

**Czech University of Life Sciences Prague**

**Faculty of Economics and Management**

**Economics and Management**



**Bachelor Thesis**

**Behavioral and institutional aspects of conduct of  
economic subjects**

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# **BACHELOR THESIS ASSIGNMENT**

Zehui Lian

Economics and Management

Thesis title

**Behavioral and institutional aspects of conduct of economic subjects**

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## **Objectives of thesis**

The purpose of this thesis is to analyze the behavioral and institutional factors that influence the decision-making process of economic subjects (such as individuals, firms, and government entities) and their subsequent effects on economic outcomes.

By studying behavioral aspects, this thesis explores how life background, cognitive biases, psychological factors and any other possible factors affect decision-making and economic behavior.

In the aspect of system, this thesis analyzes the relationship between social system design and economic behavior, and explores how different institutional structures, incentive measures and arrangements affect the behavior of economic subjects.

## **Methodology**

**Empirical analysis:** This thesis involves collecting and analyzing quantitative data, using regression analysis and statistical analysis based on existing data. The goal is to examine relationships, test hypotheses, and draw conclusions based on empirical evidence.

**Survey research:** Surveys are an effective way to collect data on the attitudes, beliefs and behaviors of economic agents. Designing and managing surveys of individuals, organizations, or specific groups can provide insight into their decision-making processes, preferences, and perceptions.

**Case studies:** Case studies involve in-depth analysis of a specific economic topic, organization, or event. Study existing cases to gain a deeper understanding of the behavioral and institutional aspects being learned. Case studies usually involve qualitative methods such as literature analysis.

**Research design:** This study will adopt a mixed method of qualitative and quantitative research design. The rationale behind this option is to provide a comprehensive understanding of the behavioural and institutional aspects of the behaviour of economic agents through the collection of digital and qualitative data.

## The proposed extent of the thesis

30-40 pages

## Keywords

behavior factors, institutional factors, market development, consumer, policy

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### **Declaration**

I declare that I have worked on my bachelor thesis titled "Behavioral and institutional aspects of conduct of economic subjects" by myself and I have used only the sources mentioned at the end of the thesis. As the author of the bachelor thesis, I declare that the thesis does not break any copyrights.

In Prague on 03. 05. 2024

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# **Behavioral and institutional aspects of conduct of economic subjects**

## **Abstract**

This thesis aims to explore the behavioral and institutional aspects of the behavior of economic subjects and analyze its implications for economic policy and management. First, we introduce the basic concepts and theoretical framework of behavioral and institutional economics, highlighting their important role in explaining the behavior of economic subjects such as individuals, firms, and governments. Second, we explore the mechanisms and actual effects of behavioral and institutional factors on the behavior of economic subjects by analyzing cases. Finally, we summarize the findings and provide suggestions for future research and practice, with a view to providing a reference for the further development of economic theory and the formulation of economic policies.

Through this thesis, we can better understand the complexity and diversity of economic subjects' behaviors, and provide theoretical and practical support for promoting stable economic growth and sustainable social development.

**Keywords:** Decision-making, Policymaking, Individual behavior, Electronic payment market, China, Covid-19, Economics, Government financing.

# **Behaviorální a institucionální aspekty chování ekonomických subjektů**

## **Abstrakt**

Tato práce si klade za cíl prozkoumat behaviorální a institucionální aspekty chování ekonomických subjektů a analyzovat jeho implikace pro hospodářskou politiku a management. Nejprve představíme základní pojmy a teoretický rámec behaviorální a institucionální ekonomie a zdůrazníme jejich důležitou roli při vysvětlování chování ekonomických subjektů, jako jsou jednotlivci, firmy a vlády. Za druhé zkoumáme mechanismy a skutečné účinky behaviorálních a institucionálních faktorů na chování ekonomických subjektů pomocí analýzy případů. Závěrem shrnujeme poznatky a poskytujeme návrhy pro budoucí výzkum a praxi s cílem poskytnout reference pro další rozvoj ekonomické teorie a formulaci hospodářských politik.

Prostřednictvím této práce můžeme lépe porozumět složitosti a rozmanitosti chování ekonomických subjektů a poskytnout teoretickou i praktickou podporu pro podporu stabilního ekonomického růstu a udržitelného sociálního rozvoje.

**Klíčová slova:** Rozhodování, Tvorba politik, Individuální chování, Trh elektronických plateb, Čína, Covid-19, Ekonomika, Vládní financování.

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# Behavioral and institutional aspects of conduct of economic subjects

## 1. Introduction

With the acceleration of economic globalization and the continuous fierce market competition, the research on the behavior of economic subjects has become increasingly important. As two important branches in the field of economics, behavioral economics and institutional economics provide us with new perspectives and theoretical foundations for understanding and explaining economic activities.

In traditional economic theory, based on the homo economicus model, it is assumed that economic subjects are rational and pursue utility maximization in the decision-making process. However, people's decision-making in real life is often affected by factors such as emotions, biases and cognitive limitations, which is different from the rationality assumption in traditional theories. The emergence of behavioral economics has filled this theoretical gap, aiming to explain and predict people's irrational behavior and provide more accurate suggestions for economic policymaking. (Wilkinson and Klaes, 2017) At the same time, institutional economics emphasizes the impact of institutions on economic activities, believing that different institutional arrangements will affect resource allocation, market efficiency and the behavior of economic subjects, and then affect the operation and development of the entire economic system. (Samuels, 2002)

This thesis will be discussed in the following sections. Firstly, the basic concepts and theoretical framework of behavioral and institutional economics will be introduced to illustrate their importance in economic research. Secondly, We will take China's electronic payment market as an example, starting with individual users, payment

platforms, and regulatory authorities, and delving into the behavioral and institutional aspects of the behavior of economic subjects. Thirdly, we will analysis of the impact of COVID-19 on the behavior of Chinese economic subjects from the perspective of behavioral economics. In the end, by comparing the import and export trade of China and the United States, we will analyze the impact of institutional environment on it.

## 2. Objectives and Methodology

### 2.1. Objectives

This thesis aims to explore the importance and application of behavioral and institutional economics in explaining the behavior of economic subjects. Analyze the behavioral and institutional factors that influence the decision-making process of economic subjects, such as individuals, businesses, and government entities, and their subsequent effects on economic outcomes. Behavioral studies are conducted to explore how psychological effects and cognitive biases, as well as other possible factors, affect decision-making and economic behavior.

In terms of institutions, this thesis analyzes the relationship between social institutional design and economic behavior, and explores the possible impact of different institutional factors on the behavior of economic subjects. It provides theoretical guidance and practical support for us to better understand and explain economic phenomena in the real world.

In addition, a comprehensive study of behavioral and institutional factors can provide a reference for the government to formulate more effective policies and rules to promote sustainable economic development and social stability and prosperity.

### 2.2. Methodology

Theoretical framework construction: Based on the existing theories of behavioral economics and institutional economics, this thesis constructs a theoretical framework suitable for China's electronic payment market. Combined with the theories of mental account effect and loss aversion in behavioral economics, as well as the theories of

regulatory mechanism and market rules in institutional economics, this thesis deeply analyzes the behaviors of various economic entities in the electronic payment market.

**Data collection and collation:** Collect data related to China's electronic payment market, including user behavior data, payment platform data, and regulatory authority data. The data are both qualitative and quantitative. Various sources such as official reports, industry studies and statistical data were utilized to ensure the comprehensiveness and reliability of the data.

**Case studies:** Case studies involve an in-depth analysis of the impact of COVID-19 on the behavior of Chinese economic subjects from the perspective of behavioral economics. Existing cases are examined to gain a deeper understanding of the behavioral and institutional aspects being learned. The case in this thesis use a combination of qualitative and quantitative research design methods, and the rationale behind this choice is to obtain a comprehensive understanding of the behavioral and institutional aspects of the behavior of economic subjects.

**Comparative analysis:** From the perspective of institutional economics, this thesis studies the impact of import and export trade volume and different institutional environments between China and the United States. It also includes regression analysis on the impact of tariff rate on export.

## 3. Literature Review

### 3.1. Introduction to Behavioral Economics:

Behavioral economics is the study of the psychological, cognitive, emotional, cultural and social factors involved in the decisions of individuals or institutions, and how these decisions deviate from those implied by classical economic theory. (Lin, 2012), (Teitelbaum and Zeiler, 2018)

Behavioral economics is closer to life than traditional economics, which assumes that "people" are all rational. After the economic crisis, traditional economics encountered difficulties, market economy seemed to be unable to perfectly regulate market behavior, and behavioral economics, which had been neglected, emerged.

Professors Kahneman and Tversky developed one of the famous prospect theories in behavioral economics, which modifies the traditional risk decision theory and makes clear the judgment and decision under uncertain conditions. Many systems deviate from the traditional economic theory, especially the expected utility theory. (Kahneman and Tversky, 1979)

In addition to prospect theory, Kahneman and Tversky also proposed heuristic bias, which is the mental shortcuts that people take in the process of making judgments. These mental shortcuts sometimes help people make accurate judgments quickly, but sometimes lead to bias. There are three main types of heuristic cognitive biases: (Tversky and Kahneman, 1973)

- (1) Representative bias
- (2) Availability bias
- (3) Anchoring effect

### 3.2. Behavioral Aspects of Economic Conduct

The behavioral aspect of economic behavior refers to the psychological, cognitive, and affective factors that influence individual economic decisions and behaviors. These factors lead people to deviate from the traditional rational behavior model in economic activities. Five factors are commonly cited when analyzing how individual behavior is affected: bounded rationality, choice architecture, cognitive bias, and the influence of herd mentality. (Wilkinson and Klaes, 2017)

**Bounded rationality:** As ordinary people, our behavior is not completely rational, and there are irrational factors. When people make decisions, they do not necessarily seek to optimize, but to satisfy, and sometimes we look for good enough decisions that are acceptable, rather than the ideal utility maximizing solution that a perfectly rational person would look for. Most of the time, rational and bounded-rational investors in the market play a certain role, rather than only rational investors determine the final price as believed by traditional financial theory. (Sent, 2018)

**Choice architecture:** In the supermarket checkout, there are several shelves at the cash register, on which there are some goods such as chewing gum, chocolate and candy. When queuing, we often choose one of these goods to buy, but most of the time we do not need these goods. This is the choice architecture. The "Choice architecture," also known as the "push," was developed by behavioral economist Richard Taylor and legal scholar Cass Sunstein. Choice architecture makes it easier for people to make decisions based on their values and goals. Choice architecture is intended to guide people's choices, but it is itself a controversial proposition, with some arguing that it limits individual freedom or ignores individual responsibility. This requires us to guide users to a beneficial direction when using, and avoid ignoring the rights and interests of users for their own interests. (Mcgonigal, 2013) Another book by Richard Taylor, *Nudge: improving decisions about money, health, and the environment*, (Thaler and Sunstein,

2021) refers to nudges that help and guide people to make more rational choices without being forced to do so, but it is important to note that it should be as easy to cancel or reject the default choice as it is to accept it.

Cognitive biases: A cognitive bias is a systematic pattern of deviation from norm or rationality in judgment. (Haselton MG, Nettle D, Andrews PW, 2005) Preconceived ideas, personal emotions or experiences may lead to deviations or biases in people's cognition of objective facts. Cognitive bias may also be affected by culture, education, social environment and other factors. For example, cultural perceptions in some cultures that men are seen as leaders and women as better suited for domestic work may influence perceptions and expectations of men and women in different fields, resulting in cognitive biases.

Conformity: Conformity is the act of matching attitudes, beliefs, and behaviors to group norms, (Cialdini and Goldstein, 2004) The essence of conformity is information asymmetry. Information asymmetry is a universal phenomenon. There are many social phenomena that are related to information asymmetry. The deep reason for the phenomenon of conformity is also related to information asymmetry. Because of information asymmetry, uncertainty is increased, and the increase of uncertainty is easy to induce blind obedience. This psychology has a great influence on the behavior of economic subjects.

It is of great significance for economic subjects to learn and draw lessons from the theories of behavioral economics, build appropriate economic theories combined with reality, and put forward specific suggestions, such as helping people to avoid excessive external influences and make better choices as much as possible. Insight into the unconscious factors that affect consumer decision-making helps business managers to understand consumer behavior more deeply and formulate effective and practical market strategies. In the view of behavioral macroeconomics, government intervention has the potential to enhance macroeconomic stability and increase economic welfare.



### **3.3. Introduction to Institutional Economics**

As the name suggests, institutional economics is a branch of economics that takes institutions as the object of study and studies the impact of institutions on economic behavior and economic development. Economists of the institutional school basically attach importance to the analysis of non-market factors, such as institutional factors, legal factors, historical factors, social and ethical factors, especially institutional factors, and emphasize that these non-market factors are the main factors affecting social and economic life. To study economic problems from the perspective of institutions, it is first required to establish the relationship between people as the starting point of research, rather than the relationship between people and things. The individual is first and foremost a "social man" and an "organizational man" rather than an "economic man". As a kind of social being, in addition to material and economic interests, people also pursue social needs such as safety, self-esteem, emotion and social status. (Samuels, 2002)

### **3.4. Institutional determinants of economic behavior**

An institution is a humanly devised structure of rules and norms that shape and constrain individuals. (Douglass C., 1991) Such as laws, rules, social customs and norms. Institutions can be precise or informal. The core function of institutions lies in the incentive and constraint of economic subjects, so as to influence the behavior of economic subjects and optimize the allocation of resources. Douglass C. North proposed the design idea of formal rules: the rule-maker is like a discriminatory monopolist, providing a certain degree of protection for different classes, designing and protecting property rights; The main role of informal rules is to modify, extend or complement formal rules.

There are many institutional factors that affect the behavior of economic subjects, such as how a resource or economic good is used and owned by the Property Rights System. (Armen Albert Alchian, 2006) Through the protection of property rights, it stabilizes the investment expectations of investors, standardizes and guarantees the production and operation behaviors of market subjects, and maintains normal market order. Regulatory Environment involves the government's supervision and management of market economic activities, including laws and regulations, government policies and regulatory agencies. Different regulatory policies and institutional designs affect market competition, industry standards, consumer protection, and corporate behavior. Financial Institutions include banking, securities, insurance, etc., which play an important role in the operation of financial markets. The government's policy intervention, Political stability, legal environment and other factors will affect market confidence, investment decisions and the stability of economic activities. Cultural Norms and Social Customs have an impact on the behaviors and decisions of economic subjects, including consumption behaviors, investment decisions, social interactions and other aspects. Behavioral patterns and values in different cultural and social contexts can lead to differences in economic behavior.

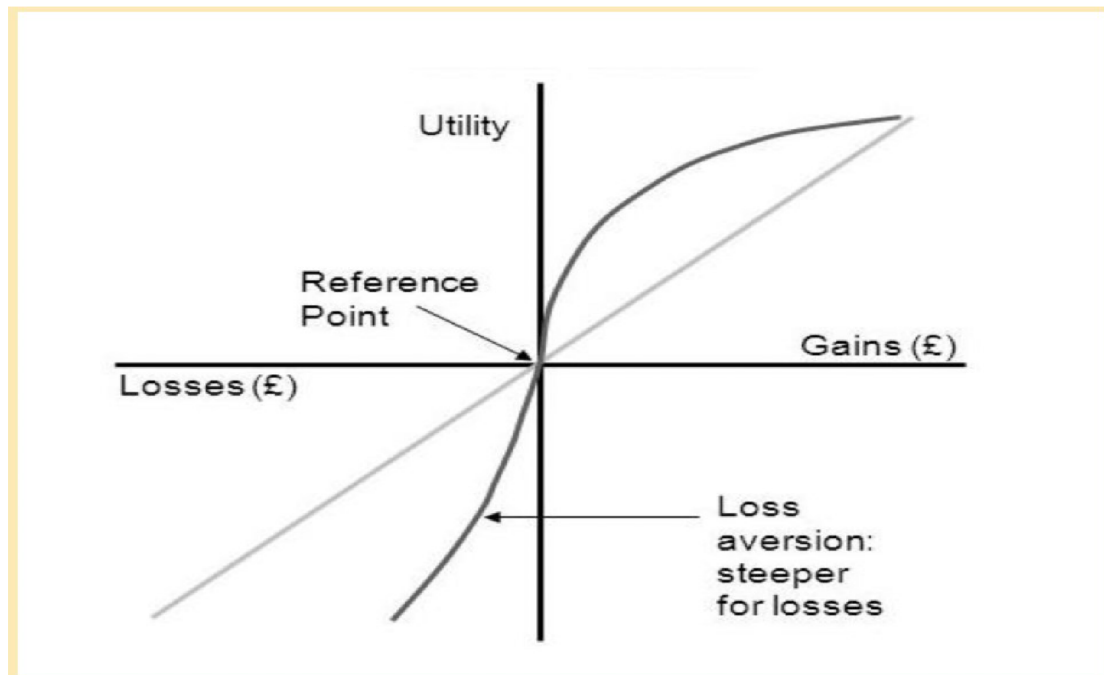
### **3.5. Models**

Behavioral and institutional economics each have their own models to explain economic behavior and the workings of markets. Here are some typical examples of their models:

### 3.5.1. Loss Aversion Model

It refers to how outcomes are interpreted as gains and losses where losses are subject to more sensitivity in people's responses compared to equivalent gains acquired. (Abdellaoui, Bleichrodt and Paraschiv, 2007)

*Figure 1 Loss Aversion Model*



(Source: [https://www.researchgate.net/figure/Cumulative-Prospect-Theory\\_fig1\\_348339300](https://www.researchgate.net/figure/Cumulative-Prospect-Theory_fig1_348339300))

The loss aversion model has three main features:

Value function: a function that describes people's subjective evaluation of gains and losses. Its shape is an S-shaped curve with the loss region on the left and the gain region on the right.

It is characterized by a steeper curve in the loss region than in the gain region near the origin, indicating that people are more sensitive to the same amount of losses than gains.

In addition, it also shows that people evaluate gains and losses relative to a reference point rather than the absolute value, and different reference points will lead to different evaluation results.

Reaction preference: This is a preference that describes people's risk attitude in the face of uncertainty.

- 1) Risk aversion when you may lose money.
- 2) When there is money to be made, take risk. This preference can explain some seemingly irrational decision-making behavior.
- 3) Framing effect

(Kahneman and Tversky, 1979)

### **3.5.2. Anchoring Model**

In 1973, Kahneman and Tversky pointed out that people often put too much weight on salient and memorable evidence in their judgments, and even distort them. For example, when doctors estimate the likelihood that a patient will commit suicide due to extreme disappointment, they are often tempted to think of the chance that a patient will commit suicide. At this point, if a representative economic judgment is made, it may exaggerate the probability that the extremely disappointed patient will commit suicide. (Tversky and Kahneman, 1974)

When making a decision, people are often influenced by the previously provided information (the anchor) as a reference standard, leading to a decision bias towards the value near the anchor. The anchoring effect has an impact on consumers' purchase intention, consumption goal, choice preference, price perception and other aspects. (Ribeiro, Singh and Guestrin, 2018)

### **3.5.3. Transaction Cost Theory**

It was put forward by British economist R.H.Coase in "The Nature of the Firm" in 1937. Coase considers transaction costs as the expenses required to obtain accurate market

information, as well as the costs of negotiation and recurring contracts. Transaction costs consist of information search costs, negotiation costs, contracting costs, monitoring performance costs, and possible costs of dealing with violations. (Coase, 1937)

Williamson analyses the theory in depth. He pointed out that the factors that affect market transaction costs can be divided into two groups: the first group is "transaction factors". In particular, it refers to the uncertainty of the market and the number of potential counterparties and the technical structure of the transaction (refers to the technical characteristics of the traded items, including the degree of asset specificity, transaction frequency, etc.). The second group is "human factors" (bounded rationality and opportunism). He pointed out that the existence of opportunistic behavior, market uncertainty, small number of negotiations and asset specificity will increase the cost of market transactions. (Williamson, 2008)

#### **3.5.4. Path Dependence Model**

Path dependence was first proposed by Paul David, a professor at Stanford University, in his book *Technological Choice, Innovation and Economic Growth*, which means that technological evolution or institutional change in human society has inertia similar to that in physics. The force of inertia will make this choice self-reinforcing and keep you stuck. (Paul Allan David, 1993)

This model highlights the continuing influence of historical factors and existing institutions on economic behavior and resource allocation. Economic subjects need to take the path dependence effect into account when making behavioral decisions, adjust and change the existing decision-making path in time to cope with the changing economic environment and market demand.

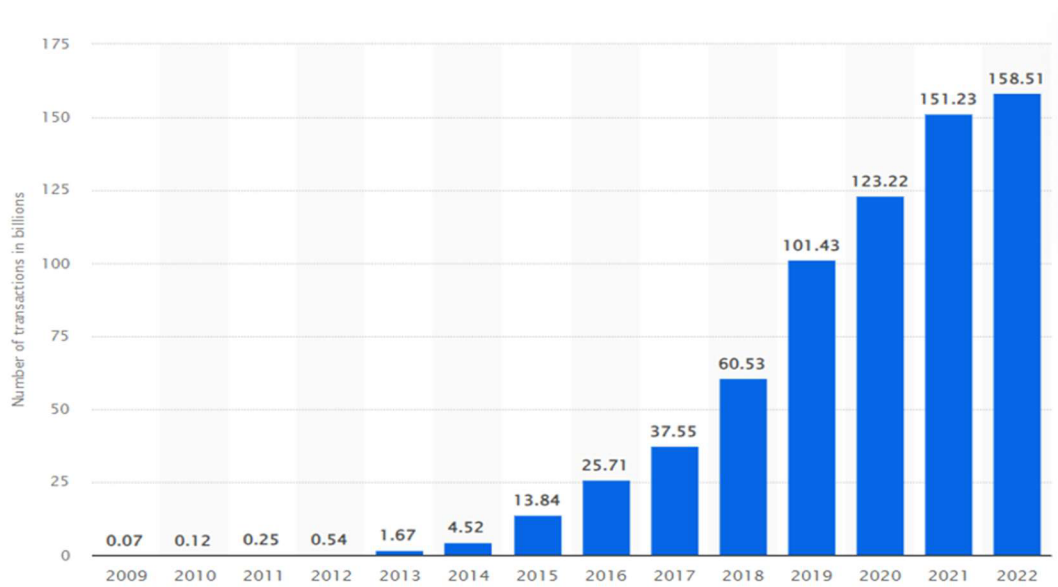
## 4. Practical part

### **4.1. Study of behavioral and institutional aspects of the behavior of economic subjects**

We will take China's electronic payment market as an example, starting with individual users, payment platforms, and regulatory authorities, and delving into the behavioral and institutional aspects of the behavior of economic subjects.

China leads the world in mobile payment penetration. From a global perspective, according to business data platform Statista, China's offline mobile payment penetration rate among smartphone users was 87.3% in 2021, ahead of South Korea (45.6%), the United States (43.2%), India (40.1%), Japan (34.9%) and the United Kingdom (24.4%). In China, data from the Payment and Clearing Association of China show that in terms of frequency of use, the proportion of users using mobile payment every day rose from 33.6% in 2015 to 78.3% in 2021. In terms of usage habits, the proportion of users using mobile payment through bar codes increased from 24.8% in 2015 to 95.7% in 2021, becoming the most commonly used mobile payment method.

Figure 2 Number of mobile payment transactions in China between 2009 and 2022(in billions)

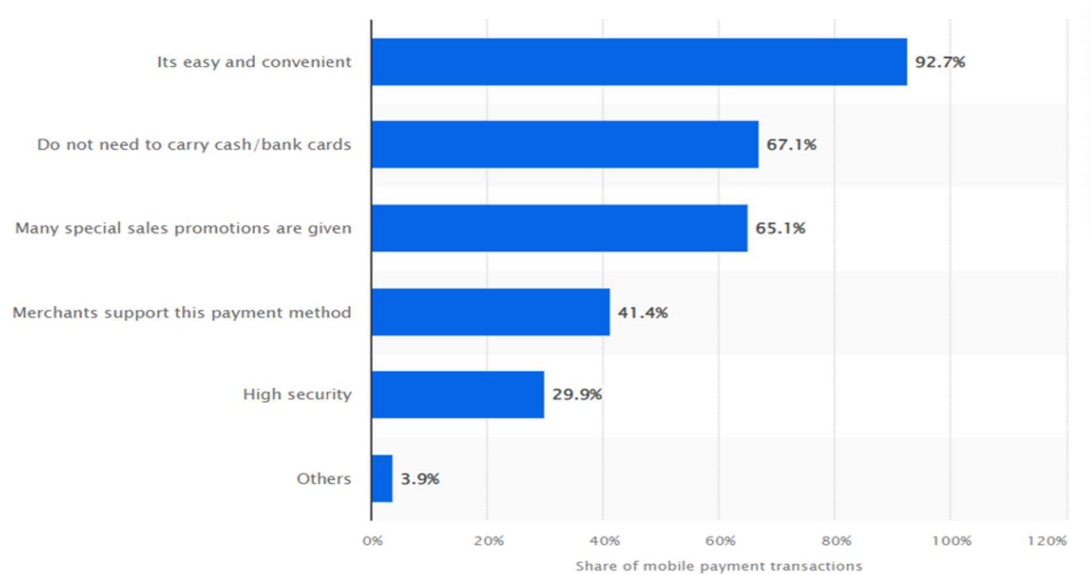


(Source: statista)

From the above chart, we can see that the number of mobile payment transactions in China has grown rapidly in nine years from 167 million yuan in 2013 to 15.851 billion yuan in 2022, and continues to show a growth trend (but at a relatively slow speed).

#### 4.1.1. Analysis of individual user behavior in China's electronic payment market

Figure 3 Leading reasons for using mobile payments in China in 2020



(Source: statista)

Payment convenience is one of the important considerations for individual users when choosing payment methods. E-payment users do not need to carry cash, but only need a mobile phone or other smart device to complete the payment, avoiding the security problems and inconvenience that may be caused by carrying a large amount of cash. Take Alipay as an example, it provides a variety of payment methods, including scanning code payment, payment code payment, mobile bank card payment, etc. Users can choose the most convenient payment method for payment according to the actual situation. Payment can be used in various online and offline scenarios, including shopping, catering, transportation, living expenses and so on. Users can easily use Alipay to complete payments whether they are shopping in malls or riding on public transportation. In addition, the money transaction of Alipay payment is almost



instantaneous, so users do not need to wait for a long clearing and settlement process, and can also avoid going to the bank for physical operation.

Secondly, incentives also have a positive impact on the payment behavior of individual users. For example, Alipay by launching preferential activities such as points exchange and *red envelope rewards*<sup>1</sup>, it attracts users to choose electronic payment and encourage users to increase the frequency and amount of payment. Alipay has acquired a large number of users through payment, and gradually introduced financial instruments such as Yu 'e Bao<sup>2</sup>, Huabei and fund, as well as functions such as campus life, phone card recharge payment and urban services, which have improved users' loyalty.

In addition, payment security is one of the factors that individual users pay the most attention to when choosing payment methods. With the increasing development of network technology, electronic payment is facing more and more security risks, such as account theft, personal information leakage and other problems. Therefore, individual users tend to choose payment methods with high security to ensure the security of their funds and information. For example, in order to improve transaction security, Alipay has adopted a series of comprehensive security policies and measures: 1) Preview and feedback: Let users know the status of the product in time, reduce the panic caused by the lack of information. For payment products, it is necessary not only to provide timely feedback on the operation status, but also to predict what will happen, which can also enhance users' sense of control. When users withdraw money from

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<sup>1</sup> Red envelope reward: Chinese noun for cash back. Here means one of the incentive mechanisms from Alipay.

<sup>2</sup> Yu 'e Bao is a balance value-added service and demand fund management service product under Ant Group, which was launched in June 2013. Yu 'e Bao is characterized by easy operation, low threshold, zero handling fee, and can be used at any time. In addition to the financial management function, Yu 'e Bao can also be directly used for shopping, transfer, payment and repayment and other consumption payments. It is a cash management tool in the mobile Internet era. Yu 'e Bao remains China's largest money fund by users.

Alipay to their bank card, they will receive the prompt information after the expected arrival time and arrival. 2) New function design for payment security: Alipay added three functions called "security lock" in the update in mid-July 2022, namely "night protection, large payment protection and game protection". After the night protection function is turned on, each transaction during the protection period needs to be authenticated again, and the time can be set from 21:00 to 7:00 am the next day. It can proceed to the next step within the time set by the user, curbing the frequency of brush theft from the source. The second is the large payment protection function. After turning on this function, users can set the need to identify relevant identity information when the amount of a single transaction exceeds a certain amount (the minimum is 1000 yuan, the maximum is 10,000 yuan). It can help users know whether it is necessary to transfer each bill to the other side when they transferring money. If it is to transfer money to unfamiliar people or high-risk accounts, frequent reminders may arouse consumers' safety awareness, so as to protect property safety and reduce losses. The last game protection is aimed at minors, most of whom have no economic sources and lack of the right concept of consumption. This function avoids irrational behaviors caused by minors' addiction to game recharge and reduces parents' worries.

However, in the face of different payment methods, individual users may be affected by psychological effects and cognitive biases, resulting in their payment decisions that are not completely rational (this situation is especially obvious when electronic payment is just emerging). For example:

1. Loss aversion affects payment choices: Individual users may have the psychological effect of loss aversion when facing payment choices, that is, the sensitivity to losses exceeds the sensitivity to gains of equal size. Therefore, they are more inclined to choose payment methods with higher security but higher commission fees to avoid potential risks and losses. For example, in the early stage of electronic payment development, individual users may be more willing to choose

bank card payment rather than Alipay or WeChat payment, because they believe that bank card payment is more secure and reliable, and they are willing to accept it even if the commission fee is high.

2. Anchoring effect affects payment choice: When choosing a payment method, individuals may form an "anchor" based on their past experience or the payment method they are exposed to for the first time, leading them to be more inclined to use this payment method, while showing relative resistance or neglect to other payment methods. This condition is relatively common among the older age group. For example, individuals are exposed to the traditional bank card payment method when they are young, and form their familiarity and habits with it, which is regarded as an "anchor" point. When faced with emerging mobile payment methods, because individuals have formed an anchor to bank card payment methods, a psychological inertia may occur, and they are more inclined to continue to use bank card payment, while ignoring the convenience and advantages of mobile payment. This behavior echoes the anchoring phenomenon in the anchoring effect, in which the decisions made by individuals are influenced by existing information or experience.

#### **4.1.2. Behavior analysis of payment platforms (firms)**

As the core participants in the electronic payment market, the behavior of payment platforms is deeply influenced by the principles of behavioral economics, which affects the payment behavior of users and the competition pattern of the market through various strategies and measures.

First of all, payment platforms meet the needs of different user groups through differentiated pricing strategies, regulate the relationship between market supply and demand, and influence users' payment choices and behaviors. In the electronic payment

market, payment platforms often develop different pricing strategies and preferential activities for different user groups. For example, for users who use payment services with high frequency, payment platforms may provide more offers and rewards, such as cash back and points exchange, to increase their payment frequency and amount. For users who use payment services less frequently, more flexible pricing strategies may be adopted to attract them to increase their frequency of use. This differentiated pricing strategy effectively motivates users' payment behavior and improves the revenue and market share of payment platforms.

Secondly, at the regular policy meeting of "Further Optimizing payment Services and Improving Payment Convenience" held by the Information Office of The State Council of China in 2024, Zhang Qingsong, deputy governor of the People's Bank of China, said that in recent years, new problems have arisen in some consumption scenarios and consumer groups. First, the elderly and other groups still prefer cash payment and feel inconvenient. Second, foreigners coming to China are not used to and adapt to the electric payment environment. In view of the low success rate of foreigners using Alipay and WeChat Pay to connect overseas bank cards, the above meeting required Alipay and other software to optimize business processes and improve the efficiency of binding cards. The limit on mobile payments for foreigners will be raised from \$1,000 to \$5,000 for a single transaction and from \$10,000 to \$50,000 for cumulative annual transactions. In response to these requirements, Alipay said it had completed some of the requirements on March 1 and would complete all of them in the near future. At the same time, under the support and guidance of the People's Bank of China and the SAFE, Alipay will promote the implementation of various measures to continuously improve the security and convenience of payment for foreign users in China.

Thirdly, payment platforms have widely used behavioral economics principles in product design and marketing to influence users' payment behavior and consumption decisions. By setting up activities such as shopping festival rewards, flash sales, and

full discount offers, payment platforms create a sense of urgency and impulse to consume, prompting users to accelerate consumption and increase the amount of payment. In addition, by introducing value-added services such as virtual goods and virtual currencies, payment platforms have expanded the consumption scope of users and increased their stickiness and loyalty. Through these behavioral economics methods, payment platforms have successfully guided users' payment behavior and enhanced their consumption intention and payment activity.

However, payment platforms also need to be careful to avoid excessive inducement and abuse of user data when applying behavioral economics principles. Excessive incentive mechanisms and personalized recommendations may lead to excessive consumption and bad debt, and impair users' financial health and sense of social responsibility. For example, personal consumer financial products such as "*Huabei*"<sup>3</sup> and "*Jiebei*"<sup>4</sup> launched by Alipay. These products attract consumers with fast approval, unsecured, high quotas and cash rebates. For consumers, it is easy to fall into the trap of consumer finance and over-indebtedness under the flood of online loans. On July 17, 2020, China Banking and Insurance Regulatory Commission (CBRC) disclosed the Interim Measures for the Administration of Internet Loans of Commercial Banks, pointing out that Internet loans should follow the principles of small amount, short-term, efficient and controllable risks. The credit limit of a personal credit loan for consumption of a single household shall not exceed RMB 200,000 yuan, and the credit term shall not

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<sup>3</sup> Huabei is a scenario-based credit consumption tool launched by Ant Group. Huabei has more than 100 million users, about 50% of whom are in cities below the third tier. When consuming, users can use Huabei's credit limit to enjoy the shopping experience of "consume first, pay later". Huabei's initial application scenarios focused on Taobao and Tmall, and then expanded to parking payment, travel, hospitals, catering, supermarkets, etc.

<sup>4</sup> Jiebei, now known as Credit Dai, is a loan service launched by Alipay. According to the different sesame scores, users can apply for different loan amounts. The maximum repayment term of Jebei is 12 months, and the daily interest rate of the loan is 0.045%

exceed one year if the principal is repaid in a lump sum when due. The company that owns Alipay replied on Dec. 23 that Huabei was recently adjusting the credit limit for some young users and advocating more rational spending habits.

Therefore, payment platforms should give consideration to users' interests and social responsibilities during the design and implementation of incentive mechanisms, ensure the rationality and sustainability of users' payment behaviors, and ensure the healthy and long-term development of the market. As the most important link in the public relations network, social relations are of great significance to the development of firms. The larger the size of the firms, the greater the influence of social relations, firms can benefit from high social reputation, but also can be overturned by strong opposition waves. Payment platforms should pay attention to balancing benefits and responsibilities when applying behavioral economics principles.

#### **4.1.3. Institutional and behavioral analysis of regulatory authorities (governments)**

The role of government in the electronic payment market is very important, and its behavior directly shapes the standardization and development direction of the market.

Firstly, at the beginning of the development of electronic payment in China, the loose policy environment gave this industry a huge space for growth. Since 2011, the government has regarded the rapid expansion of Alipay and WeChat Pay as a kind of "financial innovation", and has shown greater tolerance for financial regulation in terms of policy. In May 2014, the National Development and Reform Commission of China and the People's Bank of China jointly issued the Notice on Organizing and Carrying out the Pilot Work of Mobile E-commerce Fintech Service Innovation, explicitly accelerating the construction of mobile financial infrastructure and launching the pilot

work of mobile e-commerce technology service innovation. In January 2015, the People's Bank of China issued the Guiding Opinions on Promoting the Innovation and Healthy Development of Mobile Finance Technology, which clarified the directional principles and safeguard measures for the innovation and healthy development of mobile finance. It can be seen that supporting the development of the Internet industry has risen to the level of national strategy.

Secondly, the government maintains the normal order and healthy development of the payment market by formulating regulatory policies and regulations. With the rapid expansion of the electronic payment market, the government continues to improve relevant laws and regulations, aiming to regulate the operation behavior of the payment industry and protect the rights and interests of users and data security. For example, the Chinese government officially promulgated the *Regulations on Supervision and Administration of Non-bank Payment Institutions* on December 17, 2023 (The State Council of China, 2023), which will take effect on May 1, 2024. The content consists of 6 chapters and 60 articles, which clarify the definition and establishment license of payment institutions, improve payment business rules, bring the whole chain and cycle supervision of the non-bank payment industry into the track of legalization and standardization, and prevent payment risks. In addition, the government has formulated laws and regulations on data privacy protection, stipulating the collection, use and protection of users' personal information by payment platforms to safeguard users' privacy rights and data security. Secondly, in the *Regulations on the Supervision and Administration of Non-bank Payment Institutions*, (The State Council of China, 2023) the government strictly regulates the entry threshold, reclassifies business types, and standardizes the competition pattern and market order of the payment market. Upgrading the effective system in supervision practice to administrative regulations and further consolidating the legal foundation for the standardized and healthy development of payment institutions is conducive to creating a law-based business environment,

stabilizing the expectations of all parties, stimulating market vitality, protecting the legitimate rights and interests of users, preventing and defusing risks, and promoting the high-quality development of the non-bank payment industry. The Central bank of China also said it would clarify the classification of payment services and the transition between old and new business types, further standardize the licensing and punishment procedures, implement the "checklist" examination and approval, and strictly administrate in accordance with the law.

However, when formulating regulatory policies, the government should also pay attention to balancing the free competition of the market and the innovation and development of enterprises. Excessive regulation may have inhibited innovative activity in the electronic payments industry. Innovative payment companies may face greater difficulties in launching new payment products and services due to regulatory restrictions and cumbersome approval procedures. This may lead to reduced competition within the industry, weaken innovation motivation, and affect the long-term development of the industry. Or it may lead to a higher market entry threshold, which hinders the entry of new entrants and makes the market competition insufficient. This may cause the existing large payment firms to form a monopoly position in the market, which limits the choice of consumers and may lead to price rises or service quality decline. It may also lead to a deterioration of the entrepreneurial environment, affecting the development of new payment companies and start-ups. Entrepreneurs may be deterred by high legal risks and regulatory pressure, leading to a decrease in entrepreneurial activities, which in turn affects the healthy development of the whole industrial chain.

Therefore, when formulating regulatory policies, the government should fully consider the actual situation and development needs of the market, ensure the scientific and effective regulatory policies, and promote the healthy and stable development of the market. Regulation should be appropriately relaxed on the basis of protecting market



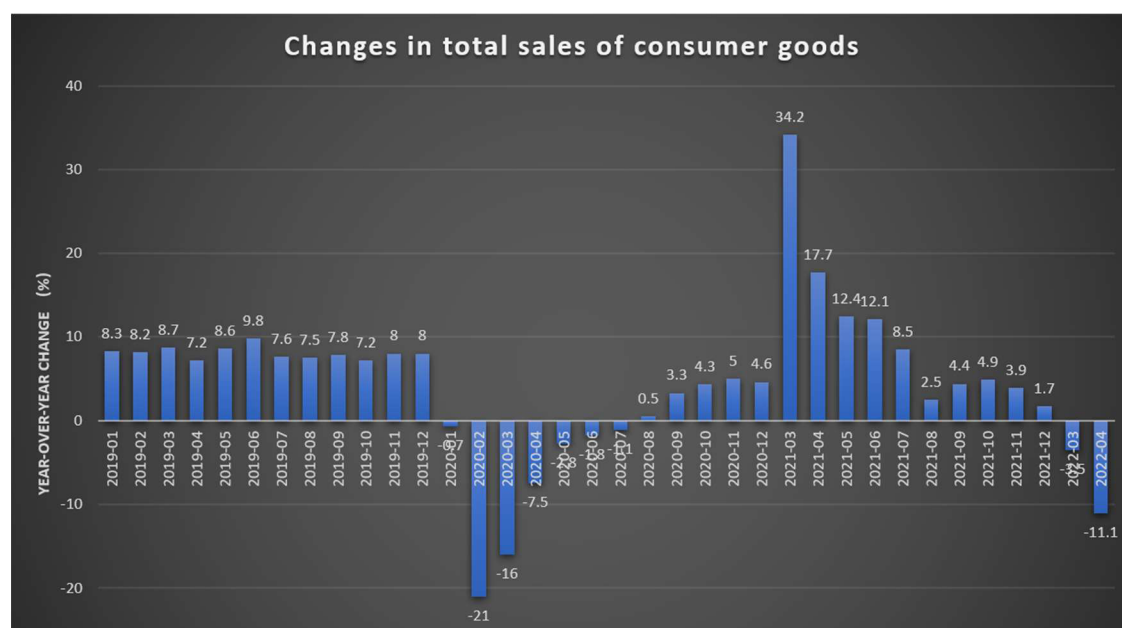
order and consumers' rights and interests to give enterprises more space for development and impetus for innovation.

## 4.2. Analysis of the impact of COVID-19 on the behavior of Chinese economic subjects from the perspective of behavioral economics

### 4.2.1. Risk appetite and consumption behavior:

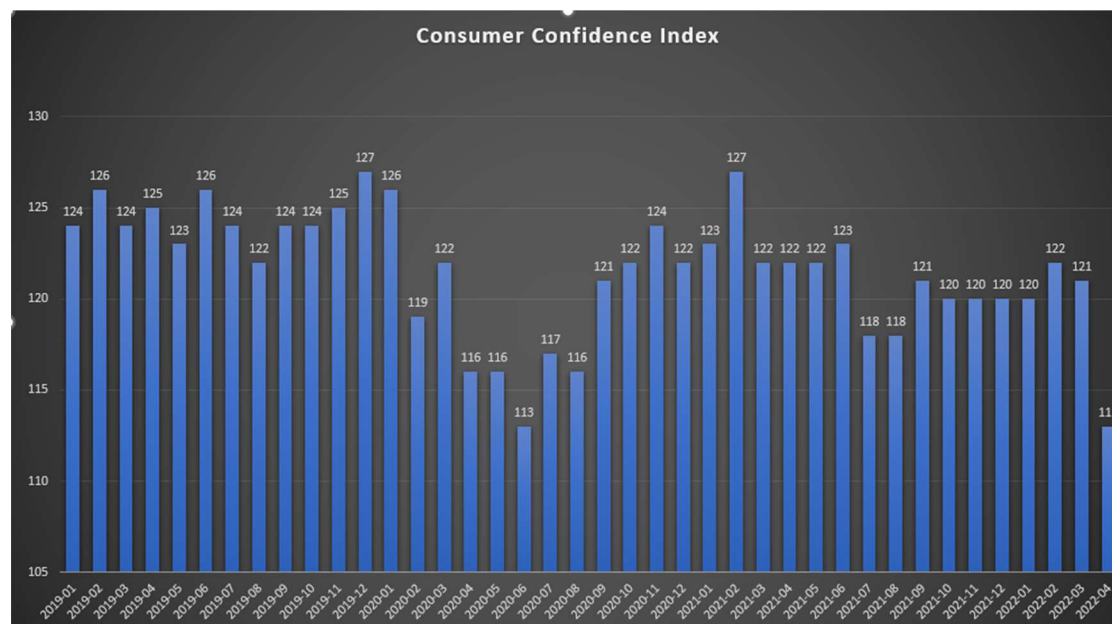
The uncertainty and panic caused by the epidemic have led to an increase in people's risk appetite and a greater tendency to conservative consumption behavior. People reduce unnecessary consumption expenditures, increase savings and investment, and avoid possible risks. According to relevant research, many first-tier Chinese cities consumers need stable cash flow support for mortgages, auto loans and other leverage, but due to investment losses, corporate layoffs, store closures and other factors, nearly 60% of the interviewees said that their income has decreased.

Table 1 Changes in total sales of consumer goods (%)



(Source: Xinhuanet, China Financial Information Network)

Table 2 Consumer Confidence Index



(Source: Xinhuanet, China Financial Information Network)

Based on the above public statistics, the Changes in total sales of consumer goods and confidence index is positively correlated with the impact of the epidemic. After the outbreak of the epidemic in 2020, the total retail sales fell sharply, and the consumer confidence index also began to decline. With the intervention of policy stimulus, for example, since the outbreak of the epidemic, 28 provinces and more than 170 cities in China have coordinated local government and social funds to issue a total of more than 19 billion yuan of consumption vouchers, which has a significant effect on driving people's consumption. Total consumer retail sales began to recover gradually in mid-2020.

Consumer spending on necessities for living security has increased significantly, while spending on non-necessities has been saved. According to relevant data, the consumption expenditure of daily products such as rice, noodles, grain and oil, milk and dairy products, convenient food, fresh food, personal care and cleaning has

increased, and large-size packaging and long shelf life have become purchase choice factors. In addition, the recurrence of the epidemic has also made consumers pay more attention to health, especially their own immunity. E-commerce data show that the consumption of basic nutrients such as fish oil, vitamins and probiotics continues to improve. For non-essential items such as digital electronic devices, large and small household appliances, outdoor entertainment services and tourism and vacations, consumers are not strong in their overall spending willingness.

#### **4.2.2. Emotions influence and investment behavior**

The pandemic can trigger mood swings among investors, affecting their investment decisions. Market volatility and uncertainty during the epidemic may lead to pessimism or panic in investors' sentiment, which in turn affects their buying and selling behavior of stocks, funds and other assets. The investment sentiment and decision-making of investors are highly susceptible to the influence of the external environment, and the "herding effect" is significant. In terms of sentiment, the China Investors Sentiment Index was 44.5 in January 2020, fell to 42.6 in February, and continued to decline to 40.8 in March, showing an overall downward trend. Judging from the average investment sentiment by industry in the first quarter of 2020, the three industries with the best sentiment are food and beverage, leisure services and building materials. At the same time, the pandemic has reduced people's appetite for investment risk. According to the report, 71.7% of respondents said they would be more conservative in their investment and financial management after the epidemic, increasing the allocation proportion of stable assets, while only 10.1% said they would be more aggressive and increasing the allocation proportion of growth assets. In addition, 18.2% of respondents said the epidemic would not affect their allocation decisions.

### 4.2.3. Loss aversion and risk aversion

Governments are affected by loss aversion and risk aversion in the face of the pandemic, which means that they are more inclined to adopt overly conservative and cautious policies to ensure the health of the public and the stability of society. In the early days of the COVID-19 pandemic, China adopted completely different policies from European and American countries to control the spread of the epidemic. In the face of the uncertainties and risks of the epidemic, the Chinese government chose to adopt relatively strict lockdown and restriction measures to avoid the spread of the virus and the spread of the epidemic. These include, for example, strict controls on the **mobility** of people, sealing off an entire area if a COVID-19 infection is found, suspending non-essential business activities, and closing schools and public places to reduce the risk of people gathering and contacting with each other. While such measures may be necessary to contain the virus, they can also have a negative impact on economic activity, leading to business closures, higher unemployment, slower economic growth and other problems. To address these issues, in article 4 of *the Circular of The State Council on Issuing a Package of Policies and Measures to Stabilize the Economy* issued in May 2022 (The State Council of China, 2022) China mentioned that “Government financing guarantee institutions will be encouraged to provide financing guarantee support to qualified small, medium and micro enterprises and individual industrial and 19 commercial households in the transportation, catering, accommodation and tourism industries. Government financing guarantee institutions will timely fulfill their compensation obligations, and financial institutions will be encouraged to lend as soon as possible rather than blindly withdraw, restrict or cut off loans. And the above qualified financing guarantee business will be included in the scope of re-guarantee cooperation of the state financing guarantee fund. We will thoroughly implement the central government's policy of reducing financing guarantee fees for small and micro businesses, and plan to allocate 3 billion yuan to support financing guarantee

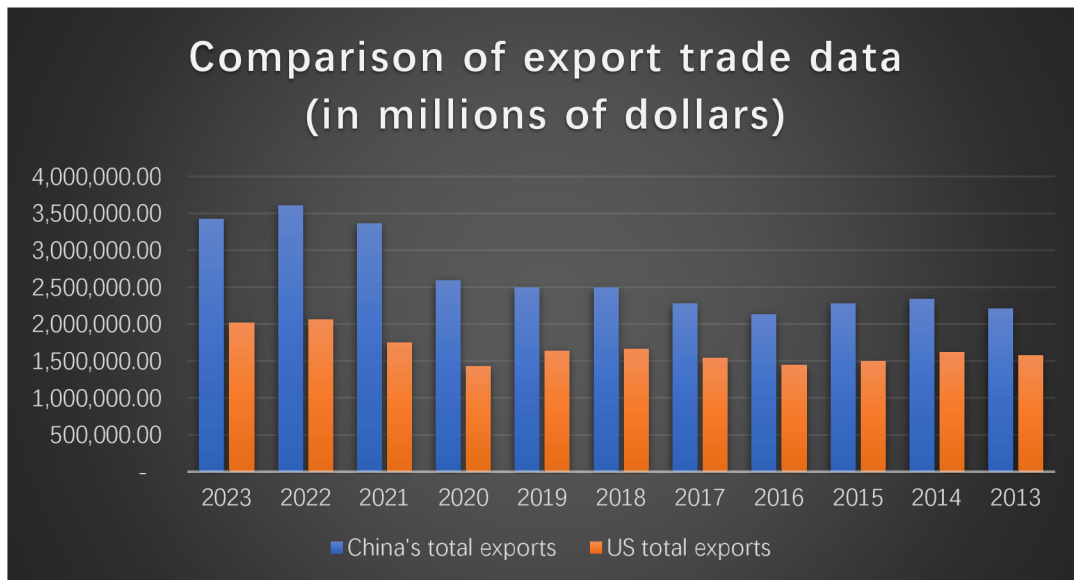
institutions in further expanding the scale of financing guarantee services for small and micro businesses and lowering financing guarantee rates. We will encourage localities where conditions permit to provide phased subsidies to the premiums of guarantee services for small farmers." For enterprises, MSMEs and individual industrial and commercial households can expand and develop more easily after receiving financing support. They can use financing funds to expand production scale, explore new markets, introduce advanced technologies, etc., to enhance enterprise competitiveness and expand market share. In addition, enterprises may increase the scale of production and operation, thus increasing the demand for labor, creating more employment opportunities, driving the improvement of employment rate and promoting economic development.

### **4.3. The Impact of institutional Environment on Import and Export Trade: A Comparative Analysis based on Import and Export Data of China and the United States**

#### **4.3.1. Comparative analysis**

We collected the total import and export value of China and the United States from 2013 to 2023, first we will conduct data comparative analysis.

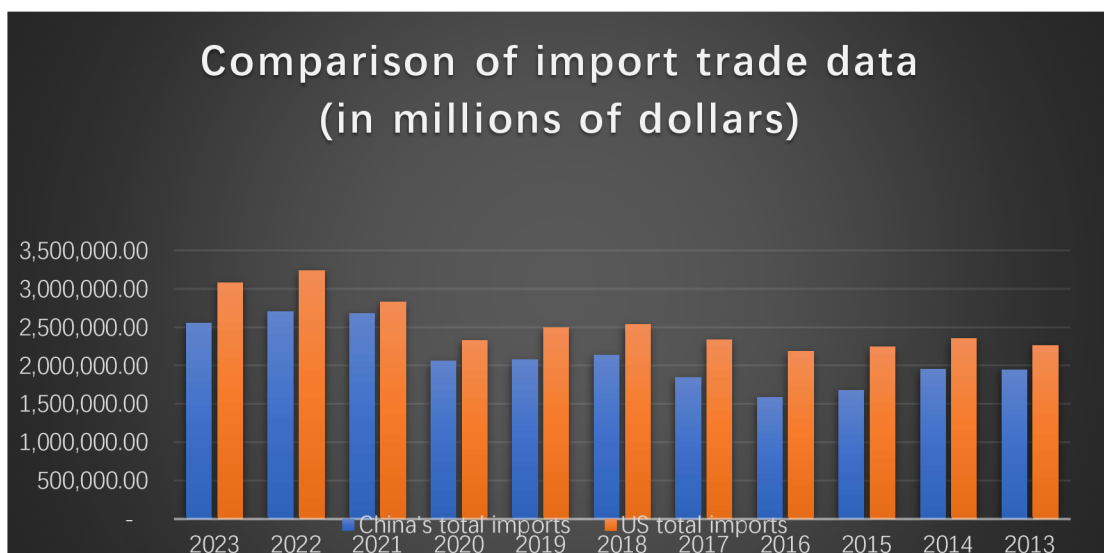
Table 3 Export trade data (US and China)



(Source: [www.ceic.com](http://www.ceic.com))

From the table we can see that from 2013 to 2023, China's total export is greater than that of the United States, the overall trend is growth. But China's exports were flat between 2019 and 2020, possibly because of the pandemic or other factors, while U.S. exports fell in 2020 relative to the previous year.

Table 4 Import trade data (US and China)



(Source: [www.ceic.com](http://www.ceic.com))

In terms of import volume, from 2013 to 2023, the import value of the United States is greater than that of China, and the import volume of the two countries shows a fluctuating trend but an overall growth trend.

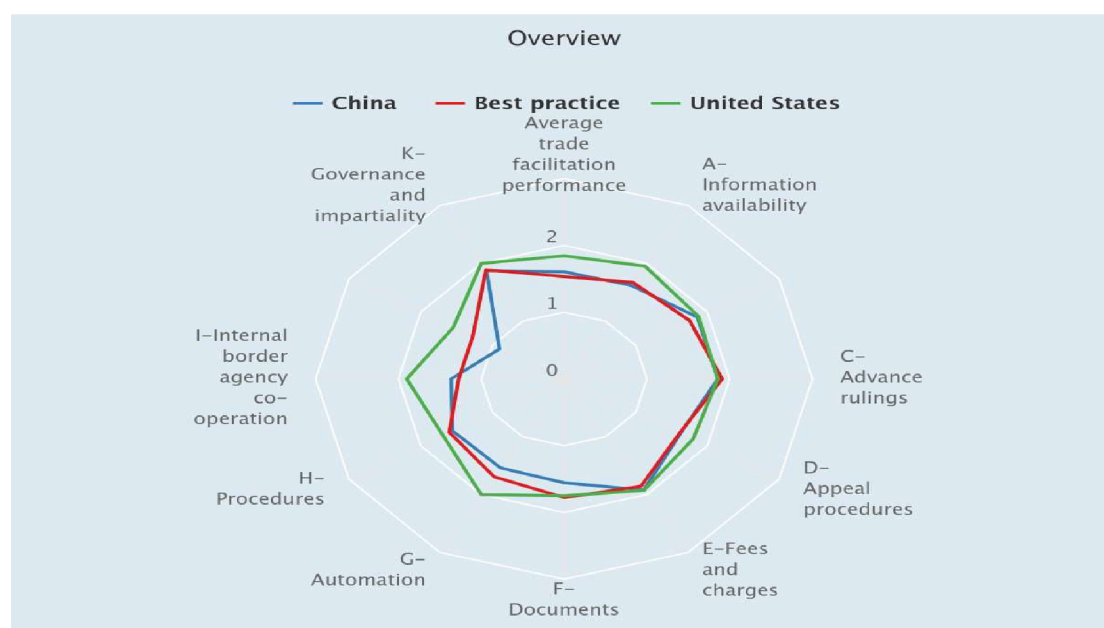
### 4.3.2. Institutional environment

Next, We further analyze the institutional environment of China and the United States, focusing on the differences in tariff levels, trade facilitation indicators and free trade agreements. It is possible to analyze how the institutional environment differs between the two countries by comparing the data of these institutional environment indicators.

Tariff level: Since China's accession to the WTO, the overall tariff level has been declining, and the tariff gap between China and the US has been narrowing, but it is still higher than that of the US. According to WTO data, China's Average tariff (MFN applied) in 2022 is 7.5, while the US only has 3.3.

Trade facilitation indicators:

Figure 4 Trade facilitation indicators



(Source: OECD)

Based on the Trade facilitation indicators of China and the United States given by OECD, we can see that the trade facilitation of the United States is greater than that of China and better than the best practice. China's average trade facilitation performance is 1.606, while that of the United States is 1.845. There is a large gap between China and the United States in indicators such as External border agency co-operation and Automation, and Advance is equal to that of China and the United States. The gap is smaller in indicators such as Fees and charges and Involvement of the trade community.

Free Trade agreements: Regional and bilateral trade agreements are gradually increasing in the world. China has reached 19 free trade agreements and signed these agreements with 26 countries and regions, while the United States has 15 free trade agreements still in force, involving 20 countries and regions. In terms of trade volume with partner countries that have signed agreements, the total trade volume of goods between China and the US and their FTA partners in 2017 was US \$1.55 trillion and US \$1.52 trillion respectively, accounting for 37.8% and 38.4% of the total foreign trade volume of China and the US respectively.

### 4.3.3. Correlation analysis

Thirdly we will pick one of the policy environment indicators which is average tariff rate, and analyze its relationship with the China's value of exports

*Table 5 Total exports and Average tariff data*

Year	Total exports (US \$million)	Average tariff rate
2022	3,604,507.19	7.40
2021	3,368,232.14	7.40
2020	2,597,570.61	7.50
2019	2,498,569.87	7.50
2018	2,501,333.58	7.50
2017	2,280,358.29	9.80
2016	2,136,595.22	9.80
2015	2,282,442.84	9.80
2014	2,343,219.84	9.80
2013	2,210,663.31	9.80



(Source: [www.ceic.com](http://www.ceic.com), [www.zgcznet.com](http://www.zgcznet.com))

We entered the data into SAS for analysis.

Table 5 SAS correlation analysis

Pearson Correlation Coefficients, N = 10	
	<b>Total exports from China (US \$mi)</b>
<b>Average tariff rate in China</b>	-0.71936
<b>Average tariff rate in China</b>	

(Source: SAS Studio)

The Pearson Correlation Coefficients of the two variables are – 0.71936, indicating that the average tariff rate is negatively correlated with China's total export, and the correlation is significant.

In the next step we conduct regression analysis.

Table 6 SAS Regression analysis result

<b>Root MSE</b>	368504	<b>R-Square</b>	0.5175
<b>Dependent Mean</b>	2582349	<b>Adj R-Sq</b>	0.4572
<b>Coeff Var</b>	14.27012		

Parameter Estimates						
Variable	Label	DF	Parameter Estimate	Standard Error	t Value	Pr >  t
<b>Intercept</b>	Intercept	1	5098899	867033	5.88	0.0004
<b>Average tariff rate in China</b>	Average tariff rate in China	1	-291605	99556	-2.93	0.0190

(Source: SAS Studio)

Based on the data derived from SAS-Linear regression, we assume that Y=Total export value and X=Average tariff. The regression equation is obtained:  $Y = 5098899 - 291605X$ .

Among them, the coefficient of the average tariff rate is  $-291,605$ , and the p value is  $0.0190$ , indicating that the tariff rate has a significant impact on China's total export.

R-squared =  $0.5175$ , indicating that the model can explain 51% of the variation of the response variable around its mean. The value of Adj R-Squared is  $0.4572$ , indicating that the fitting effect of the model is still good after considering the adjustment of degrees of freedom.

It is important to note that the regression analysis here assumes a linear relationship between the total export amount from China and the average tariff rate, and the impact of other factors on this relationship is ignored. In reality, there may also be other factors that affect the amount of imports, which are not considered in this simple model.

#### **4.3.4. Conclusion**

Based on the above analysis, policy measures such as lowering tariff level, improving trade facilitation level, expanding the scope of trade agreements, and actively establishing good trade relations with other countries can help promote the growth of trade activities and optimize the trade structure. However, it should be noted that the institutional environment is only one of the influencing factors.

## 5. Conclusion

In this study, we take an in-depth look at two important branches of behavioral and institutional economics and analyze their impact on the behavior of economic subjects.

First of all, behavioral economics reveals irrational behaviors and psychological biases in people's decision-making process, which enriches the traditional economic model and makes it closer to the actual situation. In areas such as personal consumption, business investment, and government policymaking, people's decisions are often influenced by factors such as emotions, biases, and cognitive limitations, rather than simply pursuing rational utility maximization. Therefore, it is crucial to understand the implications of these irrational behaviors for economic policymaking and the operation of markets.

Secondly, institutional economics emphasizes the important impact of institutional arrangements on the behavior of economic subjects. Different institutional environments will affect resource allocation, market efficiency and behavioral choices of economic subjects. Good institutional arrangements help enhance market competitiveness and economic efficiency, and promote economic growth and social stability.

In the practical part, firstly, we take China's electronic payment market as an example, and analyze behavioral and institutional aspects of the behavior of economic subjects from individuals, companies and governments respectively. Firstly, individual users are influenced by factors such as payment convenience, incentives, and payment security when choosing payment methods. With the popularity of mobile payment, the payment behavior of individual users shows an increasingly frequent and diversified trend. Secondly, payment platforms influence users' payment behavior through differentiated pricing strategies, product design and marketing to improve market share and user loyalty. Finally, by formulating relevant policies and regulations, regulators regulate

the operation behavior of the payment industry, protect the rights and interests of users and data security, and promote the healthy development of the industry. However, when formulating regulatory policies, the government needs to balance the relationship between free market competition and enterprise innovation and development, so as to avoid the adverse impact of excessive regulation on industrial innovation and competition. Therefore, on the basis of protecting market order and users' rights and interests, the government should relax regulatory restrictions to provide more space and impetus for enterprise development and innovation, and promote the healthy and stable development of the industry.

From the perspective of behavioral economics, this thesis analyzes the impact of COVID-19 on the behavior of Chinese economic subjects, mainly including risk preference and consumption behavior, emotional impact and investment behavior, loss aversion and risk aversion. Firstly, the uncertainty and panic brought about by the pandemic led to an increase in people's risk appetite and a more conservative consumption behavior. People reduce unnecessary consumption expenditures, increase savings and investment, and avoid possible risks. In addition, the resurgence of the epidemic has made consumers more concerned about their health, especially their own immunity. As a result, consumption expenditures on necessities have increased, while expenditures on non-necessities have been saved. Second, the pandemic may trigger fluctuations in investors' sentiment and affect their investment decisions. Volatility and uncertainty in the market may lead to pessimism or panic in investors' mood, thus affecting their buying and selling behavior of stocks, funds and other assets. The epidemic has reduced people's preference for investment risk, more inclined to conservative investment and financial management, and increased the allocation proportion of stable assets. Finally, the government, affected by loss aversion and risk aversion in the face of the pandemic, tends to adopt overly conservative and cautious policy measures to ensure public health and social stability. This impact is reflected in

the government adopting strict lockdowns and restrictions to avoid the spread of the virus and the spread of the epidemic, even if this may cause some loss to the economy. In order to solve these problems, the government has issued a series of supportive policies to encourage financial institutions to provide financing support to qualified Msmes and individual industrial and commercial households, so as to promote the development of economic entities and economic stability.

Through the last analysis, policy measures such as lowering tariff level, improving trade facilitation level, expanding the scope of trade agreements, and actively establishing good trade relations with other countries can help promote the growth of trade activities and optimize the trade structure. However, it should be noted that the institutional environment is only one of the influencing factors.

In summary, the research in this thesis is important for the understanding of the behavior of economic subjects. Through the analysis of behavioral economics and institutional economics, we can more comprehensively grasp the characteristics of economic subjects such as individuals, firms and governments in decision-making and behavior, which provides theoretical basis and practical guidance for the formulation of more effective economic policies.

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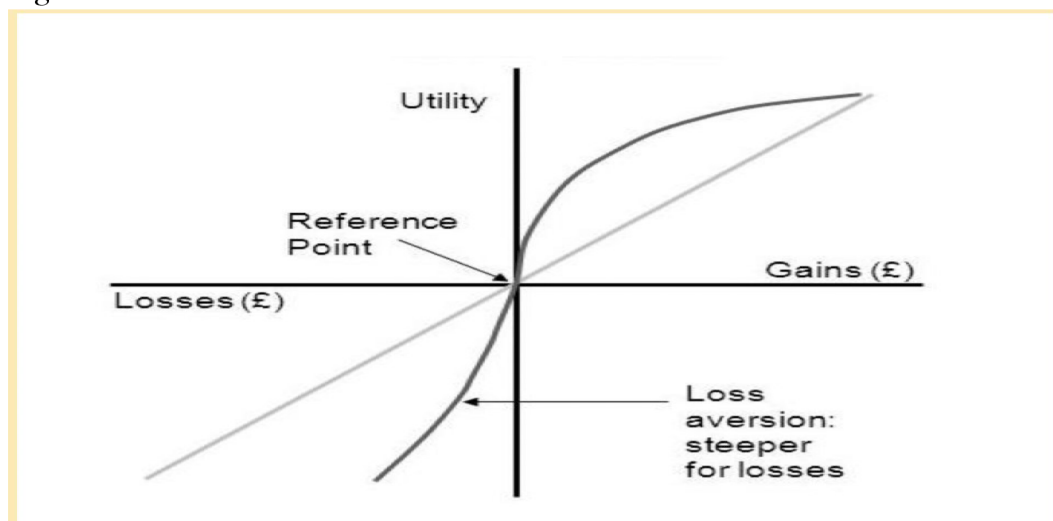
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## List of Figures

*Figure 1 Loss Aversion Model*

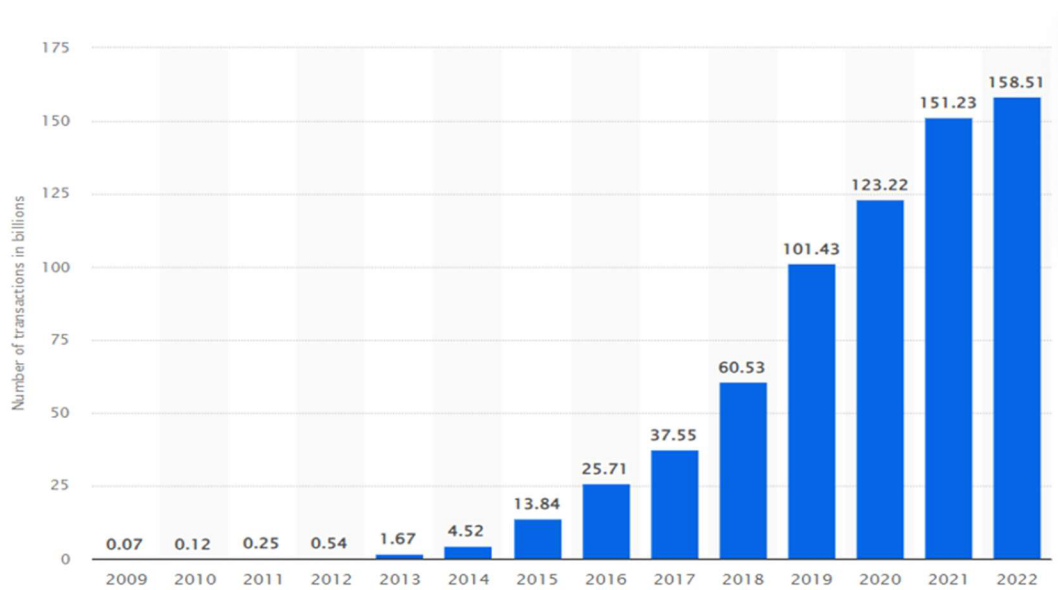




(Source: [https://www.researchgate.net/figure/Cumulative-Prospect-Theory\\_fig1\\_348339300](https://www.researchgate.net/figure/Cumulative-Prospect-Theory_fig1_348339300))

This figure shows Loss Aversion Model, it refers to how outcomes are interpreted as gains and losses where losses are subject to more sensitivity in people's responses compared to equivalent gains acquired. (Abdellaoui, Bleichrodt and Paraschiv, 2007). On the horizontal axis shows losses/gains, and on the vertical axis shows utility.

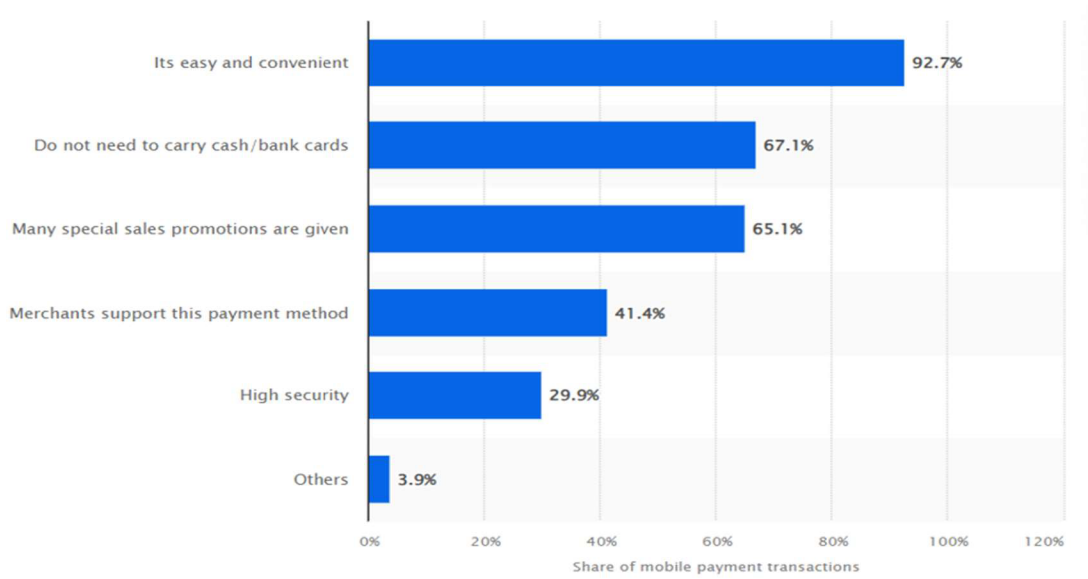
Figure 2 Number of mobile payment transactions in China between 2009 and 2022(in billions)



(Source: statista)

From figure 2, we can see that the number of mobile payment transactions in China has grown rapidly in nine years from 167 million yuan in 2013 to 15.851 billion yuan in 2022, and continues to show a growth trend (but at a relatively slow speed). Available at: <https://www.statista.com/statistics/244538/number-of-mobile-payment-transactions-in-china/>

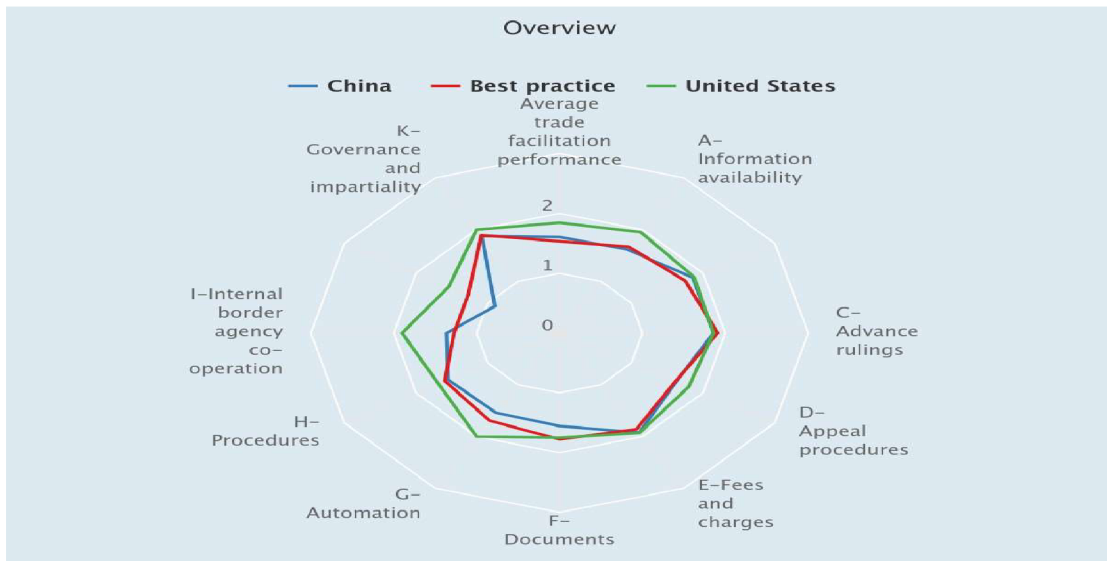
Figure 3 Leading reasons for using mobile payments in China in 2020



(Source: statista)

From figure 3 we can see the top one reason for using mobile payments in China in 2020 is convenience, following reasons are promotions, security. Available at : <https://www.statista.com/statistics/1244229/china-top-reasons-for-using-mobile-payments/>

Figure 7 Trade facilitation indicators

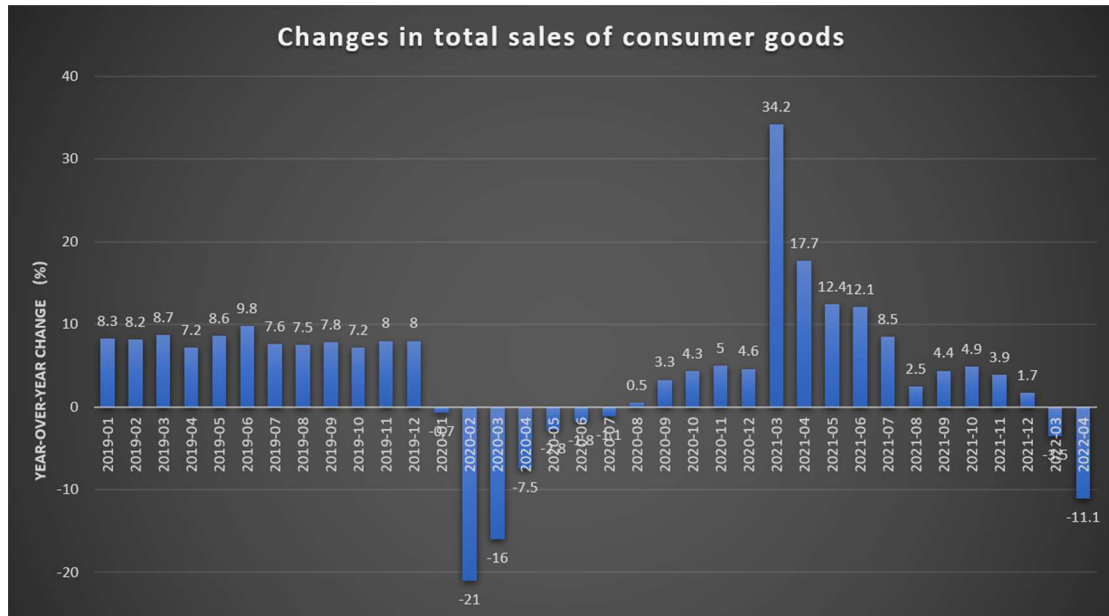


*(Source: OECD)*

This figure shows trade facilitation indicators for China and the United State, Source from OECD.

## List of Tables

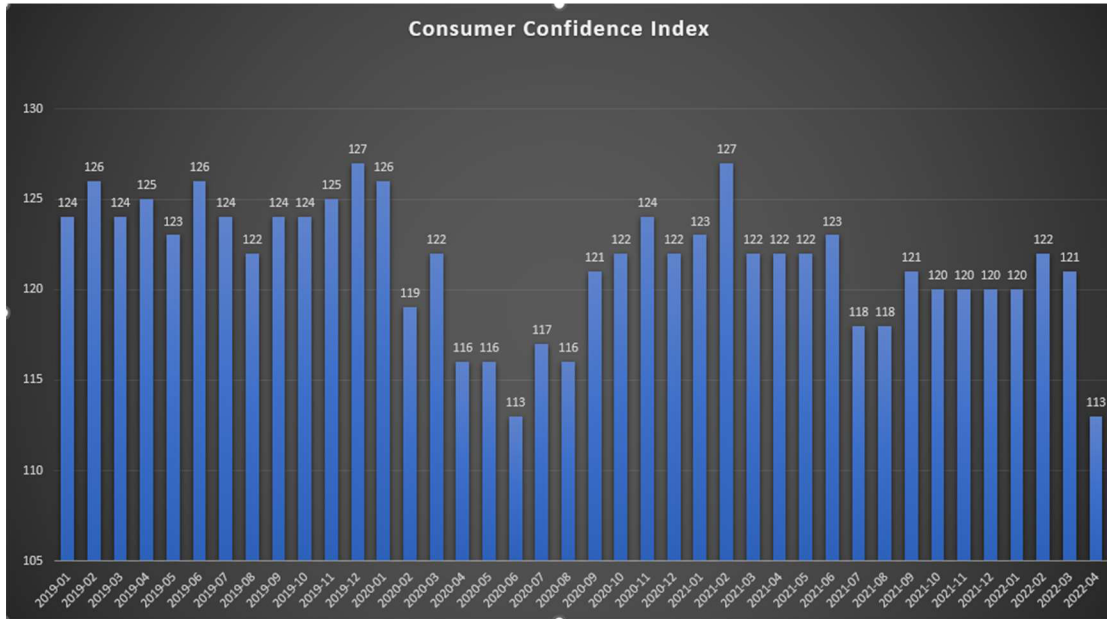
Table 6 Changes in total sales of consumer goods(%)



(Source: Xinhuanet, China Financial Information Network)

The table is made by the author. The data source is Xinhuanet, China Financial Information Network. The chart shows the Changes in total sales of consumer goods(%) from January 2019 to April 2022.

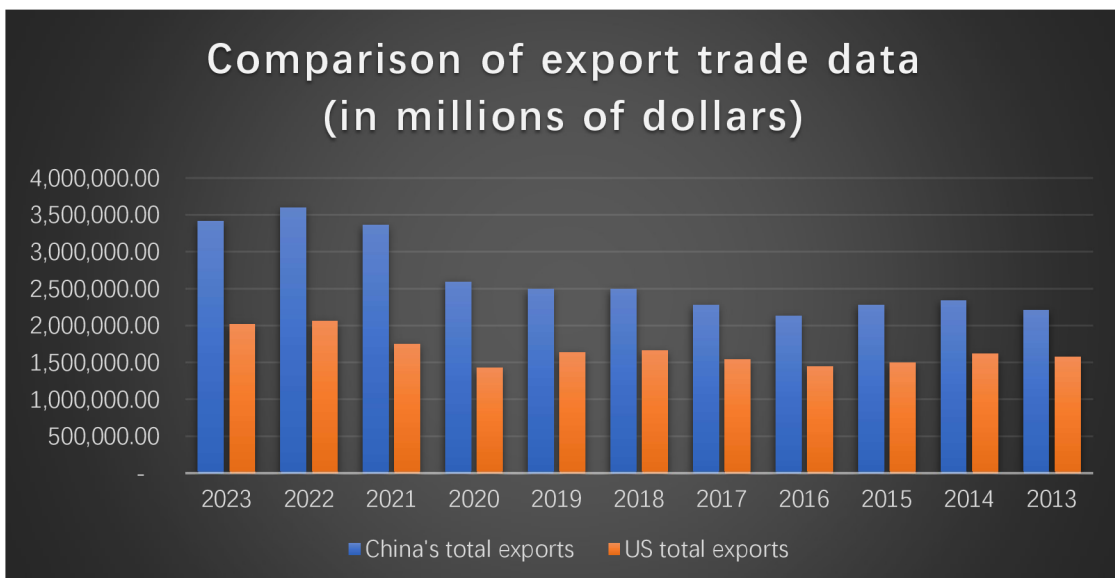
Table 7 Consumer Confidence Index



(Source: Xinhuanet, China Financial Information Network)

The table is made by the author. The data source is Xinhuanet, China Financial Information Network. The chart shows the Consumer Confidence Index from January 2019 to April 2022.

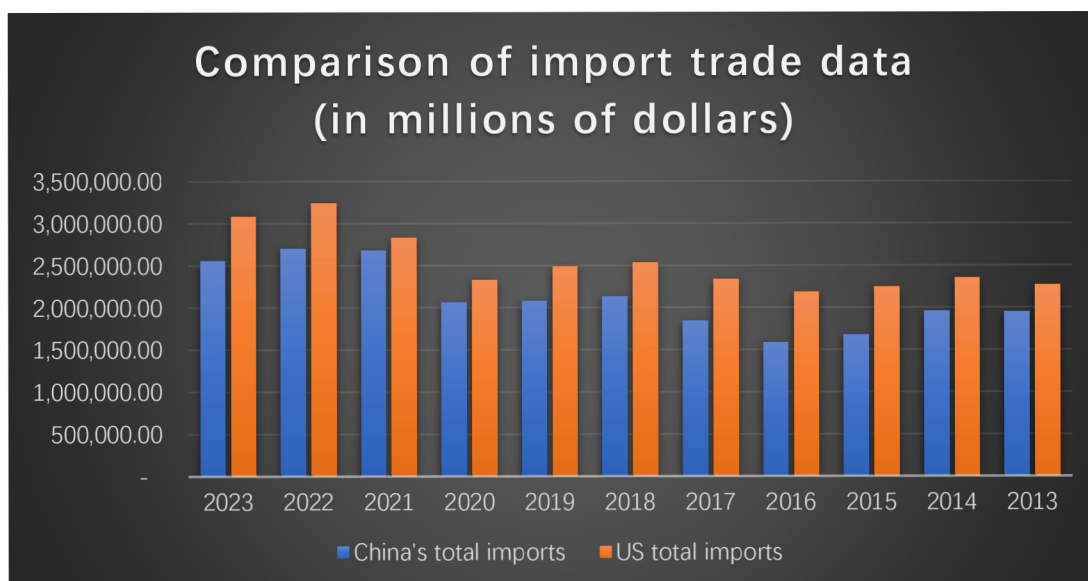
Table 8 Export trade data (US and China)



(Source: [www.ceic.com](http://www.ceic.com))

The table is made by the author. The chart shows export trade value of China and U.S.

Table 9 Import trade data (US and China)



(Source: [www.ceic.com](http://www.ceic.com))

The table is made by the author. The chart shows import trade value of China and U.S.

Table 10 Total exports and Average tariff data

Year	Total exports (US \$million)	Average tariff rate
2022	3,604,507.19	7.40
2021	3,368,232.14	7.40
2020	2,597,570.61	7.50
2019	2,498,569.87	7.50
2018	2,501,333.58	7.50
2017	2,280,358.29	9.80
2016	2,136,595.22	9.80
2015	2,282,442.84	9.80
2014	2,343,219.84	9.80
2013	2,210,663.31	9.80

(Source: [www.ceic.com](http://www.ceic.com), [www.zgcznet.com](http://www.zgcznet.com))

The table is made by the author. The chart shows total exports and average tariff for China.

Table 8 SAS correlation analysis

Pearson Correlation Coefficients, N = 10	
	Total exports from China (US \$mi)
Average tariff rate in China	-0.71936
Average tariff rate in China	

(Source: SAS Studio)

The table is made by the author. By entering the data in Table 5, using SAS studio-correlation analysis so got pearson correlation coefficient=-7.1836. Which means there is a strong negative correlation in between of Total experts from China and Average tariff rate.

Table 9 SAS Regression analysis result

Root MSE	368504	R-Square	0.5175
Dependent Mean	2582349	Adj R-Sq	0.4572
Coeff Var	14.27012		

Parameter Estimates						
Variable	Label	DF	Parameter Estimate	Standard Error	t Value	Pr >  t
Intercept	Intercept	1	5098899	867033	5.88	0.0004
Average tariff rate in China	Average tariff rate in China	1	-291605	99556	-2.93	0.0190

(Source: SAS Studio)



The table is made by the author. By entering the data in Table 5, using SAS studio-Linear regression so got the result. Assume  $Y$ =Total export value and  $X$ =Average tariff. The regression equation is obtained:  $Y= 5098899-291605X$ .