



What could be the impacts of Covid-19 on the automotive industry?



Presentation by

Du Wenke, Xiao Wenxuan, and Wang Yunhong

Students from RUC and THU

ShARE – 红蓝红 Group



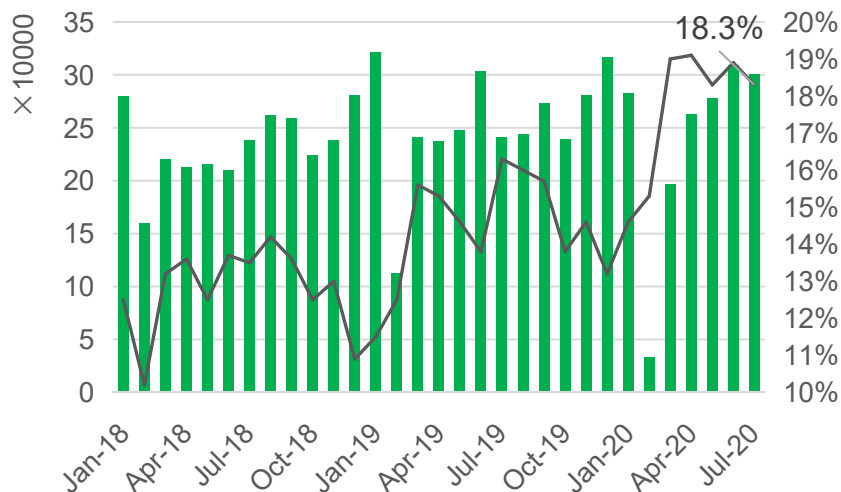
Executive Summary

Short-term	China	<ul style="list-style-type: none">• Covid-19 makes China's automobile market consumption show polarization pattern.• The impacts of Covid-19 has further optimized the industry competition pattern.• China's policies under Covid-19 facilitates the emerging strategic direction and long-term mechanism.
	Global	<ul style="list-style-type: none">• Global auto market is shocked by Covid-19 but recovered rapidly, with China in the leading position.• The mechanization of the world automobile industry has become a hot trend among countries which continues to go after Covid-19.• Covid-19 makes the alliance between various brands and countries closer, which is conducive to the coordinated development.
Long-term impacts		<ul style="list-style-type: none">• Changing post-pandemic customer preferences suggest a Humanistic Era for auto industry• Post-pandemic auto tech development will accelerate towards Connected, Electric, Automated, and Smart.

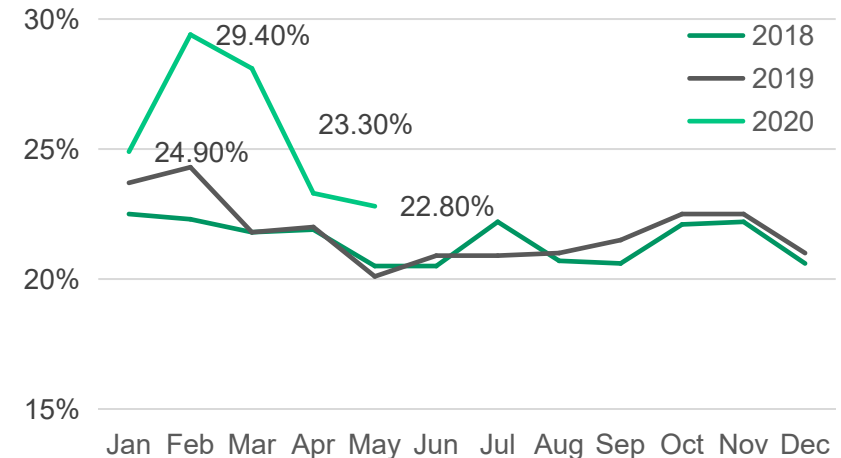
Covid-19 makes China's automobile consumption show **polarization pattern**

- **J-shape consumption change:** Auto consumption in China is postponed by Covid-19 lock-downs but soon recovered. Consumers tend to **reduce public transport** and **use private cars more** during the pandemic.
- **Polarization pattern:** China's auto consumption show polarization pattern due to differences in purchasing power:
 - Increased penetration rate of **luxury brands** since April 2020.
 - Increased demand for **entry-level Chinese independent brands**.

➤ Sales volume of luxury brand cars (left axis) and proportion of luxury brands car sales (right axis)



➤ Share of Chinese head's independent automobile brands from 2018 to May 2020






The impacts of Covid-19 has further **optimized the competition pattern** of China's auto industry

- **Long-tail weak enterprises:** gradually **withdrew from the market** due to magnified operating pressure during the pandemic.
- **Leading companies:** tend to **accelerate financing speed** to enhance their advantages.

➤ Dissolution and loss events in China's auto industry

Company	Time	Dissolution and Loss Events
Changan PSA	2019/11	Changan Automobile and PSA jointly decided to transfer all shares of Changan PSA to a third party, which has been renamed Baoneng automobile
Dongfeng Renault	2020/4	Renault transferred its 50% stake in Dongfeng Renault to Dongfeng Motor and withdrew from China's fuel passenger vehicle market
ZOTYE AUTO	2020/6	The company announced a huge loss of 11.2 billion in 2019

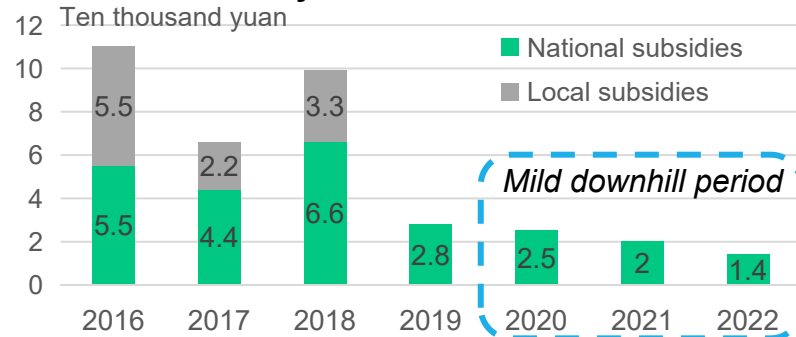
➤ Major financing events in China's auto industry since 2020

Securities code	Company name	Date	Mode of issue	Financing amount	State	Financing Events Overview
300750.SZ	 宁德时代	2020/2/27	Secondary offerings	RMB 19.7 Billion	Incomplete	Plans to raise no more than 19.7 billion yuan for expansion, production and R & D projects and supplementary working capital
601689.SH	 拓普	2020/5/19	Secondary offerings	RMB ≤ 2 Billion	Incomplete	Plans to increase 320 million shares and raise no more than 2 billion yuan for automobile lightweight projects.
0175.HK	 吉利汽车 GEELY AUTO	2020/5/29	Placing	HKD 6.45 Billion	Completed	Raised HK \$6.45 billion by placing 600 million shares to supplement working capital

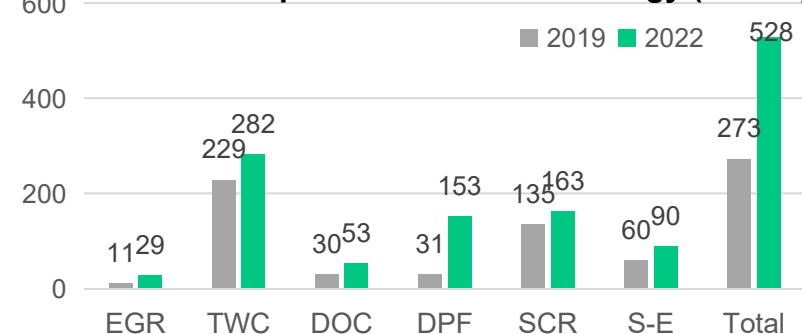
China's policies under Covid-19 facilitates the emerging **strategic direction** and **long-term mechanism**

- **Subsidies for Electric Vehicles (EV):** are extended to the end of 2022, and the decline of subsidies is slowed down, to ensure China's leading position.
- **China's sixth national emission upgrading:** encourages the elimination of old diesel vehicles, promotes emission upgrading, and brings clear market expansion.
- **Reduced value-added tax for second-hand car sales:** 0.5% reduction from 2020.05 to 2023.12, leading enterprises turn to the "buy out - sorting - sale - warranty" mode.

➤ Maximum subsidy amount for EV cars

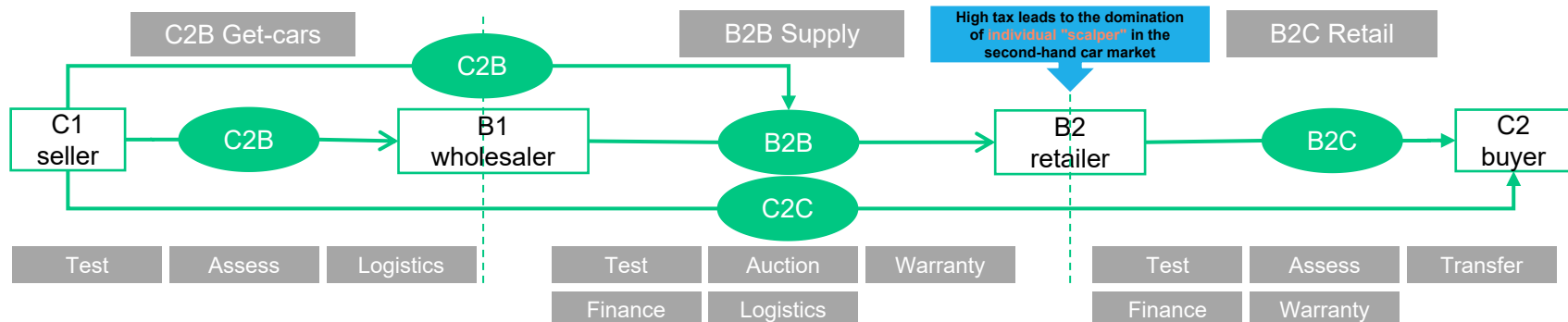


➤ Market size for post-treatment technology (¥100M)



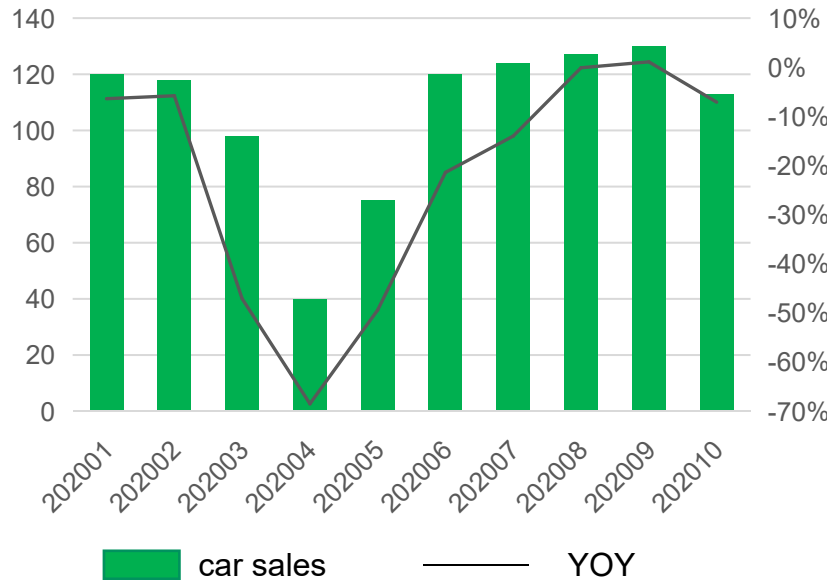
*EGR, TWC, DOC, DPF and SCR are post-treatment technologies for tail gas treatment. EGR is Exhaust Gas Re-circulation, TWC is Three Way Catalyst, DOC is Diesel Oxidation Catalyst, DPF is Diesel Particulate Filter, SCR is Selective Catalytic Reduction, S-E is System Encapsulation.

➤ Second-hand Vehicle Ecosystem Diagram

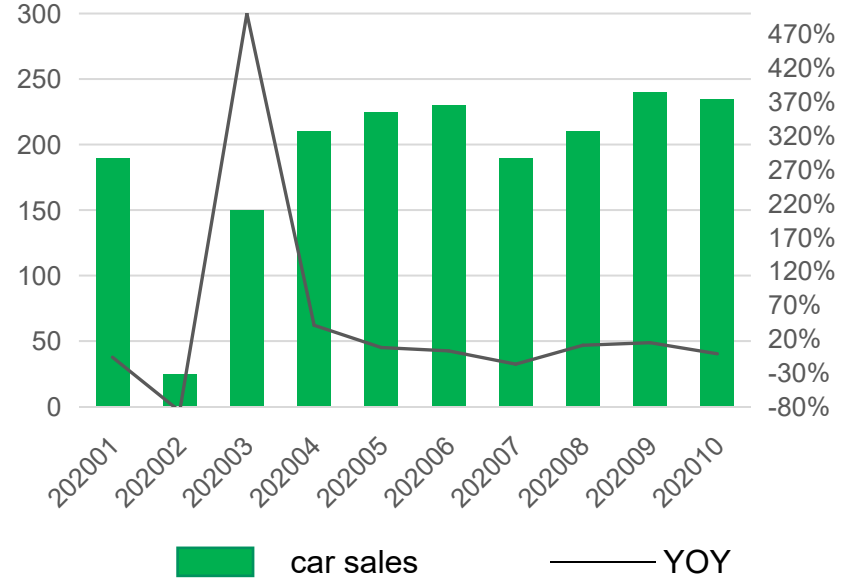


Global auto market is shocked by Covid-19 but **recovered rapidly**, with China in the leading position

European car sales in 2020

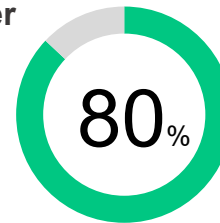


Domestic car sales in 2020



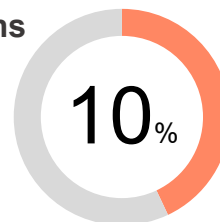
Global: Slowly recover to original level not until the 3rd quarter

- The global trend of policy support for electric vehicles accelerates the carbon-neutralization of automobiles



Chinese: Positive growth rate for 6 consecutive months

- Covid-19 challenges the global auto supply chain and gives opportunity for China's auto industry to grow



The mechanization of the world automobile industry has become a hot trend among countries which continues to go after Covid-19

Worldwide Mechanization

Japan



- Japan has obvious advantages in industrial robots and home robots



global market share

Europe



- Europe is the leading position in the field of industrial robots and medical robots



26% increasing rate

America

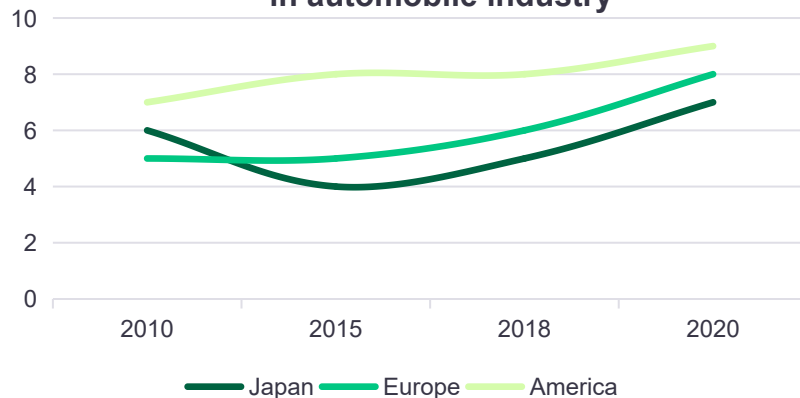


- The main advantages of the United States are in the field of system integration, medical robots and defense military industrial robots

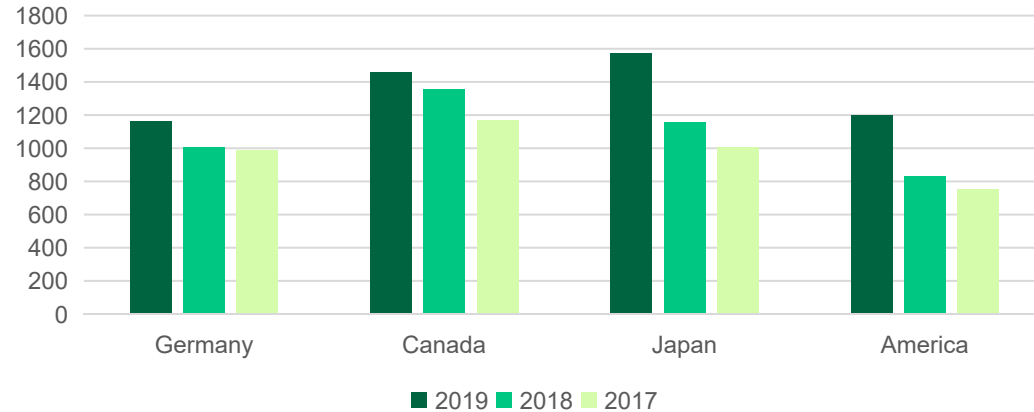


Sales volume in 2018

Comparative advantages of various countries in automobile industry



Robot density in automobile integrated manufacturing industry



- Different countries have their own advantages
- The density of robots in Japan is five times that of China, but the values of developed countries are quite similar.
- This shows a great imbalance in the development of the mechanized industry

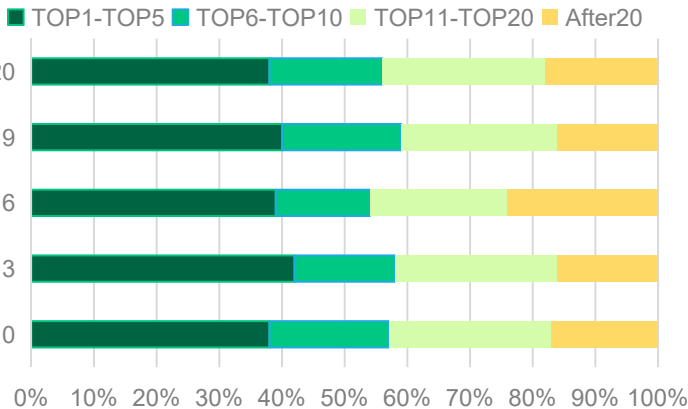
Mechanized production ensures that the supply side of the automobile industry has not received obvious impact after COVID-19

The advantages of all countries will continue to play. But for the developing countries which are not highly industrialized their choice is relatively narrow

Covid-19 makes the alliance between various brands and countries closer, which is conducive to the coordinated development

1 Cooperation between enterprises has maintained a relatively stable position of the head and tail

Change of ranking share of automobile enterprises since 2010



Different characteristics among brands make the whole automobile industry full of vitality

Brands Sales



Regional cooperation



2

COVID-19 did not block the ongoing mergers and acquisitions between state enterprises

- PSA group's acquisition of FCA
- Opel, Saturn and Hummer will be sold in batches
- Saab's part will sold to Chinese car manufacturers,
- GM's stake in Suzuki has been sold out

So the production rate below will be highly improved in a short term to cover more than 1M needs worldwide which will be needs more account for the less use of public transportation.

From the beginning of design to the end

In Europe and America: **3-5** years

In Japan: **3-4** years in Japan

In China: **5-15** years.

From the production capacity of parts

40000 hours

□ After combination

600 hours

□ From the assembly line

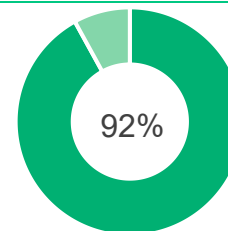
10 units (8 hours)

Changing post-pandemic customer preferences suggest a **Humanistic Era** for auto industry

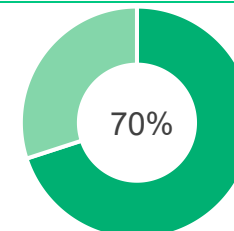


Humanistic Product: Healthy and Smart

- **Higher Demand for Private Cars:** Covid-19 reverses preference for mobility modes. Own vehicles regain preference against shared because private cars can provide safe mobility space and effective protection.
- **Stronger Concern on Health and Safety Functions:** Covid-19 has increased consumers' concern on healthcare, safety and smart devices and also their willingness to pay for these functions.



92% want in-car air purifier

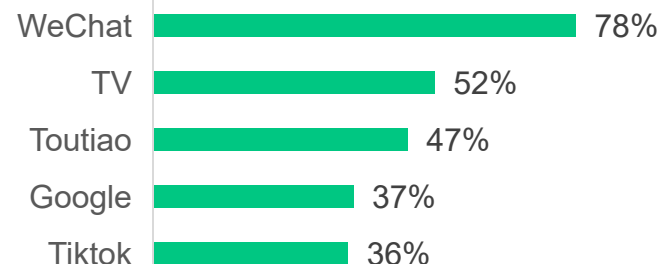


70% want in-car first-aid kit and masks



Humanistic Marketing: Intellectual and Flexible

- **Popularity of Online Marketing:** Covid-19 digitizes society and increases acceptance and demand for digital services, transforming the marketing channels to online platforms.
- **Possibility for Online Sales Channel:** Covid-19 makes online car selling becomes possible. VR test-drive, combination of offline test-drive and online purchase, and unmanned purchase could gain popularity.



Major Marking Channels in China during Covid-19








Humanistic Service: Innovative and Inclusive

- **Increasing Demand for Online Services:** Covid-19 leads to increased customers' demand for online services, such as online consulting, and online maintenance, etc.
- **Growing Innovative and Remote Services:** Service providers are motivated to provide innovative and remote services for costumers, such as car sanitizing, remote diagnosis, and to-door pick-up.



Customer's preference on services during Covid-19

Post-pandemic auto tech development will accelerate towards **Connected, Electric, Automated, and Smart**

	Customer	Policy	Technology
 Connected	<ul style="list-style-type: none"> Increasing acceptance for digital services ↑ Demand for connected security & navigation services ↑ 	<ul style="list-style-type: none"> Scope of enforced connectivity restrictions ↓ Scope of restrictions on data privacy ↓ 	<ul style="list-style-type: none"> Vehicle system architecture 5G network infrastructure
 Electric	<ul style="list-style-type: none"> Rising awareness of health and environment ↑ Willingness to pay for green product ↑ 	<ul style="list-style-type: none"> Regulation on emission target and Carbon Neutralization ↓ Government subsidies on electric vehicles (EV) ↑ 	<ul style="list-style-type: none"> Battery and powertrain performance EV production capability Charging infrastructure
 Automated	<ul style="list-style-type: none"> Increasing acceptance for automated vehicles (AV) ↑ Growing technology openness ↑ Concerns on the safety of AVs ↓ 	<ul style="list-style-type: none"> Scope of enforced safety features ↓ Approval of AV test-drive and usership ↓ 	<ul style="list-style-type: none"> Software and algorithms Data processing 5G network and traffic infrastructure
 Smart	<ul style="list-style-type: none"> Rising acceptance and use of smart products and services ↑ Willingness to pay for the benefit of smart ↑ 	<ul style="list-style-type: none"> Private car ownership restrictions/taxes ↓ Scope of restrictions on data privacy ↓ 	<ul style="list-style-type: none"> Smartphone penetration Data process Software development and service innovation
 Summary & Forecast	<ul style="list-style-type: none"> ✓ Covid-19 lock-downs postpone consumer spend ✓ Demand recovery features with preference for EV, and higher acceptance for new tech 	<ul style="list-style-type: none"> ✓ Covid-19 cools down economies, leads to EV subsidies and tax reduction on second-hand cars ✓ Regulations on emission and new tech may affect the industry 	<ul style="list-style-type: none"> ✓ Covid-19 shatters old industry and leads to market shakeout ✓ Connected, electric, automated, and smart tech is on the rise

Note: ↑ denotes favorable effect and ↓ denotes unfavorable effect.

Source: Strategy&PwC, Digital Auto Report 2020.

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