

**Where It's from, Where It Goes: Categorical Retrieval and Comparative Judgments in
Spending Small Windfall Income**

A thesis presented in fulfillment of the requirement of Dietrich College Senior Honors
Program

by

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Abstract

ChuanYe Chen: Categorical Retrieval and Comparative Judgments in Spending Small

Windfall Income

(Under the direction of Gretchen Chapman)

The present study proposes that when spending windfall income, consumers categorically retrieve a comparison set from the previous spending with the exact source of income and engage in two comparative judgments: (1) how similar is the target product of the retrieved category and (2) whether the price is acceptable compared to a reference level. In an experiment where participants shop in a hypothetical online store either using a COVID-stimulus check or Cyber Monday Gift Card, where we manipulate the reference price to be either in line with or much lower than the listing price, we show weak albeit significant evidence that a considerable income source effect occurs for electronic items only when the price of the target product is manipulated to look acceptable. The predicted interaction between income source and the reference price level is not significant for non-electronic items. This result cannot be fully accounted for by the differing marginal propensity to consume (MPC) in different mental accounts, and we discuss its theoretical and managerial implications.

Keywords: Mental Accounting, Windfall, Income Source Effect, Gift Cards, Reference Price

To Yilin,

My love, my life, my sunshine.

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Introduction

Mental accounting, broadly speaking, is the idea that consumers place expenses in categories. This concept helps to account for a growing family of behavioral evidence that consumers frequently violate the neoclassical model's presumption of rationality when dealing with particular kinds of income and consumption. Instead of maximizing the margin, consumers treat income and consumption as if they belong to different categories, similar to corporate accounting --- therefore, mental accounting (Thaler, 1990). A key manifestation of mental accounting is the violation of fungibility. Identification of mental accounting asserts that income and consumption are not evaluated independently but rather are constantly contextualized, juxtaposed, and categorized. The behavioral manifestation of mental accounting has both a motivational and cognitive source. Motivationally, consumers actively engage in budgeting to regulate their income and consumption (Heath and Soll, 1996; Zhang, 2020); cognitively, mental accounting can be regarded as the result of categorization ---- a fundamental perceptual process (Henderson and Peterson, 1992). While the categorization of income and expenditure occurs naturally, usually at a topical level (Kahneman and Tversky, 1983), booking and posting an expenditure to a specific account requires active retrieval from memory on consumption and income categories in the mental budget system. There is much latitude, however, in both the formation of mental accounts and to which account is the expenditure being posted (Cheema and Soman, 2006), as well as whether the spending is being booked at all. Uncertainties in mental accounting processes increase when the booking and posting of expenses are hindered by payment decoupling due to the timing of consumption and payment mechanisms (Gourville, 1999; Soman and Gourville, 2001; Shah and Bettman,

2016). Although both the cognitive and motivational aspects of mental accounting can be considered general processes, few models have been proposed that delineate the specific underpinning mechanism. This difficulty can be attributed to the latitude with which the two processes can operate in different contexts and experimental paradigms; in other words, empirical evidence of mental accounting does not always lead from a unitary mechanism. Therefore, explaining mental accounting asks for context-specific elucidation of underlying processes and mechanisms.

This paper aims to elucidate the judgment process underpinning the spending of windfall income --- a small, irregular source of income such as a lottery win. The empirical literature on mental accounting shows that consumers spend windfall income in ways that violate rules of economic rationality; specifically, the source of income has been shown to influence what and how much consumers purchase, also known as the income source effect (Arkes et al., 1994). We explain the income source effect in terms of a categorical retrieval process of comparison set --- fundamental to the perceptual process of mental accounting -- and two comparative judgments: consumers (1) judge the similarity between target consumption and the retrieved category, and (2) they judge the acceptability of the product price. To support these mechanisms, we generate two novel hypotheses that are experimentally tested.

Windfall and Income Source Effect

A prototypical piece of evidence that points to the existence of mental accounts is the windfall effect, the observation that an unplanned income gain, such as a surprising stock earning due to sudden change in stock prices or receiving shopping gift cards,

significantly increases subsequent expenditures compared to no such windfall income is received, despite the relatively trivial amount of windfall compared to the total wealth level (Thaler and Seftin, 1981). In a field experiment, Milkman and Beshears (2009) showed that consumers who are shopping online increase their expenditures by \$1.59 after receiving a \$10 digital gift card, exhibiting a much higher marginal propensity to consume than the standard economic theory would predict (since a \$10 gift card is relatively nothing compared to the average wealth of a consumer). This supposed "wealth effect" is a piece of evidence that the consumer integrates the \$10 bill with the "shopping" account, which has a higher MPC than the wealth account. Similarly, using panel data that includes administrative data obtained from a large Rhode Island retailer on consumers who enrolled in the SNAP program, Hastings et al. (2018) estimates a marginal propensity for food (MPCF) of SNAP benefits of around 0.5 and 0.6, much larger than that of cash (<0.1). Furthermore, consumers with SNAP benefits were likely to engage in less coupon-redeeming behaviors (and hence exert less effort in shopping) and purchase more marginal goods. Drawing on the evidence of a field study conducted in a wine-restaurant in Germany, Abeler and Marklein (2008) showed that diners who received a coupon specific for wine significantly increased their alcohol expenditures compared to those who received a general coupon. These studies explore the impact of restricted funds for pre-planned spending.

An auxiliary phenomenon related to the windfall effect is the income source effect, which suggests that the source and format of income have a differential impact on consumption propensities for different types of goods. For example, windfall gains and gift cards are more likely to be spent on hedonic occasions (O'Curry and Suzzane, 1997; White

2006); income from a tax refund is more likely to be used for paying bills, and funds from a lottery win are more likely to be spent for dinner parties (Arkes et al., 1994). White (2006) shows that gift cards are more likely to be spent on hedonic goods than cash. Brendl et al. (1998) show that participants paid with redeemable gambling tickets instead of cash for experiment participation are more likely to participate in gambles for the same cost.

For a theory of mental accounting to adequately account for the windfall effect and the income source effect, it must be able to elucidate (1) how the mental account is formed and (2) why some forms of windfall income changes consumer's spending decisions more than other sources of windfall incomes. These questions point to important theoretical gaps in the extant literature on consumer behavior.

Categorical Retrieval and Comparative Judgements

We propose that the income source effect is a consequence of consumers' judgment and decision-making processes. Specifically, preferences for discretionary purchases can be predicted from the source of income due to a categorical retrieval process that determines the comparison set that a consumer uses to evaluate the target product. Two comparison judgments are involved: (1) how similar is the target product of the retrieved category and (2) whether the price is acceptable compared to a reference level. The proposed mechanism applies to contexts where the spending of a windfall income is the prime, or only, decision within the context. This reflects real-world scenarios potentially of interest to businesses. For example, consumers are given redeemable coupons that are restricted to be used on specific categories of products as part of a promotion campaign. In fact, due to its relevance to business practice, experimental paradigms designed to test mental

accounting frequently rely on gift cards and coupons as the medium of intervention (Reinholtz, 2015; Abeler and Marklein, 2008). The retrieval and judgment processes are conceptually inspired by Gourville's (1998) model of Single-Alternative Decision Making, which proposes that consumers actively retrieve a category of similar expenses when evaluating a target transaction to serve as a standard of comparison. We suggest that a similar categorical-retrieval process operates behind discretionary spending with windfall income, especially when such a spending opportunity arises unplanned and when consumers do not hold stable preferences for the target products. Categorical retrieval and comparative judgments can play essential roles in consumers' evaluation in these contexts because price-quality judgment is difficult in the absence of alternatives (Nowlis and Simonson, 1997).

The retrieval of a comparison set is also contextually dependent: judgment of a potential transaction depends on the mental representation of the target consumption shaped by all the contextual cues in the environment (Bartels and Johnson, 2015). In other words, how the target consumption is evaluated depends on its comparison to the retrieved category that is contextually dependent. With a windfall income, its source and form provide rich contextual cues for consumers to retrieve types for comparisons—for example, a brand name advertised on a gift card from a shopping mall. Instead of supposing that consumers only make purchase decisions for unique items with no comparable alternatives, we provide a framework that characterizes the spending of windfall funds on any consumption subject to the categorization process and leads to more generalizable hypotheses for broader contexts.

One difficulty with existing research on mental accounting concerns the characterization of account membership --- how specific income sources and purchases become a member of a mental account. Prior research on mental budgeting asks participants to group consumption into categories, assign categorical labels, or provide participants with existing category memberships for consumption (exp. Sussman and Alter, 2012). Therefore, members of mental budgets are explicitly defined and lead to motivational impact on possible future consumptions, such as suppressing consumptions that can be categorized to an account with pre-existing expenditures (Heath and Soll, 1996; Sussman and Alter, 2012). In a more naturalistic setting, however, account membership is far from well defined, especially when the violation of fungibility arises as an outcome of a consumer's perceptual categorization of the target stimuli without an explicitly defined budget that serves as a motivational constraint on consumption. For example, in a series of experiments, Brendl et al. provided participants with various windfalls (such as pick-up cash and vouchers) in different settings with dramatically different motivational contexts, including paying tuition in a university office or entering a gambling place. This evidence shows that account memberships are contextually dependent on the opportunity sets being considered at hand, the form of income, and the incidental goals. Furthermore, consumption can be categorized in various ways that differ in attributes and hierarchy (Read et al., 1999), and account memberships can be malleable (Cheema and Soman, 2006). In line with evidence that mental account membership is contextually dependent, the proposed process provides one way to determine account membership-- items in the retrieved category.

To the degree that violation of fungibility is caused by the restrictiveness of a psychological budget, operationalization of the availability of such a budget is vital to any behavioral manifestation of mental accounting. The smaller the size of the budget or larger the expense, violation of fungibility should be more prominent. "Budget size," however, has seldom been directly measured or manipulated as a factor in the existing empirical literature. Extant studies typically assign a specific "monthly budget" or income to the participants (Heath and Soll, 1996; Cheema and Soman, 2006); the budgeting effect is then evident from incurring an expense from an account leads to downstream impacts on future purchases. Few studies have demonstrated the downstream behavioral consequence when the budget size or the product's price is manipulated. One might claim that an "implicit budget" is always involved in one's spending decision even out of the mental accounting paradigm --- few, if any, spend \$100 on a cup of coffee. However, this is likely to be true even for the very rich, because price factors into preference beyond a wealth effect --- consumers' preference for a target consumption also depends on the comparison of price to an internal reference price, or latitude of acceptance of a product that defines whether expenditure on a single product is acceptable (Mazumdar et al., 2005). It must be noticed that internal reference price and mental budget are independent constructs --- while the latter provides a motivational constraint for obtaining the satisfaction of an alternative, the former is an attribute that defines the preference.

Instead of being construed as a psychological budget, evidence also suggests that mental accounts can serve as a decision context for evaluating a target purchase --- as mentally retrieved alternatives for comparative judgments that construct the preference for the discretionary purchase. Evaluation of discretionary single-alternative purchase

typically requires trading off price against attributes that are hard to assess independently, such as price-quality tradeoff. As a result, consumers must retrieve a comparison set to supply the context for evaluative judgments (Schwarz and Bless, 1992). We propose that the psychological label attached to the form of income provides contextual cues for this categorical retrieval process revealed by empirical studies. Reinholtz et al. (2015) give participants either specific gift cards that are branded by famous apparel brands (Levi's and J. Crew) or general ones that do not have any label attached; consumers who received Levi's gift cards indicate a higher spending likelihood for products that are judged to be representative to the brand on the gift card (e.g., Jeans – Levi's gift card). The authors took it as evidence that mental accounts can be cued at the moment and that they are indeed ad hoc categories developed for the fulfillment of currently active goals (Brendl et al., 1998). Though still framed as "mental accounts," the categorization that consumers exhibited do not necessarily create mental budgets that cause violation of fungibility by virtue of its restrictiveness. More prominently, categories provoked by the windfall income supply as a decision frame serves as the context for evaluating a particular consumption.

Gourville (1998) suggests that evaluating a single alternative transaction requires categorical retrieval of similar transactions, and assimilation or contrast of the target transaction with the retrieved categories determines the likelihood that consumers will make such a decision transaction. The model remains silent, however, on what is being retrieved. We propose that the form of income provides the necessary contextual cue that determines the content of the retrieved comparison set. Specifically, when the opportunity for consumption is contiguous to receiving a windfall income, as is usually the case in experimental studies where participants are asked to spend windfall income just received

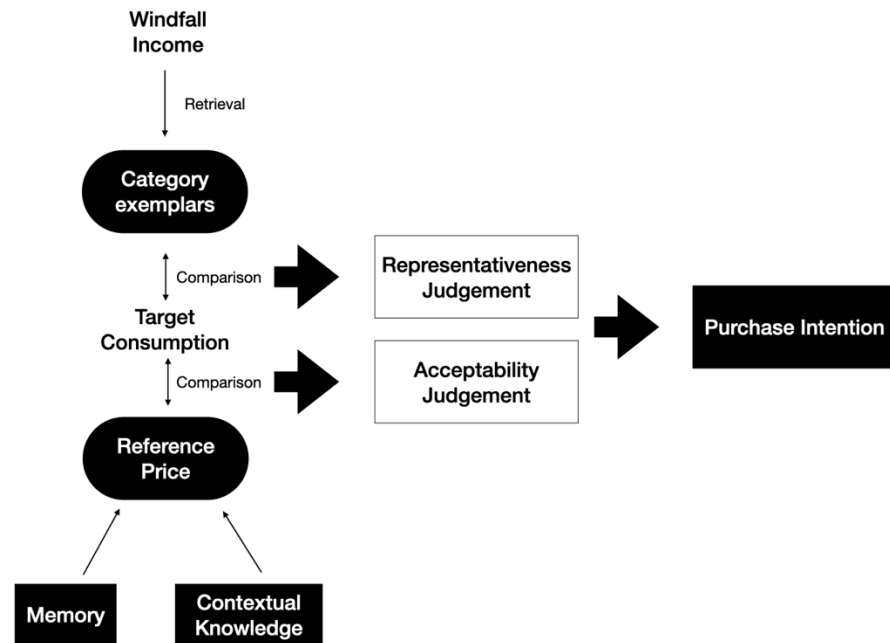
from the experimenter, attributes of the windfall income are used to retrieve consumptions that are typical with that form of income, both using episodic memory and contextual knowledge. A variety of attributes may be considered at the retrieval stage that influences attributes of the category being retrieved--- such as hedonic, hierarchy, and affordability. For example, income from a winning lottery ticket, whose source signals hedonic consumption (Arkes et al., 1994), leads to more recall of hedonic items than utilitarian ones. Cues supplied by the form of income can also determine the hierarchy of category of items being retrieved; for example, Levi's gift card can lead to retrieval of items typical of Levi's brand --- different kinds of jeans --- more easily than clothing in general. Items are retrieved from a category that serves as the comparison set to evaluate the target expense. The similarity between the target consumers and the comparison sets strengthens the likelihood for spending; when the opposite occurs -- if the target consumption is judged to be highly dissimilar to that of the comparison set, the likelihood for expenditure decreases. This categorical-retrieval and comparative evaluation process accounts for empirical findings in the income sources effect: participants receiving Levi's specific gift card are more likely to purchase items typical of Levi's --- jeans rather than sweaters (Reinholtz, 2015). Income that is more hedonic --- lottery tickets, for example --- is more likely to be spent on hedonic consumption (Arkes et al., 1994). Therefore, the retrieved category serves as a subjectively supplied context for consumption evaluation rather than a budget - -- despite the designation of "mental account" in previous literature.

Categorical retrieval and comparative evaluations are restricted by the degree to which the consumption is categorizable, determined by its relative price compared to the internal reference level. Even though our model does not presume the existence of mental

budgets, we acknowledge that consumers often implicitly hold a budget for most regular consumption or a price range that they find acceptable (Kalyanaram and Winer, 1995).

This price range has been construed as the “latitude of acceptance” in the Assimilation-Contrast theory (Sherif et al., 1958) or, more broadly, as the internal reference price in behavioral pricing research. Internal reference price can also be regarded as the reference point in Kahneman and Tversky’s prospect theory (Kahneman and Tversky, 1984).

Regardless of variations in construction, existing theories agree that consumers do not consider price as an isolated attribute --- as the neoclassical model suggests --- but rather one that factors in the valuation of the consumption in comparison with a reference level, in line with the comparative nature of many consumer judgments. Perceiving a higher price than the internal reference level leads to two consequences: on the one hand, consumers may perceive a decreased value of the deal, or its transaction utility (Thaler, 1990), that lowers purchase intention; on the other hand, a higher reference level price may cause consumers to reject the target consumption as a valid member of the category being retrieved, despite sharing similarities in other attributes (Gourville, 1998). As a result, products with higher than reference-level prices will be less likely to benefit from its categorical-representativeness to the retrieved category; the matching effect of windfall income should therefore only occur when the price is in line with the internal reference level. The formation of internal reference price can be influenced by a variety of factors, including the memory of past purchases, brand-related knowledge, advertised reference price, and other readily available contextual cues (Lichtenstein et al., 1990). The present study manipulates the internal reference price by supplying these contextual cues, as will be further specified in the method section.



The categorical retrieval of relevant purchases supplies the reference for comparative judgment for the target consumptions, which is then being restricted by the acceptability of its price. Outcomes of the above two types of judgment dictate the level of spending on the target consumption --- if the price of target consumption is in line with the internal reference level, we expect windfall income that retrieves categories similar to the target consumption induce higher spending compared to those that retrieve dis-similar categories. On the other hand, if the price of target consumption is higher than the reference level, we expect a weaker or no spending-enhancing effect from a categorically matching source of windfall income.

H1: Category-matching windfall income triggers a higher purchase likelihood than category-mismatched income only when the listing price is similar to the reference price.

H2: An increase in typicality judgment of items to the income category predicts a lesser increase in purchase likelihood when the listing price is higher than the reference price.

To test the two hypotheses, we experimentally manipulate whether participants in a hypothetical shopping scenario receive an everyday kind of windfall income --- federal COVID-19 stimulus check --- or a specific windfall --- a Target Cyber Monday gift card designated to retrieve a specific category of products: electronics. We also manipulated whether the price of the potential purchases considered was perceived as similar to or higher than a comparison price.

To manipulate the retrieved comparison set triggered by the source of windfall (electronics vs. non-electronics), we vary whether the \$500 windfall comes in the form of a Cyber Monday Target gift card or a stimulus check from the US government. Cyber Monday, the first Monday after Black Friday, is America's largest online shopping festival. Initially celebrated by retailers to encourage consumers to shop online, Cyber Monday is now famous for being a good time to purchase personal electronic products with large discounts (Whitelock, 2021), such as TVs, smartphones, and personal computers on retailers such as Target, BestBuy, and Amazon, all of which have a dedicated Cyber Monday event each year. Receiving a Cyber Monday gift card should prompt participants to retrieve electronics more easily than other consumer products, such as groceries, from the memory of prior purchase decisions. On the other hand, we propose that spending a stimulus check is associated with necessary daily spending. In a pretest we conducted on Prolific ($n = 50$), the vast majority of participants indicated that electronic items are most typical of what they have previously purchased during Cyber Monday. When asked to list things they have

purchased during the shopping in the past 24 months, the majority wrote personal electronics such as Apple AirPods and Nintendo Switch game console; the same is valid for daily non-electronic items when participants are asked to indicate their most frequent purchase with COVID stimulus check in the past 24 months if they have received one. Frequently purchased consumer products in both categories suggested by pretest participants inform our choice of stimuli for the main experiment.

To manipulate price perception (typical vs. overpriced), we use comparison prices. Judgment of acceptability of a listing price must be made compared to an internal reference price. A reference price can be retrieved from the memory of prior purchases or brand-specific knowledge; in many cases, it can also be contextually provided if salient cues exist (Zeithaml and Graham, 1984). For example, consumers will positively perceive a listing price as a discount over a higher “original price,” but paying a list price higher than a discount price will be unacceptably expensive. Therefore, we vary the comparison price to make the target item appear to be typically priced vs. overpriced.

Method

Subject... A total of 800 participants aged 18 to 65 were recruited online through Prolific. Only participants speaking English as their first language and currently living in the United States are allowed to participate in the study. Exclusions are automatically made if the demographic requirements are not satisfied.

Procedure... Participants were randomly assigned to one condition in a 2 (windfall type: stimulus check vs. Target Cyber Monday gift card) x 2 (electronic product price: acceptable vs. price hike) between-participants design. After expressing consent to the

study, participants were introduced to a hypothetical scenario where they would shop on Target's website. Participants in the stimulus check condition were informed that they had just received a \$500 check from the federal government to relieve the impact of Covid on their daily lives and that they would spend from this \$500 check. Participants in the gift card condition were informed that they would be given a \$500 digital gift card that celebrates the coming Cyber Monday.

After the prompt, participants were shown ten items. Five items were representative of the retrieved category of COVID stimulus check (items pre-tested to be typical for what consumers would think about spending the stimulus check on). The other five items were electronics, pre-tested to be products consumers typically purchase during Cyber Monday sales. We conducted a pre-test that asked participants whether they had received a COVID stimulus check/shopped during Cyber Monday and what they had purchased with the stimulus check/during Cyber Monday in the past 24 months. Responses informed the consumer products used in the main experiment.

Each consumer product used in the current study was accompanied by a description, a picture, a listing price, and an Amazon competitor price (ACP). ACP is a fictional anchor intended to serve as the internal reference price for the consumer; it was manipulated through randomizing in a specific range that was either \$25 - \$35 lower than the listing price or similar to the listing price (\$5 above or below). Participants in the reference price intervention condition were assigned ACP of electronic items lower than the listing price (making the electronics items appear overpriced). At the same time, the ACP remained close to the listing price for the non-electronics items. Participants in the control condition see the same listing price for electronics as those in the reference price

intervention condition, but the ACP for all other products was manipulated to be similar to the listing price as well. All participants were asked to indicate how likely they were to purchase each item on a Likert scale.

After indicating purchase intention, all participants were presented with all ten items once again and asked to indicate how typical each item was to purchases they had made in the past or they would make with the stimulus check/gift card.

The study was pre-registered at https://aspredicted.org/X4F_KY9.

Results

Eighty-seven participants who failed the attention check were excluded from the analysis. In the attention check, every participant was asked to indicate (1) the type of income and (2) the amount of income they just received. Participants who failed to mention “stimulus check” or “gift card” in the first question and those who answered the amount of fund endowed incorrectly in the second question are excluded.

First, ratings of purchase intentions for electronic vs. non-electronic products are compared. Mean purchase intention for electronic items was obtained by averaging the ratings of the five electronic items for each participant, and a mean purchase intention for non-electronic items by averaging the ratings for those given items. Non-electronic products receive higher purchase intention ratings compared to electronic products both when the type of income received is a stimulus check ($M_{Electronics} = 2.060$ vs $M_{Non-electronics} = 2.949$, $p < 0.001$), and when the type of income received is Cyber Monday Gift Card ($M_{Electronics} = 2.431$ vs $M_{Non-electronics} = 3.003$, $p < 0.001$). The higher purchase intention of non-electronic items holds when the reference price for electronic items are

manipulated to track the listing price ($M_{Electronics} = 2.435$ vs $M_{Non-electronics} = 2.979$, $p < 0.001$) as well as when the electronics reference price is manipulated to be much lower than the listing price ($M_{Electronics} = 2.052$ vs $M_{Non-electronics} = 3.058$, $p < 0.001$).

We examined participants' typicality ratings for the products as a manipulation check. For each participant, I computed a mean typicality rating for electronic items by averaging the ratings of the five electronic items and a mean typicality rating for non-electronic items by averaging the ratings for those given items. These mean ratings were consistent with the source of income: electronic products are judged to be more typical when the source of income is Cyber Monday gift card than when it is stimulus check ($M_{gift} = 30.47$ vs. $M_{stimulus} = 22.72$, $p < 0.001$) while non-electronic items are judged to be more typical when the source of income is stimulus check than when is Cyber Monday gift card ($M_{stimulus} = 56.66$ vs. $M_{gift} = 48.75$, $p < 0.001$). Non-electronic items are also judged to be more typical than electronic items both when the source of income is a stimulus check ($M_{Non-electronics} = 56.67$ vs. $M_{Electronics} = 22.72$, $p < 0.001$) and when the income is a Cyber Monday gift card ($M_{Non-electronics} = 48.74$ vs. $M_{Electronics} = 30.47$, $p < 0.001$).

Table 1: Average Purchase Likelihood and Typicality Ratings for Electronics and Non-electronic Products

	Average Purchase Likelihood				Average Typicality Rating			
	Electronics		Non-Electronics		Electronics		Non-Electronics	
	Control	RP Low	Control	RP Low	Control	RP Low	Control	RP Low
Stimulus	2.21	1.91	2.83	3.03	23.70	21.99	54.69	57.56
Gift Card	2.67	2.14	2.91	3.06	31.09	29.85	47.75	47.79
Difference	0.46	0.24	0.08	0.03	7.39	7.86	-6.93	-9.77

Notes: participants see Amazon Competitor Price (reference price) to be in line with the actual listing price in the control condition and much lower in the RP Low condition.

To investigate whether the source of income differentially impacted the spending likelihood for target items depending on the reference price level, we conduct a multiple OLS regression on the likelihood ratings for individual items (see column 1 of Table 2). Independent variables are three dummy variables and their interactions, coding for the type of windfall income received (1 for Cyber Monday Gift Card, 0 for stimulus check), whether the participant experienced reference price manipulation for electronic items (1 for low reference price, 0 for control), and the type of item (electronics vs. non-electronics). The first two dummy variables are between-subjects, whereas the third is within-subjects. While the source of income does not significantly change the level of spending likelihood ($\beta = 0.08, SE = -0.96, t(7130) = 0.96; p = 0.338$), presenting a reference price that is much lower than the listing price significantly decreases spending likelihood ($\beta = 0.20, SE = 0.08, t(7130) = 2.4; p = 0.017$). Consistent with the summary statistics, electronics products had significantly lower purchase likelihood ratings than did non-electronic items ($\beta = -0.627, SE = 0.075, t(7130) = -8.3; p < 0.001$). The presence of a significant interaction between source of income and the category of items ($\beta = 0.38, SE = 0.11, t(7130) = 3.5; p < 0.001$) indicates that the increase in spending likelihood caused by receiving a Cyber Monday gift card (rather than a stimulus check) is restricted to electronic items. This interaction indicates that the type of windfall income affects which items participants rate as most likely to purchase. The interaction between the reference price manipulation and the category of items ($\beta = -0.50, SE = 0.10, t(7130) = -4.77; p < 0.001$) shows that lowering the reference price of electronic items to make the listing price look more expensive significantly decreases purchase likelihood for electronic products but not for non-electronic products.

We hypothesize that receiving a Cyber Monday gift card would increase purchase likelihood for electronic products compared to receiving a stimulus check only when the reference price closely tracks the listing price (so that the listing price would be within the latitude of acceptance). In contrast, the differential effect of income source on purchase likelihood due to reference price manipulation should not be evident for non-electronic goods as the reference price manipulation neither changes the perception of the listing price of those goods nor changes the incentive structure. This prediction corresponds to a three-way interaction of income source effect and reference price manipulation between electronic and non-electronic goods. This predicted interaction is not statistically significant ($\beta = -0.18, SE = 0.16, t(7130) = -0.14; p = 0.25$).

In another set of analyses, rather than using a dataset with 10 observations per participant, I computed the average purchase likelihood rating for electronic and non-electronic items for each participant and used these averages as the dependent variables. I conducted separate regressions for electronic and non-electronic items. The analysis for electronic goods shows that the predicted interaction between income source and the reference price is barely obtained for electronic goods ($\beta = -0.229, SE = 0.116, t(713) = -1.98; p = 0.048$), see column 2 of Table 2. As expected, in the analysis of non-electronics goods (see column 3 of Table 2) the interaction is not significant ($\beta = -0.048, SE = 0.123, t(713) = -0.39; p = 0.696$). We suspect that the non-statistically significant three-way interaction from item-level regression reflects a weak income source effect on non-electronic goods. This is confirmed by the analysis for average purchase likelihood for non-electronic items (see column 3 of Table 2) where we see no income source effect ($\beta = 0.081, SE = 0.084, t(713) = 0.96; p = 0.338$). That is, participants did not rate themselves

Figure 1A: Average Purchase Likelihood for Electronic Items

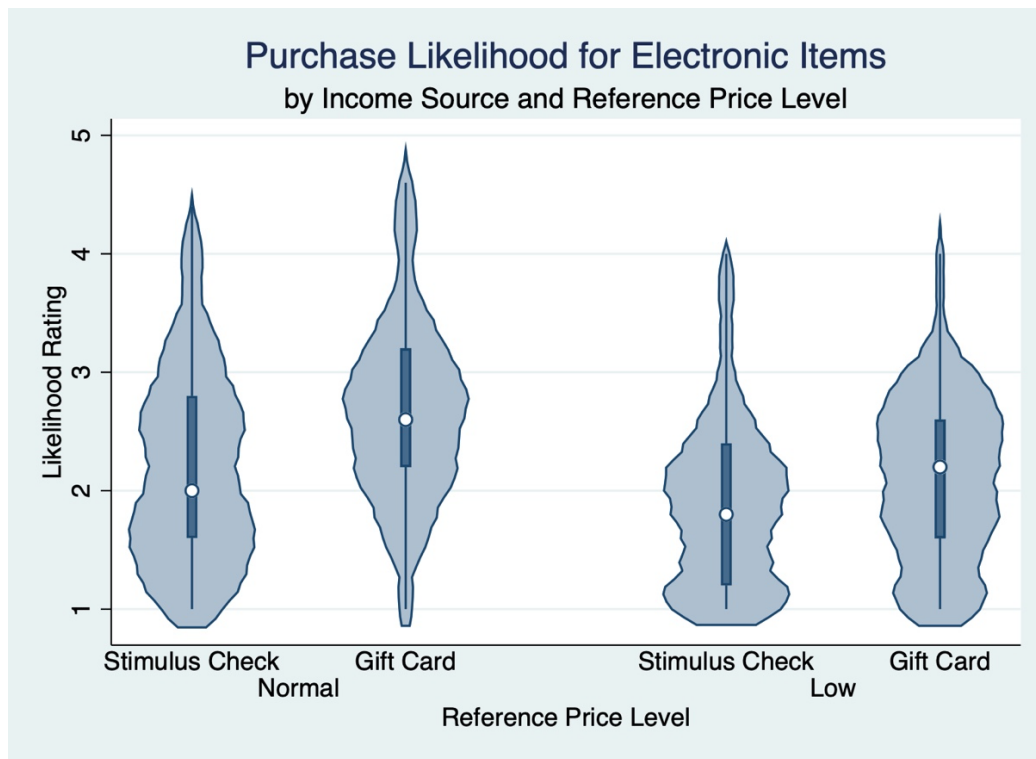
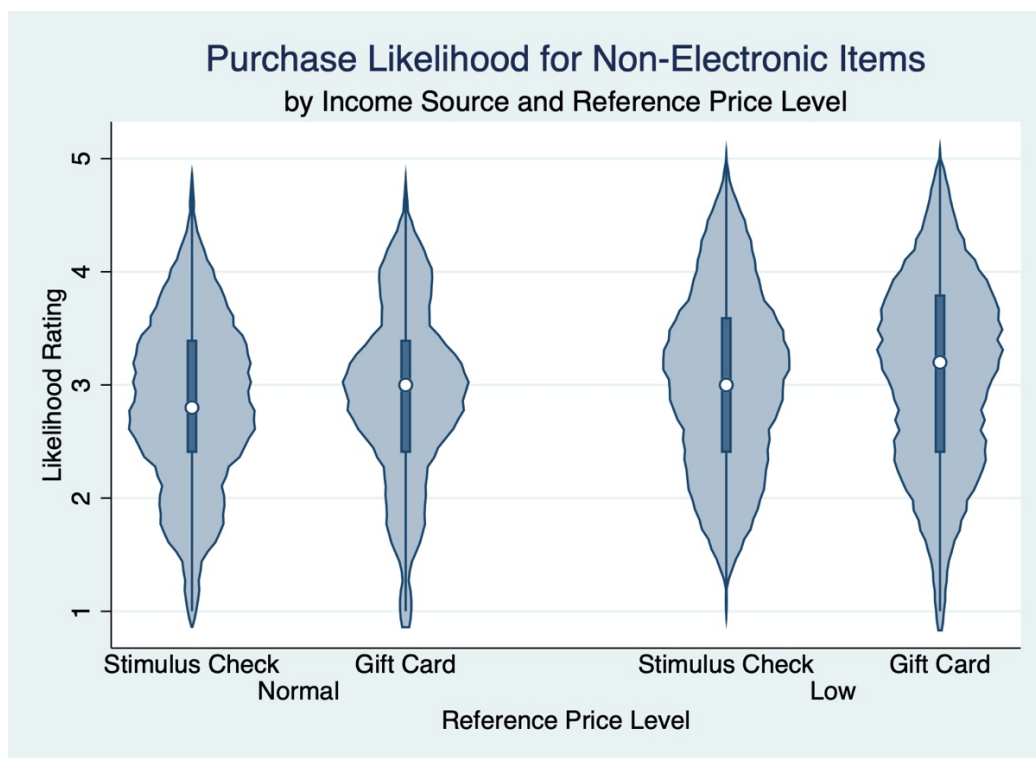


Figure 1B: Average Purchase Likelihood for Non-Electronic Items



as more likely to buy non-electronics using a stimulus check as compared to a Cyber Monday gift card. The reference price manipulation did have a main effect on the purchase likelihood for non-electronic goods as well ($\beta = 0.20, SE = 0.083, t(713) = 2.40; p = 0.017$), presumably because when electronics are deemed “too expensive”, participants spend more on non-electronics. That is, participants increase their purchase intention for non-electronic items when the reference price is manipulated to make them look costly. One explanation for the lack of an income source effect for non-electronic items is their generally higher typicality rating and purchase likelihood compared to electronic items --- participants consider them necessities that must be purchased regardless of the source of income.

Additional analyses are conducted with a new dependent variable: the difference between the average purchase likelihood of the electronic vs. non-electronic items computed for each participant. An OLS regression examined whether this difference score is a function of the source of income, the level of reference price, and their interaction (see column 4 of Table 2). We found a main effect for the source of income ($\beta = 0.38, SE = 0.11, t(713) = 3.50; p < 0.001$) as well as the main effect for the reference price level ($\beta = -0.50, SE = 0.10, t(713) = -4.77; p < 0.001$); the interaction fails to obtain statistical significance ($\beta = -0.18, SE = 0.16, t(713) = -1.14; p = 0.253$). Columns 2 and 3 of Table 2 show analogous regressions where the DV is average purchase ratings for electronics and non-electronic items. The average purchase likelihood rating for electronics shows the predicted income source x reference price interaction.

Table 2: Regression Results on Individual and Average Purchase Likelihood Ratings of Electronic and Non-Electronic Goods

	Dependent Variables			
	Rating ^a	Avg Electronics ^b	Avg Non-electronic ^c	Difference ^d
Income	0.0807	0.463***	0.0807	0.382***
(1= gift card)	(0.0842)	(0.0857)	(0.0841)	(0.109)
Price	0.200*	-0.298***	0.200*	-0.498***
(1 = RP Low)	(0.0832)	(0.0800)	(0.0832)	(0.105)
Type	-0.627***			
(1 = electronics)	(0.0748)			
Income x Price	-0.0481	-0.229*	-0.0481	-0.181
	(0.123)	(0.116)	(0.123)	(0.158)
Income x Type	0.382***			
	(0.109)			
Price x Type	-0.498***			
	(0.105)			
Income x Price x Type	-0.181			
	(0.158)			
_cons	2.832***	2.205***	2.832***	-0.627***
="	-48.59	-36.57	-48.61	(-8.38)
N	7130	713	713	713

Standard errors in

parentheses

= "*" $p < 0.05$

** $p < 0.01$

*** $p < 0.001$ "

^aClustered by participant.

^bAverage purchase likelihood for all five electronic products

^cAverage purchase Likelihood for all five non-electronic products

^dDifference between average purchase Likelihood for all five non-electronic products and all five electronic products

To further support our purported mechanism, we examine whether typicality ratings predict purchase likelihood ratings. Our OLS regression model (see Table 2) intends to test the hypothesis that reference price manipulation should attenuate the effect of typicality rating on purchase likelihood. This is the case for electronic products: the average typicality rating of electronics predicts a higher purchase likelihood rating for electronic products ($\beta = 0.032, SE = 0.003, t(713) = 9.46; p < 0.001$) with significant interaction with reference price ($\beta = -0.016, SE = 0.005, t(713) = -3.23; p = 0.001$). When the reference price is manipulated to be much lower than the listing price to make it look less acceptable, each scale point increase in typicality rating for electronic products only increases purchase likelihood by half as much as that when the reference price is in line with the listing price. While typicality rating increases with purchase intention for non-electronic products ($\beta = 0.020, SE = 0.002, t(713) = 8.46; p < 0.001$), its interaction with reference price fails to reach significance ($p = 0.84$) as would be expected given that the reference price for non-electronic products was not manipulated. These results are consistent with the claim that typicality guides purchase intention, but only when the product price is deemed reasonable.

Table 3: Regression Results for Average Purchase Likelihood on Typicality Ratings and Reference Price

	Dependent Variables			
	Average Purchase Likelihood of			
	Electronics	Electronics	Non-Electronics	Non-Electronics
Typicality (Electronics)	0.0258*** (-0.00252)	0.0325*** (-0.00343)		
Price (1 = RP Low)		0.0431 (-0.124)		0.182 (-0.183)
Price X Typicality (Electronics)		-0.0156** (-0.00484)		
Typicality (Non-Electronics)			0.0194*** (-0.00165)	0.0196*** (-0.00231)
Price X Typicality (Non- Electronics)				-0.000673 (-0.00329)
_cons	1.540*** -0.0632	1.542*** -0.0896	1.949*** -0.092	1.865*** -0.128
N	7130	7130	7130	7130

adj. R-sq	0.122	0.185	0.2	0.208
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Standard errors in parentheses

=** p<0.05	** p<0.01	*** p<0.001"
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Discussion

We propose that when the source of windfall income provides readily available psychological labels, the formation of preferences is underpinned by (1) a categorical retrieval process of a comparison set, (2) a comparative judgment of similarity between a target item and the retrieved comparison set, as well as (3) a comparative judgment of price acceptability of the target item. In addition, the two comparative judgments jointly, rather than separately determine spending likelihood. In line with existing empirical evidence that the source of income influences what consumers choose to purchase (Arkes et al., 1994), and supporting the the two postulated judgment processes, we show that higher purchase likelihood can result when the source of income matches the categorical membership of target product that we established through pretest. Contrary to prediction, however, we did not find that this income source effect is attenuated when the reference price is manipulated to make the actual listing price look expensive in our item-level analysis; we did find, however, that the income source effect is attenuated by a lower reference price for electronic items in our separate analysis. To further examine the purported mechanism, we show that the item-level representativeness measure predicts purchase likelihood significantly less when the reference price is manipulated to be much lower for electronic products. We believe that our failure to find three-way interactions between income source, reference price, and product category is due to necessities being

less subject to the income source effect. Future studies could explore how category-specific characteristics interact with the proposed psychological mechanism underpinning windfall spending (i.e., what makes spending on one type of goods less likely to be swung by windfall income?).

Since our reference price manipulation is orthogonal to the amount of budget assigned in different conditions (\$500), its attenuation effect on the income source is likely to be purely perceptual, suggesting that comparative judgment rather than absolute judgment underpin price perception and preference formation (Emery, 1969). Our results add to the extant literature on constructed preference by showing that the preference for discretionary products is contextually constructed. Psychological cues or labels, such as the source of income, influence the mental representation of the product and its comparison set (Gourville, 1998; Bartels and Johnson, 2015).

Other potential mechanisms that can account for the observed pattern exist, and other contextual factors could confound our analysis. One possibility is that the participants perceive the stimulus check to be physically more fungible than a Cyber Monday gift card, as stimulus check funds can be spent elsewhere. We suggest that this is not likely because participants are asked to spend their windfall income on Target's online store, regardless of the source. Furthermore, higher physical fungibility should increase purchase likelihood irrespective of the type of products, which is not observed (Table 2). To further isolate physical fungibility as a confounding factor, future studies could use sources of income that are heterogeneous regarding any psychological label attached but homogenous in their physical fungibility (e.g., coupons from different brands).

Participants may also perceive the stimulus check to be mentally more fungible than the gift card, and the source of income influences spending likelihood under psychological ease to spend. Thaler (1990) suggests that consumers categorize their income into different mental accounts with varying levels of propensity to consume, such as wealth account and windfall account. One possibility is that the mental account to which the COVID stimulus check is deposited simply have higher psychological ease to spend compared to that of which Cyber Monday gift card is deposited. This is not the case, however, in our sample, where the source of income heterogeneously influences the purchase likelihood of electronic and non-electronic items, such that Cyber Monday gift card only increases purchase likelihood for electronic items compared to stimulus check and that the source of income is not a significant predictor of purchase likelihood of all items, on average. Our results parallel extant findings such as SNAP benefits have a higher marginal propensity to consume food (Hastings, 2018). Qualitative differences between the source of income may confound our analysis. White (2006) shows that a gift in the gift card format increases spending more than an equivalent cash gift and shifts a consumer's preferences towards hedonic consumption (entertainment) rather than savings. We argue that empirical evidence presented in White (2006) is not incompatible with our account and is complemented by the current study. Therefore, it is not inconceivable that the higher purchase likelihood on electronic items will translate into higher spending with a Cyber Monday gift card than when consumers receive a COVID stimulus check. In addition, we provide suggestive evidence that this increase in spending may be category-specific, and our theory provides an account for the underlying process.

The current study addresses theoretical gaps in the extant empirical evidence on the income source effect, adding to the burgeoning mental accounting literature. However, a complete process explanation of the income source effect requires a more detailed characterization of the categorical retrieval process. The current paradigm does not allow us to directly measure the retrieved category. Still, we can manipulate the retrieved comparison set by intervening on the source of income. We established the categorical membership of the target item through a pretest. Participants indicated that they frequently purchased the target items used in the experiment either during Cyber Monday or using Covid stimulus checks. The present study postulates a memory-based retrieval process that presumes past purchases with a particular source of income supplies as the comparison set. Brand-specific knowledge could serve as another mechanism for the retrieval process; consumers may retrieve items that are judged as typical for or representative of a brand when spending gift cards and coupons from that brand. This retrieval process could explain the premium in spending likelihood for Jeans when consumers receive Levi's gift card compared to when receiving a general-use one (Reinholtz, 2015). Retrieved comparison sets could also be derived from consumers' currently active goals. Brendl et al. (1998) suggest that mental accounts are ad hoc categories, where gain and loss are evaluated against whether they are representative of the goals at hand. We suggest that the goal-representativeness model of mental accounting can be complemented by our categorical retrieval model, where different alternatives achieving a given goal define the membership of the comparison set retrieved.

The present study presents evidence that income sources influence consumers' preference for specific categories of products due to categorical retrieval of comparison

sets and two comparative judgments. This evidence has significant managerial implications as the marketplace allows marketers to influence consumers' preferences through gift cards and coupons. By proposing that two forks in consumer judgments --- categorical representativeness and price acceptability --- that jointly shape preference, we show that businesses' ability to influence consumer's preference by manipulating the source of income comes with a caveat: revenue cannot be increased in a non-costly way, such as intentionally increasing the listing price, if consumers judge it to be out of their latitude of acceptance.

References

- Abeler, Johannes and Marklein, Felix, Fungibility, Labels, and Consumption (May 2008). IZA Discussion Paper No. 3500, Available at SSRN: <https://ssrn.com/abstract=1139870> or <http://dx.doi.org/10.1111/j.0042-7092.2007.00700.x>
- Arkes, H. R., Joyner, C. A., Pezzo, M. V., Nash, J. G., Siegel-Jacobs, K., & Stone, E. (1994). The psychology of windfall gains. *Organizational Behavior and Human Decision Processes*, 59(3), 331–347. <https://doi.org/10.1006/obhd.1994.1063>
- Bartels, D. M., & Johnson, E. J. (2015). Connecting cognition and consumer choice. *Cognition*, 135, 47–51. <https://doi.org/10.1016/j.cognition.2014.11.024>
- Brendl, C. M., Markman, A. B., & Higgins, E. T. (1998). Mentale kontoführung als selbstregulierung: Repräsentativität für zielgeleitete kategorien. *Zeitschrift für Sozialpsychologie*, 29(2), 89-104.
- Cheema, A., & Soman, D.. (2006). Malleable Mental Accounting: The Effect of Flexibility on the Justification of Attractive Spending and Consumption Decisions. *Journal of Consumer Psychology*, 16(1), 33–44. https://doi.org/10.1207/s15327663jcp1601_6
- Emery, Fred (1969), "Some Psychological Aspects of Price," in *Pricing Strategy*, ed. Bernard Taylor and Gordon Wills, London: Staples, 98-111.
- Gourville, J. (1998). Pennies-a-Day: The Effect of Temporal Reframing on Transaction

Evaluation. *Journal of Consumer Research*, 24(4), 395–403.

<https://doi.org/10.1086/209517>

Hastings, J., Shapiro, J.M., 2018. How Are SNAP Benefits Spent? Evidence from a Retail Panel. *American Economic Review* 108, 3493–3540.. doi:10.1257/aer.20170866

Heath, C., Soll, J.B., (1996). Mental Budgeting and Consumer Decisions. *Journal of Consumer Research* 23, 40.. doi:10.1086/209465

Henderson, P. W., & Peterson, R. A. (1992). Mental accounting and categorization. *Organizational Behavior and Human Decision Processes*, 51(1), 92–117. [https://doi.org/10.1016/0749-5978\(92\)90006-S](https://doi.org/10.1016/0749-5978(92)90006-S)

Kahneman, D., & Tversky, A. (1984). Coices, values, and frames. *The American Psychologist*, 39(4), 341–350. <https://doi.org/10.1037/0003-066X.39.4.341>

Kalyanaram, G., & Winer, R. S. (1995). Empirical Generalizations from Reference Price Research. *Marketing Science*, 14(3), G161–G169.
<http://www.jstor.org/stable/184158>

Lichtenstein, D. R., Netemeyer, R. G., & Burton, S. (1990). Distinguishing Coupon Proneness from Value Consciousness: An Acquisition-Transaction Utility Theory Perspective. *Journal of Marketing*, 54(3), 54–67. <https://doi.org/10.2307/1251816>

Mazumdar, T., Raj, S.P. and Sinha, I. (2005) Reference Price Research: Review and Propositions. *Journal of Marketing*, 69, 84-102.

<http://dx.doi.org/10.1509/jmkg.2005.69.4.84>

Milkman, K. L., & Beshears, J. (2009). Mental Accounting and Small Windfalls: Evidence From an Online Grocer. *Journal of Economic Behavior & Organization*, 71 (2), 384-394. <http://dx.doi.org/10.1016/j.jebo.2009.04.007>

Nowlis, S. M., & Simonson, I. (1997). Attribute-task compatibility as a determinant of consumer preference reversals. *Journal of Marketing Research*, 34(2), 205-218. <https://doi.org/10.2307/3151859>

O'Curry, Suzanne (1997), "Income Source Effects," unpublished working paper, DePaul University, Chicago, IL 60604.

Read, D., Loewenstein, G., & Rabin, M. (1999). Choice Bracketing. *Journal of Risk and Uncertainty*, 19(1/3), 171-197. <http://www.jstor.org/stable/41760959>

Reinholtz, N., Bartels, D.M., Parker, J.R., (2015) . On the Mental Accounting of Restricted-Use Funds: How Gift Cards Change What People Purchase. *Journal of Consumer Research* ucv045.. doi:10.1093/jcr/ucv045

Schwarz, Norbert and Herbert Bless (1992), "Constructing Reality and Its Alternatives: An Inclusion/Exclusion Model of Assimilation and Contrast Effects in Social Judgment," in *The Construction of Social Judgments*, ed. Leonard L. Martin and Abraham Tesser, Hillsdale, NJ: Erlbaum, 217-245.

- Shah, A. M., Eisenkraft, N., Bettman, J. R., & Chartrand, T. L.. (2016). "Paper or Plastic?": How We Pay Influences Post-Transaction Connection. *Journal of Consumer Research*, 42(5), 688–708. <https://doi.org/10.1093/jcr/ucv056>
- Sherif, M., Taub, D., & Hovland, C. I. (1958). Assimilation and contrast effects of anchoring stimuli on judgments. *Journal of Experimental Psychology*, 55(2), 150–155. <https://doi.org/10.1037/h0048784>
- Soman, D., & Gourville, J. T.. (2001). Transaction Decoupling: How Price Bundling Affects the Decision to Consume. *Journal of Marketing Research*, 38(1), 30–44. <https://doi.org/10.1509/jmkr.38.1.30.18828>
- Sussman, A. B., & Alter, A. L. (2012). The exception is the rule: Underestimating and overspending on exceptional expenses. *Journal of Consumer Research*, 39(4), 800–814. <https://doi.org/10.1086/665833>
- Thaler, R. H., & Shefrin, H. M. (1981). An economic theory of self-control. *Journal of Political Economy*, 89, 392–406.
- Valarie A. Zeithaml (1984) , "Issues in Conceptualizing and Measuring Consumer Response to Price", in NA - Advances in Consumer Research Volume 11, eds. Thomas C. Kinnear, Provo, UT : Association for Consumer Research, Pages: 612-616.

White, Rebecca J., Format Matters in the Mental Accounting of Funds: The Case of Gift Cards and Cash Gifts (November 30, 2006). Available at

SSRN: <https://ssrn.com/abstract=948587> or <http://dx.doi.org/10.2139/ssrn.948587>

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Yiwei Zhang, Abigail Sussman, Jennifer Lyu, and Nathan Wang-Ly (2020) , "Understanding the Drivers of Household Budgeting: How Consumers Budget", in NA - Advances in Consumer Research Volume 48, eds. Jennifer Argo, Tina M. Lowrey, and Hope Jensen Schau, Duluth, MN : Association for Consumer Research, Pages: 925-929.