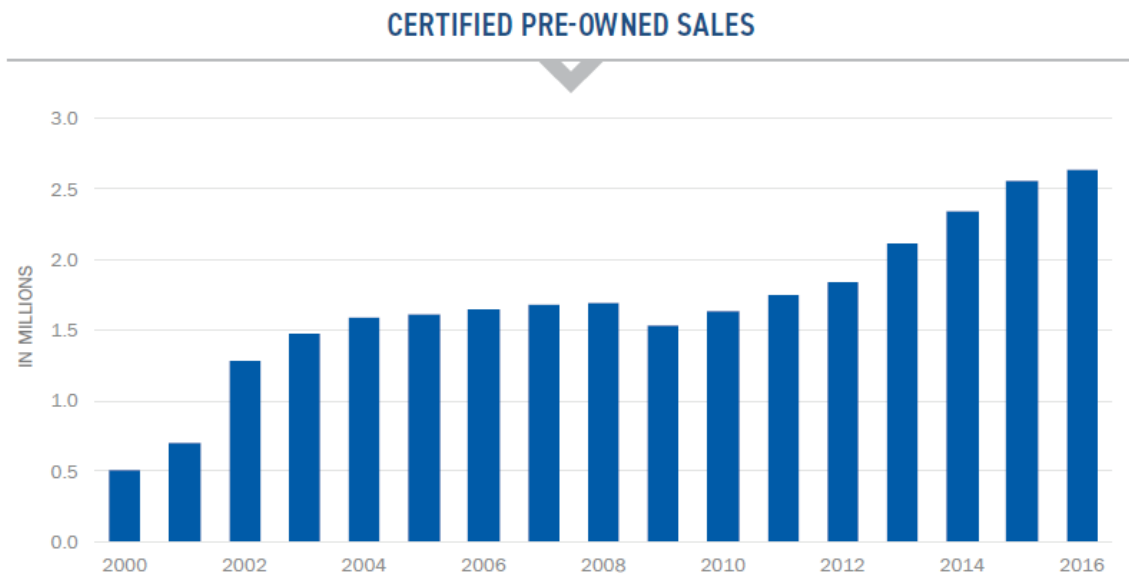


Figure 3.1.12. Certified Pre-Owned Sales in U.S. [Automotive News]

Note, however, that manufacturers with long-established CPO programs, high lease rates, and remarketing processes that keep a large share of returning units within their dealer networks often have CPO-to-prior sales ratios close to double digits. And their dealers often have used vehicle operations where more than half of all used sales are accounted for by CPO vehicles. This means that the CPO market has at least the potential to continue its growth. It will be a matter of how much marketing muscle the manufacturers want to put behind the programs — and, of course, the dealer’s ability to continue to earn good profits on the sales.

It’s that last fact that restrained the growth of CPO sales in 2016. Lease returns, off-rental volumes, and late-model trade-ins were skewed more toward compact and midsize cars than current customer preferences would desire. As a result, the potential gross profit on the subsequent retail sales of those units was skinny. So skinny that dealers decided the lift from CPOing the unit would be inadequate relative to the associated costs. They retailed the unit without CPOing it. Relatedly, manufacturers continued to offer attractive lease deals on new small sedans, which often made the monthly retail payment on a competing CPO unit uncompetitive.

Some of the pressures above should ease in 2017, and thus, CPO sales will continue to grow. It is important, however, that manufacturers design programs that allow dealers to benefit financially.

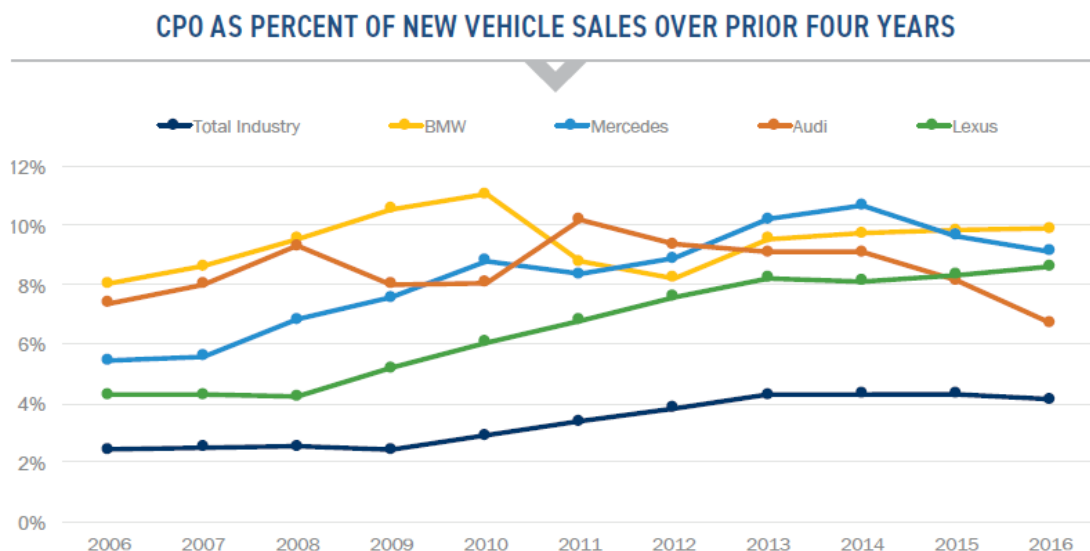


Figure 3.1.13. CPO as percent of new vehicle sales over prior four years [Automotive News]

As wholesale supplies grew in 2016, independent dealers were better able to secure inventory that met the needs of their individual customer bases. As a result, unit sales grew considerably faster than in the prior two years, and at a pace that was higher than that of franchised dealers. Earlier in this cycle, many independents suffered as a result of a lower flow of wholesale units from franchised dealers, fewer desirable trade-ins, and reduced auction supplies. With all of those sources now growing, independent dealers should have another good year in 2017, if all-important credit conditions remain favorable.

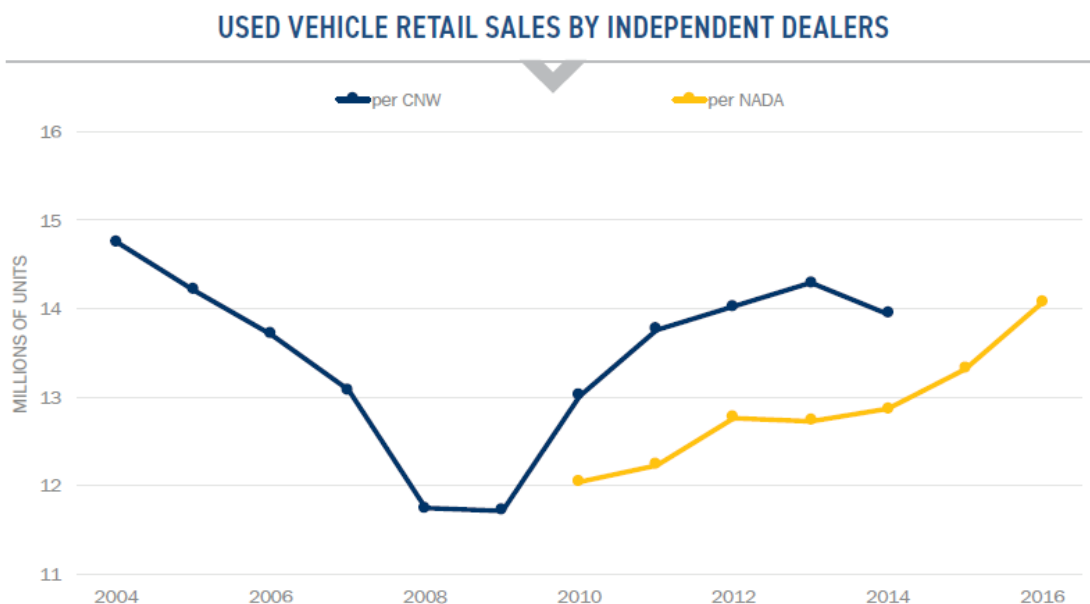


Figure 3.1.14. Used Vehicle Retail Sales by Independent Dealers [CNW Marketing Research, NADA]

People buy vehicles for a variety of reasons, but a key difference between new vehicle buyers and used vehicle buyers is that used vehicle buyers are much more likely to be driven by need rather than want. According to the 2018 Car Buyer Journey from Cox Automotive, 64 percent of used vehicle purchasers said they were driven by need, while only 54 percent of new vehicle shoppers were driven by need.

The majority of buyers consider both new and used alternatives. Looking at 2017 buyers, 51 percent indicated they shopped both new and used vehicles, while only 31 percent shopped only used and 18 percent shopped only new.

The majority of people who bought a used vehicle in 2017 shopped both new and used. The opposite is true of new vehicle buyers. While 18 percent shopped only new, they represented 59 percent of the new purchases.

Income plays a defining role in determining vehicle ownership and likelihood to purchase new or used. The median household income in 2017 was \$57,462, according to Claritas. Households with incomes under \$40,000 are the least likely to own a vehicle, especially in an urban setting. Low-income households are likely to own only one vehicle when they do own. If owned, the vehicle is most likely to have been purchased used. They are not likely to lease.

Above \$40,000 in income, households are increasingly more likely to own a vehicle. At \$50,000, vehicle ownership grows, as does the likelihood of owning more than one vehicle. Also at \$50,000, households are more likely to buy new, but leasing is still very limited.

At \$75,000 in income, households are more likely to buy new, and leasing becomes more likely. The likelihood to purchase used begins to diminish at \$75,000 incomes and up.

As we climb further up the household income ladder, so does the likelihood to purchase new and lease.

Age also plays a role in what Americans own and buy, in part because age is also correlated with income. The median age of the U.S. population in 2017 was 38.2 years old, according to Claritas.

In 2017, nearly 70 percent of new vehicles purchased at retail were bought by people over 45. Less than 11 percent of new vehicles were purchased by people under 35 of age. Comparing the age distribution of new vehicle buyers to the U.S. population, people over 55 but under 75 are the most likely to buy new.

That contrasts significantly with the distribution by age of who buys used vehicles. Just over 65 percent of used vehicles bought in 2017 were purchased by people under 55 years of age. Comparing the age distribution of used vehicle buyers to the U.S. population, people over 35 but under 55 are the most likely to buy used.

Their representation in the new and used markets reveals the tendency to buy a vehicle and whether a specific age is likely to buy new or used. People under 35 are not likely to buy a

vehicle when compared to adults overall. However, young adults are more likely to purchase used when they do purchase a vehicle.

Likewise, people over 75 are not likely to buy a vehicle; but when they do, they are more likely to buy new.

People between ages 35 and 64 are the most likely to buy a vehicle, but what type of vehicle they are most likely to buy varies. People between 35 and 54 are the most likely to buy used. Those over 55 but under 64 are the most likely to buy new.

Most vehicle-owning households own vehicles today that are a mix of having been purchased new as well as purchased used. Looking across statistics about households and what, if any, vehicle they own, six clear segments emerge that we can use to describe all households in the U.S. and delineate differences between them. Collectively, the five vehicle-owning segments represent 83 percent of all households, and they own 89 percent of the vehicles in the U.S. These car-buying segments are also responsible for 90 percent of new vehicle purchases and 87 percent of used vehicle purchases.

Demographics clearly play a role in what defines a vehicle owner from a non-owner. Non-owners are predominantly lower-income households as 69 percent of them are in the bottom two income quintiles. Non-owners are also younger, more likely to rent and most likely to live in urban locations. A bus is the dominant mode of commuting to work for the non-owner segment.

Demographics also vary greatly within the vehicle-owning segments. The highest-income households are far more likely to buy new and lease. They buy frequently and, as a result, are most represented in the new vehicle market in a given year.

The next segment that emerges from analyzing buying and owning patterns buys frequently but doesn't tend to lease. These frequent new buyer households don't have quite the incomes of the frequent leasers. They also tend to live in smaller towns or rural areas. This segment buys more new pickups than the frequent leasers.

The third segment, buyers and holders, is nearly evenly split on buying new and used; but they slightly favor new. Their defining characteristic is that they don't trade frequently. Instead of buying every three to five years like the first two segments, they are more likely to have a vehicle for more than 10 years.

The fourth segment, used frequent buyers, has a slightly higher income distribution than the new buyers and holders; but they are more likely to purchase used. They also are more likely to buy more frequently. They like to buy more expensive used vehicles that feature luxury options, which helps explain why they have higher incomes but are more likely to buy used.

The largest segment of vehicle owners is more likely to buy used and to hold onto their vehicle until they need to replace it. These used forever households have the lowest incomes of the vehicle-owning group and often have lower incomes than non-owners. They live in non-urban areas where having a vehicle is a necessity. They want the cheapest and easiest-to-maintain vehicle. (2018 Used Car Market Report & Outlook, Cox Automotive)

3.1.3 Japanese market

Automobiles are the focus of an extremely wide range of industrial and related activity, from materials supply and vehicle production to sales, servicing, freight shipping and other auto-centered operations. Auto-related employment in Japan at present totals 5.29 million people.

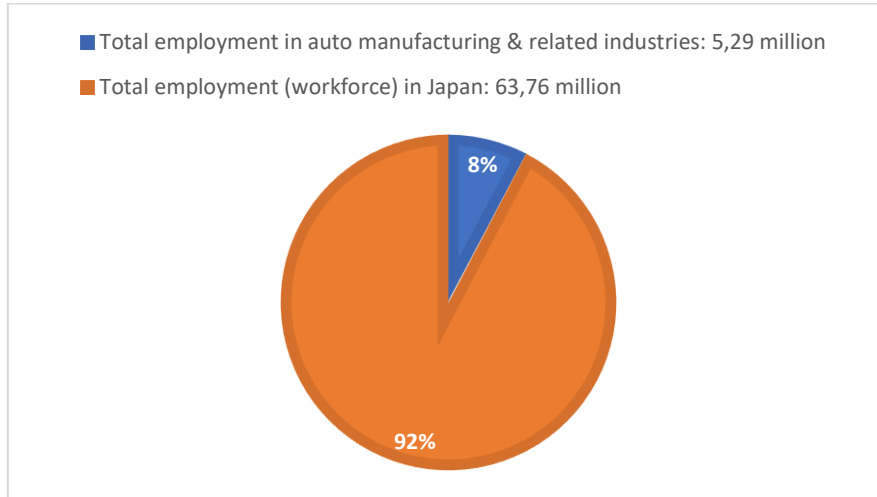


Figure 3.1.15. Percentage of Auto-related employment in Total employment in Japan [Economic Census, Labor Force Survey, Input-Output Tables for Japan, Census of Manufactures, Ministry of Internal Affairs and Communications' Statistics Bureau; Ministry of Economy, Trade and Industry]

In Japan, the motor vehicle sales decline for the first time in 4 years. Passenger car and commercial vehicle demand in Japan in 2015 totalled 5.05 million units, a decrease of 9.3% from the previous year. Total passenger car sales declined 10.3% to 4.22 million units, with standard cars, small cars, and minicars dropping 5.8% to 1.36 million units, 5.1% to 1.35 million units, and 17.8% to 1.51 million units, respectively. Notwithstanding the growth in standard and small truck sales, overall truck sales fell 4.0% from 2014 to 817,000 units, whereas buses increased 11.7% to 13,000 units. (The Motor Industry in Japan, 2016, PWC)

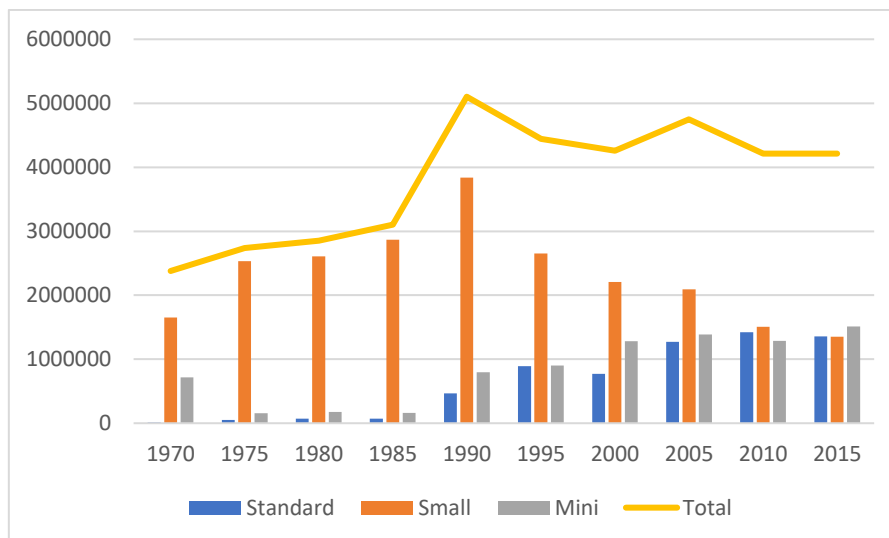


Figure 3.1.16. New Passenger Cars Registrations in Japan 1970-2015 [Japan Automobile Dealers Association]

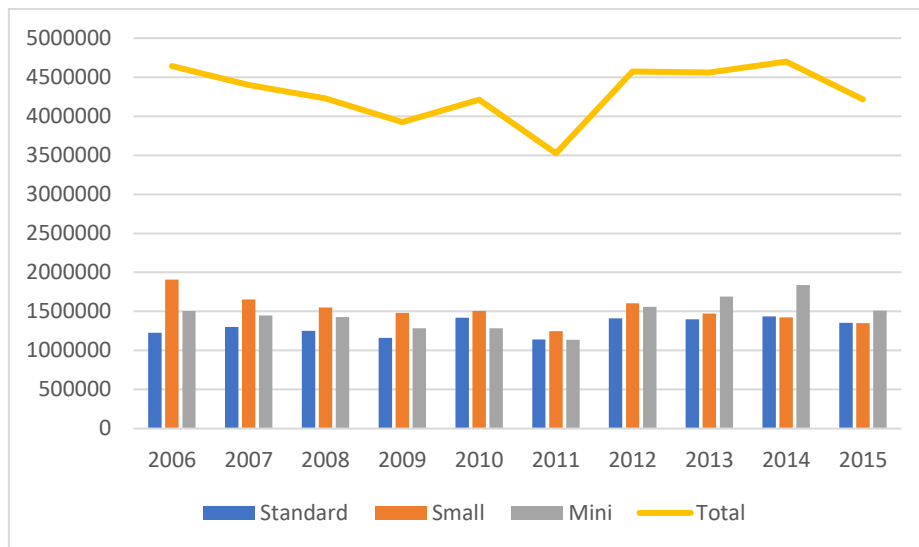


Figure 3.1.17. New Passenger Cars Registrations in Japan 2006-2015 [Japan Automobile Dealers Association]

Used vehicle sales fall for third consecutive year in Japan. In 2015 sales of used motor vehicles slipped 0.8% from the previous year to total 6.79 million units. Used passenger car sales dipped 0.5% to 5.63 million units, with standard passenger cars rising 2.3% to 1.67 million units, but small cars and minicars dropping 3.1% to 1.60 million units and 0.6% to 2.35 million units, respectively. Sales of used trucks slid 2.4% to 1.07 million units, whereas sales of used buses climbed 5.1% to 13,000 units.

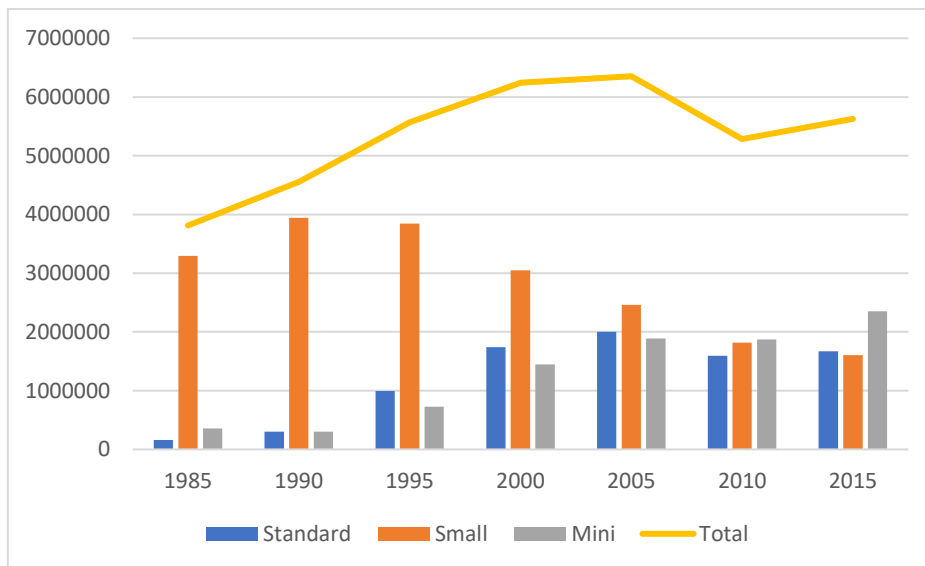


Figure 3.1.18. Used Passenger Cars Sales in Japan, 1985-2015 [Japan Automobile Dealers Association]

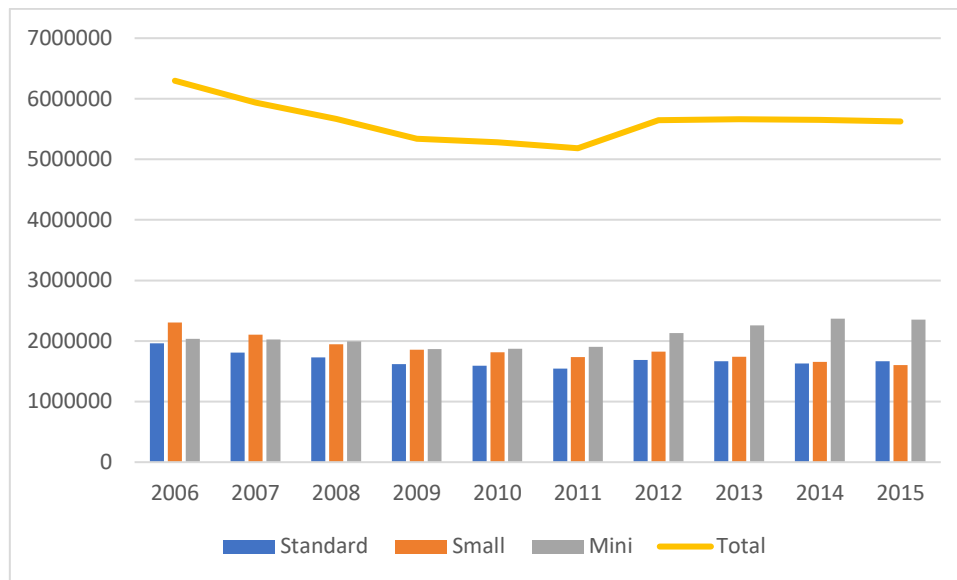


Figure 3.1.19. Used Passenger Cars Sales in Japan, 2006-2015 [Japan Automobile Dealers Association]

Domestic market features

Japan's second-hand car circulation presents a more complex and specialized division of labor. Circulation processes usually include acquisitions, intermediate circulation, and sales. The intermediates such as auction companies have gradually grown and become the core of the second-hand car circulation in the leading countries. The auction is an important way for Japanese used cars to circulate. There are about 150 second-hand car auction sites in Japan. There is an average used car auction every 7-10 days, and more than 4 million used cars are sold through auction every year.

The development of the market to a certain degree has led to the specialization of channels for division of labor. With the increasingly finer division of labor, in addition to new car sales shops and used car sales shops in Japan, second-hand car sales stores have also cultivated a new used car business model, namely “used car purchase shop”. Its business is to buy used cars from end users and then sell them in batches to used car purchase shops, or to auctions at used car auction sites without directly selling to customers. In 2006, 900,000 used cars were acquired by used car purchase shops.

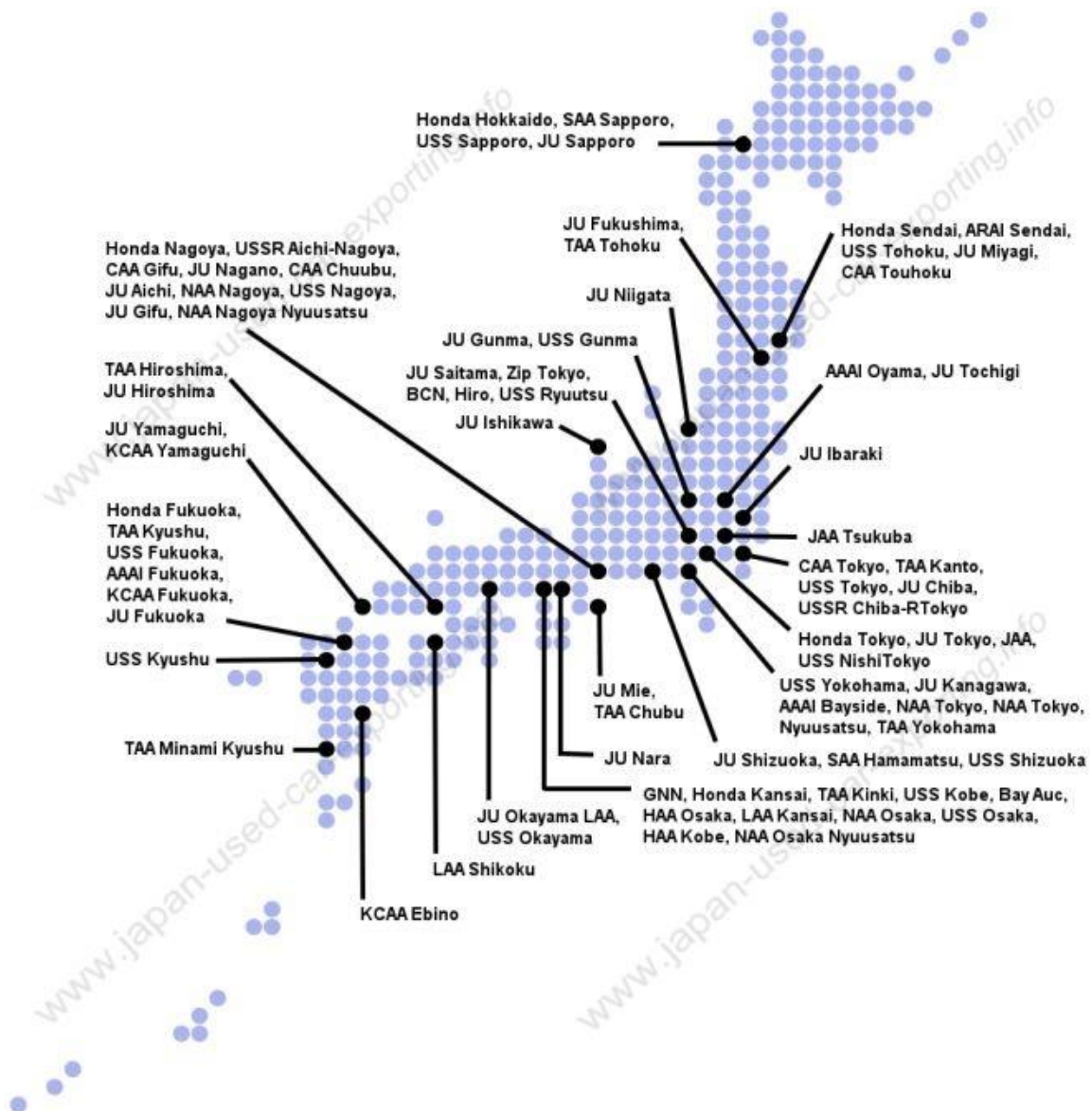


Figure 3.1.20. Japan Used car auction sites



Figure 3.1.21. Japanese Auto Auction hall

Auction Sheet
オークション出品票 (状態説明書)

月 日 **USS**

No. Bit Number	車歴 自家用・レンタカー・その他 Private/Rental (Others)	排気量 Displacement cc	型式 Type	評価点 Scores 内装 Interior 補助評価 scores
	初年度登録年 Janan Year +1988=Year 年	車名 Model	形状(ドア数) Door Style	

車検 Inspection Year 年 Month 月	走行 Mileage Km マイル	シフト Transmission	冷房 Air Condition	装備 S R 純AW P S エアB P W 皮 T V ナビ ※純正品に限り該当箇所をつけて下さい。
外色 元色 Original → Change Color 色替 Color カラー No. Color Number	燃料 ガソリン・軽油・() Gasoline/Diesel Interior Color	History Book 有・無 Exist·None ※書類と一緒に保管下さい。	セールスポイント Sales Point	Genuine Navigation Leather Genuine AW

輸入車用 Year 年 輸入区分 Drivers Side
ディーラー・並行 右・左
名義変更期限 月 日

○注意事項 Notice
For Import Car Dealer Car Parallel Car

○検査員報告 Inspector Report
A Scratch or Crack
C Corrosion
S Rust
U Dent
AU Scratch & Dent
W Repair history
X Parts exchange need
XX Parts exchange history

希望出品ブロック
リサイクル ワンオーナー

登録 No. MOTOR VEHICLE REGISTERED NUMBER
車台 No. CHASSIS NUMBER

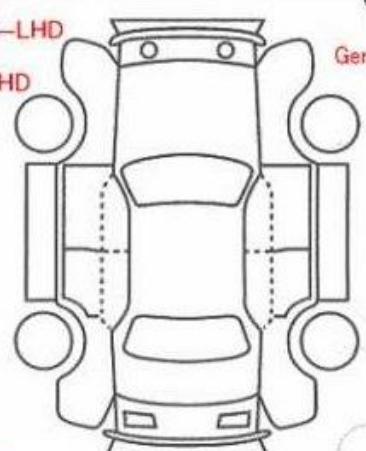


Figure 3.1.22. Japanese used car auction sheet

Meanwhile, In Japan, there is a complete set of rigorous and scientific assessment criteria for used vehicles.

In 1966, Japan established the "Japan Automobile Appraisal Association", a consortium of corporations, and developed the appraisal standards for used cars, skills tests for appraisers, and training programs for registered appraisers, and played an important role in regulating the appraisal of second-hand cars. In order to avoid inconsistency in the views and methods of appraisal, the Association has established a benchmark price and vehicle checklist to record the used vehicle condition in a uniform and standardized format and content. Due to

the rigorous, meticulous, objective, and convenient operation of the used car evaluation and evaluation standards, the integrity of the used car market is well resolved.

The certified used car business, which is based on a reliable appraisal system, is also very mature in Japan. The so-called second-hand vehicle quality certification system is that the auto manufacturers or large-scale dealers carry out all-round quality inspections of used cars to ensure that the car quality reaches a certain sales standard. At the same time, used cars that have been certified can also be enjoyed within a certain period of time the same after-sale services as the new cars. Although certified used cars cost \$1,000 to \$1,500 more than the average price of unqualified used cars, the quality of certified used cars is guaranteed and warranty service is available. Concerns of the used cars' quality have been solved, which has greatly stimulated the enthusiasm of consumers to purchase certified used cars.

Ucar Grading Report
CERTIFICATE OF GOO KANTEI

This is to certify that the car specified below was inspected and rated without prejudice or influence in a fair manner, in accordance with the standards stipulated by Japan Automobile Appraisal Association. This inspection and rating was conducted by inspector officially appointed by PROTO Malaysia Sdn Bhd.

SPECIFICATIONS

MODEL	FERRARI F458		
COLOUR	RED		
MODEL YEAR	2012	METERED MILEAGE	12,867km
TYPE	CHASSIS NO.	ZFF67NHC000191981	

NOTE:

RATING

EXTERIOR	★★★★★	No or nearly no damage. Rectification/repair was done clearly. Some tiny damage may be found.
INTERIOR	★★★★★	Nothing irregular was found.
FRAME	No damage	No apparent damage was found.
ENGINE	Good condition	Nothing irregular was found.

DATE OF INSPECTION: 2015/4/July
OUTLET: PROTO Motors Sdn Bhd
ADDRESS:

The inspection of the car was conducted without driving it. No driving test was carried out. This certificate indicates the status of the car as of DATE OF INSPECTION and does not guarantee the quality of the car onwards. The status of the car may change after the date of inspection and it is strongly recommended that you should check the car with the car seller by yourself.

GOO KANTEI was:
Certified by JAAA

JAAA
Japan Automobile Appraisal Association

PROTO
MALAYSIA

NOTE OF CONDITIONS

K01111F9999

DATE OF INSPECTION	2015/4/July	DATE OF RE-INSPECTION	
RATING	EXTERIOR ★★★★★	INTERIOR ★★★★★	FRAME No damage
		ENGINE	Good condition

DESCRIPTIONS

SS	Smaller than a coin	S	Smaller than a card	M	Smaller than an A4-size sheet
L	Larger than an A4-size sheet	Few	Equal or less than 6 points	Many	More than 7 points

Ditch level 5

Ditch level 5

Ditch level 5

Few SS scratches

Scratch underneath

Ditch level 5

Few SS scratches

Scratch at edge

CP Diagrams

NOTE

<NOTE>
Miles meter display vehicle: 7995 miles

<Window>
Stone chip on from window

S wrinkle

The description above was based on the status of the car as of DATE OF INSPECTION.
RATING above may differ from any other inspection conducted by other inspection organizations.

Figure 3.1.23. Inspection certificate [Japan Automobile Appraisal Association]

Used-car exportation

The country's second-hand auto market is even largely trusted across the world. Even the economy of many countries depends hugely on the importation of motor vehicles. The importation of used vehicles from Japan in any country is not a difficult job. With so many used vehicle portals it has become quite easy to import a Japanese used vehicle. There are many exporters who even assist used vehicle importers while purchasing a used vehicle. Large numbers of used vehicles from Japan are exported to almost all countries across the world. Africa, the second-largest continent in the world is a major importer of Japanese used vehicles. Used vehicles from Japan are imported by nearly all African countries. The availability of large numbers of used vehicles on the streets of African countries, constitute

towards of the popularity of Japanese vehicles in these countries. Not only used vehicles, even machinery and parts are imported by Africa. Likewise, many Asian countries import used vehicles from Japan. Myanmar is among largest importer of used vehicles. The automobile markets of these countries poses many opportunities for Japanese exporters as people have a strong inclination towards Japanese used vehicles.

The market of Japanese used cars in other countries such as Australia, New Zealand is also increasing. Last year only, New Zealand, imported around 80,700 used vehicles from Japan. It has been expected that the used car market this year will expand almost double in comparison to last year. There are other countries also where the Japanese used car market is escalating.

There are many nations that are under-developed thus, don't have much to do with new cars as many people cannot afford to purchase a new car. Plus, in some countries there is a huge amount of taxation from the government for registering a new vehicle, making used cars a feasible option. The economy of many developing countries is growing. With the increased in the spending by the middle class, there has been a significant increment in the purchase of vehicles.

The Japanese used car market is very big and it keeps on increasing. Every year, millions of used vehicles are being exported to almost all countries across the world. The limited size of the new car market and limited growth potential in many countries gives fair opportunities to Japanese dealers to make a fortune. Japan is doing wonders in its used vehicle market and there are assumptions that by coming years the market will expand at a much faster pace.



Figure 3.1.24. An online trade platform of Japanese used car exportation

3.2 Chinese market

3.2.1 Big cities' market

Traditionally, the first-tier cities refer to metropolises that play an important role in the political, economic, and cultural activities of the country, and have a leading role and radiating capability. Such as Shanghai, Beijing, Guangzhou, Shenzhen.

The second-tier cities refer to the major cities in the political, economic, cultural and other social activities among the provinces that play an important role and have the leading role and the ability to promote radiation. Such as Nanjing, Hangzhou, Chengdu, Chongqing.

Third-tier cities refer to large cities that are strategically significant or relatively developed or have a relatively large economic aggregate. Most of them are regional central cities within the provinces of Central and Eastern China, prefecture-level cities with more advanced economic conditions, and top 100 counties in the country, as well as capital cities in the western provinces. Such as Xiamen, Fuzhou, Urumuqi, Luoyang.

According to National Bureau of Statistics of the People's Republic of China or NBS, we draw at below the GDP curves from 1980 to 2017 in five principal Chinese first-tier cities. As well as that of the whole country, the GDPs in the all five cities have grown up remarkably.

The economic developments in these cities introduced the Automotive industries into China and helped making the Chinese auto market bigger and bigger.

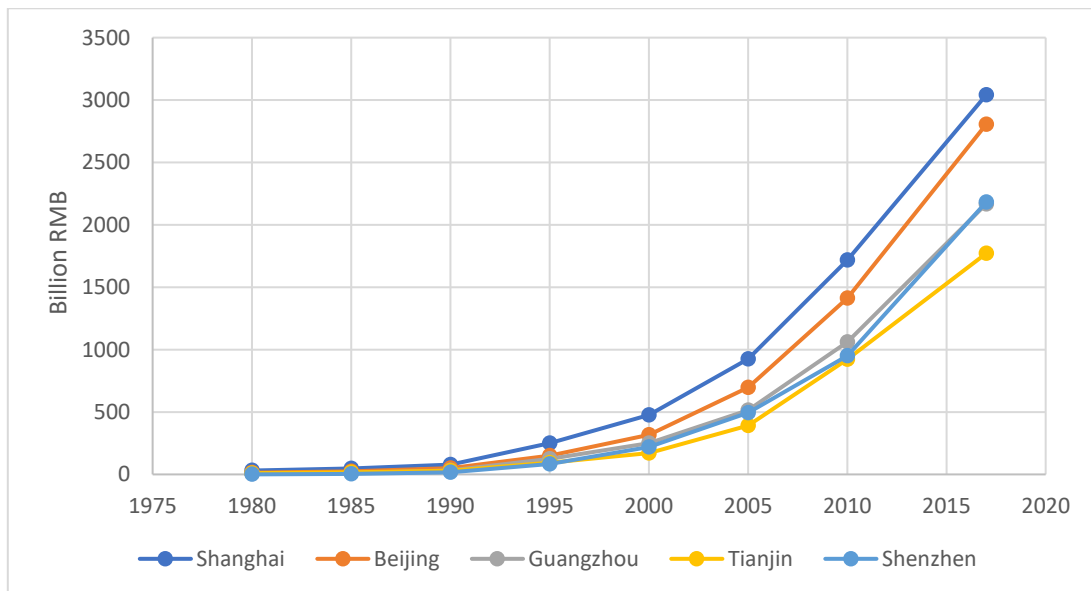


Figure 3.2.1. GDP of five principal first-tier Chinese cities [NBS]

The population scale has also increased greatly along with the economic developments, although the one-child policy had been implemented for over 30 years. (From 2016, every Chinese family can have two babies and in the future the limit on the number of childs permitted to be born in every family will be completed abolished).

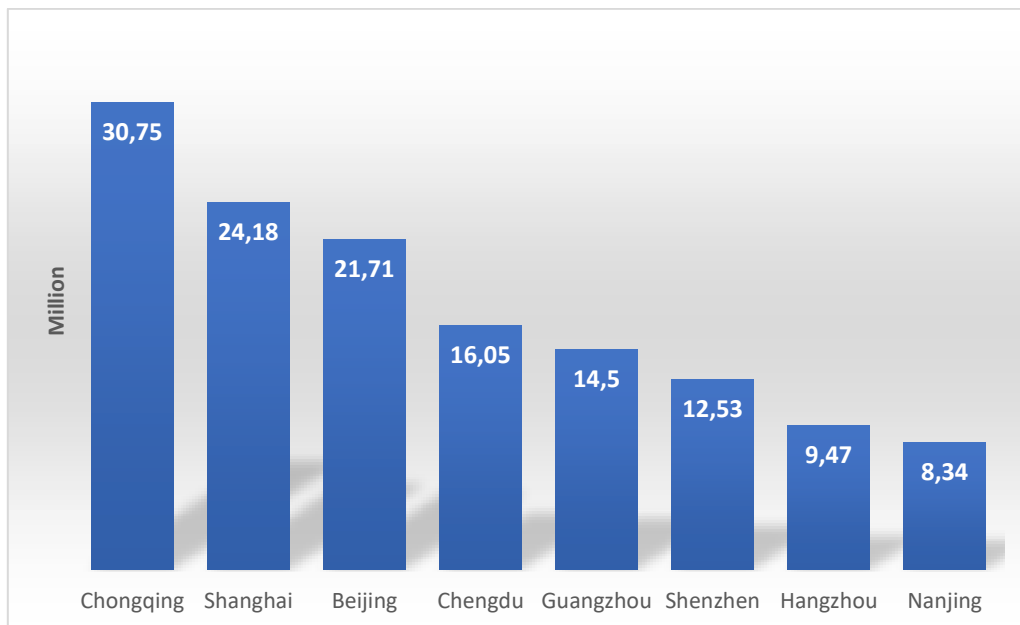


Figure 3.2.2. The population in the major first & second tier Chinese cities in 2018 [NBS]

The salaries in different Chinese cities are so different that it is always necessary to analyze from one city to another. We draw in the following graph the average salary in the main 8 Chinese cities (4 first-tier + 4 second-tier).

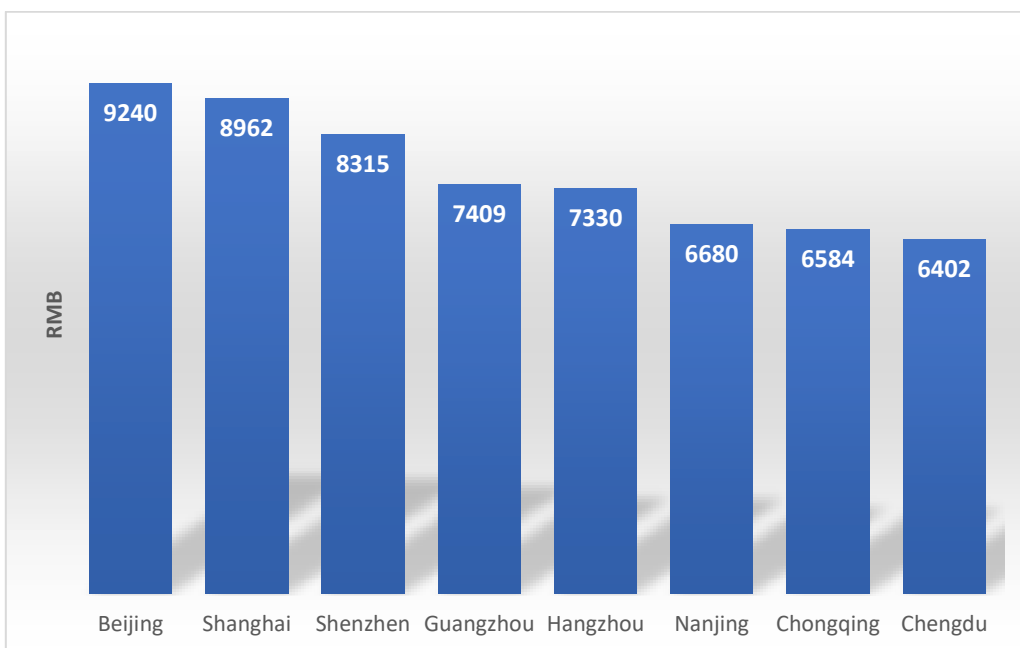


Figure 3.2.3. The average monthly salary in the major first & second tier Chinese cities in 2018 [NBS]

After analyzing 338 cities above prefecture level in China, through analysis of the distribution of 160 brand stores and user data of 14 Internet companies, according to the business resource concentration, urban pivotability, urban population activity, life diversity, and future plasticity based on the weighted average of the dimensions, the New Tier 1 City Institute of the Data News Project under China Finance re-evaluates the commercial charm of Chinese cities and reclassifies Chinese cities.



Figure 3.2.4. Night aerial photo over China

In this new ranking of Chinese cities, the status of first-tier cities in Beijing, Shanghai, Guangzhou and Shenzhen remains unshakeable. The 15 new first-tier cities are: Chengdu, Hangzhou, Wuhan, Tianjin, Nanjing, Chongqing, Xi'an, Changsha, Qingdao, Shenyang, Dalian, Xiamen, Suzhou, Ningbo and Wuxi.

Business Resource Concentration

The concept of city business resource concentration is derived from the principle of Google search. PageRank - The more links point to a web page, the more important it is, and the more it should be ranked. Similarly, the more commercial companies entering a city, the more important the city is, the more companies will consider it first when entering the Chinese market. When describing how big a city is, GDP and resident population are the most commonly used data, but in the new line of this list, business data is given more weight – including the number of stores of commercial brands in each city, the catering industry data for each city, theater data, high-rise building data, and the two basic data just mentioned form the sub-list.

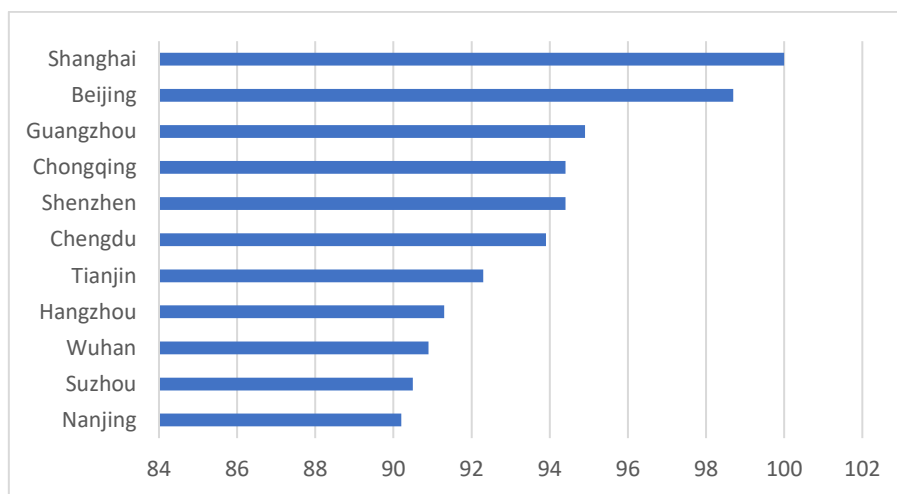


Figure 3.2.5. Business resource concentration index [China Business Network]

Urban Pivotability

The radiating ability of a city is increasingly valued. Big cities can deliver goods, capital, talent, lifestyle, and even values to neighboring cities.

In this sub-list, it measures how easy it is for a city to radiate to surrounding cities. The number of flights and on-time rates, the number of high-speed trains, and the number of cities that can be connected via high-speed rail, the degree of access to logistics and express delivery, and the proportion of commercial stores have all included the assessment of a city's "hub-level" status. The higher the "hub index", the easier it is for the city to radiate to the surrounding areas and the easier it becomes to become a central city in a certain area. There is a close relationship between hub and agglomeration. In a truly big city, radiation and gatherings promote each other.

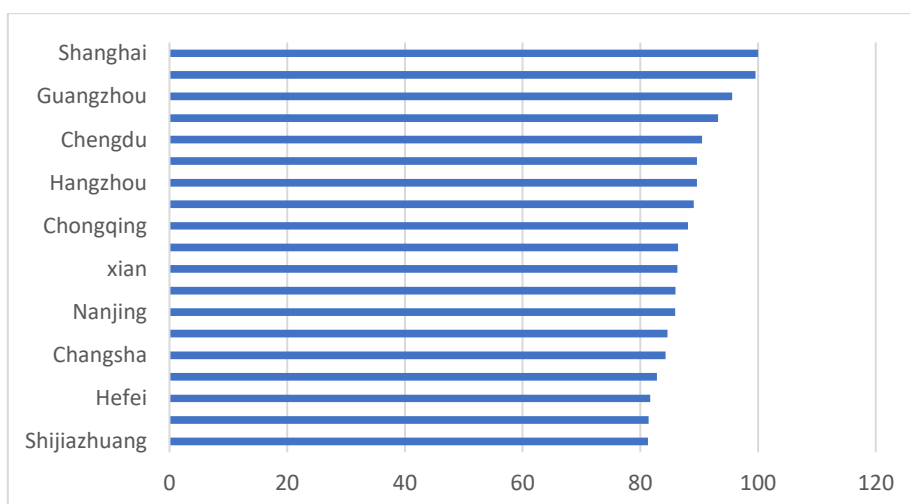


Figure 3.2.6. Urban pivotability index [China Business Network]

Urban Population Activity

In addition to an open business system, people are also very important to the development of the city. In the sub-list, the new frontline integrates the penetration rate of Didi Trips, the active time of mobile devices, the subway accessibility, Jingdong's order index, and LinkedIn's active user data to create a "City of People Activity" index.

For example, the longer a city's urban population uses a mobile phone, the longer the city "wakes up." This data attempts to present the status of an active city. People there are always moving, talking, and always looking for change.

Active corporate people usually update their resumes every month or make new connections. These people have higher requirements for their own career planning and promotion. In other words, they are people who are restless. "Unrest" means opportunity for the company. For urban people, it represents a state of upwards. This is why the new front line takes the "workplace activity index" into consideration.

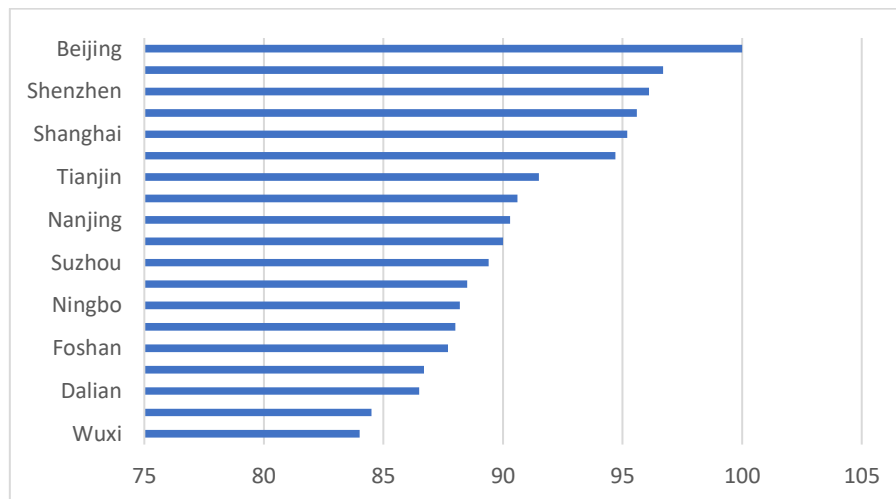


Figure 3.2.7. Urban population activity index [China Business Network]

Life Diversity

A city's lifestyle is more "good", which means that the city's consumers are of higher quality - many times the company will pay more attention to this point. The young people's lifestyle is increasingly diverse. It integrates data from Internet platforms such as Where to Go, Sports, Time, Youku, Taobao and some offline physical stores to calculate the "diversity of life in each city".

Shanghai and Beijing have no leading position on this list. One of the reasons is that high costs inhibit diversity. The predicament of independent music in big cities can be used as an example. Because of the high rents and the outflow of manpower, more and more live houses have turned to cities such as Xiamen and Zhengzhou, which are easier to survive.

For companies, newer cities and even smaller cities are a good opportunity. The young people in these cities are far from stereotyped. They are full of desire for a rich life and are still

trying out a variety of possibilities. If a big city can carefully protect the diversity of lifestyles in the process of going bustling, it will help itself gain an unusually commercial status.

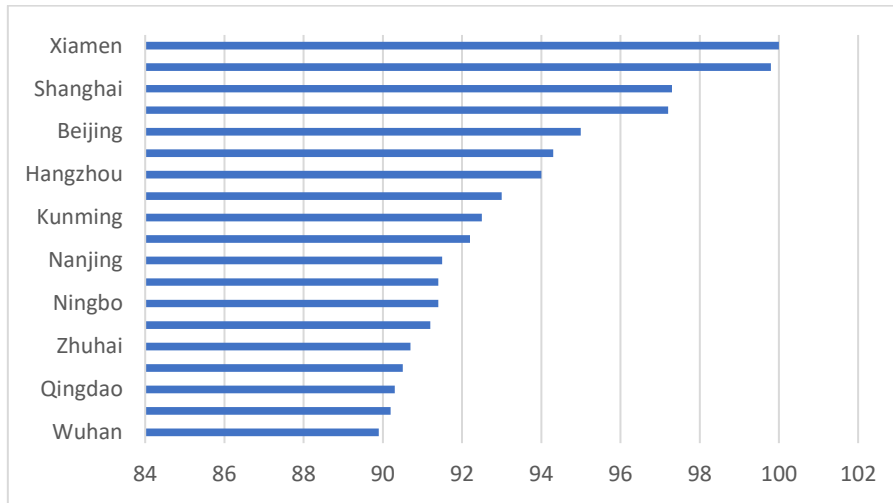


Figure 3.2.8. Life diversity index [China Business Network]

Future Plasticity

This list of business charm cities hopes to reveal a future: cities that may become first-tier cities in the future, and the future potential of all cities. Therefore, after integrating air quality, number of colleges and universities, start-up company data, young people's use data and consumption data of some Internet products, the new frontier has produced the city's "future plasticity index".

The liveliness of the Q&A community, the use of Nice's tag data in the social networking app, and LinkedIn's data from the workplace platform can present the needs of young people in a city for sharing, socializing, and self-improvement. This data, together with the number of universities and entrepreneurial data, comprehensively reflects the city's commercial vibrancy - which is also the data the company needs to consult before entering the city.

The consumer personality can also reflect the future potential of a city—in this index, Changsha is clearly the leader of the new first-tier cities. The more obvious the advance consumption of a city, the faster its consumption upgrade may proceed, and the higher the consumer's acceptance of new products and new brands.

The Beijing and Shanghai examples show that good cities will get better and better, but for some backward cities, if you fall behind at this node and lose the favor of companies and companies, it may be difficult to recover. For the second-tier cities still in the lower reaches of the provincial capital or "key cities" and the first-tier cities that are being chased, there is not much time left.

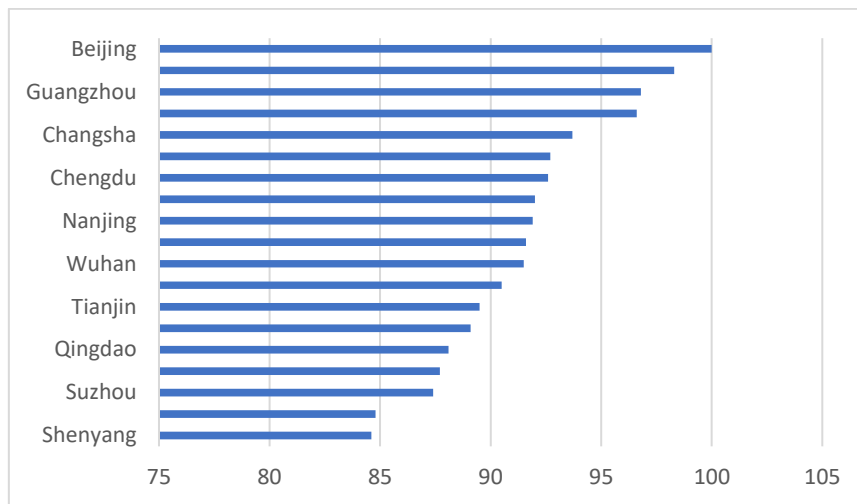
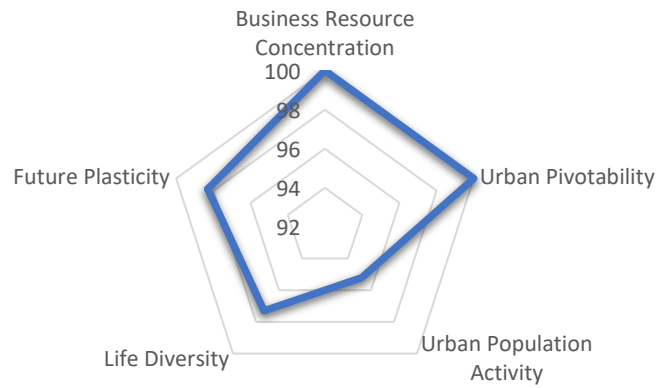


Figure 3.2.9. Future plasticity index [China Business Network]

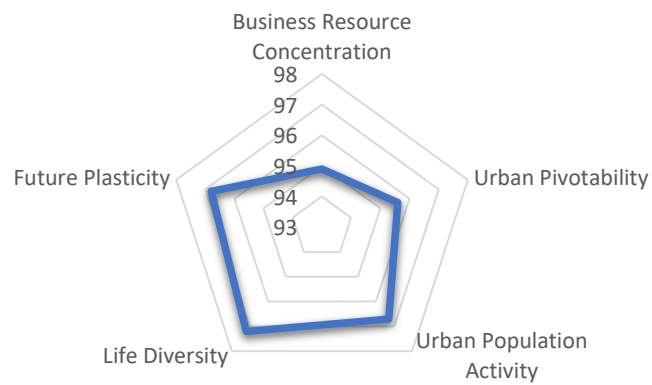
Here below are the conclusions of the major first and second tier Chinese cities competitiveness characteristics.



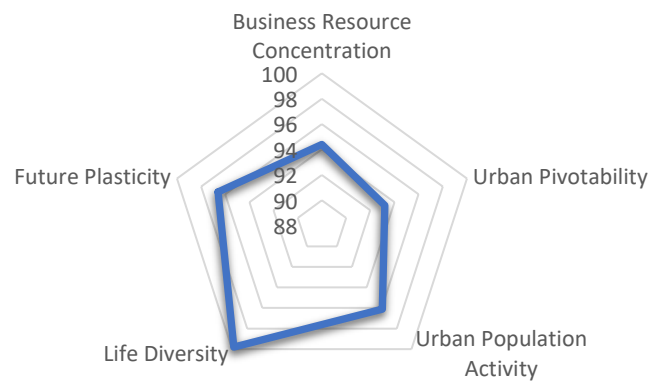
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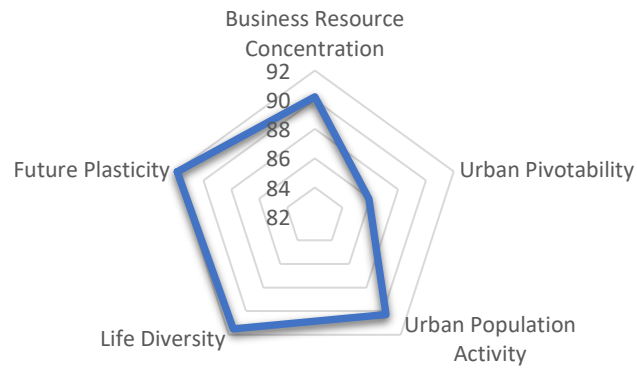
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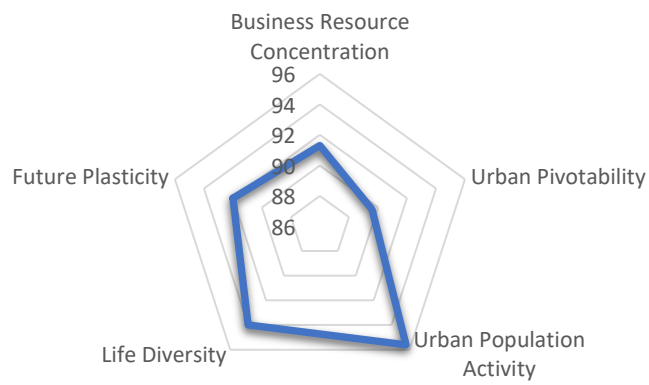
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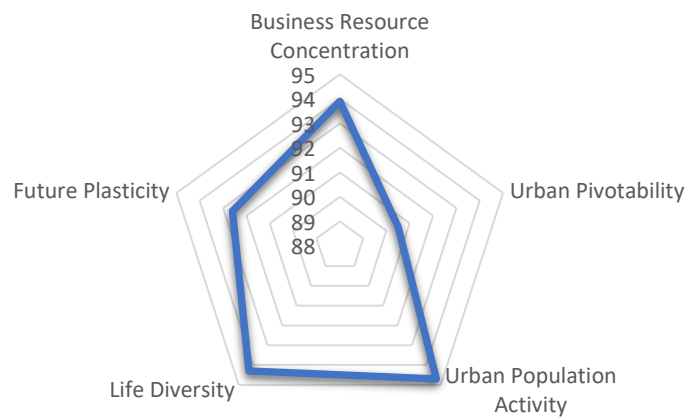
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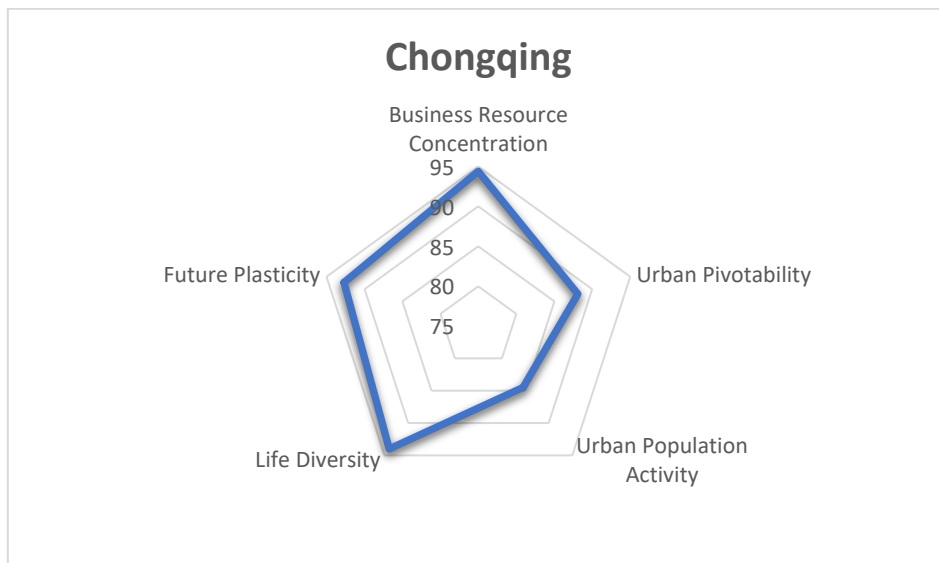


Figure 3.2.10-3.2.17 Radar map of the competitiveness characteristics of the major first & second tier Chinese cities

Since most of the high-income people are living in large cities in China, the first-tier cities have demonstrated strong purchasing power and growth. In the past decade (2004-2014), the growth rate of 15 first-tier cities accounted for 26% of the total growth rate, and the compound annual growth rate of light-duty vehicles increased by 18%.

Nowadays, the development of first-tier cities has been extremely limited due to the saturation of the market and government regulations: 6 out of 15 first-tier cities have begun to implement the automobile purchase restriction regulations. In the end, from 2011 to 2014, the sales of cars in first-tier cities are expected to be reduced by 6.6 million vehicles, and its growth rate has also dropped to 8.9% and is far below the national average.

In addition, customers in Tier 1 cities have a wealth of online technology knowledge, so car sharing and car leasing will bring a brand new car experience to these customers. At this time, car ownership will no longer be the only way to use cars. At the same time, with the strong support of the government, electric vehicles have also become popular: In 2014, sales of electric vehicles in Shanghai, Beijing, and Shenzhen achieved substantial growth.

From 2010 to 2014, 184 second-tier and third-tier cities contributed 65% of sales growth to the Chinese automobile market. The compound growth rate for the same period was close to 25%, and the growth rate of first-tier cities slowed down in the past five years. Third-tier cities still maintain a remarkable growth of 15%. The second and third lines will continue to be the main driving force for the growth of the Chinese auto market in the future. In this area, most of the demand is for first-time car purchases, and the product positioning is small, compact, and low-priced medium-sized. In view of the fact that international vehicle manufacturers have completed the layout of the industry chain in this region, complete market competition and even price war will become the characteristics of this region.

We have seen that mainstream international vehicle manufacturers and independent manufacturers have already completed production layout in second and third-tier cities. As a

result, these regional markets already have sufficient capacity to cope with the increase in demand. Therefore, the new focus of the second- and third-tier cities' auto market will be transferred from pre-sale to sales and after-sales service. In summary, in an oversupply market, auto OEMs should develop new business models such as e-commerce and auto finance to promote sales. (Analysis of Light Vehicle Market in Different tier Cities in China, 2015, PWC)

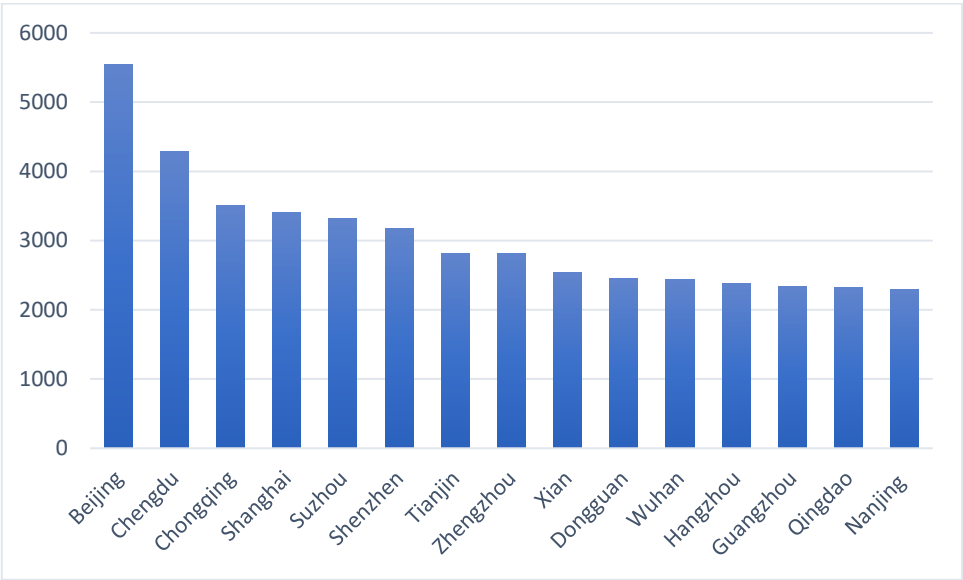


Figure 3.2.18. Car ownership in major first & second tier cities [Traffic Control Bureau of Ministry of Public Security]

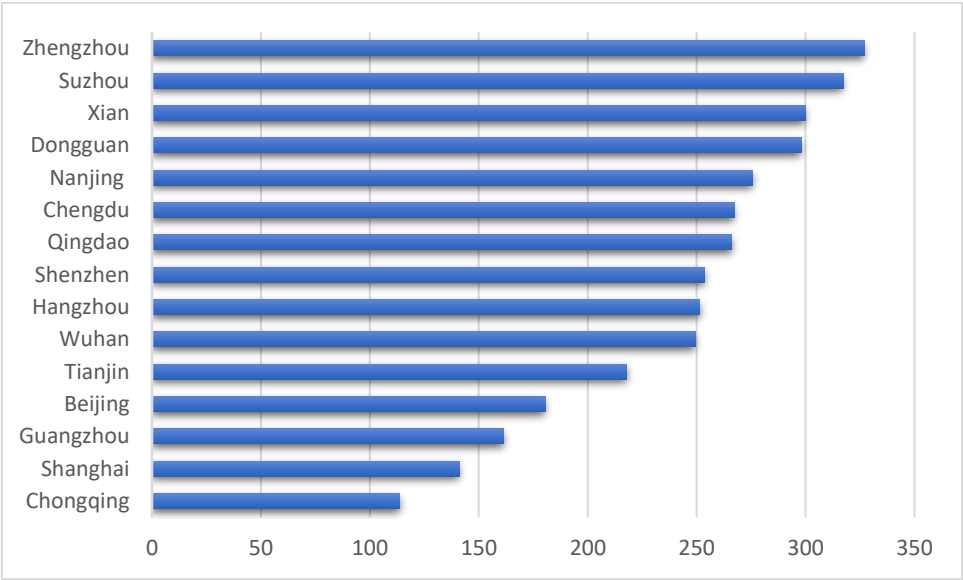


Figure 3.2.19. Motorization level: Car ownership per 1000 people

After that China has unleashed the cross-border commercial restriction, the phenomenon that the flows of used car sales from large cities to medium and small sized cities becomes more and more common.

In China, the average cross-border transfer ratio of used-cars in October 2019 was 28.59%. Beijing has the highest transfer ratio and Tibet has the lowest transfer ratio.

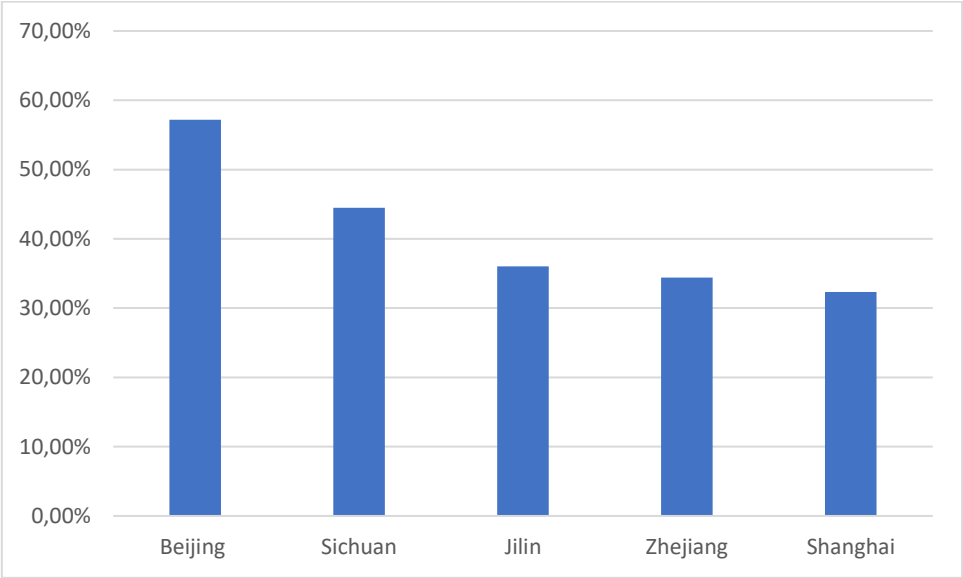
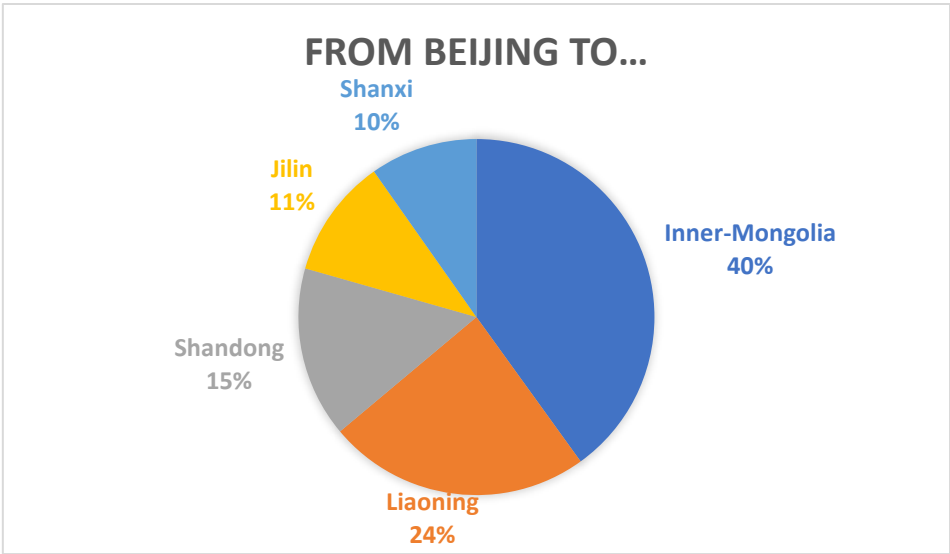
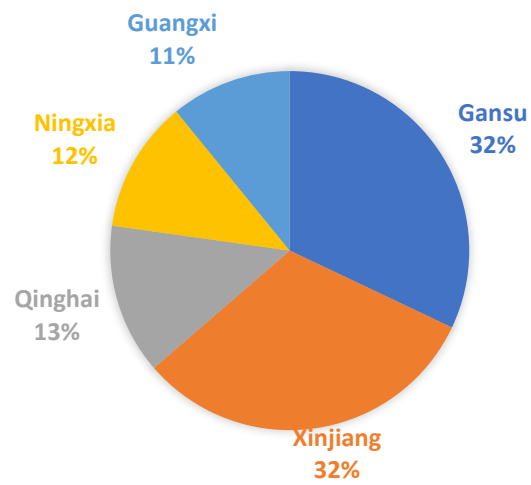


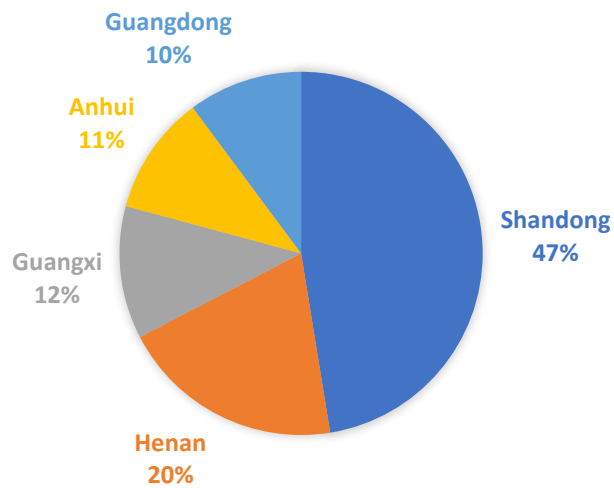
Figure 3.2.20. Top five original provinces from where the used cars were transferred between Jan & Nov. 2019 [CADA]



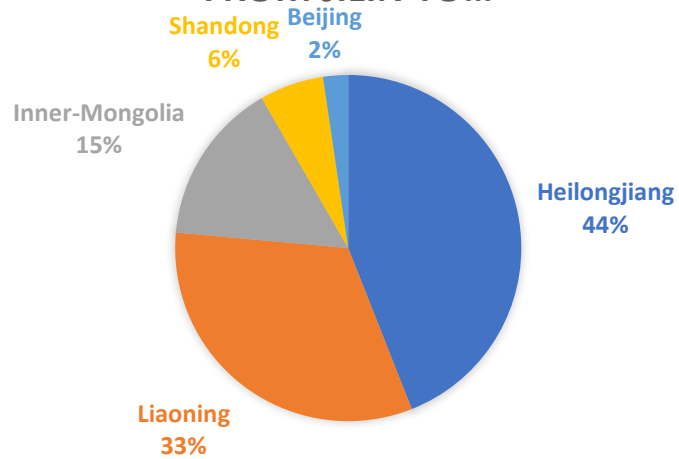
FROM SICHUAN TO...



FROM ZHEJINAG TO...



FROM JILIN TO...



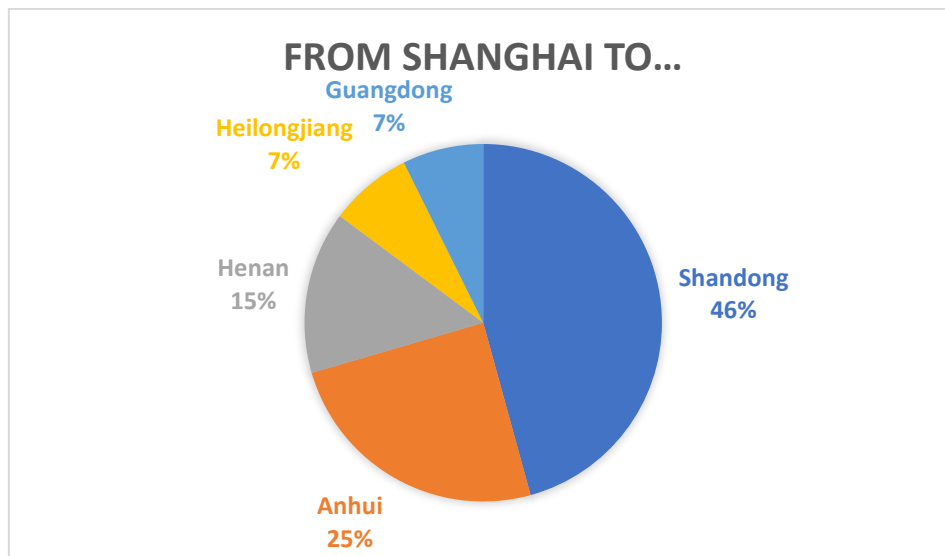


Figure 3.2.21-3.2.25. Top 5 destinations from the original used-car market [CADA]

3.2.2 Medium & Small sized cities' market

In the fourth- and fifth-tier cities, these cities have achieved rapid growth in the past five years due to the low baseline. However, due to the low level of consumption power, these cities generally have a small contribution to sales and a low car ownership rate, and we do not think there will be major changes in the next few years.

Even if the population base is large and the average car ownership rate is low, it will be driven by favorable factors. However, given the extremely low economic level, the 4th and 5th tier cities' market will be the most difficult to develop. In these regions, the demand for major models is micro-entry, mini-cars, small-cars and other entry-level models, and the need for policy encouragement, vendor incentives and other measures to stimulate purchase demand. As a result, minivans and micro-mini cars will likely become the mainstream products in these cities: These products usually need to stimulate sales in these areas through strong promotions.

Car ownership also shows the speed with which a city develops. According to statistics from the Traffic Control Bureau of the Ministry of Public Security, there are 49 cities in the country with more than 1 million vehicles, over 2 million vehicles in 23 cities, and over 3 million vehicles in 6 cities. Among them, more than 3 million first-line cities are Beijing, Chengdu, Chongqing, Shanghai, Suzhou and Shenzhen.

3.3 Comparison & Conclusion

In the previous sections, we have listed the mature automobile markets (Europe, U.S and Japan). In these mature markets, **we found their principal common features are that the more mature is the market, the used-car trade is more active.** Even though China has been the NO.1 Automobile market for nearly 10 years, the used car market scale is still far smaller than its new car market.

Country	Used / New cars sales volume ratio
China	0.58
U.S.	3
Japan	1.5
UK	3.3
Germany	2.2
Italy	2.3
France	2.4
Spain	1.7

Table 3.3.1. Used / New cars sales volume ratio in main auto markets in 2019

Country	Used car sales per 1,000 population
China	8
U.S.	121
Japan	53
UK	106
Germany	79
Italy	47
France	85
Spain	36

Table 3.3.2. Used car sales per 1,000 population in main auto markets in 2019

It has been only less than 20 years since Cars came into Chinese families. **Many families are still buying cars for the first time. Car is still a luxury good for them.** Only 28% of Chinese customers consider used cars, and among them only 20% of them have finally chosen used cars.

In those mature markets, there have formed a relatively stable user community of used cars. The largest customers of the US used car market are customers who are pursuing affordable and excellent cost-effectiveness, such as college students and young people. Second-hand car culture is an important part of American daily life. People like to buy used cars. It is not only because the used cars are less expensive but they can also satisfy their own desires in the brand and models.

At present, the composition of second-hand car user groups in China is relatively complex, but the customers are mainly price-sensitive, practical, and relatively understand the car and have business needs.

User classification	Proportion	User Characteristics
Utility-oriented	42.5%	See cars as a transportation tool; Very price-sensitive; Choose the cheapest one among the same segmentation cars
Class-oriented	28.5%	Prefer premium-model used cars; Gain trust from business partners; Differentiate themselves in social status
Opportunity-oriented	19.6%	Indifferent in new and used cars
Transition-oriented	8.4%	Eager to buy a new car but without sufficient budget

Table 3.3.3. Chinese used car customers' features and their proportion

The circulation of used cars in mature markets is very convenient. Used car auctions are the core of used car circulation channel such as in Japan. Used cars flow freely throughout the country, and some countries such as Japan also encourage the use of used car exports to accelerate the circulation of used cars. The circulation of used cars in China is restricted between regions, and no more than 30% per year of the majority of used cars are cross-border traded.

China's second-hand car business is decentralized and scale development is lagging behind. Due to the short development time of China's used car market, industry regulations and industry standards have not been established perfectly, and there are no laws and regulations that impose rigid requirements on the conditions for the foundation of second-hand car brokerage enterprises. So that some operators have an opportunity to enter the used car market even though they are not quite capable. Most of the used car transactions are dominated by the small used car brokerage companies in the market. The second-hand car brokerage companies are small in scale and they do not pay enough attention to the customer experience and lack the awareness of service competition. The competition between second-hand car dealers is often a vicious competition. It obtains high profits through various informal means. This kind of competition cannot upgrade the overall market level, but it will increase consumers' mistrust of used car transactions. In addition, the used car market has a monopoly of qualifications. In order to strengthen management, the policy stipulates that all used car transactions must be conducted within the designated market that are qualified for trading. Other used car operating companies often seen in Europe, America and Japan (such as 4S shops, etc.) lose their ability to independently conduct business and this restricts the diversified development of trading entities. **In the United States and Europe, almost all car dealers operate both new and used car businesses.**

	Independent Distribution: Designated & Qualified used car trading market	Private Deal: Resale through friend or acquaintance	Brand Distribution: Franchising or 4s shop	Exportation
China	57%	38%	5%	
U.S.	30%	30%	40%	
Japan	20%	30%	30%	20%

Table 3.3.4. Comparison between Chinese & Mature used car markets' distribution channels

China's used car market lacks a scientific and reliable appraisal system, resulting in the loss of the integrity of the used car market with respect to other mature markets.

For a long time, most of the used car appraisals in the used car market in China is mainly that the appraisers evaluated the target vehicles through professional knowledge and evaluation experience. This has resulted in a large amount of arbitrariness and unscientific methods. The subjective factors of the assessment process are more than objective factors. The assessment results deviate from the real value of the vehicle. Each of the U.S. and Japanese business entities has its own appraisal system, which can undertake the evaluation work and issue a legally valid evaluation report. Each business model has its own evaluation criteria, but after full market competition and long-term development, different evaluation criteria are seriously converged and the final valuation is basically the same.

At the same time, there are serious information asymmetries in China's used car market, the civic integrity system has not yet been established, vehicle maintenance records, accident records, and other information is not open to the customers. Therefore, it is particularly important and urgent for consumers to obtain the true technical status of vehicles through independent third-party authorities in accordance with the evaluation criteria for second-hand vehicles.

CHAPTER 4:

NEW FEATURES OF CHINESE SECOND-HAND CAR MARKET

4.1 New features of China's second-hand market

1) Strong policy support for upper development

In recent years, policy support is the most important booster for used car market. Series direct or indirect policy has been released and facilitate a favorable environment for used car market. Encouraging used car market development has been placed in government work report and plan, which confirmed the basic macro-policy direction.

The policy support has been directly put into practice on the used car trade market, which already makes the shift from outside environment support to direct fostering on used car trade market. The most important one is the Demonstration Project of Used Car Trade Market Upgrading and Reconstruction. The project was executed by the Ministry of Commerce and Finance. 40 used car trade markets were included in ten provinces. The emphasis was on the market environment and service facility, and management system. Series technical and operational supports were provided by the government. Information technology was widely used to promote national information interconnection and interaction, thus to build the foundation on national market and circulation.

The application of these policies was not only the support from government, but also the concept education for the whole used car trade and circulation industry. The aim was to reform and upgrade the mode of used car trade, enforce scale operation, and promote cross-regional used car transaction.

2) Expansion of market scale and irradiation loop

After several years of development, the used car market in the key cities as the core is becoming the basic trend direction for the nationwide integrated market. Due to the regional discrepancy in China used car market throughout the provinces, the gradient difference in used car consumer can be achieved for the market development. This was confirmed by the experience in developed countries.

The first priority is to taking advantage of radiation and leading role of core cities, to form regional used car market. With the market development, the seamless connection between regional market can be achieved. Then, the used car transfer gradient can be established from developed area to less developed area, thus to form the unified national market.

The used car in the developed area is transferring to the less developed area, along with the demand changing from newly-increased to renew. This will be one of the most important features for China's used car market.

3) Remarkable concentration increases in used car trade

According to the experience in used car market in developed countries, large-scale used car trade is always accompanied with the arising and developing of wholesale. For China's market, the used car wholesale mainly to auction is gradually arising, which will be one of the important symbol of large-scale market development. The advanced wholesale business provides strong support for the large-scale used car trade. It is the foundation for cross regional used car transaction, and operation efficiency improvement. Thus, the operational transfer cost can be reduced, and improve the comparative advantage in used car price, to promote used car consumption. It is essential to have gradient distribution of new car and used car, to enhance the maturity of China's auto market.

Fundamental changes will take place in the traditional small workshop operation mode. Used car broker company with certain scale and with ability for cross regional transaction will arise in the market, and large-scale used car trade group will also grow. The small-scale broker will be forced to quit the market. Thus, the obsessed issue characterized in small, scattered and disordered used car trade will be solved.

Along with the change, professional division will be enhanced for the used car service companies. Integrated used car company will be replaced by specialized purchasing company, wholesale company and retail company. More specialized service and trade company will arise, such as auction company, third-party detection service company, evaluation and assessment company and so on.

4) Important role of brand used car

Brand used car from car manufacture started from 2004. And great development has taken place in the recent years. Most of the car manufactures initiated their strategy and used car trademark in the brand used car, such as Chengxin, Anji from SAIC Motor, Certified used car from FAW-Volkswagen, Anxin from FAW TOYOTA Motor, AAA from FAW Audi, and Xiyue used car from GAC HONDA, and so on.

Replacement of used car is becoming the main mode for brand used car. Competition among different used car brands went deep. There are around 1000 auto dealer involved in the used car replacement. As 4S shop is gradually becoming the main brand used car source and trading place, the advantage of dealership is more and more obvious. On the basis of advantage in brand influence and, maintenance and service, brand used car will be the major proportion of used car market.

5) Trading service platform establishment will be the main content of used car market

Under current circumstance, trading service platform establishment is quite essential for the used car market in China. Used car trade related testing, evaluation, assessment and other service can be provided in the platform for both individual trader and dealer. This platform includes replace platform between new and used cars, service platform among manufactures, and alliance platform among trade market nationwide.

Service platform is required to joint new car and used car trade service, due to the replace business majored used car trade in China. Brand used car rely on the platform to achieve replacement business and internal resource interchange among 4s shops. Dealership can use the platform to enforce used car source integration and cross-regional transaction. For

professional, large-scale and regional demand, traditional trade market and broker also need this platform. Derived services like finance and insurance also rely on the platform to business development.

4.1.1 Development of Electric car

From 2014 to 2015, sales of pure electric and plug-in hybrid vehicles in China have more than tripled to 330,000 units. Therefore, according to sales volume, China is not only the world's largest passenger car market, but also the first plug-in hybrid powertrain and pure electric vehicle market. However, as in other countries, in 2015 China's pure electric and plug-in hybrid vehicles accounted for less than 1% of the total car sales. China still needs to adopt various measures to achieve the goals set for the 13th Five-Year Plan. To ensure that in 2020 reach 5 million electric car ownership. The Chinese government believes that electric vehicles are a great opportunity to enhance global competitiveness and reduce China's dependence on imported oil. In this regard, the Chinese government has planned a comprehensive policy framework that will allow automakers to achieve a goal of 7% of sales of pure electric vehicles and plug-in hybrid vehicles in 2020 and 19% of sales in 2025; However, its current market average accounted for less than 2%. The mechanism currently under consideration is to combine the company's average fuel consumption (CAFC) with new energy vehicle points. New energy vehicle points can be used to offset CAFC negative points, and new energy vehicle points can also be traded. Industry experts believe that the transaction price of a new energy vehicle point will be between 7,500-10,000 yuan. This provision is still in the discussion stage and it is expected to be implemented by 2018 at the earliest. (e-mobility index q1 2017, Roland Berger).

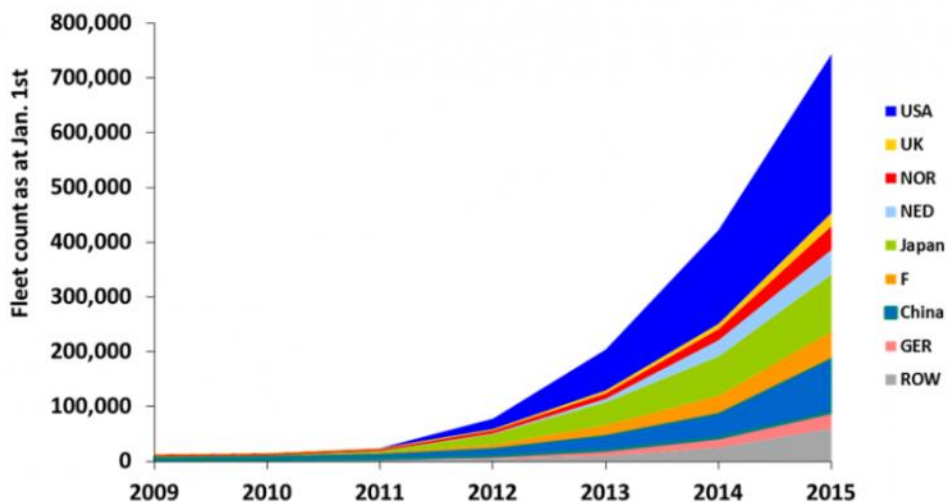


Figure 4.1.1 No. of Electric Passenger Cars in the world [Center for Solar Energy and Hydrogen Research]

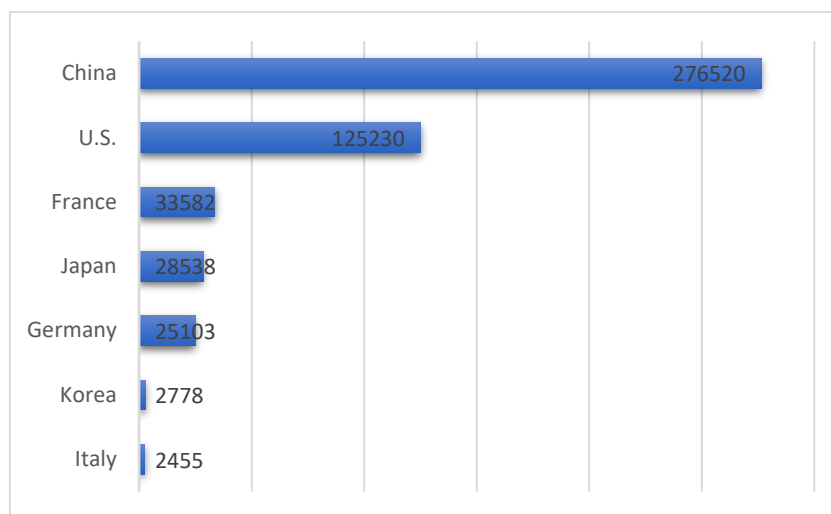


Figure 4.1.2. Pure electric & Plug-in hybrid cars sales from q3 2015 to q2 2016 [Roland Berger]

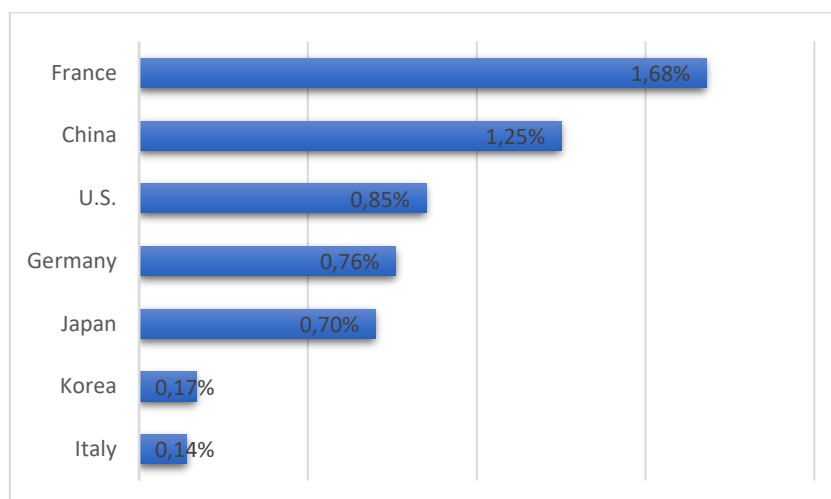


Figure 4.1.3. Pure electric & Plug-in hybrid cars market share from q3 2015 to q2 2016 [Roland Berger]

According to the share of pure electric and plug-in hybrid vehicles in the overall automotive market in the past 12 months, Roland Berger evaluated the different market performance.

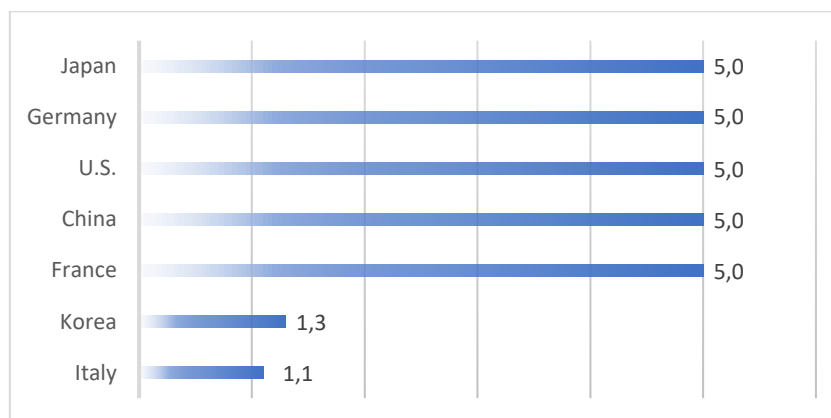


Figure 4.1.4. e-mobility development index [Roland Berger]

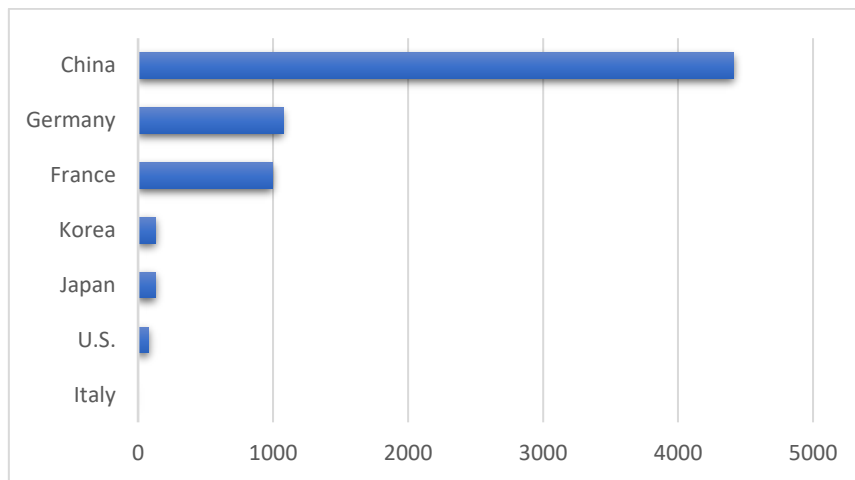


Figure 4.1.5. R&D Investment in million € in 2015 [Roland Berger]

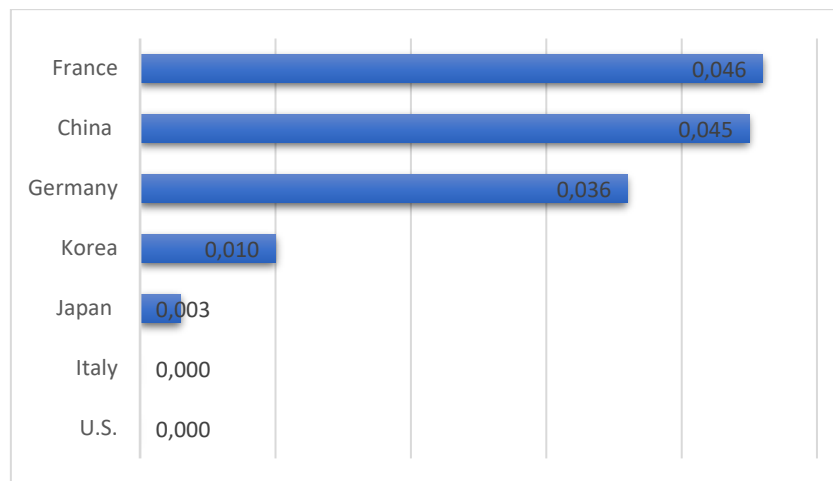


Figure 4.1.6. R&D Investment in percentage of GDP in 2015 [Roland Berger]

In China, the local EV brands have been more popular thanks to the Chinese government supportive policy to the sector of EV.

China	BYD Tang, BYD Qin, Baic E150EV
U.S.	Tesla Model S, Nissan Leaf EV, Chevrolet Volt Plug-in
Germany	VW Golf GTE Plug-in, BMW i3, Audi A3 e-tron
Japan	Nissan Leaf EV, Mitsubishi Outlander Plug-in, Toyota Prius Plug-in
France	Renault ZOE Z.E. Renault Kangoo Z.E. Smart ED 2-Seat
Korea	Chevrolet Spark EV, Kia Soul EV, Hyundai Sonata EV

Table 4.1.1. Top 3 popular models in principal EV market [Roland Berger]



Figure 4.1.7. BYD Tang



Figure 4.1.8. BAIC E150EV

In 2018, China's electric vehicle subsidies are mainly divided into three parts: basic subsidies, endurance subsidies and “cheap” subsidies.

Basic subsidies:

The basic subsidy is 30,000 yuan each and electric vehicles must meet the following performance indicators. If it fails to meet any of the indicators, it will lose all subsidies of 30,000 yuan.

1, Life is more than 200 kilometers and the speed reaches 120 kilometers per hour.

2, Fast charging 40 minutes to charge more than 80%, home charging pile charging more than 80% within 6 hours.

3, The battery life is more than 500 times charging and the battery life guarantee of 100,000 kilometers in 5 years.

Endurance subsidies:

Electric life more than 200 kilometers, 100 yuan per 1 km increase in subsidies. The maximum amount of endurance subsidies is 20,000 yuan, and electric vehicles will last more than 400 kilometers.

For example, an electric vehicle with a battery life of 252 kilometers will receive a subsidy of 5,200 yuan.

“Cheap” subsidies:

Firstly, for the electric vehicles with price less than 60,000 yuan, “one-time” subsidies are 10,000 yuan.

Secondly, when the selling price is lower than 60,000 yuan, once the price is reduced by 1 yuan, an additional 5 cents is subsidized. “Cheap” subsidy up to 20,000 yuan and 40,000 yuan for electric vehicles can get all 20,000 yuan "cheap subsidies."

For example, an electric vehicle with a price of 53,000 yuan will receive a subsidy of 10,000 yuan for less than 60,000 yuan, plus 3,500 yuan subsidy for the price of 5,300 yuan, which is 7,000 yuan less than 60,000 yuan. Therefore, an electric vehicle with a price of 53,000 yuan can obtain a "low-cost subsidy" of 13,500 yuan.

The average electric vehicle can get about 45,000 yuan subsidies:

The "basic subsidies" are fixed at 30,000 yuan, the "Endurance subsidies" are at most 20,000 yuan, the "cheap subsidies" are at most 20,000 yuan, and the total amount of the three subsidies is 70,000 yuan.

Although the total amount of the 70,000 yuan subsidy is higher than the 44,000 yuan subsidy amount announced by the state in 2017, electric vehicles are generally unable to get all subsidies of 70,000 yuan, and most electric vehicles can only receive 40,000 yuan subsidies.

Because the "Endurance subsidies" and "cheap subsidies" are two contradictory subsidies. The longer the cruising range, the more battery packs are needed and the higher the manufacturing cost, so the selling price cannot be too low, and it is difficult to obtain “cheap” subsidies.

Used EV market

Like new EV market, the used electric car market is quite small but unlike that of New electric vehicles, it develops so slowly that there exist very small amount of data and information on this market.

According to the data provided by the Guazi used-car platform, its electric vehicles account for only 0.7% of all types of vehicles and the number of pure electric vehicle models is very small. From the point of view of price, in addition to imported luxury electric vehicles such as Tesla, the price of domestic electric vehicles is basically below 150,000, of which less than 100,000 are more than 50%. Geographically, as the country with the most promotion of new energy vehicles in the country, Beijing's sales of second-hand new energy vehicles can account for about 50% of the country's total sales, and the proportion of electric vehicles such as BYD and BAIC New Energy is even higher.

From another second-hand car e-commerce platform RenRen, it shows that the price was adjusted several times and dropped again and again. From the platform price point of view, pure electric vehicles have a great difference before and after 2015. For example, the 2015 model Tesla-MODEL S with a guidance price of more than one million yuan was priced at 780,000 yuan in 2017 and in two years the vehicle has depreciated by 22%. The RMB 418,800 for the 2015 BMW-i3 was priced at RMB 248,000 in 2017, and in two years the vehicle has depreciated by 41%; while some low-end electric vehicles, such as the new car with a price of RMB 179,800, the 2015 JAC iEV5 was priced at RMB 70,000 after two years. The 2014 BAIC E150EV with a new car price of 220,800 yuan was priced at 59,000 yuan this year and the depreciation rate was 74%.

Judging from the used car e-commerce platform, high-end pure electric vehicles tend to have higher hedge rates, and even if some low-end electric vehicles consider real prices including subsidies, the devaluation rate remains high, the market demand is low, and there is no any up-trend signs.

From the above seller's price information, the current discount rate of second-hand new energy vehicles is relatively high. Most of them depreciated by more than 50% in two or three years. While usually for the discount rate of traditional internal combustion engine cars: the first year is 15%; the second year 25%; the third year is 32% to 35%, and the comprehensive discount rate is about 30% for three years.

At present, there is not enough data for one institution to support the evaluation of big data. Valuation of second-hand electric vehicles is still a challenge. Some used car appraisers believe that on the one hand, second-hand electric car appraisers have insufficient experience for long-term use. On the other hand, big data system analysis needs a sufficient number of samples to support, and the analysis and statistics of the current few thousand vehicles is not enough to get an accurate estimate like gasoline or diesel vehicles.

It seems that the second-hand electric vehicles are more severe due to the lack of standardized market differentiation. One pole is a model with a longer range, such as imported Tesla, BMW i series, and Teng potential. The other pole is a short-range vehicle with a long range

of kilometers. In independent brands, such as Yidong, JAC and BAIC. Some agencies believe that in the short term, with the continuous advancement of technology, new electric vehicles with cheaper prices and longer mileage will adversely affect existing second-hand electric vehicles, including pressure on high-end electric vehicles to face price cuts. In the long run, with the accumulation of model vehicle transaction data and the rapid development of electric vehicle technology, the preserving value of second-hand electric vehicles will gradually move closer to the internal combustion engine model.

In October 2019, the new energy used car price range of under 30,000 yuan in the chain changed little (14%). The vehicle market share of 36% is within 30-50 thousand yuan which improved significantly. From the price ratio, the price below 50,000 yuan is the main sales space for new energy used cars. But it is starting to show an upward trend in the price of the model.

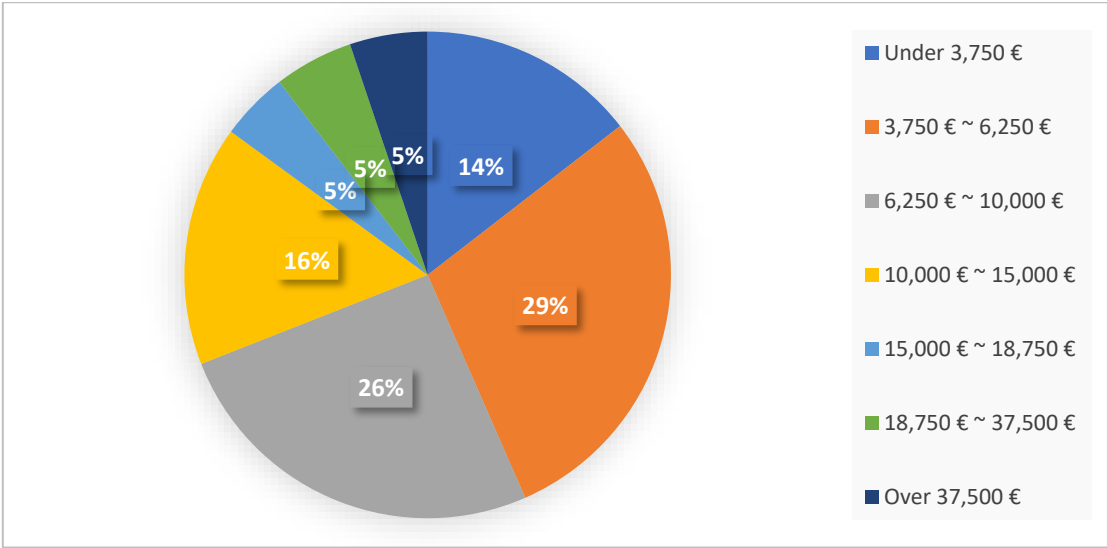


Figure 4.1.9. New energy used car price range in September 2019 [CADA]

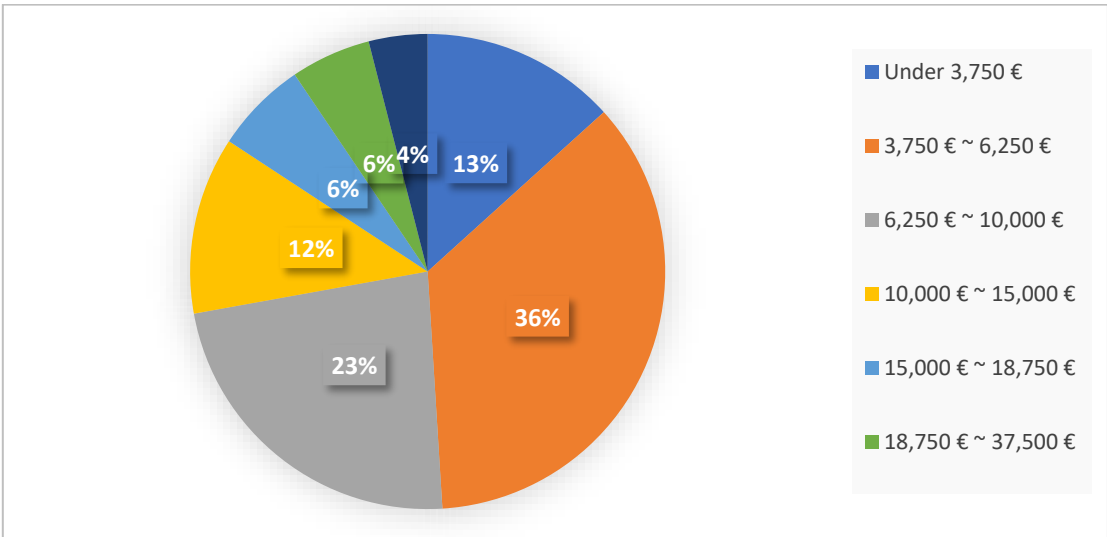


Figure 4.1.10. New energy used car price range in October 2019 [CADA]

New energy used car price ranges are quite similar to those of traditional new cars but the life cycles are shorter.

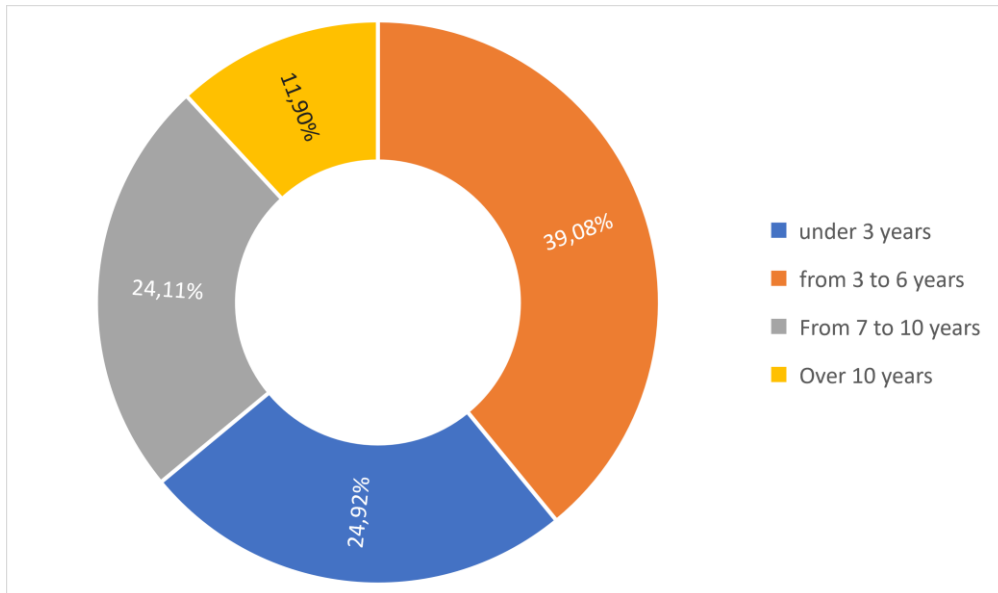


Figure 4.1.11. Traditional used car life cycle in October 2019 [CADA]

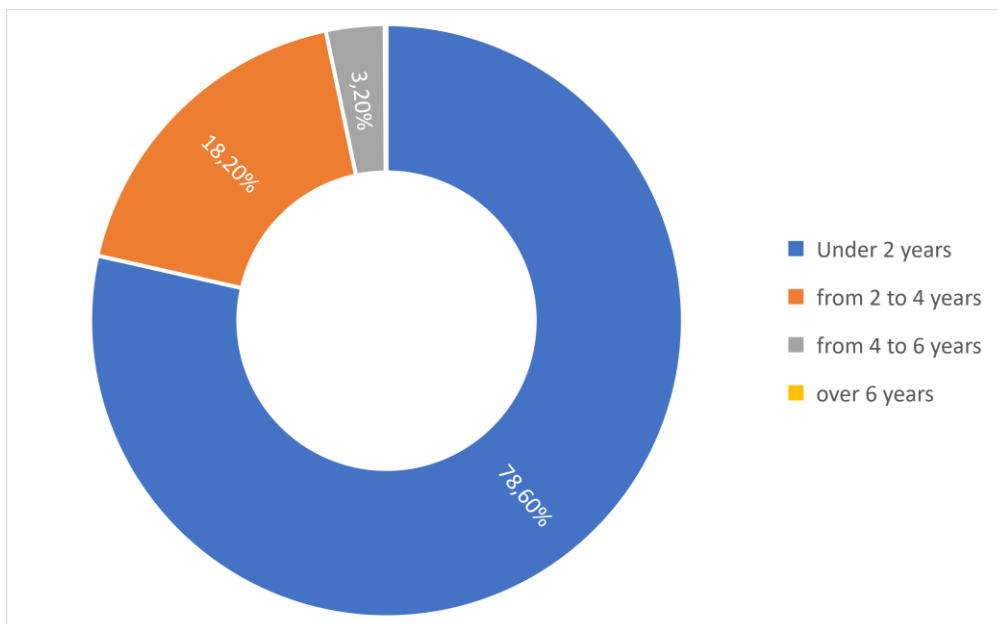


Figure 4.1.12. New energy used car life cycle in October 2019 [CADA]

4.1.2 New entry: e-commerce

The world is changing at a faster pace than ever before. The forces of the internet, ubiquitous connectivity, and a fresh wave of innovation are combining in ways that dramatically alter

the transaction costs in almost every business. The result is greater dynamism and flexibility in the definition of markets for services. Like Northern European countries, Chinese people even don't need to take with them any cash when going out. Not only by paying with credit card, but simply a click on the screen of one's own smartphone, one transaction will be done. E-commerce is also being embedded into the Second-hand car's market, especially in China. A lot of transaction platforms (such as Alibaba, Jingdong, Guazi etc) on which Second-hand cars are the protagonists have sprung out in recent years, and the trade scale record has been broken every day. Thanks to the Internet, A new business model O2O (Online to Offline) has been more and more perceived and accepted by the used-consumers in China, especially in the eastern areas of China. In November 2017, 179.6 thousand cars were showed on the mainstream B2C platforms.



Figure 4.1.13. New car & Used car O2O Supermarket. [Suning]

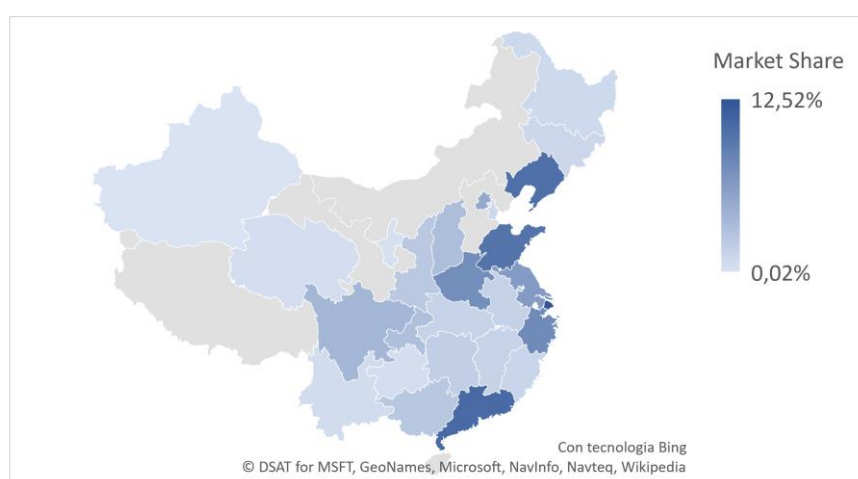


Figure 4.1.14. Regional e-commerce trade volume in 2019 [CADA]

4.1.3 Fast recovery from crisis in 2020

With the overall advancement of the resumption of work and production across the country, market operation conditions have gradually improved. The national second-hand car transaction volume in April was 1.1134 million units, a decrease of 7.27% only compared to the same period last year.

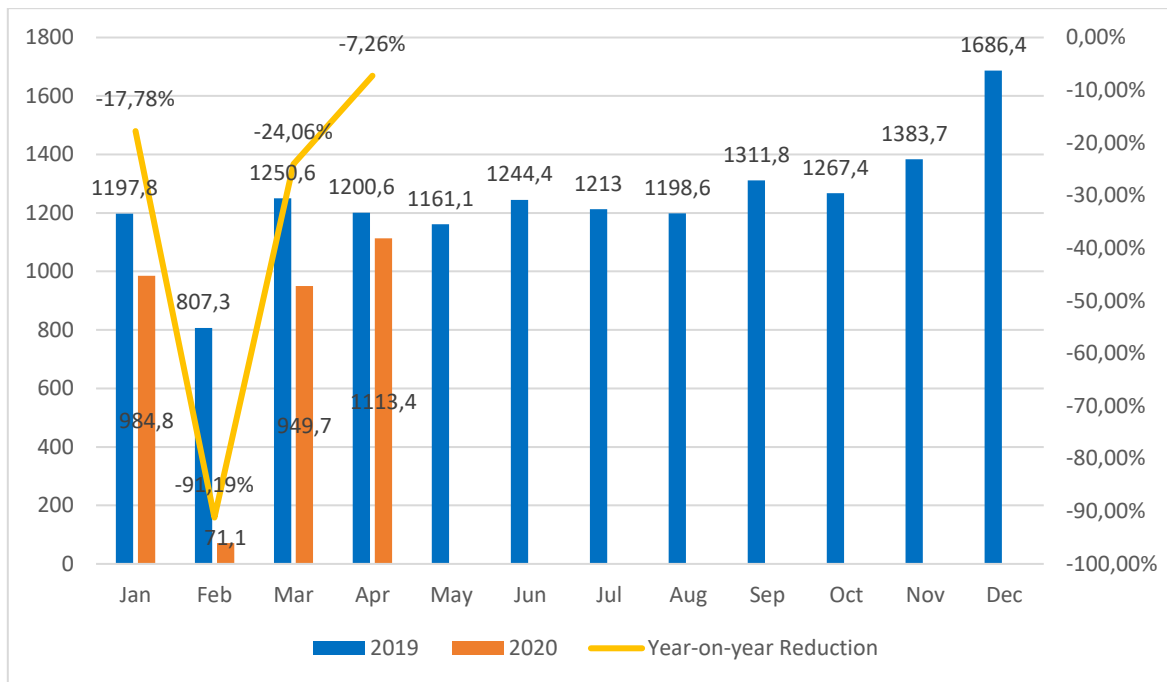


Figure 4.1.15. Year-On-Year used car sales volume comparison between 2019 & 2020 [CADA]

From the observation during last months in 2020, the domestic epidemic stabilized in May, the pace of resumption of work and production in various industries has accelerated, the downward pressure on the macro-economy has eased, and the demand for family cars and commercial vehicles has increased.

In order to further promote consumption, various localities have introduced corresponding stimulus policies, and some second-hand car markets and second-hand car dealers have also launched preferential activities to stimulate consumption.

Affected by the epidemic, the income of some consumers has shrunk, but the demand for cars has gradually increased, and the demand for used cars has gradually increased due to the price advantage.

CHAPTER 5:

FORECAST AND CONCLUSION

As we discussed in the previous chapters, due to the fast development of the used car market and big gap to fill up between used and new car market in China, we should be optimistic about the sector of the Chinese used cars in the next years.

As an East-Asian market, the Japanese used-car market has a plenty of fascinating histories and valuable experiences for those car manufacturers or dealers who intend to play in the head of the game in the Chinese used-car market.

On September 22, 1985, the world's top five economic power capitalists (the United States, Japan, West Germany, Britain, and France) reached the "Plaza Agreement" at the New York Plaza Hotel. When the US dollar exchange rate was too high, it caused a large trade deficit. As a result, the troubled US and four other countries issued a joint statement and announced their involvement in the exchange rate market. Since then, the yen has appreciated rapidly. At that time, the exchange rate rose from around US\$220 to around 150 yen a year later. Because of the dramatic changes in the exchange rate, assets made up of U.S. Treasury bonds had book losses, so a large amount of funds entered the Japanese domestic market in order to avoid exchange rate risks. At that time, the Japanese government started to implement a quantitative easing policy to subsidize the export industries that were hit by the appreciation of the yen. As a result, interest rates in the market fell, and excess liquidity was generated.

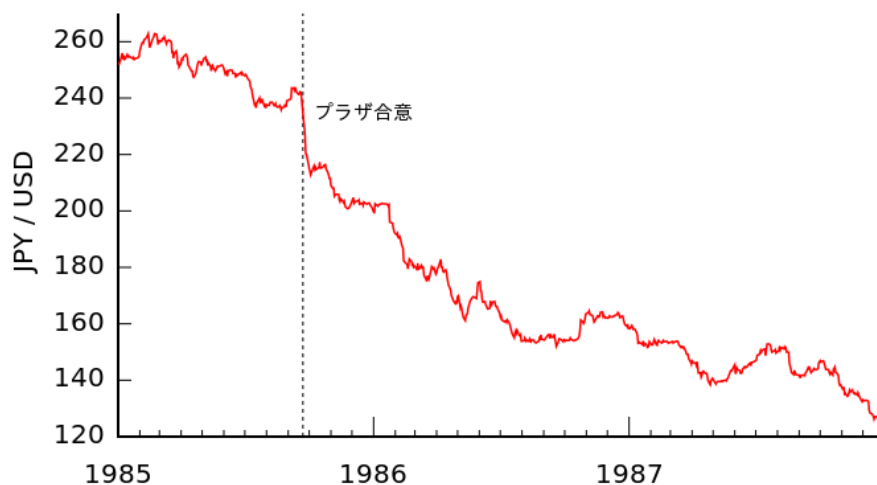


Figure 5.1.1. USD/JPY exchange rate in the 1980s

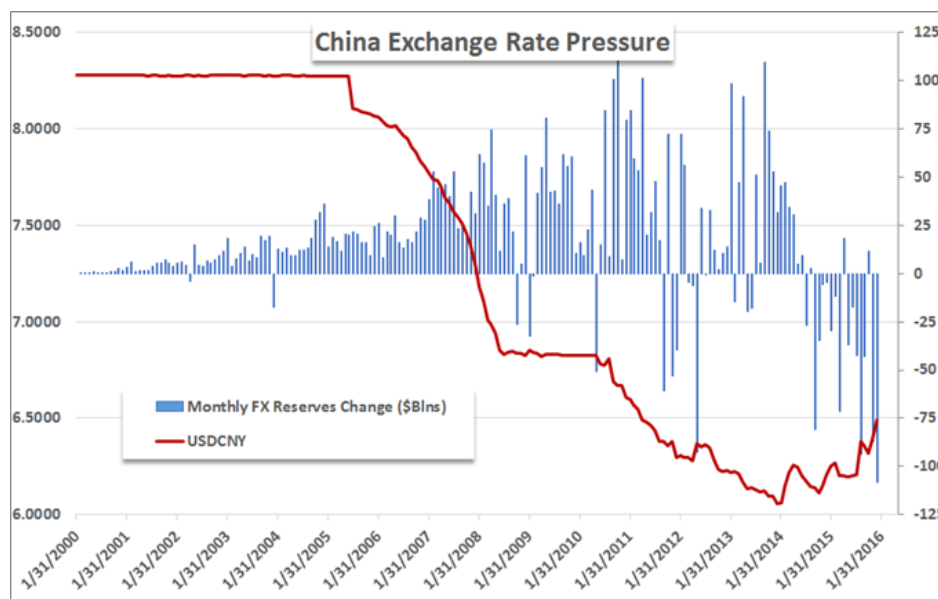


Figure 5.1.2. USD/CNY exchange rate in the 2000s & 2010s

In Japan from 1986 to 1991 in which real estate and stock market prices were greatly inflated. In early 1992, this price bubble collapsed. The bubble was characterized by rapid acceleration of asset prices and overheated economic activity, as well as an uncontrolled money supply and credit expansion. More specifically, over-confidence and speculation regarding asset and stock prices had been closely associated with excessive monetary easing policy at the time.

By August 1990, the Nikkei stock index had plummeted to half its peak by the time of the fifth monetary tightening by the Bank of Japan (BOJ). By late 1991, asset prices began to fall. Even though asset prices had visibly collapsed by early 1992, the economy's decline continued for more than a decade. This decline resulted in a huge accumulation of non-performing assets loans (NPL), causing difficulties for many financial institutions. The bursting of the Japanese asset price bubble contributed to what many call the Lost Decade.

Nikkei Stock Index





Figure 5.1.3. Stock & Real estate market behavior in Japan [Japan's Bubble Economy of the 1980s, Jesse Colombo]

On February 27, 2007, the Shanghai Composite Index fell by 8.8 percent on a single day, and the Shenzhen Composite Index fell by 8.5 percent. Although the price fell but did not affect the economy, the market correction was strictly speaking, but the bubble in the stock market was seen.

Real estate bubble

About since 2000, the real estate bubble in China has been generally considered to be significant in first-tier cities such as Beijing, Shanghai, Guangzhou and Shenzhen. The average room rate from 2005 to 2009 has tripled. In November 2011, Freddie Mac's director of Chinese-American model and research department Chen Jian pointed out that China's housing prices have surpassed the United States. He believes that the Chinese real estate bubble is beginning to burst and the way it is shattered is an avalanche collapse, or it is gradually going down, and it is difficult to judge.

Local government debt crisis

After the world financial crisis, the Chinese government launched an economic stimulus policy of 4 trillion RMB investment. Under the guidance of economic stimulus policies, a huge number of projects and infrastructure have caused many overcapacities and local governments have large deficits. On the other hand, in recent years, China has used GDP as an indicator of the performance of local officials in provinces and cities. This has led local officials to promote government-funded public projects or government office buildings to flood the GDP. Overbuilding and local government deficits. The local debt crisis has begun to erupt in various parts of China.

High inflation

In addition, inflation in China is higher than the interest rate on bank deposits, and bank deposits cannot preserve their value. Traditional bank deposits have been replaced by risky financial investments. Cash in the investment market has flooded and the real estate bubble has been exacerbated.

Manufacturing industry is facing difficulties

The manufacturing industry is faced with such problems as the appreciation of the RMB, excessive tax burdens, serious excess production capacity and deteriorating investment and operating environment. Entrepreneurs invest large amounts of money in the property market and stock market, which intensifies the real estate bubble.

Cash outflows

The domestic investment environment deteriorated. In June 2011, a group of Chinese investors had already become a real estate investor in Vancouver, Canada and a luxury house, hotel, or hotel in California. Japan's bubble economy also saw Japanese buyers rush into the US real estate market.



Figure 5.1.4. Stock & Real estate market bubble behavior in China

In fact, from the year of 1995, the used passenger cars' sales have been larger remarkably than the new passenger cars' registrations. It was a predictive result that the bursting bubble Japanese market had to be patient to digest the overproduction of new cars in a quite long period.

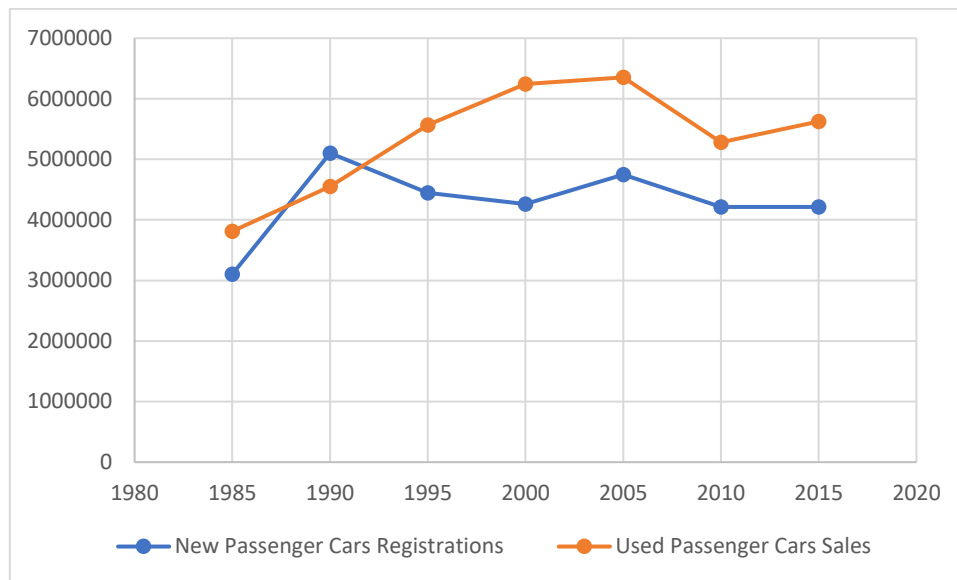


Figure 5.1.5. New Passenger Cars Registrations VS Used Passenger Cars Sales in Japan, 1985-2015

History never repeats itself but it rhymes. Here we cannot predict that the Chinese stock and real estate markets will end up in the same way as that of Japan. But the likelihood to burst the bubble in the Chinese market is increasing every day and the costs of a sharp correction has become larger and larger. Even though perhaps it is not a bad news for the used-car market to let the bubble burst as quickly as possible, but the negative impacts on the whole automotive market cannot be measured easily.

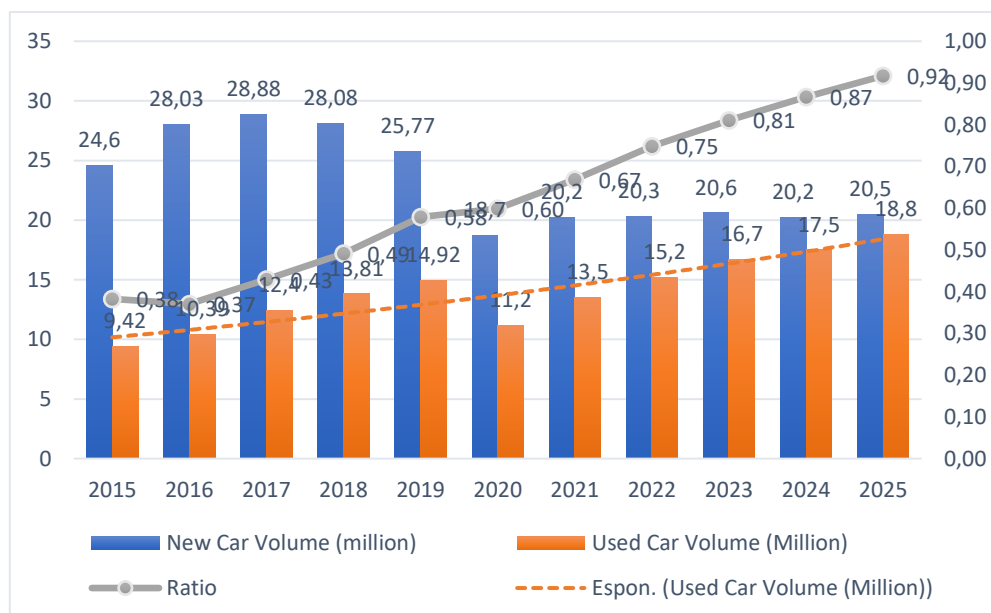


Figure 5.1.6. Predicted volumes of used & new cars in the next 5 years.

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