

# **Czech University of Life Sciences Prague**

**Faculty of Economics and Management**

**Department of Economics**



Bachelor Thesis

## **Analysis of Tea Consumption and Consumer Behavior in China**

Author: Sokagnna TIV

Supervisor: Ing. Lenka Rumánková, Ph.D.

@2021 CULS in Prague

**Analysis of Tea Consumption and Consumer Behavior in China**

**Analýza Spotřeby čaje a Chování Spotřebitele v Číně**

**Declaration:**

I declared that I have worked on this bachelor thesis “Analysis of Chinese Tea Consumption and Consumer Behavior in China” and that I have used only sources mentioned at the end of this thesis. As the author of this thesis, I declare that this thesis does not break any copyright of any their person.

In Prague on 15<sup>th</sup> of March 2021

---

## **Acknowledgement**

I would like to thank my supervisors Ing. Lenka Rumánková, Ph.D. for her guidance, advices, tolerance, and support throughout the process of writing this thesis until it is completed.

I would also express my thank to my family and friends, who always support and encourage me, and to respondents who participated in the questionnaires.

## **Abstract**

Tea, as the second most favorite non-alcoholic beverage after water, is loved by the public regardless of ages or genders in China. Tea has increasingly become very active in the Chinese market and it also gains many attentions from across the globe. China tea and tea-based beverages market is estimated to be valued at approximately USD \$11.6 billion in 2018, which accounts for around 22% of the global tea market (USD \$52 billion). This shows how much influence Chinese tea plays a vital role in the world's tea market. The objective of this thesis is to provide readers the analysis of tea consumption in China and what factors influence the consumer behaviors of tea. In the literature review, history, legends, and classification related to tea are mentioned. Furthermore, factors that affect the consumer preferences are discussed too. Based on the theoretical information, a questionnaire was created and sent to respondents, and in the methodology, a brief overview of Chinese tea market as well as the evaluations of survey will be provided there. The data obtained from this survey will be then used in the contingency tables to analyze if there are any dependencies between two variables. SAS Studio will be needed to analyze this data. Then we will know if the hypotheses are accepted or rejected based on the results of p-value.

**Keywords:** Tea consumption, consumer preferences, Chinese tea market, contingency tables, p-value

## Souhrn

Čaj, jako druhý nejoblíbenější nealkoholický nápoj po vodě, je v Číně oblíben veřejností bez ohledu na věk nebo pohlaví. Čaj se stále více aktivizuje na čínském trhu a získává také mnoho pozornosti z celého světa. Odhaduje se, že čínský trh s čajem a čajovými nápoji bude v roce 2018 činit přibližně 11,6 miliard USD, což představuje přibližně 22% globálního trhu s čajem (52 miliard USD). To ukazuje, jak velký vliv hraje čínský čaj zásadní roli na světovém trhu s čajem. Cílem této práce je poskytnout čtenářům analýzu spotřeby čaje v Číně a jaké faktory ovlivňují spotřebitelské chování čaje. V přehledu literatury je zmíněna historie, legendy a klasifikace související s čajem. Dále jsou diskutovány faktory, které ovlivňují preference spotřebitelů. Na základě teoretických informací byl vytvořen a zaslán dotazník respondentům a v metodice bude uveden stručný přehled trhu čínského čaje a vyhodnocení průzkumu. Data získaná z tohoto průzkumu budou poté použita v kontingenčních tabulkách k analýze, zda mezi dvěma proměnnými existují nějaké závislosti. K analýze těchto dat bude zapotřebí SAS Studio. Pak budeme vědět, zda jsou hypotézy přijaty nebo odmítnuty na základě výsledků p-hodnoty.

**Klíčová slova:** Spotřeba čaje, preference spotřebitelů, čínský trh s čajem, kontingenční tabulky, p-hodnota

# Contents

<b>Abstract.....</b>	<b>5</b>
<b>Souhrn .....</b>	<b>6</b>
<b>1 Introduction.....</b>	<b>1</b>
<b>2 Objectives and Methodologies .....</b>	<b>2</b>
2.1 Objectives.....	2
2.2 Methodology .....	2
2.2.1 Categorical data analysis (CDA) .....	3
2.2.2 Test of independence in two-way contingency table .....	3
2.2.3 Test of independence in classical contingency table.....	5
<b>3 Literature Review .....</b>	<b>6</b>
3.1 Legends .....	6
3.2 History of Tea .....	7
3.3 Types of Tea.....	10
3.3.1 Green tea.....	10
3.3.2 Black tea.....	10
3.3.3 Oolong Tea.....	11
3.3.4 Dark tea.....	11
3.3.5 Herbal tea .....	11
3.3.6 Scented tea .....	12
3.3.7 Milk Tea.....	12
<b>4 Consumer Behavior .....</b>	<b>13</b>
4.1 Factors influencing tea consumption.....	13
4.1.1 Cultural factors .....	14
4.1.2 Psychological factors.....	15
4.1.3 Social factors.....	15

4.1.4	Personal factors .....	16
4.2	Chinese consumption values .....	16
4.2.1	Mianzi concept.....	17
4.2.2	Relational orientation and connected self-construal.....	17
4.2.3	Thrift culture in China .....	17
<b>5</b>	<b>Analytical Part .....</b>	<b>18</b>
5.1	Brief overview of Chinese tea market .....	18
5.2	Evaluation of survey .....	20
5.3	Evaluation of personal questions .....	21
5.4	Evaluation of tea-related questions .....	24
5.5	Hypothesis testing .....	27
5.5.1	Analysis of dependency between age and tea consumption.....	28
5.5.2	Analysis of dependency between gender and of tea consumption .....	29
5.5.3	Analysis of dependency between occupation and tea consumption.....	30
5.5.4	Analysis of dependency between level of education and tea consumption.....	31
5.5.5	Analysis of dependency between income and tea consumption .....	32
<b>6</b>	<b>Conclusion and comparison.....</b>	<b>34</b>
<b>7</b>	<b>References.....</b>	<b>36</b>
<b>8</b>	<b>Appendix.....</b>	<b>37</b>



## List of Visuals

### *List of Tables*

Table 1 Contingency table (2x2).....	4
Table 2 Classical Contingency Table .....	6
Table 3 Contingency Table: Age and Tea Consumption.....	28
Table 4 Statistic: Age and Tea Consumption .....	28
Table 5 Contingency Table: Gender and Tea Consumption.....	29
Table 6 Statistic: Gender and Tea Consumption .....	29
Table 7 Contingency Table: Occupation and Tea Consumption .....	30
Table 8 Statistic: Occupation and Tea Consumption.....	30
Table 9 Contingency Table: Education and Tea Consumption .....	31
Table 10 Statistic: Education and Tea Consumption .....	32
Table 11 Contingency Table: Income and Tea Consumption .....	33
Table 12 Tea Production in China .....	43
Table 13 Domestic Tea Consumption and Sales Volume .....	43

### *List of Figures*

Figure 1 Model of Consumer Behavior .....	14
Figure 2 Tea production graph.....	19
Figure 3 Tea Per Capital Consumption and Sales Volume.....	20
Figure 4 Gender .....	21
Figure 5 Age Category.....	21
Figure 6 Occupation Category .....	22
Figure 7 Level of Education category.....	23
Figure 8 Monthly Income .....	23
Figure 9 Tea Type Preferences .....	24
Figure 10 Frequency of Tea Consumption .....	25
Figure 11 Purposes for Tea Consumption.....	26
Figure 12 Criteria for Choosing Tea .....	27
Figure 13 Monthly Expense on Tea Consumption .....	27
Figure 14 The Amount of Monthly Tea Consumption .....	44
Figure 15 Tea Taste Preference .....	44
Figure 16 Time of the Day Preferred drinking Tea.....	44
Figure 17 Length of drinking tea .....	45

# 1 Introduction

Chinese people consumed tea on daily basis and the demand for this hot beverage increase rapidly over the decades and it is anticipated to have more demand in the future forecast. Tea has an irreplaceable role in the Chinese history as well as in the cultures, literatures, and economy. It was originally considered as a luxury commodity that was used as a tribute only to the Chinese Emperors and imperial courts and later was introduced to ordinary people. It also played an important role in the trade and interactions between foreign cultures along with other precious commodities at that time. Chinese tea was consumed differently although the original Chinese tea plant is the same type that grow around the world today. Tea started as a medicine, eating as vegetables, then in powder form to brew a drink and later was made into tea with numerous types based on the preferences of the consumers. Each type of tea has different methods of processing and the three most important characteristics – flavor, aroma, and shape, are also quite distinct from one another.

In ancient times, tea was valued for its healing properties that can aid the digestion and provide energy in accordance with what was written down in the Lu Yu's "*The Classic Art of Tea*". With the popularity of this book, tea spread from one place to another until it is popular all over the world. In modern society, according to scientific research on tea, it is proved that tea has a rich content of antioxidants and contains anticancer property as well, which can be beneficial for the human health. Due to this awareness of health benefits, people are yearning to consume more tea each year. This maybe one of the factors leading to high consumption of tea in China.

Consumer preferences are pivotal factors that guide consumers to make decisions on consumption of tea. Marketers are persistently looking for various strategies on how to attract consumers to purchase their products or services, however, this is not easy as preferences can be changed over time and people give prioritize to the most important needs first. There are various factors that have effects on the consumer behavior, including cultural, psychological, social, and personal factors. Chinese people also pay great importance on the concepts of face, relationship, and thrifty spending, which are the parts of Chinese culture.

## **2 Objectives and Methodologies**

### **2.1 Objectives**

The aims of this thesis are to analyze tea consumption in China and explore more about consumer behaviors of tea that are affected by different factors based on the theory of consumer behavior. Personal factors such as age, gender, occupation, education background, and income are to be set up as hypotheses to verify if they are influencing factors that can determine the consumption pattern of tea in Chinese society. Other factors such as types of tea, frequency of tea consumption, or criteria for tea consumption are also discussed to see if these can affect on the choices of purchasing tea products. Survey is then designed to gather information on consumer preferences and the result from this questionnaire will be analyze later in the analytical part.

### **2.2 Methodology**

In this research paper, it consists of six chapters. The first chapter is introduction, which explains the background, purposes, and contents of this research. The second chapter is about the research objectives and methods that are used to analyze data in the analytical part. The third chapter is literature review, which gives readers a better understanding about the origin of tea in China and elaborate on how important tea's role is in Chinese people daily lives. Classification of tea is also important to know as Chinese tea is quite different from Western tea and each type has its own uniqueness. The fourth chapter is the discussion about the concepts of consumer behavior and factors that can impact the preferences of individuals. From this we put forward several hypotheses to analyze and verify our assumptions. The fifth chapter is analytical part in which a survey is prepared and will be sent to respondents to gather first-hand data related to the consumption of tea and which factors influence the decision of consumers on purchasing tea. When it comes to such a subjective topic of consumer preferences, it is better to adopt a survey questionnaire. The data obtained from this survey is then sorted out and is used in statistical software SAS Studio to analyze and to verify the proposed hypotheses and later to draw conclusion from the results. This survey was sent from January 2021 until March 2021 and a total of 170 responses were received. Based on individual self-awareness and motivation towards purchasing tea and due to some other external factors, five hypotheses can be proposed as follows:

*H0: There is no dependency between age and tea consumption*

*H0: There is no dependency between gender and tea consumption*

*H0: There is no dependency between occupation and tea consumption*

*H0: There is no dependency between education and tea consumption*

*H0: There is no dependency between income and tea consumption*

The sixth chapter is conclusion and comparison. First, we will summarize the research results that are already analyzed from the practical part. Then there is a comparison with other scientific papers to understand if there is any similarities. If not, further explanation will be provided.

### **2.2.1 Categorical data analysis (CDA)**

“A categorical data variable has a measurement scale consisting of a set of categories” (Hlavsa & Pacáková, 2020)

There are two types of categorical variables: ordinal and nominal. Ordinal refers to variable in which outcomes pays attention to order category, for example, education degree, age category or income category. On the other hand, nominal variables are variables in which outcomes have the same importance and do not have natural order. Examples are nationality, gender, agree/disagree, favorite type of beverage and so on.

Contingency table is a type of table that has at least 2 rows and 2 columns used in statistic to organize data and measure the relationship between 2 or more variables. Contingency table is categorized into 2 types: Two-way contingency table (2x2) and Classical contingency table (2x3 or 3x3, etc.).

In this thesis, I will use both two-way contingency table (2x2) and classical contingency table to analyze the data.

### **2.2.2 Test of independence in two-way contingency table**

To examine the relationship or dependency of categorical variables in two-way contingency table (2x2), there are 4 steps:

1. First, set a null hypothesis  $H_0$  claiming that there is no relationship between 2 variables. Then set an alternative hypothesis  $H_A$ , claiming that there is relationship between 2 variables.

2. Second, define the significance level  $\alpha$ . Most commonly value used is  $\alpha = 0.05$ .
3. Third, determine if we can use Chi-Square test as a test criterion based on the following conditions:
  - a. If sample size  $n > 40$ , then we can use chi-square test  $\chi^2$
  - b. If sample size  $20 \leq n \leq 40$ , then we need to check the value of expected frequencies. If all of them is greater than 5, then  $\chi^2$  is used. If any one of them has a value less than 5, then we need to use Fisher's factorial test.
  - c. If sample size  $n < 20$  then we use Fisher's factorial test. (Hlavsa & Pacáková, 2020)

*Table 1 Contingency table (2x2)*

<b>Var A/Var B</b>	<b>B1</b>	<b>B2</b>	Total
<b>A1</b>	a	b	a+b
<b>A2</b>	c	d	c+d
Total	a+c	b+d	n

*Source: (Own work.)*

**Calculation of expected frequencies:**

$$a_0 = \frac{(a+b)(a+c)}{n} \quad (1.1)$$

$$b_0 = \frac{(a+b)(b+d)}{n} \quad (1.2)$$

$$c_0 = \frac{(c+d)(a+c)}{n} \quad (1.3)$$

$$d_0 = \frac{(c+d)(b+d)}{n} \quad (1.4)$$

The formula for test criterion  $\chi^2$  is

$$\chi^2 = \frac{n(ad-bc)^2}{(a+b).(a+c).(b+d).(c+d)} \quad (1.5)$$

4. Decision: if  $\chi^2 > \chi^2_{\alpha}$  then  $H_0$  is rejected – there is no relationship between two variables  
if p value  $< \alpha$  then  $H_0$  is rejected – there is no relationship between two variables

### **Fisher's factorial test**

The procedure for this Fisher's factorial test includes:

- find cell with the lowest value
- reduce the value by 1 (final value is 0), all marginal frequencies are the same
- computation of probability for each table

The formula used to calculate the probability of fisher's factorial test is

$$p_i = \frac{(a+b)!(c+d)!(a+c)!(b+d)!}{n!a!b!c!d!} \quad (1.6)$$

Decision: if  $\sum p_i > 0,05 \rightarrow H_0$  is accepted – there is relationship between two variables. (Hlavsa & Pacáková, 2020)

### **2.2.3 Test of independence in classical contingency table**

To examine the relationship or dependency of categorical variables in classical contingency table (2x2), there are 4 steps:

1. First, set a null hypothesis  $H_0$  claiming that there is no relationship between 2 variables.  
Then set an alternative hypothesis  $H_A$ , claiming that there is relationship between 2 variables.
2. Second, define the value of  $\alpha$ .
3. Third, to determine if we can use Chi-square test for hypothesis testing, there are two conditions to follow:
  - a. A maximum of only 20% of expected frequency is  $< 5$

- b. No expected frequency is less than 1

*Table 2 Classical Contingency Table*

<b>Var A/Var B</b>	<b>B1</b>	<b>B2</b>	<b>...</b>	<b>Bj</b>	<b>Total</b>
<b>A1</b>	<b>n11</b>	<b>n12</b>	<b>...</b>	<b>n1j</b>	<b>n1.</b>
<b>A2</b>	<b>n21</b>	<b>n22</b>	<b>...</b>	<b>n2j</b>	<b>n2.</b>
<b>...</b>	<b>...</b>	<b>...</b>	<b>...</b>	<b>...</b>	<b>...</b>
<b>Ai</b>	<b>ni1</b>	<b>ni2</b>	<b>...</b>	<b>nij</b>	<b>ni.</b>
<b>Total</b>	<b>n.1</b>	<b>n.2</b>	<b>...</b>	<b>n.j</b>	<b>n</b>

Source: (Own work.)

**Calculation of expected frequencies:**

$$n_{oj} = \frac{n_{.j} \cdot n_{i.}}{n} \quad (1.7)$$

$$n_{oi} = \frac{n_{.1} \cdot n_{1.}}{n} \quad (1.8)$$

The formula for test criterion  $\chi^2$  is

$$\chi^2 = \sum_{i=1}^k \sum_{j=1}^m \frac{(n_{ij} - n_{oj})^2}{n_{oj}}$$

4. Decision: if  $\chi^2 < \chi^2_{\alpha(4)}$ , then  $H_0$  is accepted at  $\alpha = 0.05$ . (Hlavsa & Pacáková, 2020)

### **3 Literature Review**

#### **3.1 Legends**

Concerning the origin of tea in China, according to the references in Chinese literature, there are many legends about it. The most well-known myth that many folklores believe in was the legend of Emperor Shen Nong or also called Yan Emperor (or Yandi, one of the three deified emperor of China). According to the book “*The Classic of Tea*” by Lu Yu (733-804 BC), it is said that tea

was accidentally found by Emperor Shen Nong, who was a scholar, herbalist, and patron of art, in 2737 B.C. He also was the first person to find the usage of tea as part of the Chinese medicine at that time. There are two versions of the story of how Shen Nong discovered tea. One version said that one day the emperor called a servant to boil and purify water for drinking, and on his way back to the garden, a tea leaf fell off a wild tree and landed in the pot of water while nobody noticed this happened. Emperor Shen Nong took a sip of this tea-infused water and found the strange and pure taste of tea. He then began to have an interest in this drink which had a pleasant aroma and refreshing flavor. Moreover, he found that this liquid gave vigor to every part of the body, thus it was declared that tea was beneficial to the body. This was how tea was invented in that dynasty. (Christie, 1968). However, at that time it was only considered as a medicinal drink.

The second version mentioned that Shen Nong was the mythical god of ancient Chinese medicine and agriculture who had contributed a lot to the prosperity of China. Based on the legend, Shen Nong's mother swallowed the vapor of a celestial dragon and then gave birth to a baby boy. The boy was born with an ox's head and a human body, which was transparent like a crystal. With such body, any substances like food or herbs can be seen when entering his body. In ancient times, many people died due to hunger and various diseases and there was not any treatment. Therefore, to save them Shen Nong decided to do experiments on his body to find cures by testing and recording the effects of each herb and medicinal plants found on the mountains. According to the record written in "*Shen Nong Ben Cao Jing*" or "*The Classic of Herbal Medicine*", it is mentioned that Shen Nong encountered seventy-two poisonous herbs and they were too much for his body to bear. He grabbed some leaves while he stumbled down, and he decided to put them into his mouth. Shen Nong later discovered the healing property of this plant as his body recovered strength. He later named this plant "*cha*" meaning "*to examine*" or "*to check*". (Roberts, 2004)

In addition to the two famous versions of Shen Nong, there is one more myth related to Buddhism in which tea is claimed to have been found in India by Bodhidharma or Damodashi in Chinese. The legend stated that to avoid falling asleep during his meditation, he cut off his eyelids and threw them on the ground. Tea bushes were found growing in this place later on. (Roberts, 2004)

### **3.2 History of Tea**

Tea is derived from the leaves of a plant called *Camellia Sinesis*, a member of the *Theaceae* family. The origin of tea has been a hot debate between historians and scholars. However, many evidences



indicate that it was native to certain areas between Southern China and the border of Assam. (Soni, et al., 2015). In April 1993, Mr. Huang Guiqiu, a prominent figure in Pu'er tea industry delivered a speech at a landmark conference that "China is the home of tea; Yunnan is the world origin of the tea tree; Yunnan's Simao district and both sides of the Lancang River (Mekong) are the concentrated regions of the source of the tea tree". (Sigley, 2015) Furthermore, an ancient botanical fossil was uncovered in Yunnan province and from the evaluation of the Chinese Academy of Science (CAS), it is concluded that the fossils were from 35 million years ago and that they belonged to the *Theaceae* family. (Sigley, 2015). With this physical evidence, he then claimed that the dispute should be settled down and that tea originated in the southern part of China. However, it is still unknown to the mass if this claim is true as tea plants perhaps existed even before the birth of humans.

According to ancient Chinese analects and records, the history of tea dated back to ancient China, around 5000 years ago and later was distributed to foreign countries through the Silk Roads. After the discovery of tea by Emperor Shen Nong, found in the Chinese ancient classic "*The book of Songs*", there was a record of using tea for medical purposes during the "Spring and Autumn Period" (around 771 BCE – 476 BCE). At that time, tea was called "*tu*", and it was used in rituals and other ceremonies as an offering to ancestors and was also eaten as vegetable in the meal. It is said that tea leaves were cooked together with other vegetables like green onions, ginger, and other spices into tea-soup or in other word, medicinal food. During the Han Dynasty (206 BCE-220 AD) tea was brewed in boiling water and was made into a new type of leisure drink and then it became increasing popular with people of all different status. There were evidences found in various antique tea trays and cups, and these items were found all over China, showing the popularity of tea at that period. In the late 8<sup>th</sup> century, Lu Yu, a renowned Tang Dynasty Tea Sage, published the first tea book that provided detailed information about tea and how to cultivate, prepare and classify tea. He used the word "*cha*" instead of "*tu*" for tea. Since then, Chinese people began to learn how to grow tea plants and used the harvested leaves to make different typed of tea. Consequently, tea was well-loved by people in this dynasty, and this can be seen by the numerous poems, hymns and lyrics found by historians. These poems are crucial to the development of Chinese culture and tea consumption. Records of teahouses and tea shops opened in the cities were mentioned in the book "*The Travels of Fengs*" by Yan Feng (618 AD-907 AD). His book introduced people how tea, a luxury item who was mainly used as a tribute to the royals, was then

penetrated to the rank of the nobles, merchants, and civilians. Tea being the viewed as one of essential commodities in Chinese peoples' daily lives was included among the list of seven necessities to start a day with: firewood, rice, oil, salt, sauce, vinegar, and tea. Another saying that highlighted how important tea is to the Chinese cultures and arts was that it was placed in the list of items including zither, chess, books, painting, poetry, and verse. (Sigley, 2015). From the Tang Dynasty onwards, since tea was valued, tea production became a state monopoly in which the flow of tea into markets was strictly controlled and regulation was imposed on illegal transaction along the borders of Tibet. The famous trade route known as "*The Ancient Tea Horse Road*" or "*The Southern Silk Road*" signified the importance of tea and horse trade as well as salt between Tibet and China. It is said that the Chinese government used tea to threaten the barbarians once these people of nomadic tribe had an idea of invading or creating chaos. (Booz, 2011). Moreover, tea spread not only from China to Tibet, but also it was introduced to Japan and Korean peninsula through the trade route. Envoys were sent to from Japan to China to learn more about tea and its culture, and seeds were transported back to Japan to cultivate. Later in the 14<sup>th</sup> and 15<sup>th</sup> century, became an irreplaceable commodity in Japanese peoples' everyday lives. They eventually developed their own unique rituals around tea, leading to the creation of Japanese tea ceremony. Additionally, tea was the favorite of subject of books and poetry as well as a medium for artists to find inspirations. Scholars and artists in that era also enjoyed exploring the tea customs, the art of drinking tea and especially associated tea into their work. The art of drinking tea or tea ceremony has then become one of the class well-sought by many female practitioners at that period and tea masters are respected by the mass. Furthermore, this art had passed down generation to generation and was further diffused to the Western countries and all over the world. In addition to porcelain and silk, tea was intricately linked to Silk Road trade as it became a basis of complex intercultural exchanges between various parties of all different continents. This gave China a great deal of power and economic power as tea spread around the world. When tea arrived in Europe in the 17<sup>th</sup> century, it was only available to the upper class and until when imports were more affordable that ordinary families could consume this. China from then faced many challenges in the selling of tea as the British and the Americans tried to monopolize the trade of tea. Those countries under the colonization were ordered to import tea from Great Britain only. Legislation for the import of tea was also written down and tax was imposed on tea's trade as well. There was also the famous event of the Opium trade in which to counter China's policy of paying cash only for tea, the British

introduced Opium to the Chinese in hope of ruining the Chinese society apart and generate profit at the same time of selling this opium. (Hohenegger , 2009)

### **3.3 Types of Tea**

Tea has evolved multiple times from one dynasty to another dynasty and from being used for medicinal purposes to a very popular beverage consumed in today's world. In China, tea is categorized into six major types: green tea, black tea, oolong tea, dark tea (*Pu'er*), herbal tea and scented or flora tea. In contemporary society, a new trend of tea was innovated, in which is a combination of fresh tea leaves and milk, syrup, or cream. It also comes with various toppings such as boba pearl, jellies, pudding, and fruits. This new tea beverage is also known as milk tea, bubble tea or fruit tea. (Consulting, 2020)

The difference that categorizes Chinese tea into several type mainly lies on the process of "*fermentation*". The critical aspect is the way of activation of oxidizing enzymes (for example, polyphenol oxidase and peroxidase) contained in the leaves. During the fermentation process, oxidizing enzymes become active resulting in the changing of color.

#### **3.3.1 Green tea**

Green tea is a type of unfermented tea which means it has not undergone any oxidation process. To fix the oxidation there are several ways including withering, pan-frying, baking, drying under the sun or in the bamboo baskets or in drums and steaming - a technique in Japan. (Špolc, 2014). After being plucked, withering method is used to remove the moisture stored inside the leaves and to get rid of the bitter taste. Then during the process of drying, the leaves turn from bright green to dark green. These different ways of drying also help preventing the growth of mold, removing any grassy leaf taste and to improve the tea's aroma.

#### **3.3.2 Black tea**

Black tea is also known as fermented tea in China, and it is different from the black tea in the West. Chinese people called this red tea based on the color when it is infused, however, its oxidized leaves are black; that is how two different names came from. Although black tea may not be fully 100% oxidized but it is more oxidized than green tea and the flavor also has stronger taste. According to Michael (Špolc, 2014), when harvesting the tea leaves, they must be fully ripe before using the CTC (crush, tear, and curl) or orthodox ways (the methods mentioned above) to process

them. During fermentation, a suitable temperature and appropriate amount of time (approximately 5-6 hours) is needed to for the leaves to oxidized into reddish-brown color.

### **3.3.3 Oolong Tea**

Oolong tea is halfway between green and black tea as it is a semi-fermented tea. Oolong tea has a very distinct flavor with sweet and mellow taste and flower-like aroma. It was named after the founder of Qing Dynasty, Wu Long Su. The color of Oolong tea leaves is green with red sides because after processing of fresh tea leaves, a lot of chlorophyll is retained inside. Therefore, most of the leaves remain green while only the edges that are oxidized. There is also an interesting saying for this type of tea – “brewing for seven times” meaning it can be brewed for 6-7 times in a small pot with large amount of tea leaves. (Anon., 2021)

### **3.3.4 Dark tea**

Dark tea, or *hei tea*, is a type of post-fermented tea with a strong and earthy taste that the more aged it is, the better the taste is. A subcategory of dark tea which is the most popular one is Pu-erh tea (or Pu'er). Pu-erh tea has a darker color than the other types of dark tea and it has a smoother flavor with strong aroma. (Anon., 2021). At the beginning, Pu-erh tea is processed with the standard methods. Semi-fermented tea leaves will be then dried under the sun to get rid of the excess part of water. After that some water is sprinkled on top of the dried tea piles to promote the second fermentation of microbes. During this process, tea is kept in a room with humid and warm temperature. To distinguish the quality and the age of dark tea, look at how dark the color is, the darker the better, and it can be stored for a long time until it matures. Pu-erh are usually steamed and then compressed into shapes like bricks, concave nests or frisbee-like cakes and sold to the markets. (Falkowitz, 2015)

### **3.3.5 Herbal tea**

Chinese herbal tea does not contain any tea leaves like other types of tea mentioned above, however, people still called it herbal tea or cooling tea. Chinese people pay attention to the harmony and balance of yin and yang within the body when it comes to Chinese medicine. Therefore, if there is a symptom of excessive internal heat, it is recommended to drink herbal tea to ease it. Herbal tea is concocted from medical herbs, for instance, ginseng, chrysanthemum, round leaf holly, dandelions, bitter melon, and *prunella vulgaris* or also known as heal-all herb. (Tse & Duhalde, 2018). Over the year, a variety of herbal tea's recipes had evolved to relieve

different symptoms like sore throat or cough. According to the author of “*A supplement to Material Medica*”, Chen Cangqi (687-757 AD), tea can be used to treat all kinds of ailments. (Li, et al., 2019). In modern days, modification is made to adjust the taste of herbal tea as most of them usually taste bitter. Based on preferences, fruits, dried fruits (goji berries and jujubes), sugar or honey rank among the topmost popular options to use as sweeteners.

### **3.3.6 Scented tea**

Scented tea or also called flora tea is a blend of flower or flower buds and tea completed tea leaves. They can be green tea, black tea, or oolong tea leaves that are used in this mixture. The most sought after scented tea in China and all over the world is Jasmine green tea. (Špolc, 2014). According to (GIAHS, 2014), to make this scented tea, there is a requirement for special tea scenting technology. Tea bases are made from soaking tea leaves with fresh flowers to absorb the flavor and scent. The residuals need to be taken out in time to avoid the spoiling of flowers that can affect the overall fragrance and taste of the tea. The finished products do not contain any flowers inside, tea themselves already absorb the aroma during the scenting process. There are five complex steps in the process of scented tea and tea specialists need to pay special attention to the moisture content and temperature in each step of the process. For high quality tea, high end tea leaves are required, and they need to be scented several times with freshly picked flowers.

Unlike the traditional methods, modern scented tea or flavored tea now used dried flowers and dried fruits to mix with tea leaves. However, these inclusions do not provide many scents, therefore, essential oil is included into the mixture.

### **3.3.7 Milk Tea**

Milk tea is a type of new tea beverage that originated from Taiwan and currently it is very popular among the young generations in China. The key characteristics of this new-style tea consist of the usage of fresh materials, standardized recipe, aesthetic appearance, and the price is within an affordable range. Many milk tea shops can be found in any commercial stores all over China. With recipes found online in websites or social media platforms, people can brew milk tea by themselves at home and when it is ready to serve, additional toppings can be added on top based on your personal preferences.

## **4 Consumer Behavior**

In everyday lives, people make choices all the time whether they want to go to school, where to eat or when to go shopping. Therefore, in this paper, the concept of consumer behavior emphasizes on the factors that may have influences on the decision-making power of consumers when they face trade-offs. When a consumer purchases more of one product, he then cannot afford to buy more for the other product. If he does not go to work, then he has no sufficient incomes to buy the products he needs. Meanwhile, if he spends most of his income and saves less, in the future he may need to consume less on certain products.

Consumer behavior involves many theories that are hard to study and comprehend. Individual has the power to make their decisions whether to purchase this product or not as there are many factors affecting their preferences. In economic view of consumer behavior, usually the terms “marginal utility”, “budgetary constraint”, “income and substitution effects” and “consumer preferences” are mentioned. These are the concepts that believed to influence the choices of consumers.

In the analysis of consumer preferences, consumers need make decision that can maximize the satisfaction they can get given the budget constraint imposed on them. When income is spent to satisfy the need, consumer’s satisfaction is then increased. In other cases, consumers also have the option of consuming goods now or later in the future as they decide to save their income. (Pindyck & Rubinfeld, 2011).

### **4.1 Factors influencing tea consumption**

The word “*Consumer Behavior*” is not an unfamiliar term in today’s business world, it continuously refreshes people perceptions on how to exactly define it as it evolved from time to time. According to theoretical model by (Kotler, et al., 2017), consumer buyer behavior refers to “the buying behavior of final consumers – individuals and households that buy goods and services for personal consumption”. It includes the three important activities – mental, emotional, and physical, that consumers need to think of during the process of understanding the usage of products, selecting, and purchasing them just to satisfy your needs.

Consumers may wonder on how people around them consume tea every morning or why they go to a certain tea store to purchase tea products. This is actually an important question for every marketer to think of what methods they can use to influence the buyer’s black box - consumer’s

mind and what are the reactions consumers have towards their company's marketing efforts. Each consumer's black box is the result of environmental stimuli such as economic, social, and cultural happenings mixing together with the market stimuli. The Buyer's Black Box model illustrates how the buyer's backgrounds determine how their observation will shift and it is also a process that leads to the consumer's final decision.

*Figure 1 Model of Consumer Behavior*



*Source: (Kotler, et al., 2017)*

Consumer decision is mostly set by their own characteristics, which are classified into four broad categories: cultural, psychological, social, and personal factors.

#### **4.1.1 Cultural factors**

Cultural factors play a crucial role in the consumer behavior. They consist of culture, subculture, and social class. (Hawkins & Mothersbaugh, 2008).

**Culture:** is a set of beliefs, traditions, value, languages, customs, habits, or law that are perceived by people in the society. Culture covers all aspects of life that has significant impacts on human's thinking process and behavior. It is something that we learned; people are not born to know everything from birth. Through trials, experiences and knowledge gained from the surrounding environment, people comprehend what values, perceptions, preferences, and behavior are.

**Subculture:** each culture has its own subcultures that give unique identity to its member of the society. Subculture includes nationalities, racial groups, languages, religions, and geographical regions. (Durmaz, 2014)

**Social Class:** in every society, there is a pattern of dividing people into different classes based on their income, family backgrounds, education, position or power, and household locations. Social class provides many details to the marketers to analyze and understand more on how to introduce products to each class, as there is a difference in wealth and preferences. For example, upper class

family would prefer trendy and high-quality products while lower class people are looking for something within the budget. Each of them has their own trends, lifestyles, and characteristics.

#### **4.1.2 Psychological factors**

Psychological factors are major determinants of consumer behavior. The working of human minds is hard to measure but they are powerful to impact on the buying decision. The four psychological factors are motivation, perception, learning, and belief.

**Motivation:** when people are motivated enough, they tend to have a higher goal orientated that may influence on the consumer purchasing behavior. According to Maslow's hierarchy of needs, a person will try to satisfy his most important needs first, it can be either basic needs or security needs, depending on what the situation he is under.

**Perception:** is a process which consumers collect information about a certain product and develop impressions about that product.

**Learning:** customers would like to learn more about the products before they consume them. Learning takes place through information and experience.

**Beliefs:** is a conviction a person holds about something. It can be based on real knowledge, opinions, or faith. These beliefs have certain influences on the brand image of a product. (Kotler, et al., 2017).

#### **4.1.3 Social factors**

Human beings are inherently social, they need interactions with other people to make up their minds purchasing something. Humans tend to imitate other people and hope to get fully integrated in the society. Social factors include family, reference groups, and roles and status.

**Family:** is the most important organization in the society and is the most influencing groups that have huge impacts on life's decision. Family may also have direct or indirect influence on the buying behavior.

**Reference groups:** refers to small groups of people in the society, it can be colleague, friends, or club members. Usually, they share the same interest and have similar consumer behavior. Their opinions can influence other people as they create pressure or introduce people to new environment, leading to changes in buying behavior.



**Roles and status:** a person may have different role in each of the group they join, for example, she is a manager at her workplace while at the reading club, she is just a normal member and at home, she is a wife. In some cases, people are said to purchase products to conform to their status, for instant, branded products. (Kotler, et al., 2017).

#### **4.1.4 Personal factors**

As a human, we make numerous different decisions in just one day and will continue to do so throughout our life cycle. Everyone has their own distinct characteristics and under the same circumstances, different choices are made. Research on consumer behavior has shown that personal factors are the leading role that can affect the consumer preferences. Personal factors included age, gender, occupation, education, income, and lifestyle.

Age, gender, and occupation are factors influence on the buying choices of consumers. Younger generation may prefer something different from the elderly, and some products are targeting female than males and vice versa in some cases like cosmetics or clothes. Moreover, people of different jobs, they have different choices of clothes or things that are appropriate for their occupations.

**Income:** it can be either personal income or family income. People with higher income tend to purchase more and spend a lot on luxury products. While people with lower income, they prefer buying things to satisfy their basic needs.

**Lifestyles:** is a way to reflect how a person portrait himself or live in the society based on interests, opinions, and activities. It also shows how a person interact with others in the world. (Kotler, et al., 2017). For example, a person would like to have a healthy style, thus he prefers drinking tea every day to keep fit and stay healthy.

## **4.2 Chinese consumption values**

For most Chinese people, they have deep feelings towards their history and cultures traditions. Thus, according to the author these are the major factors that have greatly influenced the value, attitudes, lifestyles, and spending pattern of the Chinese. (Nan, 2014). The consumption values that could affect the behavior of consumers included mianzi (face), guanxi (relationship) and the value of thriftiness.

#### **4.2.1 Mianzi concept**

Mianzi is a Chinese word for face and this concept is quite important in the Chinese culture as it has a strong impact on the relationship between the people of China. Face refers to the prestige, or reputation gaining from their success, accumulated from birth until now, wealth, power, and social status. In a society where reputation is more important than anything else, people tend to have the desire to impress people surrounding them. They tend to purchase luxury products that may cost a fortune, go to high end places just to show off to their friends. Regarding to the consumption of tea, with mianzi concept, Chinese people prefer going to branded tea store to purchase tea, either for own consumption or use as a gift. High quality tea and tea products are also well-liked by these kinds of consumers. Sometimes, income is not a barrier for them in the tea consumption, just to satisfy their intention of impressing others, they will decide to purchase it.

#### **4.2.2 Relational orientation and connected self-construal**

Based on the research paper of (Nan, 2014), it is said that “a relational orientation and self-construal have been shown to influence the consumer responses to advertising, and consumer responses to marketing communications and sales approach”. This concept can be reflected to the way people interact or communicate with others when they enter the society. Peer opinions or social pressure can be the elements that help push consumers to make choices. For example, when going shopping in the mall with a friend or a group of friends, consumers tend to ask for their opinions on how the products look like and if they should be purchased.

In China, opinion leaders can be the deciding factor that influences the behavior of consumption. The so-called opinion leaders stand for the elderly, the head of the family, someone older than you or has more authority than you or it can be the president of the country. Chinese people have a saying that the younger generation must respect and have filial piety for their elders as a form of good virtue. (Waldmeir, 2016).

#### **4.2.3 Thrift culture in China**

The concept of thriftiness has been deep-rooted in the minds of Chinese people. Furthermore, it is of considerable importance in the people's attitudes towards spending and saving. A question always pops up in minds, why do Chinese people love saving money, they will not even let go of a few cents, and are stingy to spend even though they have higher income now. From the perspective of

economics, changes in income may not have many influences on the consumer preferences, they still prefer consuming the same products, for instance, the daily necessities.

In addition, the story of a Chinese woman saving a huge amount of money to buy her own property, however, never had a chance to live in has illustrates how much thriftiness has guided the thinking of people in china on debts. (Nan, 2014).

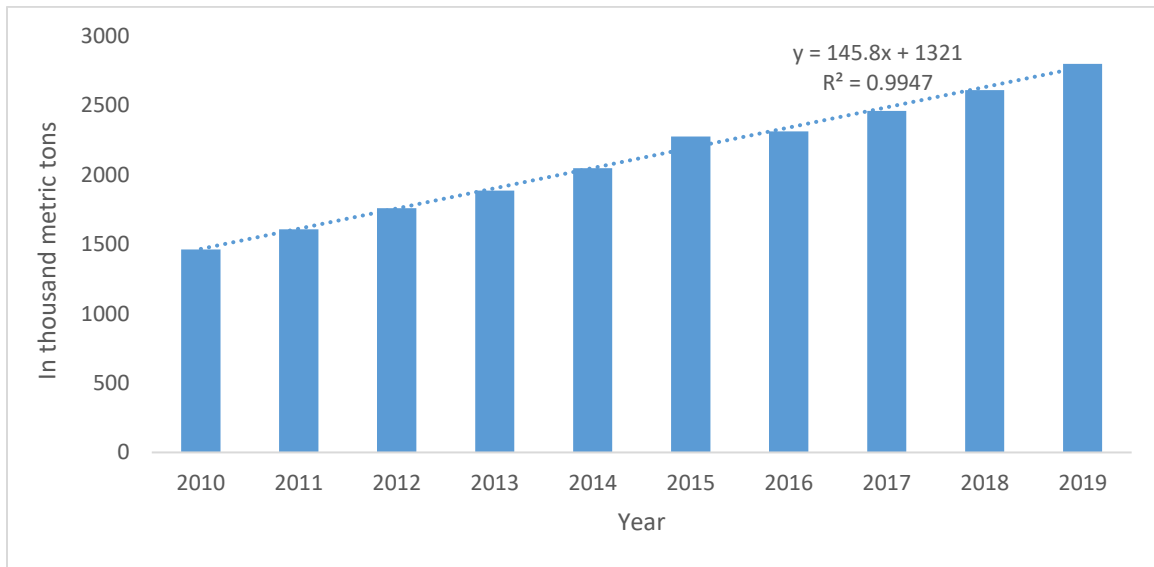
## **5 Analytical Part**

### **5.1 Brief overview of Chinese tea market**

China has always been the leading country in term of tea production comparing to other nations. China is also the top major tea exporter in which around \$100 million worth of tea is exporting to all over the world every year. Moreover, Chinese tea produced in various regions in china is consumed domestically.

Based on the table and graph shown below, the production of tea in China increased each year from 1.4 million metric tons in 2010 to 2.8 million tons in 2019. From the year 2010 to 2012, tea production has increased significantly from 1.4 million metric tons to 1.7 million metric tons with an increase of 10% in production from previous year. However, the increase gradually slow down from 7% in 2013 to just 2% in 2016. (Statista, 2020). The linear trendline indicates that tea production in China is consistently increasing over a 9-year period with a high value of  $R^2 = 0.9947$ . The higher coefficient of determination is, the better data fit with linear regression. From this regression model, production of tea increases around 145 800 metric tons every year.

Figure 2 Tea production graph

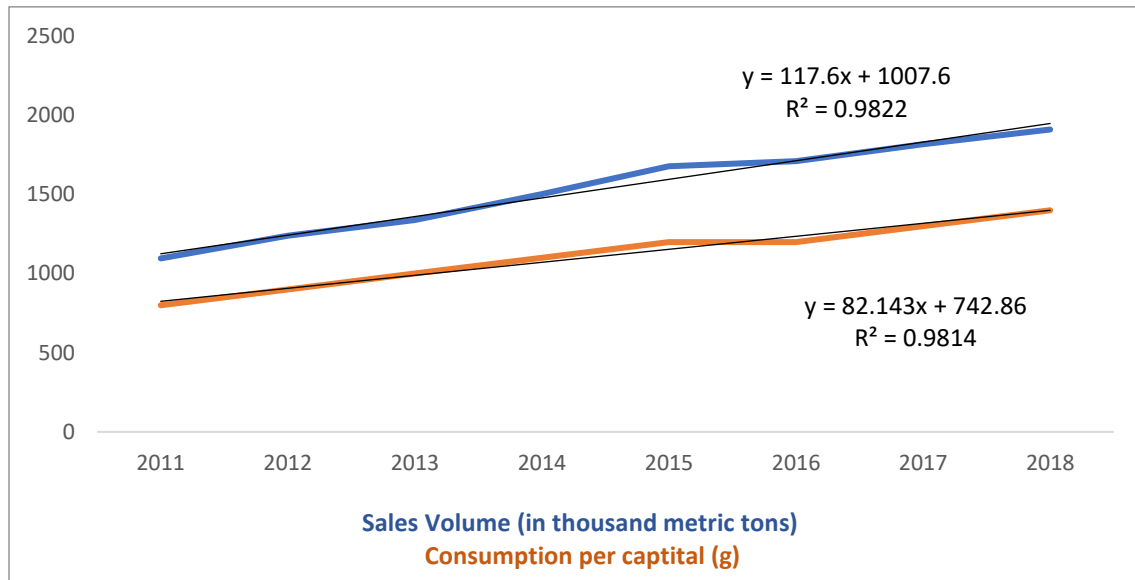


Source: (Own work, Excel)

China, the world's most populous country, has a population of around 1.4 billion people, accounting for 18.47% of the world's population. Tea-drinking is a nation-wide custom in China, and it is a daily necessity that can be found in every Chinese households. Chinese people drink more tea comparing to other nations, in which almost 40% of the world's tea is already consumed. However, it is still not enough for them, there is more demand for tea in domestic market, especially the best quality tea.

According to *Figure 3*, tea consumption per capital has a stable increase from 2011 with 0.8 kg to 1.4 kg in 2018. In less than a decade, the domestic sales volume of tea in China also shows steady growth based on the graph below. (Consulting, 2020). In 2011 the total sales volume accounts for 1.09 million metric tons and gradually rise to 1.9 million metric tons in 2018. (Statista, 2020). The increase in consumption per capital as well as sales volume of locally produced tea can be caused by the increase in income, higher demand, or any other factors. Regression coefficient shows that both data have high  $R^2$  value, therefore, the accuracy of this linear regression is high. Every year, sales volume of tea increases 117 600 metric tons and domestic consumption per capital also increases by 0.08 kg.

Figure 3 Tea Per Capital Consumption and Sales Volume



Source: (Own work, Excel)

## 5.2 Evaluation of survey

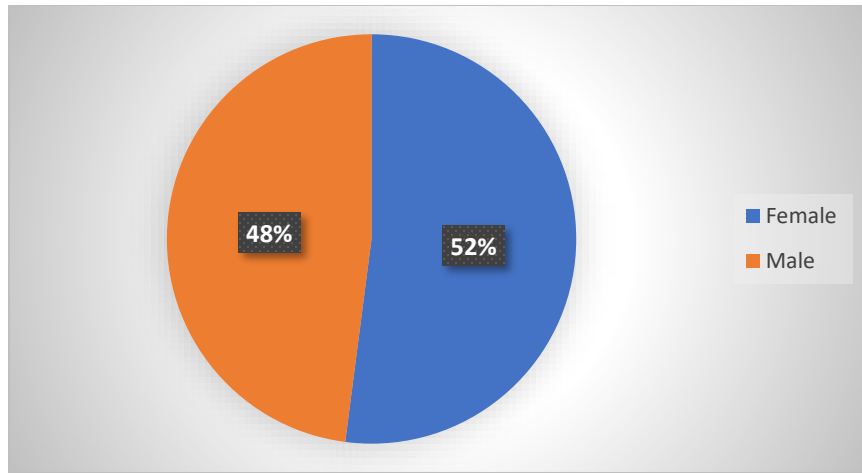
Based on the theoretical part of this thesis, a survey was designed to study the factors that can have impacts on the consumer preferences. The following factors include age, gender, occupation, level of education, income, types of tea, tea taste preferences and time of the day they prefer to drink tea. The survey consists of 17 questions, in which there are 10 questions with only one possible answer, and 7 questions with multiple answers. This set of questionnaires is created to provide convenience to both the respondents and the author herself with closed questions and each of the question is linked to one another. These can shorten the time filling the answers and attract the attention from the participants as well as allowing the author to get result faster. The first part of the survey is to ask about personal information of the individual while in the second part, the questions are related to tea consumption and the respondents' tea preferences.

There is no age restriction imposed on this questionnaire meaning everyone can take part in this, however, there is one precondition for all participants: they have to be either of Chinese nationality or currently living in China for at least 1 year. To gather as many responses as possible, the survey is distributed online and published on different social media platforms such as WeChat, WhatsApp, Facebook, Instagram, HelloTalk and many other applications.

### 5.3 Evaluation of personal questions

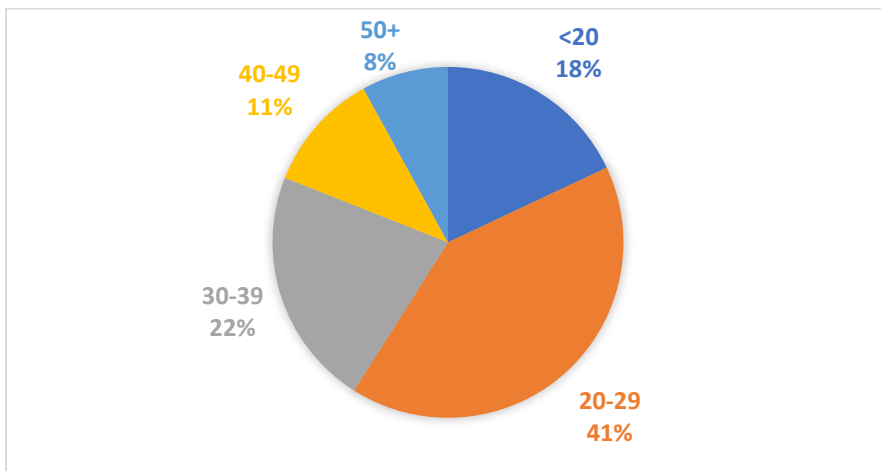
From the data obtained from the survey, there is a total of 170 samples, in which there are 84 males, which represents 48% of the total sample, and 86 women, which accounting for 52% of the total. Based on the results obtained, most respondents taking part in this survey belong to 20-29 age category, accounts for 41%. the second age group also belong to younger generation, which is 30-39 group in which accounts for 22% of the total respondents.

Figure 4 Gender



Source: (Own work, Excel)

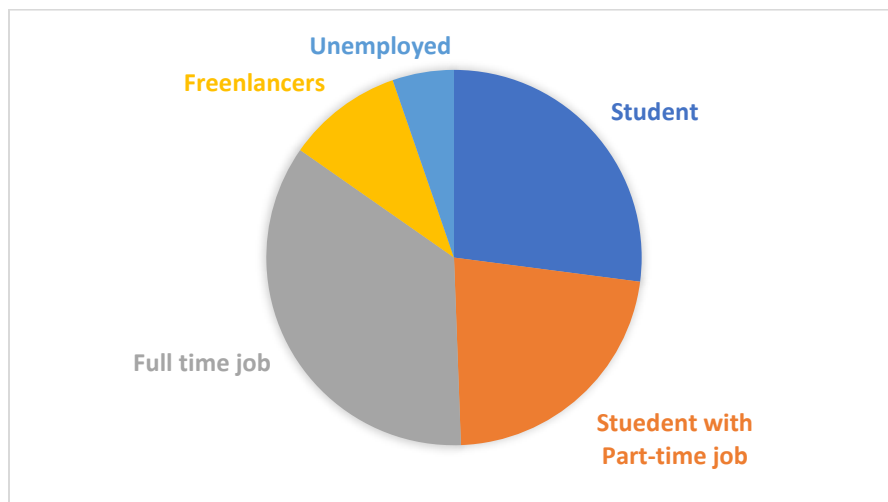
Figure 5 Age Category



Source: (Own work, Excel)

According to the *Figure 6*, it has shown that 60 (35%) participants choosing the occupation category of “Full time job” while the other participants choose between “Student” and “Student with part-time job”, in which represent 27% and 23% respectively. Due to the nature of survey that is distributed among the author’s circle of friends, the result is heterogeneous as most of the tea consumers are students and some of them have a part time job and especially, it is surprising to see the result that people with full time job has the most responses. Freelancers and unemployed residents only account for around 15% of the total response.

*Figure 6 Occupation Category*

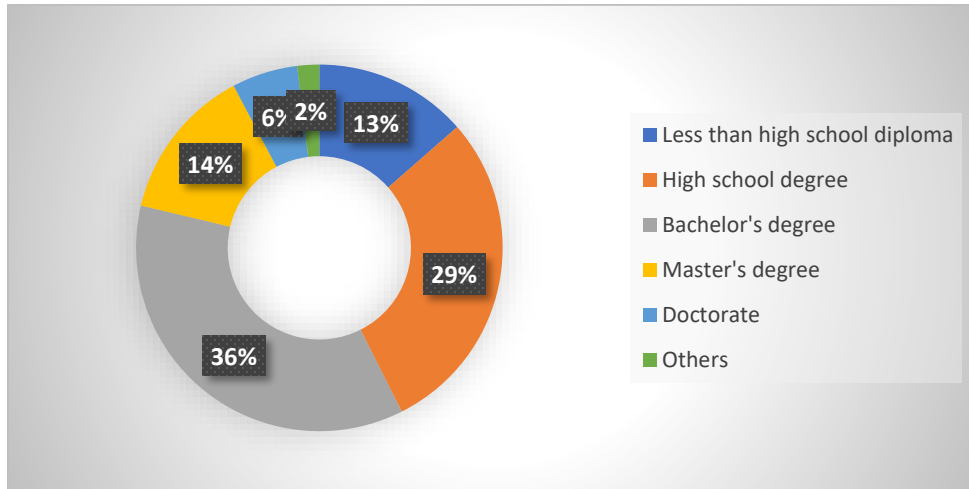


*Source: (Own work, Excel)*

Following the previous question, this question then adds to the survey to get better understanding of the educational background of the participants. It is divided into 6 categories to choose from, and they are “Less than high school degree”, “High school degree”, “Bachelor’s degree”, “Master’s degree”, “Doctorate”, and “Others”. The results show that the category with “Bachelor’s degree” has the most responses (36%) and following up by “High school degree” which represents 29% of the total sample.

As the sample size is too small, it cannot be used to represent the whole population, however, it is satisfying to know the level of education of each respondent have received as over half of the proportion belongs to students.

Figure 7 Level of Education category



Source: (Own work, Excel)

It can be seen that the result from this Figure 8 has influenced by the respondents' occupations as it includes both student and employees. Therefore, the total monthly income is between \$300 to \$499 with a proportion of 25%.

Figure 8 Monthly Income



Source: (Own work, Excel)



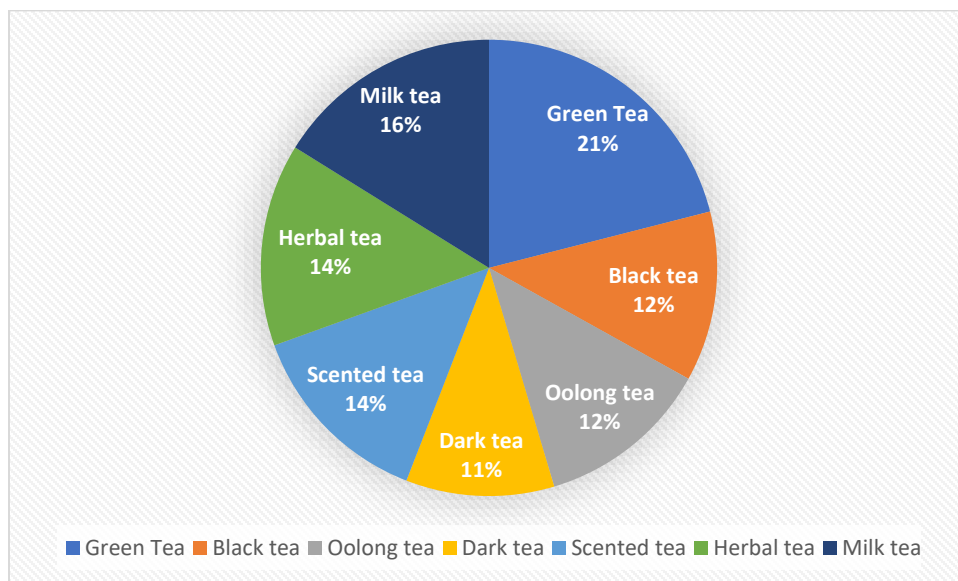
## 5.4 Evaluation of tea-related questions

In this section, the second part of the questionnaire that ask participants related to their tea consumption and tea preferences. Firstly, the question asking if the respondents like to drink tea; out of 170 responses, only 24 (14%) people answer “No”. Based on gender, 10 females choose this answer while the 14 people are male.

In the literature review part, there is an introduction to types of tea that are popular among Chinese people. They are “Green tea”, “Black tea”, “Oolong tea”, “Dark tea”, “Herbal tea”, “Scented tea”, and “Milk tea”. There are also options for those who does not like drinking tea, “None”, and “Others”.

In the consumption of tea, the 170 sample shows that 48% of people prefer green tea, 28% of people prefer black tea, 28% of people prefer oolong tea, 21% of people dark tea, 31% of consumers likes scented tea, 36% choose herbal tea and 37% of choose milk tea. The other two options accounts for only 11%. From this result, we can see that green tea is the favorite of Chinese people followed by black tea and oolong tea, which has similar result, milk tea, herbal tea, scented tea, and dark tea. China exports green tea, therefore, in the Chinese tea market, green tea alone accounts for 83% in the year 2020. Not only this, 53.3% of tea consumers prefer tea with smooth and fresh taste.

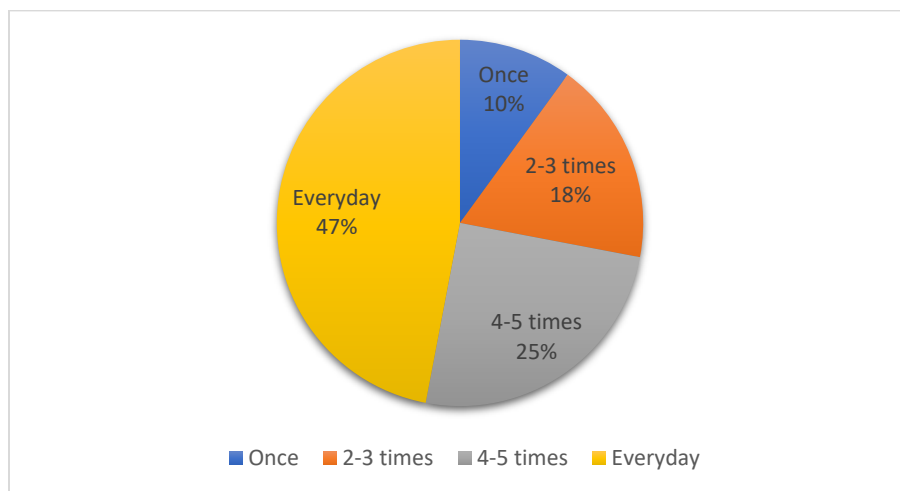
*Figure 9 Tea Type Preferences*



*Source: (Own work, Excel)*

Regarding to the frequency of drinking tea, respondents can choose ranging from once per week up to everyday of the week. The total amount of tea consumed monthly reach up to 1 to 2 catties (600g to 1300g). In addition, respondents prefer to drink tea in the afternoon the most (37%) than in the morning and in the evening, respectively 29% and 34%. As the question allows multiple answers, therefore, the result of each category is very close, we can assume that in anytime of the day, Chinese people like to drink tea. Moreover, when asked about the length of time they have been drinking tea, 40% of respondents said that it has been more than 10 years.

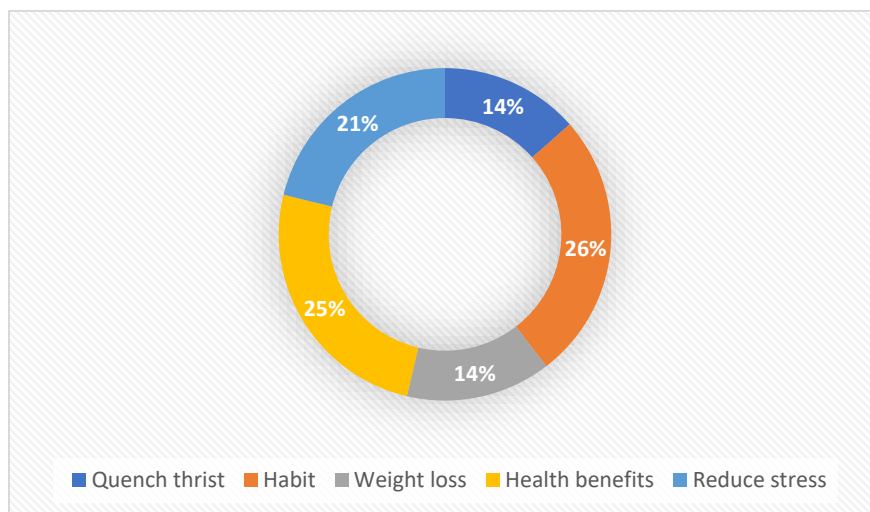
*Figure 10 Frequency of Tea Consumption*



*Source: (Own work, Excel)*

Another important question in this survey is to ask tea consumers what their reasons are when choosing tea to consume. Each of the respondent has their own preferences for tea consumption, thus most of them consider it as a habitual activity for them (50%) as well as the various health benefits (48%) gaining from tea. There are other reasons such as drinking tea to quench thirst (26%), to lose weight (27%), and to reduce stress (41%). For women, weight loss is an attractive sign for them, therefore, tea with property to reduce fat in the body is well-liked.

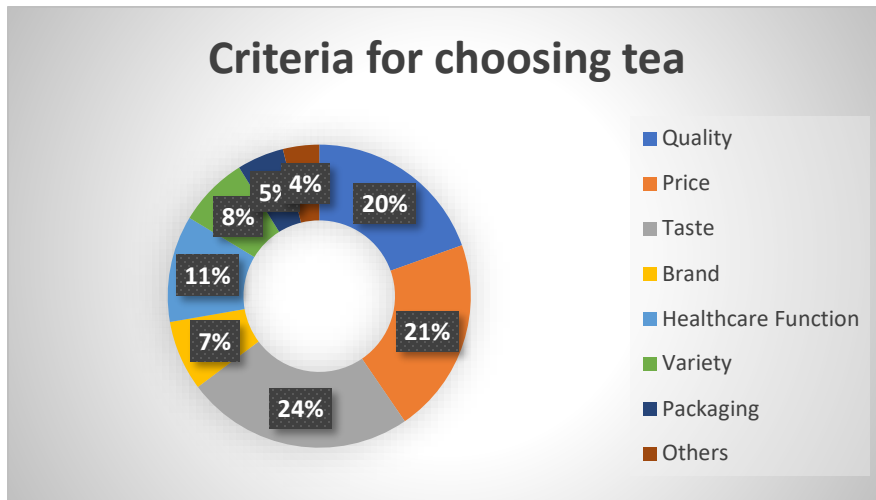
Figure 11 Purposes for Tea Consumption



Source: (Own Work, Excel)

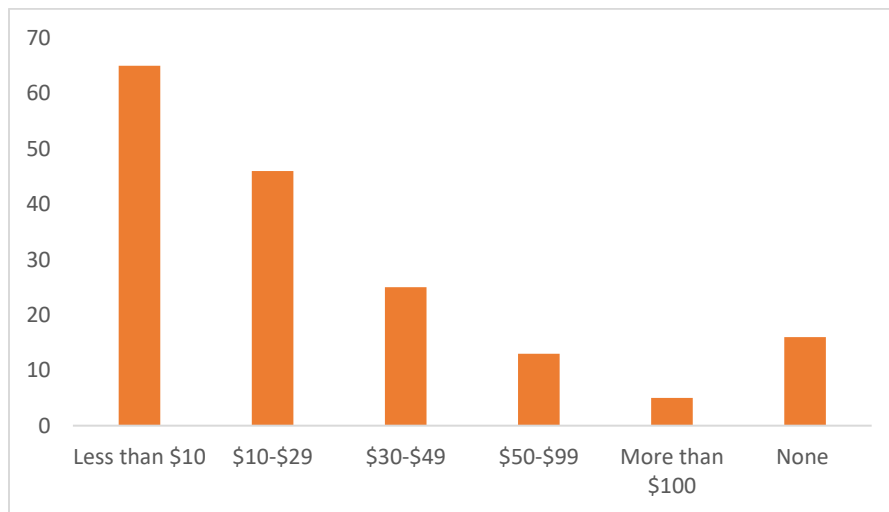
Criteria for choosing tea as a tea consumer is another topic that is added to the questionnaire. Concerning this topic, personal factors or preferences that may sway the decisions made by consumers are quite diversified. Following the 170 responses, 63% choose taste as their priority, follow by price (54%), quality (51%), healthcare function (30%), variety and brand (both has 19%) and packaging (13%). It seemed that tea consumers in China take taste, price, quality, and health care function into considerations. As price is listed as one of the most important factors impacting on consumer choices of buying tea, the survey also has a question about the amount of expense spending on tea consumption. Most respondents choose the category “Less than \$10” which has around 38% of the total sample.

Figure 12 Criteria for Choosing Tea



Source: (Own work, Excel)

Figure 13 Monthly Expense on Tea Consumption



Source: (Own work, Excel)

### 5.5 Hypothesis testing

To verify what factors are assumed to have influence on consumer behavior, 5 hypotheses are proposed:

H0: There is no dependency between age and tea consumption

H0: There is no dependency between gender and tea consumption

H0: There is no dependency between occupation and tea consumption

H0: There is no dependency between income and tea consumption

H0: There is no dependency between education and tea consumption

### 5.5.1 Analysis of dependency between age and tea consumption

*H0: There is no dependency between age and tea consumption*

*HA: There is dependency between age and tea consumption*

Let  $\alpha = 0.05$

*Table 3 Contingency Table: Age and Tea Consumption*

Table of age by tea consumption			
Age	Tea Consumption		Total
	YES	NO	
<20	20	11	31
	26.624	4.3765	
20-29	64	5	69
	59.259	9.7412	
30-50	62	8	70
	60.118	9.8824	
<b>Total</b>	<b>146</b>	<b>24</b>	<b>170</b>

*Source: (Own Work, SAS Studio)*

*Table 4 Statistic: Age and Tea Consumption*

Statistic	DF	Value	Prob
Chi-Square	2	14.7766	0.0006
Likelihood Ratio Chi-Square	2	12.4586	0.002
Mantel-Haenszel Chi-Square	1	6.4443	0.0111
Phi Coefficient		0.2948	
Contingency Coefficient		0.2828	
Cramer's V		0.2948	

*Source: (Own Work, SAS Studio)*

To meet the criteria for using  $\chi^2$  test, age category “30-39”, “40-49”, and “50 +” are merged together. P value is less than  $\alpha$ , null hypothesis is rejected, and we can conclude that **there is dependency between age and tea consumption.**

### 5.5.2 Analysis of dependency between gender and of tea consumption

*H0: There is no dependency between gender and tea consumption*

*HA: There is dependency between gender and tea consumption*

Let  $\alpha = 0.05$

*Table 5 Contingency Table: Gender and Tea Consumption*

Table of Gender by Tea Consumption			
Gender	Tea Consumption		Total
	YES	NO	
Female	76	10	86
	73.859	12.141	
Male	70	14	84
	72.141	11.859	
Total	146	24	170

*Source: (Own work, SAS Studio)*

*Table 6 Statistic: Gender and Tea Consumption*

Statistic	DF	Value	Prob
Chi-Square	1	0.8898	0.3455
Likelihood Ratio Chi-Square	1	0.8929	0.3447
Continuity Adj. Chi-Square	1	0.5228	0.4697
Mantel-Haenszel Chi-Square	1	0.8846	0.3469
Phi Coefficient		0.0723	
Contingency Coefficient		0.0722	
Cramer's V		0.0723	

*Source: (Own work, SAS Studio)*

The sample size is greater than 40, then we can use  $\chi^2$  test to test this hypothesis. P value is greater than  $\alpha$ , null hypothesis is accepted, and we can conclude that **there is no dependency between age and tea consumption**. In tea consumption, gender may not have much effect as tea is a beverage love by people regardless of gender.

### 5.5.3 Analysis of dependency between occupation and tea consumption

*H0: There is no dependency between occupation and tea consumption*

*HA: There is dependency between occupation and tea consumption*

Let  $\alpha = 0.05$

*Table 7 Contingency Table: Occupation and Tea Consumption*

Table of Tea Consumption by Occupation						
Tea Consumption	Occupation					Total
	Student	Part-time job	Full-time job	Freelancer	Unemployed	
YES	36 39.506	37 32.635	51 51.529	14 14.6	8 7.7294	146
NO	10 6.4941	1 5.3647	9 8.4706	3 2.4	1 1.2706	24
Total	46	38	60	17	9	170

*Source: (Own work, SAS Studio)*

*Table 8 Statistic: Occupation and Tea Consumption*

Statistic	DF	Value	Prob
Chi-Square	4	6.6189	0.1574
Likelihood Ratio Chi-Square	4	8.1451	0.0864
Mantel-Haenszel Chi-Square	1	0.2475	0.6188
Phi Coefficient		0.1973	
Contingency Coefficient		0.1936	
Cramer's V		0.1973	

*Source: (Own work, SAS Studio)*

The sample size is greater than 40, then we can use  $\chi^2$  test to test this hypothesis. P value is greater than  $\alpha$ , null hypothesis is accepted, and we can conclude that **there is no dependency between occupation and tea consumption.**

#### 5.5.4 Analysis of dependency between level of education and tea consumption

*H0: There is no dependency between level of education and tea consumption*

*HA: There is dependency between level of education and tea consumption*

Let  $\alpha = 0.05$

*Table 9 Contingency Table: Education and Tea Consumption*

Table of Education by Tea Consumption			
Education	Tea Consumption		Total
	YES	NO	
< High School Diploma	15 18.035	6 2.9647	21
High School Degree	38 38.647	7 6.3529	45
Bachelor's Degree	51 48.094	5 7.9059	56
Master's Degree	31 30.918	5 5.0824	36
Doctorate	11 10.306	1 1.6941	12
<b>Total</b>	146	24	170

*Source: (Own work, SAS Studio)*



Table 10 Statistic: Education and Tea Consumption

Statistic	DF	Value	Prob
Chi-Square	4	5.2715	0.2606
Likelihood Ratio Chi-Square	4	4.7895	0.3096
Mantel-Haenszel Chi-Square	1	2.6339	0.1046
Phi Coefficient		0.1761	
Contingency Coefficient		0.1734	
Cramer's V		0.1761	

Source: (Own work, SAS Studio)

The sample size is greater than 40, then we can use  $\chi^2$  test to test this hypothesis. P value is greater than  $\alpha$ , null hypothesis is accepted, and we can conclude that **there is no dependency between level of education and tea consumption.**

### 5.5.5 Analysis of dependency between income and tea consumption

*H<sub>0</sub>: There is no dependency between income and tea consumption*

*H<sub>A</sub>: There is dependency between income and tea consumption*

Let  $\alpha = 0.05$

Table 11 Contingency Table: Income and Tea Consumption

Table of Income by Tea Consumption			
Income	Tea Consumption		Total
	YES	NO	
<b>&lt;\$100</b>	29	9	38
	32.635	5.3647	
<b>\$100-\$299</b>	25	4	29
	24.906	4.0941	
<b>\$300-\$499</b>	36	6	42
	36.071	5.9294	
<b>\$500-\$999</b>	30	2	32
	27.482	4.5176	
<b>\$1000-\$2999</b>	26	3	29
	24.906	4.0941	
<b>Total</b>	146	24	170

Source: (Own work, SAS Studio)

Category “\$1000-\$2999” and “More than \$3000” are merged due to insufficient responses. Unfortunately, 25% of the expected frequencies are < 5, so hypothesis cannot be tested.

## 6 Conclusion and comparison

The main objectives for this thesis are to analyze the tea consumption and factors influencing consumption behavior in China. To do so, there is a discussion about tea's history and types of tea, a brief introduction to Chinese tea market and factors that have impact on the changes in consumer preferences when purchasing tea products.

Based on the Statistic in literature review, China's tea market has a steady increase for over the last 10 years with production, consumption, and total sale volumes. Although China is the largest world's producer and exporter of tea, the domestic consumption is still increasing and that the demand is getting higher.

As mentioned earlier, in the analytical part results from the survey will be elaborated. With 170 samples, there are 86 female participants and 84 male participants. The popular and most preferred tea types are green tea (48%), milk tea (37%), and herbal tea (36%). Strong and fresh taste is the most preferred tea taste with 53%. Moreover, Chinese tea consumers like to drink their tea in the afternoon (61%) than in the morning and evening. As for their purposes to consume tea, result has shown that it is due to their liking (50%) and self-awareness of the health benefits brought by tea. In addition, most of the respondents chose several most important criteria for tea consumption, which include taste (63%), price (54%), and quality (51%).

Contingency table is used in this paper to analyze if there is any relationship between personal factors and tea consumption in China. There are 5 hypotheses that are to be tested. The results obtained from SAS Studio indicated that out of 5 hypotheses, there is only one hypothesis that is verified to have dependency between 2 variables. After hypotheses testing, the following results are:

- There is dependency between age and tea consumption
- There is no dependency between gender and tea consumption
- There is no dependency between occupation and tea consumption
- There is no dependency between level of education and tea consumption
- The dependency between income and tea consumption cannot be tested

Therefore, we can conclude that age is the most important factor that have influence on the consumer behavior. However, as the dependency between income and tea consumption cannot be tested, and respondents choose “price” as one of the criteria to purchase tea; we can assume that income may also be another factor contributed to the changes in consumer preferences.

According to (Gao , 2017), with 300 samples covers people from different districts in Yunnan province, he proposed research hypotheses to verify if there is any correlation between personal factors and tea consumption. From the empirical analysis, it can be concluded that factors such as age (20-35) and gender (female) have positive correlations with tea consumption. In addition, according to the analysis of 512 824 samples from ten project area of China Kadoorie Biobank, it is assumed that both education level and income are the main factors that can influence the daily consumption of tea. (Guan, et al., 2018). The length of drinking tea is also tested to be positive correlated to frequency of drinking tea. Consequently, comparing to the two scientific papers, we receive different assumptions how choices of consumers related to tea consumption in China.

In my opinion, due to smaller size sample (170 responses), the assumptions proposed cannot be accurately verified as it only represents a small group of people in the whole country of China. Moreover, the survey is distributed to different respondents from different regions of China, therefore, the responses obtained can also create a deviation in the testing. To sum up from these comparisons, although it is unknown exactly which personal factors influence the most on consumer preferences, but we can understand that personal factors play an important role in tea consumption, whether it is age, gender, income, or level of education- at least one of them will have impact on individual’s choices.

The above conclusions indicate that there is a lot going on with the Chinese tea’s consumption and that factors affecting consumer behavior is a complicated topic to discuss. Moreover, this research of consumer behavior should not only focus solely on personal factors and that for the future trend of Chinese tea markets, marketers should also consider on all aspects of different groups of people and further develop new products that match their preferences.

## 7 References

### Bibliography

- Booz, P. R., 2011. *Tea, Trade and Transport in the Sino-Tibetan Borderlands*. PhD Thesis ed. s.l.:Oxford University.
- Christie, A., 1968. *Chinese Mythology*. London: Hamlyn. ISBN-13: 978-0600006374
- Consulting, D., 2020. *The Tea Market in China*, Hong Kong, Beijing, Shanghai: s.n.
- Durmaz, Y., 2014. The Influence of Cultural Factors on Consumer Buying Behavior and an Application in Turkey. *Global journal of Management and Business Research: E-Marketing*, 14(1).
- Gao , Z., 2017. *Study on Consumer Behavior and Marketing Strategies in Yunnan Tea Market*. Master's Thesis ed. s.l.:Graduate School of Business Siam University.
- GIAHS, P., 2014. *Jasmine and Tea Culture System of Fuzhou City*, Fuzhou: s.n.
- Guan, X. et al., 2018. Research on the behavior of Tea Consumption in China with CKB Data. *Journal of Tea Science*, 38(3), pp. 287-295.
- Hawkins, D. I. & Mothersbaugh, D. L., 2008. *Consumer Behavior: Building Marketing Strategy*. 11 ed. ed. New York: McGraw-Hill/Irwin. ISBN-13: 978-0-07-338110-7
- Hlavsa, T. & Pacáková, Z., 2020. *Statistics II*. Prague: s.n.
- Hohenegger , B., 2009. *Steeped in History: The Art of Tea*. Los Angeles: Fowler Museum at UCLA. ISBN-10: 978-0977834419
- Kotler, P., Armstrong, G. & Opresnik, M. O., 2017. *Principles of Marketing*. 17th edition ed. s.l.:Pearson. ISBN-13: 978-0134492513
- Li, C. et al., 2019. Systematic Review of Herbal Tea ( a traditional chinese treatment method) in the therapy of Chronic Simple Pharyngitis and Preliminary Exploration about its Medication Rules. *Hindawi*, 19 September.
- M Ganesh Babu, G. V. N. P., 2010. Consumer Buying Behavior.
- Nan, Z., 2014. *Coffee Market in China: Trends and Consumer Strategies*. Master thesis ed. s.l.:s.n.
- Pindyck, R. S. & Rubinfeld, D. L., 2011. *Microeconomics*. s.l.:Pearson. ISBN-13: 978-0-13-285712-3
- Roberts, J., 2004. *Chinese Mythology A to Z*. New York: Facts on File, Inc.. ISBN 13: 978-0816048700
- Sigley, G., 2015. Tea and China's rise: tea, nationalism and culture in the 21st century. *International Communication of Chinese Culture*, November.pp. 319-341.
- Soni, R. P. et al., 2015. Tea: Production, Composition, Consumption and its Potential and Antioxidant and Antimicrobial Agent. December.pp. 95-106.
- Špolc, M., 2014. *Service of Chinese teas in history and in the present and its profitability*. Bachelor Thesis ed. Prague: s.n.

## Websites

Anon., 2021. *The Leaf: How can such complexity come from just one plant?*. [Online]  
Available at: <https://www.theteaspot.com/pages/about-tea>

Anon., n.d. [Online]  
Available at: <https://online.maryville.edu/blog/evolution-social-media/>

Falkowitz, M., 2015. *Why Tea Addicts Go Crazy For Pu-Erh*. [Online]  
Available at: <https://www.seriousseats.com/2015/08/what-is-puerh-tea-where-to-buy.html?fbclid=IwAR2VSDdvoYo7cZhgli-i0PlifqjFWARi9gKTldhRM-udyDtONFW5WFgm3JM>

Statista, 2020. *Locally produced tea sales volume in China 2009-2019*. [Online]  
Available at: <https://www.statista.com/statistics/1033714/china-domestic-tea-sales-volume/?fbclid=IwAR1Rb2Jzk3mSe2XCSXjclmNszy9LTYd-1w-MX71EkRgTw-ZFFGnKLF0YYAg>

Statista, 2020. *Tea production in China from 2000-2019*. [Online]  
Available at: <https://www.statista.com/statistics/275639/tea-production-in-china/>

Tse, A. & Duhalde, M., 2018. *Chinese Herbal Tea: History, Health and how to make it*. [Online]  
Available at: <https://multimedia.scmp.com/news/hong-kong/article/2162156/herbal-tea/>

Waldmeir, P., 2016. *China's children are legally bound to respect their elders*. [Online]  
Available at: <https://www.ft.com/content/d33fdde0-ffc9-11e5-99cb-83242733f755>

## 8 Appendix

### Questionnaire

1) What is your gender?

- Male
- Female

2) What is your age?

- <20
- 20-29
- 30-39
- 40-49

- 50 +

3) What is your occupation?

- Student
- Student with part time job
- Full time job
- Freelancer
- Unemployed

4) What is the highest degree or level of your education you have completed?

- Less than a high school diploma
- High school degree
- Bachelor's degree
- Master's degree
- Doctorate
- Others

5) What is your monthly income?

- Below \$100
- \$100-\$299
- \$300-\$499
- \$499-\$999
- \$1000-\$2900
- \$3000 +

6) Do you like drinking tea?

- Yes
- No

7) What types of tea do you prefer?

- Green tea
- Black tea
- Oolong tea
- Dark tea (Pu'er)
- Scented tea
- Herbal tea
- Milk tea
- None
- Others

8) When did you start drinking tea?

- Less than one year
- 1-2 years
- 3-4 years
- 5-10 years
- More than 10 years

9) How often do you drink tea per week?

- Once
- 2-3 times
- 4-5 time



- Everyday
- None

10) What time of the day do you like drinking tea?

- In the morning
- In the afternoon
- In the evening
- I do not drink tea
- Others

11) Your monthly expense on tea consumption

- None
- Less than \$10
- \$10-\$29
- \$30-\$49
- \$50-\$99
- More than \$100

12) The amount of your monthly tea consumption

- Less than 1 catty (600g)
- 1-3 catties (600-1800g)
- 4-5 catties (2400-3000g)
- More than 5 catties (3000g)

13) What is your tea taste preference?

- Smooth fresh type

- Strong type
- Aromatic type
- Tea with nice-looking leaves
- Tea with sweet/fruity/creamy taste
- I do not drink tea
- Others

14) What is your purpose of drinking tea?

- It can quench thirst
- Habit
- Weight loss
- Health benefits
- Reduce stress
- I do not drink tea
- Others

15) What are your criteria for purchasing tea?

- Quality
- Price
- Taste
- Brand
- Health care function
- Variety
- Packaging

- Others

16) Where do you purchase your tea from?

- Mall / supermarket
- Grocery store
- Tea wholesale market
- Online channels
- Branded tea stores
- Others

17) Where do you get your information about tea from?

- TV
- Newspaper / magazine
- Social media and websites
- Outdoor billboard
- Other's recommendation
- Others

*Table 12 Tea Production in China*

<b>Year</b>	<b>Production (metric tons)</b>	<b>Production change (%)</b>
2010	1462500	0%
2011	1607600	10%
2012	1761500	10%
2013	1887200	7%
2014	2049300	9%
2015	2276600	11%
2016	2313300	2%
2017	2460400	6%
2018	2610400	6%
2019	2800000	7%

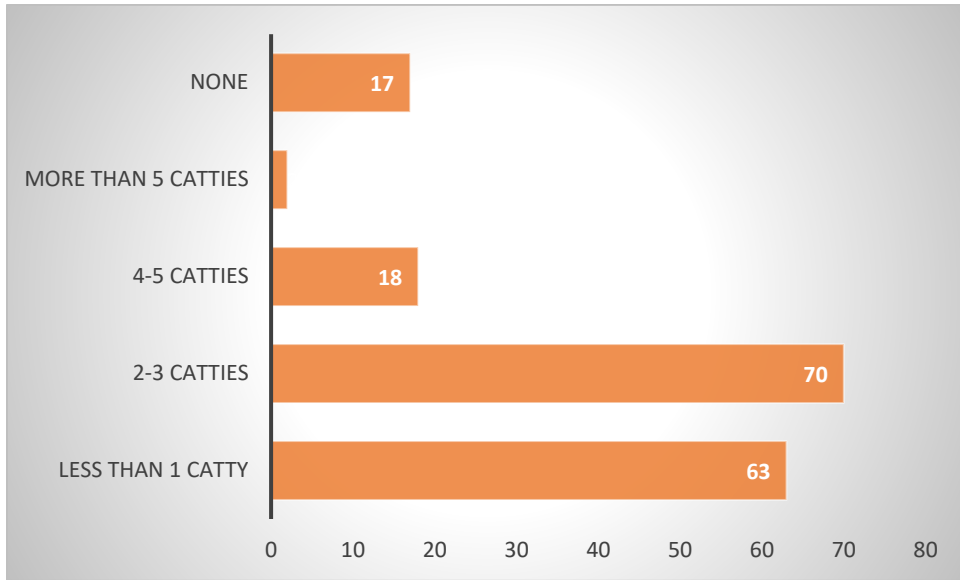
*Source: (Own work)*

*Table 13 Domestic Tea Consumption and Sales Volume*

<b>Year</b>	<b>Sales Volume (metric tons)</b>	<b>Per capital Consumption (kg)</b>
2011	1096100	0.8
2012	1240100	0.9
2013	1338300	1
2014	1502500	1.1
2015	1679100	1.2
2016	1710600	1.2
2017	1817000	1.3
2018	1910500	1.4

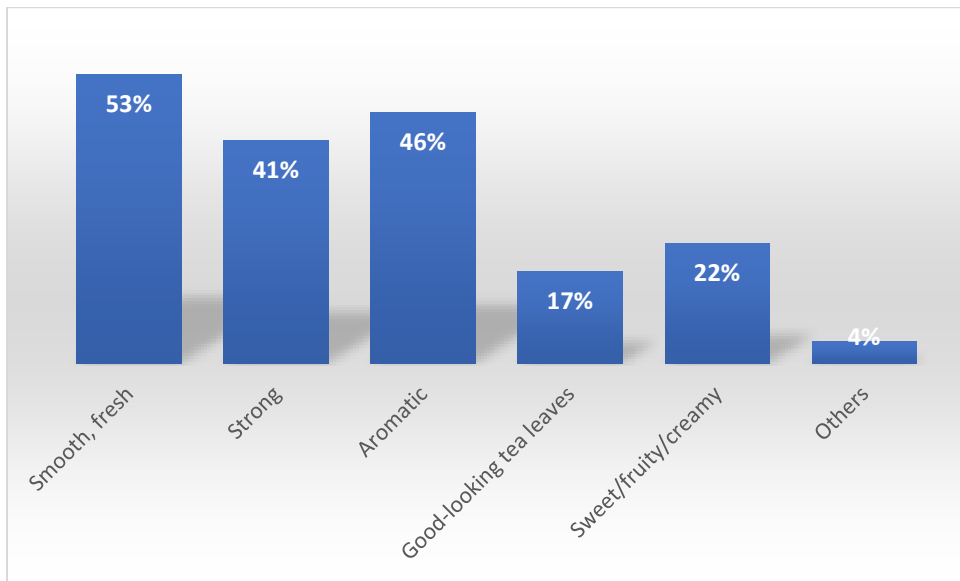
*Source: (Own work)*

Figure 14 The Amount of Monthly Tea Consumption



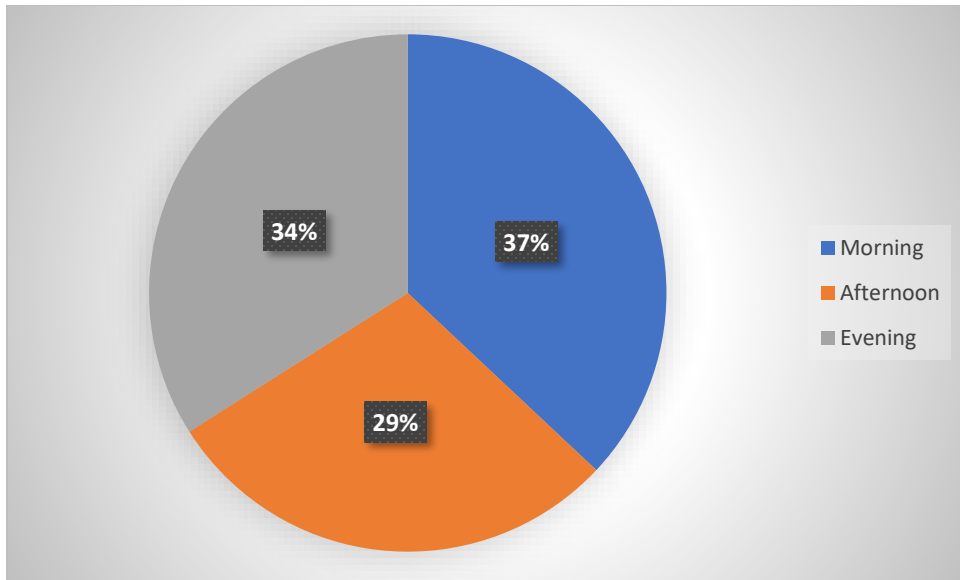
Source: (Own work, Excel)

Figure 15 Tea Taste Preference



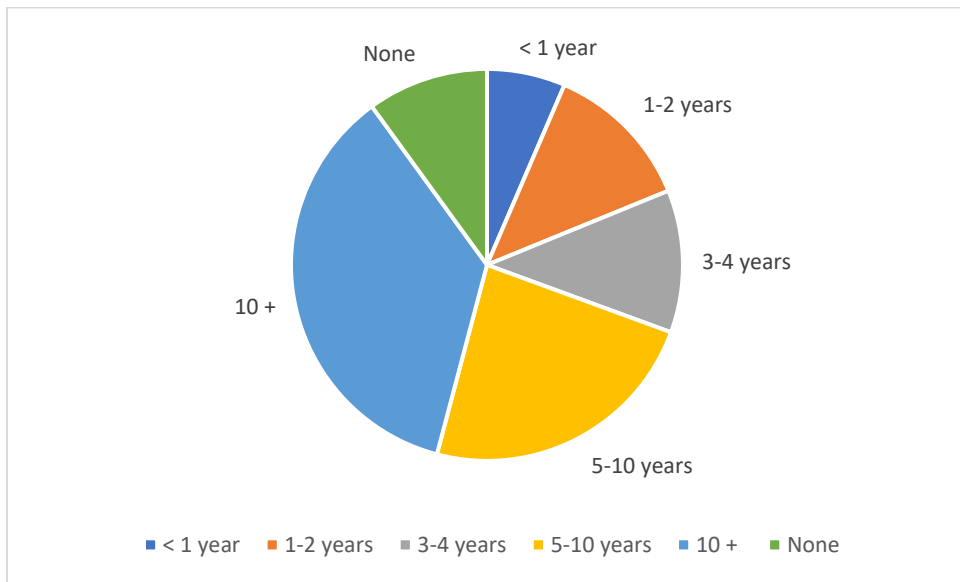
Source: (Own work, Excel)

Figure 16 Time of the Day Preferred drinking Tea



Source: (Own work, Excel)

Figure 17 Length of drinking tea



Source: (Own work, Excel)