

An Empirical Study on Behavior and Psychology Concerning Invoice Disposal in the Context of Courier Services: A Comparative Study on Korea and the U.S.

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ABSTRACT

This study investigates responses to privacy concerns by analyzing the psychological and behavioral characteristics related to the disposition toward invoices of courier service users. To this end, we develop a theoretical framework by combining stimulus response theory, communication privacy management theory, the theory of reasoned action, and the theory of planned behavior. Based on the theoretical framework, we analyze the relationships between social influence, privacy propensity, privacy control, privacy risk, privacy concern, invoice disposition intention, and invoice disposition behavior in the context of courier services. To test our hypotheses, we survey courier service users in the U.S. and Korea. Using a structural equation model, we test the relationships among these various factors for the courier service users of the two countries. Results have distinct implications for the psychological and behavioral characteristics concerning the disposal of courier invoices and enable understanding of the characteristics of courier service customers of the two countries.

Keywords: Privacy Concern, Privacy Risk, Privacy Control, Invoice Disposition Intention, Social Influence, Logistics, Delivery Service

I . Introduction

Recently, the importance of individual information protection and privacy has been emphasized. The importance of privacy was first emphasized more than 30 years ago (Laufer and Wolfe, 1977). Since

then, studies on privacy have been conducted in various academic fields (e.g., business, communication, law, and computer science) (Malhotra et al., 2004; Margulis, 1977; Phelps et al., 2000; Xu et al., 2011).

The importance of personal information has been highlighted lately as a result of leakage of personal

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information (Choi et al., 2015). In recent years, there has been a tendency to use personal information on invoices and courier services, which has led to personal information leaks in the process of delivering courier services and disguised crimes using courier services (e.g., theft of recognition, negative use of personal information, and crime using personal information in the courier services environment). These examples highlight the importance of personal information management in the context of delivery parcel services (Lim et al., 2017). Thus, research on the protection of personal information in the use of courier services should be undertaken urgently. In addition, courier service providers should develop policies to protect personal information more securely by strengthening their services.

However, courier service users generally treat personal information on courier invoices as unimportant. While courier service providers are usually aware of the importance of personal information management for courier services, they have not made progress in policy development and service enhancement for their customers. In addition, it is difficult to find empirical studies analyzing consumers' psychology on personal information protection and privacy enhancement related to courier service invoice. Therefore, in order to provide improved courier services, studies on the protection of privacy and privacy of courier services are urgently needed.

This study investigates the relationship between the privacy characteristics of courier service users, intention to dispose of invoices, and invoice disposition behavior when using courier services. We apply the stimulus response theory (SRT), the communication privacy management theory (CPMT), the theory of planned behavior (TPB), and the theory of reasoned action (TRA) to develop our theoretical framework (Ajzen, 1975; Fishbein and Ajzen, 1977;

Nelson, 1975; Petronio, 2002).

In particular, as Hofstede (1994) underlines the significance of global cultural differences, it is important for logistics companies to understand the cultural differences of logistics service users as globalization progresses. Overseas expansion of logistics companies is very important. Currently, although Korea's logistics services are competitive in various areas, they need to develop more to achieve global competitiveness. Accordingly, benchmarking against U.S. logistics services is necessary to promote global business. U.S. logistics companies¹⁾ have well-structured consumer privacy and privacy protection in comparison with Korean logistics companies. A comparative study of logistics service users in Korea and the U.S. would provide valuable information for obtaining benchmarking information in the logistics sector. Hence, we conduct cross-cultural research on courier service users in Korea and the U.S.

We aim to reveal the differences in psychological characteristics between Korean and U.S. courier service users, and to answer our research questions. First, we provide information to understand the psychological characteristics and behavioral relationship of courier service users related to the disposal of courier service invoices, focusing on privacy concerns related to courier services. Second, we suggest privacy protection methods for Korean companies that use courier services and we provide a way to achieve competitiveness amid globalization of the logistics industry by undertaking a comparative analysis of invoice disposition psychology and behavior of courier service users in the U.S. and Korea.

The remainder of the paper is organized as follows. Section 2 describes the theoretical frame-

1) For example, UPS and FedEx, the world's leading logistics companies, are subject to benchmarking of logistics companies in various countries.



Source: Korea Logistics News (Reporter Kyung-sung Lee), Small Innovation in Logistics Industry, Changing Invoices for Courier, 22 September 2016 (URL: <http://www.klnews.co.kr/news/articleView.html?idxno=114196>)

<Figure 1> Invoices of Delivery Services

work and hypotheses of the study. Section 3 describes the research model, while Section 4 analyzes reliability, validity, and causality through empirical analysis. Section 5 discusses the results of the study, implications, limitations, and direction for future research.

II. Theoretical Background and Hypotheses

2.1. Delivery Service Trends

Recently, e-commerce-related industries have been developed and the use of courier services has been increasing (Lim et al., 2017; Song, 2011). For example, according to the Cargo News (2017), the world parcel delivery volume surged 47% between 2014 and 2016. The world courier market has been booming every year and is expected to grow 17 - 28% by 2021.²⁾

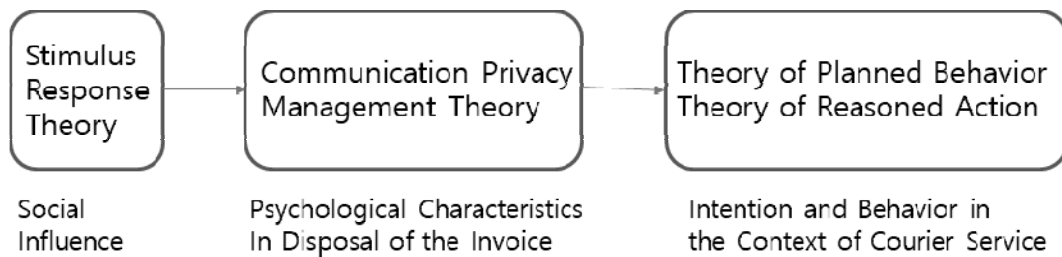
The growth of the courier market is due to the spread of e-commerce trading and the innovation of courier services using various information technologies, such as big data, robots, drones, Internet of things (IoT), artificial intelligence (AI), and intelligent app technology.

Courier services that use information technology (IT) in connection with e-commerce are utilized for customer information (Song, 2011). The customer information is recorded in the courier invoice, as shown in <Figure 1>. If personal information were used only by the courier service, there would be no problem, but as described in the introduction, the misuse of personal information for negative reasons causes serious crime problems (e.g., smishing hacking attacks to steal personal information by text messages of smartphones, use of personal information from courier invoices, leakage of personal information during the delivery process, and crimes committed by courier carrier).^{3),4),5)} Therefore, cou-

2) Cargo News (Reporter Chung-wook, Lee), Worldwide parcel volume '48%' soared in 2014-2016, September 12, 2017 (URL: <http://www.cargonews.co.kr/news/articleView.html?idxno=37078>)

3) Yonhap News, Dismiss personal information from courier service, February 18, 2015 (URL: <http://www.yonhapnews.co.kr/bulletin/2015/02/17/0200000000AKR20150217184900017.HTML?input=1179m>)

4) SBS News, Personal Information, No Countermeasures, August



<Figure 2> Research Framework

rier companies must secure and manage the personal information of delivery invoices in order to protect courier services users' privacy.

Courier companies are currently trying to provide new services that enhance customer value through the IoT, big data, AI, and intelligent apps technology (Lim et al., 2017). These new technologies are based on personal information. Therefore, at present, the use of personal information is given high priority in courier services, and courier companies should contribute more to customer service improvement by managing the personal information of courier service customers more securely.⁶⁾

2.2. Theoretical Framework

This study aims to explain the psychology and behavior related to the disposal of invoices of courier service users. For developing our theoretical framework, we combine previous theories, including SRT (Nelson, 1975), CPMT (Petronio, 2002), TPB (Ajzen, 1975), and TRA (Fishbein and Ajzen, 1977). The SRT is a theory that systematizes the psychological and behavioral response processes of people's external

stimuli (Nelson, 1975). The CPMT is based on the study of Altman (1977) on privacy and social behavior and Derlega and Chaikin (1977) on the privacy and disclosure of self-information in social relationships (Xu et al., 2011). The CPMT explains the process of privacy breach and the formation of intimate relationships through information disclosure and closure in interpersonal relationships (e.g., parent and child, or doctor and patient) (Petronio, 2002). The TPB, proposed by Ajzen (1985), is a psychological theory that analyzes the relationship between attitude, subjective norms, perceived behavior control, intention, and behavior. The TRA, developed by Fishbein and Ajzen (1977), is a psychological theory that analyzes the relationship between behavioral beliefs, attitudes toward behavior, subjective beliefs, subjective norms, control beliefs, perceived behavioral control, behavior intention, and behavior.

First, there are external influences on the privacy propensity of courier service users. External influences have long been a concern in information system research areas. Venkatesh, Morris, Davis, and Davis (2003) argued that social influence has an important impact on IT users due to external influences. According to SRT, people respond to outside stimulation (Nelson, 1975). Likewise, if people are infringed by outside forces, privacy is ensured by creating a defense mechanism to respond to privacy violation. Therefore, in this study, the social influence

6, 2015, (URL: <http://sbscnbc.sbs.com/read.jsp?pmArticleId=10000750387>)

5) Logistics Newspaper, (Kyung Sung Lee Reporter), September 22, 2016 (<http://www.klnews.co.kr/news/articleView.html?idxno=114196>).

6) Security News (Min sea-a, reporter), May 13, 2016 (<http://www.boannews.com/media/view.asp?idx=50589>).

on privacy on the use of courier service is considered to affect privacy propensity in terms of privacy invasion. As a result, the social influence of privacy violation is linked to CPMT as a leading factor affecting privacy propensity.

Second, from the viewpoint of Petronio (2002)'s CPMT, the privacy disposition of courier service users affects privacy control and privacy risk for the use of courier services. Particularly in the theoretical framework, we utilize the privacy concern model of Xu et al. (2011) applying CPMT in the research model. In other words, individual cognition and affection about privacy impact intention and behavior for the use of courier services. Therefore, in this study, CPMT is linked to intention behavior theory (i.e., TPB and TRA).

Third, from the viewpoint of TPB (Ajzen, 1975) and TRA (Fishbein and Ajzen, 1977), psychological characteristics related to privacy of delivery service affect intention, and intention affects the behavior of invoice disposal when using courier services. In this study, we develop a theoretical framework, as shown in <Figure 2>, by applying various preceding theories.

2.3. Research Hypotheses and Model

Privacy invasion and privacy. There are various definitions of privacy concerns. Xu et al. (2011) defined them as the negative perceptions and emotions related to privacy that are formed by external influences on the use of IT services using various prior studies. In this study, we define privacy concerns as negative affection about privacy invasion caused by leakage of invoice information from courier services.

Previous studies on privacy violation have focused on the effect of the consequences of privacy violation

concerns and their antecedents (Chellappa and Sin, 2005; Phelps et al., 2000; Phelps et al., 2001). The preceding research includes studies on (1) e-commerce consumers' willingness to disclose personal information (Chellappa and Sin, 2005; Phelps et al., 2000), (2) antecedents and outcomes of privacy concerns (Dinev and Hart, 2006a; Malhotra et al., 2004), (3) effects on privacy issues of extending intention in the context of e-commerce (Dinev and Hart, 2006a; Dinev and Hart, 2006b), (4) information disclosure behavior in the context of the Internet (Buchanan et al., 2007), (5) privacy research with regard to social network service use (Squicciarini et al., 2011), and (6) privacy in using location-based services (Xu et al., 2010).

Recently, CPMT has been widely used as theoretical background in the study of customer privacy in e-commerce application research (Dinev and Hart, 2004; Dinev and Hart, 2006a; Dinev and Hart, 2006b; Dinev et al., 2008; Metzger, 2007).

Prior experiences of privacy violations have a significant impact on human psychology (Smith et al., 1996). Nevertheless, research on privacy violation has not been conducted in the past, that is, on the external influences of privacy-related psychological characteristics. Xu et al. (2011) reported that situational and environmental factors affect privacy. In addition, Smith et al. (2011) reported that personal characteristics in various service contexts affect the cognitive characteristics related to privacy concerns and privacy attitudes.

In this context, individuals who can exercise external influence in the use of courier services can affect the privacy propensity of courier service users. According to SRT, external stimuli induce a person to learn and thereby cause a behavioral response (Nelson, 1975). Therefore, social influence on privacy affects the formation of privacy disposition in the

use of courier services⁷⁾. Based on this discussion, this study proposes the following hypothesis.

H1: Social influence on the use of courier services is positively related to privacy disposition in the context of courier services.

Impact of privacy-oriented tendency, control, risk, and concern. According to Petronio's (2002) CPMT, disclosure and closure of personal information are possible according to an individual's volition. Petronio (2002) argued that personal characteristics (e.g., self-expression and self-defense) are influenced by past experiences. Based on this theory, Xu et al. (2011) found that users' privacy disposition using various services provided by companies was closely related to privacy control, privacy risk, and privacy concerns. Likewise, those who have a strong tendency to protect the privacy of delivery service users have stronger privacy control, and we can predict that the risk to privacy will be highly recognized. Therefore, in this study, it can be inferred that a user's privacy disposition influences privacy control, privacy risk, and privacy concern when using courier services. Accordingly, we suggest the following hypotheses.

H2: The privacy disposition of courier service users is positively related to privacy control.

H3: The privacy disposition of courier service users is positively related to privacy risk.

H4: The privacy disposition of courier service users is positively related to privacy concerns.

7) According to Croog and Richards (1977), external adverse effects have a significant impact on the formation of unsteady perception. Therefore, social influence on the use of courier services can be an important forming factor of privacy tendency.

Privacy control and privacy concerns. Xu et al. (2011) defined privacy control as a personal belief in the ability to manage the propagation and utilization of personal information. In addition, Milne and Boza (1999) and Xu (2007) showed that perceived control has a negative impact on privacy concerns in the context of enterprise information management practices. As mentioned previously, when courier service users fully control personal information related to courier invoices in order to avoid infringement on privacy, the possibility of privacy invasion from courier invoices is reduced. Thus, we propose the following hypothesis.

H5: Privacy control of courier service users is negatively related to privacy concerns.

Privacy concerns and privacy risks. Havlena and DeSarbo (1991) defined perceived consumer risk as an inevitability with potentially negative consequences. In research related to e-commerce, perceived risk has a negative effect on e-commerce transaction intention (Jarvenpaa and Leidner, 1999; Pavlou and Gefen, 2004). Dinev and Hart (2004) and Dinev and Hart (2006a) showed that privacy concerns increase with increasing perceived risk in e-commerce. Xu et al. (2011) suggested that risk to privacy increases privacy concerns. The present study suggests that the perceived risk of privacy violation related to courier service has a positive impact on privacy violation concerns. Thus, we propose the following hypothesis.

H6: The privacy risk of courier service users is positively related to privacy concerns.

Impact of privacy concerns, intention, and behavior. According to Ajzen (1975)'s TPB, affection

affects intention, and intention influences behavior. For example, attitudes to behavior are related to preference, that is, comfortable or uncomfortable feelings. Therefore, the attitude of a person to a specific phenomenon affects behavioral intention and behavior. In addition, Fishbein and Ajzen (1977) tested the hypothesis relationships between cognition, affection, intention, and behavior in TRA. Likewise, Davis (1993)'s technology acceptance model based on the TPB and TRA showed that there is a significant relationship between behavioral intention and behavior toward technology acceptance. Furthermore, the feeling of privacy concern by a courier service user will form an intention to separate the courier invoice from home delivery services, so as to form an ultimate sense of security, and this intention will result in the action of disposing of the invoice. Therefore, this study proposes the following hypotheses.

H7: There is a positive relationship between the privacy concerns of courier service users and the intention to separate invoices from delivery services.

H8: There is a positive relationship between the intention to separate invoices of courier services from delivery services and the invoice disposition behavior of courier services.

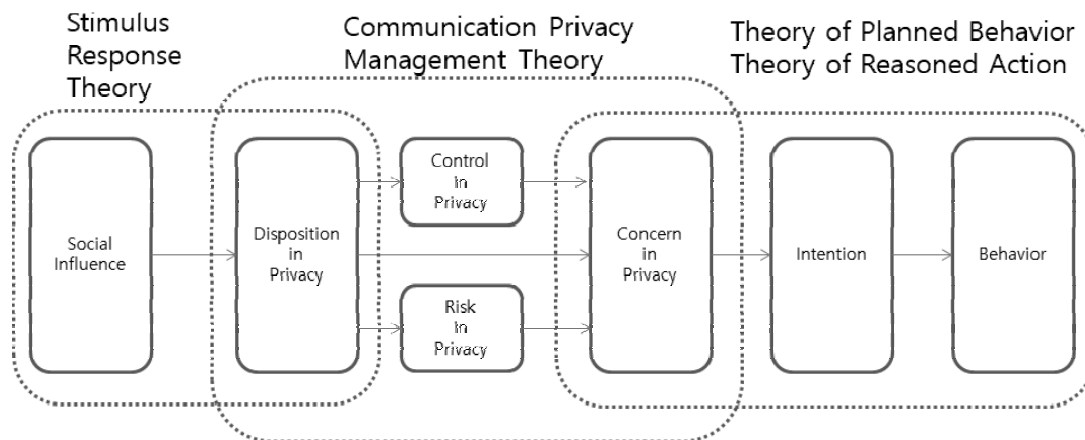
Influence of psychology and behavior on cultural differences between countries. McCoy et al. (2005) defined the Hofstede (1994)⁸⁾ scale as a tool for analyzing cultural differences at the national level rather than the individual level. The present study also analyzes users' privacy psychology and behavior related

to the disposition toward invoices using the Hofstede (1994) scale in the context of delivery service between the U.S. and Korea. Based on Hofstede (1994)'s theory, cultural differences between the U.S. and Korea showed the following characteristics. In Korea, there was high collectivism tendency, low tendency to avoid uncertainty, high power orientation, high long-term orientation, and low femininity tendency. On the other hand, in the U.S., there was high power orientation, high tendency to avoid uncertainty, high individualist tendency, high short-term orientation, and high masculinity tendency.

Because of these cultural characteristics, there is a difference in IT acceptance between Korea and the U.S. (Kim, 2008). In Kim (2008)'s study, there are differences in the factors affecting e-commerce trust depending on cultural characteristics among countries. Kim (2008) stated that risk awareness is high in Korea, which is highly conservative in terms of security and risk in global e-commerce, while there is low risk awareness in the U.S., which is a highly challenging and pioneering society. Moreover, Kim (2008) argued that in the case of trust, U.S. consumers would build stronger trust than Korean consumers would. Thus, there is a difference between the two countries in the psychological and behavioral aspects of disposing invoices used in courier services.

Based on this discussion, we propose the following research model in <Figure 3>. We hypothesize the research model as follows. First, we hypothesize that external social influence affects the psychological characteristics related to privacy characteristics. In addition, the relationship between privacy disposition, privacy control, privacy risk, and privacy concern of courier service users is presented according to the CPMT. Furthermore, according to the TPB and TRA, the psychological characteristics of courier service users are related to their invoice dis-

8) Hofstede (1994) proposed five criteria through an empirical analysis to compare cultural differences between various countries: (1) individualism or collectivism, (2) large or small power distance, (3) uncertainty avoidance or uncertainty, (4) masculinity or femininity, and (5) long-term or short-term orientation.



<Figure 3> Research Model

position intention and behavior when using courier services.

III. Research Method

3.1. Survey

In this study, we surveyed the users of courier services. The survey was conducted in Korea and the U.S. using the survey company, Macromill Embrain Korea (<http://www.embrain.com>). These surveys were conducted online from July to August 2017. First, in Korea, 2,662 questionnaires were sent via e-mail. Of the 450 responses collected, 443 were used for the empirical analysis, excluding 7 insufficient answers. In the U.S., 4,200 respondents were asked to respond to a questionnaire every day, and 424 out of 450 responses were used for the empirical analysis, excluding 26 insufficient responses.

3.2. Scale Development

In the present study, we developed a measurement

tool using the validated scales from the previous literature. In order to understand the psychological characteristics of courier service users, the measurement tool was developed by a comprehensive approach considering all aspects of courier services.

First, in this study, social influence means that outsiders should tell the user that he or she needs to handle the courier invoices safely. The scale used to measure the social influence of courier service users was adapted to the present study employing the measures used by Venkatesh et al. (2003). Second, in this study, privacy disposition means that the users of the courier service pay more attention to their privacy in using the courier service. The scale used in the privacy disposition of courier service users in Malhotra et al. (2004) was modified to the appropriate context for our study. These items measured the privacy disposition of users in various business contexts, which were used by Xu et al. (2011) and Malhotra et al. (2004). Third, in the present study, privacy concern means worrying about personal information infringement when using courier services. The measurement items of privacy concern of courier service users adopted by Dinev and Hart (2006a) and Malhotra et al. (2004) were modified to fit our

study. The privacy concern scales of Dinev and Hart (2006a) and Malhotra et al. (2004) were also used in Xu et al. (2011)'s study. Fourth, in this study, the privacy risk of courier service means that the user perceives the risk of privacy infringement of the personal information when using the courier service. The measure of privacy risk of courier service users proposed by Dinev and Hart (2006a) and Malhotra et al. (2004) was modified to fit the present study. This scale was also used in Xu et al. (2011)'s study. Fifth, in this study, privacy control means the attitude of the user of the courier service to control personal information in order to protect users' privacy. The measure of privacy control of courier service users proposed by Xu (2007) was

modified to fit our study. Sixth, in this study, the intention to dispose of the invoice means that the courier service user intends to separate the courier invoice. With regard to the intention to dispose of the invoice, we developed a measure of intent based on the concept of TRA and TPB by measuring human behavior intention. Seventh, in the study, the act of disposing the invoice of the courier service by the individual was been developed based on the individual behavior concept presented in the TRA and TPB (Ajzen, 1991; Fishbein and Ajzen, 1977). The measurement was performed using a 7-point Likert scale, where 1 = very unlikely or strongly disagree and 7 = very likely or strongly agree.

<Table 1> Demographic Information

Criteria		Korea	U.S.
Sample size		443	424
Gender		Male: 221, Female: 222	male: 214, Female: 210
Age	20s	109	108
	30s	113	108
	40s	112	106
	50s	109	102
Frequency of monthly courier service	1~2 times	81	153
	3~4 times	77	93
	5~6 times	95	74
	7~8 times	29	27
	9~10 times	76	31
	More than 11 times	85	46
Education	High school graduate	61	90
	Attended a two-year college	5	13
	Graduated from a two-year college	55	70
	Attended a 4-year university	41	29
	Graduated from a 4-year university	237	139
	Graduate School	9	24
	Above graduate school graduation	35	59

<Table 2> Reliability and Validity Analysis

Nation	Variables	Mean	S.D.	AVE	CR	CA	Related Study
Korea	[1] INFL	5.08	1.56	0.76	0.93	0.89	Venkatesh et al. (2003)
	[2] BEHA	5.14	1.37	0.96	0.98	0.96	Ajzen (1991), Fishbein and Ajzen (1977)
	[3] CORC	4.84	1.29	0.85	0.96	0.94	Malhotra et al. (2004) Dinev and Hart (2006a)
	[4] CONT	4.36	1.49	0.80	0.94	0.92	Xu (2007), Xu et al. (2011)
	[5] DISP	4.52	1.42	0.74	0.89	0.82	Malhotra et al. (2004)
	[6] INTE	4.36	1.37	0.96	0.98	0.96	Ajzen (1991), Fishbein and Ajzen (1977)
	[7] RISK	4.48	1.47	0.74	0.92	0.88	Malhotra et al. (2004) Dinev and Hart (2006a)
Nation	Variables	Mean	S.D.	AVE	CR	CA	Related Study
U.S.	[1] INFL	5.45	1.38	0.81	0.94	0.92	Venkatesh et al. (2003)
	[2] BEHA	5.49	1.47	0.81	0.89	0.77	Ajzen (1991), Fishbein and Ajzen (1977)
	[3] CORC	4.29	0.98	0.85	0.96	0.94	Malhotra et al. (2004) Dinev and Hart (2006a)
	[4] CONT	4.73	1.05	0.82	0.95	0.93	Xu (2007), Xu et al. (2011)
	[5] DISP	3.87	1.11	0.71	0.88	0.80	Malhotra et al. (2004)
	[6] INTE	4.74	0.90	0.86	0.92	0.84	Ajzen (1991), Fishbein and Ajzen (1977)
	[7] RISK	4.59	1.03	0.78	0.93	0.90	Malhotra et al. (2004) Dinev and Hart (2006a)

Note: CR = Composite Reliability, CA = Cronbachs Alpha, AVE = Average Variance Extracted

[1] Social Influence = INFL, [2] Disposal Behavior of Courier Invoice = BEHA, [3] Privacy Concern = CONC, [4] Privacy Control = CONT, [5] Privacy Disposition = DISP, [6] Disposal intention of Courier Invoice = INTE, [7] Privacy Risk = RISK

3.3. Sample Demographics

The purpose of this study is to investigate the psychological and behavioral characteristics of courier service users in Korea and the U.S. <Table 1> shows the demographic characteristics of the research variables.

IV. Empirical Results

4.1. Research Analysis Tools

In this study, the research hypotheses were verified

by using the component-based structural equation modeling (SEM) software, SMART PLS 2.0 M3.⁹⁾ This equation modeling approach has the advantage of extracting useful results by analyzing the measurement model and the structural model simultaneously (Hair et al., 2013). Because of these advantages, partial least squares path modeling (PLS-PM) is widely used not only in social science but also in various disciplines.

The SEM analysis was performed according to the following statistical procedure. First, we analyzed the basic statistical characteristics of respondents. Second, we performed the reliability analysis, dis-

9) See <https://www.smartpls.com/smartpls2>.

criminant validity analysis, and confirmatory factor analysis to validate the variables used in this study. Third, the structural model was analyzed to validate the causal relationship between courier service users in Korea and the U.S.

First, as shown in <Table 2>, reliability analysis revealed that the Cronbach's alpha and the composite reliability value of all variables exceeded 0.7. Therefore, it was concluded that the research variables are reliable (Nunnally, 1978; Nunnally and Bernstein, 1994).

Discriminant validity is determined by comparing the correlation and the square root of AVE. Generally, discriminant validity exists when the square root of AVE is larger than other correlation coefficients (Hair et al., 2013). In this study, the results of correlation

and the square root of AVE (<Table 3>) were found to satisfy the basic conditions sufficiently.

In this study, we identified common method bias (CMB) to identify the risks inherent in the internal validity of the self-reported research (Podsakoff et al., 2003); in this study, CMB was confirmed using a Harman one-factor test. The analysis revealed that the variance value described in the Korean data was 31.786%, and that in the U.S. data was 39.587%. Thus, in this study, the two samples were found to have no serious problems with CMB (Podsakoff and Organ, 1986).

Moreover, we analyzed the variance inflation factor (VIF) and tolerance to identify multicollinearity (Craney and Surlis, 2002). From the empirical results

<Table 3> Correlation Analysis

Variables	Korea							U.S.						
	[1]	[2]	[3]	[4]	[5]	[6]	[7]	[1]	[2]	[3]	[4]	[5]	[6]	[7]
[1] INFL	0.87							0.90						
[2] BEHA	0.48	0.98						0.28	0.90					
[3] CORC	0.39	0.35	0.92					0.47	0.34	0.92				
[4] CONT	0.09	-0.10	-0.03	0.89				0.63	0.28	0.29	0.91			
[5] DISP	0.30	0.26	0.64	0.09	0.86			0.47	0.44	0.57	0.38	0.84		
[6] INTE	0.47	0.90	0.32	-0.12	0.25	0.98		0.31	0.73	0.38	0.26	0.45	0.93	
[7] RISK	0.36	0.25	0.67	-0.05	0.48	0.26	0.86	0.53	0.24	0.76	0.39	0.49	0.28	0.88

Note: the squares root of AVE

<Table 4> Multi-collinearity Analysis

Korea Sample	Tolerance	VIF	U.S. Sample	Tolerance	VIF
[6] INTE	.737	1.357	[6] INTF	.753	1.327
[5] DISP	.577	1.733	[5] DISP	.569	1.756
[1] INFL	.686	1.457	[1] INFL	.492	2.032
[4] CONT	.932	1.073	[4] CONT	.579	1.726
[7] RISK	.537	1.861	[7] RISK	.380	2.634
[3] CORC	.402	2.488	[3] CORC	.358	2.794

Note: dependent variable: [2] BEHA : Disposal behavior of courier invoice

shown in <Table 4>, the tolerance of each variable in the Korean sample was between 0.402 and 0.932, and VIF was between 1.073 and 2.488. In addition, in the U.S. sample, the tolerance of each variable was between 0.358 and 0.753, and the VIF was between 1.327 and 2.794. Overall, we found no multicollinearity problem between the variables (i.e., dependent and independent variables) of this research model.

4.2. Structural Model Analysis and Discussion

The structural model was analyzed to determine the causality among variables that constitute the research model. In this analysis, we used the boot-

strapping technique because of the small number of data. <Table 5> shows the results of the hypothesis tests and the explanatory power of the study model (R-squares).

The result of each hypothesis test is interpreted as follows. First, in support of H1, the results of the structural model based on SRT for the Korean and U.S. dataset indicate that social influence affected disposition when using courier services (Korea: T-stat. = 6.08 *, $p < 0.001$, supported; US: T-stat. = 10.67 *, $p < 0.001$, supported). In other words, the social influence of courier service users in Korea and the U.S. has a significant effect on privacy disposition when using courier services. In particular, the social influence of courier service users in the

<Table 5> Structural Model Analysis

Nation	Hypotheses	Path Coefficients	T-Statistics	Sig.	Results
Korea	▪ [H1] INFL → DISP	0.30	6.08***	0.001	Supported
	▪ [H2] DISP → CONT	0.10	1.33	N/A	Rejected
	▪ [H3] DISP → RISK	0.48	11.26***	0.001	Supported
	▪ [H4] DISP → CONC	0.41	10.54***	0.001	Supported
	▪ [H5] CONT → CONC	-0.04	0.86	N/A	Rejected
	▪ [H6] RISK → CONC	0.48	11.40***	0.001	Supported
	▪ [H7] CONC → INTE	0.32	6.52***	0.001	Supported
	▪ [H8] INTE → BEHA	0.90	72.37***	0.001	Supported
Nation	Hypotheses	Beta	T-Statistics	Sig.	Results
U.S.	▪ [H1] INFL → DISP	0.47	10.67***	0.001	Supported
	▪ [H2] DISP → CONT	0.38	7.04***	0.001	Supported
	▪ [H3] DISP → RISK	0.49	11.58***	0.001	Supported
	▪ [H4] DISP → CONC	0.28	6.26***	0.001	Supported
	▪ [H5] CONT → CONC	-0.07	2.05*	0.05	Supported
	▪ [H6] RISK → CONC	0.65	14.70***	0.001	Supported
	▪ [H7] CONC → INTE	0.38	7.31***	0.001	Supported
	▪ [H8] INTE → BEHA	0.73	23.55***	0.001	Supported

Note: Korea sample (R squares) : BEHA (0.82), CONC (0.59), CONT (0.01), DISP (0.09), INTE (0.10), RISK (0.23)

U.S. sample (R squares) : BEHA (0.54), CONC (0.63), CONT (0.14), DISP (0.22), INTE (0.14), RISK (0.24)

T-statistics (p -value) > 3.30 ($p < 0.001$ ***), t -value > 2.56 ($p < 0.01$ **), t -value > 1.96 ($p < 0.05$ *)

Bootstrapping times = 1000

U.S. has more affection to privacy disposition than that of courier service users in Korea. This finding illustrates social maturity in the U.S., which emphasizes social influence, and shows that the social characteristics of various media influence the privacy of courier service users.

Second, the results of the analysis on the use of courier services based on CPMT are as follows. First, in support of H2, the results of the structural model analysis of courier service users in Korea indicate that privacy disposition did not affect privacy control (T-stat. = 1.33, rejected). For H3, privacy disposition affected privacy risk (T-stat. = 11.26 *, $p < 0.001$, supported). As for H4, privacy disposition affected privacy concern (T-stat. = 10.54 ***, $p < 0.001$, supported). Even though courier service users in Korea focus on privacy, they cannot control privacy in terms of using the courier service. This means that they cannot provide more security with regard to personal information regardless of the privacy protection measures they undertake. For example, if an individual does not provide enough personal information to send a parcel via a courier company, then the individual cannot prefer courier services. In addition, the results show that the more the users of courier services regard privacy as important, the more they perceive privacy risk. Furthermore, the more privacy is emphasized, the higher is the privacy concern. This result is similar to the consumer psychological characteristics shown in Xu et al. (2011).

Regarding the results of the structural model analysis of courier service users in the U.S., for H2, privacy disposition affected privacy control (T-stat. = 7.04 ***, $p < 0.001$, supported). As for H3, privacy disposition affected privacy risk (T-stat. = 11.58 ***, $p < 0.001$, supported). In terms of H4, privacy disposition affected privacy concern (T-stat. = 6.26 ***, $p < 0.001$, adopted). Unlike courier service users

in Korea, courier service users in the U.S. who were highly sensitive to privacy tended to be able to control their privacy, because the system of personal information protection has been systematized so that courier service users can take various actions to protect their privacy. In addition, as with courier service users in Korea, high privacy disposition shows high risk of privacy and high privacy concern.

For H5, privacy control did not affect privacy concern of courier service users in Korea (T-stat. = 0.86, rejected). As for H6, privacy risk affected privacy concern of courier service users in Korea (T-stat. = 11.40 ***, $p < 0.001$, supported). In the U.S., for H5, privacy control affected privacy concerns of courier service users in the U.S. (T-stat. = 2.05 ***, $p < 0.05$, supported). Moreover, for H6 as well, privacy risk affected privacy concerns of courier service users in the U.S., (T-stat. = 14.70 ***, $p < 0.001$, supported). In other words, courier service users in Korea have limited control over privacy protection, according to our hypothesis test. Thus, these results show that privacy control does not affect privacy risk in Korea. On the other hand, courier service users in the U.S. are less likely to be concerned about privacy because their privacy is well regulated. In addition, concerning perceived online privacy risk, courier service users in both Korea and the U.S. are increasingly concerned about parental privacy.

Third, the psychological analysis results of courier service users based on the TPB and TRA are as follows. For H7, privacy concern affected the intention to separate invoices (T-stat. = 6.52 ***, $p < 0.001$, supported) for users of courier services in Korea. For H8, the intention to separate invoices has a positive effect on the disposition behavior of invoices (T-stat. = 72.37 ***, $p < 0.001$, supported). In addition, for H7, privacy concern affected the intention to separate invoices (T-stat. = 7.31 *,

$p < 0.001$, supported) for courier service users in the U.S. For H8, the intention to separate invoices has a positive effect on the disposition behavior of invoices (T-stat. = 23.55 *, $p < 0.001$, supported). All research hypotheses show that there is a strong relationship between privacy concern, intention to separate invoices, and disposition behavior of invoices. In both Korea and the U.S., the higher is the concern about privacy, the higher is the likelihood of disposing of an invoice. In addition, disposal of courier invoices is common in both countries.

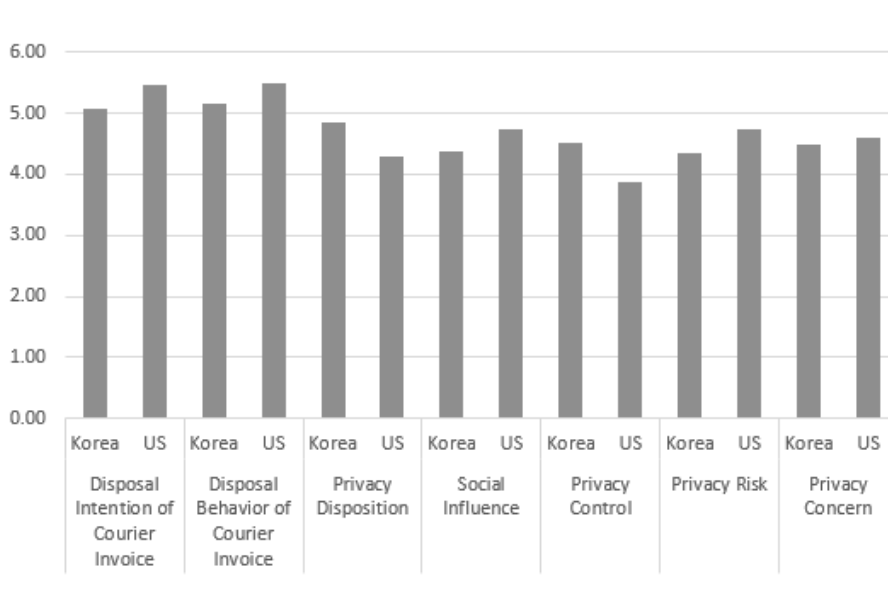
4.3. Additional Analysis

We analyzed the differences in psychological characteristics between the users of courier services in Korea and the U.S. We performed independent sample t-tests using samples from Korea and the U.S.

Except for privacy concern, there are statistical differences between the countries with regard to the remaining variables, such as social influence, privacy

risk, privacy control, privacy disposition, invoice disposition intention, and disposition behavior in the context of courier services.

The main differences in the results are as follows. First, users of courier services in the U.S. showed high intention and behavior of courier invoice disposition, high social influence on the importance of invoice disposition, high privacy risk, and high concern about privacy. This finding shows that U.S. courier service users acted to ensure more thorough privacy. In addition, this result shows that interaction with courier service users about privacy protection is more active. On the other hand, users of courier services in Korea showed high privacy disposition and privacy control, indicating that the users of courier services in Korea tend to have a high degree of protection against privacy. In addition, courier service users seem to think that they can take enough action to protect their personal information. In summary, we observe that U.S. courier service users emphasize privacy when using courier services. Courier



<Figure 4> Difference Comparisons by National Levels

service users in Korea pay more attention to their personal information than U.S. users do, but are less likely to take appropriate action to protect their privacy.

U.S. courier service users have slightly higher privacy concerns than do Koreans courier service users. However, there is no statistically significant difference in privacy concerns among courier service users in the two countries.

V. Conclusion

5.1. Managerial Implications and Theoretical Contributions

The protection of personal information has been emphasized owing to the increasing use of customer information in the courier industry. Currently, delivery companies are very interested in protecting customer privacy (Lim et al., 2017). Nevertheless, there is little research on privacy management of personal information on courier service invoices. Therefore, this study makes a meaningful contribution to research on privacy in the field of courier services, and could provide useful information to advance

competitiveness in delivery service through a comparison between Korea and the U.S.

The theoretical implications of this study are as follows. First, we have verified through SRT that courier service users increase privacy disposition according to external social influence. In addition, through CPMT, we have verified the relationship between privacy proposition, privacy control, privacy risk, and privacy concern regarding the use of courier services. Moreover, the theoretical implications of invoice disposition intention and invoice disposition behavior were proved in terms of the TPB and TRA. The theoretical significance of this study is that it verifies the usefulness of the SRT, CPMT, TPB, and TRA in explaining the privacy psychology of courier service users.

Second, this study systemized psychological processes in terms of social influence, privacy disposition, privacy control, privacy concern, intention to dispose of invoice, and disposal behavior of invoices. Moreover, these processes were explained by employing the SRT, CPMT, TPB, and TRA. The theoretical contribution of this study is that it combines various theories and validates the theoretical model.

Third, it is difficult to study psychological behavior, especially the disposal behavior of courier service

<Table 6> Independent Sample T-test

	Test results	Mean difference	S.D. difference	t-stat.	p-value
INTE	Disposal intention of Courier Invoice would vary by the nation	-.377	.100	-3.767	.000***
BEHA	Disposal behavior of Courier Invoice would vary by the nation	-.347	.097	-3.591	.000***
DISP	Privacy Disposition Invoice would vary by the nation	-.347	.097	7.006	.000***
INFL	Social Influence Invoice would vary by the nation	-.367	.087	-4.209	.000***
CONT	Privacy Control Invoice would vary by the nation	.650	.086	7.534	.000***
RISK	Privacy Risk Invoice would vary by the nation	-.382	.078	-4.879	.000***
CONC	Privacy Concern Invoice would vary by the nation	-.107	.086	-1.242	.215

Note: * $p < 0.05$, ** $p < 0.01$, *** $p < 0.001$.

invoices. In this study, we proposed a new courier services research direction for courier invoices to protect privacy and personal information when using courier services. This could stimulate follow-up research.

In addition, the practical implications of this study for the logistics industry are as follows. First, privacy concerns are very important in the business-to-consumer (B2C) logistics industry, such as courier services. Currently, logistics companies are very interested in information security management and privacy protection, because privacy and information protection have a direct impact on customer satisfaction. This study provides a deeper understanding of the psychological characteristics of consumers through analysis of the relationships among privacy concern, privacy control, privacy risk, and privacy disposition when using courier services.

Second, invoice handling of personal information in courier services is very important. Courier service users are aware of the importance of the invoice disposition behavior, but are not actively involved in the disposal of courier invoices. This might lead to privacy concerns. The application of new technology, such as radio frequency identification (RFID), to courier invoices could fundamentally solve the privacy concern and privacy risk of courier service users.¹⁰⁾ Therefore, this study has practical significance in that it illustrates the importance of technology applications to solve users' privacy concerns about courier services.

Third, we conducted a comparative analysis of psychological intention and behavior regarding the

disposal of courier invoices in Korea and the U.S. Currently, as global business expands, Korean logistics companies have only limited business within Korea. The results clearly show that Korean and U.S. courier service markets are different (e.g., courier services users' psychological response between Korea and the U.S.). Moreover, the information management and privacy policies of logistics companies as well as related laws in Korea and the U.S. are different. To determine the differences in psychological characteristics between the courier service users of Korea and the U.S., we compared the privacy concern characteristics of the users. Based on the empirical results, this study has practical implications for providing useful information for the development and implementation of global B2C logistics services and courier service overseas through a comparative study on the psychology and behavior of courier service users in Korea and the U.S. For example, it is necessary to strengthen customer information management, privacy protection, and information disposal plans from collection to disposal of personal information for customers in the U.S. market.

5.2. Limitations of Research and Future Directions

First, in this study, the psychological analysis of courier service users did not consider the learning characteristics of users (e.g., knowledge of personal information protection, experience of courier services, users with good knowledge of personal information protection, and those who are indifferent to privacy behavior). In addition, the experience of using a courier service is high, while the reliability of the courier service is usually low. Moreover, the perceived trust on the use of courier services affects the perceived risk, which is a concomitant concept,

10) If RFID technology were applied to the personal information management of courier invoices, customers' individual information would be processed more securely than using the past paper invoice method would. Finally, RFID technology would provide safer privacy protection for courier companies.

and the privacy concern is associated with perceived risk. Therefore, future research should undertake an in-depth study considering these characteristics of courier service users.

Second, this study analyzed the psychological characteristics of courier service users. Privacy protection policies and consumer privacy protection measures differ by courier service company (Lim et al., 2017). In other words, there is a difference between the security provided by courier services and privacy concerns that courier service users perceive. However, this study does not consider the characteristics of the privacy protection level offered by courier service companies. Therefore, future research should reflect the privacy protection level and personal information protection characteristics of each courier service company.

Third, in this study, the psychological properties of the privacy concern of courier service users could not be considered in detail. Although previous studies (e.g., Smith et al., 2011; Xu et al., 2011) measured

the psychological characteristics of privacy as a composite index, a more detailed approach is required for a deeper understanding of privacy concerns. Therefore, in future research, we should develop a scale for privacy concerns, considering cognitive, emotional, and behavioral intentions related to privacy of courier service users and we should conduct an empirical analysis using this scale.

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<Appendix A> Measurement Scales

Variables	Items	Related Study
Social influence	<ul style="list-style-type: none"> ■ People who influence my behavior think that I should separate and handle an invoice issued by a courier company. ■ People who are important to me think that I should separate and handle an invoice issued by a courier company. ■ Those who are familiar with the importance of personal information privacy have helped me dispose of an invoice issued by a courier company. ■ In general, people involved with me have helped to separate an invoice issued by a courier company. 	Venkatesh et al. (2003).
Privacy disposition	<ul style="list-style-type: none"> ■ Compared to others, I am more sensitive about how my personal information is handled by a courier company. ■ Maintaining the privacy of personal information in delivery services of a courier company is a very important issue to me. ■ Compared to others, I tend to be more concerned about the threat of personal information privacy violations in courier services. 	Malhotra et al. (2004).
Privacy control	<ul style="list-style-type: none"> ■ I believe I can have control over access to my personal information collected by a courier company. ■ I believe I can have control over what personal information is released by a courier company. ■ I believe I can have control over how personal information is used by a courier company. ■ I believe I can control my personal information provided to a courier company. 	Xu (2007); Xu et al. (2011).
Privacy concern	<ul style="list-style-type: none"> ■ I am concerned that personal information provided to a courier company can be misused. ■ I am concerned that other people may have access to my personal information in the process of courier services. ■ I am concerned about providing my personal information to a courier company because other people may have access to my information. ■ I am worried about providing personal information because I cannot know how my personal information will be used by a courier company. 	Malhotra et al. (2004); Dinev and Hart (2006a).
Privacy risk	<ul style="list-style-type: none"> ■ Providing personal information to courier companies can cause unexpected problems. ■ Providing personal information to courier companies is closely related to potential privacy loss. ■ Personal information may be used very inappropriately by courier companies. ■ Generally, it is dangerous to provide personal information to courier companies. 	Malhotra et al. (2004); Dinev and Hart (2006a).
Intention of disposal invoice	<ul style="list-style-type: none"> ■ After the receipt of a package (box), I intend to remove personal information from an invoice attached to the package and dispose of the package. ■ After the receipt of a package, I intend to remove personal information from an invoice attached to the package. ■ After the receipt of a package, I will dispose of personal information from an invoice attached to the box without any special attention (reverse coding). 	Ajzen (1991); Fishbein and Ajzen (1975).
Behavior of disposal invoice	<ul style="list-style-type: none"> ■ After the receipt of a package (box), I remove an invoice attached to the package and deal with the package. ■ After the receipt of a package, I remove personal information attached to the package. ■ After the receipt of a package, I dispose of personal information from an invoice attached to the package without any special attention. 	Ajzen (1991); Fishbein and Ajzen, (1975).

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