

# Consumption Decision Making Changes After COVID-19 Outbreak Among Youths in China: COVID-19 Impact on Consumer Behavior Change Survey

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**Abstract.** The outbreak of COVID-19 in 2020 is an unprecedented catastrophe for all humanity. It has been two years and nine months since the first confirmed case of novel coronavirus infection in the world. The sudden outbreak has had a profound impact on the world's economy, culture and social life. The theme of this study is to investigate the impact of the COVID-19 pandemic on consumer behavior changes. The main objective of this paper is to analyze the consumption decision making changes in consumer behavior, and the research objects are young people aged 18 to 24 years old (20 to 26 years old) in the four largest cities (Beijing, Shanghai, Shenzhen and Guangzhou) of China. There are significant changes in consumption decision making among youth at different levels of the spending budget. This finding would provide behavior economists and policy makers solid evidence on the changes of consumption making of youths after the outbreak of Covid-19 and therefore help the design of future interventions to consumer behavior after epidemics/disasters.

## 1. Introduction

Consumption helps determine the growth and success of the economy. Keynesian theory states that if consuming goods and services does not increase the demand for such goods and services, it leads to a fall in production. A decrease in production means businesses will lay off workers, resulting in unemployment. Consumption has long been considered a huge engine of economic growth, given its decisive role in determining income and output.

Consumption decisions are the result of consumer behavior, which varies by geography and individual factors. Specifically, the cultural background of different countries, different age groups, different family background and education level will have an impact on consumer behavior. Young Chinese, for example, tend to save more and spend more cautiously than their American counterparts. 61% of young youth save 22% of their annual income, compared to American youth savings of just 7.5%. [1] Ages also play an important role in consumption behavior. The Federal Interagency Forum on Child and Family Statistics describes young adults as individuals aged 18-24 years old. According to the State Adolescent Health Resource Center, 18-24 years old is a time of life when very little is normative. It is a period of frequent change and exploration that covers many aspects of their life: home, family, work, school, resources, and role. [2]

Consumption decisions are not only influenced by consumers themselves, but also closely related to the environment. The outbreak of the global influenza pandemic in 2020 had an impact on the economy, culture and society of countries around the world. The hardest hit is the youth. Since outset of the pandemic more than 70 percent of youth who study or combine study with work have been adversely affected by the closing of schools, universities and training centers, according to an analysis by the International Labour Organization (ILO).[3] This is especially true in China.

China has been implementing strict zero-control policies since the outbreak of COVID-19 in 2020. Both college students in school and young graduates who need to find a job in these three years have

been affected by the pandemic and the policy. This policy affected medical and health concerns, also led to changes in the economic and social fields. In this paper, it's presented that consumption decision making changes after the Covid-19 outbreak during 2020 to 2022 among Chinese youth aged 18-24 years old.

## 2. THEORETICAL FRAMEWORK

Consumer behavior analysis is an interdisciplinary subject of psychology, economics and sociology. In essence, it is the psychological and behavioral effects of the biological nervous system on the economy and society.

The general pattern of human behavior is the S-O-R pattern, the "stimulus -- individual physical, mental – response, and it bases on the stimulus-response coordination function of nervous systems. When considering the S-O-R pattern of organism indicates that a consumer's purchase behavior is triggered by stimuli that come from both physical and mental factors within the consumer's body and the external environment. [4]

Kotler Philip proposed a simple model that emphasizes the consumption behavior of both sides of society. [5] This model shows that consumers' response to purchase behavior is not only influenced by marketing, but also by external factors. Consumers with different characteristics will have different psychological activities. Through the decision-making process of consumers, it leads to certain purchase decisions, and finally forms the choices of consumers on products, brands, dealers, purchase timing and purchase quantity.

Nicosia put forward this decision-making model in 1966 in the book "Consumer Decision-making Procedure". [6] The model consists of four parts: first, from information source to consumer attitude, including the attitudes of enterprises and consumers; second, consumers investigate and evaluate commodities and form the output of purchasing motivation; third, consumers take effective decision-making behavior; fourth, the results of consumers' purchasing actions are memorized and stored by their brains for future reference or feedback to enterprises.

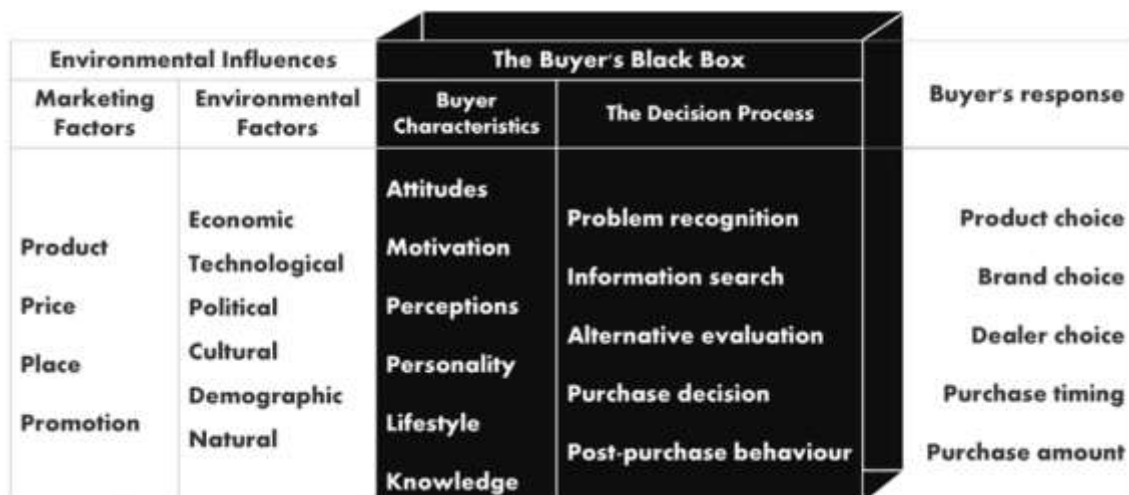
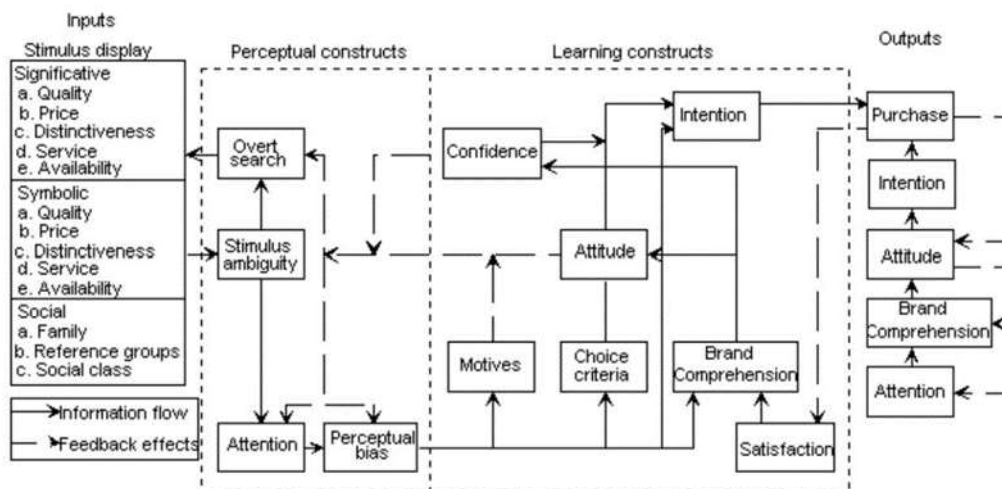


Fig.1 Nicosia Consumer Decision Process [7]

The Engel, Kollat and Blackwell model describes consumers' decision process and how decisions are made when choosing among a list of alternatives available. The model builds on the field of





**Fig.3** Howard Sheth Model [12]

The main purpose of the study in this paper is to examine differences in consumption behavior before COVID-19 lockdown was implemented (January 2020, also referred to as before Covid-19) and August 2022 (two and a half years after first report of Covid-19), as well as the variation in consumption behavior changes among different educational levels, on the basis of a countrywide convenience sample of 2601 Chinese youths. Howard Sheth Model is used to establish four evaluation dimensions of changes in consumption decision makings.

### 3. METHODS

The questionnaire is aimed to find out whether the epidemic, a disaster never experienced by human beings, has influenced purchasing decisions. This research is particularly relevant in China, where there is still a lockdown under strict zero tolerance policy. Different from some one-time disaster, such as an earthquake or a fire, the epidemic and its according policy will have lasting effects on social, cultural, political and economic fields. As one of the important stages of consumer behavior, whether consumption decision making changes or not is worth studying.

#### 3.1 Data

To adopt a stratified random sampling strategy, the online questionnaires via social media platforms were distributed in August 2022 among 20-26 years old youths at four educational stages (i.e., below high, high school, college, undergraduate above students) in Beijing, Shanghai, Guangzhou and Shenzhen, the largest four cities in China.

3,000 individuals totally filled in and submitted the questionnaire anonymously, of which 399 invalid questionnaires were removed. All subjects voluntarily participated in this study with informed consent.

#### 3.2 Measurement of Consumer Decision

According to Howard Sheth Model, consumer decision making is affected by input variables, perceptual and learning constructs, output, and exogenous variables.

The input variable is the stimulus from the consumer's environment, including product variables-physical brand characteristics (meaningful stimuli) and verbal or visual product characteristics (symbolic stimuli)-such as quality, price, uniqueness, availability and service, and the symbolic meaning of these variables. In addition, the social environment is also an important input, including family, reference group, and social class.

Perceptual and learning constructs: the variables are motives, brand comprehension, choice criteria, attitude, intention, confidence and satisfaction.

The purchase decision is considered as Output. The variables under output are: attention, brand comprehension, intention and purchase. Output variables are the possible responses to input stimuli mediated by individual internal influences. After using the product, if the consumer is satisfied, it will enhance his positive attitude and improve his brand understanding. If consumers are dissatisfied with the product, it will lead to a negative attitude, low attention to product stimulus, poor brand comprehension and decreased willingness to buy. [13]

Exogenous Variables include: the purchase value of the buyer, the personality characteristics of the consumer, the members of the social group, the financial status of the consumer, and the pressure of time. [14] Whether people are under emotional and time pressure over the impact on their jobs and earnings from the possible continuation of the COVID-1 will be reflected by exogenous variables.

The measurements of the four dimensions of decision making above were applied into analysis of youth consumption decision making changes two and a half years after the first report of Covid-19 in China. According to characteristics of the consumption behavior analysis of the 20-26 years old youth, we tailored the 12 questions in four dimensions (Table 2). Each answer to the question ranges from 1 (strongly disagree) to 5 (strongly agree), with a higher score indicating a greater impact of the factor on consumption decision making.

### **3.3 Statistical Analysis**

Descriptive statistics were used for the participants' demographic characteristics and consumer decision, with mean and standard deviation for continuous variables, and percentages for categorical variables.

Differences in demographic characteristics, the changes of consumer decision before and after the lockdown, and the frequency differences at the individual level among 20-26 years old youths of different educational levels were compared based on t tests/ANOVA for continuous variables, or chi-square tests for categorical variables.

R 4.2.1 was used to perform all the statistical analyses. Statistical significance was declared if a two-sided  $p < 0.05$ .

## **4. RESULTS**

Of the 2601 participants in the study, 618 participants have a below RMB 1000 budget of consumption each month, 644 participants have a monthly budget of consumption between RMB 1000 and 2000, and there are 673 participants choose their budget to be above 2000 but below 3000. There was an option of more than 3000 yuan in the questionnaire, but no one chose it, so it was not reflected here. The participants aged from 20 to 26 years old, with the average age of 22.8 years old. This study focuses on the changes in consumption attitudes of young people aged 18 to 24 since 2020, so the age range of the respondents in this questionnaire is 20 to 26.

Among the 3284 questionnaires collected, the number of valid questionnaires was 2601 after excluding those below 20 years old and those above 26 years old. 63.3% of participants are female and 36.7% are male. Most of the participants are of Han ethnicity (70.9%), and 29.1% is of minority ethnicity. The participants are from four cities, which four are the highest GDP in China: 29.2% (Beijing), 25.7% (Shanghai), 22.3% (Guangzhou) and 22.8% (Shenzhen) respectively. The percentage of participants who is undergraduate or above (40.1%) and college (40.4%) is similar, and the participants who hold high school or below accounts of 19.5% of the total.

**Table 1.** baseline characteristics of the participating youths in Covid-19 Impacts of Consumption Decision Making Changes Survey

Variable	Mean (SD) or Percentage (%)					P-Value
	All N=2601	BOC <1000 N= 618	BOC [1000,2000) N=644	BOC [2000,3000) N= 673	BOC [3000,4000) N=666	
<b>Age</b>	22.8	23.1 (2.0)	22.8 (1.9)	22.9 (1.9)	22.8 (1.9)	<0.00001
<b>Gender</b>						<0.00001
Male	36.7	31	34.2	36	35.3	
Female	63.3	69	65.8	64	64.7	
<b>Ethnicity</b>						<0.00001
Han	70.9	70.9	73.6	68.6	71.1	
Minority	29.1	29.1	26.4	31.4	28.9	
<b>City</b>						<0.00001
Beijing	29.2	29.5	29.7	29.9	28.7	
Shanghai	25.7	29.1	25.6	23.8	24.4	
Guangzhou	22.3	20.7	23.4	22.1	23	
Shenzhen	22.8	21.7	21.3	24.2	23.9	
<b>Education</b>						<0.00001
Undergraduate and above	40.1	40.3	40.7	39.1	40.4	
College	40.4	41.4	39.3	41	40	
High School	10	7.9	11.3	10.4	10.1	
Under High School	9.5	10.4	8.7	9.5	9.5	

The score of all four parts showed significant differences (all  $p < 0.0001$ ) among four levels of monthly budget of consumption both before and after Covid-19. Overall, in each of these four parts, the consumer's decision has changed very much.

**Table 2.** The percentages of the participants Chinese youths who (strongly) agreed each survey question of social capital before Covid-19 and two and a half years after the first report of novel coronavirus infection in the world about Impacts on Consumption Decision Making Changes Survey

Variables		All N=2601	BOC <1000 N= 618	BOC [1000,2000) N=644	BOC [2000,3000) N= 673	BOC [3000,4000) N=666
<b>INPUT</b>						
<b>Q1</b>	My consumption decision was affected by my friends' opinions or preferences.					
	Before	69.3	69.6	70.7	67.0	69.9
	After	19.2	18.1	17.4	19.3	21.9
<b>Q2</b>	Advertisements, instead of real need, make me buy.					
	Before	70.4	68.6	71.1	72.5	69.2
	After	20.1	21.5	20.5	20.1	18.3
<b>Q3</b>	I accepted higher than average prices for good quality goods					
	Before	70.3	69.4	67.9	71.2	72.5
	After	19.0	19.3	19.9	17.8	18.9
<b>Q4</b>	I didn't compare prices before I decide to buy and complete the payment.					
	Before	91.9	81.9	82.5	79.8	83.3
	After	28.0	22.7	28.4	29.6	30.0
<b>PERCEPTUAL AND LEARNING CONSTUCTS</b>						
<b>Q5</b>	I made my consumption based on what I see on social media (videos or live streams).					
	Before	69.9	69.4	70.8	70.4	68.8
	After	19.0	18.8	16.9	21.4	18.8
<b>Q6</b>	I seldom keep a tight rein on how much I spend each month.					
	Before	82.9	89.7	80.9	81.0	80.5
	After	29.8	29.3	30.3	31.9	27.6
<b>Q7</b>	Brand is very important to me, I choose the brand I like first when I buy something.					
	Before	71.4	70.9	71.4	72.8	70.4
	After	22.2	24.0	21.9	19.9	23.1
<b>OUTPUT</b>						
<b>Q8</b>	I buy used goods.					
	Before	69.2	68.9	67.5	68.9	71.3
	After	18.4	16.7	20.5	17.1	19.4
<b>Q9</b>	I buy new clothes (or shoes) at least once a month.					
	Before	67.7	68.6	67.7	70.1	64.6
	After	21.5	20.1	20.2	23.3	22.3

**EXOGENOUS VARIABLES**

**Q10** I've had spending decisions that pay for emotions.

Before	70.3	72.7	70.7	67.3	70.7
After	19.3	19.9	17.1	20.1	20.1

**Q11** The amount of money I can spend on shopping is not enough to satisfy my desire to spend. (If I had money, I would buy more).

Before	69.7	71.4	67.0	71.3	69.1
After	20.0	21.8	19.9	21.5	17.1

**Q12** I have impulse purchases.

Before	71.1	68.8	70.2	73.1	71.9
After	20.0	20.9	19.4	18.4	21.2

## 5. DISCUSSION

This retrospective study provided a picture of changed consumption decision making among youths of 18-24 years old before Covid-19 and two and a half years after the first report of Covid-19.

Significant changes are founded in consumption decision making of all the levels of budget of consumption. In particular, people with different consumption budget levels were affected by different evaluation indicators in the two years before and after the pandemic. Consumers with a monthly consumption budget of less than RMB 1000 yuan have a larger change in purchasing results than consumers with other budget ranges. However, their perceptual and learning constructs play the least role in their decision-making changes, compared with that of other three different consumption budget consumers.

Among the four sets of variables of Howard Sheth model, the consumers' output variables are affected most, then is the exogenous variables. The product variables and verbal or visual product characteristics such as quality, price, uniqueness, availability and service, play less role in the consumption decision making changes.

Two main observations may explain the changes in consumption decision making among 18-24 years old youths. The consumption decisions of youth have been most directly affected by concerns about uncertainty over the end of the pandemic and the expected decline in job security under zero-tolerance policy.

However, the brand and quality of commodities as input variables, which are slightly less directly affected by the epidemic. Consumption decision did not exhibit a significant decline in quality goods or familiar brands due to the pandemic although it's going down. Perceptual and learning constructs will have long term effects, which have less effects on consumption decision making than other indicators.

There are some underlying limitations. Firstly, since this study measures a before and after scenario by the answers about the "before" and "post" respectively and the consumption making decisions are self-reported, there may be the recall bias and self-reporting bias; particularly, this recall was made during a ongoing event, which may further skew the perception of all levels of consumption due to negative or depressive emotion during the long-lasting pandemic. Furthermore,



we only focused on two period points (before Jan 2020 and August 2022), thus the dynamic trends of consumption decision changes during the whole period were not precisely tracked. Thirdly, we conduct the study mainly based on four largest GDP cities in China, by which may data collecting not be fully representative of all the Chinese youth. However, this study is based on the different levels of budget of consumption, the results can represent different consumption levels of youth in China.

The globe is still experiencing difficulties caused by Covid-19. No one can predict when the epidemic will end completely. The discovery of new viruses represented by Moneybox has brought more unknowns to the spread of the epidemic. The panic is showing up unabashed in the economy. The findings provide empirical evidence and reference for targeted marketing industries among youths in China, and may also help generate insights to other related industries and public policy makers.

**Table 3.** Changes in consumption decision making before Covid-19 and two and a half years after the first report of novel coronavirus infection in the world about Impacts on Consumption Decision Making Changes Survey

Variable	Median [p25, p75] or Change Percentage (%)					P-Value
	All N=2601	BOC <1000 N= 618	BOC [1000,2000) N=644	BOC [2000,3000) N= 673	BOC [3000,4000) N=666	
<b>Population-level</b>						
<b>INPUT</b>						
Before 2020 Covid-19 Outbreak	15	15	15	15	15	<0.0001
August of 2022	9	9	9	8	9	<0.0001
<b>PERCEPTUAL AND LEARNING CONSTUCTS</b>						
Before 2020 Covid-19 Outbreak	11	11	11	11	11	<0.0001
August of 2022	7	7	6	7	7	<0.0001
<b>OUTPUT</b>						
Before 2020 Covid-19 Outbreak	8	8	8	8	8	<0.0001
August of 2022	4	4	4	4	4	<0.0001
<b>EXOGENOUS VARIABLES</b>						
Before 2020 Covid-19 Outbreak	11	11	11	11	11	<0.0001
August of 2022	6	7	6	6	6	<0.0001
<b>Individual-level</b>						
INPUT	40.8	39.7	41	41.4	40.9	<0.0001
PERCEPTUAL AND LEARNING CONSTUCTS	40.1	39.5	41.2	40.1	39.7	<0.0001
OUTPUT	39.6	40.3	39.8	39.9	38.4	<0.0001
EXOGENOUS VARIABLES	40.6	40	40.6	40.8	40.8	<0.0001

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