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When do you pay? The business impact of payment time perception

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Abstract

Recent advances in consumer research have shown that billing schedule has significant impacts on consumer decisions and consumption patterns. The strategy of devising different billing schedules to influence a customer's purchase decision (or choice of consumption pattern) is well-accepted, and should be effective as long as billing schedules are exactly the same as the perceived payment outlays. Payment card technology makes the payment time perceived by consumers ambiguous and may enable the decoupling of payment outlay and billing schedule. If the decoupling hypothesis is supported, customers will no longer subject to the mental account manipulation by the payment scheme. Working with a large electronic payment service provider, we conducted a survey to collect data on usage and perception of payment card in late 2003. Results strongly supported the decoupling hypothesis and firms need to rethink their bundling and pricing strategies based on billing schedules. The possible use of this decoupling phenomenon to increase the willingness-to-pay of consumers and other managerial implications are discussed.

Key Words: *Mental Accounting, Knowledge Transfer, Learning by Analogy, Categorization, Innovative Technology, Payment Card*

When do you pay? The Business Impact of Payment Time Perception

1. Introduction

Recent advances in consumer research have shown that billing schedule has significant impacts on consumer decisions and consumption patterns, and hence is strategically important. In the mental accounting literature, it was found that past payment had an adverse impact on future consumption. This is called the sunk cost effect. Gourville and Soman (1998) showed that the sunk cost effect would depreciate over time, and they called this phenomenon payment depreciation. When past purchases are paid with some delay in time (e.g. using credit cards), the adverse impacts on subsequent consumption will be less serious (Soman 2001).

By temporally separating the bill payment from benefit consumption, firms can manipulate the behavior of consumers to their interests. For example, a firm can offer discounts to encourage bulk purchases. Since consumers pay all items (e.g. twelve bottles of beers in one pack) up-front, the sunk cost effect of the payment will have depreciated over time when the items are actually consumed (e.g. drinking a bottle of beer). As a result, the consumption will be faster than it should be. As long as this gain from increased consumption exceeds the cost of offering the discounts, the firm stands to increase profit.

To use bill payment timing effectively as a strategic tool, there is one important requirement: the billing schedule offered by the firm is the same as the payment outlays

perceived by the consumer. If consumers always pay by cash, there is no problem. Unfortunately, it is not the case in practice. Consumers pay by cash or any other payment means as they wish, provided that the payment method is accepted.

With payment card technology, payment outlay perceived by a consumer can be detached from billing schedule offered by firms. There are three main types of payment cards: the stored value cards, the debit cards, and the credit cards. Consider the case of using a stored value card. There are three possible instances that a consumer may perceive as the payment time – time when the actual payment happens. First is the time when the consumer loads money into the stored value card – the load time. Second is the time when the consumer makes the purchase – the purchase time. Finally is the time when the consumer's wealth is depleted – the wealth depletion time. In this case, the wealth depletion time coincides with the purchase time.

So which one is the payment time? With payment card technology, it is not clear whether the payment outlay perceived by a consumer matches with the billing schedule offered by firms. Recent advances in the technology make the situation even more complicated: a stored value payment card can offer consumers with options of loading money into the card with cash, from a bank account, or from a credit card account. Will this innovative function have any impacts on the perceived payment outlay associated with purchases made with such payment cards?

The perceived payment time is also related to the endowment effect proposed in the mental accounting literature (Thaler 1980). Consumers treat foregone gains as opportunity costs and losses as out-of-pocket costs. Opportunity costs appear less painful than out-of-pocket costs. Hence, consumers are willing to pay more when considering the payment as an opportunity cost, rather than an out-of-pocket cost.

When paying a good with endowment, consumers think of the payment as a foregone gain of giving up the endowment. When paying a good with cash, the payment is perceived as a loss in cash. Whether the use of payment cards can induce the endowment effect depends on when the payment is perceived to take place. For instance, if the purchase time is perceived as the payment time, then paying a good with a payment card will be judged as an opportunity cost while paying by cash is an out-of-pocket cost.

Given the above issues, we conducted a large scale survey to address the following research questions: When using a payment card, which one – the load time, the purchase time, or the wealth depletion time – is perceived as the payment time for purchases? For a payment card equipped with an innovative function, which allows consumers to load money into the card with either cash, from a bank account, or from a credit card account, how will consumers form perception on the payment outlay?

The rest of the paper is organized as follows: Section 2 briefly reviews background of the research grounded on mental accounting and related literature. Section 3 develops the hypotheses. Section 4 outlines the research methodology used. Section 5 presents the

results. Section 6 concludes and discusses the results, and identifies future research directions.

2. Background

2.1 Prospect Theory and Mental accounting

It is widely observed that consumers deviate from rational behaviors in systematic ways. Kahneman and Tversky (1979) explained these anomalies by proposing a descriptive model of decision making – prospect theory. In prospect theory, consumers make decisions by evaluating pleasures and pains associated with gains and losses brought by their decision, relative to a chosen reference point. The hedonic values of those gains and losses are represented by a value function. The value function has three essential characteristics. Reference dependence: gains and losses are relative to some reference point. Loss aversion: the value function is steeper in the loss domain than in the gain domain. Diminishing sensitivity: as gains and losses get larger and larger, they carry smaller and smaller hedonic values to the consumers.

Equipped the prospect theory value function, Thaler (1980; 1985) proceeded to deal with how consumers frame their decisions and evaluate the corresponding outcomes. The hedonic editing hypothesis is proposed: consumers code outcomes to maximize their happiness. Due to the value function's property of diminishing sensitivity as losses and gains increase in magnitude, consumers will prefer to aggregate losses and segregate gains.

2.2 Payment card as a device for aggregating losses

Theoretically, consumers can frame the outcomes in any way through arbitrary aggregation and segregation of gains and losses. In practice, there are other factors affecting how consumers will frame the outcomes. One important factor is the timing of the outcomes. Previous research had shown that the temporal separation of outcomes facilitates their segregation while the temporal proximity facilitates integration (Thaler et al. 1990).

Following this line of thought, consumers will prefer to pay their purchase with payment cards rather than cash, *ceteris paribus*. When paid by cash, payments (i.e. losses) of each purchase are separated temporally and thus cannot be aggregated. If payment cards are used, payments of several purchases will be lumped together at some point of time. For example, all purchases using a credit card can be paid in one time per month when the statement arrives. As such, losses are aggregated, which is preferable to consumers. Payment card technology is therefore a device for consumers to aggregate losses and to reduce the associated pains. Firms refusing to accept payment cards will put themselves in a disadvantageous position. The strategic impacts of payment cards are unavoidable.

2.3 Sunk cost, Payment Depreciation, and Payment Immediacy

Thaler (1980) referred to the observation that past purchases had significant impacts on future consumer behavior as the sunk cost effect. For example, consumers who have

bought a ticket for a show are more likely to go to the show even under adverse weather conditions than those who have not. A number of researches had shown the existence of sunk cost (e.g. Health 1995; Kahneman et al. 1984).

There is evidence that consumers will eventually ignore sunk costs (Arkes et al. 1985). Prior expenditures are less and less relevant to subsequent consumer decisions as time passes. This gradual reduction of the sunk cost effect is called payment depreciation (Gourville et al. 1998). Deferral of payment also affects consumer decisions. Soman (2001) studied the role of payment immediacy on spending behavior. When payment is not immediate, the effect of the purchase on following consumption is reduced. Both payment depreciation and immediacy suggests that timing of payment outlay has significant impacts on consumer behavior. For instance, firms can take advantage of payment depreciation through strategies like volume pricing and bill scheduling for scarce resources.

However, for firms to use payment timing effectively as a strategic tool, it is required that the billing schedule offered by the firm is the same as the payment outlays perceived by the consumer. When paying firms with payment cards rather than cash, there are multiple possible instances to be perceived as the actual payment time. It is thus possible to decouple billing schedule from perceived payment outlay with payment card technology. Previous research has not addressed this possibility. We propose to investigate this issue in the current research.

2.4 Endowment effect and Payment Card

Consumers treat foregone gains as opportunity costs and losses as out-of-pocket costs. Because of loss aversion, opportunity costs appear less painful than out-of-pocket costs. Hence, consumers are willing to pay more when considering the payment as an opportunity cost, rather than an out-of-pocket cost. This is labeled as the endowment effect (Thaler 1980). Much research, which studied the changes in valuations of a good when it is within and out of the endowment of a consumer, had been done (e.g. Knetsch 1989; Tversky et al. 1991).

Figure 1 illustrates the endowment effect. Consider two scenarios of a consumer considering whether to buy a TV set. In scenario one, the consumer pays with cash if he/she decides to buy. The payment follows arrow no. 4 in the figure and the TV set goes to his/her endowment following arrow no. 1. The consumer treats the payment as an out-of-pocket cost since the outflow comes out of the box “Cash”. In scenario two, the consumer is given a money back guarantee and takes the TV set home for a two week trial period. After two weeks time, the consumer decides if he/she wants to return the TV set for the money back. Returning the TV set follows arrow no. 2 and the cash back follows arrow no. 3. As the outflow comes from the box “Endowment”, the cost of keeping the TV set is considered as an opportunity cost. By the endowment effect, the consumer is more likely to buy the TV set in scenario two.

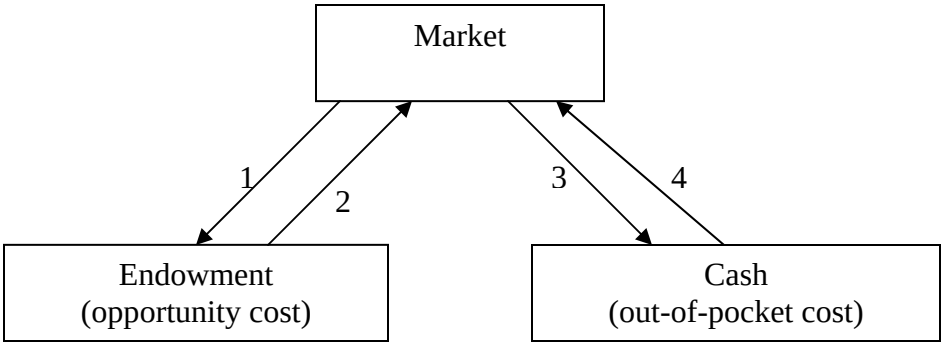
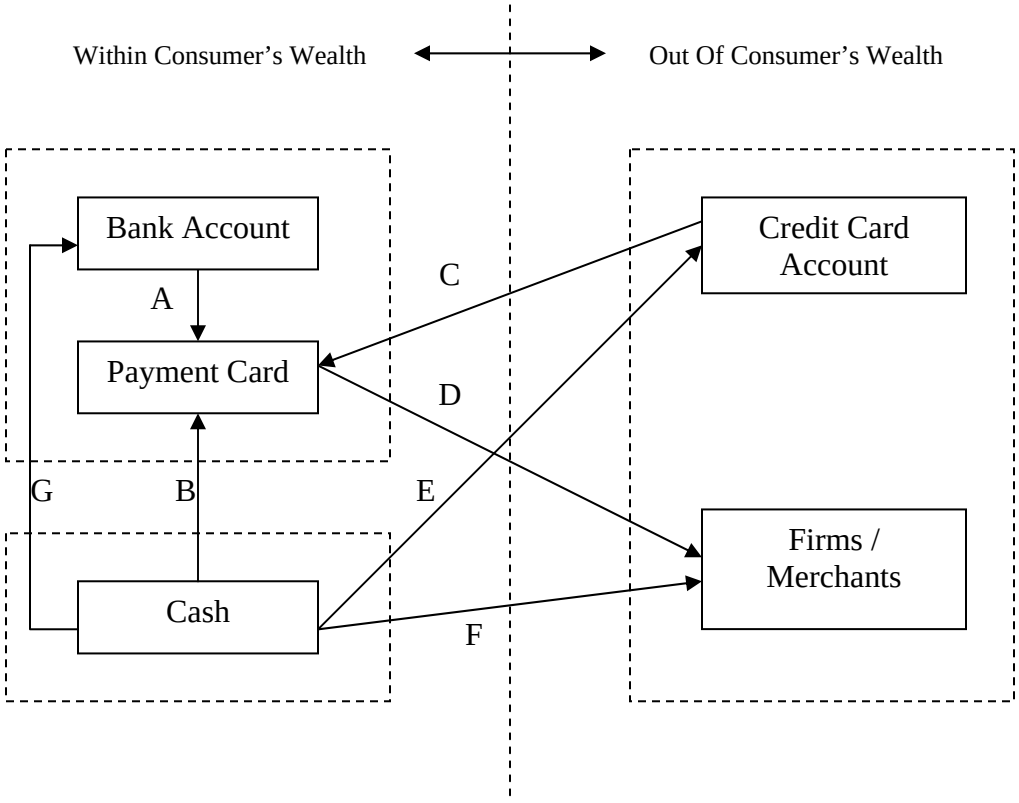


Figure 1: Endowment Effect

From Figure 1, we can see that there is a possible role played by payment card in inducing the endowment effect. When paying a good with cash, the cost involved is an out-of-pocket cost, which is treated as a loss. If the consumer pays a good with a payment card and treats the time of purchase as the time when payment happened, the consumer will be considering whether to keep the money in the card or get the good. The payment outflow comes from the endowment of the consumer (i.e. the payment card) and therefore the cost of getting the good is viewed as an opportunity cost. There will be no endowment effect if the consumer considers the payment happens when cash is paid "out-of-pocket" to settle the payment card transaction. The perceived timing of the payment by consumers using payment cards is crucial in whether the endowment effect is induced. By examining the consumer perception of actual payment time, this paper takes a first step in studying the possibility of inducing endowment effect with payment technology.

3. Theoretical Foundations and Hypotheses

As discussed in the introduction, there are multiple instances, which consumers may consider as the payment time for a purchase. Figure 2 illustrates the cash flow of the three traditional types of payment card – stored value card, debit card, and credit card.



Cash: F

Stored Value Card: B → D

Debit Card: G → (A, D)

Credit Card: (C, D) → E

Figure 2: Money Flow of Payment Method

From Figure 2, we can see that the payment card, cash, and the bank account may be considered as one group and the credit card account and the merchants as another. When money is stored as cash, in the payment card, or in the bank account, consumers may consider their wealth is not yet depleted. The wealth is depleted once money is paid to the credit card account or the merchants. We call this the wealth depletion time. The two other possible instances to be considered as the payment time is: 1) the time when money is loaded into the payment card (the load time), and 2) the time when the purchase is made (the purchase time).

For cash payments, it is clear that the wealth depletion time is the perceived payment time. No matter when a purchase is made, the consumer's payment outlay is exactly the same as the billing schedule, which equals to the timing of consumer's wealth depletion, in cases of cash payments.

How do consumers perceive the payment outlay when payment cards are used? When payment cards were first introduced to the market, they were really new products that defied simple classification in terms of existing product concepts (Gregan-Paxton et al. 1997). Much research has been done in investigating how consumers transfer their existing knowledge about established products to really new products. For examples, researchers have done a lot in brand extension (e.g. Aaker et al. 1990; Boush et al. 1991; Broniarczyk et al. 1994), country-of-origin effects (e.g. Hong et al. 1989; Shimp et al. 1993), and comparative advertising (e.g. Pechmann et al. 1991; Sujan et al. 1987).

There are two main lines of research studying consumer knowledge transfer: the categorization literature, and the analogical learning theory. In the categorization literature, consumers are assumed to use categorization as one primary tool for organizing their knowledge (Fiske et al. 1990). When consumers put a new product into an existing category, knowledge about that category is transferred to the new product as a by-product of the categorization process. The concept of categorization based knowledge transfer is limited in assuming that knowledge transfer can only occur between products in the same category.

There was no suitable category for payment cards when they first became available. The conception of transferring knowledge based on categorization is not applicable for learning about payment cards. Analogy learning theory, on the other hand, focuses on the transfer of knowledge from one domain (the base) to another (the target) as a function of the correspondence of between the two (Gentner 1989). There is no requirement that the two domains should belong to the same category. This theory provides a broader perspective on knowledge transfer, which can occur between any two domains as long as they are similar enough. Hence it is more suitable for studying the knowledge transfer occurring between cash and various types of payment card.

Based on the analogy learning theory, Gregan-Paxton and John (1997) developed the Consumer Learning by Analogy (CLA) model. The CLA model provides the necessary conceptual framework for understanding how consumers form perception on payment timing for different types of payment cards, based on established knowledge about cash

payments. It incorporates key aspects of the analogical knowledge transfer paradigm, which describes the process by three stages: accessing the base domain, mapping the elements of the target to the base, and transferring knowledge from the base to the target. It also includes the moderating role of expertise in the process of consumer learning by analogy.

Consider how consumers transfer knowledge from cash payments to payments using cards. As both payment cards and cash are used for paying for purchases, it is natural that consumers will take cash as the base for payment cards in the access stage. Then in the mapping stage, the consumer will link the payment cards with cash through their common property (termed as relation in the CLA model) – being used for paying purchases. In the CLA model, this type of mapping is called relational mapping and requires consumer expertise on the product. Consumers know well how to use cash and thus the expertise requirement should be satisfied. In the final transfer stage, consumers transfer relevant knowledge from cash to payment cards. Consequently, the consumer is expected to perceive the wealth depletion time as the payment time for payment cards as well as cash. Given this perception, as long as the purchase time does not coincide with the wealth depletion time, the perceived payment outlay is decoupled from the billing schedule. The following hypothesis summarizes the discussion so far:

H1: When using traditional types of payment cards (i.e. stored value cards, debit cards and credit cards), the time of wealth depletion is perceived as the payment time.

3.1 The innovative payment technology: personalized Octopus card

Recent advances in payment card technology enable a new type of payment card: the personalized Octopus card, which is available in Hong Kong. The ordinary Octopus card was originally a stored value smart card for micro-payment. With over 7 million cards issued, it is now the closest thing to an electronic-cash system anywhere in the world (Yoon 2001). The personalized Octopus card is an advanced version equipped with an innovative function: consumers can choose to load money manually by cash, automatically from a bank account, or automatically from a credit card account. In other words, the innovative function enables consumers to use the settlement methods of stored value cards, debit cards, and credit cards for their personalized Octopus card.

Given the perceived payment time of traditional payment technology, how will consumers use this knowledge in deciding the payment time of personalized Octopus cards? Consumers are expected to transfer knowledge from the relevant types of payment card based on this innovative function. For example, consumers loading money automatically from a bank account to their personalized Octopus cards may transfer related knowledge from a debit card.

The personalized Octopus card is categorized as a multi-purpose smart card[1], instead of simply a payment card. In fact, most common payment cards nowadays are magnetic cards, not smart cards. Thus knowledge transfer is not grounded on the category – smart

[1] For example, it can be used for authentication purpose in restricted area accessing. For details, see www.octopuscards.com.

card – it belongs to, and the CLA model will be used for modeling this knowledge transfer.

Depending on how a consumer use the innovative money loading function, the stored value card, debit card or credit card may be determined as the appropriate base in the access stage proposed in the CLA model. Suppose that the consumer chooses to load money from his/her credit card account. The credit card is naturally taken as the base. Then in the mapping stage, the consumer will link the personalized Octopus card with the credit card through their common property (termed as relation in the CLA model) – settling the purchase with the credit card account. In the CLA model, this type of mapping is called relational mapping and requires consumer expertise on the product. Given the widespread use of payment cards in the modern society, the expertise requirement should be present. In the final transfer stage, consumers transfer relevant knowledge from the credit card to the personalized Octopus card. Consequently, the consumer is expected to perceive the personalized Octopus card as a payment deferring device like the credit card.

Similar reasoning can be applied to cases where consumers choose to load money into the personalized Octopus card using cash or from their bank accounts. Therefore, the following hypotheses are formulated:

H2: The payment time perception of cash is transferred to the innovative payment card if its stored value is loaded with cash

H3: The payment time perception of debit card is transferred to the innovative payment card if its stored value is loaded from a bank account

H4: The payment time perception of credit card is transferred to the innovative payment card if its stored value is loaded from a credit card account

4. Methodology

Working with the system provider of the Octopus card system, an online survey was conducted in Hong Kong in late 2003 to collect the data. There are both pros and cons using the online survey approach (Ilieva et al. 2002). The major concern is that the sample may not be representative of the population due to poor access to the Internet and less computer literacy of respondents. Given the high Internet penetration and computer literacy, administering an online survey in Hong Kong should be an effective means of reaching the entire population. Totally 8,030 responses were got. This large sample is also an indication that the online survey approach is quite effective.

There are two main types of online survey, each with its own advantage. Web-based survey can reach a wide audience and presents the questionnaire better. Email survey enables control over the respondents. In the current research, a mixed approach is adopted. We used both e-mail solicitation and web-based questionnaire, gaining the advantages from both approaches (Ilieva et al. 2002).

We administered the questionnaire on a non-profit public web portal run by the Hong Kong government. It is run on a membership basis. The membership is free for all

permanent local residents. All 160,000 members were invited to participate in the survey by email. Only Octopus card holders could participate, since we need information about the payment perception of Octopus cards with different money loading sources. The percentage of Hong Kong residents having an Octopus card is over 90%[2]. So there should not be sampling bias because of this requirement. Respondents did the survey by clicking on a direct link, embedded in the e-mail, pointing to the web-based questionnaire. To encourage participation, incentives such as free money loaded to Octopus cards were provided through a lucky draw. The online survey lasted for about four weeks. There were totally 9,299 initial attempts to complete the questionnaire. Among them, 8,030 respondents actually completed the whole questionnaire and their responses were usable.

5. Analysis and Results

In the survey, respondents are presented with the following description:

> *"There are generally three types of payment timings: Pre-pay, Pay-as-you-go and Post-pay. Pre-pay payments refer to payments made before the physical acquisition or consumption of the goods or services. Pay-as-you-go payments refer to payments made at the same time as the physical acquisition or consumption of the goods or services. Post-pay payments refer to payments made after the physical acquisition or consumption of the goods or services."*

Respondents were then asked to classify various payment means as either Pre-pay, Pay-as-you-go, or Post-pay. Each respondent was required to classify each of the following payment means: cash, debit card, credit card, the Octopus card which the respondent is using (it could be one with money loaded manually with cash, automatically from a bank account, or automatically from a credit account). According to the consumer

[2] see www.octopuscards.com

classification of the payment means, the implied payment time can be found, as shown in Table 1.

Payment Means	Load Time (when cash is put into stored value card, or bank account for debit cards)	Purchase Time	Wealth Depletion Time
Cash	N/A	Pay-as-you-go	Pay-as-you-go
Debit Card	Pre-pay	Pay-as-you-go	Pay-as-you-go
Credit Card	N/A	Pay-as-you-go	Post-pay
Octopus Card loaded with cash	Pre-pay	Pay-as-you-go	Pay-as-you-go
Octopus Card loaded with bank account	Pre-pay	Pay-as-you-go	Pay-as-you-go
Octopus Card loaded with credit card account	Pre-pay	Pay-as-you-go	Post-pay

Table 1: Implied Payment Time of Perceived Timing for Various Payment Means

5.1 Manipulation Checks

Table 1 shows that (1) cash payment must be a Pay-as-you-go method; (2) debit card cannot be classified as a Post-pay method and; (3) credit card is never a Pre-pay method. Hence, we can use these three characteristics as manipulation checks to ensure the quality of responses got.

First, we remove all respondents who had chosen cash payment as either a Pre-pay or a Post-pay mechanism. From the 8030 completed questionnaires, we are left with 6485 respondents. Second, all respondents choosing debit card payment as a Post-pay mechanism are abandoned. A further 941 data records are eliminated, leaving us with 5544 useful responses. Finally, responses classifying credit card payment as Pre-pay are excluded from further analysis. A total of 5112 useful responses are finally got.

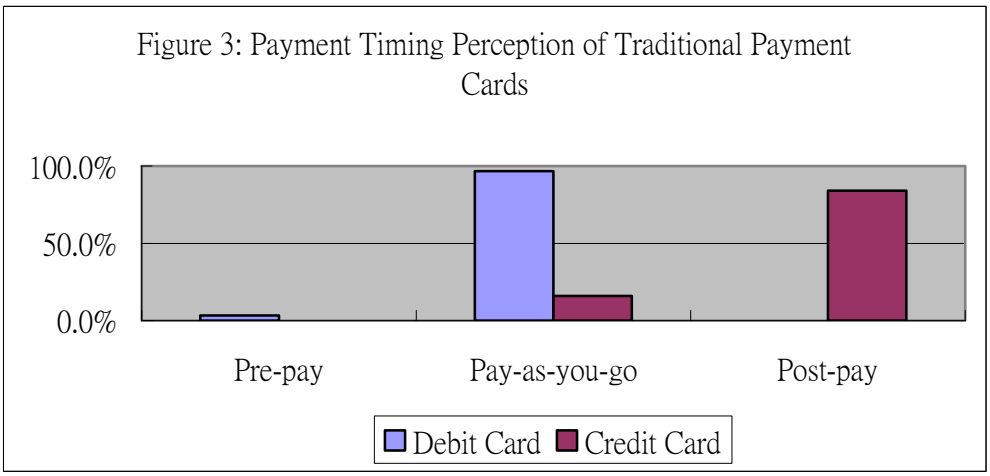
The 5112 respondents were asked to provide information about their demographics and the loading function they used with their Octopus card. There are three available money loading options: (1) loading money manually with cash; (2) loading money automatically from designated bank accounts; or (3) credit card accounts, when the stored value of Octopus card is used up. Demographics information and distribution of card holders with different money loading source are summarized in Table 2.

Table 2: Sample Demographics and Octopus Loading Option Distribution

Gender (%)		Age (%)	
Male	48.9%	Below 30	54.0%
Female	51.1%	31 and Above	46.0%
Education (%)		Annual Income (HKD)	
Up to Secondary	37.1%	0 to 75K	45.1%
Tertiary	28.1%	75K and Above	54.9%
College and Above	34.8%		
Loading Option Of Octopus (%)		Cash	71.4%
		Bank Account	2.5%
		Credit Card Account	26.1%

5.2 Payment Timing Knowledge Transfer (H1, H2, H3, H4)

The payment timing classification of respondents for the two conventional payment technologies – debit and credit cards is shown in Figure 3.



The majority of responses classify debit card as a pay-as-you-go payment means; while most classify credit card as post-pay. By the perceived payment timing of the traditional payment means, we see that the wealth depletion time is perceived as the payment time (see Table 1). We performed a chi-square test to verify the payment classification results. The robustness of the results is tested by controlling the gender, age group, education level, and annual income of the respondents. The null hypothesis that there is no systematic payment classification for traditional payment cards is rejected at almost all levels. Hence, hypothesis *H1* is supported. Table 3 summarizes the results.

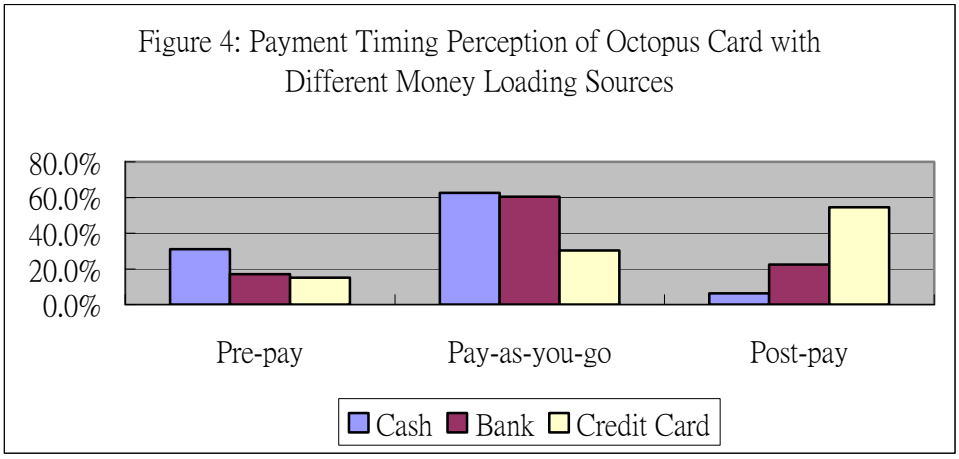
Table 3: Chi-square Test on Payment Timing Classification

Payment Methods	Overall (No Control)	Gender	Age	Education	Income
Debit Card	4450.88***	Male: 2162.38*** Female: 2288.56***	<= 30: 2328.49*** >= 31: 2123.73***	<=Secondary: 1596.15*** Tertiary: 1242.96*** >=College: 1612.97***	<=75000: 1917.04*** >=75001: 2535.79***
Credit Card	2371.71***	Male: 1185.17*** Female: 1186.82***	<= 30: 1126.61*** >= 31: 1255.97***	<=Secondary: 654.67*** Tertiary: 688.05*** >=College: 1060.85***	<=75000: 853.23*** >=75001: 1540.91***

Notes:

1. The null hypothesis for the chi-square test is that the proportions of responses choosing different payment timing for the same payment method are the same.
2. * p<.05; ** p<.01; *** p<.001; NS indicates non-significance.

Figure 4 displays the perceived payment timing of Octopus cards with different money loading sources.



The majority of respondents perceive the Octopus card with value loaded from cash or bank account is a pay-as-you-go payment method; while an Octopus card with value loaded from credit card is perceived as a post-pay method. From Table 1, we infer that consumers take wealth depletion time as the payment time, just like what they do for the conventional payment means. The knowledge of traditional types of payment means are indeed transferred to the Octopus card according to the money loading option. Chi-square tests on the reported association between Octopus card's money loading option and payment timing were performed. Robustness of the results is established by introducing respondents' demographics – gender, age, education, and income – one by one as control. The results are significant at all levels, rejecting the null hypothesis that the payment classification is independent of the money loading option. Thus, the hypotheses *H2*, *H3* and *H4* are supported. Table 4 summarizes this result.

Table 4: Chi-square Test on Payment Timing Classification against Octopus Card's Money Loading Option

Money Loading Option	Overall (No Control)	Gender	Age	Education	Income
Cash	1744.99***	Male: 750.23*** Female: 1021.13***	<= 30: 1200.81*** >= 31: 557.66***	<=Secondary: 745.85*** Tertiary: 579.85*** >=College:	<=75000: 1005.29*** >=75001: 751.37***

				462.58***	
Bank	43.30***	Male: 26.48*** Female: 17.33***	<= 30: 19.35*** >= 31: 29.70***	<=Secondary: 9.56*** Tertiary: 7.75*** >=College: 27.41***	<=75000: 19.66*** >=75001: 24.43***
Credit Card	315.53***	Male: 142.98*** Female: 179.84***	<= 30: 119.10*** >= 31: 197.47***	<=Secondary: 58.44*** Tertiary: 67.92*** >=College: 199.37***	<=75000: 62.54*** >=75001: 262.12***

Notes:

1. The null hypothesis for the chi-square test is that the proportions of responses choosing different payment timing for the same money loading option are the same.
2. * p<.05; ** p<.01; *** p<.001; NS indicates non-significance.

6. Discussion and Conclusion

Using the CLA model of knowledge transfer, we investigated the payment time perception of traditional payment cards and an innovative payment technology. Our results shed lights on the behavior impacts of payment time perception and highlight the strategic importance of payment cards in terms of decoupling payment outlay from billing schedule and inducing endowment effects.

The time of wealth depletion is perceived as the actual payment time. Therefore, as long as the purchase time does not coincide with the wealth depletion time, the perceived payment outlay is decoupled from the billing schedule. Credit card is an example. In such cases, the actual payment outlay perceived by consumers should be taken into consideration when formulating strategy based on billing schedule.

Advances in payment card technology hide away the actual payment outlays of consumers from merchants. When using a personalized Octopus card, firms simple

cannot tell whether a consumer is loading money from cash, a bank account, or a credit card account. Under such situation, trying to manipulate consumption behavior with billing schedule may not be a feasible strategy.

For payment cards where the purchase time coincides with the wealth depletion time (e.g. debit card), the endowment effect is induced. The willingness-to-pay will be higher for consumers paying with such cards. Managers may take advantage of this and formulate their strategy of payment card acceptance.

From the knowledge transfer between the innovative type of payment cards and the traditional counter parts, we see that it is possible to manipulate consumer perception on a technology through innovative functions that facilitate the linking of the technology with other better understood ones. For example, when a consumer loads money into his/her personalized Octopus card using the credit card, other attitude, belief and procedural knowledge other than the payment time perception may as well be transferred from credit card to the Octopus card. This is favorable if the Octopus card issuer wants to expand its market to large amount transactions which are traditional served by credit cards. Further studies into other types of knowledge transfer related to innovative technology functions are promising too.

Another interesting direction for future research is: what determines the consumer choice of whether to load money with cash or other sources. This could be related to the trade-off between self-control and convenience. For example, personal finance experts

frequently advise people who want to save more money not to use credit cards. When using credit cards, payment is more convenient (e.g. the consumer does not need to worry if there is enough cash) and individuals have less self-control over spending. The reverse is true for cash payments. This kind of trade-off may also apply when choosing between manually loading money (less convenient, more self-control) and automatically loading money from some accounts (more convenient, less self-control).

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