

USE OF PAYMENT TECHNOLOGY: A PERSPECTIVE BASED ON THEORY OF CONSUMPTION VALUE

Research in Progress

Xiao Xiao, Department of IT Management, Copenhagen Business School, Frederiksberg,
Denmark, xxi.itm@cbs.dk

Jonas Hedman, Department of IT Management, Copenhagen Business School, Frederiksberg,
Denmark, jh.itm@cbs.dk

Emma Runnemark, Department of Economics, Lund University, Sweden

Abstract

Drawing on the theory of consumption value, this research-in-progress strives to provide a theoretical explanation of payment technology use by investigating the relationship between consumers' perceptions of different consumption values associated with a certain payment technology and their choice to use the technology. We conducted the study in the context of Denmark, a Northern European country, with three well established payment technologies: cash, payment cards, and Internet banking. Following a focus group of identifying and defining four types of consumption values associated with each payment technology, a survey was then conducted by a national statistics agency in the country. Preliminary results have shown that different consumption values matter for the use of different payment technologies. The findings will potentially contribute to a better understanding of consumer payment behavior, as well as the debate on moving towards a cashless society.

Keywords: Cash, Payment cards, Internet banking, Payment, Technology use, Theory of consumption value

1 Introduction

A cashless society is around the corner, as payments are becoming more digitalized (just like many other areas in our lives) (Arvidsson & Markendahl, 2014; Carton & Hedman, 2013; Hedman, 2012). This is at least a prediction for our future. Industrial report has shown that non-cash payments have been enjoying a high penetration rate in developed countries, especially Europe, and are gaining increasingly more grounds in developing countries (WorldPaymentReport, 2014). However, the same report also demonstrated that cash is still present in all the countries and still dominates in many of them despite the growth of non-cash payments (WorldPaymentReport, 2014). Consequently, the natural question to ask is *why people pay with cash*, with all the other alternatives? Taking a more general approach, this research strives to understand why people pay the way they do when facing several payment technologies.

Payments are fundamental for economy and markets, but looking at payment research, we find that it is not a research discipline or a coherent research topic in itself. Payments appears within several disciplines, including information systems (Chatterjee & Rose, 2012; Dahlberg, Mallat, Ondrus & Zmijewska, 2008; Holmström & Stalder, 2001; Mallat, 2007; Ondrus & Pigneur, 2006), consumer research (Raghubir, 2006; Raghubir & Srivastava, 2002, 2009), marketing (Raghubir, 2005; Raghubir & Corfman, 1999; Raghubir & Srivastava, 2008), economics (Garcia-Swartz, Hahn & Layne-Farrar, 2006; Garcia-Swartz, Hahn & Layne-Farrar, 2004; Prelec & Loewenstein, 1998), sociology (Knights, Noble, Vurdubakis & Willmott, 2007), strategic management (Ozcan & Santos, 2014 online), and banking and finance (Humphrey, 2004, 2010; Kahn & Roberds, 2009). In the area of consumer and marketing, the focal point is on the impact of different payment technologies on spending: basically

whether consumers spend more or less depending on a certain payment technology (Menon, Raghurir & Schwarz, 1997; Raghurir, 1998; Srivastava & Raghurir, 2002). In the intersection between consumer research and economics we can find explanatory models of payment behaviour. For instance, pain of paying (Prelec & Loewenstein, 1998; Soman, 2001) explains our reluctance to use bank notes with high denomination. Economists at central banks explore the cost of paying (Humphrey, 2010) and in particular differences between cash, checks, and payment cards (Loix, Pepermans & Van Hove, 2005). The information systems community focuses on the adoption of new payment technologies, such as mobile payments (Mallat, 2007; Mallat & Tuunainen, 2008).

However, there is little research on payment use itself. In other words, a gap exists in the literature in investigating theoretical explanations of payment use other than socioeconomic factors (such as income, education level, etc.). Few research within the IS discipline indeed examined the influence of people's perception of a certain payment technology in terms of its attributes, such as ease of use and usefulness based on Technology Acceptance Model (Cheng, 2010; Plouffe, Hulland & Vandenbosch, 2001), and complexity, compatibility, triability based on Diffusion of Innovation Theory (Mallat, 2007). However, these studies aim at examining adoption of new payment technology and limit its scope to intention to adopt rather than the actual usage itself. Furthermore, adoption research in the payment area is often focused on single technology context – rather than a context with multiple and competing technologies.

We advance the understanding of payment use (and in general technology use) by investigating what factors influence the usage pattern of different payment technologies. To do so, we draw upon Theory of Consumption Value (TCV) (Sheth, Newman & Gross, 1991a, 1991b) from consumer research to examine the relationship between different values of each payment technology as perceived by consumers and consumers' usage of that particular payment technology. Data is collected through a nationally representative survey in Denmark, in which we focus on the use of three different payment technologies, including cash, payment card, and Internet banking, from the perspective of consumers.

We structure the remainder of the paper in the following way: the next section provides a literature review on payment research and adoption research, which is followed by our theoretical framework and our propositions. The fourth section presents our research method and data. Then we present some preliminary results of our data analysis, and conclude the paper by discussing future plan and potential contributions.

2 Literature Review

Payments are part of our daily life. Whether we are aware or not, payments are carried out on the streets, in the stores, online, and ubiquitous with different technologies. For most part of the 1900s, cash and checks were the most common exchange means available for purchases and financial transactions between people and organizations (Evans & Schmalensee, 2005). During the second half of 1900s, payment cards, such as credit and debit cards, were made available for store purchases and later used to withdraw cash from Automatic Teller Machines (ATMs) (Slawsky & Zafar, 2005). In the 1990s, electronic commerce appeared as an alternative way of conducting financial transactions over the Internet, and subsequently internet payments (Zwass, 1996) and internet banks emerged (Sandén, 1998). Now, we can add to the list a variety of digital payment technologies, including NFC (Near Field Communication) based contactless cards and mobile payment applications (Chae & Hedman, 2015; Ozcan & Santos, 2014 online; Xin, Techatassanasoontorn & Tan, forthcoming). So, today's consumers don't just need to choose between goods and services, but also need to choose between payment technologies. One example is online payment where consumers can choose to pay with Pay Pal, payment cards, or Internet banking.

From a financial perspective, payments are based upon instruments that include a set of procedures enabling the transfer of money from the payer to the payee. For instance, consider the steps taken when swiping a payment card in card terminals and entering the pin-code or signing the receipt. The

underlying payment instrument stipulates these steps. In everyday language payment instruments are referred to as *payment channels*, *payment methods* or *payment technology*. There are many payment instruments, including cash, credit transfer, direct debit, and payment card, and they can be divided into two broad categories cash and non-cash. Cash payments are exchange-based and involve the use of banknotes and coins. Non-cash payment instruments involve the transfers of money between accounts that are mediated by third parties. This type of payment is referred to as provision-based payments (Kokkola, 2010). The payer or payee gives instructions to the bank, either to transfer from or fetch money from one account, and move it to another account. The most commonly used non-cash payments are payment cards, credit transfers and direct debits (Kokkola, 2010).

2.1 Payment Literature

As discussed above, payment related research is an interdisciplinary field. The most studied area within the payment field is the impacts of different payment technologies on consumers' spending behaviour. For instance, Raghurir and her colleagues have carried out a series of studies showing that consumers' spending behaviour is different (e.g., amount of spending, willingness to pay) when using different payment technologies such as cash, credit card and gift card (Raghurir & Srivastava, 2002; Raghurir & Srivastava, 2008; Raghurir & Srivastava, 2009; Srivastava & Raghurir, 2002). The authors suggested that such effects on spending behaviour can be explained by the transparency level of each payment method and the psychological feelings triggered by the level of transparency (usually termed as "pain of paying") (Prelec & Loewenstein, 1998; Soman, 2001).

Another stream of payment related research is concerning adoption of emerging payment technologies such as electronic cash, SMS payments, and mobile payments, usually carried out by IS scholars. Researchers in this area mostly drew on Diffusion of Innovation Theory or Technology Acceptance Model to unveil the factors that drive people's adoption and acceptance of new payment methods (Cheng, 2010; Kim, Mirusmonov & Lee, 2010; Mallat, 2007; Mallat & Tuunainen, 2008). For example, Mallat (2007), one of the key papers in mobile payment research, studied people's willingness to use mobile payments and revealed that such payment technology can be beneficial when dealing with small value transactions such as movie tickets or bus tickets, and the barriers to the adoption of mobile payment included the complexity of mobile payment services (e.g., the use of SMS with various payment codes and premium service numbers that are difficult to remember) and perceived risks and trust in mobile payment service.

A third stream of research, also the most understudied area in the payment field, is related to actual usage of various payment technologies. Such theme is usually explored by researchers in financial or economic discipline with either a focus on the macro level evolution of how certain payment instruments are used or a focus on the micro level consumer characteristics related to payment usage (Borzekowski & Kiser, 2008; Humphrey, 2004; Linné, 2008; Loix et al., 2005). This stream of studies revealed that socioeconomic factors such as income and education are important indicators when it comes to use of different payment technologies (Borzekowski & Kiser, 2008). It is also found out that in certain context, people's attitudes toward different payment technologies as well as transaction purpose influence people's payment behaviour (Worthington, Stewart & Lu, 2007). Finally, payment fees and non-price payment characteristics such as convenience and safety impact payment usage as well (Humphrey, 2010).

By investigating why people pay the way they do, our research falls into the third stream of payment related studies. However, our intention is not to focus on patterns of payment usage but to explore what socio-cognitive factors will help explain the usage of different payment technologies.

2.2 Theoretical framework

In this paper, we view the payment user from the perspective of a consumer. This is consistent with Yoo's (2010) suggestion that a key role that people have is that of consumer. Drawing on consumer

research we apply the theory of consumption value (TCV) (Sheth et al., 1991a, 1991b). TCV is a theory that explains why consumers behave in certain ways when they make choices between various products/services. The theory assumes that decisions, such as to use or not to use, are based on *consumption values*, which are the extrinsic and intrinsic reasons and motives that drive decisions. There are five types of consumption values: functional value, social value, emotional value, epistemic value, and conditional value, all of which are independent of each other, and contribute differently to a behaviour. In other words, consumer behaviour is a function of consumer's perception of these values that are related to a certain product/service.

TCV has been applied in many different research settings, including durable and nondurable consumer products, industrial goods, and services. It has also been used in explaining technology related decisions, such as the decline in software value over time (Alpert, 1994), internet banking (Ho & Ko, 2008), ringtones as hedonic IT artefacts (Turel, Serenko & Bontis, 2009), and hyped technology (Hedman & Gimpel, 2010).

We believe that TCV provides a solid theoretical foundation for our investigation of payment technology use. As discussed above, payment is no longer a simple process that only involves cash, but rather a consumer behaviour that concerns making choices among various payment technologies. It is reasonable to argue that, just as the use of other types of products/services, payment technology use is also driven by consumers' perceptions of the consumption values associated with each payment technology. We will discuss each of the five consumption values in the context of payment, and develop our propositions regarding the relationship between each consumption value and payment technology use.

(1) *Functional value* stems from the perceived utility of a product or service for fulfilling a task or achieving a goal. It is based on economic utility theory, assumes economic rationalism, and relates to attributes of a product or service such as performance, price, quality, and reliability. When it comes to payment technology, functional value presents the attributes of the technology in how well it can fulfil consumers' utilitarian needs, which is, in this case, the process of paying. While various payment technologies all support the task of paying, they possess different characteristics, which would influence the process of fulfilling the task. For instance, cash is accepted universally, whereas payment cards save the effort of withdrawing money and guarantee availability. Past research has indeed showed that payment characteristics influence payment use (Humphrey, 2010). Hence, we argue that consumers' perception of the functional value of a certain payment technology will influence their choice to use the technology. In other words, the decision to pay with a certain payment technology is impacted by consumers' perception of how well the technology fulfils their utilitarian needs when they make a payment.

Proposition 1: *Consumers' perception of the functional value associated with a certain payment technology will influence their choice to use the technology.*

(2) *Social value* involves highly visible products, services and/or objects to be shared or seen by others. According to the TCV, such a product or service may be chosen more for the perceived social image it conveys than for functional performance. Essentially, social value is derived from the symbolic importance of the payment technology, such as American Express Gold or a stack of banknotes. Another facet of the social value is related to social norms, which have been established as an important factor when it comes to technology related behaviour (Venkatesh, Morris, Davis & Davis, 2003). For instance, one may feel the need to pay with a certain technology if it is considered the norm. Hence, we argue that the perceived social value associated with a certain payment technology, either through the projected social image or through the social norms, will influence consumers' decision to use the technology.

Proposition 2: *Consumers' perception of the social value associated with a certain payment technology will influence their choice to use the technology.*

(3) *Epistemic value* applies when consuming or experiencing new products or services, such as buying a new computer or mobile phone. Epistemic value stems from novelty, the ability to arouse curiosity, a desire to learn, or the urge to experiment with something new. In context of payment, epistemic value is potentially relevant when it comes to new or novel payment technologies, such as NFC, mobile payment, and SMS payments. Hence, if the perceived epistemic value of a certain payment technology is high, consumers might choose to use the technology simply because the curiosity and the urge to learn something new.

Proposition 3: *Consumers' perception of the epistemic value associated with a certain payment technology will influence their choice to use the technology.*

(4) *Emotional value* influences decisions because of a product's potential to arouse emotions (positive or negative) that are believed to accompany the use of a product. Aesthetics, such as beauty and artistry, can add emotional value to a product. In the context of payment, the emotion that can be aroused is the so-called "pain-of-paying" which is associated with the transparency of the paying process (Prelec & Loewenstein, 1998; Soman, 2001). Previous research has found out that use of payment technologies that are more transparent and hence induce higher level of pain of paying (such as cash) would result in less spending (Prelec & Loewenstein, 1998; Raghurir & Srivastava, 2008; Thomas, Desai & Seenivasan, 2011). Similarly, we argue that consumers are more likely to use the payment technology if it induces less negative emotions during the process of paying.

Proposition 4: *Consumers' perception of the emotional value associated with a certain payment technology will influence their choice to use the technology.*

(5) *Conditional value* applies to products or services for which the value is strongly tied to use in a specific context (location or time). Conditional value answers the question – "it depends". The choice to pay in a certain way may be influenced by for instance the location (on the street, in store or one line. Previous research on payment usage pattern has discovered that contextual factors, such as the type of product purchased, transaction fee charged, often matter when it comes to payment (Worthington et al., 2007; Zinman, 2009). Therefore, we argue that consumers' perception of the value of a certain payment technology in a tied condition will affect their use of the technology.

Proposition 5: *Consumers' perception of the conditional value associated with a certain payment technology will influence their choice to use the technology.*

3 Methodology

As an effort to explore the relationship between the consumption value and payment technology use (the five propositions above), we conducted a survey in Denmark. Three payment technologies were selected to be included in the survey: cash, card, and Internet banking. We chose these three payment technologies because they are the most diffused and widely-used ways to pay in the country (Nationalbanken, 2014). As discussed above, the aim of this study is to explore how people develop a certain payment pattern and why people pay in a certain way, hence it is important to focus only on well-established payment technologies to without concerning about the factors that are related to adoption and acceptance of new technologies.

3.1 Focus Group

Though theory of consumption values has been applied intensively in the marketing literature to study why or why not consumers purchase a certain product, but it has never been adopted to investigate payment related behaviour. In other words, we have no reference points to identify the five different values associated with each payment method.

To solve the issue, we first took a more exploratory approach. A focus group was conducted to discuss: what are the functional value, emotional value, social value, epistemic value, and conditional

value of cash, payment cards, internet banking, separately? The participants of the focus group are students and faculty members of a large university in Denmark. A discussion outline was developed first and then distributed to the participants before the focus group to familiarize them with the topic and discussion questions. In the end, six people, excluding three focus group facilitators, participated in the study. We recorded the whole discussion session.

Based on the analysis of the focus group discussion as well as established instruments in the literature (Sheth et al., 1991a, 1991b; Turel et al., 2009), we developed the initial constructs of the function value, emotional value, social value, and conditional value for each of the three payment technologies. It is noted that epistemic value was not included because no learning or exploration aspect was mentioned for the three payment technologies we are focusing on in the group discussion. This might be due to the fact that cash, card, and internet banking are all well-established payment technologies in the context of Denmark. However, we think it will be relevant to consider epistemic value when we study new payment technology in the future.

3.2 Measurements

Functional value captures different utilities offered by each of the three payment technologies when it comes to paying (e.g., universal acceptance offered by cash, ability to track transactions offered by card and internet banking). Social value measures how paying with a certain payment technology helps to build a certain social image as well as social norms associated with each payment technology. Emotional value in this context captures the pain of paying (Prelec & Loewenstein, 1998; Soman, 2001) aroused by each payment technology. Finally, conditional value measures the extra value of paying with each payment technology under certain circumstances, which in this case include the familiarity of the payment environment, whether there is a payment fee (for card and internet banking), and the value of the transaction (for cash). (Please see Appendix for a complete list of the instruments we have developed for each payment technology.)

The dependent variable (payment behaviour) was measured by a single item on the frequency of paying with the respective payment technology. Besides the instruments developed above to measure functional value, social value, emotional value, and conditional value for the three payment technologies, we also included age, gender, and income in the survey as control variables.

3.3 Survey

The survey was carried out by the national statistics institute in Denmark (Statistics Denmark). The sample came from the bi-annual payment study conducted by the Danish Central Bank. This ensures that the sample of the study represents the general population of the country. The sample was then randomly assigned to one of the payment technologies (i.e., the cash group, the card group, and the internet banking group).

A native Danish speaker first translated the survey from English into Danish. This was an iterative process that involved frequent discussions and negotiations between the translator and the researchers to as to capture and clearly reflect the essence of each question on the version of the native language.

Before the final study, Statistics Denmark conducted a pilot study with 20 respondents through phone interviews. After the pilot study, a meeting was held between the agency and the researchers to further refine the survey based on the feedback from the interviews.

The final data collection was conducted through two channels: online and telephone. In the end, a total of 644 complete responses were collected, among which 219 responses for the group of card, 224 responses for the group of cash, and 201 responses for the group of internet banking.

4 Preliminary Results

Table 1 summarizes the sample descriptive of three groups as well as the overall sample. As shown in Table 1, the ratio between female and male respondents is about 1:1 across all groups, and the average age of the respondents is around 48.

Groups	Gender		Age		
	Female	Male	Minimum	Maximum	Mean
Card (N=219)	109	110	16	74	46.38
Cash (N=224)	113	111	16	75	49.29
IB (N=201)	99	102	16	73	49.14
Overall (N=644)	321	323	16	75	48.25

Table 1. Descriptive of the Sample

	Functional Value	Social Value	Emotional Value	Conditional Value	Control variables that have an effect
Cash Use	√ (b=0.295***)	√ (b=0.283***)	X (b=0.033)	√ (b=0.356***)	None
Card Use	X (b=0.018)	X (b=0.041)	√ (b=-0.146*)	√ (b=-0.194**)	Age (-), Income (+)
Internet Banking Use	X (b=0.128)	X (b=-0.076)	X (b=0.079)	√ (b=-0.131*)	Gender (+), Income (+)

Notes: 1. * p<0.10, ** p<0.05, *** p<0.01;
2. √ proposition is supported, X proposition is not supported

Table 2. Summary of Preliminary Results

Table 2 presented the results of some preliminary analysis we have done so far using linear regression in SPSS, after we checked the normality of the data and the validity of the instruments¹. The results of the four propositions were mixed for the three different payment technologies. As shown in Table 2, cash usage is related to people's perception of the function value, the social value, and also the conditional value associated with cash. This suggests that people who recognize the functionality of cash payment (such as universal acceptance) tend to use cash more frequently. Also, paying with cash can be driven by the social norms or how people would like to portrait themselves through the payment behaviour. Finally, people who acknowledge the value of the cash payment in certain conditions (in this case, when they are not familiar or comfortable with the purchasing environment or when the transaction amount is small) are associated with more frequent cash use.

When it comes to card usage, it is shown that people's perception of the emotional value and the conditional value associated with card are significant factors. The negative correlation between emotional value and card usage suggests that people who feel less of the pain when paying with card tend to use such payment technology more often. It has been suggested in the literature that card as a payment instrument is less transparent (compared with cash) and induces less "pain of paying", due to the fact that the salience of parting with money is low when payment with card (i.e., you don't see physical

¹ The scores of functional value, social value, emotional value, and conditional value for analysis were obtained by averaging the values of all items. Cronbach's alpha > 0.6 for all multi-item measurements.

money going away) (Raghubir and Srivastava, 2008; Soman, 2003). Hence, our results confirmed that people who recognize such lack of transparency and feel less negative emotion when paying with card are likely to use it more often. Similarly to cash, people's perception of the conditional value of paying with card (in this case, familiarity with the payment environment) influences their card usage. Consistent with the findings of previous research (Borzekowski & Kiser, 2008), we also found that people's income and age are also associated with card usage: young people and people with higher income use card more often.

Finally, internet banking usage is shown to be related to people's perception of its conditional value, again implying that situational factors such as payment environment matters when it comes to payment behaviour. Interestingly, two of the control variables are showing a significant effect on internet banking usage: female, and people with higher income are associated with more frequent internet banking usage.

5 Discussion

The research has potentially important theoretical and practical implications. From a theoretical point of view, we are among the first efforts to study the underlying mechanisms of why people pay in a certain way. Drawing from the theory of consumption values allows us to treat payment technologies as services that provide various values to people when consuming the service of paying. Our preliminary results supported the theory to a certain degree, once again proving the relationship between people's perception of a certain technology and their usage of the technology (Venkatesh et al., 2003). We argue that future research applying the theory of consumption value to other payment technologies such as mobile payment can be fruitful, considering that payment technologies nowadays provide more than just payment service but also add-on values (e.g., loyalty card and coupons). Future studies focusing on new payment technologies can also shed light on whether perceived epistemic value of the technology exerts any influence on the use of the technology, a relationship we were not able to test in this study. Furthermore, we are among the first efforts to operationalize Theory of Consumption Value in the payment context, extending the application of this theory to a new territory. Finally, we believe that our study contributes to the stream of research on technology use by focusing on multiple technologies supporting the same behaviour and exploring the underlying socio-cognitive factors that influence actual usage of these technologies.

From the practical perspective, we believe that the results of our study can shed light on providing a viewpoint on the debate of a cashless society and hence facilitate institutional efforts that are aimed at creating such a cashless society. For instance, people's usage of cash is influenced by their perception of the function values afforded by cash payment. Therefore, by understanding why people choose to use cash (i.e., what kind of functional value it offers), we will be able to improve existing non-cash payment technologies and/or design new payment technologies that possess the similar values offered by cash to stimulate the replacement of the oldest and also the most expensive payment technology in the world. Furthermore, our findings suggest that people's use of payment technology is context specific. For instance, they are more likely to use cash and less likely to use card when the payment environment is unfamiliar to them and perceived as lack of trustworthiness. Future studies could further investigate this perspective by testing the payment usage pattern/preference in specific contexts (such as on the street, in the store, in some events, etc.). Our hope is that results of such endeavour will further assist policy makers, payment providers, and merchants in understanding payment behaviour under various circumstances and therefore employ relevant tactics and strategies to design or further improve new payment technologies and move forward towards a cashless society.

For future plan, we will incorporate social demographic variables from the national survey that preceded ours in the analysis, and also include more sophisticated analytical tool such as Partial Least Square (PLS) which would allow us to test more comprehensive models while taking into considerations of measurement errors.

References

- Alpert, F. (1994) Innovator buying behavior over time. *Journal of Product & Brand Management*, 3 (2), 50-62.
- Arvidsson, N. and Markendahl, J. (2014, May 13–14) *International Cashless Society Roundtable (ICSR)*, Stockholm.
- Borzekowski, R. and Kiser, E. K. (2008) The choice at the checkout: Quantifying demand across payment instruments. *International Journal of Industrial Organization*, 26 (4), 889-902.
- Carton, F. and Hedman, J. (2013). Proceedings: Second International Cashless Society Roundtable (ICSR): Financial Services Innovation Centre.
- Chae, J. S. U. and Hedman, J. (2015) Business Models for NFC based mobile payments. *Journal of Business Models*, 3 (1), 29-48.
- Chatterjee, P. and Rose, R. L. (2012) Do Payment Mechanisms Change the Way Consumers Perceive Products? *Journal of Consumer Research*, 38 (6), 1129-1139.
- Cheng, F. (2010) *A Trusted Smart Phone and its Applications in Electronic Payment*.
- Dahlberg, T. Mallat, N. Ondrus, J. and Zmijewska, A. (2008) Past, present and future of mobile payments research: A literature review. *Electronic Commerce Research and Applications*, 7 (2), 165-181.
- Evans, D. S. and Schmalensee, R. (2005) *Paying with plastic: the digital revolution in buying and borrowing*: MIT Press.
- Garcia-Swartz, D. Hahn, R. and Layne-Farrar, A. (2006) The move toward a cashless society: a closer look at payment instrument economics. *Review of Network Economics*, 5 (2), 175-197.
- Garcia-Swartz, D. D. Hahn, R. W. and Layne-Farrar, A. (2004) *The economics of a cashless society: an analysis of the costs and benefits of payment instruments*: AEI-Brookings Joint Center for Regulatory Studies.
- Hedman, J. (2012) *Proceedings First International Cashless Society Roundtable (ICSR)*, Copenhagen, Denmark, April 18 & 19.
- Hedman, J. and Gimpel, G. (2010) The adoption of hyped technologies: a qualitative study. *Information Technology and Management*, 11 (4), 161-175.
- Ho, S. H. and Ko, Y. Y. (2008) Effects of self-service technology on customer value and customer readiness - The case of Internet banking. *Internet Research*, 18 (4), 427-446.
- Holmström, J. and Stalder, F. (2001) Drifting technologies and multi-purpose networks: the case of the Swedish cashcard. *Information and Organization*, 11 (3), 187-206.
- Humphrey, D. B. (2004) Replacement of cash by cards in US consumer payments. *Journal of Economics and Business*, 56 (3), 211-225.
- Humphrey, D. B. (2010) Retail payments: New contributions, empirical results, and unanswered questions. *Journal of Banking & Finance*, 34 (8), 1729-1737.
- Kahn, C. M. and Roberds, W. (2009) Why pay? An introduction to payments economics. *Journal of Financial Intermediation*, 18 (1), 1-23.
- Kim, C. Mirusmonov, M. and Lee, I. (2010) An empirical examination of factors influencing the intention to use mobile payment. *Computers in Human Behavior*, 26 (3), 310-322.
- Knights, D. Noble, F. Vurdubakis, T. and Willmott, H. (2007) Electronic Cash and the Virtual Marketplace: Reflections on a Revolution Postponed. *Organization*, 14 (6), 747-768.
- Kokkola, T. (Ed.). (2010). *The payment system*. Frankfurt am Main: European Central Bank.
- Linné, T. (2008). *Digitala Pengar. Nya villkor i det sociala livet*. Lund University, Lund.
- Loix, E. Pepermans, R. and Van Hove, L. (2005) Who, is afraid of the cashless society? Belgian survey evidence. *Unpublished Manuscript*.
- Mallat, N. (2007) Exploring consumer adoption of mobile payments: A qualitative study. *The Journal of Strategic Information Systems*, 16 (4), 413-432.
- Mallat, N. and Tuunainen, V. K. (2008) Exploring merchant adoption of mobile payment systems: an empirical study. *e-Service Journal*, 6 (2), 24-57.
- Menon, G. Raghuram, P. and Schwarz, N. (1997) How much will I spend? Factors affecting consumers' estimates of future expense. *Journal of Consumer Psychology*, 6 (2), 141-164.
- Nationalbanken. (2014). Report on new payment solutions. Copenhagen.
- Ondrus, J. and Pigneur, Y. (2006) Towards a holistic analysis of mobile payments: a multiple perspectives approach. *Electronic Commerce Research and Applications*, 5 (3), 246-257.
- Ozcan, P. and Santos, F. M. (2014 online) The market that never was: Turf wars and failed alliances in mobile payments. *Strategic management journal*.

- Plouffe, C. R. Hulland, J. S. and Vandenbosch, M. (2001) Research report: Richness versus parsimony in modeling technology adoption decisions-understanding merchant adoption of a smart card-based payment system. *Information Systems Research*, 12 (2), 208-222.
- Prelec, D. and Loewenstein, G. (1998) The red and the black: Mental accounting of savings and debt. *Marketing Science*, 17 (1), 4-28.
- Raghubir, P. (1998) Coupon value: a signal for price? *Journal of Marketing Research*, 316-324.
- Raghubir, P. (2005) Framing a price bundle: the case of "buy/get" offers. *Journal of Product & Brand Management*, 14 (2), 123-128.
- Raghubir, P. (2006) An information processing review of the subjective value of money and prices. *Journal of business research*, 59 (10), 1053-1062.
- Raghubir, P. and Corfman, K. (1999) When do price promotions affect pretrial brand evaluations? *Journal of Marketing Research*, 211-222.
- Raghubir, P. and Srivastava, J. (2002) Effect of face value on product valuation in foreign currencies. *Journal of Consumer Research*, 29 (3), 335-347.
- Raghubir, P. and Srivastava, J. (2008) Monopoly money: The effect of payment coupling and form on spending behavior. *Journal of Experimental Psychology-Applied*, 14 (3), 213-225.
- Raghubir, P. and Srivastava, J. (2009) The denomination effect. *Journal of Consumer Research*, 36 (4), 701-713.
- Sandén, W. (1998) *Nätet som marknadsplats: de svenska pionjärerna*: Kommunikationsforskningsberedningen (KFB).
- Sheth, J. N. Newman, B. I. and Gross, B. L. (1991a) *Consumption Values and market Choices: Theory and Applications*. Cincinnati, Ohio: South-Western publishing.
- Sheth, J. N. Newman, B. I. and Gross, B. L. (1991b) Why we buy what we buy: a theory of consumption values. *Journal of business research*, 22 (2), 159-170.
- Slawsky, J. H. and Zafar, S. (2005) *Developing and Managing a Successful Payment Cards Business*: Gower Publishing, Ltd.
- Soman, D. (2001) Effects of payment mechanism on spending behavior: The role of rehearsal and immediacy of payments. *Journal of Consumer Research*, 27 (4), 460-474.
- Soman, D. (2003) The effect of payment transparency on consumption: Quasi-experiments from the field. *Marketing Letters*, 14, 173-183.
- Srivastava, J. and Raghubir, P. (2002) Debiasing using decomposition: The case of memory-based credit card expense estimates. *Journal of Consumer Psychology*, 12 (3), 253-264.
- Thomas, M. Desai, K. K. and Seenivasan, S. (2011) How Credit Card Payments Increase Unhealthy Food Purchases: Visceral Regulation of Vices. *Journal of Consumer Research*, 38 (1), 126-139.
- Turel, O. Serenko, A. and Bontis, N. (2009) User acceptance of hedonic digital artifacts: A theory of consumption values perspective. *Information & Management*, 47 (1), 53-59.
- Venkatesh, V. Morris, M. G. Davis, G. B. and Davis, F. D. (2003) User acceptance of information technology: Toward a unified view. *Mis Quarterly*, 425-478.
- WorldPaymentReport. (2014). World Payment Report 2014: Capgemini and The Royal Bank of Scotland.
- Worthington, S. Stewart, D. and Lu, X. (2007) The adoption and usage of credit cards by urban-affluent consumers in China. *International Journal of Bank Marketing*, 25 (4), 238-252.
- Xin, H. Techatassanasoontorn, A. A. and Tan, F. B. (forthcoming) Antecedents of consumer trust in mobile payment adoption. *Journal of Computer Information System*.
- Yoo, Y. (2010) Computing in Everyday Life: A Call for Research on Experiential Computing. *Mis Quarterly*, 34 (2), 213-231.
- Zinman, J. (2009) Debit or credit? *Journal of Banking & Finance*, 33 (2), 358-366.
- Zwass, V. (1996) Electronic commerce: structures and issues. *International Journal of Electronic Commerce*, 1 (1), 3-23.

APPENDIX – SURVEY INSTRUMENT²

Cards

Functional Value

1. I think, cards are widely accepted.
2. I don't think that paying with cards require additional effort such as going to an ATM.
3. I think, paying with card allows you to access all your money in the account.
4. I think payment cards are easy to carry.
5. I think paying with cards allow one to track payment transactions.
6. I think paying with cards ensures tax compliance.

Social Value

1. Paying cards would improve my image.
2. Paying with cards helps me feel socially accepted.
3. People who are important to me think I should use cards.
4. People who influence my behavior think that I should use cards.

Emotional Value

1. Paying with cards makes me feel guilty of spending.
2. Paying with cards makes me feel bad.
3. Paying with cards is painful.
4. Paying with cards makes me feel like I am losing money.

Conditional Value

1. I only pay with cards when I am familiar with the purchasing location.
2. I only pay with cards when I am comfortable in the purchasing atmosphere.
3. I would not pay with cards when there is a transaction fee associated with the payment.

Cash

Functional Value

1. I think paying with cash helps one stay anonymous.
2. I think cash is accepted everywhere.
3. I think paying with cash enables immediate settlement.
4. I think paying with cash allows for better control of one's finances.

Social Value

1. Paying with cash would improve my image.
2. Paying with cash helps me feel socially accepted.
3. People who are important to me think I should use cash.
4. People who influence my behavior think that I should use cash.

Emotional Value

1. Paying with cash makes me feel guilty of spending.

² All the survey questions were answered based on a five-point Likert scale

2. Paying with cash makes me feel bad.
3. Paying with cash is painful.
4. Paying with cash makes me feel like I am losing money.

Conditional Value

1. I pay with cash when I am not familiar with the purchasing location.
2. I pay with cash when I am not comfortable in the purchasing atmosphere.
3. I pay with cash whenever I have cash.
4. I prefer to pay with cash when the amount is less than 50 (local currency).

Internet Banking

Functional Value

1. I think Internet Banking is secure to pay with.
2. I think one can pay bills using Internet Banking anywhere.
3. I think one can pay bills using Internet Banking at any time.
4. I think Internet Banking enables you to be in charge of your personal finance.
5. It is easy to keep track of my transactions made by Internet Banking.

Social Value

1. Paying with Internet Banking would improve my image.
2. Paying with Internet Banking helps me feel socially accepted.
3. People who are important to me think I should use Internet Banking.
4. People who influence my behavior think that I should use Internet Banking.

Emotional Value

1. Paying with Internet Banking makes me feel guilty of spending.
2. Paying with Internet Banking makes me feel bad.
3. Paying with Internet Banking is painful.
4. Paying with Internet Banking makes me feel like I am losing money.

Conditional Value

1. I only pay with Internet Banking when I am familiar with the vendor.
2. I only pay with Internet Banking when I feel secure about the transaction.
3. I avoid paying with Internet Banking when there is a transaction fee associated with the payment.
4. I would pay with Internet Banking when I need proof of the payment.