THE EFFECT OF FINANCIAL INCENTIVES ON NFC MOBILE PAYMENT ADOPTION

by

HAIDONG ZHAO

(Under the Direction of Sophia T. Anong)

ABSTRACT

The objective of this research was to provide a better understanding of the effects of financial incentives in adopting NFC mobile payment within the framework of the Diffusion of Innovation Theory. More specifically, this study examines 1) whether the availability, type, amount, and promotion period of financial incentives increase consumers' trust in adopting NFC mobile payment; 2) whether the availability, type, amount, and promotion period of financial incentives decrease consumers' perceived risk in adopting NFC mobile payment; 3) whether the availability, type, amount, and promotion period of financial incentives increase consumers' intention to adopt NFC mobile payment; and 4) whether different financial incentives influence consumers' continuance intention to use NFC mobile payment when incentives have expired. Four general hypotheses and 11 specific hypotheses were tested in structural equation models using experimental survey data collected from 463 U.S. adults aged between 18 and 35. The findings showed that the availability of financial incentives had a significant impact on NFC mobile payment adoption. Specifically, consumers with financial incentives had a higher level of trust and intention, and a lower level of perceived risk in adopting NFC mobile payment compared to consumers who were not offered financial incentives. However, no significant differences were found between cash back and discount rewards, 5% versus 10% rewards, and 1-

month and 3-month reward periods. The results of this study provide service providers and

researchers a better understanding of the impact of financial incentives on NFC mobile payment

adoption and also give insight to providers in the mobile payment systems channel as well as

retailers offering this payment option.

INDEX WORDS: Financial incentives, NFC mobile payment, Trust, Perceived risk,
Intention, Continuance intention, Diffusion of Innovation Theory

THE EFFECT OF FINANCIAL INCENTIVES ON NFC MOBILE PAYMENT ADOPTION

by

HAIDONG ZHAO

B.Eng., Wuhan University of Technology, China, 2010

M.S., Liaoning University, China, 2013

A Dissertation Submitted to the Graduate Faculty of The University of Georgia in Partial

Fulfillment of the Requirements for the Degree

DOCTOR OF PHILOSOPHY

ATHENS, GEORGIA

2017

THE EFFECT OF FINANCIAL INCENTIVES ON NFC MOBILE PAYMENT ADOPTION

by

HAIDONG ZHAO

Major Professor: Sophia T. Anong

Committee: Brenda J. Cude
      Assaf Oshri

Electronic Version Approved:

Suzanne Barbour
Dean of the Graduate School
The University of Georgia
December 2017

DEDICATION

I dedicate this dissertation to my dear fiancée, Lini, for your endless support and constant encouragement. I am truly thankful for having you in my life.

ACKNOWLEDGEMENTS

TABLE OF CONTENTS

LIST OF TABLES

LIST OF FIGURES

CHAPTER 1

INTRODUCTION

Instead of using traditional payment methods such as cash, debit cards, or credit cards, mobile devices are widely used nowadays for consumers to make payments for a variety of goods and services (Shin, 2010). According to Dodini, Lopez-Fernandini, Merry, and Thomas (2016), the share of mobile phone users who reported they made a mobile payment has increased to 24% in 2015, up from 22% in 2014, and 17% in 2013; 28% of smartphone users reported they made a mobile payment in 2015, the same as in 2014, up from 24% in 2013. It was estimated that U.S. proximity or no-touch mobile payment transaction volume would total $49.29 billion in 2017, up 78.1% from 2016 (eMarketer, 2017).

Mobile payment refers to the payment for goods, services, and bills with a mobile device such as mobile phone, smart phone, or personal digital assistant using wireless and other communication technologies (Dahlberg, Mallat, Ondrus, & Zmijewska, 2008; Karnouskos, 2004). Since the existing technologies such as Bluetooth, Infrared, and Radio Frequency Identification (RFID) have not made mobile payment very convenient and easy to use for consumers or retailers, companies introduced new schemes based on Near Field Communication (NFC), a technology that uses a short-range high frequency wireless communication to complete payments (Ondrus & Pigneur, 2007). With NFC technology, a transaction can be conducted by holding a mobile device within 10-20 cm of an enabled point-of-sale (POS) terminal. Physical contact with the terminal reader is not required as all that is required is a simple touch or wave (Tan, Ooi, Chong, & Hew, 2014).

Compared to credit card and other mobile payment technologies such as Bluetooth, Infrared, and RFID, NFC mobile payment is believed to have higher levels of both perceived usefulness and perceived ease of use for consumers. Zmijewska (2005) believes the benefit of the mobile payment is quicker checkout since a signature is not required. Similarly, Leavitt (2010) states that as the transaction is conducted via a wave of the phone, the tedious process of swiping the card and providing a signature is eliminated. After 2011, a number of companies and industry partnerships such as Google, Apple, and Samsung announced new mobile payment technology solutions built upon NFC contactless chips. According to a 2015 survey from Kantar Worldpanel ComTech conducted among 3,800 iPhone 6 or 6 Plus users in the U.S., only 13% have used Apple Pay, and 11% plan to do so (Borison, 2015).

NFC Mobile Payment Adoption

While NFC mobile payments have been widely used across the world from Japan in 2006 to South Korea in 2010, the adoption of NFC payment is still generally low (Hamblen, 2012; Olsen, 2007). By mode of transaction, Short Messaging Service payment (a text-based mobile payment) accounted for about 54% of the global mobile payment market share in 2015, followed by Wireless Application Protocol payment (an Internet-based mobile payment), and NFC payment transaction volumes remain relatively low (Boden, 2017a). In the U.S., credit card companies have been incorporating NFC chips into their cards since about 2003, when MasterCard launched cards enabled with PayPass, but the technology has not taken off. U.S. consumers, who are accustomed to swiping their credit cards and then entering their PIN numbers or signatures, remain wary of the touch-payment practice (Soat, 2014).

It is interesting to note that with such a low adoption rate, few studies have been conducted on how to improve NFC mobile payment adoption. Consumer-focused mobile

payment adoption research has suggested some possible factors. For example, a study using survey data collected in developed countries that included Germany and Australia showed that perceived usefulness and perceived ease of use have significant positive relationships with consumers' intentions to adopt mobile payment (Schierz, Schilke, & Wirtz, 2010). Prior research has also found a positive impact of trust on consumers' intentions to adopt mobile payment (Liebana-Cabanillas, Sanchez-Fernandez, & Munoz-Leiva, 2014). Social influence also has been found to influence mobile payment adoption intention and behavior (Chitungo & Munongo, 2013).

To motivate consumers to adopt NFC mobile payment, attractive offers such as cash back or discount rewards have been used in recent years (Sharma, 2017). In the U.S., those who received an incentive increased their mobile payment transaction frequency by 50% compared to those who were not offered a financial incentive (Boden, 2017b). While factors such as perceived usefulness, perceived ease of use, trust, and social influence have been shown to affect consumers' intention to adopt NFC mobile payment, less is known about how financial incentives influence consumers' intention to adopt NFC mobile payment. This study focused on investigating the influences of financial incentives on consumers' trust and perceived risk in using NFC mobile payment, as well as consumers' intention and continuance intention to use NFC mobile payment. Bhattacherjee (2001) defined continuance intention as the intention to continuously use information systems. In this study, continuance intention refers to the intention to continue to use NFC mobile payment once financial incentives are terminated.

Financial Incentives

Financial incentives are often used in technology promotion. For instance, credit card rewards had been found to be a very effective method to improve credit card acceptance rate

(Arango, Huynh, & Sabetti, 2015). Using transaction-level data, Simon, Smith, and West (2010) estimated the effect of price incentives on consumer payment patterns and their results showed that both participation in a loyalty program and access to an interest-free period tended to increase credit card use at the expense of alterrnative payment methods such as debit cards and cash. Carbo-Valverde and Linares-Zegarra (2011) also confirmed that financial incentives such as cash back, points, and discounts have had a positive influence on promoting the use of cards as payment vehicles instead of cash.

In the same manner, it is expected that financial incentives such as cash back and discounts may have a positive impact on NFC mobile payment adoption. Some companies already offer different financial incentives to encourage consumers to adopt NFC mobile payments. For example, from September 16 to the end of the year in 2015, card members who paid with their Discover card using Apple Pay automatically earned an extra 10% cash back bonus on in-store purchases (Luthi, 2015). In another example, NFC mobile payment users could receive a 10% discount on Jet.com using the Jet app and paying with Android Pay or Apple Pay during the month of December 2015 (Selleck, 2016).

Although financial incentives are used widely to increase NFC mobile payment adoption, it is still not clear how effective financial incentives such as cash back and discounts are to improve the NFC mobile payment adoption rate. Thus, this study aimed to investigate how different financial incentives affect consumers' trust and perceived risk in adopting NFC mobile payment as well as their intention to adopt and continuance intention to use NFC mobile payment.

Statement of the Problem

The purpose of this study is to provide a better understanding of the impact of financial incentives on trust and perceived risk in adopting NFC mobile payment and consumers' intention and continuance intention to use NFC mobile payment. Specifically, this study examines 1) whether the availability, amount, and promotion period of financial incentives increase consumers' trust in adopting NFC mobile payment; 2) whether the availability, amount, and promotion period of financial incentives decrease consumers' perceived risk in adopting NFC mobile payment; 3) whether the availability, amount, and promotion period of financial incentives increase consumers' intention to adopt NFC mobile payment; and 4) whether different financial incentives influence consumers' continuance intention to use NFC mobile payment after the promotion period. The results of this study give researchers a better understanding of the impact of financial incentives on NFC mobile payment adoption and also give insight to providers along the mobile payment systems channel as well as retailers offering the payment option.

Approach to the Problem

Diffusion of Innovation Theory (DOI) provides a basis for studying consumers' adoption of NFC mobile payment. Innovations are any ideas, products, services, or practices perceived as new. Diffusion is a distribution process by which an innovation, in this study adoption of NFC mobile payment, is communicated over time within a social system. Rogers (2003) posited five stages that consumers undergo when making decisions to accept or reject a technological innovation.

The first stage is the knowledge stage, when consumers learn about an innovation and its functions. Financial incentives may be strong motivators for consumers to explore the new

features and functions of NFC innovation in this stage and help to shape beliefs about innovations in the next stage. In the second stage, the persuasion stage, as consumers know more about the innovations, they are interested in the innovations and their belief structures are tested and developed based on the knowledge they get from the first stage. Trust and perceived risk are two important components in one's belief system that could affect their adoption of NFC mobile payment. In the third stage, the decision stage, consumers decide whether to try the innovation. Consumers' intention to adopt NFC mobile payment becomes apparent at this stage. If consumers' intention to adopt NFC mobile payment has been motivated by financial incentives, it is also important to determine whether consumers intend to continue to use NFC mobile payment after the promotional period ends. In the fourth stage, the implementation stage, consumers perform their decision made in the third stage. The last stage, the confirmation stage, is where consumers continue to use the adopted innovation for the long term.

An online experiment was designed to collect data about the potential effects that financial incentives have on the adoption of NFC mobile payment. Respondents participated in the experiment by completing an online survey. After giving consent, each respondent viewed basic information about NFC mobile payment. Only those who had not used NFC mobile payment in the past were eligible for the study. Non-eligible participants were exited from the survey. Eligible participants were randomly assigned into nine groups. After viewing the survey assumptions and treatments, they answered questions designed to measure the dependent variables and control variables. Confirmatory Factor Analysis (CFA) was used verify constructs for trust, perceived risk, intention, and continuance intention. Structural Equation Modeling (SEM) was used to test hypotheses.

Organization

Chapter 2 reviews current literature about mobile payments, proposes the theoretical framework for the study, and states the hypotheses. Chapter 3 discusses the research methods, and Chapter 4 reports results. Discussion and implications are addressed in Chapter 5.

CHAPTER 2

LITERATURE REVIEW

This study focuses on understanding whether financial incentives can influence consumers' trust and perceived risk in using NFC mobile payments, whether financial incentives have an impact on their intentions to adopt NFC mobile payment, and whether consumers still intend to use it continuously once the financial incentives are no longer provided. The following review of literature first provides definitions of mobile payment and describes three specific types of mobile payment among which NFC mobile payment, the focus of this study, is one. Next, the previous literature about how financial incentives are defined and measured is reviewed followed by a review of studies about consumer trust, perceived risk, intention, and continuance intention. The next part of the chapter focuses on the theoretical framework where first, main theories and models that are normally considered in technology adoption research are discussed. This is followed by a description of the Diffusion of Innovation theory and its application in previous research and operationalization for this study. The chapter ends with the conceptual model and hypotheses.

Definitions of Mobile Payment

Along with the widespread use of mobile payment methods is a vigorous development in the definition of mobile payment (Dahlberg, Guo, & Ondrus, 2015). For example, mobile payment has been defined as "using mobile devices to make transactions such as pay bills and perform banking transactions" (Gerpott & Kornmeier, 2009, p. 1). In addition, Kim,

Mirusmonov, and Lee (2010, p. 310) defined mobile payment as "any payment in which a mobile device is utilized to initiate, authorize, and confirm a commercial transaction."

With further research of mobile payment in recent years, researchers began to add technologies as another important element in the definition of mobile payment. Leong, Hew, Tan, and Ooi (2013) described mobile payment as "a process in which at least one phase of the transaction is conducted using a mobile device (such as mobile phone, smartphone, personal digital assistant (PDA), or any wireless-enabled device) capable of securely processing a financial transaction over a mobile network, or via various wireless technologies such as Bluetooth, Radio Frequency Identification (RFID), Near Field Communication (NFC), etc." (p. 5605). Similarly, mobile payment was later defined as "payments for goods, services, and bills with a mobile device such as mobile phone, smart-phone, or personal digital assistant, by taking advantage of wireless and other communication technologies" (Li, Liu, & Heikkila, 2014, p. 165).

Mobile Payment Technologies

Mobile payment contains three specific types, which are Short Messaging Service (SMS) payment, Wireless Application Protocol (WAP) payment, and Near Field Communication (NFC) payment.

SMS Payment. SMS-based mobile payment is conducted by texting a PIN to mobile payment service providers to pay for goods or services. In this approach, the money is paid from a bank account, credit card, debit card, or prepaid card that is associated with the mobile phone number (Becker, 2007). This is one of the simplest methods to implement and use, and is usually aimed at low-value micropayments (Wilcox, 2010).

Ever since Coca Cola tested SMS payments with vending machines in Finland in 1997 (Dahlberg, Guo, & Ondrus, 2015), consumers can now easily use SMS payments to buy Coca Cola in Europe, postage stamps or books in Denmark, burgers in Finland, and travel tickets in Tokyo, Paris and Rome (Roberts, 2013a). Australia also has embraced SMS payments where the company mHits enables customers to buy food and drink, and pay for taxis via SMS payments. Kenya was a pioneer in SMS payments in developing countries. M-PESA was launched in 2007 by Safaricom and as of February 2014 it had over 16 million users. Orange Money, a similar service to M-PESA, was first launched in the Ivory Coast in 2008 and expanded to other West African countries. By 2013, it had expanded to 10 African countries: Senegal, Mali, Madagascar, Cameroon, Niger, Botswana, Guinea, Mauritius, Morocco, and Uganda (Roberts, 2013b). It was estimated that SMS mobile payment transactions would witness a year-on-year growth rate of more than 28% and $385 billion in total revenues in 2016 (Boden, 2016c).

Although SMS-based mobile payment is very convenient and easy to use, messages can take time to reach the merchant and can be easily lost, which makes this payment method unreliable to a certain extent (Amoroso & Magnier-Watanabe, 2012; Chou, Lee, & Chung, 2004). The weaknesses of SMS payment led to the development of new technologies to support mobile payment.

WAP Payment. WAP Payments simply means using the Wireless Application Protocol facility on a smart phone to connect to the Internet and then using an online payment method such as PayPal, Google Wallet, or Yahoo Wallet or simply entering credit card details into the payment box on a company's website (Roberts, 2013a).

There are two ways that consumers can complete a transaction with the WAP-based mobile payment: through the mobile browser and within a mobile app. For the former,

consumers submit payment information via a mobile browser and for the latter, consumers download a mobile app on their devices and link a bank account or credit card to the app (Chen & Li, 2016). Based on data collected from 3,500 randomly selected mobile phone subscribers in the U.S., nearly one in four (24%) have used the mobile browser to make transactions, while one in five have made purchases within an app (Hoffman, 2012). While in-app mobile payments lag mobile browser payments, it presents much potential. Among U.S. smartphone owners who use mobile payment apps, PayPal has proven to be the most popular app (12%), followed by 9% using retail-branded mobile apps (Boden, 2016b).

Concurrent with the evolution of mobile devices, the quick response (QR) code has become one of the popular tools to utilize. The QR code, a kind of two-dimensional barcode, was introduced to the market in 1994 by the Japanese corporation Denso Wave (Gu & Zhang, 2011). The electronic airline boarding pass QR code on mobile phones is a popular application. The availability of QR codes significantly facilitates in-app mobile payment. The apps used in WAP payment can be used to generate or scan the QR code easily to make payments. Consumers can simply open the app to scan the QR code displayed by the merchants and enter the amount to be paid to complete the transaction. Or merchants can use the POS scanner to scan a QR code in on the consumer's phone app and deduct the amount from the bank account linked with the app (Almazan, 2014). Two of the most popular Chinese mobile payment apps use QR codes to make transactions. The Alipay mobile app has more than 270 million active users monthly, while WeChat Payment has more than 700 million active users monthly (Xiang, 2016). More than 14 million consumers in the U.S. have downloaded Kohl's mobile app, which also uses a QR code to make payments (Boden, 2016a).

Although mobile-browser-based payment and in-app mobile payment provide consumers with more payment options, WAP-based mobile payment cannot be used when there is no wireless Internet connection (Meng & Ye, 2008). This lead to increasing demand for alternative technologies that are not limited by the Internet.

NFC Payment. NFC mobile payment refers to payment services that are conducted via short-range high frequency wireless communication in a secure manner (Li, Liu, & Heikkila, 2014). NFC is a wireless communication technology that enables transfer of data within a 10 to 20 centimeter range (Madlmayr, 2008). Therefore, NFC mobile payments enable consumers to exchange payment information between a mobile device and a POS terminal by simply touching or waving the mobile device close to the terminal (Becker, 2007; Chen, 2008). Some estimates declare that NFC mobile payment can be 15 to 30 seconds faster than swiping and signing the receipt or entering a PIN of a smartcard at POS (Hayashi, 2012).

Not only does NFC technology save time to complete payment, it also allows bidrectional exchange of information. A bank can electronically authorize payments to the store via an NFC-ready smartphone, and the store's NFC payment terminal can then send the phone a receipt as well as a coupon or other promotion for a future purchase (Hamblen, 2012). Due to the convenience NFC payment brings, it has been widely available to use in the world. The ability to make NFC mobile payment has been a reality in Japan since 2006 when the FeliCa chip was introduced (Olsen, 2007). In Nice, France, residents and visitors can make NFC mobile payments in restaurants, stores, supermarkets and on public transport (Roberts, 2013b). In South Korea, companies such as SK Telecom and Korea Telecom, partnered with Visa and MasterCard, have offered NFC mobile payment for tasks including transit rides and small retail purchases since 2010 (Hamblen). This study focuses on NFC mobile POS payment initiated from

a NFC mobile device at retail locations for goods and services such as grocery stores, restaurants, hotels, and gas stations.

Financial Incentives

Financial incentives refer to the monetary benefits offered to consumers, employees, and organizations to encourage behavior of action which otherwise would not take place. Financial incentives are particularly used in technology promotion to attract and retain customers (Sierzchula, Bakker, Maat, & van Wee, 2014).

Type of Financial Incentives

Many credit card issuers have offered reward programs to attract new card holders and increase card usage by existing customers (Ching & Hayashi, 2010). Various types of reward programs offered by the credit card companies include cash back monetary rewards, airline miles, hotel points, gifts, and others (Ching & Hayashi, 2010; Liu & Brock, 2009).

Credit card reward incentives often are touted as a major determinant of the increase in use of credit cards. In the research by Argango, Huynh, and Sabetti (2015), miles, points, and gifts were converted to the equivalent cash back percentage to various rewards on the same scale because of the variety of rewards programs and complexity of the reward structures. Agarwal, Chakravorti, and Lunn (2010) focused on exploring the impact of 1% cash back rewards credit card usage and total credit card spending. Based on a representative sample of about 12,000 credit card accounts obtained from a large and diverse U.S. financial institution, the authors found that cash back rewards had a positive and significant impact on increasing credit card usage and spending.

Along with credit card reward programs, mobile payment companies also use cash back incentives to increase the adoption rate of NFC mobile payment. Apple Pay and Android Pay

have launched several promotions by cooperating with Discover. For example, consumers could get a 10% cash back bonus through the end of 2015 on all in-store purchases made through Apple Pay using their Discover credit card (Luthi, 2015). In addition, consumers could receive a $10 cash back bonus on up to five in-store purchases through Android Pay using their Discover card until September 10th, 2016 (Charles, 2016).

Discounts are another incentive to entice new customers to try new technology and services. For example, Google offered a 50% discount limited to $5 per Uber ride up to 10 rides when consumers paid with Android Pay until January 31st, 2017 (Prashant, 2017). Similarly, Apple also provided 20% off clothing from JackThreads and 20% off merchandise from Spring (an online shopping website) for payments with Apple Pay (Selleck, 2016). A Spanish bank, Banco Santander, also offered customers a 5% discount on items bought using Apple Pay until January 15th, 2017 (Boden, 2016d).

Based on the association of cash back rewards with increasing credit card usage and subsequent cash back transactions in promoting the adoption of NFC mobile payment, cash back is one type of financial incentive examined in this study. Although discounts have widely been used to promote NFC mobile payments, the literature on their effectiveness is particularly lacking. To fill this literature gap, discount incentives are the other type of financial incentive examined in this study. Based on a 2005 national survey of 2,961 individuals using cards, Carbo-Valverde and Linares-Zegarra (2011) found that cash back is more effective to foster the use of credit cards than discounts. Thus, the first research question explores the impact of financial incentives on NFC mobile payment adoption. More specifically, the question explores how the presence of any financial incentive, whether cash back or discount, impacts NFC mobile

payment adoption. The study also investigates further if the impact differs if the incentive is cash back rewards or an immediate discount.

Amount of Financial Incentives

The amount of cash back rewards consumers can receive from reward programs is normally associated with the value of the transaction (Argango, Huynh, & Sabetti, 2015). For example, the Discover It credit card offers a Cash Back Bonus service whereby the consumer receives cash back at the end of each statement period for an amount which varies depending on the value of purchases made using the card (Luthi, 2015).

Credit card companies offer different percentages for cash back rewards in their programs. Cash back credit card reward programs usually offer a flat percentage rate (typically 1% of the purchases) rebated back to the consumers in the form of a check at the end of the year or a statement credit (Woolsey, 2005). Many cash back credit cards such as Discover It credit card, Bank of America Cash Rewards credit card, and Chase Freedom credit card offer 3% to 5% cash back on rotating purchase categories in addition to their 1% cash back on all other purchases (Herron, 2013). Between 2015 and 2016, Discover launched a special bonus offer from which new credit cardholders could earn 10% cash back in bonus categories that rotate each quarter (Clements, 2015).

Arango, Huynh, and Sabetti (2015) examined transaction-level data from 3,000 three-day shopping diaries from the Bank of Canada 2009 Methods-of-Payment (MOP) survey. They concluded that the availability of credit card rewards was the key driver of consumer payment choice, while the amount of rewards had a small or inelastic effect on steering payment choice toward substitutes. Thus, the second research question in this study explores whether NFC mobile payment adoption is influenced by the amount of incentive.

Promotion Period of Financial Incentives

Financial incentives used to promote NFC mobile payment usually have time limits. Many financial incentives are offered only for a short period. For example, Apple Pay offered first-time users free delivery of purchases made on the Instacart website for one month, and consumers received 10% off for the first three orders on the Jet website (Selleck, 2016). Samsung teamed up with Chase for a limited time promotion to earn a $15 Samsung Rewards Visa Prepaid reward card for using Samsung Pay with a Chase card from November 21st to December 31st in 2016 (Hustler Money, 2016).

However, financial incentives also have been offered for longer periods. To increase the adoption rate in the U.K., Android Pay Day was announced by Google to help increase awareness and the number of users. Through Android Pay Day, Android Pay users received discount offers from selected brands once a month. The promotion began on June 21st, 2016 and as of now, is likely to continue indefinitely in the future (New Media Business, 2016).

No previous literature was found to explore whether the length of promotion period for financial incentives has an impact on the adoption of mobile payment or any other goods or services. To fill the literature gap, the third research question in this study is to explore whether the length of a promotion period impacts NFC mobile payment adoption.

Termination of Financial Incentives

Financial incentives are usually offered for a limited time as mentioned above, so the fourth research question is to understand whether consumers' adoption of NFC mobile payment changes once the financial incentives are terminated. Previous research examined the relationship between use of credit cards and termination of credit cards rewards. Based on a sample of 3,008 respondents from the 2005 Study of Consumer Payment Preferences conducted

by the American Bankers Association and Dove Consulting, Ching and Hayashi (2010) estimated the effects of payment card rewards on consumer choice of payment methods across five retail types: grocery, department, discount, drug, and fast food. The results showed that consumers would reduce their probabilities of choosing to pay with a credit card at all types of stores if rewards on credit cards were removed, and the reductions ranged from 2.5 to 11.4 percentage points.

<div align="center">**Trust**</div>

Trust refers to the degree in which one believes that the usage of mobile payment is trustworthy and reliable (Leong et al., 2013, p. 5609). Reflecting the increase in the importance of trust in mobile payments, previous studies have proposed trust as an antecedent variable to the intention to use mobile payment (Shin, 2009; 2010; Zhou, 2014). Shin (2010) examined the factors affecting consumers' acceptance of mobile payment systems. Based on a sample of 294 consumers collected from the U.S., the results showed that trust had a significant influence on consumer attitudes and intentions to use mobile payment.

Leong et al. (2013) also found that trust had an indirect effect on intentions to use NFC-enabled mobile credit cards among 265 students in Malaysia. Mobile credit card is one form of mobile payment using NFC-enabled mobile phones (Leong et al., 2013). Trust was measured by three items on a five-point Likert scale ranging from 1 ("strongly disagree") to 5 ("strongly agree"). The three items were "I would trust my bank to offer secure mobile credit card services," "I would trust my mobile phone manufacturer to provide a mobile phone which is appropriate for conducting mobile credit card services," and "I believe that if an outsider gains access to my mobile credit card account, the bank will take complete responsibility for my money" (p. 5612).

Zhou (2014) found initial trust affects usage intention of mobile payment. Trust was measured with three items: "Mobile payment always provides accurate financial services," "Mobile payment always provides reliable financial services," and "Mobile payment always provides safe financial services."

Xin, Techatassanasoontorn, and Tan (2013) found trust is a crucial factor of consumer's intention to use mobile payment. Trust was measured by four items on a 7-point Likert scale, in which 1 represented "strongly disagree" and 7 represented "strongly agree." The four items were "I trust mobile payment systems to be reliable," "I trust mobile payment systems to be secure," "I believe mobile payment systems are trustworthy," and "I trust mobile payment systems." Based on the findings of these previous studies, it is expected that consumers will have a higher level of trust in using NFC mobile payment when financial incentives are offered.

Perceived Risk

Perceived risk is defined as a concern over the security of transactions in mobile payment (Shin, 2010). According to Liu, Yang, and Li (2012), perceived risk includes three key facets: financial risk, privacy risk, and psychological risk. Financial risk refers to the unreasonable loss caused by transactions in mobile services. Privacy risk refers to the possible loss caused by private information of individuals exposed during mobile transactions. Psychological risk refers to the possibility that individuals bear mental stress from mobile payment use.

Based on data from a sample of 336 respondents collected in China, Liu, Yang, and Li (2012) found that among the three types of perceived risk, only financial risk had a significant impact on consumers' intention to use mobile payments. Featherman and Pavlou (2003) found e-services adoption is adversely affected by financial risk. E-services refer to "interactive software-based information systems received via the Internet" (p. 451). In the context of mobile payment

adoption, 63% of American customers were concerned with financial risk, and perceived risk was defined as financial-related risk in previous studies (Tan, Ooi, Chong, & Hew, 2014). Thus, perceived financial risk will be examined in this study.

Shin (2010) examined the factors that affect consumer acceptance of mobile payments based on 294 U.S. responses in an online survey. Consistent with Liu, Yang, and Li (2012), the results also showed that perceived risk had a significant influence on users' attitudes and intentions to use mobile payment.

However, other researchers found that perceived risk did not have significant influences on intentions to use mobile payments. Based on a sample of 156 respondents collected in Malaysia, Tan et al. (2014) found that perceived risk was not a significant factor for mobile credit card acceptance. Similarly, Li, Liu and Heikkila (2014) found that perceived risk had no significant effect on intentions to use NFC mobile payment among 377 respondents in China.

Perceived risk was measured on a 5-point Likert scale with three items in the Tan et al. (2014) study. Items were "The risk of an unauthorized third party overseeing the transaction is low using mobile credit card," "The risk of abuse of billing information (e.g., credit card number, bank account data) is low when using mobile credit card," and "The risk of abuse of usage information (e.g., payment amount) is low when using mobile credit card." It is hypothesized that consumers will have a lower level of perceived risk in using NFC mobile payment with financial incentives as motivation.

Intention and Continuance Intention

Intention is one of the most important constructs in the research of mobile payment adoption because a consumer's actual behavior of adopting mobile payment is directly determined by his/her behavioral intention (Tan et al., 2014). Behavioral intention is described as

the extent to which one is willing to try and exert while performing a behavior (Leong et al., 2013). The behavior in this study is to adopt NFC mobile payment.

Intention was measured by three items on a 5-point Likert scale in Zhou (2014). The items were "Given the chance, I intend to use mobile payment," "I expect my use of mobile payment to continue in the future," and "I have intention to use mobile payment." Tan et al. (2014) measured intention with five items, each on a 5-point Likert scale: "I am likely to use mobile credit card in the near future," "Given the opportunity, I will use mobile credit card," "I am willing to use mobile credit card in the near future," "I will think about using a mobile credit card," and "I intend to use mobile payment services when the opportunity arises." It is hypothesized that consumers will have a higher intention to adopt NFC mobile payment with financial incentives as motivation.

Intention and continuance intention are two different concepts examined in this study. While intention refers to consumers' intention to adopt NFC mobile payment when financial incentives are provided, continuance intention represents the intention to continue to use NFC mobile payment once financial incentives are terminated.

Incentives are a strong predictor of continuance intention to adopt new products or services (Lin, Wu, Hsu, & Chou, 2012). Based on a sample of 145 respondents, Jang and Mattila (2005) found that monetary incentives such as an immediate discount or cash back are more preferred by consumers than non-monetary rewards in the fast-food context. Based on data from 3,433,476 referred purchases made between May 2005 and August 2013 at 5,337 participating retailers by 76,296 users, Vana, Lambrecht, and Bertini (2015) found that cash back rewards had a more effective impact on consumers' future continuance purchases than discounts. Therefore, it

was expected that consumers' continuance intention to use NFC mobile payment would change once financial incentives are terminated.

Expected Influence of Other Factors

Past payment preferences and related financial experiences of consumers influence the adoption of new payment methods such as NFC mobile payment (Dahlberg & Oorni, 2007; Yang, Lu, Gupta, Cao, & Zhang, 2012). Compared to payment cards, mobile payment is more likely to replace paper-based payment methods such as cash and checks (Trutsch, 2016). Rewards programs have also been found to significantly influence payment choices (Ching & Hayashi, 2010). Gross and Souleles (2002) showed that consumer choice towards cards may vary with rewards changes. Carbo-Valverde and Linares-Zegarra (2011) also confirmed that rewards programs significantly modified card payment choice and effectively promoted card usage.

Loyalty program members accumulate points with each dollar transacted that are redeemable for a wide variety of goods and services (Bolton, Kannan, & Bramlett, 2000). In addition, loyalty programs also provide benefits to consumers by offering product discounts (Garcia-Swartz, Hahn, & Layne-Farrar, 2006). It is expected that consumers who participate in loyalty and reward programs are highly likely to adopt NFC mobile payment if offered financial incentives.

Online shopping can be viewed as a reflection of personal innovativeness (Blake, Neuendorf, & Valdiserri, 2003), which refers to the inclination of an individual to try out any new information system (Chang, Cheung, & Lai, 2005). Since personal innovativeness had been found to have a significant and positive impact on consumers' mobile payment adoption (Kim et

al., 2010), online shopping might also have an impact on consumers' NFC mobile payment adoption.

Mobile technology is revolutionizing the global banking and payment industry (Gupta, 2013). Consumers with mobile banking and other non-NFC mobile payments have a better understanding about security and convenience, the two main advantages over existing methods such as credit/debit card transactions (Ramfos et al., 2004). They are anticipated to be easily attracted to using NFC mobile payment.

Behavioral intention to use new information technology is determined by perceived ease of use and perceived usefulness (Venkatesh & Bala, 2008). Perceived ease of use is the "degree to which a person believes that using a particular system would be free of effort," while perceived usefulness is "the degree to which a person believes that using a particular system would enhance his or her job performance" (Davis, 1989, p. 320). Perceived ease of use and perceived usefulness have been were found to be positively related to non-NFC mobile payment acceptance (Schierz et al., 2010). Kim et al. (2010) also found that both perceived ease of use and perceived usefulness exerted significant effect on consumers' intention to use non-NFC mobile payment.

To account for the expected influence of other factors on consumers' NFC mobile payment adoption, consumers' payment methods, rewards for card payment, loyalty rewards, online shopping experience, mobile banking experience, non-NFC mobile payment experience, perceived ease of use and perceived usefulness were controlled in this study.

Main Theories and Models

In order to investigate the adoption of technology, many theories and models have been developed and proposed. These include the Theory of Planned Behavior (TPB), the Technology

Acceptance Model (TAM), the United Theory of Acceptance and Use of Technology (UTAUT),

and the Diffusion of Innovation (DOI).

The TPB is an extension of the Theory of Reasoned Action which adds perceived

behavior control to the exploration of the relationship between attitudes, subjective norms,

perceived behavior control, and behavior intention (Ajzen, 1991). TAM is also very popular as a

framework that explains and explores the individual information technology adoption and usage.

TAM assumes behavioral intention is influenced by two other important beliefs: perceived

usefulness and perceived ease of use. In extending TAM, UTAUT is based on four factors which

include performance expectancy, effort expectancy, facilitating conditions, and social influence.

However, these three theories exclude demographic factors and external variables, such as

financial incentives. DOI presents a more encompassing distribution process of an innovation,

product, and service within a society. Social system, one of elements in DOI, contains external

influences and internal influences that represent the total influence on a potential consumer.

Thus, DOI was adopted as the most suitable to explore the influence of financial incentives on

intentions to adopt NFC mobile payment.

Diffusion of Innovation Theory

This theory was first proposed in 1903 by the French sociologist Gabriel Tarde who

found the process of diffusion presents an S-shaped curve, followed by Ryan and Gross (1943)

and Katz (1957) who introduced the adopter categories. Diffusion refers to the process in which

an innovation, such as a new product, is communicated through certain channels over time

within a social system (Rogers, 2003).

Innovation, communication channels, time, and social system are the four key elements

of the DOI. An innovation is a new idea, product, service, practice, or project. Communication is

defined as the process in which an individual creates and shares information with one another. A channel is the means by which information spreads from one to another. Time dimension is presented in the innovation-adaptation process and adopters categories. Social system is defined as "a set of interrelated units engaged in joint-problem solving to accomplish a common goal" (Rogers, 2003, p. 23). Rogers (2003) claimed that the nature of the social system influences individuals' innovativeness, which is the main criterion for categorizing adopters.

Adopter Categories. Rogers (2003) posited five categories of adopters during the diffusion of an innovation: innovators, early adopters, early majority, late majority, and laggards. Innovators are the risk takers and innovation enthusiasts; early adopters are adventurers and then become the opinion leaders of the innovation; the early majority interact frequently with early adopters within peer networking and can also become the opinion leaders; the late majority are those who adopt the innovation under peer pressure to adopt; laggards may be suspicious about adopting the innovation and want to maintain status quo. Sometimes, non-adopters are added by some researchers as the sixth group. Rogers found that the distribution of the original five categories seems to be in a normal bell-curve, the proportions of innovators, early adopters, early majority, late majority, and laggards are 2.5%, 13.5%, 34%, 34%, and 16%, respectively (see Figure 2.1). The goal of this theory is to present the distribution of an innovation from innovators to laggards rather than move people within the five adopter categories into another category.

Adoption Process. In addition to five categories of adopters, Rogers (2003) also identified five stages that consumers experience when deciding to accept or reject an innovation: knowledge or awareness, persuasion, decision, implementation, and confirmation. In the first stage, the knowledge stage, an individual develops an understanding of an innovation and its functions. During the second stage, the persuasion stage, consumers become interested in the
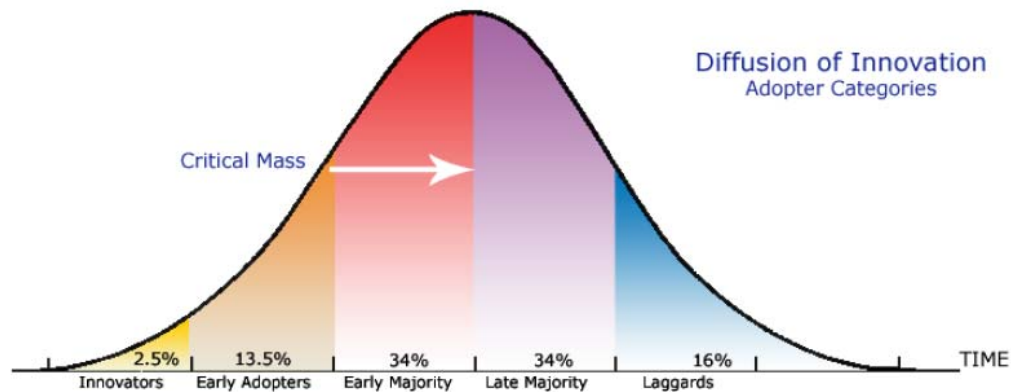
Figure 2.1. Diffusion of Innovation Adopter Categories. Adapted from "Diffusion of Innovation Theory" by J. Kaminski, 2011, *Canadian Journal of Nursing Informatics, 6*(2), p.2. Copyright 2011 by CJNI Journal.

innovation and develop their belief structures based on their knowledge of the innovation. In the third stage, the decision stage, consumers mentally apply the innovation to their present and anticipated future situation, and then decide whether to try to adopt it or not. In the fourth stage, the implementation stage, consumers perform the decision made in the third stage. In the last confirmation stage, consumers reconsider the innovation based on satisfaction or dissatisfaction with a sum of experiences and decide whether to continue the full use of innovation. The innovation-adoption process is presented by these five stages.

Innovation Characteristics. Uncertainty is an important obstacle to the adoption of an innovation. The innovation adoption process described in Rogers (2003) can be treated as an uncertainty reduction process. He further proposed five characteristics of innovations that help to decrease uncertainty about innovations. These innovation characteristics include relative advantage, compatibility, complexity, trialability, and observability. Relative advantage refers to the degree to which an innovation is perceived to be superior to the current product. Relative

advantage is the strongest attribute of the rate of adoption of an innovation (Sahin, 2006). Compatibility is defined as the degree to which an innovation is perceived to be consistent with social-cultural values, previous experience, and the needs of potential adopters. Complexity is the degree to which an innovation is perceived as difficult to use or understand. Trialability is defined as the degree to which an innovation may be experienced on a limited basis. Observability refers to the degree to which results of an innovation are visible to potential adopters. Around 49% to 87% of the variance in the rate of adoption of innovations is explained by these five characteristics (Rogers, 2003).

Studies Using Diffusion of Innovation Theory

DOI has been widely applied to previous research to study the adoption of new technologies such as online shopping (Lennon et al., 2007), online games (Cheng, Kao, & Lin, 2004), Internet banking (Gerrand & Cunningham, 2003), and mobile banking (AI-Jabri & Sohail, 2012). Due to the comprehensiveness and complexity of the theory, it has been used in different ways in previous research. Generally, it has been applied in one of three ways. One way is that the five categories of adopters have been used to identify the typical characteristics of a potential adopter and compare the differences in personalities among different categories of innovation adopters. A second way is the five stages of the innovation adoption process are employed to learn about the whole process of how consumers decide to adopt or reject an innovation. Finally, the third way is the five characteristics of innovations are used to analyze which characteristics of innovations affect intentions to adopt and actual adoption of an innovation.

Previous Research Using Five Categories of Adopters. Cheng, Kao, and Lin (2004) applied the DOI to conduct research on the diffusion of online games in Taiwan. The adoption rate in the study was 38.57%, which indicated that the diffusion of online games had reached the

early majority group according to the DOI. Thus, the first three DOI adopter categories of online game adopters were present, that is, innovators, early adopters, and an early majority. The categories of adopters in the DOI was used to assess internal characteristics such as personalities among the three categories of online gamers. Based on the data collected from 350 residents, the results showed that earlier online gamers were more innovative toward online games, they received online game information from more sources and played the role of opinion leaders in distributing online game information.

Suoranta and Mattila (2004) investigated the characteristics of potential adopters of mobile banking and the differences between three user groups. The non-users in the study were those who had never permanently used any form of mobile banking services. The occasional users started to use some form of mobile services, and the regular users had been using mobile banking services for a longer period. Using 1,253 responses collected from Finland with three equal-sized groups that were selected according to mobile banking usage experience and density, the authors found that the regular and occasional users were more informed by interpersonal communication, whereas non-users were more informed by mass media. The results suggested that the communication style of a bank should be compatible with the information processing styles of potential adopters of mobile banking.

Previous Research Using Five Stages of the Adoption Process. By applying the innovation-adoption process of the DOI, Lennon et al. (2007) investigated the process of online apparel shopping adoption among rural consumers. The study focused on changes over time in online shopping adoption by examining the knowledge, persuasion, implementation, and confirmation stages of the adoption process. Data came from 847 respondents collected in 2000 and 2003 waves of random mail surveys in 11 U.S. states (Colorado, Illinois, Iowa, Kentucky,

Minnesota, Mississippi, Nebraska, North Dakota, Ohio, South Dakota, and Wisconsin). Their results showed that previous practice received from the knowledge stage and characteristics of the decision-making unit (education, income, and innovativeness) affected rural consumers' belief structures and shaped their beliefs of online shopping in the persuasion stage. In the implementation stage, rural consumers' beliefs of online shopping did not affect their online apparel shopping adoption in 2000. However, their beliefs did affect online apparel shopping adoption in 2003 in the confirmation stage, which demonstrates the dynamic nature of the diffusion of innovation.

Previous Research Using Five Characteristics of Innovations. Based on the five characteristics of relative advantage, compatibility, complexity, trialability, and observability, Gerrand and Cunningham (2003) further identified eight innovative characteristics which influenced the adoption of Internet banking in Singapore. Relative advantage was split into social desirability, convenience, and economic benefits, and complexity was split into "pure" complexity and personal computer (PC) proficiency. Based on survey data collected from 111 adopters and 129 non-adopters in Singapore, the results showed adopters of Internet banking perceived the service to be less complex, more convenient, more compatible to them, and more suited to those who are proficient with PCs than non-adopters.

Tan and Teo (2000) combined both the TRB and DOI to identify factors affecting consumers' intention to use Internet banking in Singapore. Relative advantage, compatibility, complexity, and trialability were used to measure consumer attitudes toward Internet banking. They were all measured by existing scales developed by Moore and Benbasat (1991). Based on 454 online survey responses, Tan and Teo (2000) found that consumer perceptions of relative

advantage and compatibility toward Internet banking had significant influences on their

intentions to adopt.

Olatokun and Igbinedion (2009) tested five innovation characteristics in the DOI using

Automatic Teller Machines (ATMs) as the innovation. Based on the survey data of 428 bank

customers who had previously used ATMS in Jos, Plateau state of Nigeria, the authors found that

all five characteristics, relative advantage, complexity, compatibility, observability, and

trialability, had a significant impact on consumer attitudes toward ATMs, which further

significantly influenced consumers' intention to use ATMs. In addition, their results also showed

that among the five characteristics, observability had the greatest impact on attitudes toward

ATMs.

Al-Jabri and Sohail (2012) examined factors affecting mobile banking adoption in Saudi

Arabia based on the five innovation characteristics in the DOI. Using existing measurements for

the five characteristics of innovation data from 330 actual mobile banking users in Saudi Arabia

was analyzed. The authors found that relative advantage, compatibility, and observability had

significant positive impact on consumers' adoption of mobile banking, while trialability and

complexity did not have a significant impact on adoption.

Operationalizing the Diffusion of Innovation Theory

As summarized earlier, there were three ways the DOI has been applied in previous

research. This study focuses on exploring the impact of financial incentives on the process of

consumers adopting NFC mobile payment by applying three of the five stages of the innovation

adoption process. For the knowledge stage, background information about NFC mobile payment

is introduced. In the persuasion stage, financial incentives are examined as to how they affect

trust and perceived risk. Finally, in the decision stage, the focus is on whether financial

incentives affect consumers' intention to adopt NFC mobile payment as well as intention to continue to use it once financial incentives are terminated.

Knowledge Stage. The information of what NFC mobile payment is, the innovative features of NFC mobile payment, and how to use NFC mobile payment are introduced in the knowledge stage based on the DOI. It is important for consumers who have never used this mode of payment to be informed about the technology as they consider adoption.

Persuasion Stage. Financial incentives are expected to have a positive impact on consumers' belief structures in the persuasion stage. Trust and perceived risk are selected as measures for consumers' belief structures in the persuasion stage. Financial incentives are used as the treatment in the experiment to understand whether they affect consumers' innovation adoption process. Financial incentives are conceptualized as a type of mass persuasive technique to motivate potential adopters to use NFC mobile payment.

The availability of financial incentives, different types and amounts of financial incentives, and promotion periods will be examined to learn how financial incentives affect NFC mobile payment adoption process. It is hypothesized that offering financial incentives, larger amounts of financial incentives, and a longer period of financial incentives can influence consumers' belief structures in NFC mobile payment by increasing consumers' trust in NFC mobile payment and decreasing consumers' perceived risk in NFC mobile payment.

Decision Stage. Financial incentives also are expected to have a positive impact on consumers' intention to adopt NFC mobile payment in the decision stage. The existence of financial incentives, larger amounts of financial incentives, and a longer period of financial incentives also are hypothesized to increase consumers' intention to adopt NFC mobile payment as a transaction method. In addition, consumers' intention to continuance use of NFC mobile

payment once the financial incentives are terminated is examined in the decision stage to learn whether financial incentives play a key role in determining continuance intentions to use NFC mobile payment.

Conceptual Model and Hypotheses

Based on the review of previous studies about the DOI and the constructs of financial incentives, trust, perceived risk, intention, and continuance intention, a conceptual model is developed as shown in Figure 2.2. Basic information about NFC mobile payment is introduced in the knowledge stage. In the persuasion stage, consumers become interested in NFC mobile payment and their belief systems are challenged as they consider adopting it based on the knowledge acquired in the first stage. Trust and perceived risk factors are considered as they contemplate adopting NFC mobile payment. In the decision stage, consumers theoretically relate NFC mobile payment to their present and anticipated future situation, and decide whether they intend to adopt it. It is in this stage that intention and continuance intention can be determined.
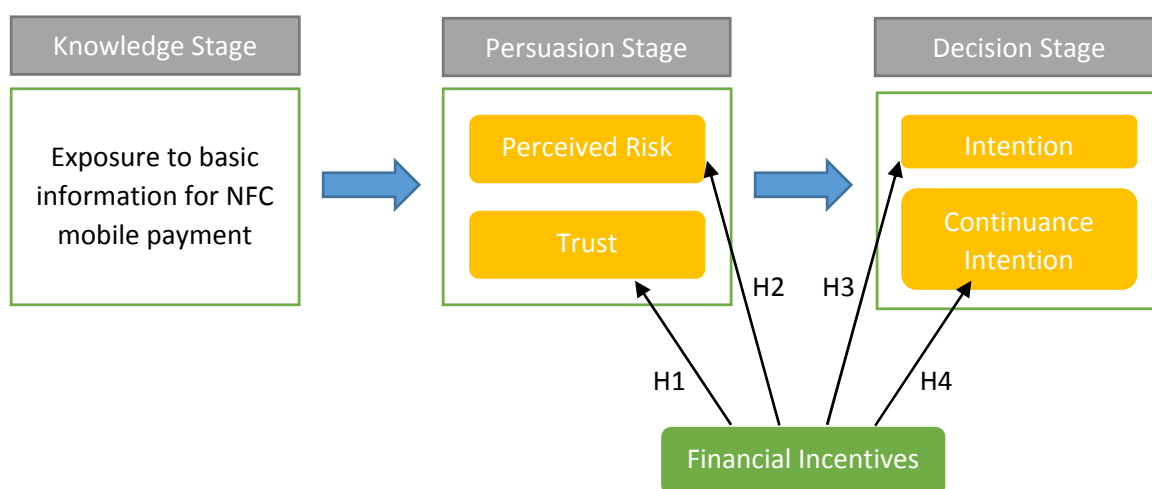
Figure 2.2. Conceptual Model. Application of the Diffusion of Innovation Theory to Analyze the Influence of Financial Incentives on NFC Mobile Payment Adoption.

Financial incentives act as strong motivators for consumers to shape their beliefs about NFC mobile payment and influence their intention and continuance intention to adopt NFC mobile payment. Financial incentives were used as treatments to understand whether they affect consumers' trust and perceived risk in the persuasion stage, and whether they affect initial intention to adopt NFC mobile payment as well as continuance intention to use NFC mobile payment once financial incentives are terminated. The following hypotheses were proposed:

H1: Consumers who receive financial incentives to use NFC mobile payment will have a higher level of trust in NFC mobile payment.

 H1a: Consumers who receive financial incentives to use NFC mobile payment will have a higher level of trust in NFC mobile payment compared with consumers who have not been offered financial incentives.

 H1b: Consumers offered a cash back reward to use NFC mobile payment will have a higher level of trust in using NFC mobile payment compared to those offered a discount reward.

 H1c: Consumers offered a larger financial incentive to use NFC mobile payment will have a higher level of trust in using NFC mobile payment compared to those offered a smaller reward.

 H1d: Consumers offered financial incentives over a longer period to use NFC mobile payment will have a higher level of trust in NFC mobile payment compared to those offered incentives over a shorter period.

H2: Consumers offered financial incentives to use NFC mobile payment will have a lower level of perceived risk of NFC mobile payment.

H2a: Consumers offered financial incentives to use NFC mobile payment will have a lower level of perceived risk in NFC mobile payment compared consumers who have not been offered financial incentives.

H2b: Consumers offered a cash back reward to use NFC mobile payment will have a lower level of perceived risk in using NFC mobile payment compared to those offered a discount reward.

H2c: Consumers offered a larger financial incentive to use NFC mobile payment will have a lower level of perceived risk in using NFC mobile payment compared to those offered a smaller reward.

H2d: Consumers offered financial incentives over a longer period to use NFC mobile payment will have a lower level of perceived risk in NFC mobile payment compared to those offered incentives over a shorter period.

H3: Consumers offered financial incentives to use NFC mobile payment will have a higher intention to adopt NFC mobile payment than those not offered financial incentives.

H3a: Consumers offered financial incentives to use NFC mobile payment will have a higher intention to adopt NFC mobile payment compared consumers who have not been offered financial incentives.

H3b: Consumers offered a cash back reward to use NFC mobile payment will have a higher intention to adopt NFC mobile payment compared to those offered a discount reward.

H3c: Consumers offered a larger financial incentive to use NFC mobile payment will have a higher intention to adopt NFC mobile payment compared to those offered a smaller financial incentive.

H3d: Consumers offered financial incentives over a longer period to use NFC mobile payment will have a higher intention to adopt NFC mobile payment compared to those offered incentives over a shorter period.

H4: Consumers' continuance intention to use NFC mobile payment will be different once financial incentives are terminated based on the amount or promotion period.

H4a: Consumers offered a cash back reward will have a higher continuance intention to use NFC mobile payment when the financial incentives are terminated compared to those offered a discount reward.

H4b: Consumers offered a larger amount of financial incentives will have a higher continuance intention to use NFC mobile payment when the financial incentives are terminated compared to those offered a smaller reward.

H4c: Consumers offered financial incentives over a longer period will have a higher continuance intention to use NFC mobile payment when the financial incentives are terminated compared to those offered incentives over a shorter period.

CHAPTER 3

METHODOLOGY

This study aims to investigate the impact of financial incentives on consumers' use of

NFC mobile payment. Four main hypotheses were developed and tested using an online

experiment. The effect of financial incentives is expected to be that consumers will have (H1) a

higher level of trust in NFC mobile payment, (H2) a lower level of perceived risk of NFC mobile

payment, (H3) a higher intention to adopt NFC mobile payment, and (H4) a continuance

intention to use NFC mobile payment once financial incentives are terminated. This chapter

describes how the hypotheses are operationalized and how the experiment is designed. In

addition, pilot testing and data analysis methods are described.

Operationalizing Hypotheses

The first three hypotheses suggest that consumers will increase their trust and intention,

and decrease their perceived risk in using NFC mobile payment, respectively, when financial

incentives are provided. As listed in Chapter 2, variations of financial incentives were offered

and tested by four sub-hypotheses for each of the first three main hypotheses and three sub-

hypotheses for the fourth hypothesis on continuance intention.

Availability and Type of Financial Incentives

Consumers are expected to have higher levels of trust and intention and a lower level of

perceived risk when offered any form of financial incentive to use NFC mobile payment as

opposed to those offered no financial incentives. Financial incentive treatment groups were

offered discounts or cash back rewards while the control group were not offered any financial

incentives. Because Samsung rewards usually expire after one year (Pressman, 2016), respondents in cash back treatment groups were asked to assume that cash back can be applied to any later transaction within 12 months from the rewarded purchase.

Amount of Financial Incentives

Consumers offered a larger financial incentive to use NFC mobile payment will have a higher level of trust and intention and a lower level of perceived risk than those offered a smaller incentive. Mobile payment companies or credit card services have offered different amounts for incentives, and 5% and 10% were among the most commonly used amounts. Thus, 5% (smaller incentive) and 10% (larger incentive) were selected to test the effect of the amount of each type of incentive.

Promotion Period of Financial Incentives

Consumers offered financial incentives over a longer period of time will have a higher level of trust and intention, and a lower level of perceived risk than those offered incentives over a shorter period of time. Based on the different promotion periods of financial incentives used by the mobile payment companies, the shorter promotion period chosen for this study was one month while the longer promotion period was three months.

Finally, in the fourth hypothesis, it is expected that continuance intention to use NFC mobile payment will be different after the promotion period depending on the incentive to use. More specifically, it is hypothesized that consumers offered a larger amount or a longer period of financial incentives will have a higher continuance intention to use NFC mobile payment when the financial incentives are terminated compared to consumers offered a smaller amount or a shorter period of financial incentives, respectively.

Overview of Approach

An online experiment was designed to collect data from a representative sample of U.S. adults aged 18 to 35. This experiment was a simple randomized participants design, that is, a between-participants posttest-only design in which the influence of several levels of variation on the independent variable is tested (Christensen, 2004). Respondents participated in the experiment by completing an online survey about consumers' trust, perceived risk, intention, and continuance intention to use NFC mobile payment. Eight treatment groups were offered different types of financial incentives, cash back versus discount, and different amounts and promotion periods. The control group were not offered any financial incentives to use NFC mobile payment.

Survey Instrumentation and Pilot Testing

Before data were collected via Qualtrics Online Research Panels & Sample, the initial survey was pilot tested in two large class sections of college students at the University of Georgia. Prior to the pilot test, a human subject application was approved by the University of Georgia's Institutional Review Board. Students were recruited from an in-person Spring 2017 class section of the Introduction to Personal Finance course and the online version of the same course in Summer 2017. This is a lower level undergraduate course. Instructors shared the survey link through a class email to their students. The pilot was for students to complete the survey as well as to offer any suggestions to improve it. After a two-month period, 638 students participated and 415 students had complete responses. Appendix A contains the wording of the qualitative pilot test questions as well as specific comments received and the corresponding corrections that were made. The final instrument used to collect data is provided in Appendix B.

Prior to administering the final survey to a sample of the general population, approval of the final survey was obtained from the Institutional Review Board.

Data Collection Procedures

Respondents from the general population were recruited using Qualtrics Online Research Panels & Sample and the sample size was limited by a research budget of $2,000. The Qualtrics Corporation is a provider of online survey software as well as an aggregator of panels. Qualtrics works with a number of panel providers. Each panel has its own method of recruitment, but all are fairly similar. Normally, respondents choose to join a panel through a double opt-in process. Upon registration, they provide some basic information about themselves, including demographic data, interests, hobbies, and so on. When an individual qualifies for a survey based on the information they have given, they are notified via email and invited to participate in the survey for a given incentive.

Sample Delimitation

First, to be eligible to participate, respondents had to be aged 18 to 35. Dodini et al. (2016) found that younger consumers are more likely to use mobile payments. In 2015, 30 percent of individuals ages 18 to 35 had made mobile payments (Dodini et al., 2016). Second, the respondents were to have no prior experience with using NFC mobile payment since this study tested the effect of financial incentives on NFC mobile payment adoption.

Two quality control checks were also added by Qualtrics. First, a commitment question was inserted at the start of the survey, asking respondents to commit to providing high-quality answers: "Do you commit to providing your thoughtful and honest answers to the questions in this survey? 1) I can't promise either way; 2) I will provide my best answers; 3) I will not

provide my best answers." The survey screened out those who did not select "2) I will provide my best answers."

Second, a speeding check was added after the soft launch for data collection. The median time to completion came in at 4.7 minutes. The speeding check measured as one-third the median soft launch time would automatically terminate those who were not responding thoughtfully during the full launch of the survey. During two days of the Qualtrics administration of the final survey, 629 respondents participated in this survey and 501 respondents completed their surveys. After quality checks, the final total sample size was 463. Of these, 410 respondents received financial incentives.

Experimental Design

Figure 3.1 provides a visual flowchart for the survey procedure and experiment. After giving consent, each respondent viewed basic information about NFC mobile payment. Next, two eligibility test questions were answered. In addition to the age restriction, only those who had not used NFC mobile payment in the past were eligible for the study. Eligible participants were randomly assigned into nine groups. After viewing the survey assumptions and answering treatment questions, they answered questions designed to measure the study variables.

Basic Information for NFC Mobile Payment

An introduction about NFC mobile payment was provided. If participants did not understand how NFC mobile payment works, they then also could watch a video demonstration on how to conduct NFC mobile payment. Only 14 participants watched the short video after reading the descriptive paragraph. Respondents then were asked if they had ever made mobile payment using the NFC feature of their mobile phones and asked to reveal their age. This is the pre-screening stage where those with previous NFC payment experience or not meeting the age

requirement were disqualified and exited from survey. For the remaining participants, they were assigned randomly into either the control group or one of eight treatment groups.

Assumptions

All of the respondents irrespective of group were asked to hold these same three assumptions: 1) they own an NFC-enabled mobile phone; 2) the mobile phone has stored credit/debit card information on it so the phone is NFC mobile payment-ready; and 3) NFC mobile payment is widely accepted in their local shopping locations, such as grocery stores, drug stores, and fast food restaurants. These three assumptions assured participants that they were unimpeded in using NFC mobile payment.

Experimental Blocks

An approximately equal number of respondents were assigned to each of the eight treatment groups and the control group. Respondents in the control group were not exposed to any additional information.

As shown in the Figure 3.1, financial incentives were offered to treatment groups based on type (cash back or discount), amount, and promotion period. The discount incentive is applied during the mobile payment transaction at POS, whereas the cash back reward is a percentage of the amount spent that is reimbursed later. The amounts of each type of incentive were 5 and 10 percent. The promotion periods offered were one month and three months for each type and period. Thus, apart from the control group with no financial incentive, the eight treatment groups were: 1) 5% cash back within 1 month; 2) 10% cash back within 1 month; 3) 5% cash back within 3 months; 4) 10% cash back within 3 months; 5) 5% discount within 1 month; 6) 10% discount within 1 month; 7) 5% discount within 3 months; 8) 10% discount within 3 months. At the same time, each of the treatment groups could earn a cap cash back or discount up to $1,500.

Measurement of Variables

Dependent Variables

After treatment exposure, each participant answered four dependent variable questions. The literature sources for these variables are listed in Table 3.1.

Trust. The first dependent variable, subjects' trust on NFC mobile payment, is a construct that is measured on a 7-point Likert scale ranging from completely disagree (1) to completely agree (7) to the following four statements: "I trust NFC mobile payment to be reliable," "I trust NFC mobile payment to be secure," "I trust NFC mobile payment to be trustworthy," and "Overall, I trust NFC mobile payment." Tested on data from 302 undergraduate students in New Zealand, the composite reliability was 0.975 (Xin et al., 2013). This four-item scale was adopted in this study to measure consumers' trust in NFC mobile payment because of its high construct validity. In the survey instrument, the wording of "mobile payment systems" was replaced by "NFC mobile payment" to better fit the topic of the present research. The Cronbach's alpha is 0.952.

Perceived Risk. The second dependent variable, subjects' perceived risk on using NFC mobile payment, is a construct that is measured on a 7-point Likert ranging from completely disagree (1) to completely agree (7) to the following three statements: "Using NFC mobile payment increases the chance of credit/debit card fraud," "Using NFC mobile payment would lead to a financial loss for me," and "Using NFC mobile payment increases the financial risk of my linked credit/debit card being misused." The Cronbach's alpha was 0.887 and AVE was 0.815 (Featherman & Pavlou, 2013). This three-item scale was adopted in this study because of the high construct validity and internal consistency but the wording "mobile credit card" in the scale was substituted by "NFC mobile payment." The Cronbach's alpha is 0.844.

Intention. The third dependent variable, subjects' intention to adopt NFC mobile payment, is a construct that is measured on a 7-point Likert ranging from completely disagree (1) to completely agree (7) to the following five statements: "I am likely to use NFC mobile payment in the near future," "Given the opportunity, I will use NFC mobile payment immediately," "I am willing to use NFC mobile payment in the near future," "I will think about using NFC mobile payment," and "I intend to use NFC mobile payment services when the opportunity arises." Based on a sample of 156 respondents collected in Malaysia, the Cronbach's alpha was 0.891, CR was 0.870, and AVE was 0.573 (Tan et al., 2014). The scale also was used in Leong et al. (2013) to measure intention. The Cronbach's alpha was 0.876, CR was 0.871, and AVE was 0.575 among 265 Malaysia university students. The five-item scale used in Tan et al. (2014) was used to measure intention to adopt NFC mobile payment in this study because of the high validity and internal consistency. The wording "NFC mobile payment" was substituted for "mobile credit card" to fit this study. The Cronbach's alpha is 0.940.

Continuance Intention. The subjects' continuance intention to use NFC mobile payment is a construct that is measured on a 7-point Likert ranging from completely disagree (1) to completely agree (7) to the following three statements: "I plan to use NFC mobile payment more often after the cash back/discount promotion ends," "NFC mobile payment will be one of my commonly used payment methods after the cash back/discount promotion ends," and "I intend to continue using NFC mobile payment after the cash back/discount promotion ends." In qualitative research among a sample of 38 China mobile payment users via phone interviews, the CR of the scale was 0.82 and the AVE was 0.61 (Chen & Li, 2016). This three-item scale was used to measure continuance intention in this study because of the high construct validity. The wording "mobile payment system" was replaced by "NFC mobile payment." In addition, "after cash back

promotion ends" or "after discount promotion ends" was added at the end of each item for the different treatment groups. The Cronbach's alpha is 0.924. A higher score represents a higher level of agreement with the statement. Subjects in the control group did not answer these three questions measuring continuance intention to use NFC mobile payment.

Independent Variables

Four independent variables were defined based on nine experimental groups.

AVL. AVL presents the availability of financial incentives and was defined as a dummy variable. If respondents were in one of eight treatment groups, AVL was coded as 1. Otherwise, AVL was coded as 0 for those in the control group.

TPY. The two types of financial incentives – discount and cash back – were defined as a dummy variable. If respondents were in one of four treatment groups with a cash back treatment: 5% cash back within one month, 10% cash back within one month, 5% cash back within three months, and 10% cash back within three months, TPY was coded as 1. If respondents were in one of four treatment groups with a discount treatment: 5% discount within one month, 10% discount within one month, 5% discount within three months, and 10% discount within three months, TPY was coded as 0.

AMT. If respondents were in one of four treatment groups with 10% treatment: 10% cash back within one month, 10% cash back within three months, 10% discount within one month, and 10% discount within three months, AMT was coded as 1. If respondents were in one of four treatment groups with 5% treatment: 5% cash back within one month, 5% cash back within three months, 5% discount within one month, and 5% discount within three months, AMT was coded as 0.

PPD. Promotion periods of financial incentives for 1 month and 3 months were defined as a dummy variable. If respondents were in one of four treatment groups with a 3-month treatment: 5% cash back within 3 months, 10% cash back within 3 months, 5% discount within 3 months, and 10% discount within 3 months, PPD was coded as 1. If respondents were in one of four treatment groups with a 1-month treatment: 5% cash back within one month, 10% cash back within one month, 5% discount within one month, and 10% discount within one month, PPD was coded as 0.

Control Variables

Indicator variables for income, education, perceived ease of use, perceived usefulness, frequency of online shopping, experience with using mobile banking, and using non-NFC mobile payment were included. As shown in Table 3.1, the measures for perceived ease of use and perceived usefulness are based on Venkatesh and Bala (2008) and Davis (1989), respectively. Each is measured by three statements with responses on 7-point Likert scales ranging from completely disagree (1) to completely agree (7). The frequency of online shopping presents five frequency categories, no more than once a year (1), no more than once a month (2), several times a month (3), several times a week (4), and every day (5). Based on Dodini et al. (2016), experience with using mobile banking was coded ranging from 0 to 5 based on how many types of mobile banking were experienced by respondents (see Table 3.1). Experience with using non-NFC mobile payment was coded ranging from 0 to 6 based on how many types of non-NFC mobile payments were experienced by respondents.

Dummy indicators for gender, age group, race, card payment method, new credit/debit card user because of financial incentives, increasing purchases because of credit/debit rewards, loyalty card holder, and increasing the purchases because of loyalty cards also were included in

this study. For gender, male was coded as 1, female was coded as 0. If respondents were aged

between 26 and 35, age group was coded as 1, otherwise respondents aged from 18 to 25 were

coded as 0. Payment methods include cash, check, debit card, credit card, and prepaid card or

gift card. If respondents used credit or debit cards, payment method was coded as 1, otherwise

payment method was coded as 0. If respondents used a credit or debit card because of a financial

reward, new credit/debit card user because of financial incentives was coded as 1, otherwise this

variable was coded as 0. If respondents increased their purchases using a credit or debit card that

provides rewards, such as cash back and points, the increasing purchases because of credit or

debit rewards was coded as 1, otherwise this variable was coded as 0. If respondents had any

loyalty cards, loyalty card holder was coded as 1, otherwise this variable was coded as 0.

Increasing purchases because of loyalty cards was coded as 1, otherwise this variable was 0.

Multivariate Normality

Structural equation modeling uses the maximum likelihood estimation method, which

assumes multivariate normality for continuous outcome variables (Brown, 2015). The Mardis-

Skewness and Mardia-Kurtosis were used to test multivariate normality in this study. The

Mardia-Skewness was 30.42 with chi-square (680) = 2096; the Mardia-Kurtosis was 332.54 with

chi-square (1) = 1208. Multivariate normality was not supported since the results of these two

tests were both significant ($p < .001$).

Data Analysis

Structural equation modeling (SEM) was used to test the four general hypotheses and 11

specific hypotheses using Stata 15. The robust maximum likelihood estimation method was used

to remedy for non-normality issues. It is the most commonly used estimator for non-normal

continuous variables and provides maximum likelihood parameter estimates with standard errors

and the Satorra-Bentler scaled chi-square (Brown, 2015). Confirmatory factor analysis (CFA) was conducted to assess the factor structure of the constructs for trust, perceived risk, intention, and continuance intention.

It was important to examine the latent structure of a test instrument during the process of scale development in this study. CFA was conducted by estimating a structural measurement model for the dependent variables and control latent variables, respectively. The first CFA was for trust, perceived risk, intention, and continuance intention. The second CFA was for items measuring the controls for perceived ease use and perceived usefulness. Once each measurement model was confirmed, two separate SEM models were estimated to test the hypotheses. The effect of the availability of financial incentives on trust, perceived risk, and intention on NFC mobile payment was tested in Model 1 (Figure 3.2). The dummy variable, AVL, is the exogenous variable; trust, perceived risk, and intention are determined endogenously by AVL.

Model 2 testing the effect of type, amount, and promotion period of financial incentives is depicted in Figure 3.3. Four dependent variables, trust, perceived risk, intention, and continuance intention, are endogenous variables; three exogenous variables, TYP, AMT, and PPD, are dummy variables. Both models controlled for demographic variables, including age, gender, income, education, and race, perceived ease of use, perceived usefulness, payment methods, experience with financial rewards for credit/debit cards, loyalty cards, online shopping, mobile banking, and non-NFC mobile payments.

Absolute fit indices, parsimony fit indices, and comparative fit indices were used to assess the model for the measurement models and SEMs. These fit indices included the chi-square test, the standardized root mean square residual (SRMR), the root mean square error of approximation (RMSEA), the comparative fit index (CFI), and the Tucker-Lewis index (TLI)

(Brown, 2015; Hu & Bentler, 1999). With the robust maximum likelihood, these fit indices also were adjusted for Satorra-Bentler chi-square, Satorra-Bentler RMSEA, Satorra-Bentler CFI, and Satorra-Bentler TLI.

Power Testing

MacCallum, Browne, and Sugawara (1996) suggested that the root mean square error of approximation (RMSEA) can be treated as an effect size to test the power of structural equation modeling. They recommended to examine a null hypothesis of "not-close fit" instead of the usual chi-square test of the null hypothesis of exact fit. To determine the power of this study with a given degrees of freedom and simple size to reject the null hypothesis of not-close fit, RMSEA = .05 for the null hypothesis and RMSEA = .01 for an alternative hypothesis were used in the power test based on MacCallum et al. (1996). The powers of confirmatory factor analysis and structural equation modeling (Model 1 and Model 2) are 1.00.

Table 3.1

Literature Sources of Variables

Constructs	Items	Literature Sources
Dependent Variables		
Trust	TRUST_1: I trust NFC mobile payment to be reliable	Xin, Techatassanasoontorn, and Tan (2013)
	TRUST_2: I trust NFC mobile payment to be secure	
	TRUST_3: I trust NFC mobile payment to be trustworthy	
	TRUST_4: Overall, I trust NFC mobile payment	
Perceived Risk (PR)	PR_1: Using NFC mobile payment increases the chance of credit/debit card fraud	Modified based on Featherman and Pavlou (2003)
	PR_2: Using NFC mobile payment would lead to a financial loss for me	
	PR_3: Using NFC mobile payment increases the financial risk of my linked credit/debit card being misused	
Intention	INTENTION_1: I am likely to use NFC mobile payment in the near future	Tan, Ooi, Chong, and Hew (2014)
	INTENTION_2: Given the opportunity, I will use NFC mobile payment immediately	
	INTENTION_3: I am willing to use NFC mobile payment in the near future	
	INTENTION_4: I will think about using NFC mobile payment	
	INTENTION_5: I intend to use NFC mobile payment services when the opportunity arises	
Continuance Intention (CI)	CI_1: I plan to use NFC mobile payment more often after the cash back/discount promotion ends	Chen and Li (2016)

(Continued)

Constructs	Items	Literature Sources
	CI_2: NFC mobile payment will be one of my commonly used payment methods after the cash back/discount promotion ends	
	CI_3: I intend to continue using NFC mobile payment after the cash back/discount promotion ends	
Control Variables		
Perceived Ease of Use (PEU)	PEU_1: Using NFC mobile payment is clear and understandable	Venkatesh and Bala (2008)
	PEU_2: Using NFC mobile payment does not require mental effort	
	PEU_3: Learning to use NFC mobile payment is easy for me	
Perceived Usefulness (PU)	PU_1: NFC mobile payments are fast	Davis (1989)
	PU_2: NFC mobile payments are efficient	
	PU_3: NFC mobile payments are convenient	
Mobile Banking Experience (MB)	MB_1: Checked an account balance or checked recent transactions	Dodini, Lopez-Fernandini, Merry, and Thomas (2016)
	MB_2: Received an alert (e.g., a text message, push notification or email) from your bank	
	MB_3: Transferred money between your bank accounts	
	MB_4: Deposited a check to your account electronically using your mobile phone camera	
	MB_5: Located the closest in-network ATM or branch for your bank	
Non-NFC Mobile Payment Experience (MP)	MP_1: Sent money to relatives or friends (e.g., Venmo, PayPal, Google Wallet, your bank's app)	Dodini, Lopez-Fernandini, Merry, and Thomas (2016)

(Continued)

Constructs	Items	Literature Sources
	MP_2: Paid for something in a store scanning a QR code	
	MP_3: Purchased a physical item or digital content remotely by using your mobile phone's web browser or an app	
	MP_4: Paid a bill using your mobile phone's web browser or an app	
	MP_5: Made a donation or other payment using a text message	
	MP_6: Paid for parking, a taxi, car service (e.g., Uber), or public transit	
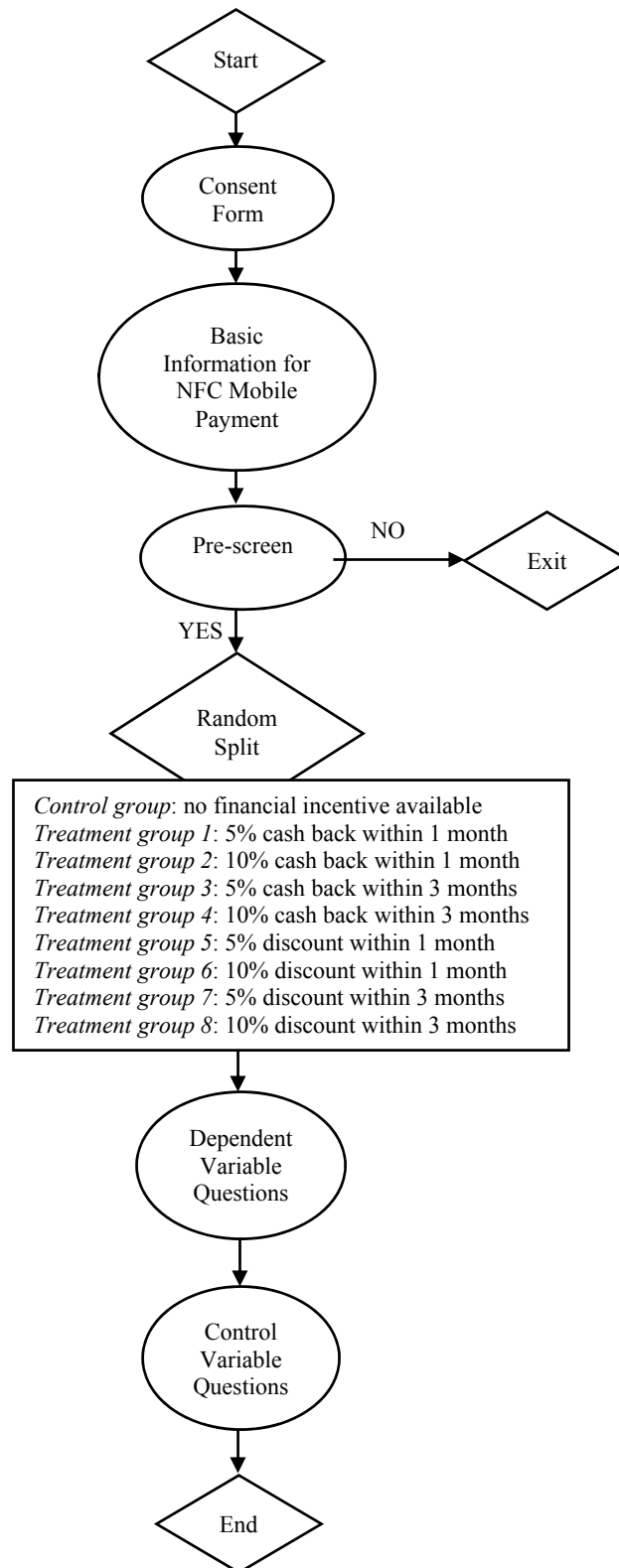
Figure 3.1. Experimental Survey Flow
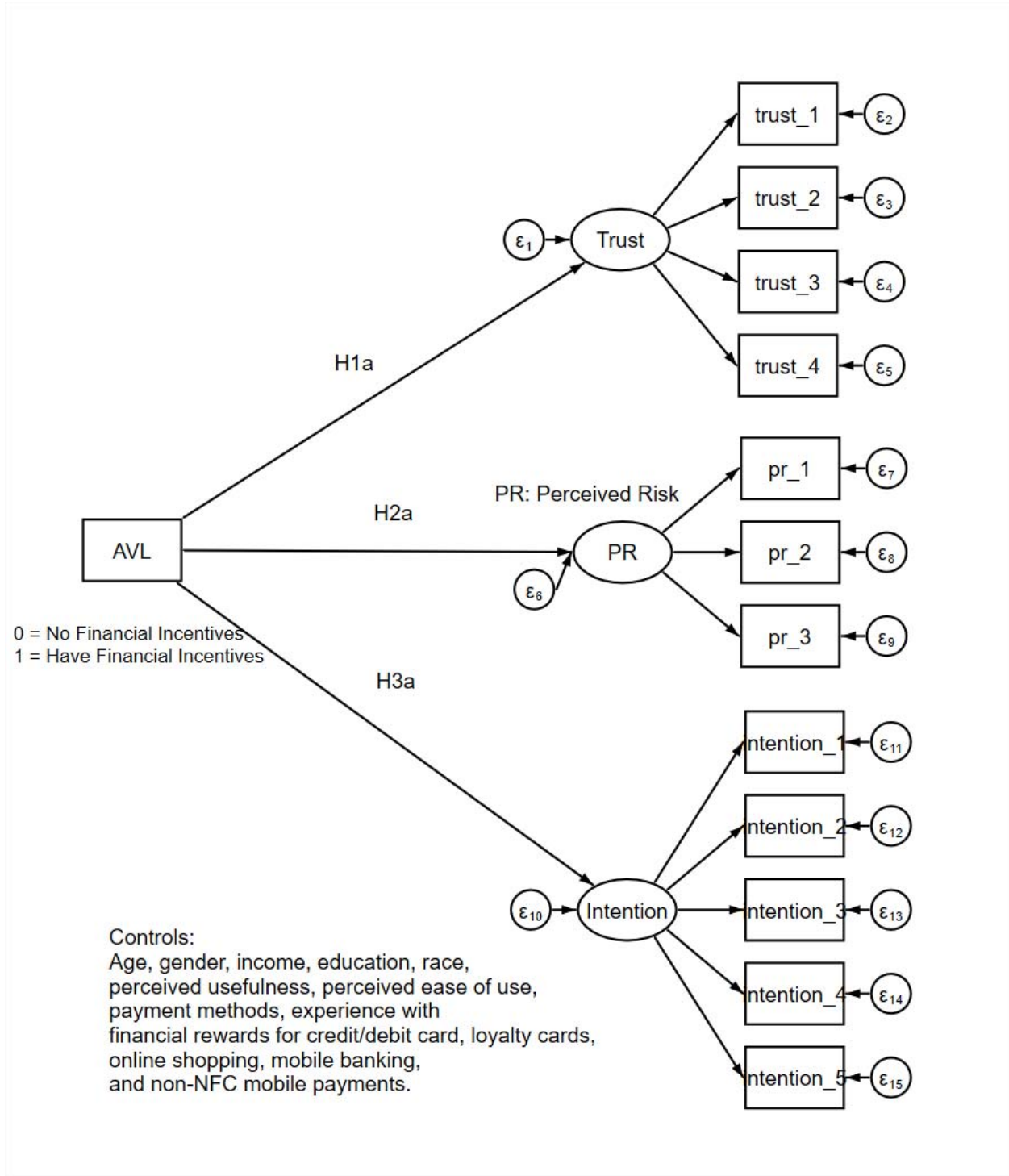
Figure 3.2. Availability of Financial Incentives Analysis Using Structural Equation Modeling
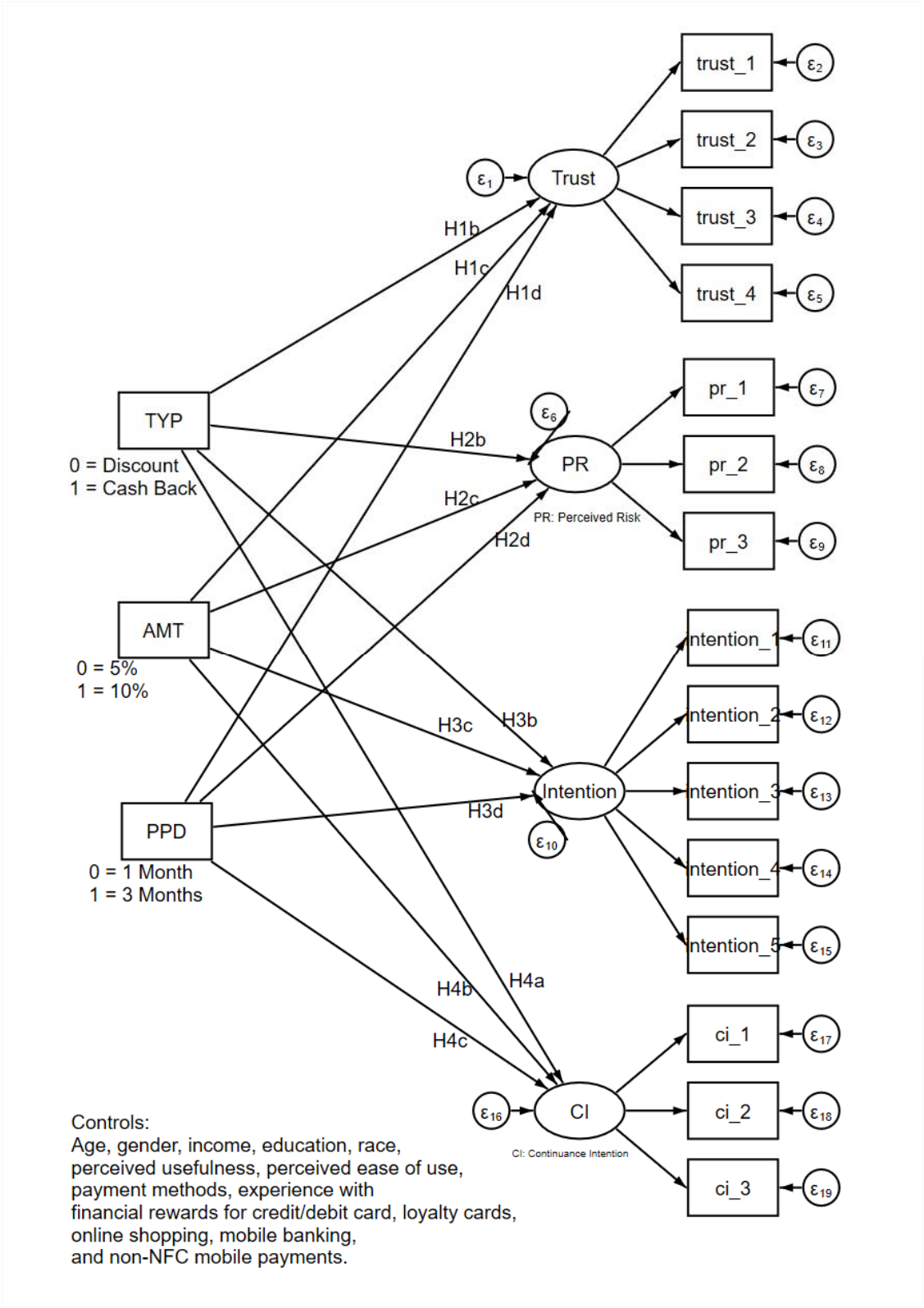
(Model 1)

Figure 3.3. Types, Amounts, and Promotion Periods of Financial Incentives Analysis Using

Structural Equation Modeling (Model 2)

CHAPTER 4

RESULTS

Results from data analysis are described in this chapter. The first section presents a

description of data for the sample characteristics and the descriptive statistics of the study

variables. The second section provides the results of the measurement models and in the final

section, results from structural equation modeling to test hypotheses are discussed.

Description of Data

Table 4.1 displays the number of respondents for each experimental group. The number

of respondents in each group was roughly equal to 50, ranging from 47 to 54. Each group

accounted for around 11%, ranging from 10.15% to 11.66% of the total sample. Respondents in

treatment groups 1, 2, 3, and 4 received cash back incentives and respondents in the treatment

groups 5, 6, 7, and 8 received discount incentives. There were 207 respondents in the discount

group and 203 respondents in the cash back group. Respondents in treatment groups 1, 3, 5, and

7 were offered 5% in cash back or discount incentive while the respondents in treatment groups

2, 4, 6, 8 were offered 10 percent. Respondents in treatment groups 1, 2, 5, 6 were offered a one-

month promotion period while those in treatment groups 3, 4, 7, 8 assumed a three-month

promotion period.

The sample characteristics by the availability of financial incentives shown in Table 4.2

describe the full sample. Among the 463 respondents, almost 85% were female and around 15%

were male. The largest age group were those between 26 to 35 years (68.68%). The majority of

the respondents were White (76.89%).

Nearly all of the respondents (98.49%) had completed a high school level of education. The largest group had college degrees (35.85%), followed by those who had some college education (27.65%) and those who completed high school/GED (27.43%). Only seven respondents reported that their education level was less than high school.

Over a third of the respondents reported annual household incomes less than $30,000 (32.61%), followed by those earning between $30,000 and $39,999 (16.63%), between $40,000 and $49,999 (15.12%), and between $50,000 and $59,999 (10.37%). Around 15% of the respondents had annual household incomes between $60,000 and $79,999, while more than 10% of the respondents had annual household incomes exceeding $80,000.

More than half of the respondents used a debit or credit card as their payment method (55.29%) while the remaining respondents used cash, check, pre-paid card or gift card to make payments. Half of the respondents started using debit or credit cards because of financial incentives, and nearly half (49.03%) of the respondents increased their purchases because of rewards associated with their cards. In addition, more than 70% of the respondents had loyalty cards such as reward cards, membership cards, and advantage cards. Almost half (42.12%) of the respondents reported increased purchases because of loyalty cards. Also, close to 80% of the respondents bought goods/services online more than once a month while only 23.76% reported they had online shopping experience of no more than once a month.

Among the five types of mobile banking functions which included "checked an account balance or checked recent transactions," "received an alert from your bank," "transferred money between bank accounts," "deposited a check to bank account electronically using mobile phone camera," and "located the closest in-network ATM or branch," 21.38% of the respondents reported they performed all five types of mobile banking. Another 20.73% and 23.54%

performed four and three types, respectively. Only 8.21% of the respondents did not have any mobile banking experience.

Six non-NFC mobile payment types were controlled for in this study, including "sent money to relatives/friends," "paid for something in a store by scanning a QR code," "purchased a physical item or digital content remotely by using a mobile phone web browser or an app," "paid a bill using mobile phone's web browser or an app," "made a donation or other payment using a text message," and "paid for parking, a taxi, car service, or public transit." Among the 463 respondents, more than 60% had used either one type, two types, or three types of mobile payment experience. More than 20% reported more than three types, while around 17% had not performed any kind of non-NFC mobile payment in the past 12 months.

The descriptive statistics shown in Table 4.3 indicated that the characteristics of the respondents in the discount group were very similar to those of the respondents in the cash back group. Similarly, the characteristics of the respondents in the 5% group was very close to those of the respondents in the 10% group. The characteristics of the respondents in the 1-month promotion period group was about the same as the respondents in the 3-month promotion period group. The detailed sample characteristics presented by the experimental group can be found in the Appendix C.

Table 4.4 summarizes the descriptive statistics for the variables and controls by the availability of financial incentives. T-tests were conducted to compare whether significant differences existed between the respondents in the control group to whom no financial incentives were offered and respondents in the eight treatment groups to whom financial incentives were provided. The results from the t-tests implied that respondents who were offered financial incentives demonstrated a significant higher level of trust (reflected by the item Trust_3 and

Trust_4) in NFC mobile payment, a significant lower level of perceived risk (reflected by the item PR_1) of the NFC mobile payment, and a significant higher level of intention to adopt NFC mobile payment (reflected by the item Intention_5) than those who were not offered financial incentives. In addition, respondents who were offered financial incentives revealed a significant higher level of perceived ease of use (reflected by the item PEU_1) of NFC mobile payment than respondents who were not offered financial incentives. There seems to be no significant differences in the perceived usefulness of NFC mobile payment among respondents who were offered financial incentives and those who were not.

Table 4.5 shows whether there were significant differences across type, amount, and promotion period groups. T-tests results showed that there were no significant between-group differences in trust, perceived risk, intention, continuance intention, perceived ease of use, and perceived usefulness of NFC mobile payments.

As shown in Table 4.5, the means of trust and intention to adopt NFC mobile payment were between 4 and 5 for respondents in all groups, the means of perceived risk and continuance intention to adopt NFC mobile payment were between 3.5 and 4.5, and the means of perceived ease of use and perceived usefulness were between 5 and 6. The descriptive statistics revealed that no matter which group they were in, respondents who were offered financial incentives had a relatively higher level of perceived ease of use and perceived usefulness of NFC mobile payment, an above the medium level of trust and intention to adopt NFC mobile payment, and a medium level of perceived risk and continuance intention to adopt NFC mobile payment. The descriptive statistics of the latent variables presented by the experimental group can be found in Appendix D.

Dependent variables were correlated in the expected directions (Appendix E). Trust showed significant positive correlations with intention and continuance intention. Perceived risk had significant negative correlations with trust, intention, and continuance intention.

Measurement Model

Confirmatory factor analysis was conducted to assess the latent structure of the dependent variables and controlled latent variables. Figure 4.1 presents the measurement model for trust, perceived risk, intention, and continuance intention. Table 4.6 shows that all of the factor loadings (standardized) were large ($\lambda > .70$) (Brown, 2015) and significant ($p < .001$). The model fit indices were: $\chi^2(75) = 173.06$, $p < .001$; Satorra-Bentler scaled $\chi^2(75) = 135.02$, $p < .001$; CFI = .98; TLI = .98; Satorra-Bentler CFI: .99; Satorra-Bentler TLI: .98; RMSEA = .06; Satorra-Bentler RMSEA: .04; SRMR = .03. The chi-square test is sensitive to sample sizes exceeding 200 and shows significant differences for equivalent models (Lee, 2009; Leong et al., 2013). The other model fit indices exceeded the recommended thresholds which indicated that the overall model fit was good (Hu & Benlter, 1999). The measurement model for perceived ease of use and perceived usefulness also was tested, and the overall model fit was good.

Structural Equation Modeling Results

Two separate SEM models were conducted to test the 11 specific hypotheses. Addressing multicollinearity is a prerequisite of structural equation modeling. The high intercorrelations between the independent variables and control variables were evaluated by variance inflation factors (VIFs). All of the VIFs were below 2.0 in both two SEM models, which indicated no multicollinearity issue existed (Appendix F).

The main results of Model 1 are presented in Figure 4.2 where fit indices are shown to be acceptable (Appendix G shows the full output of Model 1 with controls). The reference group for

AVL was consumers who were not offered any financial incentives. The availability of financial incentives had significant impacts on trust, perceived risk, and intention on NFC mobile payment adoption. All three hypotheses (H1a, H2a, and H3a) were supported (See Table 4.7). Results for errors and covariates are presented in Appendix H.

H1a: The availability of financial incentives contributed to a higher level of trust in NFC mobile payment (β = .12, p = .004).

H2a: The availability of financial incentives contributed to a lower level of perceived risk in NFC mobile payment (β = -.09, p = .032).

H3a: The availability of financial incentives contributed to a higher level of intention to adopt NFC mobile payment (β = .09, p = .041). This finding supports the hypothesis proposed.

Controls: Those who were male, less educated, loyalty card holders, and had more non-NFC mobile payment experience and higher levels of perceived usefulness had higher levels of trust in NFC mobile payment compared to their counterparts. Those who were less educated and did not have loyalty cards had lower levels of perceived risk in NFC mobile payment compared to their counterparts. Those who were not white, did not have loyalty cards, had no experience in credit/debit cards payments, had higher levels of perceived usefulness, and had more non-NFC mobile payment experience had higher levels of intention to adopt NFC mobile payment compared to their counterparts.

Figure 4.3 shows the main results of Model 2 (Appendix I shows the sem output diagram for Model 2 results with controls). The respective reference groups for TYP, AMT, and PPD were consumers who received discount rewards, consumers who were offered 5% incentives, and consumers who were offered 1-month promotion. The type, amount, and promotion period

of financial incentives had no significant impacts on trust, perceived risk, intention, and

continuance intention on NFC mobile payment adoption. Model fit indices were acceptable.

None of the eight hypotheses (H1b, H1c, H1d, H2b, H2c, H2d, H3b, H3c, H3d, H4b, and H4c)

were supported (See Table 4.8). Results for errors and covariates are presented in Appendix J.

H1b: The cash back rewards did not contribute to a higher level of trust in using NFC

mobile payment compared to discount rewards ($\beta = .02$, p = 638.). This finding does not

support the hypothesis proposed.

H1c: Ten percent rewards did not contribute to a higher level of trust in using NFC

mobile payment compared to 5% rewards ($\beta = .01$, p = .990). This finding does not

support the hypothesis proposed.

H1d: Three-month rewards did not contribute to a higher level of trust in using NFC

mobile payment compared to 1-month rewards ($\beta = .01$, p = .703). This finding does not

support the hypothesis proposed.

H2b: The cash back rewards did not contribute to a lower level of perceived risk in using

NFC mobile payment compared to the discount rewards ($\beta = -.05$, p = .317). This finding

does not support the hypothesis proposed.

H2c: Ten percent rewards did not contribute to a lower level of perceived risk in using

NFC mobile payment compared to 5% rewards ($\beta = .02$, p = .620). This finding does not

support the hypothesis proposed.

H2d: Three-month rewards did not contribute to a lower level of perceived risk in using

NFC mobile payment compared to 1-month rewards ($\beta = .05$, p = .305). This finding does

not support the hypothesis proposed.

H3b: The cash back rewards did not contribute to a higher intention to adopt NFC mobile payment compared to discount rewards (β = -.01, p = .915). This finding does not support the hypothesis proposed.

H3c: Ten percent rewards did not contribute to a higher intention to adopt NFC mobile payment compared to 5% rewards (β = -.01, p = .753). This finding does not support the hypothesis proposed.

H3d: Three-month rewards did not contribute to a higher intention to adopt NFC mobile payment compared to 1-month rewards (β = .01, p = .985). This finding does not support the hypothesis proposed.

H4a: The cash back rewards did not contribute to a higher continuance intention to use NFC mobile payment when the financial incentives were terminated compared to the discount rewards (β = -.07, p = .128). This finding does not support the hypothesis proposed.

H4b: Ten percent rewards did not contribute to a higher continuance intention to use NFC mobile payment when the financial incentives were terminated compared to 5% rewards (β = -.04, p = .343). This finding does not support the hypothesis proposed.

H4c: Three-month rewards did not contribute to a higher continuance intention to use NFC mobile payment when the financial incentives were terminated compared to 1-month rewards (β = -.01, p = .903). This finding does not support the hypothesis proposed.

Controls: Most significant control variables in Model 1 also were effective in Model 2. Also unlike Model 1, those who had more online shopping experience had higher levels of intention and continuance intention to use NFC mobile payment compared to their counterparts.

To deeply explore the effects of other financial experiences, demographics, and psychological factors on NFC mobile payment adoption, additional stepwise estimations of Model 2 also were conducted. Model 2.1, the first step, only includes TYP, AMT, and PPD without any controls. Then Model 2.2 includes other financial experiences to the base Model 2.1. Next, demographic variables were included in Model 2.3 and finally, in Model 2.4, perceived ease of use and perceived usefulness were added. Table 4.9 shows the results.

The overall model fit statistics for all these models were good. From Model 2.1 to Model 2.4, the type, amount, and promotion period of financial incentives were not significantly associated with higher levels of trust, intention, and continuance intention nor with lowering the perceived risk of NFC mobile payment. These results corroborated the results in Model 2. Compared to Model 2, most significant variables in Model 2.2, Model 2.3, and Model 2.4 were also effective. Those who had more non-NFC mobile payment experience and higher levels of perceived usefulness had higher levels of trust in NFC mobile payment compared to their counterparts. Those who were less educated and non-loyalty card holders had lower levels of perceived risk in NFC mobile payment compared to their counterparts. Those who were non-loyalty card holders and had more online shopping experience, more non-NFC mobile payment experience, and higher levels of perceived usefulness had higher levels of intention to use NFC mobile payment compared to their counterparts. Those who were not white, non-loyalty card holders, and had more online shopping experience, more non-NFC mobile payment experience, and higher levels of perceived usefulness had higher levels of continuance intention to use NFC mobile payment compared to their counterparts.

However, unlike Model 2, those who had no experience with credit or debit cards in Model 2.2 did not have higher levels of continuance intention to use NFC mobile payment

compared to those who used credit or debit cards. The findings in Model 2 suggested that those who were less educated had higher levels of trust and continuance intention of NFC mobile payment compared to their counterparts and those who were not white had higher levels of the intention to adopt NFC mobile payment compared to their counterparts. However, these results were not supported in Model 2.3. All the significant variables in Model 2.4 were also significant in Model 2.

Pilot data were also used to estimate Model 1 and Model 2 as a robustness check. The results (Appendix K) of all of hypotheses were consistent with the above analysis. The availability of financial incentives had significant and positive impacts on trust and intention, and significant negative effect on perceived risk of NFC mobile payment adoption. However, the type, amount, and promotion period of financial incentives were not significantly associated with trust, perceived risk, intention, and continuance intention to use NFC mobile payment.

Summary of the Results

Table 4.10 summarizes the empirical results. Hypotheses H1a, H2a, and H3a were supported. Hypotheses H1b, H1c, H1d, H2b, and H3d were not supported, but the directions of the coefficients were as predicted. Hypotheses H2c, H2d, H3b, H3c, H4a, H4b, and H4c also were not supported, and the directions of the coefficients were opposite to those predicted. In addition, the impacts of the control variables were interesting. Perceived usefulness and non-NFC mobile payment experience had positive effects on NFC mobile payment adoption. Education levels and loyalty card programs had negative impacts on NFC mobile payment adoption. The stepwise sensitivity analysis of Model 2 also corroborated the above findings. However, race, income, and card payment had no significant effects in the stepwise models

compared to Model 2. The summary of effects of control variables for Model 1, Model 2, and

stepwise models are presented in Table 4.11.

Table 4.1

Number of Respondents by Experimental Group

Experiment Group	n	%
Control group: no financial incentive available	53	11.45
Treatment group 1: 5% cash back within 1 month	50	10.80
Treatment group 2: 10% cash back within 1 month	52	11.23
Treatment group 3: 5% cash back within 3 months	54	11.66
Treatment group 4: 10% cash back within 3 months	47	10.15
Treatment group 5: 5% discount within 1 month	52	11.23
Treatment group 6: 10% discount within 1 month	53	11.45
Treatment group 7: 5% discount within 3 months	51	11.02
Treatment group 8: 10% discount within 3 months	51	11.02
Total	463	100

Table 4.2

Sample Characteristics by Availability of Financial Incentives

	Financial Incentive				Total ($N = 463$)	
	No ($n = 53$)		Yes ($n = 410$)			
	n	*%*	*n*	*%*	*n*	*%*
Gender						
Male	15	28.30	59	14.39	74	15.98
Female	38	71.70	351	85.61	389	84.02
Age Group						
18 - 25	16	30.19	129	31.46	145	31.32
26 - 35	37	69.81	281	68.54	318	68.68
Education						
Less than High School	2	3.77	5	1.22	7	1.51
High School / GED	19	35.85	108	26.34	127	27.43
Some College	10	18.87	118	28.78	128	27.65
College Degree	17	32.08	149	36.34	166	35.85
Master's Degree	3	5.66	25	6.10	28	6.05
Professional Degree (JD, MD)	1	1.89	1	0.24	2	0.43
Doctoral Degree	1	1.89	4	0.98	5	1.08
Annual Household Income						
Less than $30,000	20	37.74	131	31.95	151	32.61
$30,000 – $39,999	9	16.98	68	16.59	77	16.63
$40,000 – $49,999	4	7.55	66	16.10	70	15.12
$50,000 – $59,999	6	11.32	42	10.24	48	10.37
$60,000 – $69,999	5	9.43	35	8.54	40	8.64
$70,000 – $79,999	1	1.89	27	6.59	28	6.05
$80,000 – $89,999	1	1.89	6	1.46	7	1.51
$90,000 – $99,999	4	7.55	7	1.71	11	2.38
$100,000 or more	3	5.66	28	6.83	31	6.70
Race						
White	40	75.47	316	77.07	356	76.89
Other	13	24.53	94	22.93	107	23.11
Payment Method						
Credit/Debit Card	30	56.60	226	55.12	256	55.29
Other	23	43.40	184	44.88	207	44.71

(Continued)

	Financial Incentive				Total (N = 463)	
	No (n = 53)		Yes (n = 410)			
	n	%	n	%	n	%
New Credit/Debit Card User						
Because of Financial Incentives						
Yes	25	47.17	207	50.49	232	50.11
No	28	52.83	203	49.51	231	49.89
Increasing Purchases						
Because of Credit/Debit Rewards						
Yes	25	47.17	202	49.27	227	49.03
No	28	52.83	208	50.73	236	50.97
Loyalty Card Holder						
Yes	34	64.15	297	72.44	331	71.49
No	19	35.85	113	27.56	132	28.51
Increasing Purchases						
Because of Loyalty Cards						
Yes	18	33.96	177	43.17	195	42.12
No	35	66.04	233	56.83	268	57.88
Frequency of Online Shopping						
No more than once a year	3	5.66	14	3.41	17	3.67
No more than once a month	8	15.09	85	20.73	93	20.09
Several times a month	25	47.17	165	40.24	190	41.04
Several times a week	16	30.19	120	29.27	136	29.37
Everyday	1	1.89	26	6.34	27	5.83
Experience with Using Mobile Banking						
Never	5	9.43	33	8.05	38	8.21
1 type	9	16.98	36	8.78	45	9.72
2 types	7	13.21	69	16.83	76	16.41
3 types	8	15.09	101	24.63	109	23.54
4 types	8	15.09	88	21.46	96	20.73
5 types	16	30.19	83	20.24	99	21.38
Experience with Non-NFC Mobile Payment						
Never	8	15.09	71	17.32	79	17.06
1 type	11	20.75	92	22.44	103	22.25
2 types	10	18.87	87	21.22	97	20.95
3 types	14	26.42	73	17.80	87	18.79
4 types	8	15.09	53	12.93	61	13.17
5 types	1	1.89	22	5.37	23	4.97
6 types	1	1.89	12	2.93	13	2.81

Table 4.3

Sample Characteristics by Type, Amount, and Promotion Period of Financial Incentives

	Type				Amount				Promotion Period			
	Discount (*n* = 207)		Cash Back (*n* = 203)		5% (*n* = 207)		10% (*n* = 203)		1 Month (*n* = 207)		3 Months (*n* = 203)	
	n	*%*	*n*	*%*	*n*	*%*	*n*	*%*	*n*	*%*	*n*	*%*
Gender												
Male	34	16.43	25	12.32	29	14.01	30	14.78	26	12.56	33	16.26
Female	173	83.57	178	87.68	178	85.99	173	85.22	181	87.44	170	83.74
Age Group												
18 - 25	53	25.60	76	37.44	70	33.82	59	29.06	61	29.47	68	33.50
26 - 35	154	74.40	127	62.56	137	66.18	144	70.94	146	70.53	135	66.50
Education												
Less than High School	3	1.45	2	0.99	3	1.45	2	0.99	3	1.45	2	0.99
High School / GED	55	26.57	53	26.11	59	28.50	49	24.14	50	24.15	58	28.57
Some College	53	25.60	65	32.02	52	25.12	66	32.51	59	28.50	59	29.06
College Degree	81	39.13	68	33.50	79	38.16	70	34.48	79	38.16	70	34.48
Master's Degree	11	5.31	14	6.90	14	6.76	11	5.42	12	5.80	13	6.40
Professional Degree (JD, MD)	1	0.48	0	0	0	0	1	0.49	1	0.48	0	0
Doctoral Degree	3	1.45	1	0.49	0	0	4	1.97	3	1.45	1	0.49
Annual Household Income												
Less than $30,000	68	32.85	63	31.03	65	31.40	66	32.51	63	30.43	68	33.50
$30,000 – $39,999	36	17.39	32	15.76	33	15.94	35	17.24	33	15.94	35	17.24
$40,000 – $49,999	37	17.87	29	14.29	35	16.91	31	15.27	35	16.91	31	15.27
$50,000 – $59,999	14	6.76	28	13.79	21	10.14	21	10.34	18	8.70	24	11.82
$60,000 – $69,999	18	8.70	17	8.37	22	10.63	13	6.40	21	10.14	14	6.90
$70,000 – $79,999	14	6.76	13	6.40	10	4.83	17	8.37	14	6.76	13	6.40

(Continued)

	Type				Amount				Promotion Period			
	Discount (n = 207)		Cash Back (n = 203)		5% (n = 207)		10% (n = 203)		1 Month (n = 207)		3 Months (n = 203)	
	n	%	n	%	n	%	n	%	n	%	n	%
$80,000 – $89,999	5	2.42	1	0.49	1	0.48	5	2.46	5	2.42	1	0.49
$90,000 – $99,999	4	1.93	3	1.48	5	2.42	2	0.99	4	1.93	3	1.48
$100,000 or more	11	5.31	17	8.37	15	7.25	13	6.40	14	6.76	14	6.90
Race												
White	159	76.81	157	77.34	161	77.78	155	76.35	160	77.29	156	76.85
Other	48	23.19	46	22.66	46	22.22	48	23.65	47	22.71	47	23.15
Payment Method												
Credit/Debit Card	119	57.49	107	52.71	112	54.11	114	56.16	119	57.49	107	52.71
Other	88	42.51	96	47.29	95	45.89	89	43.84	88	42.51	96	47.29
New Credit/Debit Card User												
Because of Financial Incentives												
Yes	102	49.28	105	51.72	99	47.83	108	53.20	105	50.72	102	50.25
No	105	50.72	98	48.28	108	52.17	95	46.80	102	49.28	101	49.75
Increasing the Purchases												
Because of Credit/Debit Rewards												
Yes	107	51.69	95	46.80	99	47.83	103	50.74	103	49.76	99	48.77
No	100	48.31	108	53.20	108	52.17	100	49.26	104	50.24	104	51.23
Loyalty Card Holder												
Yes	156	75.36	141	69.46	152	73.43	145	71.43	154	74.40	143	70.44
No	51	24.64	62	30.54	55	26.57	58	28.57	53	25.60	60	29.56
Increasing the Purchases												
Because of Loyalty Cards												
Yes	98	47.34	79	38.92	93	44.93	84	41.38	98	47.34	79	38.92
No	109	52.66	124	61.08	114	55.07	119	58.62	109	52.66	124	61.08

(Continued)

	Type				Amount				Promotion Period			
	Discount (*n* = 207)		Cash Back (*n* = 203)		5% (*n* = 207)		10% (*n* = 203)		1 Month (*n* = 207)		3 Months (*n* = 203)	
	n	*%*	*n*	*%*	*n*	*%*	*n*	*%*	*n*	*%*	*n*	*%*
Frequency of Online Shopping												
No more than once a year	9	4.35	5	2.46	6	2.90	8	3.94	6	2.90	8	3.94
No more than once a month	41	19.81	44	21.67	36	17.39	49	24.14	51	24.64	34	16.75
Several times a month	77	37.20	88	43.35	91	43.96	74	36.45	81	39.13	84	41.38
Several times a week	71	34.30	49	24.14	62	29.95	58	28.57	58	28.02	62	30.54
Everyday	9	4.35	17	8.37	12	5.80	14	6.90	11	5.31	15	7.39
Experience with Using Mobile Banking												
Never	15	7.25	18	8.87	18	8.70	15	7.39	16	7.73	17	8.37
1 type	14	6.76	22	10.84	18	8.70	18	8.87	20	9.66	16	7.88
2 types	39	18.84	30	14.78	41	19.81	28	13.79	33	15.94	36	17.73
3 types	54	26.09	47	23.15	44	21.26	57	28.08	50	24.15	51	25.12
4 types	43	20.77	45	22.17	44	21.26	44	21.67	41	19.81	47	23.15
5 types	42	20.29	41	20.20	42	20.29	41	20.20	47	22.71	36	17.73
Experience with Using Non-NFC Mobile Payment												
Never	36	17.39	35	17.24	41	19.81	30	14.78	34	16.43	37	18.23
1 type	54	26.09	38	18.72	44	21.26	48	23.65	49	23.67	43	21.18
2 types	39	18.84	48	23.65	45	21.74	42	20.69	44	21.26	43	21.18
3 types	29	14.01	44	21.67	40	19.32	33	16.26	35	16.91	38	18.72
4 types	30	14.49	23	11.33	20	9.66	33	16.26	30	14.49	23	11.33
5 types	11	5.31	11	5.42	11	5.31	11	5.42	11	5.31	11	5.42
6 types	8	3.86	4	1.97	6	2.90	6	2.96	4	1.93	8	3.94

Table 4.4

Descriptive Statistics of Latent Variables by Availability of Financial Incentives

Variables	Financial Incentive					Total (N = 463)	
	No (n = 53)		Yes (n = 410)				
	M	SD	M	SD	t(461)	M	SD
Dependent Variables							
Trust							
Trust_1	4.62	1.43	4.98	1.35	-1.82	4.94	1.36
Trust_2	4.38	1.64	4.70	1.49	-1.47	4.66	1.51
Trust_3	4.40	1.43	4.96	1.36	-2.82**	4.89	1.38
Trust_4	4.28	1.50	4.88	1.43	-2.85**	4.81	1.45
Perceived Risk (PR)							
PR_1	4.92	1.28	4.43	1.51	2.27*	4.49	1.50
PR_2	3.57	1.43	3.53	1.52	0.18	3.53	1.51
PR_3	4.70	1.41	4.34	1.54	1.62	4.38	1.53
Intention							
Intention_1	4.17	1.71	4.51	1.48	-1.56	4.47	1.51
Intention_2	3.83	1.61	4.12	1.53	-1.29	4.09	1.54
Intention_3	4.32	1.60	4.72	1.38	-1.94	4.67	1.41
Intention_4	4.75	1.41	5.09	1.36	-1.69	5.05	1.37
Intention_5	3.96	1.47	4.51	1.45	-2.59*	4.45	1.46
Continuance Intention (CI)							
CI_1	--	--	3.96	1.56	--	3.96	1.56
CI_2	--	--	3.97	1.50	--	3.97	1.50
CI_3	--	--	4.13	1.50	--	4.13	1.50
Controls							
Perceived Ease of Use (PEU)							
PEU_1	5.45	1.12	5.81	1.19	-2.07*	5.77	1.18
PEU_2	5.09	1.20	5.36	1.32	-1.39	5.33	1.31
PEU_3	5.57	1.07	5.65	1.24	-0.47	5.64	1.22
Perceived Usefulness (PU)							
PU_1	5.64	1.13	5.78	1.11	-0.83	5.76	1.11
PU_2	5.60	1.18	5.73	1.11	-0.80	5.72	1.12
PU_3	5.89	1.12	5.96	1.09	-0.43	5.95	1.09

Note. All the above items are seven-point Likert scales ranging from 1 to 7.

*p < .05. **p < .01.

Table 4.5

Descriptive Statistics of Latent Variables by Type, Amount, and Promotion Period of Financial Incentives

Variables	Type					Amount					Promotion Period				
	Discount (*n* = 207)		Cash Back (*n* = 203)			5% (*n* = 207)		10% (*n* = 203)			1 Month (*n* = 207)		3 Months (*n* = 203)		
	M	*SD*	*M*	*SD*	*t(408)*	*M*	*SD*	*M*	*SD*	*t(408)*	*M*	*SD*	*M*	*SD*	*t(408)*
Dependent Variables															
Trust															
Trust_1	4.95	1.36	5.02	1.34	-0.55	5.04	1.36	4.92	1.33	0.92	4.99	1.29	4.98	1.41	0.11
Trust_2	4.70	1.55	4.70	1.43	-0.06	4.67	1.52	4.73	1.45	-0.46	4.75	1.40	4.65	1.56	0.74
Trust_3	4.90	1.39	5.01	1.33	-0.83	5.01	1.39	4.91	1.32	0.77	4.94	1.33	4.98	1.39	-0.25
Trust_4	4.82	1.48	4.94	1.38	-0.85	4.91	1.46	4.85	1.41	0.46	4.83	1.42	4.94	1.44	-0.78
Perceived Risk (PR)															
PR_1	4.52	1.44	4.34	1.59	1.22	4.41	1.51	4.46	1.52	-0.35	4.46	1.52	4.40	1.52	0.43
PR_2	3.57	1.57	3.49	1.48	0.52	3.48	1.50	3.58	1.54	-0.65	3.40	1.46	3.66	1.58	-1.76
PR_3	4.41	1.51	4.26	1.57	0.98	4.28	1.58	4.39	1.50	-0.75	4.29	1.57	4.38	1.52	-0.62
Intention															
Intention_1	4.50	1.48	4.52	1.47	-0.14	4.56	1.50	4.47	1.46	0.60	4.49	1.49	4.53	1.47	-0.27
Intention_2	4.14	1.55	4.09	1.51	0.34	4.13	1.57	4.11	1.48	0.08	4.09	1.56	4.15	1.50	-0.44
Intention_3	4.73	1.41	4.71	1.35	0.15	4.72	1.42	4.71	1.33	0.08	4.77	1.40	4.67	1.35	0.79
Intention_4	5.00	1.43	5.19	1.28	-1.47	5.15	1.35	5.03	1.38	0.93	5.13	1.35	5.05	1.38	0.57
Intention_5	4.51	1.48	4.51	1.41	0.03	4.55	1.48	4.47	1.42	0.51	4.53	1.44	4.49	1.46	0.24
Continuance Intention (CI)															
CI_1	4.04	1.56	3.88	1.57	1.02	4.00	1.62	3.92	1.51	0.57	3.91	1.57	4.01	1.56	-0.63
CI_2	4.04	1.54	3.90	1.44	0.96	4.01	1.57	3.93	1.42	0.57	3.97	1.46	3.97	1.54	-0.03
CI_3	4.17	1.52	4.09	1.48	0.58	4.21	1.57	4.05	1.42	1.10	4.16	1.47	4.10	1.53	0.44

Variables	Type					Amount					Promotion Period				
	Discount ($n = 207$)		Cash Back ($n = 203$)			5% ($n = 207$)		10% ($n = 203$)			1 Month ($n = 207$)		3 Months ($n = 203$)		
	M	SD	M	SD	t(408)	M	SD	M	SD	t(408)	M	SD	M	SD	t(408)
Controls															
Perceived Ease of Use (PEU)															
PEU_1	5.80	1.16	5.82	1.22	-0.13	5.90	1.10	5.72	1.26	1.53	5.76	1.12	5.86	1.25	-0.80
PEU_2	5.31	1.35	5.41	1.29	-0.76	5.45	1.31	5.26	1.32	1.48	5.46	1.13	5.26	1.48	1.55
PEU_3	5.65	1.24	5.65	1.24	0.06	5.73	1.23	5.57	1.24	1.34	5.61	1.20	5.68	1.27	-0.58
Perceived Usefulness (PU)															
PU_1	5.77	1.07	5.78	1.15	-0.14	5.85	1.12	5.70	1.10	1.38	5.86	1.04	5.68	1.17	1.65
PU_2	5.71	1.08	5.76	1.14	-0.44	5.75	1.11	5.71	1.11	0.36	5.82	1.02	5.65	1.19	1.61
PU_3	5.97	1.02	5.94	1.16	0.28	6.02	1.11	5.89	1.07	1.19	6.00	1.02	5.91	1.16	0.91

Note. All the above items are seven-point Likert scales ranging from 1 to 7.

*p < .05. **p < .01.
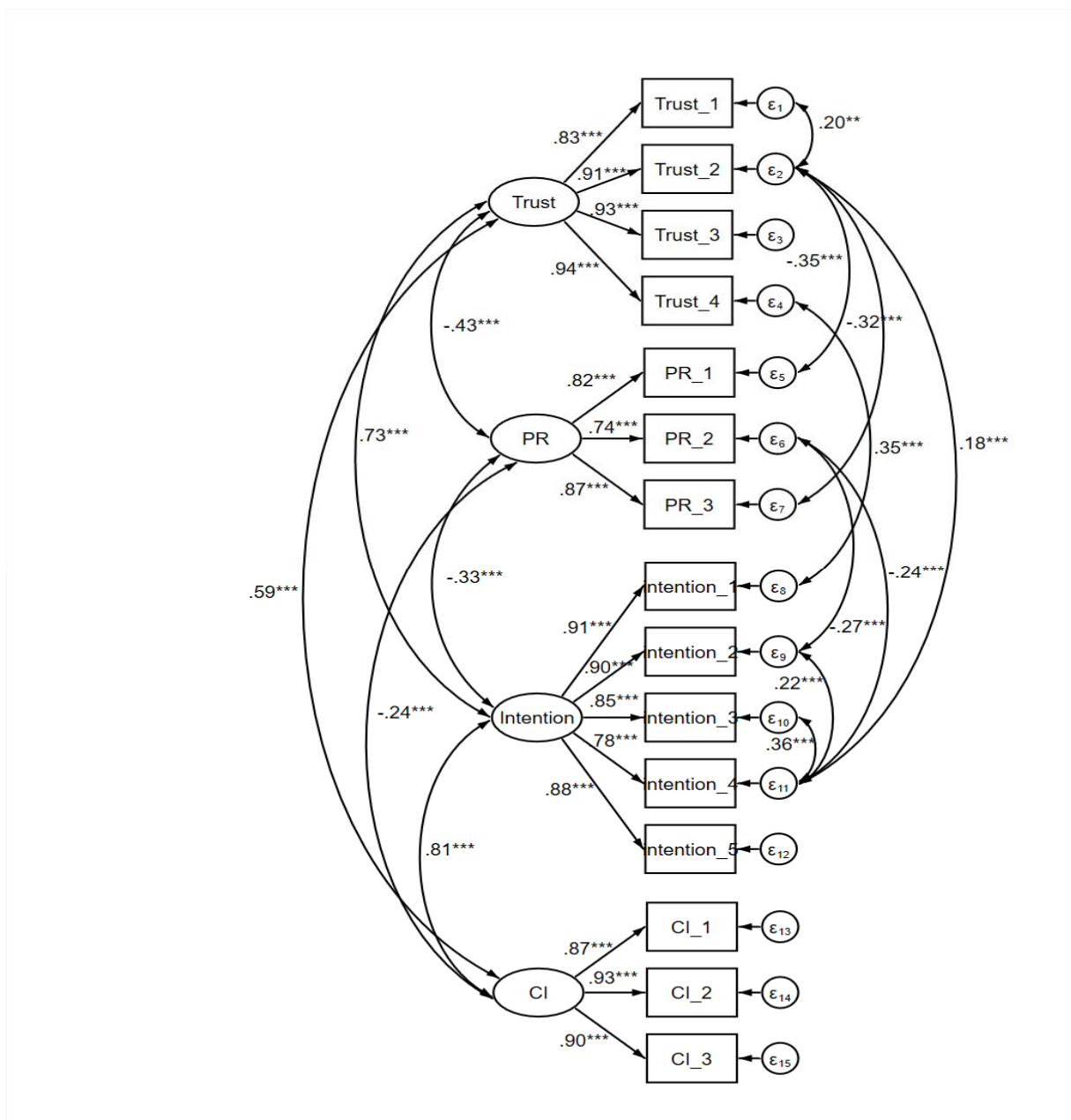
Figure 4.1. Measurement Model of Dependent Variables

Note. PR = Perceived risk; CI = Continuance intention. $\chi^2(75) = 173.06$, $p < .001$; Satorra-Bentler scaled $\chi^2(75) = 135.02$, $p < .001$; CFI = .98; TLI = .98; Satorra-Bentler CFI: .99; Satorra-Bentler TLI: .98; RMSEA = .06; Satorra-Bentler RMSEA: .04; SRMR = .03. Standardized coefficients were presented.

*p < .05, **p < .01, ***p < .001.

Table 4.6

Measurement Model of Dependent Variables (N = 410)

Parameter Estimate	B (SE)	β (SE)	p
Measurement Model Estimates			
Trust --> Trust_1	1.00	.83 (.03)	.000
Trust --> Trust_2	1.21 (.06)	.91 (.01)	.000
Trust --> Trust_3	1.12 (.06)	.93 (.01)	.000
Trust --> Trust_4	1.21 (.06)	.94 (.01)	.000
PR --> PR_1	1.00	.82 (.03)	.000
PR --> PR_2	.92 (.06)	.74 (.02)	.000
PR --> PR_3	1.08 (.06)	.87 (.02)	.000
Intention --> Intention_1	1.00	.91 (.01)	.000
Intention --> Intention_2	1.02 (.03)	.90 (.01)	.000
Intention --> Intention_3	.88 (.03)	.85 (.01)	.000
Intention --> Intention_4	.80 (.04)	.78 (.02)	.000
Intention --> Intention_5	.96 (.03)	.88 (.02)	.000
CI --> CI_1	1.00	.87 (.02)	.000
CI --> CI_2	1.02 (.03)	.93 (.01)	.000
CI --> CI_3	.99 (.03)	.90 (.02)	.000
Covariance			
Trust_1 and Trust_2	.09 (.03)	.20 (.07)	.008
Trust_2 and PR_1	-.19 (.04)	-.35 (.06)	.000
Trust_2 and PR_3	-.15 (.03)	-.32 (.08)	.000
Trust_2 and Intention_4	.09 (.03)	.18 (.05)	.000
Trust_4 and Intention_1	.10 (.02)	.35 (.06)	.000
PR_2 and Intention_2	-.16 (.05)	-.24 (.06)	.000
PR_2 and Intention_4	-.24 (.05)	-.27 (.05)	.000
Intention_2 and Intention_4	.12 (.03)	.22 (.06)	.000
Intention_3 and Intention_4	.22 (.04)	.36 (.05)	.000
Trust and PR	-.60 (.09)	-.43 (.06)	.000
Trust and Intention	1.08 (.10)	.73 (.03)	.000
Trust and CI	.90 (.10)	.59 (.04)	.000
PR and Intention	-.53 (.12)	-.33 (.06)	.000
PR and CI	-.40 (.12)	-.24 (.07)	.000
Intention and CI	1.47 (.12)	.81 (.02)	.000

Note: PR = perceived risk; CI = Continuance intention. $\chi^2(75) = 173.06$, $p < .001$; Satorra-Bentler scaled $\chi^2(75) =$

135.02, $p < .001$; CFI = .98; TLI = .98; Satorra-Bentler CFI: .99; Satorra-Bentler TLI: .98; RMSEA = .06; Satorra-

Bentler RMSEA: .04; SRMR = .03.
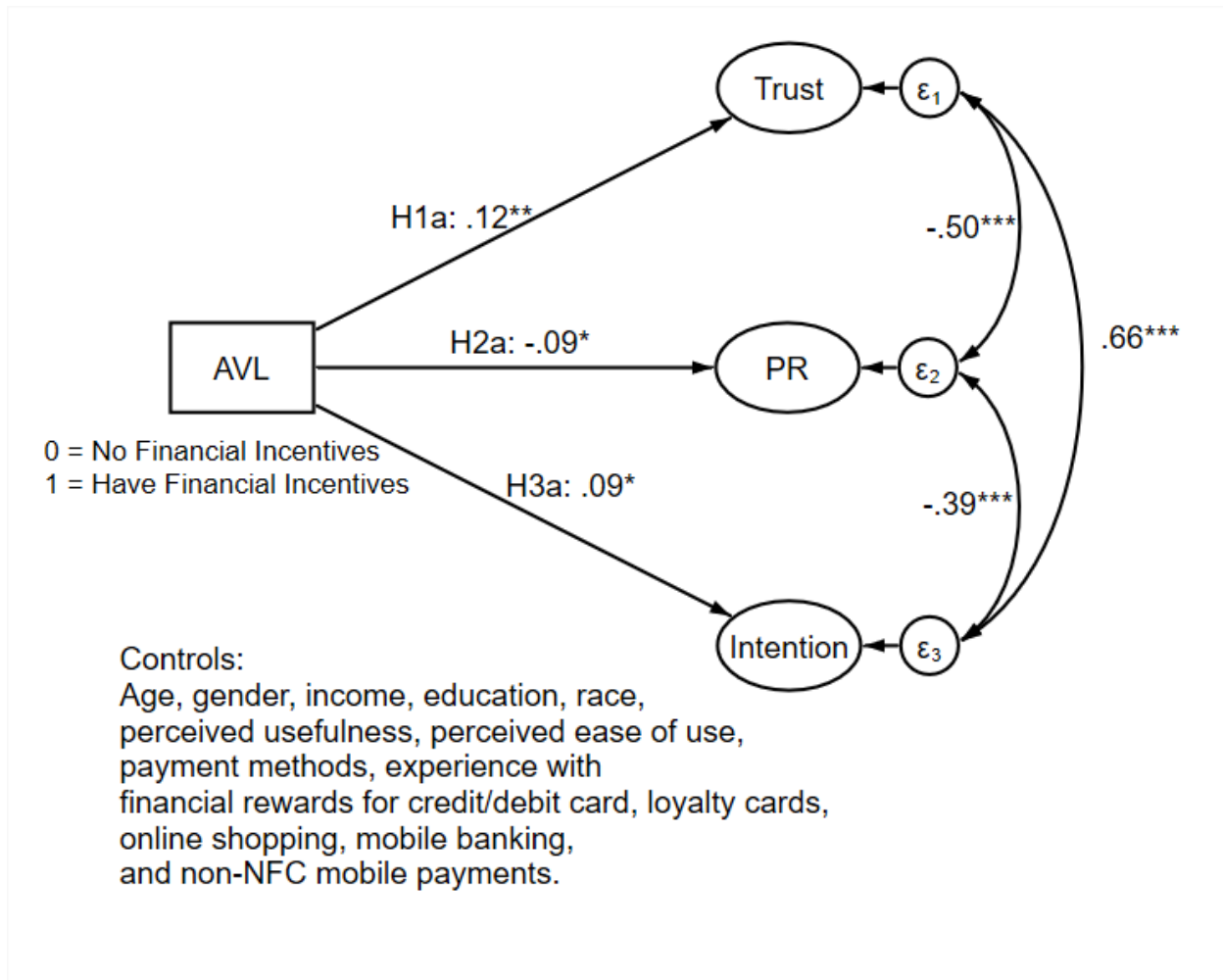
Figure 4.2. Model 1: Structural Equation Model by Availability of Financial Incentives (N = 463)

Note. PR = Perceived risk. $\chi^2(309) = 773.90$, $p < .001$; Satorra-Bentler scaled $\chi^2(309) = 710.76$, $p < .001$; CFI = .94; TLI = .92; Satorra-Bentler CFI: .94; Satorra-Bentler TLI: .93; RMSEA = .06; Satorra-Bentler RMSEA: .05; SRMR = .03. Standardized coefficients are presented.

*p < .05, **p < .01, ***p < .001.

Table 4.7

Model 1: Structural Equation Model by Availability of Financial Incentives (N = 463)

Parameter Estimate	B (SE)	β (SE)	p
Structural Model			
AVL --> Trust (H1a)	.43 (.15)	.12 (.05)	**.004**
AVL --> PR (H2a)	-.35 (.16)	-.09 (.04)	**.032**
AVL --> Intention (H3a)	.38 (.19)	.09 (.04)	**.041**
PEU --> Trust	.06 (.10)	.05 (.08)	.578
PU --> Trust	.62 (.11)	.52 (.08)	**.000**
Male --> Trust	.27 (.11)	.08 (.04)	**.016**
Age Group --> Trust	-.04 (.09)	-.02 (.04)	.664
Education --> Trust	-.11 (.05)	-.10 (.04)	**.027**
Income --> Trust	-.04 (.02)	-.08 (.04)	.067
White --> Trust	-.11 (.09)	-.04 (.03)	.224
Credit/Debit Card Payment --> Trust	-.09 (.10)	-.04 (.04)	.394
New Card Holder --> Trust	.02 (.10)	.01 (.04)	.867
Reward User --> Trust	.07 (.10)	.03 (.04)	.483
Loyalty Card Holder --> Trust	-.32 (.12)	-.13 (.05)	**.009**
Loyalty User --> Trust	-.01 (.12)	-.01 (.05)	.897
Online Shopping Experience --> Trust	.03 (.05)	.03 (.04)	.512
Mobile Banking Experience --> Trust	-.03 (.04)	-.04 (.05)	.362
Mobile Payment Experience --> Trust	.14 (.03)	.18 (.05)	**.000**
PEU --> PR	-.16 (.13)	-.13 (.11)	.213
PU --> PR	-.02 (.13)	-.01 (.10)	.886
Male --> PR	.05 (.17)	.02 (.05)	.764
Age Group --> PR	-.17 (.12)	-.06 (.05)	.174
Education --> PR	.14 (.06)	.12 (.05)	**.021**
Income --> PR	.02 (.02)	.04 (.05)	.377
White --> PR	.00 (.15)	.00 (.05)	.987
Credit/Debit Card Payment --> PR	-.09 (.13)	-.04 (.05)	.479
New Card Holder --> PR	-.02 (.15)	-.01 (.06)	.907
Reward User --> PR	-.11 (.14)	-.05 (.06)	.424
Loyalty Card Holder --> PR	.49 (.16)	.18 (.06)	**.003**
Loyalty User --> PR	.02 (.15)	.01 (.06)	.884
Online Shopping Experience --> PR	-.05 (.07)	-.04 (.06)	.485
Mobile Banking Experience --> PR	.05 (.04)	.06 (.06)	.281
Mobile Payment Experience --> PR	-.02 (.05)	-.02 (.07)	.725

(Continued)

Parameter Estimate	B (SE)	β (SE)	p
PEU --> Intention	-.03 (.12)	-.02 (.09)	.823
PU --> Intention	.62 (.13)	.44 (.09)	**.000**
Male --> Intention	.22 (.14)	.06 (.04)	.121
Age Group --> Intention	.02 (.12)	.01 (.04)	.882
Education --> Intention	-.05 (.06)	-.04 (.04)	.408
Income --> Intention	-.00 (.02)	-.01 (.04)	.838
White --> Intention	-.03 (.12)	-.09 (.04)	**.011**
Credit/Debit Card Payment --> Intention	-.24 (.12)	-.09 (.04)	**.036**
New Card Holder --> Intention	.01 (.13)	.01 (.05)	.916
Reward User --> Intention	.10 (.14)	.04 (.05)	.489
Loyalty Card Holder --> Intention	-.33 (.15)	-.11 (.05)	**.029**
Loyalty User --> Intention	.20 (.15)	.07 (.05)	.173
Online Shopping Experience --> Intention	.12 (.06)	.08 (.04)	.054
Mobile Banking Experience --> Intention	.01 (.04)	.01 (.05)	.820
Mobile Payment Experience --> Intention	.22 (.04)	.26 (.05)	**.000**
Male --> PEU	-.12 (.12)	-.05 (.05)	.314
Age Group --> PEU	-.08 (.10)	.04 (.05)	.405
Education --> PEU	.03 (.05)	.03 (.05)	.567
Income --> PEU	-.00 (.02)	-.01 (.05)	.813
White --> PEU	.14 (.12)	.06 (.05)	.232
Credit/Debit Card Payment --> PEU	.17 (.10)	.09 (.05)	.093
New Card Holder --> PEU	.04 (.11)	.02 (.05)	.721
Reward User --> PEU	.03 (.14)	.02 (.06)	.770
Loyalty Card Holder --> PEU	-.03 (.14)	-.01 (.06)	.822
Loyalty User --> PEU	.38 (.11)	.19 (.05)	**.001**
Online Shopping Experience --> PEU	.10 (.05)	.09 (.05)	.052
Mobile Banking Experience --> PEU	-.01 (.03)	-.02 (.05)	.692
Mobile Payment Experience --> PEU	.03 (.04)	.06 (.06)	.363
Male --> PU	-.26 (.12)	-.10 (.05)	.033
Age Group --> PU	.04 (.10)	.02 (.05)	.713
Education --> PU	.03 (.04)	.04 (.04)	.431
Income --> PU	-.02 (.02)	-.04 (.05)	.354
White --> PU	.24 (.11)	.11 (.05)	**.023**
Credit/Debit Card Payment --> PU	.20 (.10)	.10 (.05)	.048
New Card Holder --> PU	.03 (.10)	.02 (.05)	.736
Reward User --> PU	.06 (.10)	.03 (.05)	.514
Loyalty Card Holder --> PU	-.14 (.12)	-.07 (.06)	.252
Loyalty User --> PU	.35 (.10)	.18 (.05)	**.001**

(Continued)

Parameter Estimate	*B (SE)*	*β (SE)*	*p*
Online Shopping Experience --> PU	.14 (.05)	.13 (.05)	**.005**
Mobile Banking Experience --> PU	.02 (.03)	.04 (.06)	.497
Mobile Payment Experience --> PU	.03 (.03)	.05 (06)	.337
Measurement Model			
Trust --> Trust_1	1.00	.86 (.02)	.000
Trust --> Trust_2	1.18 (.05)	.92 (.01)	.000
Trust --> Trust_3	1.10 (.05)	.93 (.01)	.000
Trust --> Trust_4	1.18 (.05)	.95 (.01)	.000
PR --> PR_1	1.00	.81 (.03)	.000
PR --> PR_2	.89 (.05)	.71 (.02)	.000
PR --> PR_3	1.11 (.06)	.88 (.02)	.000
Intention --> Intention_1	1.00	.91 (.01)	.000
Intention --> Intention_2	.99 (.03)	.88 (.01)	.000
Intention --> Intention_3	.91 (.03)	.89 (.01)	.000
Intention --> Intention_4	.79 (.03)	.79 (.02)	.000
Intention --> Intention_5	.93 (.03)	.88 (.01)	.000
PEU --> PEU_1	1.00	.82 (.03)	.000
PEU --> PEU_2	1.03 (.05)	.76 (.03)	.000
PEU --> PEU_3	1.07 (.06)	.85 (.02)	.000
PU --> PU_1	1.00	.87 (.02)	.000
PU --> PU_2	1.07 (.03)	.92 (.01)	.000
PU --> PU_3	.98 (.04)	.86 (.02)	.000

Note: AVL = availability of financial incentives; PR = perceived risk; CI = continuance intention; PEU = perceived ease of use; PU = perceived usefulness. $\chi^2(309) = 773.90$, $p < .001$; Satorra-Bentler scaled $\chi^2(309) = 710.76$, $p < .001$; CFI = .94; TLI = .92; Satorra-Bentler CFI: .94; Satorra-Bentler TLI: .93; RMSEA = .06; Satorra-Bentler RMSEA: .05; SRMR = .03.
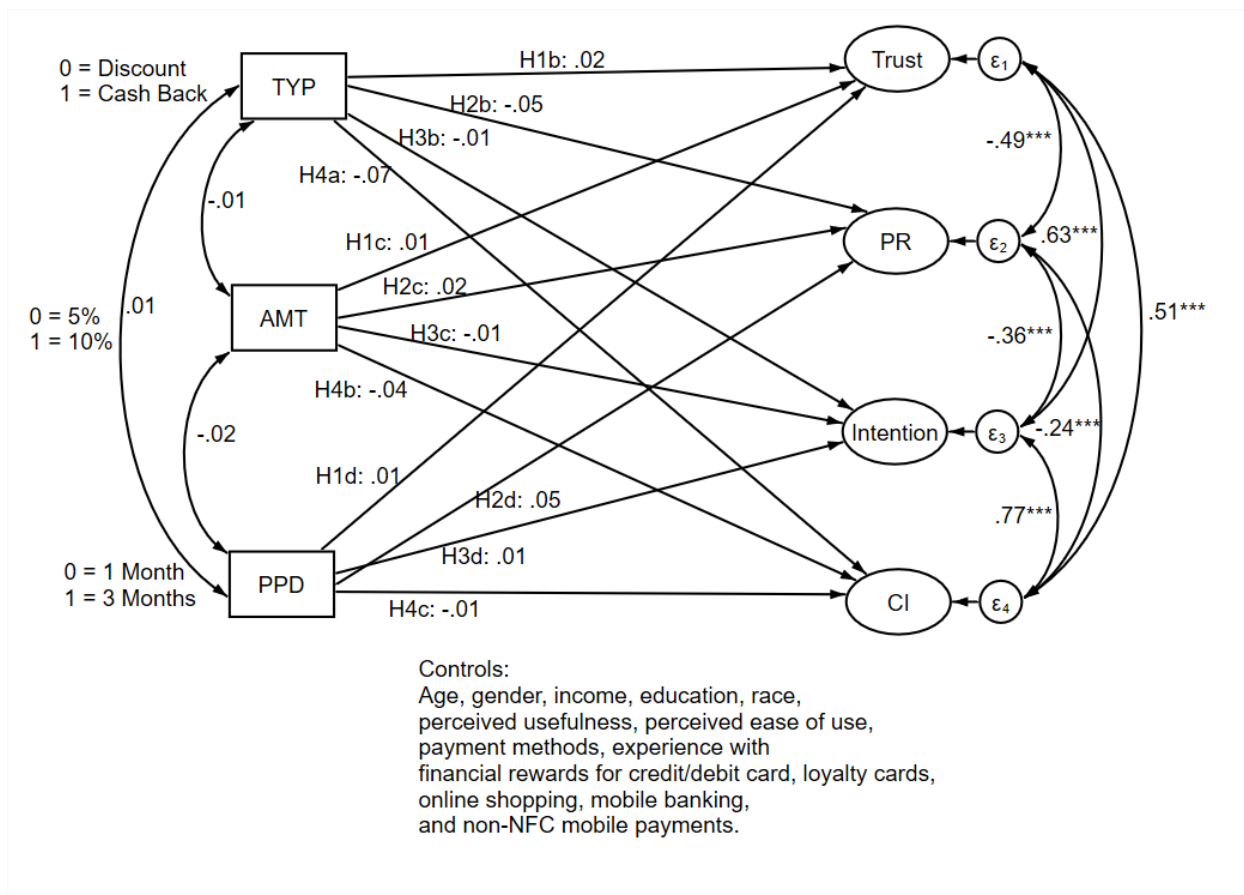
Figure 4.3. Model 2: Structural Equation Model by Type, Amount, and Promotion Period of

Financial Incentives (N = 410)

Note. PR = Perceived risk; CI = Continuance intention. $\chi^2(420) = 920.22$, $p < .001$; Satorra-Bentler scaled $\chi^2(420) =$ 849.33, $p < .001$; CFI = .94; TLI = .92; Satorra-Bentler CFI: .94; Satorra-Bentler TLI: .93; RMSEA = .05; Satorra-Bentler RMSEA: .05; SRMR = .03. Standardized coefficients were presented.

*p < .05, **p < .01, ***p < .001.

Table 4.8

Model 2: Structural Equation Model by Type, Amount, Promotion Period of Financial Incentives

(N = 410)

Parameter Estimate	B (SE)	β (SE)	p
Structural Model			
TYP --> Trust (H1b)	.04 (.09)	.02 (.04)	.638
TYP --> PR (H2b)	-.13 (.13)	-.05 (.05)	.317
TYP --> Intention (H3b)	-.01 (.11)	-.01 (.04)	.915
TYP --> CI (H4a)	-.18 (.12)	-.07 (.04)	.128
AMT --> Trust (H1c)	.02 (.09)	.01 (.04)	.990
AMT --> PR (H2c)	.06 (.12)	.02 (.05)	.620
AMT --> Intention (H3c)	-.03 (.11)	-.01 (.04)	.753
AMT --> CI (H4b)	-.11 (.11)	-.04 (.04)	.343
PPD --> Trust (H1d)	.03 (.09)	.01 (.04)	.703
PPD --> PR (H2d)	.12 (.12)	.05 (.05)	.305
PPD --> Intention (H3d)	.02 (.11)	.01 (.04)	.985
PPD --> CI (H4c)	-.01 (.12)	-.01 (.04)	.903
PEU --> Trust	.10 (.11)	.08 (.09)	.386
PU --> Trust	.58 (.11)	.49 (.09)	**.000**
Male --> Trust	.22 (.12)	.07 (.04)	.061
Age Group --> Trust	-.02 (.10)	-.01 (.04)	.816
Education --> Trust	-.14 (.05)	-.13 (.04)	**.002**
Income --> Trust	-.04 (.02)	-.09 (.04)	.055
White --> Trust	-.11 (.09)	-.04 (.03)	.230
Credit/Debit Card Payment --> Trust	-.03 (.11)	-.01 (.05)	.776
New Card Holder --> Trust	.08 (.10)	.03 (.04)	.443
Reward User --> Trust	.02 (.10)	.01 (.05)	.857
Loyalty Card Holder --> Trust	-.35 (.13)	-.14 (.05)	**.006**
Loyalty User --> Trust	-.00 (.12)	-.00 (.05)	.983
Online Shopping Experience --> Trust	.04 (.05)	.04 (.04)	.368
Mobile Banking Experience --> Trust	-.04 (.04)	-.05 (.05)	.292
Mobile Payment Experience --> Trust	.13 (.03)	.19 (.05)	**.000**
PEU --> PR	-.24 (.13)	-.19 (.10)	.064
PU --> PR	-.08 (.13)	-.06 (.10)	.538
Male --> PR	.10 (.19)	.03 (.05)	.601
Age Group --> PR	-.22 (.14)	-.08 (.05)	.126
Education --> PR	.18 (.07)	.15 (.05)	**.005**

(Continued)

Parameter Estimate	*B (SE)*	*β (SE)*	*p*
Income --> PR	.02 (.03)	.05 (.05)	.361
White --> PR	-.05 (.17)	-.02 (.06)	.785
Credit/Debit Card Payment --> PR	-.10 (.14)	-.04 (.06)	.470
New Card Holder --> PR	-.03 (.16)	-.01 (.06)	.869
Reward User --> PR	-.11 (.15)	-.04 (.06)	.453
Loyalty Card Holder --> PR	.53 (.18)	.19 (.06)	**.003**
Loyalty User --> PR	.03 (.16)	.01 (.06)	.855
Online Shopping Experience --> PR	-.09 (.08)	-.07 (.06)	.242
Mobile Banking Experience --> PR	.06 (.05)	.08 (.06)	.208
Mobile Payment Experience --> PR	-.00 (.06)	-.00 (.07)	.974
PEU --> Intention	.03 (.13)	.02 (.10)	.795
PU --> Intention	.56 (.14)	.40 (.09)	**.000**
Male --> Intention	.17 (.16)	.05 (.04)	.262
Age Group --> Intention	.00 (.13)	.00 (.04)	.998
Education --> Intention	-.09 (.06)	-.07 (.04)	.130
Income --> Intention	-.01 (.02)	-.02 (.04)	.653
White --> Intention	-.28 (.12)	-.09 (.04)	**.023**
Credit/Debit Card Payment --> Intention	-.24 (.12)	-.09 (.05)	.052
New Card Holder --> Intention	.09 (.13)	.03 (.05)	.494
Reward User --> Intention	.02 (.15)	.01 (.05)	.865
Loyalty Card Holder --> Intention	-.32 (.16)	-.11 (.05)	**.045**
Loyalty User --> Intention	.17 (.15)	.06 (.05)	.248
Online Shopping Experience --> Intention	.16 (.07)	.11 (.05)	**.016**
Mobile Banking Experience --> Intention	.02 (.05)	.02 (.05)	.686
Mobile Payment Experience --> Intention	.22 (.04)	.27 (.05)	**.000**
PEU --> CI	.07 (.12)	.05 (.09)	.579
PU --> CI	.35 (.13)	.25 (.09)	**.005**
Male --> CI	.04 (.16)	.01 (.04)	.792
Age Group --> CI	.12 (.14)	.04 (.05)	.362
Education --> CI	-.14 (.06)	-.10 (.05)	**.024**
Income --> CI	.05 (.03)	.08 (.04)	.078
White --> CI	-.50 (.14)	-.16 (.04)	**.000**
Credit/Debit Card Payment --> CI	-.27 (.13)	-.10 (.05)	**.041**
New Card Holder --> CI	.08 (.15)	.03 (.06)	.609
Reward User --> CI	.10 (.15)	.04 (.06)	.509
Loyalty Card Holder --> CI	-.45 (.17)	-.15 (.05)	**.006**
Loyalty User --> CI	-.01 (.15)	.00 (.06)	.934
Online Shopping Experience --> CI	.15 (.07)	.11 (.05)	**.028**

(Continued)

Parameter Estimate	B (SE)	β (SE)	p
Mobile Banking Experience --> CI	-.02 (.05)	-.03 (.05)	.620
Mobile Payment Experience --> CI	.23 (.04)	.27 (.05)	**.000**
Male --> PEU	-.13 (.14)	-.04 (.05)	.368
Age Group --> PEU	-.17 (.11)	-.08 (.05)	.105
Education --> PEU	.03 (.05)	.03 (.05)	.543
Income --> PEU	-.01 (.02)	-.02 (.05)	.728
White --> PEU	.19 (.12)	.08 (.05)	.138
Credit/Debit Card Payment --> PEU	.16 (.11)	.08 (.05)	.134
New Card Holder --> PEU	.10 (.11)	.05 (.06)	.357
Reward User --> PEU	-.03 (.11)	-.01 (.06)	.816
Loyalty Card Holder --> PEU	.01 (.15)	.00 (.07)	.946
Loyalty User --> PEU	.38 (.12)	.19 (.06)	**.001**
Online Shopping Experience --> PEU	.09 (.05)	.09 (.05)	.079
Mobile Banking Experience --> PEU	-.00 (.04)	-.01 (.06)	.916
Mobile Payment Experience --> PEU	.03 (.04)	.05 (.06)	.446
Male --> PU	-.24 (.13)	-.09 (.05)	.066
Age Group --> PU	.01 (.11)	.00 (.05)	.940
Education --> PU	.03 (.04)	.03 (.05)	.560
Income --> PU	-.02 (.02)	-.05 (.05)	.356
White --> PU	.28 (.12)	.12 (.05)	**.016**
Credit/Debit Card Payment --> PU	.18 (.10)	.09 (.05)	.080
New Card Holder --> PU	.09 (.10)	.05 (.05)	.363
Reward User --> PU	.07 (.11)	.04 (.06)	.526
Loyalty Card Holder --> PU	-.12 (.13)	-.06 (.06)	.337
Loyalty User --> PU	.31 (.11)	.16 (.05)	**.003**
Online Shopping Experience --> PU	.12 (.05)	.12 (.05)	**.014**
Mobile Banking Experience --> PU	.02 (.04)	.04 (.06)	.546
Mobile Payment Experience --> PU	.03 (.04)	.05 (06)	.447

Measurement Model

Trust --> Trust_1	1.00	.85 (.02)	.000
Trust --> Trust_2	1.19 (.05)	.92 (.01)	.000
Trust --> Trust_3	1.10 (.05)	.93 (.01)	.000
Trust --> Trust_4	1.18 (.05)	.94 (.01)	.000
PR --> PR_1	1.00	.83 (.03)	.000
PR --> PR_2	.87 (.05)	.72 (.02)	.000
PR --> PR_3	1.07 (.06)	.87 (.02)	.000
Intention --> Intention_1	1.00	.91 (.01)	.000

(Continued)

Parameter Estimate	*B (SE)*	*β (SE)*	*p*
Intention --> Intention_2	1.01 (.03)	.89 (.01)	.000
Intention --> Intention_3	.01 (.03)	.87 (.01)	.000
Intention --> Intention_4	.79 (.03)	.78 (.02)	.000
Intention --> Intention_5	.95 (.03)	.89 (.01)	.000
CI --> CI_1	1.00	.87 (.02)	.000
CI --> CI_2	1.03 (.03)	.93 (.01)	.000
CI --> CI_3	.99 (.03)	.89 (.02)	.000
PEU --> PEU_1	1.00	.83 (.03)	.000
PEU --> PEU_2	1.03 (.05)	.77 (.03)	.000
PEU --> PEU_3	1.07 (.06)	.85 (.02)	.000
PU --> PU_1	1.00	.87 (.02)	.000
PU --> PU_2	1.06 (.03)	.92 (.01)	.000
PU --> PU_3	.99 (.04)	.87 (.02)	.000

Note: TYP = type; AMT = amount; PPD = promotion period; PR = perceived risk; CI = continuance intention; PEU = perceived ease of use; PU = perceived usefulness. $\chi^2(420) = 920.22$, $p < .001$; Satorra-Bentler scaled $\chi^2(420) =$ 849.33, $p < .001$; CFI = .94; TLI = .92; Satorra-Bentler CFI: .94; Satorra-Bentler TLI: .93; RMSEA = .05; Satorra-Bentler RMSEA: .05; SRMR = .03.

Table 4.9

Stepwise SEM Models for Model 2 (N = 410)

Parameter Estimate	Model 2.1		Model 2.2		Model 2.3		Model 2.4	
	B (SE)	β	B (SE)	β	B (SE)	β	B (SE)	β
Structural Model								
TYP --> Trust	.07 (.11)	.03	.06 (.11)	.03	.07 (.11)	.03	.06 (.09)	.03
TYP --> PR	-.14 (.13)	-.06	-.12 (.13)	-.05	-.15 (.13)	-.06	-.14 (.13)	-.06
TYP --> Intention	.01 (.13)	.00	.00 (.12)	.00	.00 (.13)	.00	.00 (.12)	.00
TYP --> CI	-.13 (.13)	-.05	-.16 (.13)	-.06	-.14 (.13)	-.05	-.14 (.12)	-.05
AMT --> Trust	-.04 (.11)	-.02	-.07 (.11)	-.03	-.04 (.11)	-.02	.02 (.09)	.01
AMT --> PR	.09 (.13)	.04	.08 (.13)	.03	.08 (.13)	.03	.07 (.13)	.03
AMT --> Intention	-.06 (.13)	-.02	-.09 (.12)	-.03	-.06 (.13)	-.02	.00 (.12)	.00
AMT --> CI	-.11 (.13)	-.04	-.15 (.12)	-.06	-.11 (.13)	-.04	-.07 (.12)	-.03
PPD --> Trust	.02 (.11)	.01	-.00 (.11)	-.00	-.01 (.11)	-.00	.09 (.09)	.04
PPD --> PR	.08 (.13)	.03	.10 (.13)	.04	.10 (.13)	.04	.08 (.12)	.03
PPD --> Intention	-.01 (.13)	-.01	-.04 (.12)	-.02	-.02 (.13)	-.01	.06 (.12)	.02
PPD --> CI	.00 (.13)	.00	-.05 (.13)	-.02	.00 (.13)	.00	.05 (.12)	.02
PEU --> Trust							.08 (.12)	.07
PU --> Trust							.58 (.12)	.48***
Male --> Trust					.12 (.15)	.04		
Age Group --> Trust					-.09 (.12)	-.04		
Education --> Trust					-.09 (.06)	-.08		
Income --> Trust					-.03 (.02)	-.06		
White --> Trust					-.01 (.13)	-.00		
Debit/Credit Card Payment --> Trust			.03 (.13)	.01				
New Card Holder --> Trust			.12 (.14)	.05				
Reward User --> Trust			.04 (.13)	.02				

(Continued)

Parameter Estimate	Model 2.1		Model 2.2		Model 2.3		Model 2.4	
	B (SE)	β	B (SE)	β	B (SE)	β	B (SE)	β
Loyalty Card Holder --> Trust			-.47 (.15)	-.18**				
Loyalty User --> Trust			.23 (.14)	.10				
Online Shopping Experience --> Trust			.12 (.06)	.10				
Mobile Banking Experience --> Trust			-.04 (.04)	-.06				
Mobile Payment Experience --> Trust			.14 (.04)	.19**				
PEU --> PR							-.18 (.13)	-.14
PU --> PR							.05 (.13)	.04
Male --> PR					.05 (.19)	.01		
Age Group --> PR					-.12 (.14)	-.05		
Education --> PR					.20 (.07)	.16**		
Income --> PR					.02 (.03)	.04		
White --> PR					-.08 (.16)	-.03		
Debit/Credit Card Payment --> PR			-.10 (.14)	-.04				
New Card Holder --> PR			-.02 (.16)	-.01				
Reward User --> PR			-.05 (.15)	-.02				
Loyalty Card Holder --> PR			.51 (.15)	.18***				
Loyalty User --> PR			-.07 (.16)	-.03				
Online Shopping Experience --> PR			-.11 (.08)	-.08				
Mobile Banking Experience --> PR			.08 (.05)	.10				
Mobile Payment Experience --> PR			.02 (.06)	.02				
PEU --> Intention							.04 (.15)	.03
PU --> Intention							.59 (.15)	.42***
Male --> Intention					.09 (.17)	.02		
Age Group --> Intention					-.08 (.13)	-.03		
Education --> Intention					.00 (.07)	.00		
Income --> Intention					.02 (.03)	.03		

(Continued)

Parameter Estimate	Model 2.1		Model 2.2		Model 2.3		Model 2.4	
	B (SE)	β	B (SE)	β	B (SE)	β	B (SE)	β
White --> Intention					-.30 (.16)	-.09		
Debit/Credit Card Payment --> Intention			-.18 (.14)	-.07				
New Card Holder --> Intention			.14 (.16)	.05				
Reward User --> Intention			.06 (.16)	.02				
Loyalty Card Holder --> Intention			-.43 (.17)	-.14*				
Loyalty User --> Intention			.37 (.16)	.13				
Online Shopping Experience --> Intention			.23 (.07)	.16**				
Mobile Banking Experience --> Intention			.03 (.05)	.03				
Mobile Payment Experience --> Intention			.24 (.05)	.28***				
PEU --> CI							.04 (.13)	.03
PU --> CI							.38 (.13)	.27**
Male --> CI					.04 (.17)	.01		
Age Group --> CI					-.01 (.14)	-.00		
Education --> CI					-.08 (.07)	-.06		
Income --> CI					.07 (.03)	.12**		
White --> CI					-.55 (.16)	-.17***		
Debit/Credit Card Payment --> CI			-.23 (.14)	-.08				
New Card Holder --> CI			.13 (.17)	.05				
Reward User --> CI			.10 (.17)	.04				
Loyalty Card Holder --> CI			-.54 (.17)	-.18***				
Loyalty User --> CI			.14 (.16)	.05				
Online Shopping Experience --> CI			.21 (.07)	.14**				
Mobile Banking Experience --> CI			-.02 (.05)	-.02				
Mobile Payment Experience --> CI			.25 (.05)	.30***				

(Continued)

Parameter Estimate	Model 2.1		Model 2.2		Model 2.3		Model 2.4	
	B (SE)	β	B (SE)	β	B (SE)	β	B (SE)	β
Model Fit Indices								
Satorra-Bentler Scaled Chi Square	$\chi^2(117) = 428.16$		$\chi^2(205) = 496.10$		$\chi^2(172) = 519.64$		$\chi^2(225) = 570.19$	
Satorra-Bentler CFI	.95		.95		.95		.95	
Satorra-Bentler TLI	.94		.93		.93		.93	
Satorra-Bentler RMSEA	.07		.06		.06		.06	
SRMR	.04		.03		.03		.04	

Note: TYP = type; AMT = amount; PPD = promotion period; PR = perceived risk; CI = continuance intention; PEU = perceived ease of use; PU = perceived usefulness.

*p < .05, **p < .01, ***p < .001.

Table 4.10

Summary of Hypothesis Tests

Hypotheses	Model 1	Model 2
H1a	Supported	
H1b		Insignificant, predicted sign
H1c		Insignificant, predicted sign
H1d		Insignificant, predicted sign
H2a	Supported	
H2b		Insignificant, predicted sign
H2c		Insignificant, opposite sign
H2d		Insignificant, opposite sign
H3a	Supported	
H3b		Insignificant, opposite sign
H3c		Insignificant, opposite sign
H3d		Insignificant, predicted sign
H4a		Insignificant, opposite sign
H4b		Insignificant, opposite sign
H4c		Insignificant, opposite sign

Note. Blank spaces indicate the hypotheses were not tested in the respective models.

Table 4.11

Summary of Effects of Control Variables

	Model 1	Model 2	Model 2.1	Model 2.2	Model 2.3	Model 2.4
PU --> Trust	+	+				+
Male --> Trust	+	+			+	
Education --> Trust	--	--			--	
Loyalty Card Holder --> Trust	--	--		--		
Mobile Payment Experience --> Trust	+	+		+		
Education --> PR	+	+			+	
Loyalty Card Holder --> PR	+	+		+		
PU --> Intention	+	+				+
White --> Intention	--	--			--	
Debit/Credit Card Payment --> Intention	--	--		--		
Loyalty Card Holder --> Intention	--	--		--		
Online Shopping Experience --> Intention	+	+		+		
Mobile Payment Experience --> Intention	+	+		+		
PU --> CI		+				+
Education --> CI		--			--	
Income --> CI		+			+	
White --> CI		--			--	
Debit/Credit Card Payment --> CI		--		--		
Loyalty Card Holder --> CI		--		--		
Online Shopping Experience --> CI		+		+		
Mobile Payment Experience --> CI		+		+		

Note. Blank spaces indicate the hypotheses were not tested in the respective models. +: Positive effect; --: Negative effect. Red symbols indicate the effects are significant.

CHAPTER 5

CONCLUSION AND DISCUSSION

Although financial incentives are widely used to promote NFC mobile payment, previous research has not explored the effectiveness of financial incentives on NFC mobile payment adoption. To fill this literature gap, the overall research objective was to investigate the impact of being offered financial incentives, and their type, amount, and promotion periods, on trust and perceived risk of NFC mobile payment and the intention and continuance intention to use NFC mobile payment. Chapter 1 contextualized mobile payments, especially NFC mobile payment adoption, and the use of financial incentives in technology promotion. Chapter 2 first provided a summary of the definitions of mobile payment and descriptions of three specific types of mobile payments including NFC mobile payment. Then, previous research about how to define and measure financial incentives was reviewed, followed by constructs including consumers' trust, perceived risk, intention and continuance intention. In addition, the Diffusion of Innovation Theory was discussed as a framework for this study, and four main hypotheses were developed based on the literature. Chapter 3 presented how the hypotheses were operationalized and how the experiment was designed. The pilot testing, data collection and analytical methodologies also were described in the chapter. In Chapter 4, the results of the descriptive statistics and structural equation model estimations were presented. This final chapter includes a summary of research findings, implications for researchers as well as NFC mobile payment companies, and a discussion of the limitations of the study and suggestions for future research.

Summary of Findings

With NFC mobile payment, transactions can be completed just by a wave of a phone near a point-of-sale terminal. Despite the convenience of NFC mobile payment, the adoption is still generally low. As an effective way to improve the credit card acceptance rate and other new technologies, financial incentives were examined for their impact on NFC mobile payment. More specifically, this study investigated how different financial incentives affect NFC mobile payment adoption, which is measured by consumers' trust and perceived risk in adopting NFC mobile payment as well as consumers' intention to adopt and their continuance intention to use NFC mobile payment.

The work was performed through an online experiment conducted among U.S. adults aged between 18 and 35. The simple randomized research design was adopted, in which participants were randomly assigned to one of the eight treatment groups or the control group. Using the services provided by the Qualtrics Online Research Panels & Sample, a final sample of 463 respondents was collected, with 47 to 54 participants in each experimental group.

Two structural equation models were developed to examine the impact of financial incentives on NFC mobile payment adoption. Financial incentives were operationalized by whether or not they were offered, and if so by type (cash back vs. discount), amount (5% vs. 10%), and promotion period (1 month vs. 3 months). The findings showed that the availability of financial incentives had a significant impact on NFC mobile payment adoption. More specifically, consistent with the hypotheses, consumers who were offered financial incentives had a higher level of trust in using NFC mobile payment compared to consumers who had not been offered financial incentives. Consumers who were offered financial incentives had a lower level of perceived risk in using NFC mobile payment compared to consumers who had not been

offered financial incentives. Also, consumers who were offered financial incentives had a higher intention to adopt NFC mobile payment compared to consumers who had not been offered financial incentives. Further investigation also indicated that the type, amount, and promotion period of financial incentives did not have significant impacts on NFC mobile payment adoption. That is, no significant differences were found in trust, perceived risk, intention and continuance intention to adopt NFC mobile payment between consumers who had cash back rewards versus those offered discounts, between consumers who had 5% and 10% financial incentives, and between consumers who had 1-month and 3-month promotion periods.

Discussion

Unlike previous research (Liu, Yang, & Li, 2012; Shin, 2010; Zhou, 2014) that mainly focused on exploring the impact of psychological factors on consumers' intention to adopt mobile payment, this research expanded the literature by exploring the impact of financial incentives on the latest mobile payment technology available today. Although the effectiveness of financial incentives in promoting consumers' credit card adoption has been shown in previous studies (Agarwal, Chakravorti, & Lunn, 2010; Argango, Huynh, & Sabetti, 2015), there has been no tangible evidence that financial incentives are effective in improving consumers' mobile payment particularly NFC mobile payment adoption. This study is the first to show that offering financial incentives may increase NFC mobile payment adoption.

Type of Financial Incentives

Cash back and discounts are two types of financial incentives that widely used to promote NFC mobile payment. While Agarwal, Chakravorti, and Lunn (2010) found that cash back rewards had a positive and significant impact on increasing credit card usage, the results of this study also indicated that cash back rewards were associated with a significant higher level of

trust and a significantly lower level of perceived risk in using NFC mobile payment, and a significantly higher intention to adopt NFC mobile payment compared to consumers who had not been offered financial incentives. Similarly, the effectiveness of discount also was supported in this research.

Contrary to previous research (Carbo-Valverde & Linares-Zegarra, 2011) that demonstrated that cash back rewards were more effective than discounts in promoting credit card usage, no significant differences were found in the effects of cash back and discount rewards on NFC mobile payment adoption. The findings in this study implied that cash back and discount are equally effective in improving NFC mobile payment adoption. At this stage of the innovation process of NFC mobile payments, it appears just offering some type of incentive is all that is needed to potentially increase adoption rates.

Amount of Financial Incentives

Offering 5% versus 10% did not induce a different impact on consumers' intention to adopt NFC mobile payment. Again, the decisive influence depended on the availability of financial incentives. This finding was consistent with Argango, Huynh, and Sabetti (2015) who concluded that the availability of credit card rewards was the key driver of consumer payment choice, while the amount of the rewards had a small or inelastic effect on steering payment choice toward substitutes.

Promotion Period of Financial Incentives

No previous literature was found about the impact of the promotion period of financial incentives on the adoption of any goods or services. To fill the literature gap, this study examined this. The results showed that the lengths of promotion periods were not associated with the level of trust or perceived risk in using NFC mobile payment, as well as the level of intention

and continuance intention to adopt NFC mobile payment. The key, much like for type and amount, was still the availability of financial incentives.

The empirical results from the SEM analyses were consistent with the preliminary t-tests of the group mean statistics. These results suggested that those consumers who were provided financial incentives on average exhibited significantly higher levels of trust and lower levels of perceived risk of NFC mobile payment, as well as higher levels of intention to adopt NFC mobile payment relative to consumers who were not offered incentives. However, no significant between-group differences in trust, perceived risk, intention, and continuance intention were found across the different type, amount, and promotion period groups.

Control Variables

The findings of expected influential attitudes and experiences with other payment products, reward and loyalty programs for other payment vehicles were quite interesting. Perceived usefulness had a positive effect on NFC mobile payment adoption which was consistent with Schierz et al. (2010) and Kim et al. (2010). However, perceived ease of use was not significant in this study. Consumers using physical credit or debit cards were less likely to adopt NFC mobile payment. This finding was similar to Trutsch (2016) who found mobile payment was more likely to replace cash and checks rather than to substitute for credit and debit cards. Loyalty card holders were less likely to use NFC mobile payment compared to those who did not participate in any loyalty reward programs. Consumers who had more online shopping experience and non-NFC mobile payment experience were more likely to adopt NFC mobile payment compared to their counterparts, these results also were consistent with Kim et al. (2010) who found personal innovativeness, such as online shopping and other mobile payment

experience, had a positive impact on non-NFC mobile payment adoption. Demographically, consumers who were less educated or not white were more likely to adopt NFC mobile payment.

Diffusion of Innovation Theory

Based on real-world financial incentive examples used to promote the adoption of NFC mobile payment in recent years in the United States, this experimental study investigated the effectiveness of financial incentives on NFC mobile payment adoption using the framework of the Diffusion of Innovation Theory.

NFC mobile payment adoption was examined in the persuasion stage and the decision stage of the adoption process in the Diffusion of Innovation Theory. In the persuasion stage, the impact of financial incentives on consumers' trust and perceived risk in adopting NFC mobile payment was investigated. In the decision stage, the impact of financial incentives on consumers' intention to use NFC mobile payment was examined. Due to financial incentives usually being offered for a limited time, continuance intention in the decision stage also was explored to understand consumers' intention to the continuous use of NFC mobile payment once the financial incentives are terminated.

The Diffusion of Innovation Theory was supported fully by the findings of this research. The existence of financial incentives had a significant and positive impact on consumers' trust in adopting NFC mobile payment, while it had a significant and negative impact on their perceived risk in adopting NFC mobile payment during the persuasion stage. In the decision stage, the existence of financial incentives also had a significant and positive impact on consumers' intention to adopt NFC mobile payment. However, the continuance decision could not be determined as the effect of promotion periods was insignificant. Continuance intention, and

perhaps actual behavior at this stage, may be indifferent to incentives as consumers are now 'hooked' to the technology after that initial decision to adopt when they had financial incentives.

Contribution to the Literature

The strict standards used in the experimental design ensured the quality of the findings in this study. First, the potential participants were rigorously pre-screened. Only those who had no experience with NFC mobile payment in the past were eligible for the study. A descriptive paragraph as well as a follow-up short video for those who still needed more basic information about NFC mobile payment was provided at the beginning of the experiment so that every participant clearly understood how the technology works in the knowledge stage.

Consumers in different age groups have very different opinions on NFC mobile payment and that could affect adoption. Thus, only respondents aged between 18 and 35 were targeted. This age group was selected because consumers in this age group are viewed as the most receptive to innovation. In addition, to eliminate the selection bias in the experiment, eligible participants were completely randomly assigned into nine groups, so each participant had an equal chance of being selected and placed into any group. The randomized research design in this research also was confirmed by the fact that no significant characteristic differences were found among participants in the different experimental groups.

To exclude the impact of other influential factors, this study controlled for factors that are known to impact consumers' mobile payment adoption. These included perceived ease of use, perceived usefulness, other POS payment methods, new debit/card holder because of financial incentives, increased purchases because of financial incentives, loyalty card holder, increased purchases because of loyalty cards, online shopping experience, mobile banking experience, non-NFC mobile payment experience, and demographics such as age, gender, race, income level, and

education level. While controlling for these influential factors, the impact of financial incentives was found to be significant.

Limitations

As it was necessary to specify a certain age group in the experiment design, the conclusions of this study can only be generalized for 18 to 35 years old. It is not known that whether the results of this study hold for other ages. According to the Diffusion of Innovation Theory, young consumers are more likely to be viewed as innovators and early adopters, as the age increases, middle-aged consumers are more likely to be considered the early majority, and older adults the late majority or laggards. Thus, the results based on the analysis of young adults are likely not representative of middle-aged and older adults.

The assumption of the online experiment was that NFC mobile payment POS networks were widely available. The adoption rate of merchants for NFC mobile payment is still low. Even though some participants could also watch a video after reading descriptive information about the technology, some may still not be able to envision the reality since NFC mobile payment is not yet commonplace and they may not really be able to accurately apply the simulation to their real situations. Thus, without totally understanding NFC mobile payment, this could affect how they interpret the impact of type, amounts, or promotion periods of financial incentives on their likelihood to adopt NFC mobile payment.

Only two categories were provided for each dimension of financial incentives. Thus, the variation in the amounts and promotion periods may not have been wide and numerous enough to reach a more informative conclusion. For example, the amount of financial incentives did not have a significant impact on NFC mobile payment adoption when 5% was compared to 10%. The impact of amount on NFC mobile payment adoption might be different if 20% or greater

rewards were provided. Similarly, in addition to the 1-month and 3-month examples used in this study, if more promotion periods such as 6 months or even 12 months are offered, the impact of promotion period on NFC mobile payment adoption might also be different.

Due to the limited research budget, there were only around 50 respondents obtained in each experimental group. Although a final sample size of 463 qualified respondents was adequate for SEM analysis, between-group comparisons could have been done more rigorously if there were 100 to 200 respondents in each experimental group. For instance, respondents in the "5% cash back within 1 month" group can be compared directly to the respondents in the "5% discount within 1 month" group to understand the impact of type of financial incentives on NFC mobile payment if more observations had been each experimental group. Similarly, the respondents in the "5% cash back within 1 month" group also can be compared directly to the respondents in the "10% cash back within 1 month" group and respondents in the "5% cash back within 3 months" group to test the impact of amount and promotion period, respectively.

Implications for NFC Mobile Payment Industry

The findings provide valuable strategic implications for mobile payment companies. The results of this study successfully proved the importance and effectiveness of using financial incentives when promoting NFC mobile payment adoption. Regardless of the benefits that NFC mobile payment can bring to users, it has been established that like other previous payment vehicle innovations, initial intention to adopt NFC mobile payment is motivated by some form of a financial incentive. Respondents in all treatment groups and the control group received the exact same information on NFC mobile payment so they had the same understanding of the convenience and safety of NFC mobile payment. However, significant differences in respondents' trust and perceived risk in NFC mobile payment, and respondents' intention to

adopt NFC mobile payment were observed just because of the existence of the financial incentives. With a better understanding that financial incentives are important for this innovation too, mobile payment companies can emphasize financial incentives when trying to increase the intention to adopt NFC mobile payment among new consumers aged between 18 and 35.

The results also suggested that no matter what kind of financial incentive is provided, the presence of financial incentives can make a big difference in increasing consumers' trust in mobile payment, decreasing consumers' perceived risk, and increasing consumers' intention to use mobile payment. More specifically, once the financial incentive is offered, no matter which type of incentive is offered, the value, and no matter how long the financial incentive lasts, consumers' intention and continuance intention to adopt mobile payment will be similar. This finding allows mobile payment companies to develop the most cost-effective way to promote NFC mobile payment to young adults aged between 18 and 35. Companies can choose to use either discount or cash back when providing financial incentives, whichever has a lower cost for the company to fulfill. The results of the experiment suggest that NFC mobile payment companies can simply provide 5% financial incentives for only 1 month and they can achieve the same level of intention to adopt NFC mobile payment among consumers compared to providing 10% financial incentives for 3 months.

Implications for Future Research

This study only focused on consumers aged between 18 and 35 based on the idea that financial incentives may affect consumers in different age groups differently. However, it is not known whether financial incentives have different impact on consumers in different age groups. Special attention should be given to the early majority and the late majority adopters of technology innovations. These two groups make up the largest proportion of adopter categories

in general. It remains to be seen whether financial incentives are a key factor in attracting the early majority and late majority to use NFC mobile payment or these people will be eager to join the innovators and early adopters even if no financial incentives are provided. Thus, future research is needed to explore the relationships examined here.

Future research can also further explore variations of types of incentives, amounts and promotion periods. Although this dissertation creatively studied three specific dimensions – type, amount, and promotion period – of financial incentives in addition to the availability, the magnitude of amount and promotion period in financial incentive is not wide enough to be more informative. Researchers can explore the threshold for the lowest reward amount which takes to influence consumers' adoption for NFC mobile payment by testing more levels of amount of financial incentives. For promotion period, future research also can test one-time or limited times direct payment rewards, such as deduct $10 for the first one or three NFC mobile payments.

Among the five stages in the Diffusion of Innovation Theory, this study mainly investigated the impact of financial incentives on the persuasion stage and the decision stage. Future research also should focus on examining how financial incentives influence the implementation stage and confirmation stage by studying consumers' actual behavior. In the implementation stage, future research can explore the impact of financial incentives on NFC mobile payment adoption behavior; while in the confirmation stage, future research can investigate further whether consumers continuously use NFC mobile payment once financial incentives are terminated.

REFERENCES

Agarwal, S., Chakravorti, S., & Lunn, A. (2010). *Why do banks reward their customers to use their credit cards* (Federal Reserve Bank of Chicago Working Paper No. 2010-19).

Ajzen, I. (1991). The theory of planned behavior. *Organizational Behavior and Human Decision Processes*, *50*(2), 179-211.

Al-Jabri, I. M., & Sohail, M. S. (2012). Mobile banking adoption: Application of Diffusion of Innovation Theory. *Journal of Electronic Commerce Research*, *13*(4), 379-391.

Almazan, M. (2014, January 16). The use of barcodes in mobile payments: Scanning the possibilities. *GSMA*. Retrieved from http://www.gsma.com

Amoroso, D. L., & Magnier-Watanabe, R. (2012). Building a research model for mobile wallet consumer adoption: The case of mobile Suica in Japan. *Journal of Theoretical and Applied Electronic Commerce Research, 7*(1), 94-110.

Arango, C., Huynh, K. P., & Sabetti, L. (2015). Consumer payment choice: Merchant card acceptance versus pricing incentives. *Journal of Banking & Finance*, *55*, 130-141.

Becker, K. (2007). *Mobile phone: The new way to pay?* Retrieved from Federal Reserve Bank of Boston website: https://www.bostonfed.org/economic/cprc/publications/briefings/mobilephone.pdf

Bhattacherjee, A. (2001). Understanding information systems continuance: An expectation–confirmation model. *MIS Quarterly, 25*(3), 351–370.

Blake, B. F., Neuendorf, K. A., & Valdiserri, C. M. (2003). Innovativeness and variety of Internet shopping. *Internet Research, 13*(3), 156–169.

Boden, R. (2016a, October 7). Kohl's launches QR code mobile payments feature across the US. *NFC World*. Retrieved from https://www.nfcworld.com

Boden, R. (2016b, October 18). PayPal tops mobile payment apps in US, but retailers want Apple Pay. *NFC World*. Retrieved from https://www.nfcworld.com

Boden, R. (2016c, November 4). Mobile payment transactions to grow 42% in 2016. *NFC World*. Retrieved from https://www.nfcworld.com

Boden, R. (2016d, December 14). Spanish bank offers 5% Apple Pay discount. *NFC World*. Retrieved from https://www.nfcworld.com

Boden, R. (2017a, January 17). Mobile payments market worth $3,338bn by 2022. *NFC World*. Retrieved from https://www.nfcworld.com

Boden, R. (2017b, March 8). Offers increase US mobile payment transaction frequency in stores by 50%. *NFC World*. Retrieved from https://www.nfcworld.com

Bolton, R. N., Kannan, P. K., & Bramlett, M. D. (2000). Implications of loyalty program membership and service experiences for customer retention and value. *Journal of the Academy of Marketing Science*, *28*(1), 95-108.

Borison, R. (2015, June 3). Apple Pay adoption rates show it still has a long way to go. *The Street*. Retrieved from https://www.thestreet.com

Brown, T.A. (2015). *Confirmatory Factor Analysis for Applied Research*. New York: Guilford Press.

Carbo-Valverde, S., & Linares-Zegarra, J. M. (2011). How effective are rewards programs in promoting payment card usage? Empirical evidence. *Journal of Banking & Finance*, *35*(12), 3275-3291.

Chang, M., Cheung, W., & Lai, V. (2005). Literature derived reference models for the

adoption of online shopping. *Information & Management, 42*(4), 543–559.

Charles, W. (2016, July 6). Discover Android Pay promotion: Receive $5-$10 per transaction (limit of $50). *Doctor of Credit*. Retrieved from http://www.doctorofcredit.com

Chen, L. D. (2008). A model of consumer acceptance of mobile payment. *International Journal of Mobile Communications*, *6*(1), 32-52.

Chen, X., & Li, S. (2016). Understanding continuance intention of mobile payment services: An empirical study. *Journal of Computer Information Systems*, 1-12.

Cheng, J. M., Kao, L. L., & Lin, J. Y. C. (2004). An investigation of the diffusion of online games in Taiwan: An application of Rogers' Diffusion of Innovation Theory. *Journal of American Academy of Business*, *5*(1/2), 439-445.

Ching, A. T., & Hayashi, F. (2010). Payment card rewards programs and consumer payment choice. *Journal of Banking & Finance*, *34*(8), 1773-1787.

Chitungo, S. K., & Munongo, S. (2013). Extending the technology acceptance model to mobile banking adoption in rural Zimbabwe. *Journal of Business Administration and Education*, *3*(1), 51.

Chou, Y., Lee, C., & Chung, J. (2004). Understanding m-commerce payment systems through the analytic hierarchy process. *Journal of Business Research*, *57*(12), 1423-1430.

Christensen, L. B. (2004). *Experimental Methodology* (9th ed.). Boston, MA: Allyn & Bacon.

Clements, N. (2015, June 1). Discover it: 10% Cash Back Bonus Offer Launched. *Magnify Money*. Retrieved February 15, 2017, from http://www.magnifymoney.com

Dahlberg, T., Guo, J., & Ondrus, J. (2015). A critical review of mobile payment research. *Electronic Commerce Research and Applications*, *14*(5), 265-284.

Dahlberg, T., Mallat, N., Ondrus, J., & Zmijewska, A. (2008). Past, present and future of mobile

payments research: A literature review. *Electronic Commerce Research and Applications*, *7*(2), 165-181.

Dahlberg, T., & Oorni, A. (2007). Understanding changes in consumer payment habits – Do mobile payments and electronic invoices attract consumers? *Proceedings of the 40th Annual Hawaii International Conference on System Sciences*, 1-10. doi:10.1109/HIC SS.2007.580

Davis, F. (1989). Perceived usefulness, perceived ease of use, and user acceptance of information technology. *MIS Quarterly, 13*(3), 319-340.

Dodini, S., Lopez-Fernandini, A., Merry, E., & Thomas, L. (2016). *Consumers and Mobile Financial Services 2016.* Washington, DC: Board of Governors of the Federal Reserve System.

eMarketer. (2017, September 1). eMarketer releases latest estimates for US proximity mobile payments [Web log post]. Retrieved from https://www.emarketer.com/Article/eMarketer-Releases-Latest-Estimates-US-Proximity-Mobile-Payments/1016417

Featherman, M. S., & Pavlou, P. A. (2003). Predicting e-services adoption: A perceived risk facets perspective. *International Journal of Human-Computer Studies, 59*(4), 451-474.

Garcia-Swartz, D. D., Hahn, R. W., & Layne-Farrar, A. (2006). The move toward a cashless society: Calculating the costs and benefits. *Review of Network Economics*, *5*(2), 199-228.

Gerpott, T. J., & Kornmeier, K. (2009). Determinants of customer acceptance of mobile payment systems. *International Journal of Electronic Finance*, *3*(1), 1-30.

Gerrard, P., & Cunningham, J. B. (2003). The diffusion of Internet banking among Singapore consumers. *International Journal of Bank Marketing*, *21*(1), 16-28.

Gross, D. B., & Souleles, N. S. (2002). Do liquidity constraints and interest rates matter for

consumer behavior? Evidence from credit card data. *The Quarterly Journal of Economics*, *117*(1), 149-185.

Gu, Y., & Zhang, W. (2011). QR code recognition based on image processing. *Proceedings of the International Conference on Information Science and Technology*, 733-736. doi: 10.1109/ICIST.2011.5765349

Gupta, S. (2013). The mobile banking and payment revolution. *European Financial Review*, *2*, 3-6.

Hamblen, M. (2012). A short history of NFC: Where Near Field Communication has come from. *Computerworld*. Retrieved from www.computerworld.com

Hayashi, F. (2012). *Mobile payments: What's in it for consumers?* Retrieved from Federal Reserve Bank of Kansas City website: https://www.kansascityfed.org

Herron, J. (2013, June 26). 6 ways to spoil your cash-back rewards. *Bank Rate*. Retrieved from http://www.bankrate.com/finance/credit-cards/spoil-cash-back-rewards-1.aspx

Hoffman, K. E. (2012, November 1). M-commerce: App vs. browser. *Digital Transactions*. Retrieved from http://www.digitaltransactions.net

Hu, L. T., & Bentler, P. M. (1999). Cutoff criteria for fit indexes in covariance structure analysis: Conventional criteria versus new alternatives. *Structural Equation Modeling: A Multidisciplinary Journal, 6*(1), 1-55.

Hustler Money. (2016, November 22). Chase $15 bonus Samsung Pay promotion [Web log post]. Retrieved from http://www.hustlermoneyblog.com/

Jang, D., & Mattila, A. S. (2005). An examination of restaurant loyalty programs: What kinds of rewards do customers prefer? *International Journal of Contemporary Hospitality Management, 17*(5), 402-408.

Kaminski, J. (2011). Diffusion of Innovation Theory. *Canadian Journal of Nursing Informatics*, *6*(2), 1-6.

Karnouskos, S. (2004). Mobile payment: A journey through existing procedures and standardization initiatives. *IEEE Communications Surveys & Tutorials*, *6*(4), 44-66.

Katz, E. (1957). The two-step flow of communication: An up-to-date report on a hypothesis. *Public Opinion Quarterly, 21*(1), 61-78.

Kim, C., Mirusmonov, M., & Lee, I. (2010). An empirical examination of factors influencing the intention to use mobile payment. *Computers in Human Behavior*, *26*(3), 310-322.

Leavitt, N. (2010). Payment applications make e-commerce mobile. *Computer, 43*(12), 19-22.

Lee, M. C. (2009). Understanding the behavioural intention to play online games: An extension of the theory of planned behaviour. *Online Information Review, 33*(5), 849–872.

Lennon, S. J., Kim, M., Johnson, K. K., Jolly, L. D., Damhorst, M. L., & Jasper, C. R. (2007). A longitudinal look at rural consumer adoption of online shopping. *Psychology & Marketing*, *24*(4), 375-401.

Leong, L. Y., Hew, T. S., Tan, G. W. H., & Ooi, K. B. (2013). Predicting the determinants of the NFC-enabled mobile credit card acceptance: A neural networks approach. *Expert Systems with Applications*, *40*(14), 5604-5620.

Li, H., Liu, Y., & Heikkila, J. (2014). Understanding the factors driving NFC-enabled mobile payment adoption: An empirical investigation. *Proceedings of the Pacific Asia Conference on Information Systems*. Retrieved from http://aisel.aisnet.org/cgi/view content.cgi?article=1158&context=pacis2014

Liebana-Cabanillas, F., Sanchez-Fernandez, J., & Munoz-Leiva, F. (2014). Antecedents of the

adoption of the new mobile payment systems: The moderating effect of age. *Computers in Human Behavior*, *35*, 464-478.

Lin, T. C., Wu, S., Hsu, J. S. C., & Chou, Y. C. (2012). The integration of value-based adoption and expectation–confirmation models: An example of IPTV continuance intention. *Decision Support Systems, 54*(1), 63-75.

Liu, M. T., & Brock, J. L. (2009). Antecedents of redemption of reward points: Credit card market in China and international comparison. *Journal of International Consumer Marketing*, *22*(1), 33-45.

Liu, Y., Yang, Y., & Li, H. (2012). A unified risk-benefit analysis framework for investigating mobile payment adoption. *Proceedings of the International Conference on Mobile Business.* Retrieved from http://aisel.aisnet.org/cgi/viewcontent

Luthi, B. (2015, September 11). Discover adds Apple Pay, offers 10% back for a limited time. *Nerd Wallet*. Retrieved from https://www.nerdwallet.com

MacCallum, R. C., Browne, M. W., & Sugawara, H. M. (1996). Power analysis and determination of sample size for covariance structure modeling. *Psychological Methods, 1*, 130-149.

Madlmayr, G. (2008). A mobile trusted computing architecture for a near field communication ecosystem. *Proceedings of the International Conference on Information Integration and Web-Based Applications & Services*, 563-566. doi: 10.1145/1497308.1497411

Meng, J., & Ye, L. (2008). Secure mobile payment model based on WAP. *Proceedings of the International Conference of Wireless Communications, Networking and Mobile Computing*, 1-4. doi: 10.1109/WiCom.2008.2121

Moore, G. C., & Benbasat, I. (1991). Development of an instrument to measure the perceptions

of adopting an information technology innovation. *Information Systems Research*, *2*(3), 192-222.

New Media Business. (2016, August 8). Mobile payments [Web log post]. Retrieved from http://www.newmediabusinessblog.org/index.php/Mobile_Payments

Olatokun, W. M., & Igbinedion, L. J. (2009). The adoption of Automatic Teller Machines in Nigeria: An application of the Theory of Diffusion of Innovation. *Issues in Informing Science and Information Technology*, *6*(2), 373-393.

Olsen, C. (2007). Getting the most out of EMV with contactless cards. *Card Technology Today*, *19*(4), 10-11.

Ondrus, J., & Pigneur, Y. (2007). An assessment of NFC for future mobile payment systems. *Proceedings of the International Conference on the Management of Mobile Business*. doi: 10.1109/ICMB.2007.9

Prashant, K. (2017, January 16). 50% off 10 Uber rides with Android Pay. *Uber Newsroom*. Retrieved from https://newsroom.uber.com

Pressman, A. (2016, November 15). Samsung Pay has a new rewards program to woo more consumers. *Fortune.* Retrieved from https://www.fortune.com

Ramfos, A., Karnouskos, S., Vilmos, A., Csik, B., Hoepner, P., & Venetakis, N. (2004). SEMOPS: Paying with mobile personal devices. *Building the E-Service Society*, 247-261.

Roberts, J. (2013a, April 7). What are SMS payments? *Mobile Transaction*. Retrieved from https://www.mobiletransaction.org

Roberts, J. (2013b, April 7). Growing use of SMS payments around the world. *Mobile Transaction*. Retrieved from https://www.mobiletransaction.org

Rogers, E. (2003). *Diffusion of Innovations* (5th ed.). New York, NY: Free Press.

Ryan, B., & Gross, N. C. (1943). The diffusion of hybrid seed corn in two Iowa communities. *Rural Sociology, 8*(1), 15-24.

Sahin, I. (2006). Detailed review of Rogers' Diffusion of Innovations Theory and educational technology-related studies based on Rogers' theory. *The Turkish Online Journal of Educational Technology*, *5*(2), 14-23.

Schierz, P. G., Schilke, O., & Wirtz, B. W. (2010). Understanding consumer acceptance of mobile payment services: An empirical analysis. *Electronic Commerce Research and Applications*, *9*(3), 209-216.

Selleck, E. (2016, November 8). Apple Pay promoted with holiday discounts and promotions from retailers. *iPhone Hacks*. Retrieved from http://www.iphonehacks.com

Sharma, Y. (2017). *Mobile payments market – Global opportunity analysis and industry forecast, 2014-2022*. Retrieved from Allied Market Research website: https://www.alliedmarketresearch.com/mobile-payments-market

Shin, D. H. (2009). Towards an understanding of the consumer acceptance of mobile wallet. *Computers in Human Behavior*, *25*(6), 1343-1354.

Shin, D. H. (2010). Modeling the interaction of users and mobile payment system: Conceptual framework. *International Journal of Human-Computer Interaction*, *26*(10), 917-940.

Sierzchula, W., Bakker, S., Maat, K., & van Wee, B. (2014). The influence of financial incentives and other socio-economic factors on electric vehicle adoption. *Energy Policy*, *68*, 183-194.

Simon, J., Smith, K., & West, T. (2010). Price incentives and consumer payment behaviour. *Journal of Banking & Finance*, *34*(8), 1759-1772.

Soat, M. (2014, November). Mobile payments, global adoption. *Marketing News, 48*(11), 14-15.

Suoranta, M., & Mattila, M. (2004). Mobile banking and consumer behaviour: New insights into the diffusion pattern. *Journal of Financial Services Marketing*, *8*(4), 354-366.

Tan, G. W., Ooi, K. B., Chong, S. C., & Hew, T. S. (2014). NFC mobile credit card: The next frontier of mobile payment? *Telematics and Informatics, 31*(2), 292-307.

Tan, M., & Teo, T. S. (2000). Factors influencing the adoption of Internet banking. *Journal of the AIS*, *1*(5), 1-42.

Tarde, G. (1903). *The Laws of Imitation*. New York, NY: Henry Holt and Company.

Trutsch, T. (2016). The impact of mobile payment on payment choice. *Financial Markets and Portfolio Management, 30*(3), 299-336.

Vana, P., Lambrecht, A., & Bertini, M. (2015). *Cashback is cash forward: Delaying a discount to increase future spending* (Marketing Science Institute Working Paper No. 15-112). Retrieved from http://marcobertini.com/wp-content/uploads/2016/01/15-CS-Draft-MSI-15-112.pdf

Venkatesh, V., & Bala, H. (2008). Technology Acceptance Model 3 and a research agenda on interventions. *Decision Sciences, 39*(2), 273-315.

Wilcox, H. (2010). *Checkout the mobile payment opportunity*. Retrieved from Juniper Research website: http://docs.media.bitpipe.com/io_10x/io_102267/item_465972/whitepaper_36012581543.pdf

Woolsey, B. (2005, October 2). How cash back credit cards work. *Credit Cards*. Retrieved from http://www.creditcards.com/credit-card-news/cash-rebate-credit-cards-1277.php

Xiang, T. (2016, May 19). How QR code became popular among mobile users in China. *Mobile Business Insights*. Retrieved from http://mobilebusinessinsights.com

Xin, H., Techatassanasoontorn, A. A., & Tan, F. B. (2013). Exploring the influence of trust on

mobile payment adoption. *Proceedings of the Pacific Asia Conference on Information Systems*. Retrieved from https://aut.researchgateway.ac.nz/bitstream/handle/10292

Yang, S., Lu, Y., Gupta, S., Cao, Y., & Zhang, R. (2012). Mobile payment services adoption across time: An empirical study of effects of behavioral beliefs, social influences, and personal traits. *Computers in Human Behavior, 28*(1), 129-142.

Zhou, T. (2014). An empirical examination of initial trust in mobile payment. *Wireless Personal Communications*, *77*(2), 1519-1531.

Zmijewska, A. (2005). Evaluating wireless technologies in mobile payments-a customer centric approach. *Proceedings of the International Conference on Mobile Business*. doi: 10.1109/ICMB.2005.38

APPENDICES

Appendix A

Specific Comments and Corresponding Corrections for Pilot Test

Comments	Corrections
"I was confused on the household income question. Specify if you mean for the student or for student's family	Annual household income
"The introduction makes the survey seem more complicated than it is." "Further delve into what NFC payment entails."	Respondents watch the video instructions only if they don't understand how NFC mobile payment works by the text instruction.
"Mention VenMo, which is a very popular app for college students."	Added in "Sent money to relatives or friends (e.g., Venmo, PayPal, Google Wallet, your bank's app)."
"The beginning assumption that we use the mobile pay, but must have never used it to take the survey."	Assumptions are experimental treatments.
"Everyone carries credit/debit cards with them, there is no difference to this, and a phone can run out of battery."	NFC mobile payment is a new payment method, which could improve with the development of mobile phones.
"Some questions in the beginning were vague."	Reworded the questions for latent variables.
"Explain reasoning as to why survey asks for demographic besides age."	All the demographic questions are controls.
"I'm not really sure how you would want to include this, but although I think NFC payments could be fast, efficient, and convenient - not many stores have the option for me to use that sort of payment. So regardless of how I think of it, I won't actually use it until the stores I visit have software to handle NFC payments."	Yes, merchants' NFC mobile payment adoption would influence consumers' adoption. Thus, certain assumptions were made.
"The survey was very thorough." "Nope, overall good survey." "This survey was to the point and easy to navigate!" "I think it's great enough."	

Comments	Corrections
"Nope it's all good!" "Great Survey." "I think it went really well." "The survey is good overall." "No, this survey was fine the way it is." "None great survey!" "No very thorough." "No. Good survey, easy to follow and understand the process." "No, very clear and to the point." "None to mention - I thought it was efficient and clear." "Nope, thought this was well written." "No, I do not know what the survey is trying to quantify so I cannot make suggestions to the content of the survey. Overall, however, this survey made sense, was straightforward, and easy to complete." "No, this survey was efficient, clear, and organized." "I like it. Very informative."	

Appendix B

Experimental Survey

INTRODUCTION

Dear Research Participant,

My name is Haidong Zhao. I am a Ph.D. Candidate in the Department of Financial Planning, Housing and Consumer Economics at the University of Georgia, in Athens, GA, USA. I am working under the supervision of Dr. Sophia Anong. We are interested in learning more about NFC mobile payment adoption behavior and decision making.

Your participation will involve completing a web-based experimental survey and should **take approximately 10-15 minutes of your time.** First, an introduction about NFC mobile payment will be provided. This information will be followed by several multiple-choice questions. By completing the questions, you are agreeing to participate in the research. We do not foresee any risks associated with this research.

Your participation is voluntary. Your responses will be seen only by the researchers. You will not be asked to provide any personal identification information along with your answers. This research involves the transmission of data over the Internet. Every reasonable effort has been taken to ensure the effective use of available technology; however, confidentiality during online communication cannot be guaranteed. If you'd like to leave the study at any time, just close your browser.

If you have any questions or comments about this research project, please feel free to call me at 706-247-1288 or send an e-mail to haidong@uga.edu. You may also contact Sophia T. Anong at 770-467-6086 or sanong@uga.edu. Additional questions or problems regarding your rights as a research participant should be addressed to The Chairperson, University of Georgia Institutional Review Board, telephone 706-542-3199; email irb@uga.edu.

Thank you for your participation. If desired, please copy and print this statement for your records.

Haidong Zhao

Ph.D. Candidate

Department of Financial Planning, Housing and Consumer Economics

BASIC INFORMATION FOR NFC MOBILE PAYMENT

NFC is short for Near Field Communication, which is a short-range high frequency wireless communication technology. To understand how NFC mobile payment works, let's look at a hypothetical example.

You have a NFC-enable phone, which allows you to take advantage of Apple Pay, Samsung Pay, Android Pay, or PayPal. You input your credit card or debit card information onto your phone, which stores it for later use. Later on, you're shopping **at a store** that has NFC mobile payment readers at the register. You take out your phone and hold it a few inches away from the point-of-sale (POS) terminal. This device then automatically reads the payment information and then processes the transaction.

I understand what NFC mobile payment and how it works.

1. Yes
2. No

(If No was selected) Please watch the video to learn how NFC mobile payment works. (https://www.youtube.com/watch?v=Wim4TqMzgVQ)

After watching the video, I now understand what NFC mobile payment is and how it works (If No, not eligible).
1. Yes
2. No

ELIGIBILITY TEST

I have used NFC mobile payment before and I still use it. (If Yes, not eligible)

1. Yes
2. No

What's your age? (Only who selected the first two choices were eligible)

1. 18 – 25
2. 26 – 35
3. 36 – 45
4. 46 – 55
5. 56 – 65
6. 66 or more

TREATMENTS AND ASSUMPTIONS

Group 1: Control treatment

When answering questions for this survey, please respond with the following assumptions:

- You have a NFC-enabled mobile phone.
- It has stored credit/debit card information on it so you can use NFC mobile payment.
- NFC mobile payment is widely accepted in your local area, such as grocery stores, drug stores, and fast food restaurants.

Group 2: "5% cash back within 1 month" treatment

For purposes of this survey, please assume you will earn **5% cash back** from your NFC mobile payment account <u>up to $1,500</u> in combined purchases **<u>within the first month</u>** of use.

Here is how cash back works:

If you spend $100 using NFC mobile payment, your NFC mobile payment account will receive $5 credit

If you spend $1,000 using NFC mobile payment, your NFC mobile payment account will receive $50 credit

If you spend $1,500 or more using NFC mobile payment, your NFC mobile payment account will receive $75 credit

Any credit you earn can be used on any later transaction within next 12 months.

When answering questions for this survey, please respond with the following assumptions:

- You have a NFC-enabled mobile phone.
- It has stored credit/debit card information on it so you can use NFC mobile payment.
- NFC mobile payment is widely accepted in your local area, such as grocery stores, drug stores, and fast food restaurants.

Group 3: "10% cash back within 1 month" treatment

For purposes of this survey, please assume you will earn **10% cash back** from your NFC mobile payment account <u>up to $1,500</u> in combined purchases **<u>within the first month</u>** of use.

Here is how cash back works:

If you spend $100 using NFC mobile payment, your NFC mobile payment account will receive $10 credit

If you spend $1,000 using NFC mobile payment, your NFC mobile payment account will receive $100 credit

If you spend $1,500 or more using NFC mobile payment, your NFC mobile payment account will receive $150 credit

Any credit you earn can be used on any later transaction within next 12 months.

When answering questions for this survey, please respond with the following assumptions:

- You have a NFC-enabled mobile phone.
- It has stored credit/debit card information on it so you can use NFC mobile payment.
- NFC mobile payment is widely accepted in your local area, such as grocery stores, drug stores, and fast food restaurants.

Group 4: "5% cash back within 3 months" treatment

For purposes of this survey, please assume you will earn **5% cash back** from your NFC mobile payment account on up to $1,500 in combined purchases **within the first 3 months** you use NFC mobile payment.

Here is how cash back works:

If you spend $100 using NFC mobile payment, your NFC mobile payment account will receive $5 credit

If you spend $1,000 using NFC mobile payment, your NFC mobile payment account will receive $50 credit

If you spend $1,500 or more using NFC mobile payment, your NFC mobile payment account will receive $75 credit

Any credit you earn can be used on any later transaction within next 12 months.

When answering questions for this survey, please respond with the following assumptions:

- You have a NFC-enabled mobile phone.
- It has stored credit/debit card information on it so you can use NFC mobile payment.
- NFC mobile payment is widely accepted in your local area, such as grocery stores, drug stores, and fast food restaurants.

Group 5: "10% cash back within 3 months" treatment

For purposes of this survey, please assume you will earn **10% cash back** from your NFC mobile payment account on <u>up to $1,500</u> in combined purchases **<u>within the first 3 months</u>** you use NFC mobile payment.

Here is how cash back works:

If you spend $100 using NFC mobile payment, your NFC mobile payment account will receive $10 credit

If you spend $1,000 using NFC mobile payment, your NFC mobile payment account will receive $100 credit

If you spend $1,500 or more using NFC mobile payment, your NFC mobile payment account will receive $150 credit

Any credit you earn can be used on any later transaction within next 12 months.

When answering questions for this survey, please respond with the following assumptions:

- You have a NFC-enabled mobile phone.
- It has stored credit/debit card information on it so you can use NFC mobile payment.
- NFC mobile payment is widely accepted in your local area, such as grocery stores, drug stores, and fast food restaurants.

Group 6: "5% discount within 1 month" treatment

For purposes of this survey, please assume you will get **5% off** your purchase when you pay with NFC mobile payment (up to $1,500 in combined purchases **<u>within the first month</u>** of use).

Here is how discount works:

If your purchase amount is $100, you will pay $95 using NFC mobile payment

If your purchase amount is $1,000, you will pay $950 using NFC mobile payment

If your purchase amount is $1,500, you will pay $1,425 using NFC mobile payment

If your purchase amount is more than $1,500, you will get $75 off your purchase when you pay with NFC mobile payment

When answering questions for this survey, please respond with the following assumptions:

- You have a NFC-enabled mobile phone.

- It has stored credit/debit card information on it so you can use NFC mobile payment.

- NFC mobile payment is widely accepted in your local area, such as grocery stores, drug stores, and fast food restaurants.

Group 7: "10% discount within 1 month" treatment

For purposes of this survey, please assume you will get **10% off** your purchase when you pay with NFC mobile payment (up to $1,500 in combined purchases **<u>within the first month</u>** of use).

Here is how discount works:

If your purchase amount is $100, you will pay $90 using NFC mobile payment

If your purchase amount is $1,000, you will pay $900 using NFC mobile payment

If your purchase amount is $1,500, you will pay $1,350 using NFC mobile payment

If your purchase amount is more than $1,500, you will get $150 off your purchase when you pay with NFC mobile payment

When answering questions for this survey, please respond with the following assumptions:

- You have a NFC-enabled mobile phone.

- It has stored credit/debit card information on it so you can use NFC mobile payment.

- NFC mobile payment is widely accepted in your local area, such as grocery stores, drug stores, and fast food restaurants.

Group 8: "5% discount within 3 months" treatment

For purposes of this survey, please assume you will get **5% off** your purchase when you pay with NFC mobile payment (up to $1,500 in combined purchases **<u>within the first 3 months</u>** of use).

Here is how discount works:

If your purchase amount is $100, you will pay $95 using NFC mobile payment

If your purchase amount is $1,000, you will pay $950 using NFC mobile payment

If your purchase amount is $1,500, you will pay $1,425 using NFC mobile payment

If your purchase amount is more than $1,500, you will get $75 off your purchase when you pay with NFC mobile payment

When answering questions for this survey, please respond with the following assumptions:

- You have a NFC-enabled mobile phone.

- It has stored credit/debit card information on it so you can use NFC mobile payment.

- NFC mobile payment is widely accepted in your local area, such as grocery stores, drug stores, and fast food restaurants.

Group 9: "10% discount within 3 months" treatment

For purposes of this survey, please assume you will get **10% off** your purchase when you pay with NFC mobile payment (up to $1,500 in combined purchases **within the first 3 months** of use).

Here is how discount works:

If your purchase amount is $100, you will pay $90 using NFC mobile payment

If your purchase amount is $1,000, you will pay $900 using NFC mobile payment

If your purchase amount is $1,500, you will pay $1,350 using NFC mobile payment

If your purchase amount is more than $1,500, you will get $150 off your purchase when you pay with NFC mobile payment

When answering questions for this survey, please respond with the following assumptions:

- You have a NFC-enabled mobile phone.

- It has stored credit/debit card information on it so you can use NFC mobile payment.

- NFC mobile payment is widely accepted in your local area, such as grocery stores, drug stores, and fast food restaurants.

EXPERIMENTAL SURVEY QUESTIONS

Note: The following questions will be asked for subjects in all 9 groups.

Trust

Please respond to the following statements about whether you trust using NFC mobile payment:

		Completely Disagree			Neutral			Completely Agree
Q1	I trust NFC mobile payment to be reliable	1	2	3	4	5	6	7
Q2	I trust NFC mobile payment to be secure	1	2	3	4	5	6	7
Q3	I trust NFC mobile payment to be trustworthy	1	2	3	4	5	6	7
Q4	Overall, I trust NFC mobile payment	1	2	3	4	5	6	7

Perceived Risk

Please respond to the following statements about your perceived risk of using NFC mobile payment:

		Completely Disagree			Neutral			Completely Agree
Q5	Using NFC mobile payment increases the chance of credit/debit card fraud	1	2	3	4	5	6	7
Q6	Using NFC mobile payment would lead to a financial loss for me	1	2	3	4	5	6	7
Q7	Using NFC mobile payment increases the financial risk of my linked credit/debit card being misused	1	2	3	4	5	6	7

Intention

Please respond to the following statements about your intention to use NFC mobile payment:

		Completely Disagree			Neutral			Completely Agree
Q8	I am likely to use NFC mobile payment in the near future	1	2	3	4	5	6	7
Q9	Given the opportunity, I will use NFC mobile payment immediately	1	2	3	4	5	6	7

Q10	I am willing to use NFC mobile payment in the near future	1	2	3	4	5	6	7
Q11	I will think about using NFC mobile payment	1	2	3	4	5	6	7
Q12	I intend to use NFC mobile payment services when the opportunity arises	1	2	3	4	5	6	7

Continuance Intention After Incentives

Please respond to the following statements about your continuance intention to use NFC mobile payment after incentives end:

Note: Q13-Q15 will be asked for subjects in Treatment Groups 1-4.

		Completely Disagree			Neutral			Completely Agree
Q13	I plan to use NFC mobile payment more often after the cash back promotion ends	1	2	3	4	5	6	7
Q14	NFC mobile payment will be one of my commonly used payment methods after the cash back promotion ends	1	2	3	4	5	6	7
Q15	I intend to continue using NFC mobile payment after the cash back promotion ends	1	2	3	4	5	6	7

Note: Q13-Q15 will be asked for subjects in Treatment Groups 5-8.

		Completely Disagree			Neutral			Completely Agree
Q13	I plan to use NFC mobile payment more often after the discount promotion ends	1	2	3	4	5	6	7
Q14	NFC mobile payment will be one of my commonly used payment methods after the discount promotion ends	1	2	3	4	5	6	7
Q15	I intend to continue using NFC mobile payment after the discount promotion ends	1	2	3	4	5	6	7

CONTROL VARIABLE QUESTIONS

Perceived Ease of Use

Please respond to the following statements about your perceived ease of use of using NFC mobile payment:

		Completely Disagree			Neutral			Completely Agree
Q16	Using NFC mobile payment is clear and understandable	1	2	3	4	5	6	7
Q17	Using NFC mobile payment does not require mental effort	1	2	3	4	5	6	7
Q18	Learning to use NFC mobile payment is easy for me	1	2	3	4	5	6	7

Perceived Usefulness

Please respond to the following statements about your perceived usefulness of using NFC mobile payment:

		Completely Disagree			Neutral			Completely Agree
Q19	NFC mobile payments are fast	1	2	3	4	5	6	7
Q20	NFC mobile payments are efficient	1	2	3	4	5	6	7
Q21	NFC mobile payments are convenient	1	2	3	4	5	6	7

Personal Information

Q22. Now please tell me about yourself. Are you:

1. Male
2. Female

Q23. What is the highest level of education you have completed?

1. Less than High School
2. High School / GED
3. Some College
4. 2-year College Degree
5. 4-year College Degree
6. Master's Degree
7. Doctoral Degree
8. Professional Degree (JD, MD)

Q24. What is your annual household income?

1. Less than $30,000

2. $30,000 – $39,999
3. $40,000 – $49,999
4. $50,000 – $59,999
5. $60,000 – $69,999
6. $70,000 – $79,999
7. $80,000 – $89,999
8. $90,000 – $99,999
9. $100,000 or more

Q25. What is your race?

1. White
2. Black or African American
3. American Indian or Alaska Native
4. Asian
5. Native Hawaiian or Pacific Islander
6. Other

Other POS Payment Instruments

Q26. Which of the following payment methods do you use at local retail stores, such as grocery stores, restaurants, and gas stations? (Check all that apply)

1. Cash
2. Check
3. Debit card
4. Credit card
5. Prepaid card or gift card

Rewards for Card Payment

Q27. Have you ever used a credit/debit card because of a financial reward as a new customer?

1. Yes
2. No

Q28. Have you increased your purchases using a credit/debit card that provides rewards, such as cash back and points?

1. Yes
2. No

Loyalty Rewards

Q29. Do you have any loyalty cards, such as reward card, membership card, and advantage card? (If No, skip Q30)

1. Yes
2. No

Q30. Have you increased your purchases with the loyalty card?

1. Yes
2. No
3. I am not attracted by loyalty card

Online Shopping Experience

Q31. How often do you shop online, including looking for product or store information as well as buying goods or services?

1. Everyday
2. Several times a week
3. Several times a month
4. No more than once a month
5. No more than once a year

Mobile Banking Experience

Q32. Using your **mobile phone**, have you done each of the following in the past 12 months?

	Yes	No
Checked an account balance or checked recent transactions	1	2
Received an alert (e.g., a text message, push notification or email) from your bank	1	2
Transferred money between your bank accounts	1	2
Deposited a check to your account electronically using your mobile phone camera	1	2
Located the closest in-network ATM or branch for your bank	1	2

Non-NFC Mobile Payment Experience

Q33. Select which other mobile payment below you have used in the past 12 months.

	Yes	No
Sent money to relatives or friends (e.g., Venmo, PayPal, Google Wallet, your bank's app)	1	2
Paid for something in a store scanning a QR code	1	2
Purchased a physical item or digital content remotely by using your mobile phone's web browser or an app	1	2
Paid a bill using your mobile phone's web browser or an app	1	2
Made a donation or other payment using a text message	1	2
Paid for parking, a taxi, car service (e.g., Uber), or public transit	1	2

SALUTATION FOR ALL RESPONDENTS

Thank you for your participation! You have completed the survey!

Appendix C

Sample Characteristics by Experimental Group

	Treatment								Control
	1	2	3	4	5	6	7	8	
	(*n* = 50)	(*n* = 52)	(*n* = 54)	(*n* = 47)	(*n* = 52)	(*n* = 53)	(*n* = 51)	(*n* = 51)	(*n* = 53)
Gender									
Male	8	3	7	7	6	9	8	11	15
Female	42	49	47	40	46	44	43	40	38
Age Group									
18 - 25	26	15	18	17	12	8	14	19	16
26 - 35	24	37	36	30	40	45	37	32	37
Education									
Less than High School	1	0	1	1	2	0	0	1	2
High School / GED	14	15	13	11	13	8	19	15	19
Some College	11	20	17	17	14	14	10	15	10
College Degree	18	15	20	15	22	24	19	16	17
Master's Degree	6	1	4	3	1	4	3	3	3
Professional Degree (JD, MD)	0	0	0	0	0	1	0	0	1
Doctoral Degree	0	1	0	0	0	2	0	1	1
Annual Household Income									
Less than $30,000	18	16	14	15	15	14	18	21	20
$30,000 – $39,999	7	10	9	6	7	9	10	10	9
$40,000 – $49,999	8	10	6	5	8	9	13	7	4
$50,000 – $59,999	5	4	10	9	4	5	2	3	6
$60,000 – $69,999	6	1	6	4	8	6	2	2	5
$70,000 – $79,999	2	7	2	2	1	4	5	4	1
$80,000 – $89,999	0	1	0	0	1	3	0	1	1

(Continued)

	Treatment								Control
	1	2	3	4	5	6	7	8	
	(n = 50)	(n = 52)	(n = 54)	(n = 47)	(n = 52)	(n = 53)	(n = 51)	(n = 51)	(n = 53)
$90,000 – $99,999	1	0	1	1	2	1	1	0	4
$100,000 or more	3	3	6	5	6	2	0	3	3
Race									
White	40	40	42	35	39	41	40	39	40
Other	10	12	12	12	13	12	11	12	13
Payment Method									
Credit/Debit Card	30	28	24	25	29	32	29	29	30
Other	20	24	30	22	23	21	22	22	23
New Credit/Debit Card User									
Because of Financial Incentives									
Yes	28	27	27	23	21	29	23	29	25
No	22	25	27	24	31	24	28	22	28
Increasing the Purchases									
Because of Credit/Debit Rewards									
Yes	23	22	30	20	24	34	22	27	25
No	27	30	24	27	28	19	29	24	28
Loyalty Card Holder									
Yes	35	39	39	28	40	40	38	38	34
No	15	13	15	19	12	13	13	13	19
Increasing the Purchases									
Because of Loyalty Cards									
Yes	23	23	17	16	23	29	30	16	18
No	27	29	37	31	29	24	21	35	35
Frequency of Online Shopping									
No more than once a year	2	1	1	1	0	3	3	3	3

	Treatment								Control
	1	2	3	4	5	6	7	8	
	($n = 50$)	($n = 52$)	($n = 54$)	($n = 47$)	($n = 52$)	($n = 53$)	($n = 51$)	($n = 51$)	($n = 53$)
No more than once a month	14	16	5	9	11	10	6	14	8
Several times a month	18	25	24	21	24	14	25	14	25
Several times a week	11	8	19	11	16	23	16	16	16
Everyday	5	2	5	5	1	3	1	4	1
Experience with Using Mobile Banking									
Never	5	5	3	5	3	3	7	2	5
1 type	7	5	5	5	2	6	4	2	9
2 types	6	6	9	9	15	6	11	7	7
3 types	9	16	12	10	12	13	11	18	8
4 types	11	10	15	9	7	13	11	12	8
5 types	12	10	10	4	13	12	7	10	16
Experience with Using Non-NFC Mobile Payment									
Never	11	7	9	8	9	7	12	8	8
1 type	11	11	5	8	12	15	13	14	11
2 types	10	13	14	11	13	8	8	10	10
3 types	7	11	15	11	11	6	7	5	14
4 types	7	6	6	4	3	14	4	9	8
5 types	3	4	2	2	3	1	3	4	1
6 types	1	0	0	3	1	2	4	1	1

Note. Treatment 1: 5% cash back within 1 month; Treatment 2: 10% cash back within 1 month; Treatment 3: 5% cash back within 3 months; Treatment 4: 10% cash back within 3 months; Treatment 5: 5% discount within 1 month; Treatment 6: 10% discount within 1 month; Treatment 7: 5% discount within 3 months; Treatment 8: 10% discount within 3 months; *Control*: no financial incentive available.

Appendix D

Descriptive Statistics of Latent Variables by Experimental Group

	Treatment																Control	
	1		2		3		4		5		6		7		8			
Variables	(*n* = 50)		(*n* = 52)		(*n* = 54)		(*n* = 47)		(*n* = 52)		(*n* = 53)		(*n* = 51)		(*n* = 51)		(*n* = 53)	
	M	*SD*	*M*	*SD*	*M*	*SD*	*M*	*SD*	*M*	*SD*	*M*	*SD*	*M*	*SD*	*M*	*SD*	*M*	*SD*
Dependent Variables																		
Trust																		
Trust_1	5.22	1.20	4.67	1.40	5.11	1.34	5.09	1.40	5.00	1.30	5.08	1.24	4.84	1.59	4.86	1.30	4.62	1.43
Trust_2	4.86	1.23	4.58	1.49	4.59	1.60	4.81	1.36	4.73	1.40	4.85	1.50	4.49	1.79	4.71	1.49	4.38	1.64
Trust_3	5.18	1.10	4.83	1.41	5.06	1.48	5.00	1.27	4.88	1.37	4.89	1.41	4.92	1.59	4.92	1.21	4.40	1.43
Trust_4	5.10	1.15	4.69	1.62	5.00	1.41	4.98	1.31	4.79	1.47	4.74	1.42	4.76	1.74	5.00	1.26	4.28	1.50
Perceived Risk (PR)																		
PR_1	4.34	1.53	4.44	1.71	4.41	1.55	4.15	1.57	4.44	1.39	4.62	1.44	4.43	1.60	4.59	1.34	4.92	1.28
PR_2	3.28	1.43	3.19	1.33	3.24	1.40	4.32	1.51	3.58	1.41	3.53	1.65	3.82	1.72	3.33	1.48	3.57	1.43
PR_3	4.22	1.63	4.21	1.56	4.28	1.62	4.34	1.51	4.33	1.48	4.40	1.63	4.29	1.63	4.63	1.30	4.70	1.41
Intention																		
Intention_1	4.74	1.41	4.17	1.49	4.56	1.46	4.64	1.50	4.65	1.52	4.42	1.50	4.27	1.59	4.67	1.32	4.17	1.71
Intention_2	4.12	1.45	3.75	1.57	4.15	1.61	4.38	1.34	4.33	1.54	4.15	1.65	3.90	1.70	4.20	1.30	3.83	1.61
Intention_3	4.92	1.24	4.52	1.36	4.69	1.41	4.72	1.36	4.88	1.52	4.77	1.48	4.41	1.49	4.84	1.12	4.32	1.60
Intention_4	5.42	1.18	5.04	1.33	5.20	1.34	5.11	1.29	5.10	1.39	4.98	1.47	4.90	1.45	5.00	1.44	4.75	1.41
Intention_5	4.58	1.40	4.27	1.39	4.54	1.53	4.66	1.32	4.79	1.42	4.47	1.54	4.27	1.56	4.51	1.41	3.96	1.47
Continuance Intention (CI)																		
CI_1	3.82	1.66	3.44	1.47	4.30	1.60	3.96	1.43	4.21	1.47	4.17	1.59	3.67	1.72	4.10	1.45	--	--
CI_2	3.96	1.58	3.52	1.26	4.00	1.41	4.13	1.48	4.29	1.43	4.09	1.47	3.78	1.84	3.98	1.41	--	--
CI_3	4.26	1.54	3.67	1.31	4.26	1.52	4.17	1.49	4.40	1.51	4.32	1.45	3.92	1.73	4.04	1.37	--	--

(Continued)

Variables	Treatment																	Control	
	1		2		3		4		5		6		7		8				
	(n = 50)		(n = 52)		(n = 54)		(n = 47)		(n = 52)		(n = 53)		(n = 51)		(n = 51)		(n = 53)	
	M	SD	M	SD	M	SD	M	SD	M	SD	M	SD	M	SD	M	SD	M	SD
Controls																		
Perceived Ease of Use (PEU)																		
PEU_1	5.94	0.77	5.63	1.28	6.02	1.24	5.66	1.49	5.67	1.26	5.81	1.09	5.96	1.06	5.76	1.21	5.45	1.12
PEU_2	5.66	1.04	5.38	1.11	5.52	1.37	5.04	1.56	5.35	1.27	5.45	1.10	5.29	1.53	5.14	1.48	5.09	1.20
PEU_3	5.84	0.89	5.42	1.35	5.80	1.28	5.51	1.37	5.52	1.49	5.68	0.96	5.76	1.18	5.65	1.29	5.57	1.07
Perceived Usefulness (PU)																		
PU_1	6.02	1.00	5.75	1.05	5.91	1.17	5.43	1.31	5.79	1.19	5.91	0.90	5.69	1.09	5.69	1.09	5.64	1.13
PU_2	6.02	0.91	5.75	1.12	5.80	1.19	5.45	1.28	5.65	1.14	5.87	0.90	5.55	1.15	5.76	1.12	5.60	1.18
PU_3	6.14	1.07	5.87	1.12	6.06	1.22	5.68	1.22	5.88	1.00	6.13	0.88	6.00	1.15	5.86	1.04	5.89	1.12

Note. Treatment 1: 5% cash back within 1 month; Treatment 2: 10% cash back within 1 month; Treatment 3: 5% cash back within 3 months; Treatment 4: 10% cash back within 3 months; Treatment 5: 5% discount within 1 month; Treatment 6: 10% discount within 1 month; Treatment 7: 5% discount within 3 months; Treatment 8: 10% discount within 3 months; *Control*: no financial incentive available. All the above items are seven-point Likert scales ranging from 1 to 7.

Appendix E

Dependent Variables: Correlations (N = 463)

Variables	1	2	3	4	5	6	7	8	9	10	11	12	13	14	15
1. Trust_1	–														
2. Trust_2	.80	–													
3. Trust_3	.79	.85	–												
4. Trust_4	.80	.86	.88	–											
5. PR_1	-.32	-.43	-.34	-.35	–										
6. PR_2	-.33	-.36	-.31	-.36	.57	–									
7. PR_3	-.34	-.49	-.40	-.43	.69	.63	–								
8. Intention_1	.60	.61	.60	.68	-.27	-.26	-.37	–							
9. Intention_2	.57	.64	.60	.65	-.27	-.19	-.35	.84	–						
10. Intention_3	.56	.56	.59	.62	-.25	-.28	-.30	.80	.76	–					
11. Intention_4	.56	.50	.56	.59	-.18	-.33	-.24	.71	.64	.81	–				
12. Intention_5	.55	.61	.61	.64	-.26	-.22	-.35	.79	.80	.78	.72	–			
13. CI_1	.41	.47	.45	.47	-.12	-.10	-.24	.63	.66	.51	.45	.63	–		
14. CI_2	.45	.50	.48	.51	-.20	-.13	-.29	.67	.69	.60	.53	.66	.81	–	
15. CI_3	.47	.52	.50	.55	-.18	-.17	-.29	.69	.68	.64	.58	.70	.78	.83	–

Note. PR = perceived risk; CI = continuance intention. All the above items are seven-point Likert scales ranging from 1 to 7.

All the above correlations: p < .001.

Appendix F

Multicollinearity Check by Variance Inflation Factors

Variables	VIF	
	Model 1	Model 2
AVL	1.022	--
TYP	--	1.039
AMT	--	1.020
PPD	--	1.025
Male	1.053	1.038
Age Group	1.083	1.121
Education	1.258	1.227
Income	1.178	1.157
White	1.084	1.088
Credit/Debit Card Payment	1.248	1.237
New Card Holder	1.592	1.610
Reward User	1.723	1.713
Loyalty Card Holder	1.647	1.607
Loyalty Card User	1.558	1.563
Online Shopping Experience	1.164	1.171
Mobile Banking Experience	1.437	1.450
Mobile Payment Experience	1.550	1.567

Note. AVL = availability of financial incentives; TYP = type of financial incentives; AMT = amount of financial incentives; PPD = promotion period of financial incentives.

Appendix G

Full Model 1 Diagram (N = 463)
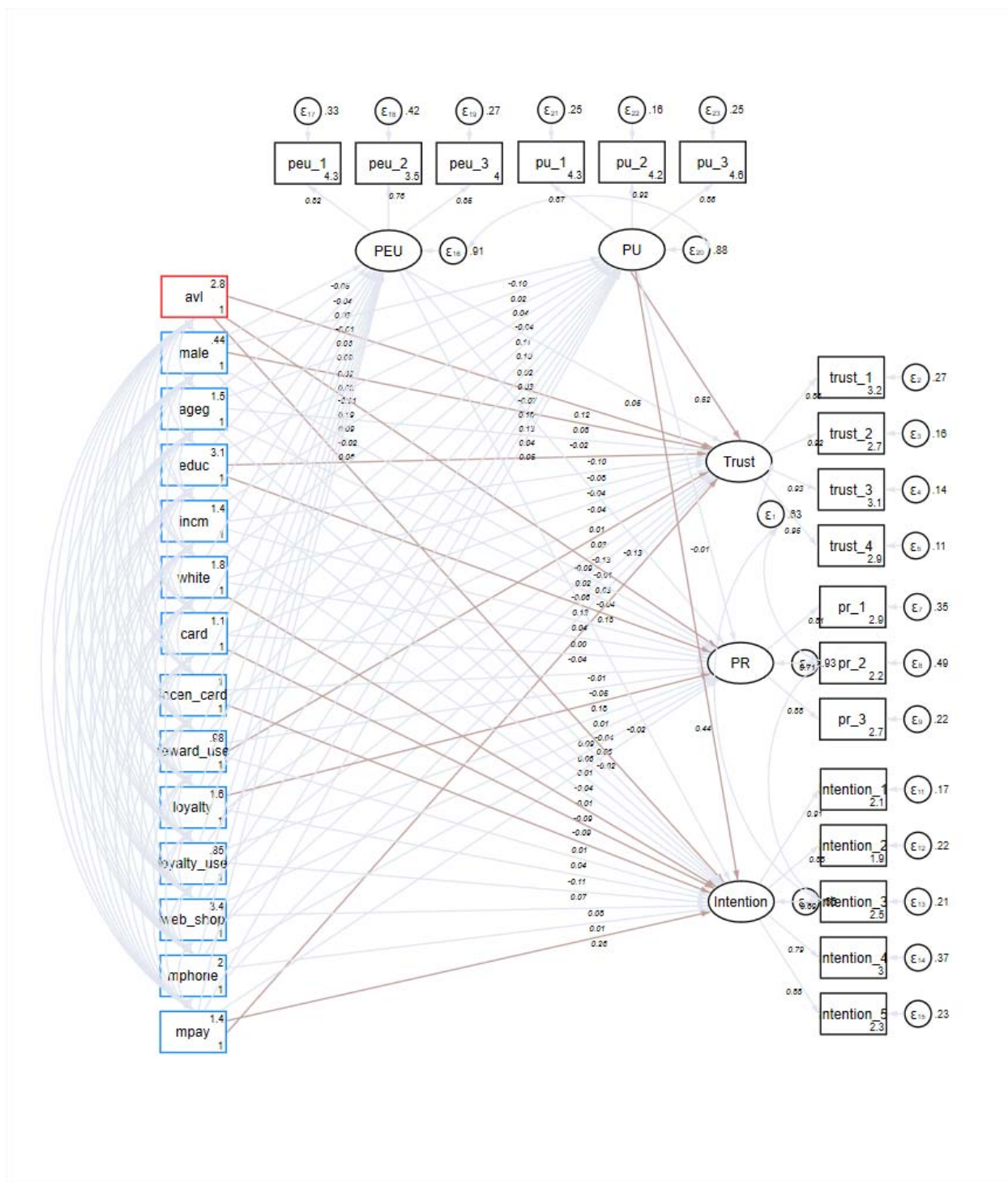
Note: Red path lines resent the significant effects.

Appendix H

Errors and Covariates Results in Model 1

Parameter Estimate	B (SE)	β (SE)	p
Error			
Trust	.08 (.70)	1.00	.000
PR	.14 (1.10)	1.00	.000
Intention	.10 (1.05)	1.00	.000
PEU	.11 (.67)	1.00	.000
PU	.09 (.66)	1.00	.000
Trust_1	.50 (.05)	.27 (.03)	.000
Trust_2	.36 (.03)	.16 (.02)	.000
Trust_3	.25 (.03)	.14 (.02)	.000
Trust_4	.22 (.02)	.11 (.01)	.000
PR_1	.77 (.09)	.35 (.05)	.000
PR_2	1.11 (.06)	.49 (.03)	.000
PR_3	.52 (.08)	.22 (.04)	.000
Intention_1	.38 (.03)	.17 (.02)	.000
Intention_2	.51 (.03)	.22 (.02)	.000
Intention_3	.41 (.02)	.21 (.02)	.000
Intention_4	.69 (.04)	.37 (.3)	.000
Intention_5	.48 (.04)	.23 (.02)	.000
PEU_1	.46 (.06)	.33 (.05)	.000
PEU_2	.71 (.07)	.42 (.04)	.000
PEU_3	.40 (.05)	.27 (.04)	.000
PU_1	.31 (.03)	.25 (.03)	.000
PU_2	.20 (.02)	.16 (.02)	.000
PU_3	.30 (.03)	.25 (.03)	.000
AVL	.10 (.01)	1.00	.000
Male	.13 (.01)	1.00	.000
Age Group	.22 (.01)	1.00	.000
Education	1.09 (.07)	1.00	.000
Income	5.66 (.35)	1.00	.000
White	.17 (.01)	1.00	.000
Credit/Debit Card Payment	.25 (.01)	1.00	.000
New Card Holder	.25 (.00)	1.00	.000
Reward User	.25 (.00)	1.00	.000
Loyalty Card Holder	.20 (.01)	1.00	.000

(Continued)

Parameter Estimate	*B (SE)*	*β (SE)*	*p*
Loyalty User	.24 (.01)	1.00	.000
Online Shopping Experience	.86 (.05)	1.00	.000
Mobile Banking Experience	2.35 (.12)	1.00	.000
Mobile Payment Experience	2.49 (.13)	1.00	.000
Covariance			
Trust and PR	-.53 (.06)	-.50 (.04)	.000
Trust and Intention	.68 (.07)	.66 (.03)	.000
PR and Intention	-.51 (.08)	-.39 (.06)	.000
PEU and PU	.64 (.08)	.78 (.04)	.000
AVL and Male	-.01 (.01)	-.12 (.05)	.033
AVL and Age Group	-.00 (.01)	-.01 (.05)	.843
AVL and Education	.01 (.02)	.03 (.05)	.512
AVL and Income	-.00 (.04)	-.00 (.05)	.984
AVL and White	.00 (.04)	.01 (.05)	.792
AVL and Credit/Debit Card Payment	-.00 (.01)	-.01 (.04)	.824
AVL and New Card Holder	.00 (.01)	.02 (.04)	.636
AVL and Reward User	.00 (.01)	.01 (.04)	.761
AVL and Loyalty Card Holder	.01 (.01)	.06 (.05)	.206
AVL and Loyalty User	.01 (.01)	.06 (.04)	.165
AVL and Online Shopping Experience	.01 (.01)	.02 (.04)	.588
AVL and Mobile Banking Experience	.00 (.01)	.01 (.05)	.882
AVL and Mobile Payment Experience	-.00 (.02)	-.01 (.04)	.822
Male and Age Group	.00 (.01)	.00 (.05)	.962
Male and Education	-.00 (.02)	-.01 (.05)	.800
Male and Income	-.01 (.04)	-.02 (.05)	.724
Male and White	-.01 (.01)	-.04 (.05)	.391
Male and Credit/Debit Card Payment	-.02 (.01)	-.11 (.04)	.017
Male and New Card Holder	-.01 (.01)	-.04 (.05)	.425
Male and Reward User	.01 (.01)	.03 (.04)	.472
Male and Loyalty Card Holder	-.02 (.01)	-.14 (.05)	.003
Male and Loyalty User	-.01 (.02)	-.04 (.04)	.395
Male and Online Shopping Experience	-.01 (.02)	-.02 (.05)	.676
Male and Mobile Banking Experience	-.00 (.03)	-.01 (.04)	.848
Male and Mobile Payment Experience	-.00 (.03)	-.00 (.05)	.936
Age Group and Education	.09 (.02)	.19 (.04)	.000
Age Group and Income	.13 (.05)	.12 (.04)	.004
Age Group and White	.02 (.01)	.10 (.05)	.023
Age Group and Credit/Debit Card Payment	.03 (.01)	.12 (.04)	.006

(Continued)

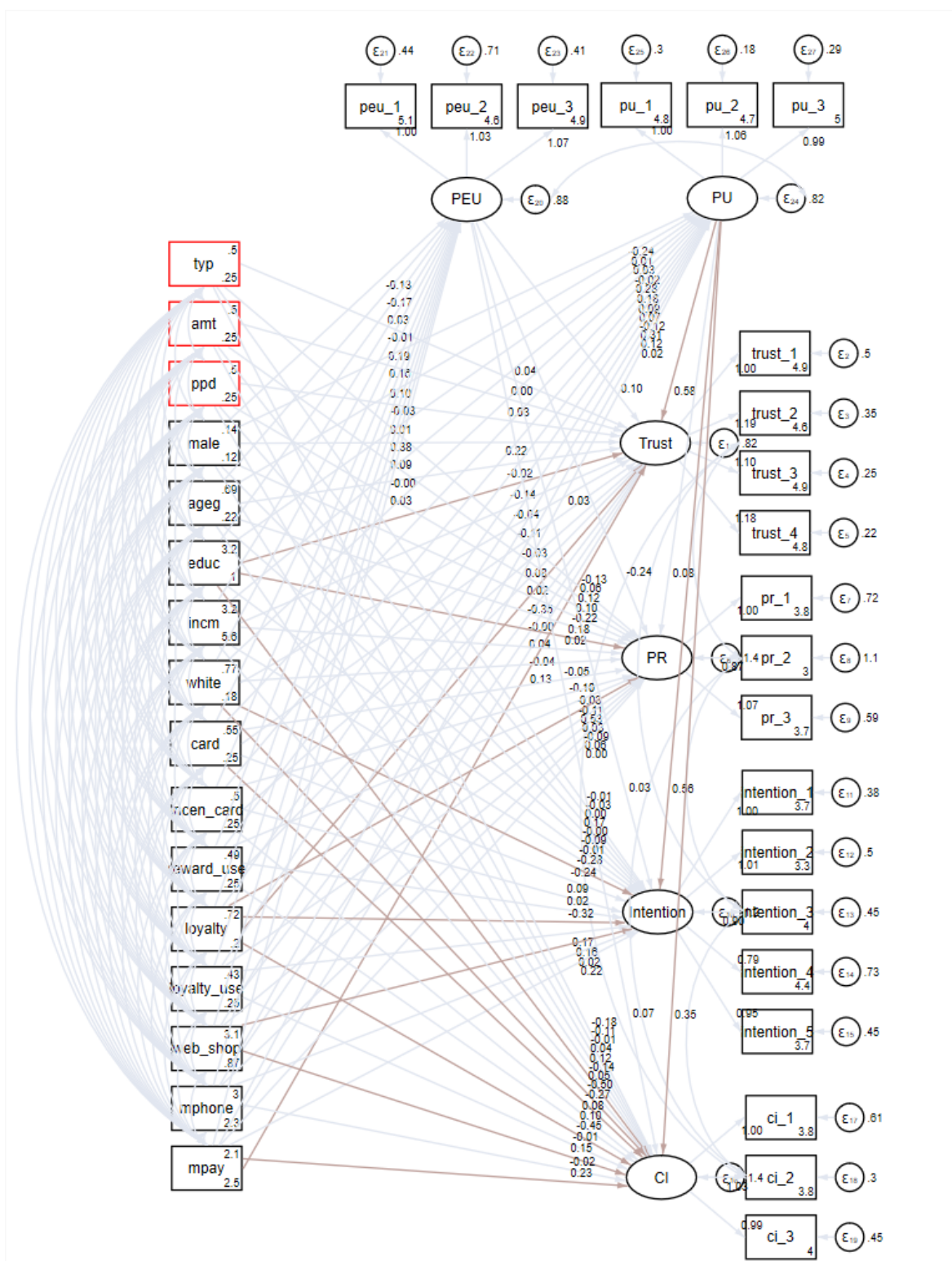| Parameter Estimate	B (SE)	β (SE)	p
Age Group and New Card Holder	.02 (.01)	.09 (.04)	.045
Age Group and Reward User	.02 (.01)	.08 (.04)	.059
Age Group and Loyalty Card Holder	.04 (.01)	.17 (.04)	.000
Age Group and Loyalty User	.03 (.01)	.12 (.04)	.005
Age Group and Online Shopping Experience	.02 (.02)	.04 (.04)	.383
Age Group and Mobile Banking Experience	.01 (.03)	.01 (.04)	.825
Age Group and Mobile Payment Experience	-.02 (.03)	-.02 (.05)	.589
Education and Income	.77 (.11)	.31 (.04)	.000
Education and White	.03 (.02)	.06 (.04)	.153
Education and Credit/Debit Card Payment	.11 (.02)	.22 (.04)	.000
Education and New Card Holder	.11 (.02)	.21 (.04)	.000
Education and Reward User	.13 (.02)	.25 (.04)	.000
Education and Loyalty Card Holder	.09 (.02)	.19 (.04)	.000
Education and Loyalty User	.05 (.02)	.10 (.04)	.014
Education and Online Shopping Experience	.09 (.04)	.10 (.04)	.020
Education and Mobile Banking Experience	.36 (.07)	.22 (.04)	.000
Education and Mobile Payment Experience	.29 (.07)	.18 (.04)	.000
Income and White	.13 (.04)	.13 (.04)	.002
Income and Credit/Debit Card Payment	.22 (.05)	.18 (.04)	.000
Income and New Card Holder	.18 (.05)	.15 (.04)	.001
Income and Reward User	.17 (.05)	.15 (.04)	.001
Income and Loyalty Card Holder	.11 (.05)	.11 (.04)	.017
Income and Loyalty User	.10 (.05)	.08 (.05)	.074
Income and Online Shopping Experience	.27 (.09)	.12 (.04)	.003
Income and Mobile Banking Experience	.33 (.17)	.09 (.05)	.053
Income and Mobile Payment Experience	.74 (.17)	.20 (.04)	.000
White and Credit/Debit Card Payment	.02 (.01)	.09 (.04)	.033
White and New Card Holder	-.01 (.01)	-.02 (.04)	.586
White and Reward User	-.01 (.01)	-.06 (.04)	.201
White and Loyalty Card Holder	.02 (.01)	.12 (.05)	.011
White and Loyalty User	.00 (.01)	.02 (.04)	.627
White and Online Shopping Experience	.01 (.02)	.02 (.04)	.656
White and Mobile Banking Experience	-.09 (.03)	-.15 (.04)	.001
White and Mobile Payment Experience	-.08 (.01)	-.12 (.05)	.017
Credit/Debit Card Payment and New Card Holder	.08 (.01)	.31 (.04)	.000
Credit/Debit Card Payment and Reward User	.07 (.01)	.28 (.04)	.000
Credit/Debit Card Payment and Loyalty Card Holder	.06 (.01)	.29 (.04)	.000
Credit/Debit Card Payment and Loyalty User	.03 (.01)	.14 (.04)	.001

(Continued)

Parameter Estimate	*B (SE)*	*β (SE)*	*p*
Credit/Debit Card Payment and Online Shopping Experience	.09 (.02)	.19 (.04)	.000
Credit/Debit Card Payment and Mobile Banking Experience	.03 (.03)	.03 (.04)	.434
Credit/Debit Card Payment and Mobile Payment Experience	.06 (.03)	.07 (.04)	.106
New Card Holder and Reward User	.14 (.01)	.56 (.04)	.000
New Card Holder and Loyalty Card Holder	.07 (.01)	.33 (.04)	.000
New Card Holder and Loyalty User	.07 (.01)	.28 (.04)	.000
New Card Holder and Online Shopping Experience	.08 (.02)	.18 (.04)	.000
New Card Holder and Mobile Banking Experience	.17 (.03)	.23 (.04)	.000
New Card Holder and Mobile Payment Experience	.20 (.04)	.26 (.04)	.000
Reward User and Loyalty Card Holder	.07 (.01)	.30 (.04)	.000
Reward User and Loyalty User	.10 (.01)	.38 (.04)	.000
Reward User and Online Shopping Experience	.10 (.02)	.22 (.04)	.000
Reward User and Mobile Banking Experience	.19 (.03)	.25 (.04)	.000
Reward User and Mobile Payment Experience	.24 (.03)	.31 (.04)	.000
Loyalty Card Holder and Loyalty User	.12 (.01)	.54 (.03)	.000
Loyalty Card Holder and Online Shopping Experience	.09 (.02)	.22 (.04)	.000
Loyalty Card Holder and Mobile Banking Experience	.06 (.03)	.08 (.04)	.071
Loyalty Card Holder and Mobile Payment Experience	.11 (.03)	.15 (.04)	.001
Loyalty User and Online Shopping Experience	.07 (.02)	.14 (.04)	.001
Loyalty User and Mobile Banking Experience	.12 (.03)	.16 (.04)	.000
Loyalty User and Mobile Payment Experience	.17 (.03)	.21 (.04)	.000
Online Shopping Experience and Mobile Banking Experience	.26 (.06)	.18 (.04)	.000
Online Shopping Experience and Mobile Payment Experience	.42 (.07)	.29 (.04)	.000
Mobile Banking Experience and Mobile Payment Experience	1.24 (.11)	.51 (.03)	.000

Note: AVL = availability of financial incentives; PR = perceived risk; CI = continuance intention. $\chi^2(309) = 773.90$, $p < .001$; Satorra-Bentler scaled $\chi^2(309) = 710.76$, $p < .001$; CFI = .94; TLI = .92; Satorra-Bentler CFI: .94; Satorra-Bentler TLI: .93; RMSEA = .06; Satorra-Bentler RMSEA: .05; SRMR = .03.

Appendix I

Full Model 2 Diagram (N = 410)

Note: Red path lines resent the significant effects.

Appendix J

Errors and Covariates Results in Model 2

Parameter Estimate	*B (SE)*	*β (SE)*	*p*
Error			
Trust	.82 (.09)	1.00	.000
PR	1.42 (.15)	1.00	.000
Intention	1.19 (.11)	1.00	.000
CI	1.37 (.11)	1.00	.000
PEU	.88 (.12)	1.00	.000
PU	.82 (.09)	1.00	.000
Trust_1	.50 (.05)	.28 (.03)	.000
Trust_2	.35 (.03)	.16 (.02)	.000
Trust_3	.25 (.03)	.14 (.02)	.000
Trust_4	.22 (.02)	.11 (.01)	.000
PR_1	.72 (.10)	.32 (.05)	.000
PR_2	1.12 (.07)	.49 (.03)	.000
PR_3	.59 (.08)	.25 (.04)	.000
Intention_1	.38 (.04)	.17 (.02)	.000
Intention_2	.50 (.04)	.22 (.02)	.000
Intention_3	.45 (.03)	.24 (.02)	.000
Intention_4	.73 (.04)	.39 (.03)	.000
Intention_5	.45 (.05)	.22 (.03)	.000
CI_1	.61 (.06)	.25 (.03)	.000
CI_2	.30 (.05)	.13 (.02)	.000
CI_3	.45 (.06)	.20 (.03)	.000
PEU_1	.44 (.07)	.31 (.04)	.000
PEU_2	.71 (.08)	.41 (.04)	.000
PEU_3	.41 (.06)	.27 (.04)	.000
PU_1	.30 (.04)	.24 (.03)	.000
PU_2	.18 (.02)	.15 (.02)	.000
PU_3	.29 (.03)	.25 (.03)	.000
TYP	.25 (.00)	1.00	.000
AMT	.25 (.00)	1.00	.000
PPD	.25 (.01)	1.00	.000
Male	.12 (.01)	1.00	.000
Age Group	.22 (.01)	1.00	.000
Education	1.03 (.07)	1.00	.000

(Continued)

Parameter Estimate	B (SE)	β (SE)	p
Income	5.55 (.36)	1.00	.000
White	.18 (.01)	1.00	.000
Credit/Debit Card Payment	.25 (.01)	1.00	.000
New Card Holder	.25 (.00)	1.00	.000
Reward User	.25 (.00)	1.00	.000
Loyalty Card Holder	.20 (.01)	1.00	.000
Loyalty User	.25 (.01)	1.00	.000
Online Shopping Experience	.87 (.05)	1.00	.000
Mobile Banking Experience	2.27 (.13)	1.00	.000
Mobile Payment Experience	2.54 (.15)	1.00	.000
Trust and PR	-.53 (.06)	-.49 (.05)	.000
Trust and Intention	.62 (.07)	.63 (.04)	.000
Trust and CI	.54 (.07)	.51 (.05)	.000
PR and Intention	-.47 (.09)	-.36 (.06)	.000
PR and CI	-.34 (.09)	-.24 (.07)	.000
Intention and CI	.98 (.09)	.77 (.03)	.000
PEU and PU	.67 (.09)	.79 (.05)	.000
TYP and AMT	-.00 (.01)	-.01 (.05)	.756
TYP and PPD	.00 (.01)	.01 (.05)	.918
TYP and Male	-.01 (.01)	-.06 (.05)	.231
TYP and Age Group	-.03 (.01)	-.13 (.05)	.008
TYP and Education	-.02 (.02)	-.03 (.05)	.502
TYP and Income	.05 (.06)	.04 (.05)	.401
TYP and White	.00 (.00)	.01 (.05)	.893
TYP and Credit/Debit Card Payment	-.01 (.01)	-.05 (.05)	.300
TYP and New Card Holder	.01 (.01)	.02 (.05)	.608
TYP and Reward User	-.01 (.01)	-.05 (.05)	.296
TYP and Loyalty Card Holder	-.01 (.01)	-.07 (.05)	.152
TYP and Loyalty User	-.02 (.01)	-.09 (.05)	.069
TYP and Online Shopping Experience	-.00 (.02)	-.00 (.05)	.981
TYP and Mobile Banking Experience	-.02 (.04)	-.03 (.05)	.595
TYP and Mobile Payment Experience	.00 (.04)	.01 (.05)	.909
AMT and PPD	-.01 (.01)	-.02 (.05)	.595
AMT and Male	.00 (.01)	.01 (.05)	.821
AMT and Age Group	.01 (.01)	.05 (.05)	.277
AMT and Education	.02 (.02)	.04 (.05)	.384
AMT and Income	-.01 (.05)	-.01 (.05)	.807
AMT and White	-.00 (.05)	-.02 (.05)	.716

(Continued)

Parameter Estimate	*B (SE)*	*β (SE)*	*p*
AMT and Credit/Debit Card Payment	.01 (.01)	.02 (.05)	.661
AMT and New Card Holder	.01 (.01)	.05 (.05)	.259
AMT and Reward User	.01 (.01)	.03 (.05)	.539
AMT and Loyalty Card Holder	-.01 (.01)	-.02 (.05)	.625
AMT and Loyalty User	-.01 (.01)	-.04 (.05)	.450
AMT and Online Shopping Experience	-.02 (.02)	-.04 (.05)	.365
AMT and Mobile Banking Experience	.02 (.04)	.03 (.05)	.491
AMT and Mobile Payment Experience	.05 (.04)	.06 (.05)	.229
PPD and Male	.01 (.01)	.05 (.05)	.258
PPD and Age Group	-.01 (.01)	-.04 (.05)	.351
PPD and Education	-.03 (.02)	-.06 (.04)	.217
PPD and Income	-.05 (.05)	-.04 (.05)	.325
PPD and White	-.00 (.01)	-.01 (.05)	.907
PPD and Credit/Debit Card Payment	-.00 (.01)	-.05 (.05)	.296
PPD and New Card Holder	-.00 (.01)	-.00 (.05)	.919
PPD and Reward User	-.00 (.01)	-.01 (.05)	.830
PPD and Loyalty Card Holder	-.01 (.01)	-.04 (.04)	.319
PPD and Loyalty User	-.02 (.01)	-.09 (.05)	.064
PPD and Online Shopping Experience	.03 (.02)	.07 (.05)	.139
PPD and Mobile Banking Experience	-.02 (.04)	-.02 (.05)	.631
PPD and Mobile Payment Experience	.01 (.04)	.01 (.05)	.856
Male and Age Group	.00 (.01)	.01 (.05)	.862
Male and Education	-.01 (.02)	-.02 (.05)	.616
Male and Income	-.00 (.04)	-.01 (.05)	.905
Male and White	-.01 (.01)	-.04 (.05)	.391
Male and Credit/Debit Card Payment	-.02 (.01)	-.09 (.04)	.043
Male and New Card Holder	.00 (.01)	.00 (.05)	.951
Male and Reward User	.01 (.01)	.04 (.05)	.385
Male and Loyalty Card Holder	-.02 (.01)	-.10 (.05)	.036
Male and Loyalty User	-.00 (.01)	-.01 (.05)	.889
Male and Online Shopping Experience	-.01 (.02)	-.02 (.05)	.706
Male and Mobile Banking Experience	-.02 (.03)	-.04 (.05)	.380
Male and Mobile Payment Experience	.00 (.03)	.00 (.05)	.967
Age Group and Education	.09 (.02)	.19 (.04)	.000
Age Group and Income	.09 (.05)	.08 (.05)	.077
Age Group and White	.03 (.01)	.13 (.05)	.008
Age Group and Credit/Debit Card Payment	.03 (.01)	.12 (.05)	.013
Age Group and New Card Holder	.02 (.01)	.09 (.05)	.073

(Continued)

Parameter Estimate	B (SE)	β (SE)	p
Age Group and Reward User	.01 (.01)	.06 (.05)	.218
Age Group and Loyalty Card Holder	.04 (.01)	.19 (.05)	.000
Age Group and Loyalty User	.03 (.01)	.12 (.05)	.007
Age Group and Online Shopping Experience	.01 (.01)	.03 (.05)	.493
Age Group and Mobile Banking Experience	.02 (.03)	.03 (.05)	.555
Age Group and Mobile Payment Experience	-.04 (.03)	-.06 (.05)	.213
Education and Income	.67 (.11)	.28 (.04)	.000
Education and White	.04 (.02)	.09 (.04)	.053
Education and Credit/Debit Card Payment	.09 (.02)	.18 (.04)	.000
Education and New Card Holder	.10 (.02)	.20 (.04)	.000
Education and Reward User	.11 (.02)	.21 (.04)	.000
Education and Loyalty Card Holder	.08 (.02)	.17 (.05)	.000
Education and Loyalty User	.04 (.02)	.09 (.05)	.058
Education and Online Shopping Experience	.07 (.04)	.07 (.04)	.090
Education and Mobile Banking Experience	.35 (.07)	.23 (.04)	.000
Education and Mobile Payment Experience	.28 (.08)	.17 (.05)	.000
Income and White	.12 (.04)	.13 (.04)	.005
Income and Credit/Debit Card Payment	.21 (.05)	.18 (.04)	.000
Income and New Card Holder	.15 (.06)	.13 (.05)	.008
Income and Reward User	.13 (.05)	.11 (.05)	.015
Income and Loyalty Card Holder	.10 (.05)	.09 (.05)	.041
Income and Loyalty User	.07 (.06)	.06 (.05)	.224
Income and Online Shopping Experience	.30 (.10)	.14 (.04)	.001
Income and Mobile Banking Experience	.29 (.18)	.08 (.05)	.110
Income and Mobile Payment Experience	.67 (.18)	.18 (.05)	.000
White and Credit/Debit Card Payment	.03 (.00)	.13 (.05)	.006
White and New Card Holder	-.01 (.01)	-.03 (.05)	.526
White and Reward User	-.01 (.01)	-.03 (.05)	.500
White and Loyalty Card Holder	.02 (.01)	.11 (.05)	.030
White and Loyalty User	.00 (.01)	.02 (.05)	.686
White and Online Shopping Experience	.02 (.02)	.04 (.04)	.365
White and Mobile Banking Experience	-.09 (.03)	-.14 (.04)	.002
White and Mobile Payment Experience	-.07 (.03)	-.10 (.05)	.053
Credit/Debit Card Payment and New Card Holder	.08 (.01)	.31 (.05)	.000
Credit/Debit Card Payment and Reward User	.07 (.01)	.28 (.04)	.000
Credit/Debit Card Payment and Loyalty Card Holder	.06 (.01)	.27 (.04)	.000
Credit/Debit Card Payment and Loyalty User	.04 (.01)	.14 (.05)	.002
Credit/Debit Card Payment and Online Shopping Experience	.09 (.02)	.19 (.04)	.000

(Continued)

Parameter Estimate	B (SE)	β (SE)	p
Credit/Debit Card Payment and Mobile Banking Experience	.05 (.04)	.06 (.05)	.180
Credit/Debit Card Payment and Mobile Payment Experience	.05 (.04)	.06 (.05)	.198
New Card Holder and Reward User	.14 (.01)	.57 (.04)	.000
New Card Holder and Loyalty Card Holder	.07 (.01)	.32 (.04)	.000
New Card Holder and Loyalty User	.07 (.01)	.28 (.05)	.000
New Card Holder and Online Shopping Experience	.08 (.02)	.18 (.05)	.000
New Card Holder and Mobile Banking Experience	.18 (.04)	.24 (.05)	.000
New Card Holder and Mobile Payment Experience	.20 (.04)	.25 (.05)	.000
Reward User and Loyalty Card Holder	.07 (.01)	.29 (.04)	.000
Reward User and Loyalty User	.09 (.01)	.37 (.04)	.000
Reward User and Online Shopping Experience	.10 (.02)	.21 (.04)	.000
Reward User and Mobile Banking Experience	.20 (.04)	.26 (.04)	.000
Reward User and Mobile Payment Experience	.25 (.04)	.32 (.04)	.000
Loyalty Card Holder and Loyalty User	.12 (.01)	.54 (.03)	.000
Loyalty Card Holder and Online Shopping Experience	.09 (.02)	.21 (.04)	.000
Loyalty Card Holder and Mobile Banking Experience	.08 (.03)	.11 (.05)	.020
Loyalty Card Holder and Mobile Payment Experience	.11 (.03)	.16 (.04)	.001
Loyalty User and Online Shopping Experience	.06 (.02)	.13 (.04)	.004
Loyalty User and Mobile Banking Experience	.12 (.04)	.16 (.05)	.001
Loyalty User and Mobile Payment Experience	.17 (.04)	.21 (.04)	.000
Online Shopping Experience and Mobile Banking Experience	.23 (.07)	.16 (.04)	.001
Online Shopping Experience and Mobile Payment Experience	.42 (.07)	.28 (.04)	.000
Mobile Banking Experience and Mobile Payment Experience	1.23 (.12)	.51 (.03)	.000

Note: TYP = type; AMT = amount; PPD = promotion period; PR = perceived risk; CI = continuance intention; PEU = perceived ease of use; PU = perceived usefulness. $\chi^2(420) = 920.22$, $p < .001$; Satorra-Bentler scaled $\chi^2(420) = 849.33$, $p < .001$; CFI = .94; TLI = .92; Satorra-Bentler CFI: .94; Satorra-Bentler TLI: .93; RMSEA = .05; Satorra-Bentler RMSEA: .05; SRMR = .03.

Appendix K

Pilot Data Analysis in Model 1 and Model 2

Parameter Estimate	Model 1 (N = 415)		Model 2 (N = 367)	
	B (SE)	βl	B (SE)	βl
Structural Model				
AVL --> Trust	.09 (.14)	.03*		
AVL --> PR	-.03 (.19)	.01*		
AVL --> Intention	.06 (.17)	.02*		
TYP --> Trust			.12 (.10)	.05
TYP --> PR			.07 (.11)	.03
TYP --> Intention			.14 (.12)	.05
TYP --> CI			.00 (.12)	.00
AMT --> Trust			-.07 (.10)	-.03
AMT --> PR			.06 (.10)	.03
AMT --> Intention			.06 (.12)	.02
AMT --> CI			.01 (.12)	.06
PPD --> Trust			-.09 (.10)	-.04
PPD --> PR			.05 (.11)	.02
PPD --> Intention			-.09 (.11)	-.03
PPD --> CI			.04 (.12)	.00
PEU --> Trust	.12 (.08)	.11	.17 (.10)	.15
PU --> Trust	.43 (.09)	.38***	.39 (.11)	.33***
Male --> Trust	.06 (.10)	.03	.03 (.11)	.01
Age --> Trust	-.02 (.04)	-.03	-.03 (.05)	-.03
Education --> Trust	-.06 (.07)	-.05	-.06 (.08)	-.04
Income --> Trust	.00 (.01)	.00	-.01 (.02)	-.02
White --> Trust	-.29 (.11)	-.12**	-.31 (.12)	-.12**
Debit/Credit Card Payment --> Trust	-.07 (.11)	-.03	-.08 (.12)	-.04
New Card Holder --> Trust	.18 (.12)	.08	.18 (.13)	.08
Reward User --> Trust	.06 (.13)	.03	.07 (.14)	.03
Loyalty Card Holder --> Trust	-.12 (.12)	-.05	-.11 (.13)	-.05
Loyalty User --> Trust	.01 (.12)	.00	.02 (.13)	.01
Online Shopping Experience --> Trust	-.05 (.05)	-.04	-.05 (.06)	-.04
Mobile Banking Experience --> Trust	.06 (.04)	.08	.05 (.04)	.06
Mobile Payment Experience --> Trust	.10 (.04)	.13**	.10 (.04)	.13**
PEU --> PR	.01 (.08)	.01	-.01 (.09)	-.01
PU --> PR	.00 (.09)	.00	-.01 (.10)	-.01

(Continued)

Parameter Estimate	Model 1 (N = 415)		Model 2 (N = 367)	
	B (SE)	βl	B (SE)	βl
Male --> PR	-.33 (.11)	-.14**	-.24 (.12)	-.11
Age --> PR	.08 (.05)	.10	.05 (.05)	.06
Education --> PR	.09 (.08)	.07	.16 (.09)	.13
Income --> PR	.01 (.02)	.04	.02 (.02)	.05
White --> PR	.14 (.13)	.06	.23 (.14)	.10
Debit/Credit Card Payment --> PR	-.15 (.12)	-.07	-.17 (.13)	-.07
New Card Holder --> PR	-.28 (.15)	-.12*	-.21 (.16)	-.09
Reward User --> PR	.18 (.14)	.08	.17 (.16)	.08
Loyalty Card Holder --> PR	.11 (.14)	.05	.19 (.14)	.08
Loyalty User --> PR	-.22 (.15)	-.09	-.36 (.16)	-.16*
Online Shopping Experience --> PR	-.02 (.07)	-.02	-.05 (.07)	-.04
Mobile Banking Experience --> PR	.01 (.05)	.01	.05 (.05)	.06
Mobile Payment Experience --> PR	-.08 (.05)	-.11	-.11 (.05)	-.15*
PEU --> Intention	.23 (.10)	.18*	.26 (.11)	.20*
PU --> Intention	.50 (.11)	.37***	.47 (.12)	.35***
Male --> Intention	.17 (.12)	.06	.10 (.12)	.04
Age --> Intention	.02 (.06)	.02	.03 (.04)	.04
Education --> Intention	-.06 (.09)	-.04	-.10 (.10)	-.07
Income --> Intention	-.02 (.02)	-.05	-.03 (.02)	-.07
White --> Intention	-.28 (.14)	-.09*	-.24 (.15)	-.08
Debit/Credit Card Payment --> Intention	-.11 (.12)	-.04	-.10 (.13)	-.04
New Card Holder --> Intention	.10 (.15)	.04	.11 (.16)	.04
Reward User --> Intention	.07 (.14)	.03	.14 (.15)	.05
Loyalty Card Holder --> Intention	-.20 (.13)	-.07	-.28 (.14)	-.10*
Loyalty User --> Intention	.15 (.14)	.05	.16 (.15)	.06
Online Shopping Experience --> Intention	.03 (.06)	.02	.04 (.07)	.02
Mobile Banking Experience --> Intention	.03 (.05)	.03	.02 (.05)	.02
Mobile Payment Experience --> Intention	.19 (.05)	.22***	.18 (.05)	.2***
PEU --> CI			.01 (.11)	.01
PU --> CI			.39 (.12)	.31***
Male --> CI			.04 (.12)	.02
Age --> CI			.02 (.06)	.02
Education --> CI			-.08 (.09)	-.05
Income --> CI			-.02 (.02)	-.07
White --> CI			-.32 (.14)	-.12*
Debit/Credit Card Payment --> CI			-.00 (.13)	-.00

(Continued)

Parameter Estimate	Model 1 (N = 415)		Model 2 (N = 367)	
	B (SE)	βl	B (SE)	βl
New Card Holder --> CI			-.06 (.16)	-.02
Reward User --> CI			.14 (.16)	.06
Loyalty Card Holder --> CI			-.15 (.14)	-.06
Loyalty User --> CI			-.00 (.16)	-.00
Online Shopping Experience --> CI			.00 (.07)	.00
Mobile Banking Experience --> CI			-.03 (.05)	-.03
Mobile Payment Experience --> CI			.20 (.05)	.24***
Male --> PEU	.10 (.10)	.05	.08 (.11)	.04
Age --> PEU	-.05 (.06)	-.07	-.08 (.07)	-.11
Education --> PEU	.05 (.08)	.04	.10 (.10)	.09
Income --> PEU	.03 (.01)	.10*	.03 (.01)	.11*
White --> PEU	.29 (.13)	.12*	.33 (.13)	.14**
Debit/Credit Card Payment --> PEU	.15 (.11)	.07	.16 (.11)	.08
New Card Holder --> PEU	.13 (.13)	.06	.18 (.14)	.09
Reward User --> PEU	-.01 (.14)	-.00	-.08 (.15)	-.04
Loyalty Card Holder --> PEU	.02 (.12)	.01	-.04 (.12)	-.02
Loyalty User --> PEU	.04 (.13)	.02	.05 (.14)	.03
Online Shopping Experience --> PEU	-.05 (.06)	-.04	-.03 (.06)	-.03
Mobile Banking Experience --> PEU	.00 (.05)	.00	.02 (.05)	.03
Mobile Payment Experience --> PEU	-.05 (.04)	-.08	-.04 (.04)	-.06
Male --> PU	-.07 (.10)	-.04	-.05 (.11)	-.03
Age --> PU	-.00 (.04)	-.00	.00 (.04)	.00
Education --> PU	.03 (.07)	.02	.05 (.08)	.04
Income --> PU	.04 (.01)	.12**	.03 (.01)	.12*
White --> PU	.41 (.12)	.19***	.49 (.12)	.22***
Debit/Credit Card Payment --> PU	-.05 (.11)	-.02	-.11 (.11)	-.06
New Card Holder --> PU	.11 (.13)	.05	.19 (.14)	.10
Reward User --> PU	-.05 (.13)	-.03	-.05 (.14)	-.03
Loyalty Card Holder --> PU	.09 (.11)	.05	.15 (.12)	.07
Loyalty User --> PU	.21 (.12)	.10	.06 (.13)	.03
Online Shopping Experience --> PU	-.00 (.06)	-.00	-.00 (.06)	-.00
Mobile Banking Experience --> PU	.02 (.04)	.03	.04 (.04)	.06
Mobile Payment Experience --> PU	-.07 (.03)	-.11*	-.07 (.03)	-.10

Model Fit Indices

	Model 1	Model 2
Satorra-Bentler Scaled Chi Square	$\chi^2(309) = 540.75$	$\chi^2(420) = 653.99$
Satorra-Bentler CFI	.95	.96

Parameter Estimate	Model 1 (N = 415)		Model 2 (N = 367)	
	B (SE)	βl	B (SE)	βl
Satorra-Bentler TLI	.94		.94	
Satorra-Bentler RMSEA	.04		.04	
SRMR	.04		.04	

Note: TYP = type; AMT = amount; PPD = promotion period; PR = perceived risk; CI = continuance intention; PEU

= perceived ease of use; PU = perceived usefulness.