

# Decision-Making of Consumers with Higher Pain of Payment: Moderating Role of Pain of Payment When Payment Conditions Differ

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## Abstract

The present study explores two relationships: first, between number of payment and payment option preference, and second, total sum and payment option preference, with pain of payment as a mediator variable. The analyses revealed that consumers who feel higher pain of payment preferred the pennies-a-day pricing to the aggregate pricing when the per-payment price is low. Consumers who experience higher pain of payment prefer to pay in small frequent installments because they feel the small per-payment price can be comparable to daily expense. Consumers who experienced higher pain of payment preferred aggregate pricing to pennies-a-day pricing when the per-payment price was high. When the per-payment price is high, it is no longer comparable to daily expense, thus leading to greater pain of payment among consumers. The study discusses the implications for mechanism of pain of payment on payment option preference.

**Key words:** Pain of Payment, Pennies-a-day, Aggregate Pricing, Payment Option Preference

## 1. Introduction

In the marketing world, a consumer preference for payment options between the aggregate pricing and the “pennies-a-day” (or PAD) pricing has been debated for some decades. The aggregate pricing is a single-time payment for a purchase of a good or service whereas the PAD pricing is multiple-time payments upon each use of a good or service. An example in real life situations may include a consumer trying to decide on

purchasing a monthly commuter pass or a daily transit ticket, aware of the total number of his trips.

The traditional economic analysis assumes the PAD pricing to result in two cases: no change in consumer preferences or a backfiring effect relative to the aggregate pricing. Due to the result of no difference in total, the concept “descriptive invariance”(Tversky et al., 1988) which is non-changing preference across different options if it is the same stimuli in essence, strengthens this logic. Other theories that support aggregate pricing

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are prospect theory(Kahneman and Tversky, 1979) and “hedonic editing” from mental accounting theory(Thaler, 1985; Prelec and Loewenstein, 1998). Both indicate that consumers should want to aggregate small prices instead of paying them individually because people prefer large amounts of pleasure and small amounts of pain to be involved during a transaction. Since price is a disutility factor in transaction, paying only once can seem better way to reduce disutility than paying several times. Additionally, the prospect theory makes a point that the PAD pricing, with its (small but) many payments, can lead some consumers to continuously feel the steepest and most painful part of the prospect theory-value function. The PAD pricing can be counterproductive in this term that it can feel like more loss and pain than integrated loss, or the aggregate pricing. People have motives of hoping to enjoy consumption undisturbed by payment concerns, which is painful. Pain in a transaction can be price itself or the literal pain invoked when paying the price. The advocates of aggregate pricing state that to lower the pain, paying only once is the way to minimize the pain the most.

However, practical use of the PAD pricing cannot be overlooked. Many marketing tactics include ‘per day, week, or month’ slogan as well as ‘For this wonderful form-fitting mattress, you only have to pay 2 dollars a day!’. Most of the time, the sum of the product or service is not changed, yet marketers and companies find this effective in a sense that consumers prefer the PAD style of price framing. Gourville(1998) showed that when the payment is in very small prices with many number of payments that are comparable to daily expense, thus in acceptable price range, consumers can recognize this as less of a loss than when the loss is integrated. This is due to a consumer comparing the partitioned price with daily, easy-to-access small expense, whereas the aggregate price is compared to the price that is usually not associated easily in daily life, thus ending up feeling like a large and infrequent expense. If the price is not small enough that a consumer can assimilate

easily with daily expense such as a cup of coffee or a bus fare, then the assimilation would not occur and the partitioned price will be contrasted against to be rejected as a category member. Consumer compares the partitioned price with one’s own acceptable price range or the reference price and if it is more than one’s reference price, consumer feels as a loss while the opposite case feels as a profit (Kalwani et al., 1990; Putler, 1992).

Although there seems to be a gap between the research results of behavioral economics and real-life scenarios, what could be seem as contrasting ideas can provide another explanation. The prospect theory which is used to advocate aggregate pricing mentions disutility and pain, which are essentially same in that they both indicate the actual price of a product or service. However, the disutility or pain can also mean psychologically and not only physically or financially. The theory that brought up th possibility of financial burden being actual psychological pain is Mental Accounting Theory(MAT; Prelec and Loewenstein, 1998). It suggests that each individual has mental account for every purchase. If one makes a purchase, it not only leaves marks on one's bank account but in mental account as well. The purchasing behavior can be painful to both of one's financial and mental status, depending on the state of one's mental account. It can also depend on each individual’s different level of tendency to endure pain when purchasing, because the disutility results from pain of payment(POP; Rick et al., 2008). POP is the immediate emotion that is experienced at the moment of choice and comes from thinking about the future consequences of one’s decision(Loewenstein et al., 2001; Loewenstein & Lerner, 2003). It is an individual difference about the intensity of the pain one feels when trying to spend money, even if it is a necessity(Rick et al., 2008). Each consumer has different levels of POP, so people with higher or lower levels of POP can use different pricing tactics that could ensure them the least possible pain. POP not only plays a key role in consumer choices but can also provide insights to suggest customized payment options

for specific target groups from marketers' view. However, this emotional part of transaction has been overlooked and POP studies are scarce. Assuming POP can play the role of emotional "price", in order to minimize pain in a transaction, one can lower per paying price or reduce number of times, depending on one's POP level.

Consumer research has mainly focused on ways for consumers to perceive the cost to be as small as possible to ensure more transactions. This paper suggests the subjective cost or pain each consumer feels could mediate the payment preference when depending on the suggested per-paying-price or total price, which has not been dealt yet in past studies. If consumers are going to feel certain amounts of POP in a transaction, they can try to choose how much POP they would feel by determining how much per-paying-price they will pay. Determining per-paying-price depends on lowering per-paying-price itself or reducing number of payments. This paper focuses on both cases and how individual differences in POP can mediate payment option preferences in overall. Gourville(1998) and many other studies that follow after(Gourville, 2003; Ha & Han, 2002; Lee, 2002; Lee, 2009), showed that when per paying (or partitioned) price (PPP) is low, consumers tend to prefer the PAD pricing more over the aggregate pricing. With high PPP, consumers' preferences for the PAD pricing is weaker and preference for the aggregate pricing emerges. We believe the emotional part of transaction concerning POP can offer some answers to mechanisms behind as research specifically concerning POP are scarce.

We attempted to examine whether people with higher POP will show the tendency to follow Gourville's(1998) model. This will be meaningful in the sense that the studies deal with actual purchasing situations that were not dealt in the previous study. The Study 1 will examine payment preference for people with different POP levels when FEW and MANY Number of Payments are presented, thus focusing on the number

of payments itself. The Study 2 will examine payment preference for people with different POP levels when LOW and HIGH Total Sum are presented, thus focusing on the total sum itself.. Specifically, tightwads (people with high POP level), HIGH PPP condition (reflected by HIGH total sum or FEW number of payments) will make them prefer aggregate pricing over PAD pricing. In LOW PPP condition (reflected by LOW total sum or MANY number of payments), tightwads will prefer PAD pricing over aggregate pricing.

## 2. Study 1

### 2.1. Participants

97 participants (41 females) from Amazon Mechanical Turk (MTURK) database who were living in the U.S.A. at the time of the study completed this study online in exchange for monetary reward. All participants were randomly assigned to either FEW or MANY number of payments groups. 3 responses were excluded from analyses because of unreliability. Thus, FEW number of payments group consisted of 50 participants and MANY number of payments consisted of 47 participants. To match the university student sample in Study 2, there were age (20-39 years old) and education level restrictions (at least college level degree) for participants in Study 1.

### 2.2. Method

Survey began with the Spendthrift-Tightwad scale (Rick et al., 2008). This scale was developed and used in previous research to measure individual's POP level. In this study, it was used to measure each participant's POP level, so preference for certain payment option according to their POP level could be found. Survey respondents were put into either monthly-yearly condition (12 payments: FEW number of payments) or

daily-yearly condition (240 payments: MANY number of payments). The scenario involved choosing payment option for subway:

*You have recently got your dream job. The only problem is that it is a little far away, so you've decided to **take the subway to move back and forth from your home to work.***

*To assume that you take the subway twice on a working day, you spend \$7 per day. You work 5 days a week and 20 days a month. You can pay a daily rate of \$7(or a monthly rate of \$140) or a yearly rate of \$1680. Of whatever rates you choose from, the fee under each rate would be charged to your credit card automatically and you do not have to follow up on whether payment is being made.*

Following the scenario, participants were asked to choose which payment option he would select out of 6-point scale (1 closer to PAD payment option and 6 closer to aggregate payment option). The number of subway usage was controlled to minimize the participant's risk averseness tendency and ambiguity of future consequences to prevent from choosing a particular payment option out of those reasons. Conclusively, total is same in all presented frames which are daily, monthly and yearly. The only difference is in how many times a consumer pays.

### 2.3. Measurements and Tools

The Spendthrift-Tightwad Scale measures individual differences in the tendency to experience a pain of paying indirectly(Rick et al., 2008). It is composed of 4 questions like 'Which of the following descriptions fits you better, between tightwad (difficulty spending money) and spendthrift (difficulty controlling spending)?', 'People have trouble limiting their spending: they often spend money-for example on clothes, meals, vacations, phone calls-when they would do better not to.

Other people have trouble spending money. Perhaps because spending money makes them anxious, they

often don't spend money on things they should spend it on. a. How well does the first description fit you? That is, do you have trouble limiting your spending? b. How well does the second description fit you? That is, do you have trouble spending money? and Following is a scenario describing the behavior of two shoppers. After reading about each shopper, please answer the question that follows.

Mr. A is accompanying a good friend who is on a shopping spree at a local mall. When they enter a large department store, Mr. A sees that the store has a "one-day-only-sale" where everything is priced 10-60% off. He realizes he doesn't need anything, yet can't resist and ends up spending almost \$100 on stuff.

Mr. B is accompanying a good friend who is on a shopping spree at a local mall. When they enter a large department store, Mr. B sees that the store has a "one-day-only-sale" where everything is priced 10-60% off. He figures he can get great deals on many items that he needs, yet the thought of spending the money keeps him from buying the stuff.

In terms of your own behavior, who are you more similar to, Mr. A or Mr. B?.

### 2.4. Results

Hierarchical multilevel regression analysis was used to see whether the relationship between number of payment and payment option can be mediated by POP level (see Table 1). In Level 1 analysis, Number of Times was a significant positive predictor of preferring certain payment option ( $B = -1.36, p < .05$ ). In Level 2, interaction between number of payment and POP level was significant, indicating the significant mediating role of POP level ( $\Delta R^2 = .04, p < .05$ ) between number of payment and payment option preference. Fig. 1 is a graph drawn from using the estimated parameters from the analysis. LOW PPP condition is implemented as MANY number of payment and HIGH PPP as FEW number of payment. For payment option preference,

closer to 1 means choosing the PAD pricing and closer to 6 means choosing the aggregated pricing.

In Fig. 1, in LOW PPP condition, people who are high in tightwadness (or POP level) preferred PAD pricing more ( $M = 2.32$ ,  $SD = 2.168$ ) than people who are low in tightwadness (or POP level) ( $M = 3.27$ ,  $SD = 2.149$ ). In HIGH PPP condition, people who are low in tightwadness (or POP level) preferred PAD pricing more ( $M = 1.27$ ,  $SD = 2.145$ ) than people who are high in tightwadness (or POP level) ( $M = 1.73$ ,  $SD = 2.007$ )

Table 1. Est. Parameters of Multilevel Regression Predicting Payment Option Preference

Step	IV	B	SE B	$\beta$
1 ( $R^2=.16$ )	Number of times	-1.36	0.34	-.38*
	POP level	-0.02	0.03	-.08
2 ( $\Delta R^2=.04$ , $p<.05$ )	Number of times	-3.14	0.95	-.89*
	POP level	-0.08	0.04	-.25
	Number of times X POP level	0.11	0.06	.58*

Note: \* $p<.05$

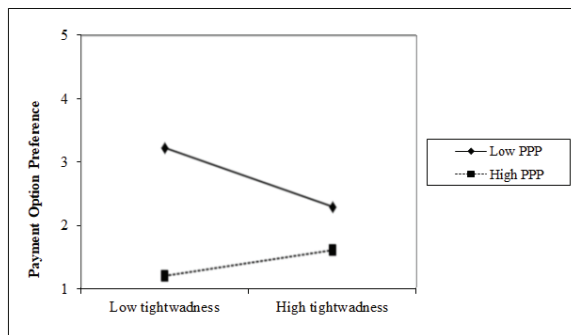


Fig. 1. Pain of Payment Mediating Payment Option Preference in Subway Scenario

### 3. Study 2

#### 3.1. Participants

81 university students (51 female) completed this study online in exchange for a course credit. All participants were randomly assigned to either LOW or

HIGH number of payments groups. 9 responses were excluded from analysis because of unreliability. Therefore, LOW total sum group consisted of 39 participants whereas HIGH total sum group consisted of 42 participants.

#### 3.2. Method

Identical procedure from Study 1 was applied but with a different scenario. Survey respondents were put into either high total sum condition(\$9 daily/\$108 monthly) or low total sum condition(\$3 daily/\$36 monthly). The scenario is about choosing payment option for gym registration in Korean:

*You are very interested in diet and exercising. You've gained a lot of weight recently, so you are especially interested in losing some weight. You think losing weight just by not eating is unhealthy, so you've decided to register for gym to control the weight as well as to improve health altogether by exercising.*

*You come across a gym advertisement near where you live, which has opened recently. This gym advertises having lots of different equipment and professional gym trainers, and you thought this was a good deal and decided to register.*

*Upon registering, you come across two rates, of which you can choose from. Two payment options are supposedly being considered and they are:*

*Monthly rate: \$108/\$36*

*Daily rate: \$9/\$3*

*To help your decision-making, you have a goal of going to the gym 3 times a week and have confidence to keep this promise. Of whatever rates you choose from, all payments will be made at the end of the month. For example, if you choose daily rate, you don't pay every time you visit but the fee will be calculated according to the usage and will be summed up at the end of the month to be paid at once. So, whatever rate you choose, the fee under each plan would be charged to your credit card automatically on the last day of the month.*

Following the scenario, participants were measured by the identical scales as in Study 1.

### 3.3. Measurements and Tools

Identical scales in Study 1 were used to measure the same dependent variables. Gym registration scenario was partially adopted from Lee(2008).

### 3.4. Results

Hierarchical multilevel regression analysis was used to see whether the relationship between total sum and payment option can be mediated by POP level (see Table 2). Individual variables only were included as predictors at Level 1. In Level 2, interaction between total sum and POP level was significant, indicating the significant mediating role of POP level ( $\Delta R^2 = .05, p < .05$ ). Total sum ( $B = -4.31, p < .05$ ) and POP level ( $B = -0.20, p < .05$ ) both showed significant main effect for preferring certain payment option. Fig. 2 is a graph drawn from using the estimated parameters from the analysis. LOW PPP condition is implemented as LOW total sum and HIGH PPP as HIGH total sum.

Table 2. Est. Parameters of Multilevel Regression Predicting Payment Option Preference

Step	IV	B	SE B	$\beta$
1 ( $R^2=.01$ )	Total sum	-0.17	0.46	-.04
	POP level	-0.06	0.07	-.09
2 ( $\Delta R^2=.05, p<.05$ )	Total sum	-4.31	2.03	-1.06*
	POP level	-0.20	0.10	-.33*
	Total sum X POP level	0.29	0.14	1.09*

Note: \* $p < .05$

In Fig. 2, in LOW PPP condition, people who are high in tightwadness (or POP level) preferred PAD pricing more ( $M = 3.45, SD = 2.464$ ) than people who are low in tightwadness (or POP level) ( $M = 4.82, SD = 1.859$ ). In HIGH PPP condition, people who are low in tightwadness (or POP level) preferred PAD pricing more

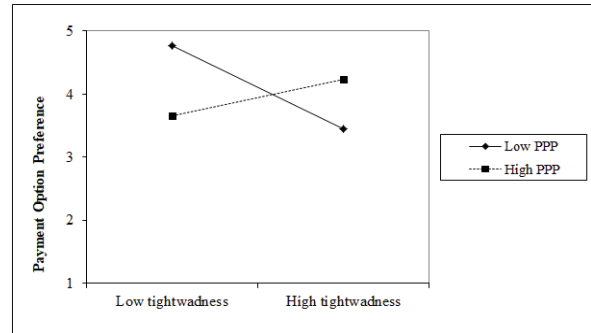


Fig. 2. Pain of Payment Mediating Payment Option Preference in Gym Scenario

( $M = 3.53, SD = 2.211$ ) than people who are high in tightwadness (or POP level) ( $M = 4.18, SD = 2.038$ ).

## 4. Discussion

The current study examined the relationship between number of payment and payment option preference and total sum and payment option preference, with pain of payment acting as a mediator. Individual variables were divided into two categories, which are low and high per paying price. Number of payment and total sum were divided into two levels each. There were few and many number of payments and low and high total sum. Low per paying price condition consists of many numbers of payment and low total sum conditions. High per paying price condition consists of few numbers of payments and high total sum conditions.

The PAD pricing lowers the pain level evoked by the first payment of attaining ownership of the product or service. In Study 1, it is subway ride. When presented with the daily rate or the yearly rate (MANY number of payment; LOW PPP), tightwads-consumers high in POP level-prefer the PAD pricing more than the aggregate pricing. It is because the POP is distributed enough to be able to handle than the aggregate pricing. When per paying price is small, tightwads can feel less pain in focusing on the amount alone and not number of times. However, when presented with either the monthly or yearly rate (FEW number of payment; HIGH

PPP), they both are above the daily comparable expense. When situated in this context, tightwads will prefer the aggregate pricing to compensate for the pain they get from the amount with fewer times. Both are pricey, but if one must pay, then it is better if it is done only once. Hedonic benefit is maximized for tightwads when per paying price is large.

In Study 2, concerning gym membership, when tightwads are presented with LOW monthly and daily fee, they would focus more on the absolute amount itself because it gives more merit, or bigger utility, that can outnumber POP coming from many number of payments. However, when presented with HIGH monthly and daily fee, the divided amount is not petty or small enough that can be comparable to daily expense. The partitioned per price does not belong in the acceptable price range anymore, so tightwads will be more likely to minimize POP by paying in the aggregate option.

Similar results have been found before but this study shows the unique role of POP as a mediator, which has not been tested before. POP plays a key role in consumer choices because each consumer has different levels of POP. It can also provide insights to suggest customized or different payment options for target groups from marketers' view. However, this emotional part of transaction has been overlooked and studies on POP specifically are scarce. This study is meaningful in that on top of many studies concerning different ways to frame price, it can add the knowledge of why some people might have more tendency to follow, or not follow the currently known trend of preferences for the PAD pricing.

Another theoretical implication current study has is that compared to previous price information framing studies, this study concerned real-life possible experiences. In Gourville(1998)'s study, 'donation' scenario was used. In Ha and Han(2002)'s study, electrical appliances were used in scenarios. Gourville(2003) talked about various situations but most were focused in taxing. This

study focused on experiences consumers can easily come across in actual life and had scenarios with different characteristics, one practical (subway) and one hedonic (gym).

Limitations of this study can be that its main focus was on people with high level of POP. From marketers and companies' views, it is necessary to make as many consumers spend as possible, so researches on other groups are needed as well. Another limitation is that this study did not have scenarios concerning goods; both scenarios were about services. This study did not consider the different lifespan between goods and services, so studies concerning goods are needed to see if mediating role of POP can show in purchasing goods as well.

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