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The Impact of Mobile Payment on Consumer Behavior: A Unified Model

Completed Research

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Abstract

The adoption of mobile payment solutions is increasing worldwide at a rapid rate. However, in comparison to the research on the impact of traditional payment methods on consumer behavior, research examining the impact of mobile payment is scarce. In this study, based on psychology literature and mobile payment literature, we develop a unified model to examine the impact of mobile payment on consumer behavior that incorporates both pain and pleasure and their antecedents: payment transparency and payment decoupling. We also include the value perception of the payment method (a second order construct) to understand its relationship with the two hedonic constructs. The model is evaluated using the positivist survey method. Results show that the value perception of mobile payment affects purchase intention through its positive relationship with payment decoupling. Payment transparency positively affects pain of payment, while payment decoupling moderates (positive) the relationship (negative) between pain and pleasure. Pain and pleasure then jointly affect mobile payment user's purchase intention. This research contributes to both the literature on the post adoption impact of mobile payment as well as the literature on the psychological effects of payment method.

Keywords

Mobile payment, payment transparency, payment decoupling, pain of payment, pleasure of payment

Introduction

Due to the near universal presence of mobile devices, it comes as no surprise that adoption of mobile payment solutions is increasing worldwide and is driving growth in non-cash transactions. Rapidly increasing mobile consumer and P2P payments are fueling the global growth of mobile payment services. Especially, the Covid-19 pandemic starting from 2020 accelerated the adoption of digital wallets, mobile payments and contactless payment type. In the U.S., consumers were now prioritizing contactless payments while merchants began to encourage users to use contactless methods. 69% of retailers saw an increase in contactless payments in 2020, and 94% expect that increase to continue. It is reported that 92.3 million U.S. consumers (14 and up) used proximity-based mobile payments at least one time during a six-month period in 2020 and the usage is now expected to surpass half of all smartphone users by 2025 (Sieber,2021). Though mobile payment has become a new trend for consumer consumption globally and has been gaining popularity in the U.S. during the past two years, research on it is still in its early stage, focusing mainly on mobile payment adoption (Koenig-Lewis et al., 2015; Mallat, 2007).

Only until recent years, some studies on mobile payment started to look at the post adoption impacts of mobile payment and found that the use of mobile payment has several impacts on consumer's purchase behavior; and such impacts could vary by product type and by money sources (Liu et.al, 2021; Xu et al.,2018). Being able to fully assess the impact of a technology adoption and to understand its underlying mechanism is always important in that, both users and organizations will be able to better embrace both positive and negative consequences. To do so, we borrowed literature from psychology on the psychological effects of different payment modes. It is suggested that the payment method consumers choose for purchase could affect consumer's purchase intention as well as their purchase behavior through affecting their payment and *purchase* related emotional experience (Feinberg, 1986; Mishra et al., 2006; Prelec & Loewenstein, 1998). Pain of payment, which is defined as the 'negative emotion experienced when parting with money' has been found to be at the core of these effects and is an important inhibitor of consumer

spending (Prelec & Loewenstein, 1998; Thomas et al., 2011). Research in this area also identified several antecedents for pain of payment, such as payment transparency (Soman, 2003), and payment coupling (Prelec & Loewenstein, 1998; Raghurir & Srivastava, 2008; Thaler, 1999). Furthermore, the double-entry mental account theory describes the nature of reciprocal interactions between pleasure of consumption and pain of paying: thinking of payment at the time of consumption generates pain that often undermines the pleasure derived from the consumption, and in turn, the pain of paying can be buffered by either rehearsing or anticipating the pleasure associated with consumption at the time of making the payment (Prelec & Loewenstein, 1998). In this paper, we developed a unified model incorporating both pain and pleasure and their antecedents: payment transparency and payment decoupling. We also include the value perception on payment method (as a second order construct with several value dimensions) to understand its relationship with the hedonic constructs and their antecedents. We employ the positivist survey method to test the model developed based on theory from payment psychology literature and mobile payment literature.

Literature Review

Payment Mechanisms and Spending Behavior

The relationship between payment mechanism and spending behavior has long been established, and the notion that spending behavior is influenced by payment mechanisms is not new. The early study of Hirschman (1979) is among the first studies that tested how payment systems are related to retail purchasing behavior. He found that the use of credit cards not only increases the likelihood of making a purchase in comparison to cash, but also purchases made using credit card payment systems are more likely to be larger in dollar amount. Later research started to verify the credit card effect while finding the underlying causes in consumer psychology. Feinberg (1986) examined the causal relationship between credit card and spending behavior, and their experiment results supported their hypothesis that people are more likely to spend (motivation to spend), spend more (magnitude), and spend more quickly (reduced decision time). Prelec & Loewenstein (1998) proposed the “Double-Entry” mental accounting theory to explain consumer spending behavior as the hedonic interplay between pleasure of consumption and the pain of paying. They introduced the concept “coupling” that represents the degree to which consumption calls to mind thoughts of payment at the time each of these two is happening. Soman & Gourville (2001) then looked at the psychological mechanisms that drive transaction decoupling. They found that it was cognitively difficult to allocate a single payment across multiple benefits, and the relevance of the past payment in the evaluation of the transaction gradually decreases as the temporal separation between payment and consumption increases. Similarly, ambiguity in the transaction format (payment transparency) has been shown to reduce the impact of the past payment as well. In later research, Soman (2003) formally proposed payment transparency as another dimension of payment method that could be used to explain the effect of payment method on consumer spending. They found that payment transparency, defined as the salience both in physical form and amount, negatively influences the level of consumption, but only on items whose consumption rate is flexible (i.e., non-essential goods). They argued that the difference in payment transparency results in different levels of the pain of payment, and consequently influences spending and consumption behavior. But neither did they measure the consumer perceived payment transparency along salience in form and amount, nor did they involve the measure of pain of paying in their experiment.

Pain of Payment, Payment Transparency, and Payment Decoupling

Zellermayer (1996) first proposed the notion of ‘pain of paying’ to depict the hedonic process associated with spending money: a direct and immediate displeasure or pain a consumer derives from the act of making a payment. He further argues that the pain is distinguishable from the future decline in utility that results from the deletion of one’s wealth. This paradigm advances people’s understanding of the role of psychological factors in making purchase decisions. Prelec & Loewenstein (1998) built on this notion and described the interaction between pain of payment and pleasure of consumption: the experience of immediate pain associated with payment can undermine the pleasure derived from consumption, and vice versa, such pain can be buffered by thinking about the benefits associated with the consumption. They argue that, while pain of payment is hedonically inefficient, it plays an important role in consumer self-regulation

by ensuring consumer's awareness of the cost when making decisions. Later research by Soman (2003) argues that the pain of payment not only depends on the amount to be paid, but also depends on the method by which payment is made. They used data from real consumption situations to show that a difference in the transparency of payments caused by different payment mechanisms changes the pain of making a payment, and consequently influences spending and consumption behavior.

Soman (2001) first proposed that the extent to which one mentally rehearses the payment amount plays an important role in making payment transparent to consumers. Later Soman (2003) formally presented the concept of payment transparency as "the relative salience of the payment, both in terms of physical form and the amount, relative to paying by cash". Based on their definition, payment transparency is the perceptual similarity between cash and a given payment mechanism, and the more transparent the payment method is, the stronger the cues associated with the payment method that reminds one of one's wealth depletion. Another research of Soman (2003) demonstrated that the actions used to make a payment may also increase payment transparency. Raghurir and Srivastava (2008) showed that the extent to which one perceives their cash as real money or toy money has also been shown to affect payment transparency. People perceive a higher level of payment transparency when they feel familiarity with the payment method. Yeung (2014) found that the physical appearance of cash may have an inhibitory effect on spending, but that this effect is not absolute. They discovered that it is the attention to counting cash rather than the mental rehearsal of the payment amount or physical effort that inhibits spending.

Payment coupling is defined by Prelec and Loewenstein (1998) as the psychological link between payment and consumption at the time that either is occurring. The more closely coupled the payment and consumption is at the time of consumption, the greater is the attenuating effect of pain on the pleasure. On the other hand, the more closely coupled the payment and consumption is at the time of payment, the greater is the buffering effect of pleasure on pain. Soman & Gourville (2001) found that a bundled transaction will result in low payment and consumption coupling at the time of consumption, which will result in a greater willingness to forgo any individual unit of consumption, while a high coupling in an unbundled transaction, in turn, leads to a heightened attention to the sunk costs of the transaction and a decreased willingness to forgo the consumption of the pending benefit. Their research showed that the one-to-many relationships between payment and consumption in price bundling will lead to a low level of payment/consumption coupling. They further found that credit card purchases allow consumers to buy now and pay later which creates a temporal separation between the purchase and the payment that reduces payment coupling (Raghurir & Srivastava, 2008; Thaler, 1999).

Mobile Payment and its Impact on Consumer Purchase Decision

In comparison to the research on the impact of traditional payment methods on consumer behavior, research looking at the impact of mobile payment is scarce. Based on previous research on payment method and consumer behavior, Braga et al. (2013) provide a comprehensive model including antecedents such as temporal separation, temporal orientation, self-control and pain of payment, with behavioral outcomes including the purchasing probability and the spending amount. Falk et al. (2016) showed that mobile payments, which are low in payment transparency are embodied with a greater premium (as a result of benefits attenuating and pain buffering), lead to more positive OSPI (Overall Store Price Image) judgments which significantly increase customers' willingness to pay. A study carried out by Xu et al. (2018) found that the total transaction amount increases by around 2.4% after the Alipay adoption, and the total transaction frequency increases by around 23.5%. Such relationships are even stronger for consumers in the medium income group, during hedonic shopping, and with low price products. Recent consumer behavior research by Boden et al. (2020) looked at how mobile payment leads to an increase in the willingness to purchase. However, their research bypassed the constructs related to the hedonic impacts of consumption and payment and proposed that the increased Willingness to Pay (WTP) is due to the convenience of mobile payment, contingent on its adoption. Another research by Liu et al. (2021) involves two experiments to study the impacts of mobile payment on consumer behavior. They found that use of mobile payment increases WTP; such impacts only apply to specific product category, and when the money is earned as opposed to gifted. They further identified that mobile payment reduced payment time (when the ease of use of in cash and mobile payment are held equal).

Research Model and Hypothesis

Based on the above literature, we proposed a unified model (see Figure 1) that advances our understanding in the following three ways: 1) pain and pleasure's effect on the intention to purchase 2) the moderating effect of payment decoupling on the relationship between pain and pleasure 3) payment transparency's effect on pain of payment and on payment decoupling 4) value perception's effect on payment transparency and payment decoupling.

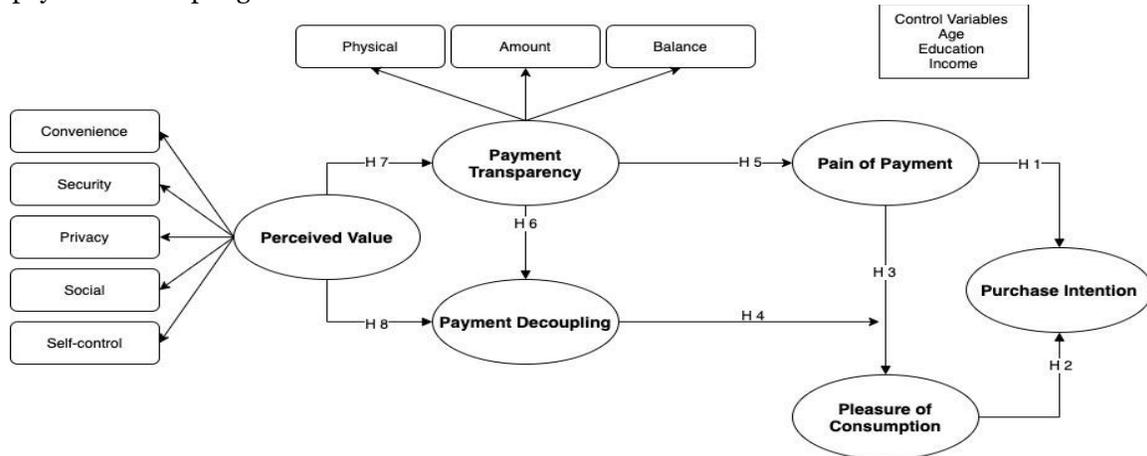


Figure 1. Research Model for Quantitative Study

“Pain of paying” is defined as “a direct and immediate displeasure or pain a consumer derives from the act of making a payment” (Zellermayer, 1996). Similarly, pleasure of consumption is defined as the instant pleasure consumer derives from purchasing and acquiring the product. When people make purchases, they often experience an immediate psychological pain associated with the payment act as well as an immediate pleasure associated with product acquisition. Individuals have immediate affective reactions to potential gain and loss, which serve as input into the decision about whether or not to purchase a product. The painful association with the cost undermines the pleasure derived from consumption and impedes excessive immediate indulgence (Gourville & Soman, 1998; Prelec & Loewenstein, 1998). On the other hand, the activation of the pleasure increases the willingness to make a purchase, and buffers the pain associated with payment. Payment coupling is defined by Prelec and Loewenstein (1998) as the psychological link between payment and consumption at the time that either is occurring. In our model, we are examining the pleasure attenuation effect at the time of making a purchase (pain on pleasure), and we measure the effect of payment decoupling effect (the reverse of payment coupling).

H1: Pain of payment has a negative relationship with the likelihood of purchase.

H2: Pleasure of consumption has a positive relationship with likelihood of purchase.

H3: Pain of payment has a negative relationship with the pleasure of consumption.

H4: Payment decoupling weakens the relationship between pain and pleasure.

Payment transparency is defined as the salience of the payment both in terms of physical form and the amount in relative to cash. Payment mechanisms differ from each other along these two dimensions of transparency (Soman, 2003). Salience refers to the degree to which a stimulus stands out in certain situations and attracts attention (Augoustinos & Walker, 1995; Pryor & Kriss, 1977). Physically salient information facilitates information acquisition (Jarvenpaa, 1990), so people tend to process physically salient information more deeply than less salient ones (Keller & Block, 1997) while ignoring information that is more difficult to process (Oberauer, 2003). Vivid and salient representation of payment result in a much clearer feel of the cost, resulting in a pain associated with it; high transparency of the payment also results in a tighter coupling between cost and consumption, which accentuate the pain's negative impact on consumption pleasure. Based on the above, we have the following hypothesis:

H5: Payment transparency (consisting of physical cue, amount salience, and balance salience) has a positive relationship with the pain of payment.

H6: Payment transparency (consisting of physical cue, amount salience, and balance salience) has a negative relationship with payment decoupling.

Finally, we propose five value dimensions for payment methods (derived from an earlier qualitative study) that could potentially affect a consumer's purchase decision through its impact on both payment transparency and payment decoupling. Perceived convenience, perceived security, perceived privacy, perceived social value and perceived self-control, are theorized to affect payment transparency by tampering the amount of attention being paid to the cost. More attention to the cost is likely to increase transparency by zooming large on the focal transaction, while less attention to the cost will further decrease transparency by adding cognitive difficulty in identifying the real cost. At the same time, while the attention to cost will tighten the connection between cost and the current purchase, less attention will result in a high decoupling between cost and purchase. Therefore, we have the following proposition:

H7: Perceived value of the payment method (consisting of perceived convenience, perceived security, perceived social value, perceived self-control) has a negative relationship with payment transparency.

H8: Perceived value of the payment method (consisting of perceived convenience, perceived security, and perceived social value, perceived self-control) has a positive relationship with payment decoupling.

Methodology

The measurement items were developed for each construct based on existing literature. We followed the measurement development method proposed by Straub (1989). A preliminary set of items were generated and then pre-tested with five faculty members and IS Ph.D. students to ensure simplification and clarification in terms of wording. Then with the refined instrument, we conducted two rounds of 40~50 sample size pilot study on Amazon Turk to further make sure the items are understandable and have acceptable internal consistency. Furthermore, we made sure there are 3~4 items measuring each construct. Each item was measured on a seven-point Likert scale. Then A questionnaire instrument based on existing scales was distributed to respondents across the United States through the Qualtrics survey platform through its panel services. In the survey, two in-store purchase scenarios are created: hedonic purchase (gifts or something they are affectionate about) and utilitarian purchase (grocery) with the same payment amount. The survey targeted respondents who are above 18 years of age and have used mobile payment/cash/credit card for in-store purchases. We utilized three ways to ensure the quality of the response. First, we removed the survey response with an abnormal duration of either less than 2 minutes or larger than 18 mins, which is an indication of non-reliable responses. Second, we included attention check questions; respondents who did not pass the attention check were removed from the total valid sample. Third, we used an algorithm aided screening to remove answers with all neutral or all extreme values. Finally, we got 177 responses of which 145 were valid.

Results and Discussions

Before we started our model analysis, we conducted correlation analysis to see if the major constructs are correlated in both purchase scenario. Based on previous literature on utilitarian and hedonic shopping, we expect that pain and pleasure plays limited role in the purchase of utilitarian products than hedonic products. Our results show that, while pleasure, pain, and purchase intention are all correlated in purchase scenario A (Hedonic purchase), there are no significant correlation between those three constructs in the purchase scenario B (Utilitarian purchase). Therefore, for the following analysis, we only conduct analysis on the hedonic purchase scenario.

Measurement Model

We conducted confirmatory factor analysis with all first-order latent variables for both models to verify the reliability and validity of the instrument. Kline (2005) suggested assessment of model fit to include at least Comparative Fix Index (CFI), Chi-square over Degree of Freedom, Root Mean Square Error of Approximation (RMSEA), and Standardized Root Mean Squared Residual (SRMR). As shown in Table 1,

the Chi-square/df is smaller than the cut-off value of 3, CFI is over suggested value 0.9, the value of the RMSEA is around 0.05, and SRMR is less than the recommended 0.08. In overall, the measurement model suggested good fit for the U.S. mobile payment dataset.

Model Fit Indices	Recommended	Measurement Model
Chi-square/df	<3	1.369
CFI	>0.9	0.970
RMSEA	<0.08	0.051
SRMR	<0.08	0.049

Table 1. Measurement Model Fit Statistics

Then, we examined the convergent validity and discriminant validity of measurement scales. We found that most loadings are over 0.70 and all AVEs are over 0.50, therefore, the measurement model achieves convergent validity. To assess discriminant validity, we made sure that the square root of AVE for each construct is greater than the corresponding latent variable correlations for each construct and that factor loadings were greater than cross loadings. We found the square root of AVE for each construct was greater than the corresponding latent variable correlations as shown in the following table, which established sufficient discriminant validity.

Structural Model and Hypotheses Testing

We examine the structural model. The fit indices in Table 2 suggest that the model demonstrates good fit with the data with $\chi^2 / df=1.599$ between 1 and 3, RMSEA= 0.065 smaller than the recommended 0.08. CFI=0.946 is greater than 0.90, SRMR is 0.082 which is slightly greater than the recommended 0.08. Based on Kline (2011), SRMR indicate acceptable fit when it produces a value smaller than 0.10, medium fit when it fall between 0.05 and 0.08, it can be interpreted as the indicator of good fit when it produces a value lower than 0.05 (Kline, 2011). Thus, our SRMR still indicates acceptable model data fit with U.S. mobile payment data set.

Model Fit Indices	Recommended	Measurement Model
Chi-square/df	<3	1.599
CFI	>0.9	0.946
RMSEA	<0.08	0.065
SRMR	<0.08	0.082

Table 1.The Structural Model Fit Statistics

Our results in Figure 2 show that most of the dimensions of second-order factors are significant, indicating that both Payment Transparency and Perceived Value are well-defined second-order constructs. As can be seen from Table 3: pain of payment has a negative relationship with purchase intention with $\beta=-0.267$, and $p < 0.01$, thus H1 is supported. Pleasure has a positive relationship with purchase intention with $\beta=0.300$, and $p < 0.001$, thus H2 is supported. Pain has a negative relationship with pleasure ($\beta=-0.383$, and $p < 0.001$) and the interaction term (PDxPn) has a positive relationship on pleasure ($\beta=0.363$, and $p < 0.001$) indicating a negative moderating effect of payment decoupling on relationship between pain and pleasure, thus both H3, and H4 are supported. Payment transparency has a positive relationship with pain ($\beta=0.431$, and $p < 0.001$) and a negative relationship with payment decoupling ($\beta=-0.309$, and $p < 0.001$), thus H5 and H6 are supported. Lastly, the negative relationship between perceived value and payment transparency ($\beta=-0.113$, $p > 0.1$) is not significant. While perceived value has a positive relationship with payment decoupling ($\beta=0.255$, and $p < 0.01$), therefore H8 is supported while H7 is not supported. Seven out of eight path coefficients are significant, with seven hypotheses supported.

Path		Estimated Path Coefficients	P value	
PT	<---	PV	-0.113	0.257
Pn	<---	PT	0.431	0.000
Plsr	<---	Pn	-0.383	0.000
Plsr	<---	PDxPn	0.363	0.000
PI	<---	Pn	-0.267	0.001

PI	<---	Plsr	0.300	0.000
PD	<---	PT	-0.309	0.000
PD	<---	PV	0.255	0.005

Table 3. Path Coefficients for Structural Model

As shown in Figure 2, the proposed model explains over 22% variance for purchase intention, 28% variance for pleasure of consumption and 19% variance for pain of payment. According to the minimum 10% criterion, our model demonstrates acceptable explanatory power for these constructs (Guo and Yuan, 2012). The justifications for overall low explanatory power are two-fold: first, our model aims at theory building and exploration rather than prediction, thus R-square may not be a useful assessment of the contribution of the model. Second, human psychology, including constructs such as pain and pleasure are complex in nature involving many factors, many of which are not of interest to IS researchers.

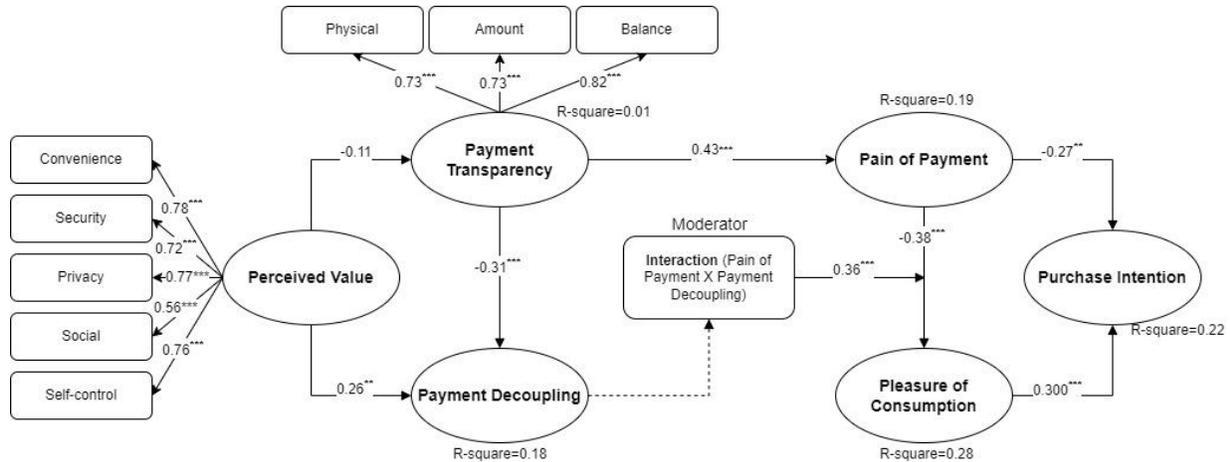


Figure 2. Results of The Structural Model

Discussions

One of the research objectives of this study is to understand how value perception of payment method affects purchase intention through its effects on antecedents (payment transparency, payment decoupling) of the two hedonic constructs (pain and pleasure). In our research, we integrated the various perceived value of payment methods that could potentially affect a user's purchase intention through pain and its antecedents. The results show that when a user perceives a higher value of a payment method, he/she tend to pay less attention to the cost of the purchase (Chatterjee & Rose, 2012) thus tend to form a looser psychological link between cost and purchase (higher de-coupling). At the same time, however, we don't have enough evidence generated by this research to show that the perceived value of payment method has any effects on payment transparency.

Previous research on payment transparency has been mainly conducted in a lab environment (Soman, 2003; Yeung, 2014). Therefore, not only did the perceptual constructs remained somewhat ambiguous in nature, but also it was hard to be operationalize them in this research. In this study, we operationalized payment transparency along its three sub-dimensions: physical cue, amount salience, and balance salience, which captures both the effects from a single transaction perspective (physical cue and amount salience of the current payment) and from the cumulative perspective (balance salience of past payment with the payment method). Results show that payment transparency has a negative influence on pain, consistent with previous findings (Soman et al., 2001; Soman, 2003; Yeung, 2014). Our result also suggests that a payment method which is perceived low in transparency is likely to result in high decoupling between the cost and the benefit of purchase. Therefore, the effects of payment transparency are two-folded: on one hand it affects the amount of the pain associated with the payment; on the other hand, it affects the amount of the pain that interferes with pleasure through its impact on payment decoupling (i.e., the moderating effect).

This research is among the first to measure the payment decoupling construct. Previous research in psychology utilizes the construct to explain the difference in the interaction between pleasure and pain in various contexts with different payment methods and mechanisms (Prelec & Loewenstein, 1998). We found that payment decoupling weakens the relationship between pain and pleasure. In our research setting, it attenuates the negative impact of pain on pleasure, which eventually alleviates the negative impact of the payment cost on purchase intention. Previous research has suggested that payment decoupling mainly depends on temporal separation (between purchase and actual payment) and payment decomposition strategy offered by a payment mechanism. We found that payment decoupling can also be affected by the salience of the cost (payment transparency) as well as consumer's attention to cost (as a result of the perceived value of the payment method). The mechanism of the latter effect is quite similar to the priming effect associated with a certain payment method suggested by previous research (Chatterjee & Rose, 2012). Priming effect, in general, occurs when an individual's exposure to a certain stimulus influences his or her response to a subsequent stimulus. In the context of payment methods, previous research has tried to understand how people's exposure to a payment method affects their perceived cost and benefit of a purchase. Our study seems to shed light on how "priming" works in a more natural way: the implicit effect of being exposed to a payment method is now captured by perceived value of the payment method, and in a similar way, the value perception results in selected attention to costs and benefits associated with a purchase.

Pain of payment is at the core of the psychological impact of payment. Previous research suggested many factors that affect the pain associated with payment. While the relationship between pain and its antecedents has often been investigated, the interplay between pain and pleasure has remained largely theoretical (Prelec & Loewenstein, 1998). The result of this study confirms the existence of the interplay between pain and pleasure at the time of purchase. Since the direction of the effects differ across various purchase and payment settings, this research made two simplifications: first, we equalize pleasure of consumption to the pleasure of product acquisition, thus making the time of purchase equal to the time of consumption. By doing so, we were able to focus on the one-way effect of pain on pleasure, without the need to determine which of the two, pain and pleasure happens first and which of the effects (pleasure attenuation effect or the pain buffering effect) is in play. In the real world, however, the interaction between pain and pleasure are much more complex, which is hard to fully examine. Our result suggests that, at the time of in store purchase, where product acquisition happens right away, but the actual payment may happen later depending on payment type, pain has a negative effect on pleasure, and the strength of this pleasure attenuation effect is determined by the looseness of the connection between purchase and payment (payment decoupling). The looser the connection is (high decoupling), the lesser the negative impact of pain on pleasure. Eventually, pain has a negative effect on purchase intention, while pleasure positively relates to intention to make purchase. However, pain and pleasure both play an important role in the purchase of hedonic products, while they have limited effects on the purchase intention towards utilitarian products.

Contributions and Implications

This study makes several contributions to the literature. First, we contribute by examining the behavioral impact of mobile payment technology as well as the underlying mechanisms. Current IS studies on mobile payment focuses on technology adoption and little has been done to look at post-adoption behavioral impacts. Our model is able to associate value perception of mobile payment technology with consumer's purchase intention. It shows that, a higher value perception of mobile payment leads to less aversive impacts of pain on pleasure, finally, leads to higher purchase intention. Second, we incorporated several value dimensions of mobile payment (convenience, security, privacy, social value, and self-control), which provides a comprehensive view of both the value perception and its post-adoption behavioral impact. Third, this study advances our understanding of how values derived from IT enabled payment process convert into purchase intention in the mobile payment context. Previous IS research has examined how process related features such as payment process interactivity and convenience affect consumers' purchase intention by influencing consumer's attention to cost and their purchase decision involvement. Lastly, this study adapted several psychological constructs to the IS research context. constructs such as pain of payment, payment transparency, and payment decoupling, which used to be measured only in a lab experiment context, are now becoming measurable with appropriate items developed.

Our findings also provided practical implications for several stakeholders: mobile payment technology providers, merchants who accept mobile payment, and mobile payment end users. For mobile payment technology providers, our study shows that, it is important to deliver a more convenient, secure, and private mobile payment service with social features and features that convey a sense of empowerment and self-control. Service providers should target design features that promotes higher decoupling at the time of consumption and higher coupling at the time of payment. For merchants who have not yet made strategic adoption of mobile payment, our study shows that mobile payment has a potential in increasing consumer purchases, especially for products/services that are hedonic in nature. Finally, mobile payment users should be able to understand that mobile payment is making them make more purchases either consciously or subconsciously. Pain of payment, though hedonically costly, plays an important role in self-control and decision-making efficiency (Prelec & Loewenstein, 1998). It is a useful mechanism for resisting instant gratification associated with impulsive purchases. Choosing a payment method that minimizes pain while maximizes pleasure might add to the user's vulnerability to overspending and consumption indulgence.

Limitations and Future Research

There are several limitations to our study. First, it is survey based. While surveys have been widely used in IS, it has its own limitation in dealing with constructs that are usually measured in lab experiments. Survey method suffers from common method variance due to its reliance on self-reported measures. Second, mobile payment has been used for point-of-sale payment, person-to-person money transfer, and in-app payment. These three types of usage situations differ from each other, making it difficult to provide a unified model representing relationships in all settings. In this research we only investigated the point-of-sale payment option. Third, an assumption was made to further simplify the payment situation under investigation. We equalize the pleasure of consumption to the pleasure of product acquisition, which should always be present at the time of making a purchase and is independent of the actual time of product consumption (for example, for durable goods and non-durable goods, the pleasure of consumption works in different way). In this way, we were able to assume that the pleasure attenuation effect is in play (At the time of the consumption, we measure the moderating effect of payment decoupling as the pain attenuating effect of pain on the pleasure). In reality, the interaction between pain and pleasure are much more complex, which may not be fully captured and explained by our model.

Future research could be done in several directions. First, research can be conducted with other mobile payment usage options such as person-to-person transfer, or in-app purchase to examine mobile payment's behavior impact. The dependent variable could be different for post-purchase evaluation, for example, on the occasion when using Venmo to split bill with friends, researcher could examine the impact of Venmo usage on satisfaction or repurchase intention. Second, the interactive relationship between pain and pleasure was not fully examined in this study. We examined the pleasure attenuation effect (i.e., pain on pleasure); future research could examine the relationship in the other direction: the pain buffering effect (pleasure on pain). Venmo for bill splitting is also a good usage method to study the pain buffering effect. Lastly, future research could refine this model by including more behavioral influential factors to add to the explanatory power of this model.

Conclusion

Despite the increasing popularity of mobile payment in the U.S., research on its behavioral impacts is sparse. At the same time, while the impact of payment method on consumer spending has been studied intensively in both finance and psychology literature, there is a lack of research in the IS arena. Considering the role of mobile payments in making a revolutionary transformation from cash/card-based society into a cashless and contactless one, it is important to call for attention to this research domain. The research model for this positivist survey study is based on the double entry mental accounting theory proposed by Prelec & Loewenstein (1998), incorporating both constructs from the psychology literature (payment transparency, payment decoupling, pain of payment etc.) and IS literature (e.g., value perception of mobile payment). The results show that, value perception of mobile payment affects purchase intention by affecting pain's aversive effect on pleasure (through its positive relationship with payment decoupling). Pain and pleasure then jointly affect mobile payment user's purchase intention.

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