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Chinese Impulse Consumption: Analyzing Differences by Gender and Amongst Varied Demographic Groups

Shengzhe Xu
Shanghai Hongrun Boyuan School

Abstract: *Impulse buying behaviors contribute significantly to Chinese consumption.This paper studies factors which cause impulse consumption and analyzes survey data from 224 respondents. Cross analysis, linear and stepwise regression models are constructed to investigate factors of impulse buying behaviors. These models are used to ascertain the mechanisms that boost impulsiveness. The results show some intriguing relationships between the moods and feelings of Chinese males and females and their impulse buying behaviors. The results also demonstrate how different demographic backgrounds influence decision making, and shows the impacts of internal and external factors on consumption impulsiveness.*

Keywords: *Impulse Consumption; Consumer Buying Behavior; Behavioral Economics; Consumer Traits; Intertemporal Consumer Choice; China.*

JEL Classifications: C2, C12, C13, C93, D01, D12, D91

I. Introduction

Like the economies of most countries worldwide, the Chinese economy is continuously driven by private consumption which is a strong stimulator. Under the circumstances of improving living standards, people tend to develop distinctive living and shopping styles. Currently, shopping is no longer focused merely on acquiring necessities to live, it is rather a kind of leisure or entertainment activity undertaken in response to mental demands (e.g., Bayley and Nancarrow, 1998; Dittmar, 2005).

Amongst various consumption behaviors, it is widely observed that impulse consumption is a ubiquitous phenomenon, which exists in every marketplace, attracting the focus of sellers and their marketing activities (e.g., Gardner and Rook, 1988). Such a form of consumption has now been observed as being a prevalent consumer style in diverse regions and cultures, regardless of people's races and social classes, or product prices (Kacen and Lee, 2002).

The phenomenon of impulse buying has become prevalent only recently. The Chinese "Double Eleven" shopping festival is an example. The sale revenue on the "Tmall" platform exceeded 372.3 billion CYN within 30 minutes of the platform's launch on November 11th, 2020, and approached 500 billion CYN by the end of theday. However, the return rate of purchased products approached 25% only days later (e.g., www.mnw.cn), which demonstrates that a great fraction of consumers was dissatisfying with what they consumed.

Several days before and after November 11, e-commerce platforms posted numerous advertisements about the high discounts for commodities; there would be a grand of short turn loans supported by internet giant companies.

The advertising of "Double Eleven" creates certain illusions. For example, it might convince many consumers that products are now much cheaper than at other times in the year, and that it would be more cost-effective to purchase as much as they can now. "Coincidentally", people's spending power is now much greater, even for lower income earners, since they can borrow money more easily from "Huabei" or "Mayi" (personal lending platforms) without paying interests. Together these factors push consumers towards purchasing desired commodities with little consideration for their actual usefulness. Consumers may even be motivated to purchase products for future use that are, in fact, not useful at all.

Another example of impulse consumption is Chinese online live sales. China was deeply impacted by the COVID pandemic at the outset. The Chinese government enacted restrictive policies to prevent the spread of the epidemic. People were trapped at home, which hugely inhibited the consumption-led Chinese economy, affecting enterprises' sales and currency flows. Even though the restrictions became less severe a few months later, people preferred to stay home.

However, the demands for shopping did not disappear, instead shifting from on site to online shopping modes. People's desire to purchase, while avoiding the dangers of going outside, was satisfied by the option of shopping online. Online sales for physical consumer goods increase by 5.9% in the first quarter of 2020, despite the retail sales of consumer goods falling by 19.0% in the quarter (year on year). Online sales for physical consumer goods continued to increase by 8.6%, 11.5%, and 15,7% in April, May, and July year of 2020, respectively (e.g., National Bureau of Statistics, 2020, Lan Hong, Zhao Jiawei, 2020).

E-commerce platforms and individual sellers seized this opportunity. With the supporting policies (individuals are able to open their online shops and do Live Sales easier with subsidies) proposed by giant e-commerce platforms like "Taobao", the trends o f Live Sales were formed rapidly. Live sellers aggressively market the products they are selling, praying on people's desire to purchase goods. In this way, masses of people were encouraged to make decisions impulsively. Finally, e-commerce platforms demonstrated an extremely high sales on the Live Sales which refers to the sum of bills paid by live buyers.

These two examples demonstrate widely existing behaviors in the current consumer goods market. This paper performs an analysis to ascertain s uch model of consumption. The data for this analysis come from a survey that was administered to…. in various regions in China, for which 224 responses were received

The remainder of the paper is organized as follows. Section II reviews the literature. Section III describes the data. Section IV presents the methods of analysis and discusses the results. Section V concludes and suggests possible areas for future research.

II. Literature Review

Impulse sconsumption has been studied for over seventy years. The DuPont Consumer Buying Habit Study, which was conducted in the 1940s, was the initial research in this field (e.g., Robertson and Hirschman, 1978; Burroughs, 1996). The DuPont Study defines impulse consumption as unplanned purchases. However, from the perspective of today's economy, a more useful definition is needed since not all impulse consumption is unplanned. For example, unplanned buying may be made as a result of recalling an earlier consumption plan that was somehow forgotten. Another case of impulse consumption is habitual purchasing in which consumer decisions are motivated by "habit" and which generally involve neither deliberation nor product comparison (e.g., Herabadi, 2003).

Economists today apply a more complex model to understanding/analyzing impulse consumption than their predecessors did (Beatty and Ferrell, 1998), with the updated definition as follows: impulse consumption, in the form of excessive or compulsive purchases, is an action accompanied by strong non-deliberate emotionalresponses (e.g., Rook and Gardner, 1993).

Earlier research on impulse consumption failed to explain this behavior because it relied on the classic economic model which assumes rational behavior. For example, Holbrook and Hirschman (1982) state that consumers are assumed to be highly analytic and rational decision-makers in either an economic or psychological sense, not subject to the influence of prejudices or other irrationalities.

The classic economic model assumes that rational consumers, applying cost-benefit analyses based on thorough information collection and strong processing capabilities, collect and compare all the information about a given product and its substitutes (e.g., Pligt, 1997). Then, they evaluate the pros and cons of each and make the choice that provides the highest utility at the lowest cost (e.g., Fishbein and Ajzen, 1980). Clearly, such a buying behavior belongs to the expectancy-value model. (e.g., Zeelenberg, Vries, and Richard, 1998).

According to this theoretical model, rational decision-makers tend to make decisions that they expect will result in positive outcomes. By applying their own individual judgments, rational consumers – so the theory goes – choose the optimal option with the greatest expected utility (e.g., Fishbein and Ajzen, 1980).

However, people are not always rational; actual consumers behavior cannot be explained by classical cost-benefit analyses. In contrast, the psychological method with its dual systems approach, in which cognition and effects are both taken into consideration, is more effective in analyzing actual consumer behavior (Dittmar and Drury, 2000). In this model, cost-benefit analysis is treated as a cognitive behavior thatconsumers perform while shopping, whereas the specific emotions they experience as buyers are acknowledged as having a strong affective impact on consumer outcomes (e.g., Verplanken, Knippenberg, and Verplanken, 2019).

Although information processing does play a part in confirming a purchasing decision, it is less influential as compared with emotional commitment (Weinberg and Gottwald, 1982). Consumers make affective-driven decisions especially when cognitive information is limited (e.g., Mano and Oliver, 1993, Shiv and Fedorikhin, 1999).

Moreover, both of these systems are always in play, yet often they are in conflict (Crites, Fabrigar and Petty, 1994). Such conflict is demonstrated, for example, when consumers hesitate between the price of a given product and their feeling of excitement at the prospect of buying it. For impulsive buyers, this tension almost always follows the affective system rather than the cognitive system, as emotional desires overwhelm utilitarian concerns (Hirschman and Holbrook, 1982, Faber and O'Guinn, 1992).

Further refining their understanding of the mechanisms behind impulse buying, researchers examined the factors contributing to impulse buying decisions. The focuses of their investigations gradually shifted from external to intrinsic factors.

Some of the earlier research focuses on situation-specific variables in the shopping environment. By creating an enjoyable shopping atmosphere with a specific combination of lights, aromas, and music, sellers can arouse consumers' positive emotions and direct their attention to certain products (Donovan, Rossiter, Marcoolynn, and Nesdale, 1994).

Subsequently, Mano (1999), and Mattila and Wirtz (2001) claimed that a carefully constructed atmosphere has a positive effect on consumers' attitude toward products and that it can stimulate purchasers' intentions and consumption desires. These factors are concluded as undesirable advocacy to buy by Sofi and Nika, which are related positively to consumers' impulse buying tendencies (Sofi and Nika, 2017).

Previous researchers tend to categorize products or surrounding factors into impulse intriguing and non-impulse intriguing groups. However, purchase of any category of commodities can be characterized as impulsive. Such categorizing downplays the importance of consumers' internal motivations (variables) and how they can lead to impulsive decisions (Rook, 1985, 1987). Belk (1988) proclaims that everyone's psychological distinctive variables e xplain their specific buying impulsive consumption behavior. In line with Dittmar (1992), Allen, Machleit, and Kleine (1992), these internal psychological variables (including moods, buying habits, self-control models, and motives) are considered be contributing factors to consuming impulsiveness.

Individual tastes also influence buying impulsiveness. Higgins (2002) suggests that for different consumers who hold unique psychological considerations, products might have special values to different consumers. Bellini, Cardinali, and Grandi (2017) claim that consumers who do more planning before they engage in shopping behavior tend to demonstrate lower levels of impulse buying. Moreover, the traits such as shopping enjoyment tendency and impulse buying tendency positively affect the urgeto consume, further influence the occurrence of impulse buying.

In the same year (2017), Park and Dhandra asserted that consumers' emotional intelligence (EI) is positively correlated with their mindfulness, implying that it is negatively associated with impulse buying tendency (IBT). It was pointed out that several other intrinsic factors are also associated with impulse buying tendencies. Cognitive dissonance, the holding of two opposing ideas at the same time. and affirmative buying sensations, are both positively correlated with an impulse buying tendency. However, extensive planning before shopping, anticipation of potentially negative consequences, and cognitive deliberation by consumers, are negatively associated with an impulse buying tendency (Sofi and Nika, 2017).

Gender differences are discussed by Sofi and Nika (2017) who observed that the gender index of these factors varies significantly between males and females. Females have higher index of cognitive dissonance and affirmative buying sensations compared with males. However, for factors that are negatively correlated with

impulse buying tendency, the index of females is lower than that of males. The results this study suggest that there are significant differences in the impulse buying tendencies of males versus females.

Overall, impulsive consumption seems to be determined by multiple factors, both external and intrinsic ones, and that they differentially impact different types of individual consumers and groups of consumers. The paper provides an investigation into the interrelationships of impulse consumption behaviors.

III. Data

An online survey was administered to Chinese consumers. The data are in two parts: those pertaining to impulse consumption behavior and those pertaining to respondent demographics. Figure 1 shows the genders of the respondents. Figure2 shows the age distribution of the respondents; Figure3 shows the geographic distribution of respondents' residences.

Figure1 Genders of Respondents

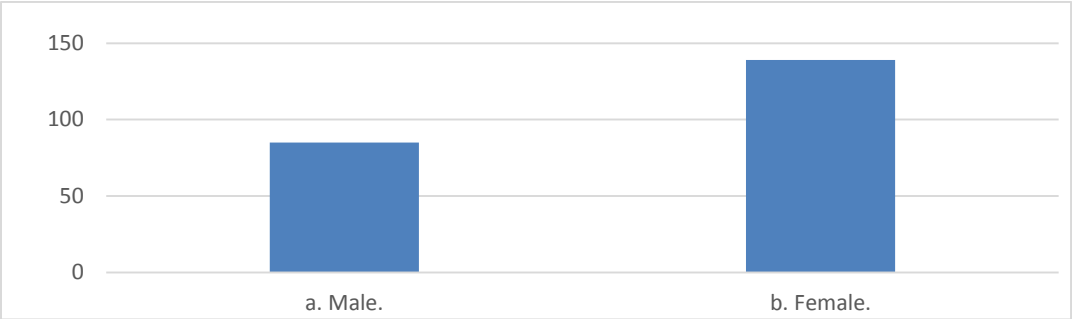


Figure2 Ages of Respondents

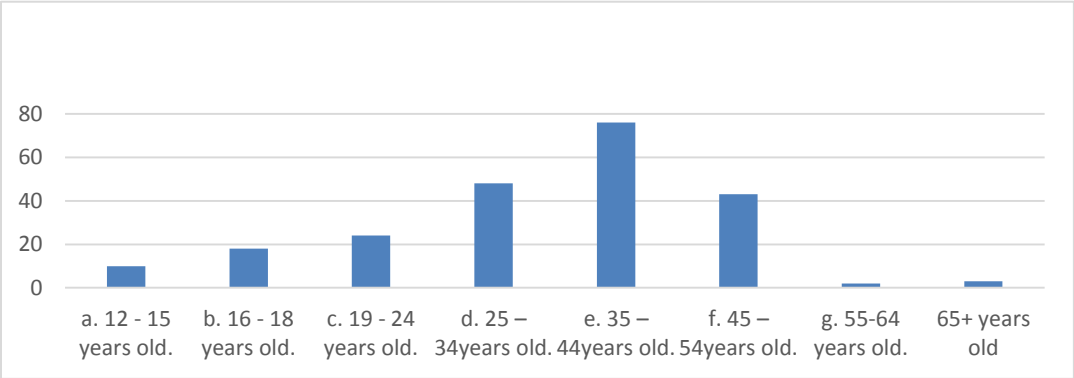
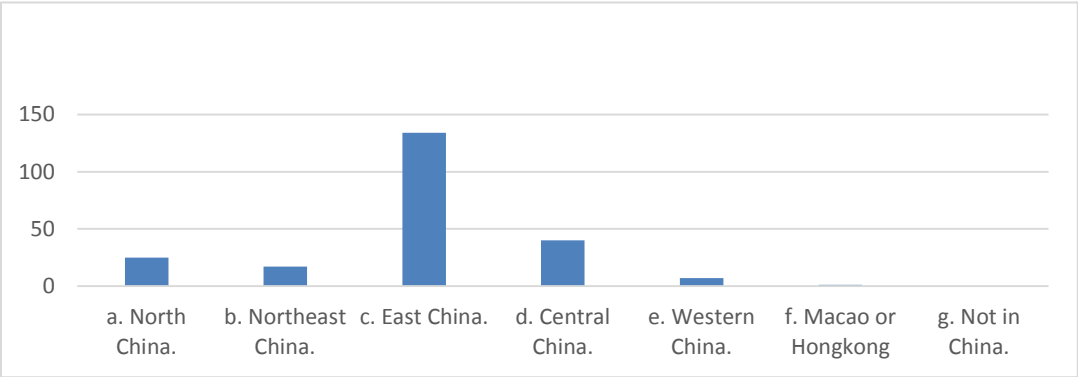


Figure3 Living Areas of Respondents



Data was gathered from 224 anonymous respondents from seven regions in China. Based on Figure 1, 62% of respondents are females and 38% are males. Figure 2 demonstrates that 4.5% of respondents are aged 12 to 15 years old, 8.0% of respondents are aged 16 to 18 years old, 10.7% of respondents are aged 19 to 24 years old, 21.4% of respondents are aged 25 to 34 years old, 33.9% of respondents are aged 35 to 44 years old, 19.2% are aged 45 to 54 years old, 0.9% of respondents are aged 55 to 64 years old, and 1.3% of respondents are 65 years old and older.

According to Figure 3, 11.2% of the respondents are living in Northern China, 7.6% of the respondents are living in Northeastern China, 59.8% of the respondents are living in Eastern China, 17.9% of the respondents are living in Central China, 1% of the respondents are living in Western China, and 0.4% of the respondents live in Hongkong, Macao or Taiwan.

Unexpectedly, when respondents were asked to self-assess their tendency to impulsive buy on a scale from 0 to 6, only a few people assessed their consumption behavior as extremely rational (2.2%) or impulsive (1.8%). Most respondents scored themselves either 3 (31.7%) or 4 (26.8%), indicating that they assessed themselves as being neither overly rational nor overly impulsive.

IV. Data Methods, Analysis, and Discussion

This paper proceeds by first introducing the results of the cross-analysis of emotion -directed questions in relation to the gender of respondents, then discussing the results of a linear regression analysis of the data as they elucidate a number of interesting issues. Lastly, we discuss stepwise regression of a set of variables.

The following cross analysis is aimed at determining whether there are any meaningful differences between in the moods and feelings of Chinese male impulse purchasers versus Chinese female impulse purchasers.

4.1 Cross Analysis

Figure 4.1 and Figure 5.1 depict the feelings that consumers report having before and after making purchases. Such feelings include: depressed, exhausted, in Sorrow, nothing special, excited, urge, anticipating, pleased, and optimistic.

Figure 4.1 All the Feelings Consumers Have Before Purchasing

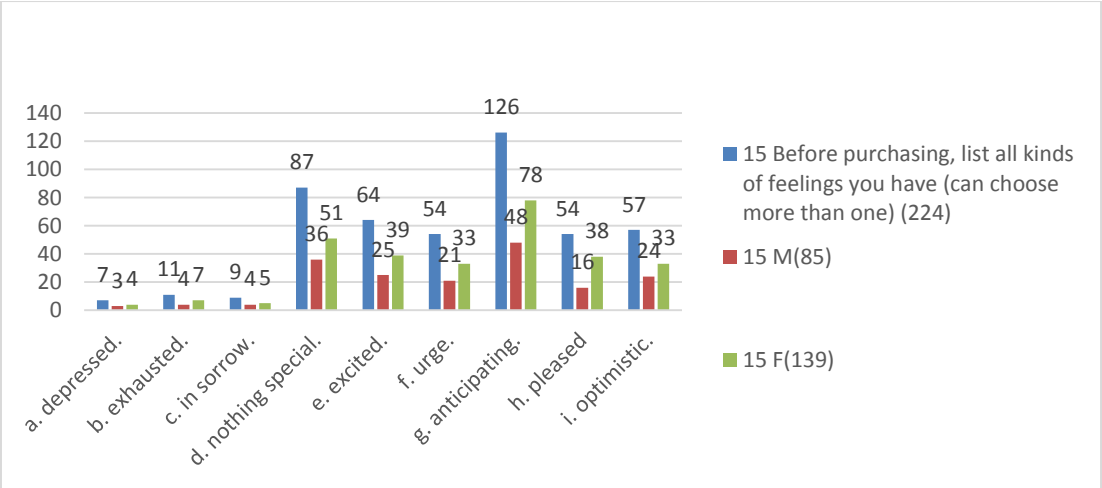
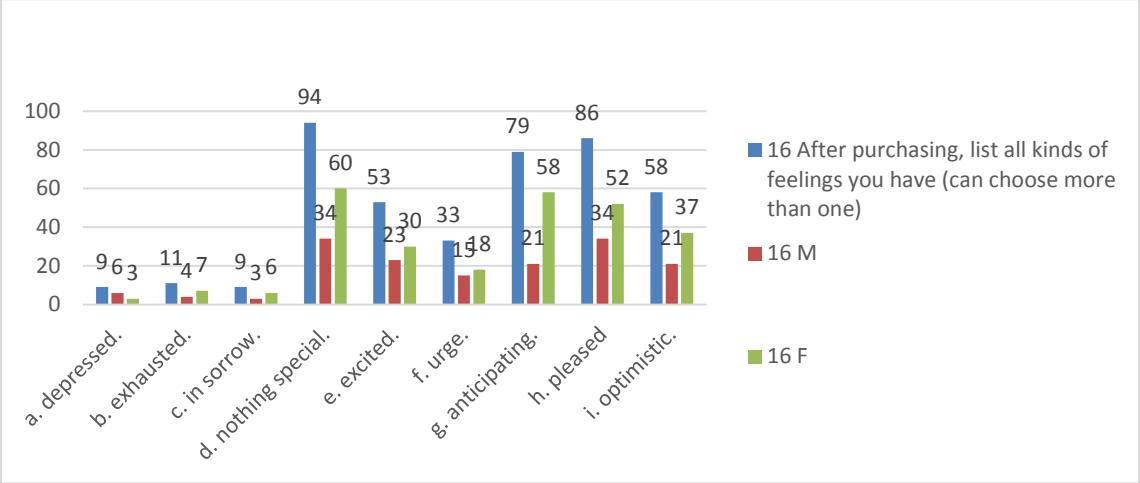


Figure 5.1 All the Feelings Consumers Have After Purchasing



In reference to Figure 4.1 and Figure 5.1, most respondents report that before shopping they feel a sense of anticipation, and that this feeling decreases (together with any accompanying sense of urgency) after shopping. Most respondents also report that their feeling of pleasure increases significantly after shopping. This refers that people are usually satisfied after shopping. Because their expectation and shopping desire decrease apparently.

Figure 4.2 and Figure 5.2 show the percentage breakdown by respondent gender of the data shown in Figure 4.1 and Figure 5.1 respectively.

Note: Percentages are calculated as follows. The number of males or females who selected each option is divided by the total number of respondents of that gender. For example, the male percentage in option (a) in Figure 4.2, 3.53%, is calculated as the numbers of male respondents who selected that option, which was 3, divided by the total number of male respondenets, which was 85).

Figure 4.2 Percentage of Consumers' Feeling of Each Gender For Figure 4.1

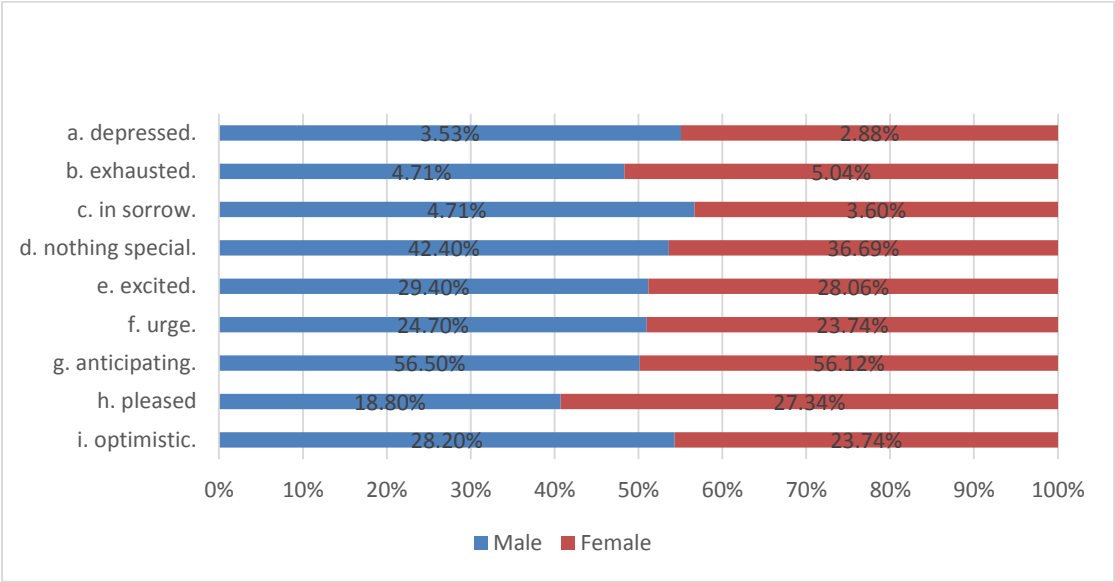


Figure 5.2 Percentage of Consumers' Feeling of Each Gender for Figure 5.1

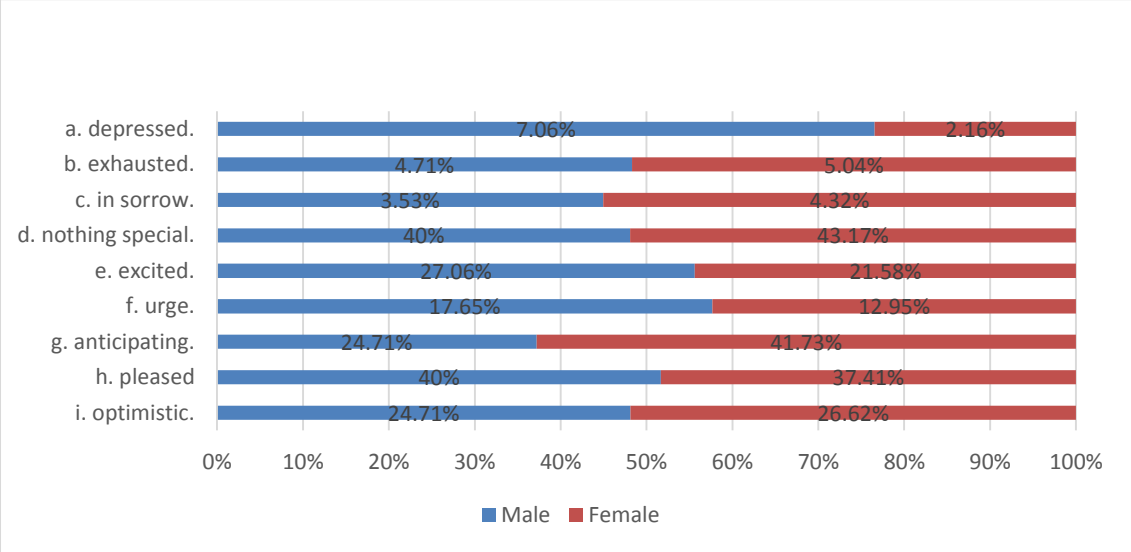


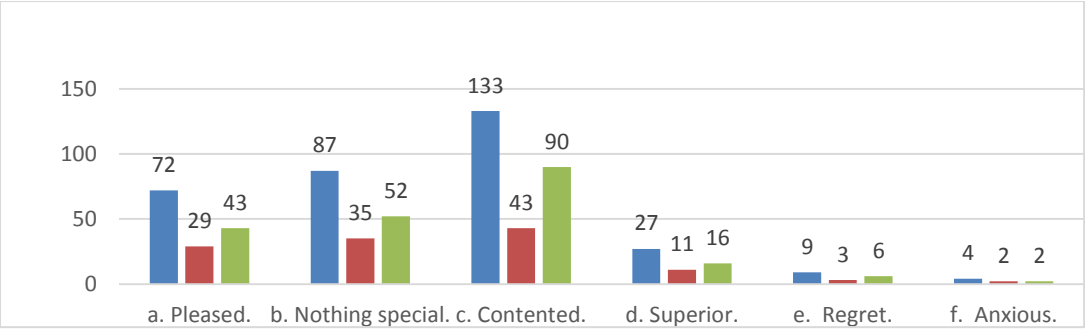
Figure 4.2 shows that there is no gender difference in regard to such reported feelings such as exhausted, excited, urge, and anticipating. However, for such emotions as pleasure and sorrow, there are statistically significant differences between genders. In particular, females are more pleased before they purchase, whereas males tend to feel sorrow before shopping. Based on Figure 5.2, males are more depressed than females after purchasing, while females are usually more anticipated toward shopping than males.

Comparing Figure 4.1 and Figure 5.1, there are small differences in the total numbers of respondents with regards to emotional feelings, other than anticipation, urge, and pleased. However, referring to Figure 4.2 and Figure 5.2, one sees that the percentage changes based on gender do vary (gender contributes to peoples' feelings about making purchases). The commonality between the percentage changes in feelings (of genders) is that both genders are less urging and anticipating, but more pleased.

However, the decrease in males' feelings of anticipation is more marked than in females, and the level of joy reportedly experienced by males is higher than for females. Moreover, males become more depressed, after the purchases. More females feel neutral after their purchase.

Figure 6.1 presents additional feelings consumers get from their purchases, including Pleased; Nothing Special; Contented; Superior; Regret, and Anxious for male and female.

Figure 6.1 Additional Feelings Consumers get From the Purchase



Referring to Figure 6.1, many consumers gain additional contentment and pleasure from purchasing. A small minority of people feel more superior to other people, and only a small number of consumers feel regret and anxiety about purchases. Figure 6.2 refers to the percentage of each gender in every option for the data shown in Figure 6.1. It shows that females constitute a greater percentage of consumers who feel a sense of contment after purchasing.

Figure 6.2 Percentage of Consumers' Additional Feeling of Each Gender For Figure 6.1

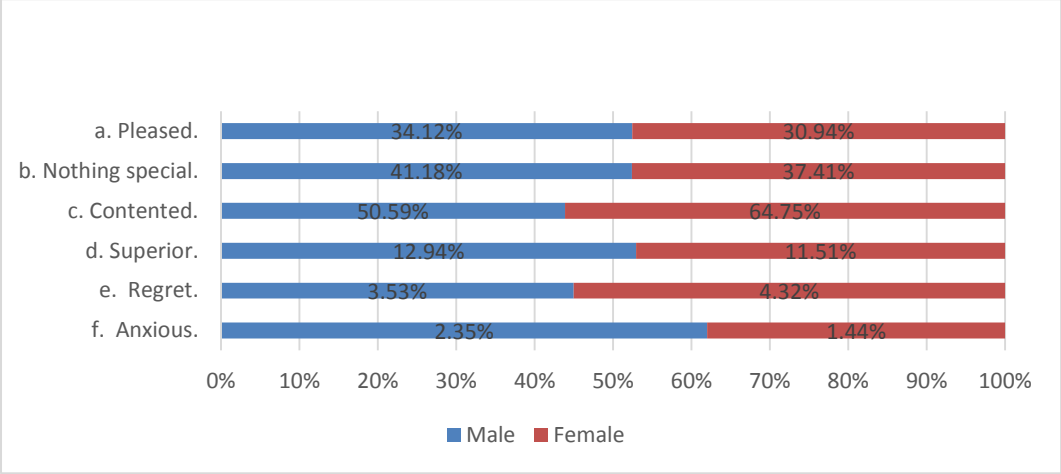


Figure 7.1 shows the influences that purchasing has on consumers' moods. Consumers are differentially influenced by purchasing; for some,their moods are greatly lifted, for others they are undermined.

Figure 7.1 The Influences of Consumers' Moods by the Perchases

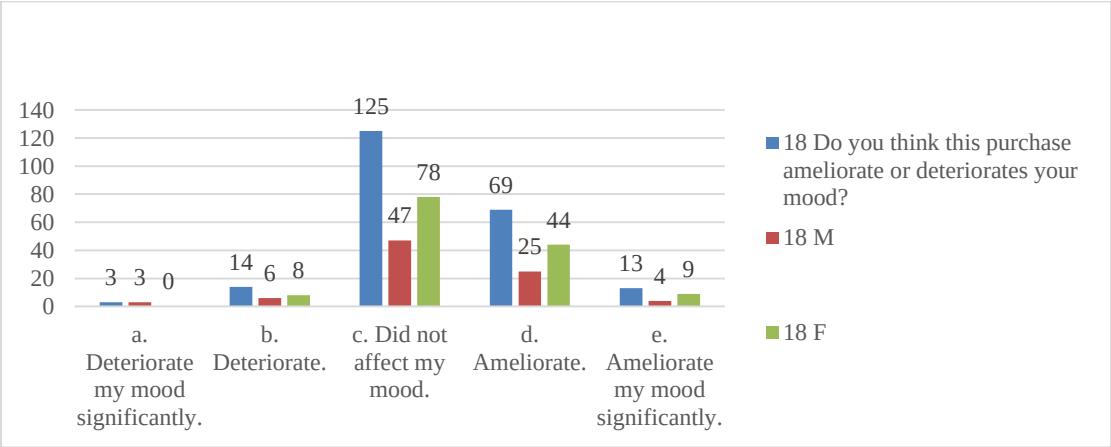
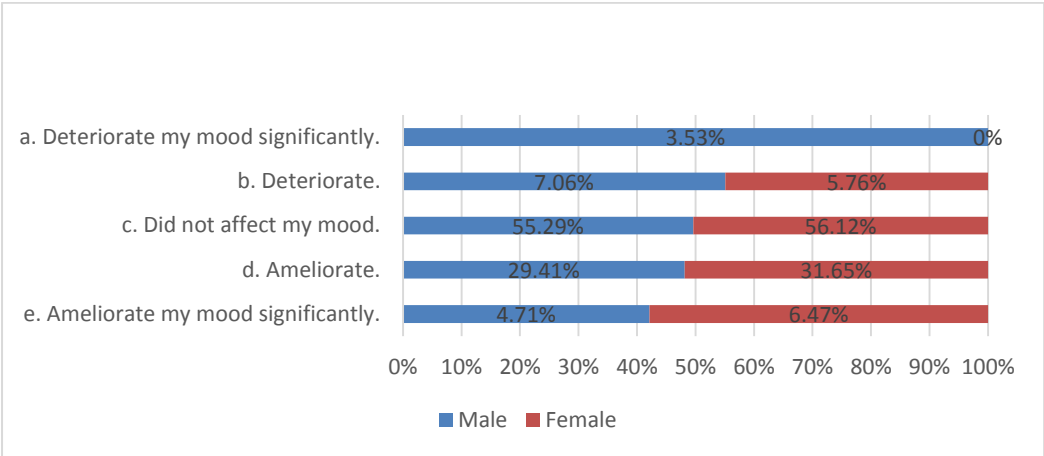


Figure 7.2 presents the percentage impact, by gender, of purchaing activity on consumers' moods.

Figure 7.2 Percentage of Consumers' Moods influences of Each Gender For Figure 7.1



Referring to Figure 7.1 and Figure 7.2, more than half of consumers claim that their moods are not affected by their purchasing behavior. Of the remainder, most say that their moods are improved to some extent. Surprisingly, the three respondents who reported that their moods worsen after shopping were are all male. Figure 8.1 shows consumers' overall attitudes about purchasing. The majority of consumers are content with their purchases though others report being disappointed.

Figure 8.1 Consumers' Overall View of This Purchase

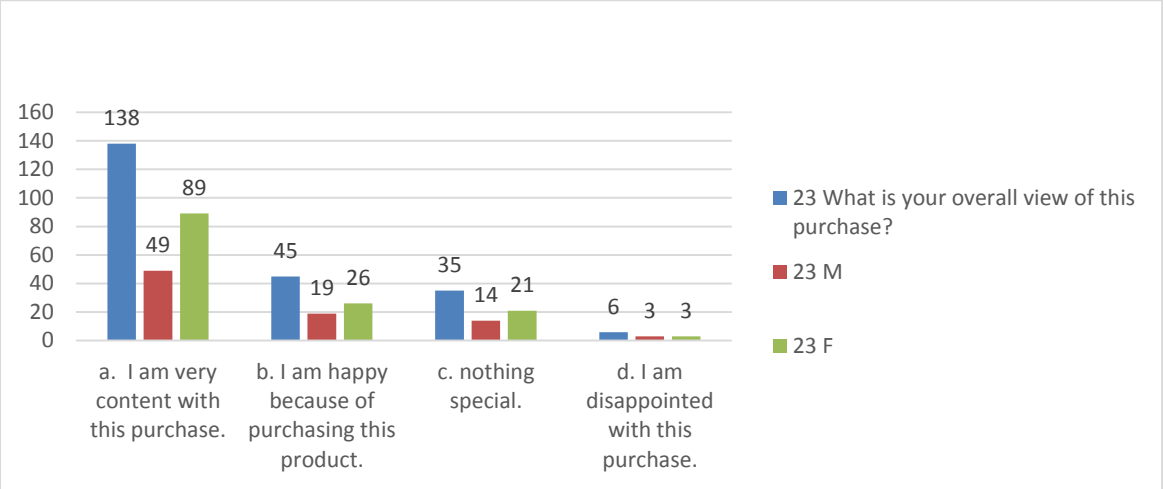


Figure 8.2 breaks down the data in Figure 8.1 by gender. Most of the people are very content or happy by assessing the consumptions, only a small fraction of consumers is neutral or unsatisfied.

Figure 8.2 Percentage of Consumers' Views Towards the Purchases of Each Gender For Figure 8.1

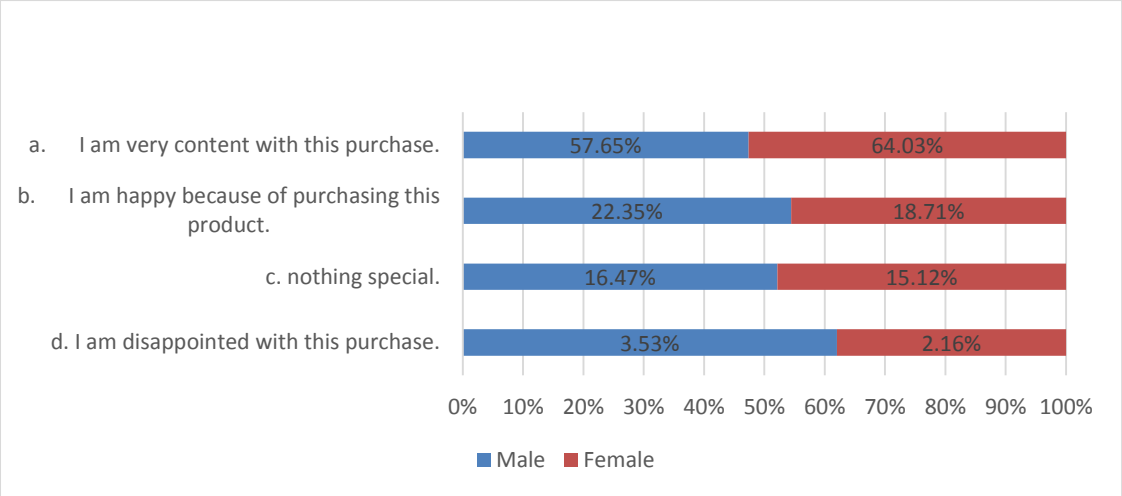


Figure 9.1 shows how respondents assessed their own levels of consumer impulsiveness. Figure 9.2 breaks the data in Figure 9.1 down by gender.

Figure 9.1 Consumers' self-rating Impulsiveness of the purchases

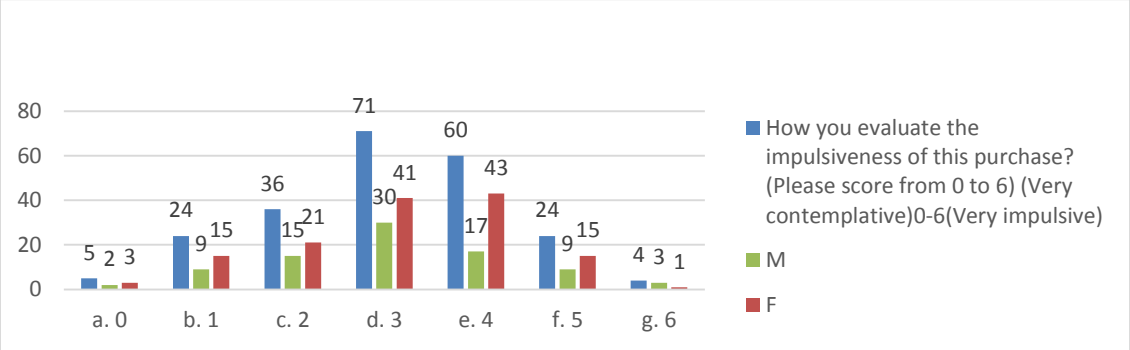
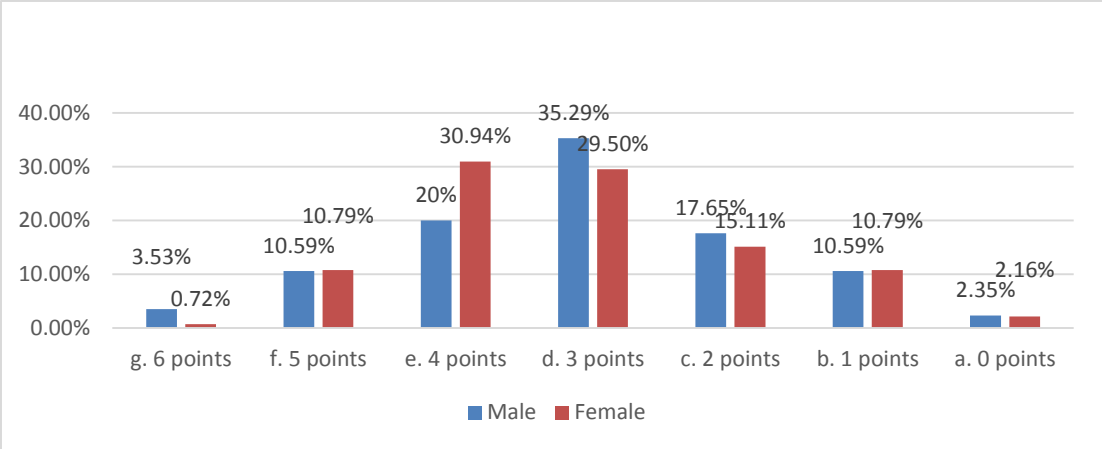


Figure 9.2 Percentage of Consumers' Self-rating Impulsiveness of Each Gender For Figure 9.1



We see in Figure 9.1 and Figure 9.2 that consumers rate their level of impulsiveness at 3 most frequently. The percentage of females who score their impulsiveness higher than or equal to 4 is higher than that of males. This is a statistically significant finding.In summary, although the reported feelings of respondents do not, in the main, differ along gender lines, the scale of changes varies. For a consumption experience, consumers' sense of anticipation and urge always decrease after the purchase. Females are more likely to be content with their purchases and obtain positive feelings from purchasing. Their feelings of pleasure and satisfaction are often accompanied by precipitous decreases in their shopping urges, although they also score higher on consumption impulsiveness than do males on average.

However, males' moods are usually impacted more negatively by purchasing as compared with females': males report experiencing higher rates of depression and sorrow and that they are less optimistic after shopping, even though they are relatively more optimistic about their consumption activity before they actually make purchases. This is true regardless of the judgements that males make about the cost-efficiency of specific purchases, and regardless of whether they felt content or unsatisfied after purchasing.

The following linear regression section attempts to understand how demographic distinctions in the respondent pool lead to interpersonal distinctions, which determine people's various buying decisions.

4.2 Linear Regression Analysis

Table 1 presents the linear regression data (relationships between consumer behaviors and their demographic background).

Q numb	Dependent Variable	Positive	Negative
1	How often do you go to the supermarket?	**Q55. Please indicate your highest level of education	**Q53. What is the development level of your city?
		*Q59. Do your child (children) live in the same household as you?	\
		**Q60. Excluding yourself, how many people currently reside in your household?	\
			\
2	How often do you open your shopping applications or websites online?	***Q52. What is your sex?	***Q51. What is your age?
		**Q55. Please indicate your highest level of education	\
		*Q59. Do your child (children) live in the same household as you?	\
		**Q60. Excluding yourself, how many people currently reside in your household?	\
3	How often do you use social media? (such as Tik Tok, Instagram, and Facebook)	*Q59. Do your child (children) live in the same household as you?	*Q53. What is the development level of your city?
		**Q60. Excluding yourself, how many people currently reside in your household?	\
6	What is the cost of this item?	***Q62. What is your household annual income?	**Q59. Do your child (children) live in the same household as you?
7	How many percent do you spend on this product out of your total income (per month)?	\	*Q55. Please indicate your highest level of education
8	Have you compared this product with other similar commodities before purchase?	**Q62. What is your household annual income?	***Q60. Excluding yourself, how many people currently reside in your household?
9	Did you buy the item for your use or others'?	**Q58. How many children do you have?	*Q53. What is the development level of your city?
		\	**Q59. Do your child (children) live in the same household as you?
13	After you used the product , what is the overall quality of this product ?	*Q53. What is the development level of your city?	\
14	Do you think the quality of the product is adequate as compared with its price?	\	**Q51. What is your age?
19	How popular is this product?	\	*Q53. What is the development level of your city?
20	What is the brand reputation of the product?	*Q57. Please indicate your marital status:	**Q58. How many children do you have
		**Q60. Excluding yourself, how many people currently reside in your household?	\
		*Q62. What is your household annual income?	\
21	What is the design uniqueness of the product?	*Q54. Which area are you currently living in?	\
24	What do you think is your impulse level for this consumption?	***Q62. What is your household annual income?	*Q60. Excluding yourself, how many people currently reside in your household?
		*Q63. How you evaluate your living situation ?	
26	The high frequency you see the advertisements for the commodity.(If the foremer answer is yes, please score)	\	Q53. What is the development level of your city?
28	The fineness of the advertisement for the commodity.(If the foremer answer is yes, please score)	**Q55. Please indicate your highest level of education	\
30	The celebrities you like advertise for the commodity.(If the foremer answer is yes, please score)	*Q57. Please indicate your marital status:	\
		**Q60. Excluding yourself, how many people currently reside in your household?	\
32	Good consumption atmosphere in the store.(If the foremer answer is yes, please score)	*Q60. Excluding yourself, how many people currently reside in your household?	*Q53. What is the development level of your city?
		*Q63. How you evaluate your living situation ?	\
34	satisfying service in the shop.(If the foremer answer is yes, please score)	***Q51. What is your age?	**Q61. What is your current employment status?
		***Q60. Excluding yourself, how many people currently reside in your household?	**Q63. How you evaluate your living situation ?
36	comfortable shopping atmosphere.(If the foremer answer is yes, please score)	*Q51. What is your age?	*Q56. which subject did you major in
		***Q60. Excluding yourself, how many people currently reside in your household?	\
		*Q62. What is your household annual income?	\
38	The commodity is popular.(If the foremer answer is yes, please score)	*Q56. Which subject did you major in?	\
		**Q60. Excluding yourself, how many people currently reside in your household?	\
40	Others encouraged me to purchase.(If the foremer answer is yes, please score)	**Q57. Please indicate your marital status:	**Q58. How many children do you have
42	Many people purchase this product.(If the foremer answer is yes, please score)	**Q61. What is your current employment status?	\
44	This product helps me identify people that I respect.(If the foremer answer is yes, please score)	*Q62. What is your household annual income?	\
46	It is a relatively unique product.(If the foremer answer is yes, please score)	*Q57. Please indicate your marital status:	\
		*Q59. Do your child (children) live in the same household as you?	\
		**Q62. What is your household annual income?	\
		*Q63. How you evaluate your living situation ?	\
48	It's a shopping day or with a discount when you bought.(If the foremer answer is yes, please score)	**Q52. What is your sex?	\
		**Q55. Please indicate your highest level of education	\
		**Q59. Do your child (children) live in the same household as you?	\
		**Q60. Excluding yourself, how many people currently reside in your household?	\
		*Q63. How you evaluate your living situation ?	\
50	There are gifts or samples associated with when you purchased this product.(If the foremer answer is yes, please score)	**Q57. Please indicate your marital status:	\

After the responses were collected, the numbers of each option chosen for every question were counted. Then, a series of regressions in which all impulse consumption questions are shown as y variables were constructed. All the demographic questions were placed in the position of the x variable one by one to see whether there was any linear relationship between specific demographic data and specific impulse consumption questions. All possible pairings of demographic data and impulse consumption questions were considered, and possible linear relationships (if the pvalue is less than 0.10: *, **, and *** on the table indicate the results are statistically significant under the α of 0.1, 0.05, and 0.01.) are listed in Table 1. The following are some important results:

Table 1 shows that the question "W hat do you think is your impulse level for this consumption?" has a positive linear relationship with the question "What is yourhousehold annual income?". In particular, consumers with higher household incomes are more likely to make buying decisions with higher level of impulsiveness.

Importantly, it is statistically significant that the question " What do you think is your impulse level for this consumption?" stands in negative linear relationship to the question "How many people are currently living with you (excluding yourself)?" This indicates that the greater the number of people who live in the same household with consumers, the less likely consumers are to make buying decisions with higher level of impulsiveness.

The question " Have you compared this product with other similar commodities before purchase?" is in positive linear relationship to the question "What is your household annual income?". As the incomes of consumers increase, they do fewer comparisons of products in advance of purchasing. It is also in negative linear relationship to the question "How many people are currently living with you (excluding yourself)?", indicating that consumer s are more inclined to comparison shop the greater the number of people live in the same household with them.

The question " It's a shopping day or with a discount when you bought (If the former answer is yes, please score)" is in positive linear relationship to the questions "What is your sex?", "Please indicate your highest level of education", "Do your child (children) live in the same household as you?" and "How many people are currently living with you (excluding yourself)?".

Females who live with children are more apt than males to make purchasing decisions on the basis of available discounts. Consumers with higher degrees and thosewho live with more people in the same household are more likely to take the availability of discounts into consideration when making purchasing decisions.

Not surprisingly, the question " What is the cost of this item?" is in positive linear relation to the question "What is your household annual income?". As the incomes of consumers rise, they tend to purchase more expensive commodities. It is also in negative linear relation to the question "Do your child (children) live in the same household as you?", indicating that consumers who live with children tend to spend more money buying products.

The stepwise regression section discusses the impacts of internal and external variables on consumption impulsiveness. Consumer impulsiveness data are based on respondent self-scored points.

4.3 Stepwise Regression Analysis

Table 2: Stepwise Regression Evaluation of Consumption's Impulsiveness

Number of Questions	Questions	Coefficient
Q1*	How often do you go to the supermarket?	0.267
Q5	How long it took you to decide on buying this item?	0.122
Q8***	Have you compared this product with other similar commodities before purchase?	0.317
Q11.4*	Is is the strongest motivation to buy this product?(Answer Yes)（d. personal taste）	0.284
Q12***	How necessary is this particular product for you?	0.447
Q13***	After you used the product，what is the overall quality of this product?	0.365
Q15.4***	Before purchasing, list all kinds of feelings you have (can choose more than one)（d. nothing special.）	-0.555
Q15.6	Before purchasing, list all kinds of feelings you have (can choose more than one)（f. urge.）	-0.396
Q16.4	After purchasing, list all kinds of feelings you have (can choose more than one)（d. nothing special.）	0.335
Q17.1**	What additional feeling did you get from this consumption (can choose more than one)? (a. Pleased.)	0.607
Q17.3*	What additional feeling did you get from this consumption (can choose more than one)? (c. Contented.)	0.436
Q18	Do you think this purchase ameliorate or deteriorates your mood?	-0.132
Q21**	What is the design uniqueness of the product?	-0.319
Q22.4**	What is the atmosphere in the shop? (can choose more than one)(d. High-tech atmosphere)	0.412
Q22.5	What is the atmosphere in the shop? (can choose more than one) (e. Modern design place.)	-0.309
Q26	The high frequency you see the advertisements for the commodity.(If the foremer answer is yes, please score	0.077
Q31	Good consumption atmosphere in the store.(yes or no)	0.313
Q34	satisfying service in the shop.(If the foremer answer is yes, please score)	0.091
Q37	The commodity is popular.(yes or no)	-0.651
Q38	The commodity is popular.(If the foremer answer is yes, please score)	-0.148
Q39**	Others encouraged me to purchase.(yes or no)	0.622
Q40**	Others encouraged me to purchase.(If the foremer answer is yes, please score)	0.180
Q46***	It is a relatively unique product.(If the foremer answer is yes, please score)	-0.068
Q48	It's a shopping day or with a discount when you bought.(If the foremer answer is yes, please score)	0.053
Q54	Which area are you currently living in?	0.116
Q55**	Please indicate your highest level of education	-0.152
Q58	How many children do you have?	-0.189
Q61	What is your current employment status?	-0.107
Q62**	What is your household annual income?	0.116
Q63**	How you evaluate your living situation?	0.076

Furthermore, in searching for the factors that influence shopping impulsiveness, it is instructive to perform a stepwise regression between question 24: How do you evaluate the impulsiveness of this purchase? (Please score from 0-Very contemplative to 6-Very impulsive) and all other questions. y ~ -0.34659 + ` 1` + `5` + `8` + `11.4` + `12` + `13` + `15.4` + `15.6` + `16.4` + `17.1` + `17.3` + `21` + `22.4` + `22.5` + `26` + `31` + `34` + `37` + `38` + `39` + `40` + `46` + `48` + `54` + `55` + `58` + `61` + `62` + `63` + `18` y is the index of consumers' self-rating buying impulsiveness (Q24) -0.34659 is the intercept of the stepwise regression ` k` refers to the product of the index in a question and its coefficient, where k is a constant. (E.g., `1` equals 0.267 * Q1) *, **, and *** indicate the results are statistically significant under the p-value of 0.1, 0.05, and 0.01.

In this stepwise regression, consumer buying impulsiveness (Q24) can be interpreted as the sum of all the products of each relating factor and its coefficient, plus the value of intercept (-0.34659). The results reveal the correlations between shopping impulsiveness and a group of binding factors and the features (emotional activities) of impulse consumers, with AIC (= 38.9) as an indicator for the model.

The linear regression between Q24 and these relating factors founded from stepwise regression was next conducted in order to calculate the p-value of each factor. Table 2 highlights the variables which are statistically significant at 0.1, 0.05, and 0.01α levels.

Several representative features of impulsive consumption and impulsive consumers (consumers who tend to make impulsive buying decisions) may be inferred from the data. Generally, impulse consumption happens within a short period of time, as is demonstrated in Table 2. Impulse buying decisions are made without much consideration of the cost-efficiency of specific products in comparison with other substitutes . The most prevalent reasons for impulse buying decisions are the personal tastes of impulse buyers.

After impulse consumption happens, changes in consumers' emotion s can be dramatic. Table 2 indicates that impulsive consumers lean to gain positive feelings such as pleasing and contenting from an impulse buying experience. However, such feelings do sustain for long: impulsive consumers' emotions typically return to neutral quickly after consumptions. It is often the case that impulsive consumers report, post-purchase, that the quality of impulsively purchased products is lower than they had expected, and that their moods worsen.

To better understand how impulse consumption behaviors are formed, the one must distinguish between external factors and internal factors: external factors refer to specific characteristics of a given commodity that inspire impulse consumption. Non necessities, for instance, tend to be purchased more impulsively, and a uniquely designed product can better attract impulse consumers due to its refreshing appearance or its rareness. Conversely, common or wide - spread products are less likely to attract consumers' attention.

High impact advertising and discounts have significant stimulative effects on impulse buying. Nice shopping experiences are another factor contributing to impulse consumption: consumers purchase more impulsively if they are in a shop with a good atmosphere and satisfying services. Other people's recommendations also play a role in impulse consumption.

Factors that are internal to consumers, e.g., gender and other demographic differences, also play a significant role. Moreover, the coefficient on Table 2 shows that higher income earners and people who live with higher living quality (subjectively) are more inclined towards impulsive consumer behavior as compared with others. However, consumers with higher educational levels, or with more children, are more thoughtful in their purchasing behavior. Interestingly, this, too, correlates with consumers' feelings before purchasing. Consumers who urgently need to make certain purchases and consumers who are unemotional are less likely to impulsively consume. Such people seek to rapidly purchase what they need, or wander aimlessly.

V. Conclusion

This paper investigates impulse consumption using original survey data from 224 respondents. Respondents were asked to recall the last purchase of theirs that they view as having been impulsive and to answer a series of questions. The data include basic demographic information, including information about gender, age, family income, etc. Respondents were also asked to answer questions about their impulse consumption, such as how often they go to the supermarket and whether/how they use onlineshopping apps. The surveys also asked respondents about their shopping-related emotions and feelings – whether they experienced feelings of optimism, depression, urge, anticipation, satisfaction, anxiety, regret, etc. before and after their purchases. Respondents were also asked to rate their own level of impulsiveness.

After collecting basic information, these data were categorized and analyzed using the techniques of cross - analysis and of linear and stepwise regression. These analyses sought to understand the relationship between gender and other demographic variables, as well as the influence of different consumption events, on the moods and feelings of consumers, further elucidating the mechanisms that drive impulse consumption behaviors.

The paper used linear regression to investigate the correlations between all demographic characteristics and impulse consumption. The stepwise regression was also utilized to demonstrate correlations between self-rated impulsiveness and all other factors in the survey. The variables which were found using stepwise regression was inputted into another linear regression, which yielded the p-value of each variable. The paper draws the best fit line for both linear and stepwise regressions.

Generally, the results of the linear regression analysis demonstrate that high income consumers are more impulsive when purchasing. Additionally, high-income consumers are willing to spend more on commodities

regardless of discounts. The reason is that different consumers with a variety of incomes exhibit the same feelings of joyfulness differently (in terms of different monetary value). This means that high income consumers are willing to pay higher prices to obtain the same amount of utilityas compared with low-income consumers.

People who live together with their families are more prudent in their consumption. Such consumers make comparisons prior to making purchasing decisions and attempt to save as much money as possible by seeking discounts when shopping. However, even though these consumers devote time to prepare before purchasing, they are willing to purchase expensive items. This could be explained by their desire to provide their family with the best living conditions possible. In general, however, these consumers seek the most cost-efficient products when making purchases.

Unsurprisingly, highly educated consumers are less likely to make impulsive buying decisions. They seek discounts and purchase less expensive commodities when possible. It can be inferred that highly educated consumers are better equipped to distinguishing the relative value of substitutive products. They are, thus, more resistant to marketing techniques.

As the analysis of the stepwise regression demonstrates, the emergence of impulse consumption behaviors fits three basic rules: first and foremost, a particular commodity (or service) can attract consumers' interests (fit consumers' tastes) owing to its refreshing appearance or functions. Secondly, when consumers are feeling comfortable and at ease while shopping, both mentally or financially, they purchase more and feel more satisfied doing so. Finally, consumers consider the items is worthwhile at the time of purchase.

Aiming to analyze these three requirements of impulse consumption behaviors, the paper combines these factors (which are affirmed to be positively correlated withconsumers' buying impulsiveness) to give an example: a consumer possessing these features and experiences is most likely to purchase impulsively. Firstly, a consumer who finally makes impulse buying decisions goes shopping frequently. He is likely to be attracted to purchase a commodity in response to advertising , or due to the characteristics of the product itself which is unique in the eyes of the consumer, matching his personal taste. Second, the consumer feels at ease when shopping in a pleasant shopping atmosphere with satisfying services. Meanwhile, the income of the consumer is relatively high, or he/she considers his living situation is relatively well off. Finally, the consumer feels that the consumption is worthwhile: there is a shopping discount, while friends affirm the purchase by praising its advantages.

From this example, we can see how these factors finally lead the consumer to impulsive buying decisions. Though imp ulse buying may please consumers at the moment of purchase, their moods tend to fall off after the purchase experience itself.

This study has certain limitations. the lack of certain data in the survey could lead to biased results: the survey asks respondents to recall the memory of their last impulse shopping experience and to answer questions on that basis. Some respondents might not have fully understood the objective and answered questions about a shopping experience that was not impulsive, or even contemplative, and scored their own level of impulsiveness lower than it actually is.

This is a problem with complex requests in a fast-paced online environment. Not all respondents spend the time they need to carefully understand what they're being asked to do. Despite these cautions, this paper still obtained reliable results. Owing tothe relatively large respondent base, it was possible to systematically analyze the data we obtained.

Furthermore, the most important data point for analyzing consumers' shopping impulsiveness was their own self-scoring. It cannot objectively reflect the consumption impulsiveness of the purchases, and it possibly contains the response bias. The situation can hardly be ameliorated because impulsiveness is not able to be detected directly, which means we are not able to directly detect consumers' shopping impulsiveness. Nevertheless, the response bias is reduced by the anonymous form of the survey, and we believe that this issue does not significantly affect the results we obtained.

Regarding our data analysis, the linear regression model is not especially well suited to the data selected; even though a stepwise regression model can fit the data better, it is nonetheless not an excellent fit for the data. However, the models we employed are the best ones that are available to analyzing the data we gathered. And

the results we obtained were strongly consistent: although the models led to a relatively small adjustment of the adjusted R square, there were clear correlations and meaningful relationships in the data, as we observed using these models.

Based on these limitations, some improvements can be made in future research. Designers can try to design more intuitive surveys for respondents, and means can be employed to promote or ensure survey completion. Also, it would be better to evaluate consumers' impulsiveness in a more precise scientific method which might obtain less biased results.

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