

A meta-analysis of consumer irrational purchase behavior based on Howard-Sheth mode

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Keywords

Consumer irrational purchase behavior, Howard-Sheth mode, Meta-analysis, Structure equation model.

Abstract

The character of consumer purchase behavior choice is the market basis and decision basis of enterprise marketing activities. The purpose of this research is to explore how those irrational behavior generate, what factors have great significance on consumer irrational behavior and what kind of marketing methods enterprises can take to increase their revenue. So, a meta-analysis of resent ten years' empirical study on consumer irrational purchase behavior was conducted and a consumer irrational purchase behavior model was proposed. Furthermore, we tested it by using structural equation modeling. Our study provide an insight into the factors of consumers irrational purchase behavior which hasn't been researched systematically. The results indicated that the attitude and intention of consumer, the marketing promotion, the product signal release and the guidance of consumer emotion have an obvious significance on consumer irrational purchase behavior. Those conclusions have important meaning on guiding to popularize new products, improve customer loyalty of enterprise and lead a new view to understand consumers purchase behavior.

1. Introduction

Consumer purchase behavior is the process of people when they search, choose, purchase, use, comment and dispose product or service; include consumer's subjective mental activity and objective material activity. In microeconomics, "Economic Man" as the basic assumption has defined the concept of consumer behavior, which assumes all consumers are rational and mercenary. Traditional consumer theory is also based on such a fundamental assumption. It point that the motivation of people to maximize their benefits is the rationality; people will always choose the minimum cost for maximum output. However, conclusion of "Ultimatum experiment" has told us the offer less than 20% would be rejected by probability of 40%-60%, which does not met the Nash equilibrium. So, human has cognitive biases and irrational behavior. What's more, there are some scholars who study the irrational behavior of investor consider that the real features of investor in real deal are irrational behavior, and the traditional rational assumption is incompatible with reality. In the current study on consumer rationality and irrationality purchase behavior, some scholars prefer those two aspect are mutually transformed. He D A. (2005) combined the Process rational theory of Simon with Prospect theory of Daniel and applied to reality, then proposed that consumer behavior should be a process of the rational behavior approaching to the irrational. Throughout all arguments about the rational and irrational buying behavior, whether you are the defender of "Economic Man" or amender of "Bounded rationality", we all recognize the existence of consumer irrational purchase behavior.

Our study on consumer irrational purchase behavior is mainly used meta-analysis on

empirical literatures: we review the concept and build model in section 2; we collect data and code in section 3; data analysis and the results of meta-analysis are showed in section 4; use the correlation coefficient construct structural equation and path analysis is conducted in section 5; put forward the conclusions, Inadequate and future direction in last section.

2. Conceptions and models

Academe has recognized the existence of irrational behavior, but the definition of “irrational behavior” is great different. First proposed of irrational is in the philosophical research, on one hand, rationalism think that rational is ability of identifying, judging, assessing actual reason, or regulating people’s behavior to specific purpose, or other aspect. On the other hand, irrationalism consider that irrational cannot understand by rational and cannot express with logical concept. Philosophical review irrational from the perspective of logical thinking, but economics interpreted from the perspective of purchasing decision-making. Amartya Sen deem that economics define rational in two ways: one is consumer preferences meet completeness and transitivity; another is individuals maximize their own interests. In this paper, we use the irrational consumer behavior’s narrow definition what is admitted by most domestic scholars. It means irrational purchasing decisions consumers have made when affect by a variety of factors, generally performance are consumers don’t pursuit the utility maximization when they purchase, or don’t consider the income constraint when consumption, or lack of knowledge to judge consumer goods, and so on.

In a specific form of irrational purchase behavior, Hinterhuber Partner (2015) accord to different situation to elaborate consumers’ specific manifestations of irrational buying, involve in prices-quality effect, framing, lacking effect, preference reversal, and so on, which reflect the performance of consumers irrational purchase behavior exhaustively. Some domestic scholars introduce consumers’ irrational buying behavior from organizational, environmental and personal aspects. According to this paper’s definition of irrational buying behavior, we then combine the performance of irrational buying behavior of Liu J G. (2006) with the analysis on compulsive buying behavior of Lourenco Leite (2014). At last, we divide consumers irrational purchase behavior into three part: impulsive buying, compulsive buying and excessive buying, which will be used as key words to search related documents about consumers irrational purchase behavior.

The theoretical model build in our paper, we mainly refer to the model in empirical literature and combine with Howard-Sheth mode what reveal the consumer decision process, after that, we sort out the comprehensive model of consumer irrational buying behavior.

What “Howard-sheth mode” represents are the connections among practices of consumers’ behavior response in the process of purchase and decision-makings, the process of purchase and decision-making, as well as the characteristics of commodity in the markets. It is the blending of Kotler, Nicosia and others’ consumer buying behavior models with strong logicity and comprehensive contents, and it can sufficiently explain the buying behavior of different types of products and consumers’ brand choice behavior during a certain period. Based on the “stimulus-response” theory, this model takes the four factors influencing the buying behavior and three phases of behavior generating into account. The four types of factors are input factors, external factors, internal factors and output factors; Three phases refer to concept formation, concept obtaining and concept utilization. Walte (2008) has carried on the elaborate research: on the stage of concept formation, consumers need to develop the selection criteria and standard, be aware of the significance of standards and their relations to choose the merchandise category, meanwhile the choice behavior is also influenced by the dual effect of culture, personality, time pressure, financial situation and other external factors and stimulus from the product, the

symbol and society, the input factors. And in this phase the consumer has high uncertainty and low confidence; In the concept-obtaining phase, the consumer starts to use category knowledge to judge and learn, affected by internal factors of perception and learning, the consumer's uncertainty is reduced and the confidence is strengthened; In concept-utilization phase, the consumer has formed the category cognition and has paid attention to the choice of specific commodity, and under the influence of the output factor, he or she forms the actual purchase behavior. In addition, on the basis of this model we improve our own models through empirical literature.

Each model in literature of empirical researches has its own priorities and emphasis. In empirical literatures we have collected, there are three kind models of consumers irrational purchase behavior: one is research irrational purchase behavior from consumer preference starting from product itself; one is led to irrational buying behavior by the external environment impact on consumer sentiment; the other is study the consumer's own psychological characteristics, emotions, self-control as the focus on consumer irrational buying behavior.

Parikshat S. Manhas (2012) proposed Lens model in his paper on consumers irrational purchase behavior, he point that consumers form their own preferences by perceiving outside world then affect their final purchase decision, he also elaborate the performance and reason of consumers irrational purchase behavior. Set product characteristics as a starting point, then product characteristics affect consumer perception and preference; what's more, preference and price affect purchase behavior together. The model is concise and has universal applicability. Li sha(2016) put forward the formation mechanism model of irrational buying behavior of network consumers under the network environment, they point that positive emotions play completely intermediary role in stimulation between irrational purchase intention; and irrational purchase intention significantly influence irrational purchase behavior without limits to the situational factors. This paper is directly research in the irrational purchase behavior under the network environment, the model of this paper has a direct significance for ours. We detailed the influence factor in this model. Domestic scholar Xiong H.S. (2010) emphasis on exploring the mechanism on consumers own factors in her series study about consumers irrational purchase behavior, moreover, she proposed impulse buying influence factor model. She deems that the emotion of consumers affects their desire of impulsive buying and affects the self-control through standardized assessment, finally affects impulsive buying behavior. She also divide consumer personality traits into self-build, adjustment guide and impulse buying tendency three parts, systematically study the effects of consumer personality traits of impulsive buying behavior. Her research in this paper has been an important part of our conceptual model relating to the personal characteristics.

Basing on consumers' decision making model, the "Howard-sheth" model, this paper synthesizes and redefines model variables and their relationships in literature. We combined the influential factors in "Howard-sheth" model with consumers' irrational purchase behavior model in the literature to refine and classify the front-end factors, thereby gaining the concept model in this paper. (Figure 1)

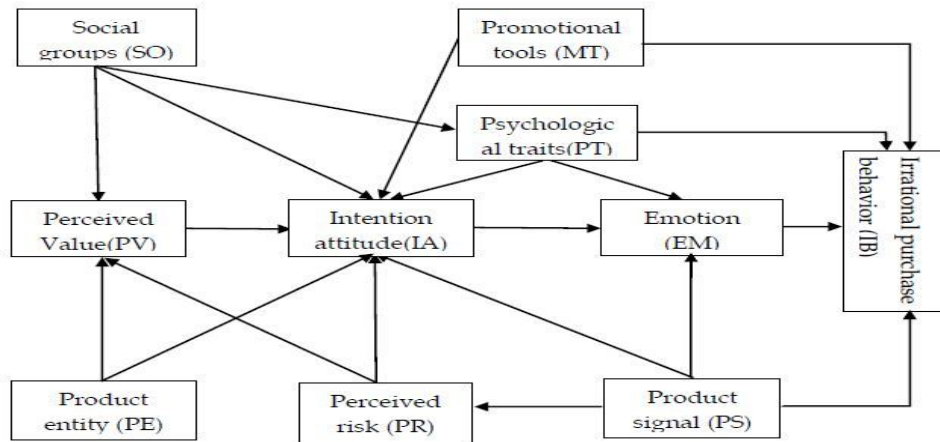


Fig.1. Conceptual model of consumer irrational purchase behavior

3. Data collection, coding and descriptive statistics

In this section, meta-analysis is mainly used to analyze the various aspects factors influencing consumer purchasing behavior characteristics. We searched a number of other scholars' study on consumer irrational purchases behavior and get 19 pairs relationships which are in line with our conceptual model.

3.1 Date collection

In order to assure the reliability of date used in meta-analysis, we searched a lot of literature on consumers' irrational behavior or irrational buying behavior, not only conclude core journals but also conclude book, magazine and proceedings. At first, we conducted the first round of retrieval work in CNKI, Wan fang Data, CSSCI, CSCD and ProQuest. EBSCO, Springer Link, Google Scholar, the main retrieving content is irrational purchase behavior (impulsive buying, compulsive buying, and excessive buying). By extensive reading literatures we got before, we understand the relationship between consumer irrational buying behavior and demographic characteristics. Furthermore, we conducted the second round of retrieval basing on the content of consumer buying behavior characteristics and conceptual model; key words are impulse, group behavior, quality and price, risk, product awareness, self-control etc. We refer to the book, magazine and proceedings to reduce publication bias and improve the safe factor. Finally, we select all literatures again basing on the following criteria:

- We won't adopt the paper without complete content or doesn't give the Pearson correlation coefficient;
- The documents must be empirical research and sample size is large enough;
- The main part of documents should be consumers; the content of research should be consumers' purchase behavior except investment and game behavior;
- The same author of the study in the same context should select only one.

Besides those screening criteria, a total of 41 articles were selected for the metal-analysis. Among the 41 articles, 23 articles are in English and 19 in Chinese. As shown in Table 1.

Table1. The article we used in meta-analysis

Name	Publish year	Sample size	No. of studies	name	Publish year	Sample size	No. of studies
Alexander	2011	361	1	N.P.,Mehta	2013	84	22
B.Y.,Lv	2015	408	2	R.,Barkhi	2007	257	23
B.,Wu	2014	420	3	S.,Featherman	2015	495	24
C.B.,Lu	2013	421	4	T.,Sutarso	2012	340	25
C.B.,Lu	2012	473	5	T.H.,Chen	2011	449	26
C.C., Wang	2009	261	6	W.C.,Sun	2011	310	27
C.H.,Liao	2013	238	7	W.H.,Chuh	2014	385	28
D.H.,He	2014	413	8	W.,Yu	2009	243	29
F.J.,Fatimah	2012	176	9	X.B.,Yan	2009	275	30
F.,Wei	2011	98	10	X.T.,Jin	2012	526	31
G.,Ma	2012	307	11	Y.,Gao	2015	576	32
G., Ramu	2013	1117	12	Y.H., Hong	2006	386	33
H.F.,Huang	2010	180	13	Y.H.,Li	2013	441	34
H. Lee	2013	305	14	Y., Liu	2013	318	35
H.P., Zhang	2012	154	15	Y.L.,Long	2006	369	36
I.,Richard	2014	155	16	Y.L.,Zhang	2009	321	37
Khodakarini	2014	376	17	Y.P., Liang	2008	525	38
K.,Hemamalini	2013	125	18	Y.,Xin&C.,Jaso	2011	539	39
K. L., Haws	2012	204	19	Z.,Zhou	2010	1098	40
K.,Zhong	2013	1101	20	Z.,Zhang	2014	216	41
L. L., Cater	2014	800	21				

3.2 Coding

We intensive read all literatures and redefine the similar meaning words, merge the sub-concepts into the collection concept. Thus, we get ten new concept, which is intention and attitude (IT), psychological traits (PT), social groups (SO), products signal (PS), perceived value (PV), perceived risk (PS), product entity (PE), promotional tools (MT), emotion (EM) and irrational purchase behavior (IB). During the encoding process, we consider that intention or attitude is biased definitions or evaluation of emotion and behavior, so we put those tow concept into new one. Psychological traits are stable characteristics of personal natural; the main research in our paper is honesty, belief, worship, vanity, identity, superiority, self-control, psychological coercion and values. We put factors influencing consumers irrational purchase behavior by others into social groups' variables, which contain subjective norms, social class, peer influence and social environmental impacts. Products signal is product information and awareness passed on to consumers through the media, which includes brand, price, and package. Product signal and product entity jointly constitute the entire product.

Construct	Definition	Source
Intention and attitude	It is the consumers' evaluation of cognition, feelings of emotion and tendency of behavior of goods, business, and service etc.	Fei M S. (2013)
Subjective norms	It is the pressure coming from every aspects when people express their views or choice Behavior, namely, it is the influence of social groups to individual attitudes and decision-making.	Ajzen (1977)
Perceived value	It is the consumers' comprehensive evaluation according to their perceived benefits and pay of products or services provided by enterprises.	Zeithaml V.(1988)
Perceived risk	It is risk consumer can perceived from finance, product features, society, psychology, physiology or time when they trading.	Wu,J.H.
Emotion	It is attitude and inner experience produced by weather objective things meet their needs.	Chen W H. (2014)

Table2. Main Constructs in proposed model

3.3 Descriptive statistics

We do the descriptive statistics analysis for those 19 pairs relationship in all documents, and

display the related literatures. As shown in Table 3. The range of correlation coefficient is the distribution of correlation coefficient of adopted documents, the mean of correlation coefficient Calculated by the weighted average method.

Pairwise relationship	No. of studies	Sample size	Average sample size	Range of correlations	Mean
IA-PT	1, 3, 6, 7, 9, 14, 15, 34	3603	300	(-0.097, 0.71)	0.31
IA-SO	1, 6, 7, 14, 15, 23, 24, 39	4058	338	(0.075, 0.48)	0.319
IA-PS	2, 8, 11, 21, 28, 32, 36	4835	484	(0.134, 0.714)	0.443
IA-PV	15, 20, 23, 24, 28, 30, 33	3912	435	(0.42, 0.71)	0.632
IA-PE	8, 9, 11, 12, 17, 18, 20, 23, 33, 36	6715	448	(-0.764, 0.752)	0.281
IA-PR	7, 15, 24, 28, 30	1874	375	(-0.524, 0.101)	-0.347
IA-MT	9, 12, 13, 14	2259	377	(0.082, 0.48)	0.202
IA-EM	2, 15, 28, 31, 34	2322	387	(0.22, 0.793)	0.448
PT-SO	6, 14, 15	1286	257	(0.084, 0.175)	0.089
PT-IB	16, 19, 25, 26, 37	4280	285	(-0.6, 0.532)	0.057
PT-EM	15, 16, 25, 34, 37	3337	303	(-0.32, 0.76)	0.394
SO-PV	15, 23, 24, 29	1494	374	(0.092, 0.51)	0.236
PS-IB	2, 35, 38, 39	2723	454	(0.068, 0.26)	0.154
PS-PR	27, 28, 41	911	304	(-0.365, -0.181)	-0.282
PS-EM	32, 35, 38, 41	2359	337	(-0.165, 0.257)	0.072
PV-PE	20, 23, 33	1744	581	(0.42, 0.844)	0.7
MT-IB	10, 22	532	89	(0.161, 0.512)	0.36
EM-IB	16, 25, 35, 37	1621	324	(-0.13, 0.38)	0.229
PR-PV	15, 24, 28, 30	1911	382	(-0.541, 0.33)	-0.265

Table3. The results of descriptive statistics

4. Results

This section we do the result combined separately for a lot of independent research result with the same purpose, which is the most critical step for meta-analysis. Compared with traditional narrative literature review method, meta-analysis originated in Fisher's thoughts of "p value combined", it is not only a qualitative description but a quantitative calculation and statistics.

In order to guarantee the accuracy and credibility of combined value, we performed the publication bias analysis and heterogeneity analysis for collected data first. In this paper, we judge the publication bias coefficient by calculating the fail-safe N, which method was based on Rosenthal's (1979) work of "file drawer problem": For combined p value's calculation with k researches, we should strive to know how many research should be added else to make the analysis results without statistically significant. Suppose that we missed a study in our analysis whose average value is zero and the results show very little amount of literature are still required to reverse effect, so we can suspect that the real effect value is zero.

Fisher's r to Z transformation was conducted Following Wolf's (1986) formula $Z = 0.5 * \ln\left(\frac{1+r}{1-r}\right)$, and then the fail-safe N for $p = 0.05$ was calculated using the formula $N_{fs 0.05} = \left(\frac{\sum Z}{1.64}\right)^2 - n$, where the n is the number of tests, and $\sum Z$ is the sum of individual Z scores what means the hypothesis testing with tow-tailed p test for whether real value is zero. Results of analysis could be accepted When fail-safe N coefficient greater than zero. Calculation results as shown in Table 4. The results show us PT-SO, PT-IB, PS-EM, PS-PV has negative fail-

safe N coefficient that is -1, -4, -3, -4. Generally, we should continue to perform sensitivity analysis to measure the stability of all data to analyze the cause or increase the number of collected literatures to reduce the bias of combined value while fail-safe N coefficient is unqualified. From calculation results we can see that the data of psychological traits to irrational purchase behavior is dispersion, we cannot judge only by existing data. Due to limitations of study time, we will continue to research those four pairs of relationship in the following study. We are no longer conduct deep analysis in this paper.

Q statistics what is used to judge whether effect has significant and how much influence the random factors make was then conduct to test the homogeneity of the distribution of effect sizes. The formula is:

$$Q = \sum_{i=1}^k W_i Y_i^2 - \frac{(\sum_{i=1}^k W_i Y_i)^2}{\sum_{i=1}^k W_i}, i = 1, 2, \dots, k, \dots, n.$$

Where the W_i is weighted of i -research, Y_i is the correlation coefficient of i -research after Fisher's transforming, k is the number of research. $df = k-1, k = 1, 2, \dots, n$; $T^2 = \frac{Q-df}{C}$. Where Q is the observed variation of combined effect value, df is expected variation, and $Q - df$ is the excessive variation of combined effect value. T^2 is the estimated variance of effect value, which represent how much variation in chosen literatures could be used to calculate weights. It is also the diffidence between stochastic model and stationary model. The results of Q statistics are shown in Table 4, and heterogeneity is great of 19 pairs' relationship in our research, so we adopt stochastic model to calculate the combined effect value in next step. Calculation results are in Table 5.

Pairwise relationship	df	r	Nfs _{0.05}	Z scores	2-tailed test	P	Q statistics	T ²
IA-PT	7	0.31	2	4.739	0		192	0.056
IA-SO	8	0.319	15	7.85	0		74	0.018
IA-PS	6	0.443	7	5.9	0		271	0.062
IA-PV	7	0.632	137	19.632	0		40	0.01
IA-PE	9	0.281	-5	3.359	0.001		830	0.138
IA-PR	4	-0.347	-1	-3.054	0.002		81	0.054
IA-MT	3	0.202	2	3.514	0		59	0.035
IA-EM	4	0.448	2	3.902	0		175	0.091
PT-SO	2	0.089	-1	1.612	0.107		13	0.011
PT-IB	4	0.057	-4	0.204	0.834		864	0.215
PT-EM	4	0.394	1	3.486	0		377	0.125
SO-PV	3	0.236	1	3.11	0		37	0.033
PS-IB	3	0.154	3	3.915	0		23	0.009
PS-PR	2	-0.282	6	-4.596	0		7	0.008
PS-EM	3	0.072	-3	-0.079	0.937		406	0.204
PV-PE	2	0.7	1	2.6	0.01		226	0.244
MT-IB	1	0.36	9	4.969	0		12	0.025
EM-IB	2	0.229	1	2.456	0.01		61	0.046
PR-PV	4	-0.265	-4	-0.804	0.422		228	0.154

Table4. Fail-safe N coefficient and Q statistics

Pairwise relationship	Correlation coefficient r	Average weight M	Variance V	Combined effect value P	95% confidence interval	
IA-PT	0.31	0.337	0.005	0.325	0.195	0.443
IA-SO	0.319	0.333	0.002	0.321	0.244	0.393
IA-PS	0.443	0.473	0.006	0.441	0.306	0.558
IA-PV	0.632	0.745	0.001	0.632	0.585	0.675
IA-PE	0.281	0.326	0.009	0.315	0.135	0.475
IA-PR	-0.347	-0.328	0.012	-0.317	-0.492	-0.117
IA-MT	0.202	0.285	0.006	0.278	0.125	0.417
IA-EM	0.448	0.488	0.016	0.452	0.238	0.625
PT-SO	0.089	0.087	0.003	0.087	-0.019	0.191
PT-IB	0.057	0.025	0.015	0.025	-0.209	0.256
PT-EM	0.394	0.377	0.012	0.36	0.164	0.529
SO-PV	0.236	0.298	0.009	0.29	0.11	0.451
PS-IB	0.154	0.166	0.002	0.165	0.083	0.245
PS-PR	-0.282	-0.286	0.004	-0.279	-0.387	-0.163
PS-EM	0.072	-0.014	0.029	-0.014	-0.337	0.312
PV-PE	0.7	0.745	0.082	0.632	0.181	0.864
MT-IB	0.36	0.386	0.006	0.368	0.23	0.492
EM-IB	0.229	0.244	0.01	0.239	0.049	0.412
PR-PV	-0.265	-0.143	0.032	-0.142	-0.455	0.203

Table5.Combined effect value

We can get combined effect value P and 95% confidence interval from Table 5, among those, there are four pairs whose 95% CI contain 0, PT-SO, PT-IB, PS-EM, PR-PV, which means they have no significant correlation between the positive and negative or have manipulated variable between relationship. This situation agrees with Z scores and p test. In the meta-analysis, combined effect value is equal to the converted correlation coefficient. Among the rest 15 pairs relationship, IA-MT, SO-PV, PS-IB, PS-PR, EM-IB are weak related; IA-PT, IA-SO, IA-PS, IA-PE, IA-PR, IA-EM, PT-EM, MT-IB are moderate related; IA-PT, PV-PE are strong related. The relationship associated with perceived risk are all negative, which prove perceived risk will reduce the probability of consumers purchase behavior. It is psychological traits, products signal, promotional tools and emotion who directly related with irrational purchase behavior. The most relevant is the promotional tools, correlation coefficient is 0.368; Second is the emotion, correlation coefficient is 0.239. Path coefficients map is shown in Fig 2.

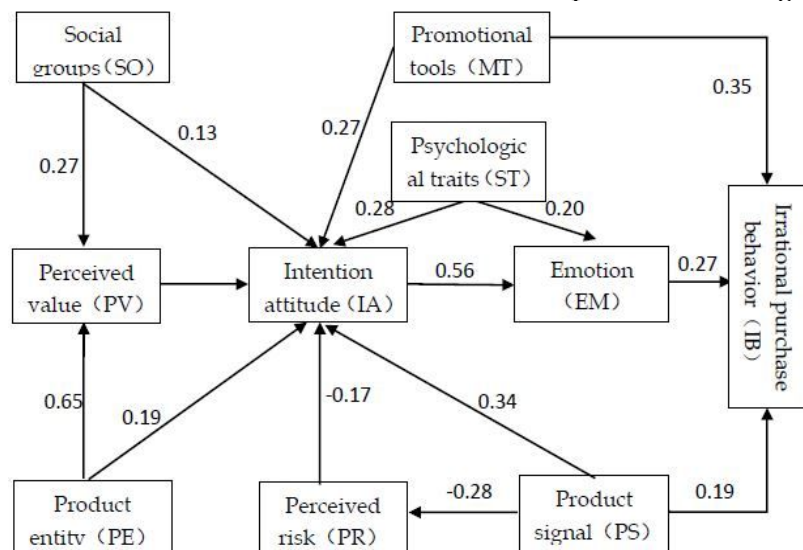


Fig.2. Path analysis results

We conduct path analysis by AMOS 17.0. Data coming from different research for meta-analysis are have great sample size and different Scale, then we suppose that all concepts in our collected literatures have passed normality test and have been standardized processing. So, we let $stddev=1$, $mean=0$, path coefficient as shown in picture, significance level is 0.05, $chi-square=1199$, $p<0.05$; $RMP=0.045$; $GFI=0.977$; $NFI=0.976$; $RMSEA=0.077$. The model is better fit, could be accepted. In order to keep the concise of path coefficient map, we don't display the errors and the path without pass the significant test or fail-safe N test.

Seeing from path coefficient map, there are 15 significant path having great influence on consumers purchase behavior, social groups→perceived value→intention and attitude→emotion→irrational purchase behavior, promotional tools→intention and attitude→emotion→irrational purchase behavior, psychological traits→intention and attitude→emotion→irrational purchase behavior, product entity→perceived value→intention and attitude→emotion→irrational purchase behavior, etc. See specific path coefficient and effect size in schedule. Among them, there are 3 direct path and promotional tools have greatest influence on irrational purchase behavior, effect value is 0.35; next is emotion, effect value is 0.27; the influence of product signal has on irrational purchase behavior is small, effect value is 0.19. This situation means consumers' irrational behavior often be affected by external stimuli, but the emotion's influence on irrational behavior shouldn't be ignored. Among 12 multi-stage paths, the effect value of "perceived value→intention and attitude→emotion→irrational purchase behavior" is max in three-stage path and next is "product signal→intention and attitude→emotion→irrational purchase behavior"; while, "product entity→perceived value→intention and attitude→emotion→irrational purchase behavior" affect value is maxin four-stage path. This means product entity and product signal are the most important determinants of irrational purchase behavior, consumer will give up buying goods when the product comprehensive evaluation can't reach the minimum satisfied standard. Essentially, consumers purchase behavior original from products or its services. Nevertheless, "perceived risk→intention and attitude→emotion→irrational purchase behavior" is negative path, the probability of irrational purchase behavior become slight while the perceived risk increase. Meanwhile, there are several multi-step and significant paths, the influence of social group to consumer irrational purchase behavior is indirect, long-term, and unconscious.

5. Discussion and Conclusions

Rational consumption is necessary for a market economy and irrational consumption is inevitable under certain conditions, since consumers have irrational consumer behavior so we have to face up to this behavior. With the changing of consumer behavior companies provide a wide variety of marketing method, which bring more benefits for the enterprise but also induce more consumers irrational purchase behavior. Aiming at consumers' irrational purchasing behavior we research formation process and factors, and give the corresponding management recommendations.

In this paper, some related meta-analysis literature find that there are three direct factors can affect consumers irrational purchase behavior: manufacturers' promotional tools, customer emotions and product signal. Among them the promotional tools have the biggest impact, that explains why irrational buying behavior of consumers particularly susceptible to their surrounding business environment, resulting in unplanned purchases; Followed by customer emotions, that is in line with previous academic research on emotion-oriented, which is, people in unstable situations prone to impulse buying mood, and this impulse led to the consumers' purchase behaviors without a comprehensive understanding of the situation; and then product

signal, this factor is the existence of objective factors, has no actively influence on the irrational purchasing behavior of consumers, but as a consumer product access to information sources, can make a greater impact on consumer behavior. Other factors effect on consumer irrational purchase behavior has formed more than 12 multi-stage path, and “perceived value →intention and attitude →emotion →irrational purchase behavior” is the path effect maximally.

Secondly, in the process of researching meta-analysis, we even find that every scholars have given their own exactly opposite conclusion with each other’s in many relevant literature about customer psychological traits effect on their irrational purchase behavior, this finding could explain the consumers psychological traits effect is compare complex, so the current researching on it may have missed some important intermediate variables.

Finally, there are still many unknown factors impact on customer irrational purchase behavior, such as :perceived risk, social groups, perceived value, intention and attitude, emotion and product entity, these variable factors acting on the study of irrational purchase behavior obviously.

According to literature, we find perfectly rational behavior of consumers cannot be achieved only can realize in some certain limits, therefore, irrational According to literature, we find perfectly rational behavior of consumers cannot be achieved only can realize in some certain limits , therefore, irrational purchasing behavior is inevitable in reality when making purchasing decisions, which has indispensable significance to enterprises. Enterprise should has a correct view of irrational consumer purchasing behavior characteristics, rational use of irrational buying behavior incentive to actively expand marketing activities. This paper about consumers irrational purchase behavior and its mechanism of production are of great significance, concrete manifestations are shown as follows:

Enterprise operator can take advantage of irrational buying behavior of consumers to promote their new products and services. They can make full use of the product and the product signal affect entity intent attitudes and emotions, and guide consumers irrational purchase behavior (impulsive buying), to increase the tentative consumption of consumers for new product or new service. Simultaneously, Provide different products for different people in different market segments with different product signal released method. For example, young people would be used low-cost promotional method with social platforms, and the elderly can used product imagination method and other relationship marketing to accelerate signal diffusion, it’s both low-cost and targeted.

Enterprises’ managers are also able to focus on consumer’s experience when sale products, or in the after-sales service process, which not only can improve consumers intention and attitude towards products and services but can reduce the severity of perceived risk to guide irrational purchase behavior (compulsive buying), to increase customer’s loyalty of existing commodities, enhance brand value and consumer confidence to buy again, and ultimately to promote product sales.

Mangers also can continue to strengthen the use of various of promotional tools, have strong emotional and visual effects to consumers to form a mental impulse or the idea of gaining extra advantage, stimulate the buying desire and facilitate consumers irrational purchase behavior (excessive buying), increase the contribution of individual customer. Such as providing low-cost discount in off-season, on one hand, it can help stimulate consumption and facilitate transactions; on the other hand, it also can avoid loss of profits which caused by long-term discount and low-end products brand image.

6. Research limitations and direction for future research

In this paper, there are two deficiencies what could be the point of feature research: there are four pair correlation coefficient cannot through the publication bias in our meta-analysis, we accept the revised correlation coefficient but without depth analysis of the causes of publication bias; what's more, we find some vacancies or manipulated variables on the consumer irrational buying behavior through path-analysis, but our paper can't give definitive findings about this

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Appendix

Pairwise relationship	Direct effect		Indirect effect		Total effect
SO→IB	Lacking of studies	-	SO→PV→IA→EM→IB	0.024	-
			SO→IA→EM→IB	0.020	
MT→IB	Literature to support	0.35	MT→IA→EM→IB	0.041	0.391
PT→IB	unconfirmed	-	PT→IA→EM→IB	0.042	-
			PT→EM→IB	0.054	
PV→IB	Lacking of studies	-	PV→IA→EM→IB	0.088	-
IA→IB	Lacking of studies	-	IA→EM→IB	0.151	-
EM→IB	Literature to support	0.27		0.000	0.270
PE→IB	Lacking of studies	-	PE→PV→IA→EM→IB	0.057	-
			PE→IA→EM→IB	0.029	
PR→IB	Lacking of studies	-	PR→IA→EM→IB	-0.026	-
PS→IB	Literature to support	0.19	PS→PR→IA→EM→IB	0.007	0.249
			PS→IA→EM→IB	0.051	

Combined effect value of pair wise relationship

Annotation: "Lacking of studies" means we can't find related studies in our literature retrieving; "unconfirmed" means results in related studies are opposite and mismatch the condition of combined analysis.