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A Comparison Across Product Classes

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Abstract

The literature on Internet shopping has demonstrates that product classes may largely affect consumers' online purchase intention, which is higher for search products, followed by experience products, then as credence products. However, little is known about why would such a difference in online shopping. In order to give a proper answer to this question, this study try to explore the reason for the difference in purchase intention by discussing the relationship between risk perceptions and product classes. In this study, the author conducted an online consumer survey, and discussed how consumers perceive risks in online shopping across different product types. Management implications and future research directions are also presented at the end of the paper.

Keywords

Online Purchase, Product Class, Perceived Risk, ANOVA, Multiple Comparison Analysis

1. Introduction

In the last two decades, Internet shopping becomes the fastest-growing activity among Internet users. Prior research has pointed out that customer purchase preference is significantly influenced by product type (Girard and Dion, 2010; Sheth, 1983). Although there is a number of studies in the literature discussed what types of product are most likely to be purchased online (Chiang and Dholakia, 2003; Girard et al., 2002; Levin et al., 2005; Peterson and Merino, 2003), most of the discussions focused on whether product attributes can be determined over the Internet or whether they need to be experienced (Chiang and Dholakia, 2003; Lynch et al., 2001). Meanwhile, some studies demonstrated that consumers prefer to shop online when the products are predominated by attributes such as a large selection or speed of shopping, while they are more likely to make an offline purchase when the products are predominated by attributes like personal service or user experience (Chiang and Dholakia, 2003; Girard and Dion, 2010; Levin et al., 2005).

In recent years, the SEC-products classification framework has been

evolving and tested in the context of online purchase (Girard and Dion, 2010; Li, 2017). As the common findings, previous studies found that customer online purchase intentions are the highest for search products, followed by experience products, and lowest for credence products. However, little is known about why would such a difference in online shopping, and the reasons for this finding need further discussion.

In this study, the author tries to explore the reason for the difference in purchase intention through the perspective of the relationship between risk perceptions and product classes. Most of the literature shows perceived risk negatively affects online purchase intentions (Forsythe and Shi, 2003). However, the finding is considered too general and lacks theories to support it (Girard and Dion, 2010). According to the definitions of the SEC-products, the relationship between SEC-products and consumer online purchase intentions was rooted in the theory of perceived risk (Girard and Dion, 2010; Kim et al., 2008; Nicolaou and McKnight, 2006). Hence, the author considers that differences in online purchase intentions among product classes are mainly caused by consumer risk perceptions.

Perceived risks in Internet shopping are well-measured in the relevant literature. The perceived risk dimensions identified in the prior research typically involve vendor, product performance, financial, psychological, time, and privacy risks (Dholakia, 1997; Lim, 2003; Girard and Dion, 2010; Connolly and Bannister, 2008). The discussion in prior research related to perceived risks mainly revolve around the differences in risk perception among different online users such as gender (Forsythe and Shi, 2003) or education (Punj, 2012). Despite the proposition that product class determines the level of overall perceived risk in the product (Chaudhuri, 1998), the comparison about the specific risk perception across product classes in Internet shopping is still insufficient.

The objectives of this study are twofold: (1). to confirm the online purchase intention in SEC-products classification, and (2) to explores the reasons for the differences in purchase intentions from the perspective of risk perceptions. In this study, the author conducted an online consumer survey in the United States, China, and Japan, which are three of world's largest online markets with different cultures and economic policies, and compared the amount of six types of perceived risks (i.e., vendor, product performance, financial, psychological, time, and privacy) in the SEC-products classification. The major finding suggests that the mean of the overall-risk is perceived as the lowest for search and service products, while it is perceived as the highest for credence products. Compared with the existing research, this study contributes the literature by discussing the levels of perceived risks in the different classes of

products through a horizontal and vertical comparative analysis.

The remainder of the article is structured as follows: We first review the literature related to perceive risks and product classes, followed by hypotheses proposing. Next, we describe the study design which include the online consumer survey and data summary. This is followed by a multi-way ANOVA and multiple comparison analysis. We conclude with contributions of this study and discussions of both its managerial implications and directions for further research.

2. Literature Review

Prior research has identified that product class is a significant influential factor for consumer purchase (Sheth, 1983), and found that the intentions for online shopping are the highest for search and service products, but lowest for credence products (Girard and Dion, 2010; Li, 2017). In addition, this influence is considered be rooted in the theory of perceived risk (Chaudhuri, 1998; Girard and Dion, 2010). However, the issue that how consumers perceive risks in online shopping across different product classes still lacks empirical supports. Therefore, this study follows the existing literature (Girard and Dion, 2010), and investigates the relation between perceived risk and product class in online purchase intention.

2.1 SEC-products classification

Recent studies in online shopping literature applied SEC-products classification framework (i.e., Search, Experience, and Credence products) to determine consumers' purchase intentions (Girard and Dion, 2010; Wan et al., 2012). In SEC-products classification framework, "search product" is defined that most of the information on product attributes can be easily obtained from the Internet and consumers can confidently evaluate the quality before they purchase (Wan et al., 2012). "Experience product" is that whose relevant attribute information cannot be easily found from the Internet and consumers can only evaluate the quality once they are consumed or serviced (Girard and Dion, 2010; Nelson, 1974). Compared with the above two products, "credence product" is defined as those whose relevant attribute information is not available until a considerable period of time after the use of the product/service, which means that consumers cannot evaluate the quality even a long time after the purchase (Darby and Karni, 1973; Wan et al., 2012). On the basis of the SEC-products classification, Li (2017) served service products as a separate product class on a par with SEC-products to overcome the limitation of the initial framework in which service product was mixed in the search and credence classes. As the conclusions, the relevant literature indicated that

purchase intention for online shopping is the highest for search products, followed by service products, then as experience products, and lowest for credence products. However, it is unclear that for what reason the product class influence consumers' purchase intention, if at all.

2.2 Perceived Risk and Product Class

Girard and Dion (2010) indicated that the relationship between product class and customers' purchase intention is rooted in the theory of perceived risk. Prior research has suggested that risk perceptions of online shopping come from the uncertainty and asymmetry of information (Dimoka et al., 2012; Luo et al., 2012). Because SEC-products are defined by the uncertainty and difficulty consumers encounter in obtaining and evaluating the attribute information of products (Girard and Dion, 2010; Wan et al., 2012), it is considered that SEC-products may moderate the relationship between perceived risk and online purchase intention. In the literature, perceived risk negatively related to purchase intention (Ganesh et al., 2010). The literature has suggested that perceived risks in online shopping include vendor, product performance, financial, psychological, time loss, and privacy risks (Forsythe and Shi, 2003; Lim, 2003). Vendor risk refers to the trust between shoppers and sellers; product risk is reflected in consumer worries about the quality of the product; financial risk represents the possibility of monetary loss arising from online shopping; psychological risk refers to disappointment and mental stress because of the unsuccessful experienced; time loss risk represents the uncertainty that consumers spend more time for waiting the shipping than they expected; and privacy risk is reflected in the possibility that a consumer's personal information will be inappropriately used (Girard and Dion, 2010; Kim et al., 2008; Salam et al., 2003).

Chaudhuri (1998) indicated that the level of overall risk perception is different among product classes. Girard and Dion (2010) found that the amount of overall risk consumers perceive in product classes is the lowest for search, while the highest for credence products. This result theoretically explains the finding why search products are more likely to be purchased online. Therefore, the hypothesis is proposed as follow:

H1. Overall-risk perception in service products is significantly higher than that of search products, while it is lower than that of credence products.

Due to the characteristics of search products, in that complete information can be obtained from the Internet, they are the easiest to evaluate of the classes of products. Mitra et al. (1999) demonstrated that the level of risk perception gradually increased from search to experience to credence products. Girard and Dion (2010) found that all types of risk, including financial, product

performance, social, psychological, physical, and time loss, are perceived as significantly higher for search products than for experience and credence products. Since the intention of online patronage is posited as being higher for search products than it for service products in this study, based on the literature, the hypothesis is thus stated as follow:

H2. For search products, all six types of risks are perceived as being lower than for service, experience, and credence products.

Relevant attribute information for experience products is more difficult to obtain than search products (Chaudhuri, 1998; Li et al., 2002). Because of the uncertainty, perceived financial and product performance risks are relatively high for experience products (Girard et al., 2002; Levin et al., 2005). Li et al. (2002) suggested that consumers would be more willing to take time to confirm the relevant information before making a purchase. By contrast, Girard and Dion (2010) found that for experience products, the amount of risk in product performance, finance, and time loss is perceived to be higher than others. Based on the findings of the prior studies, this study proposes the following hypothesis:

H3. For experience products, the amount of product performance and financial risk is perceived to be higher than that of other risks.

Service products have not been discussed as a separate class in the literature. Because of the characteristics of intangibility and variability, in principle most service products are not allowed to be returned (Kim et al., 2006). Consumers in online shopping are afraid that they are paying money for a service but the quality of the service is unsatisfactory, or that they are not even getting it (Pires et al., 2004). Therefore, it is considered that the amount of financial and psychological risk is perceived as being relatively high for service products. Compared with physical products, service products are more likely to involve consumer privacy (Featherman et al., 2010). This is because the majority of services require consumers to provide their true information. In contrast, time loss risk is perceived as being relatively low for service products because of the characteristics of simultaneity. Hence, the author offers the following hypothesis related to the relationship between perceived risks and service products:

H4a. For service products, the amount of financial and privacy risk is perceived as being higher than that of other risks.

H4b. For service products, the amount of time loss risk is perceived as being lower than that of other risks.

Given the characteristics of credence products, consumers cannot evaluate the quality even a long time after purchase (Wan et al., 2012). Mitra et al. (1999) revealed that the perceived financial, social, and psychological risks are much higher for credence products than for other products because the utility

gain or loss of credence goods is difficult to measure after consumption as well. In light of the level of uncertainty being the highest for credence products (Hsieh et al., 2005), Girard and Dion (2010) found that all types of risk, involving financial, product performance, social, psychological, physical, and time loss are perceived to be significantly higher for credence products than for search and experience products. Meanwhile, since consumers can evaluate the quality of service products much more easily than credence products, this study also considers that the perceptions of all six types of risks are higher for credence products than for services products. Thus, a hypothesis is proposed as follow:

H5. For credence products, all six types of risks are perceived as being higher than for search, service, and experience products.

3. Study Design

To test the hypotheses above, an online consumer survey was conducted to determine the relationship between risk perception and product class. The survey was designed as online questionnaires from April 2010 to June 2012 by Google forms and Sojump.com.[1]

The survey contains 4 parts in total. The first part includes the topic, objective, notes, and term explanations of the survey. The second part related to participant profiles, including gender, age, country, education, and experience with online shopping. The third part asks the intention of online purchase. In this part, participants are required to respond with their online purchase intention for four product classes. The intention is measured on a 5-point scale (1=Very unlikely to 5=Very likely) by asking "How likely do you feel purchasing this product from online is?" The last part investigates the degree of risk perception. In this part, participants are required to respond with the degree of risk they perceived, including vendor, product performance, financial, psychological, time, and privacy risks. Similarly, the degree of risk perception was also measured on a 5-point scale by asking "How risky do you feel shopping this product from the Internet is?" which is from 1=Not risky at all to 5=Very risky.

A total of 895 valid responses were collected in this survey, with the effective rate of 47.9%. Respondents are nearly evenly split between males and females, and most of them have high education and a certain degree of online shopping experience. Additionally, about half of the respondents are Chinese, the rest are nearly evenly from the US and Japan, and the majority (more than 72%) of them are aged 20 to 40.

12 products with four classes were defined in the survey, where search products include books, music-CDs, and game software; experience products

include shoes, cookies, and cosmetics; service products include online meal ordering, travel booking, and air insurance; and credence products include supplements, diet food, and hair-restorer. The target products will be given randomly from each class to avoid order bias. Through investigating the online purchase intention (see Table 1), we noticed that it is the highest for search products, followed by service products and experience products, and lowest for credence products (Li, 2017).

Table 1: Online Purchase Intentions for SEC-products

	F-test	Search		Service		Experience		Credence	
		Mean	SD	Mean	SD	Mean	SD	Mean	SD
Online Intention	695.86 ***	3.78	0.68	3.52	0.66	2.87	0.73	2.46	0.66

Note: *** $p < 0.01$, ** $p < 0.05$, * $p < 0.1$

Table 2: Risk Perceptions for SEC-products

Risks	Search	Service	Experience	Credence
Vendor	2.57	2.72	3.57	3.98
Product	2.40	2.60	3.74	4.21
Financial	2.68	3.17	3.17	3.59
Psychological	2.61	2.41	3.60	3.96
Time	2.52	2.23	3.52	3.98
Privacy	2.56	3.56	2.94	2.96

Table 3: Correlations Among the Perceived Risks and Online Purchase Intention

		[1]	[2]	[3]	[4]	[5]	[6]	[7]
[1]	Vendor-risk	1.00						
[2]	Product-risk	0.32	1.00					
[3]	Financial-risk	0.15	0.20	1.00				
[4]	Psychological-risk	0.31	0.33	0.14	1.00			
[5]	Time-risk	0.31	0.41	0.14	0.33	1.00		
[6]	Privacy-risk	-0.02	-0.03	0.06	-0.03	-0.06	1.00	
[7]	Online intention	-0.51	-0.60	-0.38	-0.44	-0.44	-0.16	1.00

Table 2 shows the degree of how participants perceive risks in online shopping among the four product classes at mean. Through this table, we noticed that the mean of each perceived risk is less for search and service products but large for credence products. Prior research has indicated that perceived risk negatively related to consumers' online purchase intention (Forsythe and Shi, 2003; Girard and Dion, 2010). Table 3 provides the statistical correlation among the perceived risk variables and online purchase intention. All correlation coefficients are negative confirming that a negative relationship occurs between perceived risk and the decision of online purchase.

However, the results in table 2 is far too general and not enough rigorous. Therefore, we verify the hypotheses with systematic statistical tests subsequently.

4. Analysis

In this section, ANOVA and multiple comparison analysis were performed to investigate the relationship between consumers' risk perceptions and product classes in Internet shopping, which includes all the 6 hypotheses.

H1 proposes that overall-risk perception of service products is significantly higher than that of search products, while it is lower than that of credence products. Following the literature, overall-risk perception in this study is measured by averaging all six types of risk. This hypothesis was tested using One-way ANOVA procedures. Table 4 reveals the results. As shown in table 4, the variable for overall-risk perception is significant at $p < 0.01$. Meanwhile, each perceived risk is also significant, demonstrating that the levels of all types of risks will be influenced by product class. The differences in overall-risk perception among the four product classes were tested using multiple comparison analysis. Table 5 shows the testing results. All t-values are significant. The search product class has the lowest overall-risk perception ($\mu =$ 2.56). Overall-risk perception in service products is the second lowest (2.78), a little higher than that in search products. Nevertheless, the difference of overall-risk perception between service and search products is very small. Overall-risk perception in experience products (3.42) is significantly higher than that in search products ($p < 0.01$), which is consistent with the findings in Girard and Dion (2010). Finally, the credence product class has the highest overall-risk perception (3.78). The findings show that overall-risk perception of service products is higher than that of search products, while the credence products class has a higher overall-risk perception than the service product class, which is as expected. Hence, H1 is supported.
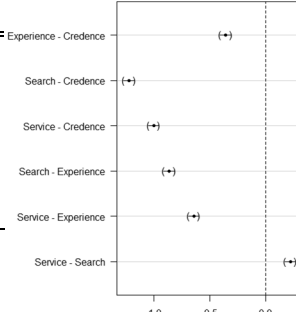
Table 4: Results of the ANOVA for H1

	F-test	Search		Service		Experience		Credence	
		Mean	SD	Mean	SD	Mean	SD	Mean	SD
Overall-risk	1714.6 ***	2.56	0.38	2.78	0.41	3.42	0.40	3.78	0.39
Vendor-risk	433.45 ***	2.57	0.94	2.72	1.02	3.57	0.94	3.98	0.93
Product-risk	723.07 ***	2.40	0.96	2.60	1.04	3.74	1.00	4.21	0.91
Financial-risk	147.75 ***	2.68	0.78	3.17	0.92	3.17	0.94	3.59	1.00
Psychological-risk	532.12 ***	2.61	0.96	2.41	1.07	3.60	0.94	3.96	0.94
Time-risk	756.98 ***	2.52	0.85	2.23	0.97	3.52	0.85	3.98	0.91
Privacy-risk	158.50 ***	2.56	0.92	3.56	0.92	2.94	1.05	2.96	1.03

Note: *** $p < 0.01$, ** $p < 0.05$, * $p < 0.1$

Table 5: Multiple Comparisons for H1

Product (A) - Product (B)	Mean-diff.	Std.Err.
Experience - Credence	-0.36 ***	0.02
Search - Credence	-1.22 ***	0.02
Service - Credence	-1.00 ***	0.02
Search - Experience	-0.86 ***	0.02
Service - Experience	-0.64 ***	0.02
Service - Search	0.22 ***	0.02

Note: *** $p < 0.01$, ** $p < 0.05$, * $p < 0.1$

H2 states that all six types of risks are perceived as being lower for search products than for service, experience, and credence products. Table 6 provides multiple comparisons to verify the hypothesis. Girard and Dion (2010) suggested that all types of risk[2] are perceived as lower for search products than for experience and credence products. A similar result is also found in this study. However, compared with the risk perceptions of service products, the author notes that the perceived risks in vendor, product performance, finance, and privacy risks are lower for search products, while psychological and time loss risks are relatively high. Therefore, H2 is not supported.

Table 6: Multiple Comparisons for H2

Risk	Product (A) - Product (B)	Mean-diff.	Std.Err.	t-value
Vendor-risk	Search - Service	-0.14 ***	0.05	-3.18
	Search - Experience	-1.00 ***	0.05	-22.04
	Search - Credence	-1.40 ***	0.05	-30.95
Product-risk	Search - Service	-0.19 ***	0.05	-4.17
	Search - Experience	-1.33 ***	0.05	-28.89
	Search - Credence	-1.81 ***	0.05	-39.23
Financial-risk	Search - Service	-0.48 ***	0.04	-11.20
	Search - Experience	-0.49 ***	0.04	-11.25
	Search - Credence	-0.91 ***	0.04	-21.03
Psychological-risk	Search - Service	0.21 ***	0.05	4.45
	Search - Experience	-0.99 ***	0.05	-21.38
	Search - Credence	-1.35 ***	0.05	-29.22
Time-risk	Search - Service	0.29 ***	0.04	6.82
	Search - Experience	-1.00 ***	0.04	-23.58
	Search - Credence	-1.46 ***	0.04	-34.49
Privacy-risk	Search - Service	-1.00 ***	0.05	-21.53
	Search - Experience	-0.38 ***	0.05	-8.13
	Search - Credence	-0.40 ***	0.05	-8.59

Note: *** $p < 0.01$, ** $p < 0.05$, * $p < 0.1$

H3 predicts that the amount of product performance and financial risk for experience products is perceived to be higher than that of other risks. Table 7 shows the results of the hypothesis testing. The mean of the perceived risk in product performance is significantly higher than the risks in vendor, psychological, time loss and privacy. On the other hand, although the mean of the financial risk is significantly higher than privacy risks, it is perceived to be lower than other risks. By contrast, the author found that the amount of time loss risk for experience products is the lowest in all 6 risks. Therefore, H3 is only partially supported.

H4a and H4b state that the amount of financial and privacy risk for service products is perceived to be higher than that of other risks, while the amount of time loss risk is perceived to be lower than that of the others. Table 8 reports the test results. As expected, the means of the financial and privacy risk variables are significantly higher than the means of the perceived risks in vendor, product performance, psychological, and time loss. In addition, the mean of the time loss risk is significantly lower than those of the vendor, product, and psychological risks. Therefore, H4a and H4b are supported.

H5 proposes that all six types of risk are perceived as being higher for credence products than for search, service, and experience products. To test the hypothesis, multiple comparisons were performed. Table 9 represents the results of the testing. For the credence product class, almost all of the six types of risk perception are significantly higher than for search, service, and experience products, except for the privacy risk. By contrast, the mean of the privacy risk for service products is higher than the mean for credence products. Thus, H5 is partially supported.

Table 7: Multiple Comparisons for H3

Risk (A)	Risk (B)	Mean-diff.	Std.Err.	t-value
Product-risk	Vender-risk	0.16 ***	0.05	3.58
	Psychological-risk	0.14 ***	0.05	3.00
	Time-risk	0.22 ***	0.04	4.99
	Privacy-risk	0.80 ***	0.05	16.50
Financial-risk	Vender-risk	-0.40 ***	0.05	-9.05
	Psychological-risk	-0.43 ***	0.05	-9.68
	Time-risk	-0.35 ***	0.04	-8.20
	Privacy-risk	0.23 ***	0.05	4.89

Note: *** $p < 0.01$, ** $p < 0.05$, * $p < 0.1$

Table 8: Multiple Comparisons for H4

Risk (A)	Risk (B)	Mean-diff.	Std.Err.	t-value
Financial-risk	Vender-risk	0.45 ***	0.05	9.82
	Product-risk	0.57 ***	0.05	12.34
	Psychological-risk	0.76 ***	0.05	16.19
	Time-risk	0.94 ***	0.04	21.02
Privacy-risk	Vender-risk	0.84 ***	0.05	18.36
	Product-risk	0.97 ***	0.05	20.80
	Psychological-risk	1.16 ***	0.05	24.49
	Time-risk	1.33 ***	0.04	29.73
Time-risk	Vender-risk	-0.49 ***	0.05	-10.37
	Product-risk	-0.37 ***	0.05	-7.74
	Psychological-risk	-0.18 ***	0.05	-3.69

Note: *** $p < 0.01$, ** $p < 0.05$, * $p < 0.1$

5. Conclusions and Discussion

In this study, the author investigated the influences of perceived risks on online purchase intention, and discussed the relationship between risk perceptions and product classes. Specifically, this study explored the reason for the difference in purchase intention by conducting an online consumer survey, and examined how consumers perceive risks in online shopping across different product types (i.e., search, service, experience, and credence products).

Table 9: Multiple Comparisons for H5

Risk	Product (A) - Product (B)	Mean-diff.	Std.Err.	t-value
Vendor-risk	Search - Service	-0.14 ***	0.05	-3.18
	Search - Experience	-1.00 ***	0.05	-22.04
	Search - Credence	-1.40 ***	0.05	-30.95
Product-risk	Search - Service	-0.19 ***	0.05	-4.17
	Search - Experience	-1.33 ***	0.05	-28.89
	Search - Credence	-1.81 ***	0.05	-39.23
Financial-risk	Search - Service	-0.48 ***	0.04	-11.20
	Search - Experience	-0.49 ***	0.04	-11.25
	Search - Credence	-0.91 ***	0.04	-21.03
Psychological-risk	Search - Service	0.21 ***	0.05	4.45
	Search - Experience	-0.99 ***	0.05	-21.38
	Search - Credence	-1.35 ***	0.05	-29.22
Time-risk	Search - Service	0.29 ***	0.04	6.82
	Search - Experience	-1.00 ***	0.04	-23.58
	Search - Credence	-1.46 ***	0.04	-34.49
Privacy-risk	Search - Service	-1.00 ***	0.05	-21.53
	Search - Experience	-0.38 ***	0.05	-8.13
	Search - Credence	-0.40 ***	0.05	-8.59

Note: *** $p < 0.01$, ** $p < 0.05$, * $p < 0.1$

Prior research has demonstrated that online purchase intention is particularly strong for search and service products, while the credence products are most likely to be purchased in shops (Girard and Dion, 2010; Li, 2017). To explain the reasons for the difference in purchase intention among the four classes of products, this paper examined the risk perceptions (i.e., vendor, product performance, financial, psychological, time loss, and privacy risk) in those four classes. Through a simple statistical correlation, we noticed that in our investigation, all 6 risks are significantly and negatively related to online purchase intention. In addition, a further insight gained from multiple comparison analysis is that the overall risk perception is the lowest for search products, followed by service, then as experience, and highest for credence products. This finding supports the main conclusion from the side of risk perception.

For the four classes of products, although most of the risk perceptions are significantly lower for search products than for other the classes, perceived risks in psychological and time loss for search products are little higher than for service products. A possible reason for this is that service products bought online do not need shipping, and most of them are identified by e-commerce platforms. On the other hand, compared with search products, trust in vendor, product, psychology, and time seem to be significantly more important for experience products, while the risk perceptions of privacy and finance are relatively lower. This is because of the uncertainty in experience products, leading consumers to be more caring risk and trust rather than saving money or time. Meanwhile, the development of information encryption technology (e.g., SSL, SET) and the third-party guarantee enhance consumer trust of payment in e-commerce (Chen et al., 2010). By contrast, for service products, besides finance, privacy risk is perceived as being higher than other risks, while the time loss risk is the lowest. This is because most service products bought online require consumers to provide their true information, which leads it to involve consumers' privacy more (Kim et al., 2006). Finally, previous studies suggested that the level of uncertainty is the highest for credence products (Girard and Dion, 2010). Consistent with that conclusion, the analysis results show that most of the risks are perceived as being higher for the credence products than that for other classes. This is because the relevant attribute information for credence products is the most difficult to evaluate by consumers (Darby and Karni, 1973; Mitra et al., 1999).

The managerial insight drawn from our study is that since risk perception is the highest for credence products, it requires the sellers of credence products to enhance their reputations to reduce consumer perceived risk levels. In addition, the effects of word of mouth should also be given attention by sellers who sell

credence products. Finally, although the online purchase intention is relatively high for service products, sellers need to pay more attention to protect the customer privacy.

The main contributions in this study are twofold. First, we discussed the differences in risk perception among the SEC-product classification to explain how consumers perceive risks in online shopping, and what relationship there is between product class and patronage intentions. Different to the literature, this study investigated both horizontal and vertical difference in risk perceptions, i.e., one risk in different classes of product and different perceived risks in one product class. Second, this study conducted an online consumer survey and collected the data from three different countries, which are three of world's largest online markets with different cultures and economic policies.

This study has two limitations. First, the perceived risks and product sampling are enumerated insufficiently. In our study, we investigated the difference in 6 types of risk perceptions (i.e., vendor, product performance, financial, psychological, time loss, and privacy risk) among SEC-products. However, there are some of others such as social, physical, personal, and source risks, which have been mentioned in relevant literature (Girard and Dion, 2010; Lim, 2003), still need further discussion and elaboration. Meanwhile, in our investigation, each product class only has three items, which may cause the existence of product bias. Second, the limitation in sample size is inevitable. The insufficient sample data may cause the analysis results to be unstable and underestimated to a certain extent. Therefore, subsequent study urgently needs a comprehensive and substantial investigation to solve above problems. Furthermore, the relation among purchase intention, risk perception, and product class in the context of O2O is necessary to be discussed in future research.

Notes

(1) Since Google forms cannot be accessed from China, we used Sojump.com instead. The contents of the questionnaire were the same in both the two platforms.

(2) In Girard and Dion (2010), the types of perceived risk involve financial, product performance, social, psychological, physical, and time risk.

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