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Payment Frequency Discount vs. Payment Amount Discount: The Framing Effect on Preference Reversal

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Theoretical Background

Across many product categories, widespread are multiple payments plans with which consumers pay certain amounts of money by schedule. By allowing consumers to choose the plan that serves them best, companies are attracting more consumers. Despite the topic's importance and pervasiveness, empirical studies on the effects of different payment plan framings are scarce.

In addition, multiple payment plans are often accompanied with price discounts. These price discounts are one of the most common promotional tools used by marketers to attract consumers (Monroe 2003). In this situation, we can think of several ways to frame a price discount. For example, imagine that the suggested price of a product is \$160. Consumers are required to pay 4 payments of \$40. The store can provide the \$40 price discount and can quote \$120 as the final selling price with multiple payments. Specifically, price discount can be either: 1) a payment *frequency discount*-which reduces the payment frequency from 4 to 3, holding the amount of each payment constant; or 2) a payment *amount discount*-which reduces each payment amount from \$40 to \$30 without changing the payment frequency. In addition, we can generate several framing methods to express the price discount as below⁸ (Figure 1).

Mainly drawing on prospect theory (Kahneman and Tversky 1979; Tversky & Kahneman 1991) and mental accounting (Thaler 1985), we investigate consumers' preferences between the payment frequency discount and the amount discount across different framing conditions. Therefore, the purpose of this research is to explore: 1) how framings influence consumers' preferences between the payment frequency discount and the amount discount, yielding a preference reversal; and 2) under what conditions the effect of framings is attenuated.

Preference Reversal between Gain Framing and Loss Framing

Researchers have shown that people have different preferences for multiple gains and losses (Linville and Fischer 1991; Thaler 1985). Put differently, people prefer segregated gains and integrated losses. On the basis of this theory, we can predict preference reversal. Specifically, in our loss framing condition, based on $\{U_{FD} [(-\$40) + (-\$40) + (-\$40)] > U_{AD} [(-\$30) + (-\$30) + (-\$30) + (-\$30)]\}$, we can expect that people prefer the payment frequency discount to the payment amount discount. On the other hand, in our gain framing condition, based on $\{U_{FD} (\$40) < U_{AD} (\$10 + \$10 + \$10 + \$10)\}$, we can expect the opposite pattern:

H1a: People will prefer the payment frequency discount to the payment amount discount in loss framing condition.

H1b: People will prefer the payment amount discount to the payment amount frequency in gain framing condition.

H1c: There will be a preference reversal across loss framing and gain framing conditions.

Study 1

Drawing on the notion that people prefer segregated gains and integrated losses, we investigated consumers' preferences for two discount plans (the payment frequency discount vs. the payment amount discount) with different framings (loss framing vs. gain framing). Sixty-two participants (average age=21.7, 59.7% female) were offered two discount plans, along with one of two framings, as shown in Table 1. The participants were then asked to rate their likelihood of choosing one plan over the other with a 10-point scale (i.e., (-5)-frequency discount preferred; (5)-amount discount preferred).⁹ Responses were recoded such that "1" represents a preference for the payment frequency discount and "10" represents a preference for the payment amount discount. Therefore, a value of "5.5" indicates no preference between the two discount plans.

The ANOVA revealed a main effect of the framings ($F_{1,60}=9.45, p=.003$), indicating the preference reversal between two framing conditions. Specifically, the participants preferred the frequency discount to the amount discount in the loss framing condition (mean=4.21, $t^{10}=2.22, p=.035$), but showed an opposite preference in the gain framing condition (mean=6.70, $t=2.14, p=.045$). Furthermore, we analyzed the inferred choice. Sixty-one percent of the participants in the loss framing condition chose the frequency discount plan, whereas, in the gain framing condition, only 32.3% chose the frequency discount plan (Chi-Square=5.25, $p=.022$). In sum, the results support Hypothesis 1.

This result shows that consumers prefer paying less frequently to paying lower amounts of money each time when they regard the payment plans as losses, while they show the opposite pattern if they consider the payment plans as gains.

Preference Reversal between Double Loss Framing I and II Conditions

In the double loss framing I condition, we expect that people will show no preference between the two discount plans because the "frequency discount" and the "amount discount" are both losses for consumers. In contrast, in the double loss framing II condition, we expect that people will prefer the frequency discount to the amount discount because people are expected to be more sensitive to changes in the frequency than in the amount.¹¹

H2a: People will show no preference between the two discount plans in the double loss framing I condition.

H2b: People will prefer the payment frequency discount to the payment amount discount in the double loss framing II condition.

H2c: There will be a preference reversal across the double loss framing I and II conditions.

Study 2

The purpose of Study 2 is to examine the preference reversal in the double loss framing I and II conditions. Except for the double loss framing conditions, the other experimental procedures were identical to those of Study 1. Sixty-two participants (average age=21.8, 41.9% female) were randomly assigned one of two experimental conditions.

The ANOVA revealed a main effect of framings ($F_{1,60}=5.03, p=.029$), indicating a preference reversal between the two framing conditions. Specifically, the participants preferred the frequency discount to the amount discount in the double loss framing II condition (mean=4.13, $t=2.56, p=.016$), but showed no difference in the double loss framing I condition (mean=5.50, $t < 1$). Therefore, the result supports Hypothesis 2.





⁸We named the first category above "loss framing" because it merely shows the payment amounts, which are definitely perceived as losses to consumers whereas we named the second category "gain framing" because it focuses on price discounts, which are definitely gains to consumers. We also named the remaining two categories "double loss framing" because they contain the payment frequency and payment amount, which are double losses to consumers.

⁹We measured choice and relative preference with one scale.

¹⁰All t statistics hereafter refer to comparing the mean with the neutral point (i.e., "5.5").

¹¹We assume that people calculate the payment frequency and payment amount along with the same scale. In addition, we also assume diminishing sensitivity (Tversky and Kahneman 1991).

FIGURE 1

<u>Framing</u>	<u>Payment Frequency Discount</u>	<u>Payment Amount Discount</u>
Loss framing:	\$40, \$40, \$40	\$30, \$30, \$30, \$30
Gain framing:	 \$40, \$40, \$40, \$40 \$40, \$40, \$40	 \$40, \$40, \$40, \$40 \$30, \$30, \$30, \$30
Double loss framing I:	3 payments of \$40 each	4 payments of \$30 each
Double loss framing II:	 4 payments of \$40 each 3 payments of \$40 each	 4 payments of \$40 each 4 payments of \$30 each

Disappearing Preference Reversal under the Provision of Reasons

Previous studies have demonstrated that people show different preferences when asked to provide reasons or not (Shafir, Simonson, & Tversky 1993; Simonson 1989). In our discount condition, we expect that people prefer the payment frequency discount when they are asked to provide reasons for their preferences because the reason(s) regarding the payment frequency discount is (are) easier to generate than the reason(s) regarding the payment amount discount.¹²

H3: People will prefer the payment frequency discount to the payment amount discount when they are asked to provide reasons for their preferences.

Study 3

Study 3 explored the boundary condition in which the effects of previous studies are attenuated. The experimental design was a 4 (Framings: loss vs. gain vs. double loss I vs. double loss II) between-subject design. All experimental materials were the same as those in Studies 1 and 2. The only difference was that all participants were asked to provide reasons for their preferences. We expected that the frequency discount would be preferred in all four framing conditions, insofar as it is much easier for the participants to provide reasons for fewer payments. One-hundred-sixty-five participants (average age=20.7, 58.2% female) were randomly assigned one of four experimental conditions.

As anticipated, there were no differences across the experimental conditions ($F_{3,161}=2.53, p>.05$). Specifically, the frequency discount was preferred to the amount discount in most framing conditions (means=3.59, 3.77, & 4.40, all $p's<.05$) except in the double loss framing II condition (mean=5.14, $t<1$). The reasons provided by the participants also confirmed Hypothesis 3; most participants mentioned fewer payments as reasons.

General Discussion

This study examined the preference reversal between the payment frequency discount and the payment amount discount across four different framings. Three experiments demonstrated that consumers' relative preference for the frequency vs. the amount discount is systematically changed by different framings. In addition, this research showed that this preference reversal disappeared when people were asked to provide reasons for their preference. This research demonstrates the tenets of mental accounting (i.e. the segregation of gains and the integration of losses) and finds interesting results regarding the relative importance of the frequency vs. the amount discount in consumers' preferences. In sum, this study can contribute to an understanding of the role of the framing effect on price discounts.

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¹²Currently, we are preparing an empirical study supporting this assumption.

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