Distributional Effects of Price Salience on Reservation Wages and Food Choices*

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November 23, 2019

Abstract

This article enriches the attribute salience literature in economics by providing compelling evidence that inducing *price salience* affects consumer expenditures and reservation wages. We use a laboratory experiment to show that high price salience reduces the likelihood of purchasing high quality low-calorie food items at a price premium. We also find that income is an important factor that moderates this effect. The low-income group demonstrates similar purchasing behaviors regardless of the price salience condition. In the absence of price salience in the decision environment, the high-income group is more likely to choose more expensive low-calorie foods. This effect vanishes when high-income consumers are exposed to environments with high price salience. Using a novel design, we find that inducing price salience reduces the reservation wage of high-income participants to perform a real effort task to offset the cost of their food expenditures. We conclude that the high-income group drives the variation in our outcome measures across experimental conditions, and they align their food choices and labor supply decisions with low-income subjects after being exposed to low and high price salience environments. Relative price changes between low- and high-calorie products yield significantly more healthy choices. A 20% price discount on the low-calorie alternative induces over 95% low-calorie selections.

*Samir Huseynov and Marco A. Palma gratefully acknowledge financial support from the National Science Foundation grant DRMS-1658816.

Introduction

The word Economics originates from the Greek term *oikonomia*, which means frugal use of household resources (Leshem, 2016). The representative agent of conventional economic models optimizes consumption decisions by carefully considering binding budget constraints. A plethora of empirical studies predominantly focus on the economic decision-making of poor households. See for example, Mani et al. (2013); Shafir and Mullainathan (2012); Shah et al. (2015, 2012). The extant literature documents that low income individuals engage in suboptimal and costly behavior. For example, low income individuals are less likely to save (Duflo et al., 2006), more likely to take on excessive and high interest debt (Amar et al., 2011), fail to enroll on welfare assistance programs (Currie, 2004), and have lower quality diets (Kuhn, 2018a,b). The current state of the relevant literature implicitly conjectures that relatively well-off households are less affected by financial concerns. However, even materially better provisioned households may face paycheck to paycheck scarcity and struggle to meet financial responsibilities and pay their bills (Rivlin, 2007). Living paycheck to paycheck can generate consumption cycles within a month triggering different economic choices at the beginning of the month (i.e. payday) compared to the end of the month. Crucially, previous literature documents changes in the economic behavior of low income individuals under *perceptional* scarcity environments (i.e. without shifts in income). We present compelling evidence that perceptional scarcity can have more general effects on the economic behavior of individuals across the income spectrum than previously considered.

We study the factors in the decision environment that trigger price conscious behavior and affect the demand for high-quality and discretionary goods. We build our work on a rapidly growing strain of literature which documents how the decision environment can change the relative weights decision-makers place on product attributes inducing changes in economic behavior.[1] For example, Bordalo et al. (2013) show that choice set specificities change the salience of the price attribute, and consequently can alter choice outcomes. The results of this emerging literature also suggest that salience of product attributes can be an important consideration for understanding consumer willingness to pay a price premium for low-calorie healthy food products. In this article, with the help of a controlled laboratory experiment involving real food purchases, we scrutinize the triad of salience, relative price changes, and low-calorie food choices. The United States has one of the lowest expenditures on food as a proportion of income, making food in general, and more

[1] See for example, Thaler (1985); Tversky and Kahneman (1981); Thaler (1999); Bordalo et al. (2013, 2015, 2017); Chetty et al. (2009); Kőszegi and Szeidl (2012); Gabaix (2014); Hastings and Shapiro (2013); Chetty et al. (2009); Goldin and Homonoff (2013); Bushong et al. (2015); Gabaix (2017); Herweg et al. (2018); Kıbrıs et al. (2018); Finkelstein (2009); Ellis and Masatlioglu (2019); Dertwinkel-Kalt and Köster (2017); Dertwinkel-Kalt et al. (2017).

specifically low-calorie healthy food expenditures very discretionary.[2] Our research question is relevant not only to the United States, but also to many low and middle income countries around the world experiencing an emerging growth in middle class households with increased purchase capacity and expected improvements in diet quality. Even though we study the effects of perceptional scarcity on food choices, our results have important implications for other goods beyond food. For example, perceptional abundance at the beginning of the month, when most households receive their paychecks, may result in higher likelihood of purchasing highly discretionary goods, such as restaurant visits, vacations and tourism, charitable donations, durable goods, etc.

We develop a theoretical framework for dichotomous choice situations by explicitly modeling induced price salience, the moderation effect of income, and the role of relative price changes in low-calorie food choices. In our model, we show that there exists a range of values for the weight consumers place on the price attribute, which induces individuals to choose a low-calorie more expensive product instead of a high-calorie and less expensive alternative, and this behavior is highly correlated with income. Our theoretical model also predicts that when prices are highly salient, decision-makers are more likely to choose the high-calorie and less expensive alternative. Although secondary data sources can be used to study food consumption cycles, food carries strong homegrown preferences that are highly correlated with income. An experimental approach has the distinctive advantage of enabling the random assignment of different levels of price salience while controlling all other factors that drive food choices, including relative prices. Our experimental design enables us to capture the causal relationship between induced price salience, relative prices and food choices.

We conduct a between subject laboratory experiment where participants are randomly assigned to one of three experimental conditions: *No Price-Salience*, *Low Price-Salience* (where financial resource abundance is induced), and *High Price-Salience* (where financial resource scarcity is induced). Our research design enables us to differentiate four consumption behaviors: *health-seeking*, when consumers are willing to pay a price premium to buy more expensive low-calorie food products (as it is the case for most products in treatments); *health-conscious*, when consumers are willing to buy the low-calorie food item only when it has the same price as the high-calorie alternative; *cost-minimizing*, when consumers always prefer the least expensive alternative; and *pleasure-seeking*, when consumers are willing to pay a premium price to buy high-calorie (tasty) food products.[3] For each experimental condition, participants go through two Multiple-Price-List (MPL) tasks with 11 food choice sets in each. In each MPL, the relative prices of food products are exogenously changed across choice sets by decreasing (increasing) the price of the low calorie food item

[2]See https://www.ers.usda.gov/data-products/chart-gallery/gallery/chart-detail/?chartId=76967

[3]We are not claiming that high-calorie food items are always tasty. However, in this article, we carefully selected food items that were used in previous experimental studies as hedonic products (see, for example, Shiv and Fedorikhin (1999)). The high-calorie food products in our study are associated with high temptation and with low diet quality. Therefore, throughout the paper, we use the terms low-calorie (high-calorie) and high-quality (low-quality) interchangeably.

in \$0.50 increments. Participants are informed that one of the 22 food choice sets will be randomly selected as binding at the end of the study. For the binding decision, participants have to pay the price of their chosen product.

After completing the incentivized food choices, and before randomly determining the binding MPL decision, subjects participate in a real effort task, which allows them to potentially offset their food expenses. In this task, subjects go through 11 questions in a MPL and reveal their reservation wage for supplying their labor for a real effort task to offset their food expenses using the strategy method of recording their preferences for every possible binding price. Since, the MPL technique for the real effort task is completed before the determination of the binding food price, our design is incentive compatible, and it enables us to elicit each participant's true reservation wage for their labor supply for different price salience levels.[4]

We find that inducing high price salience decreases the probability of exhibiting a health-seeking behavior compared to the control. This result means that when participants are reminded about financial hardship constraints, they are less likely to pay a premium to buy low-calorie healthy items. Additionally, the high-income group has a higher likelihood of exhibiting health-seeking and health-conscious behavior. However, the analysis of the decisions of high-income participants across the experimental conditions reveals that the difference between the No Price-Salience and High-Price Salience conditions is mainly driven by the high-income group. High-income subjects align their consumption decisions with low-income participants when they are induced with a financial hardship condition. Interestingly, after being exposed to the financial constraints in the Low Price-Salience condition, high-income subjects display the same behavior and reduce their willingness to pay a price premium to buy low-calorie food items. Individuals in the low-income group do not change their behavior in response to the exogenous manipulation of price salience. These results suggest that price may always be salient for low-income participants, and they have little room to make adjustments in response to price salience environments (Darmon and Drewnowski, 2008).[5] However, the fact that the high-income group is very responsive to price salience and eventually mimics the low income group suggests that future studies should also focus on the food decisions of middle and upper-middle income households. Our findings show that medium and upper middle income groups are highly susceptible to changes in the decision environment and switch to high-calorie low-quality food products. Recent reports show that the obesity rate among middle-income households is similar or higher than low-income households in the United States (Ogden et al., 2017). Being ineligible for most social welfare programs may leave middle-income households vulnerable to changes in the economic environment than can significantly affect their diet quality. Our results suggest that this group can be highly responsive to behavioral nudges that

[4]The details of the design are presented in the experimental section.

[5]A similar ceiling effect has also been documented in the SNAP benefits take-up rates (Finkelstein and Notowidigdo, 2019).

change the decision environment to improve diet quality.

As expected, participants react to changes in the relative prices of low- and high-calorie food products. In the current market conditions, low-calorie food is more expensive than high-calorie food (De Quervain et al., 2004). In our experiment, when the price was the same, almost 80% of the selections were low-calorie healthy options. Price discounts of around 20% resulted in over 95% low-calorie food choices. This result provides useful information for the design of nutrition assistance programs and tax or subsidy policies.

We also document that high-income participants have a higher reservation wage to perform a real effort task to compensate their food expenses compared to low-income participants in the No Price-Salience condition. When induced with price salience, high-income participants reduce their reservation wage to the same level as the low-income group. Overall, our findings show that only the high-income group reacts to induced price salience by reducing their willingness to pay for low-calorie products and their reservation wage for labor supply to cover their food expenses. This finding presents a new perspective to the well-developed labor economics literature which predominantly focuses on labor supply decisions of welfare program participants (Finkelstein and Notowidigdo, 2019; Hoynes and Schanzenbach, 2012; Fernandez and Saldarriaga, 2013; Deshpande, 2016a) and our results suggest that inducing financial hardship constraints can also affect labor supply decisions of the labor force with relatively higher incomes.

One of our main contributions to the literature is that we develop a new protocol based on Mani et al. (2013) to induce price salience before economic agents make real food purchases. Haushofer and Fehr (2014) and Mani et al. (2013) argue that in addition to changes in prices and income, salience of financial hardship can change the relative importance of key decision attributes. This aspect of our research design helps us to introduce a new angle on price salience, which has been predominantly explored via price changes in previous economics literature (Bordalo et al., 2013). In addition, by exogenously changing relative price differences between the low- and high calorie products, we capture the interaction effects of induced price salience with food expenditures. In this regard, our study speaks to empirical economic studies, which show that modifications to the Supplemental Nutrition Assistance Program (SNAP) disbursement schedules may generate consumption cycles within a benefit month and change the salience of food prices (see for example, (Kuhn, 2018a; Cotti et al., 2018; Kuhn, 2018b; Beatty et al., 2019)). It is conceivable to think that food expenditures at the beginning of the month, when most people receive their paychecks, may differ from expenditures at the end of the month when income constraints are more pronounced (Stephens Jr, 2003; Carvalho et al., 2016). In fact, Kuhn (2018b) shows that toward the end of a benefit month, presumably because of higher financial constraints, SNAP users become more price-sensitive and primarily buy low-quality, unhealthy, and less expensive food products. Using food products with salient hedonic attributes helps us to bring insights from the consumer psychology literature, which documents that food choices are mainly driven by hedonic attributes when decision-makers are mentally preoccupied (Shiv and Fedorikhin, 1999, 2002). Finally, previous studies provide insights about the effects of affective states on food choices (Argyle, 1989; Amabile et al., 2005; Graham et al., 2004; Lyubomirsky et al., 2005), participation in welfare programs (e.g., Yelowitz (1995); Hoynes et al. (1996); Eissa and Liebman (1996); Moffitt (2002); Blundell et al. (2016)), and influence of the decision environment (Imas et al., 2016; Lakdawalla and Philipson, 2007; De Quidt, 2017; Angrist and Evans, 1998; Field, 2007) in contract choices, effort level and labor supply. Moreover, some studies find that welfare programs affect the number of hours worked (Deshpande, 2016b; Gelber et al., 2017; Deshpande, 2016a; Finkelstein and Notowidigdo, 2019; Hoynes and Schanzenbach, 2012; Fernandez and Saldarriaga, 2013; Goodman-Bacon, 2016). Surprisingly, little is known about how induced price salience influences labor supply. We offer a compelling research design to scrutinize this link via an incentivized real effort task after inducing price consciousness and real food purchases.

The rest of the article is organized as follows: Section 2 discusses the concepts we use in our model and experiments, Section 3 lays out our theoretical model, Section 4 explains our research design and measures. Section 5 develops our hypotheses, Section 6 reports our findings, and Section 7 concludes.

Related Literature

Scarcity of resources and budget constraints constitute the central building block of economic modeling. Conventional economic models predominantly focus on monetary constraints and the consequences of income shocks (Wales and Woodland, 1983; Wilcox, 1989; Hayashi, 1985; Shapiro and Slemrod, 2003; Bernanke, 1985). However, recent findings suggest that not only real monetary constraints, but also inducing thoughts of scarcity of financial resources can change the economic behavior of agents (Haushofer and Fehr, 2014; Mani et al., 2013).

Monetary concerns force agents to pay more attention to every detail of daily financial transactions. For example, Spears (2011) shows that the poor face more difficult trade-offs in their purchasing decisions compared to the rich. Limited monetary resources make basic utility payments challenging, bring opportunity costs into the decision-making process, and consequently magnify the mental resources needed even for small financial transactions (Shah et al., 2012, 2015; Spiller, 2011). Significant mental costs of scarcity burden poor people with a higher cognitive workload and consequently affect economic decisions (Shah et al., 2015; Adamkovič and Martončik, 2017; Vohs, 2013; Deck and Jahedi, 2015; Dalton et al., 2017).

Decision constraints may also direct the attention of decision-makers to more salient information (Haushofer and Fehr, 2014). Recent studies show that the decision environment may divert the focus of consumers to a small subset of choice attributes and consequently change economic decisions (see, e.g., Gabaix et al. (2006); Bordalo et al. (2013); Kőszegi and Szeidl (2012); Taubinsky and Rees-Jones (2017); Allcott and Kessler (2019); Palma (2017); Königsheim et al. (2019); Huseynov et al. (2019)). We expect that monetary concerns affect economic choices by making price the salient attribute and consequently increasing the attentional focus to it (Shah et al., 2012). If price is salient, then decision-makers will focus more on the price attribute, and will try to minimize their expenditures.

Paycheck to paycheck consumption

Monetary concerns can nullify the expected positive effects of welfare assistance programs. Recent studies have increasingly documented the impact of consumption cycles generated by payment schedules on the economic behavior of low-income households. On this regard, the Supplemental Nutrition Assistance Program (SNAP) disbursement schedules have been extensively scrutinized (see, e.g., Carr and Packham (2019); Kuhn (2018a); Cotti et al. (2018); Kuhn (2018b); Lovett (2018); Beatty et al. (2019); Todd and Gregory (2018)). Monthly SNAP benefits are usually transferred to program participants during the first half of the month (Carr and Packham, 2019). Previous literature shows that SNAP users have difficulties smoothing consumption, and they often use most of the program benefits during the first half of the month (Todd, 2014). Consequently, overspending in the first half of the month leaves limited funds remaining for the rest of the consumption period (Smith et al., 2016; Hamrick and Andrews, 2016). Notice that high and low consumption periods of SNAP users do not change the total amount of available funds for the benefit month. We argue that, the perceptional abundance of monetary resources during the first half of the month and consequential perceptional scarcity of material resources experienced during the rest of the benefit period may influence the economic behavior of program participants. Kuhn (2018b)'s findings empirically confirm this proposition and show that SNAP cycles can generate food insecurity and overconsumption of high-calorie and unhealthy foods toward the end of the benefit month. With the help of a field study, Mani et al. (2013) explore similar consumption cycles generated by sugarcane harvests in rural India, and the authors find that villagers demonstrate a higher cognitive performance right after the harvest (i.e., when they face abundance of financial resources) compared to before the harvest (i.e., when they experience material scarcity).

Over the last decade, the relationship between scarcity of financial resources and cognitive performance has attracted a great deal of attention (see, e.g., Shah et al. (2012); Mani et al. (2013); Haushofer and Fehr (2014); Shah et al. (2015); Carvalho et al. (2016)). This literature reports that monetary concerns induce negative feelings which impede the cognitive performance, and consequently affect economic decisions (Mani et al., 2013; Haushofer and Fehr, 2014). In consumer research, cognitive function has been extensively modeled as a crucial mechanism that transmits or moderates the effect of visceral feelings, such as mood, affect and emotions (see, e.g., Bettman et al. (1998); Shiv and Fedorikhin (1999); Drolet and Frances Luce (2004)). In their seminal paper, Shiv and Fedorikhin (1999) show that when cognitive resources are constrained, hedonic food alternatives are chosen more frequently. Hedonic consumption has also been linked to negative emotions, credit card overspending, and other suboptimal behaviors (Dubé et al., 2005; Thomas et al., 2010; Shiv and Nowlis, 2004; Kemp et al., 2013).

Abundance of financial resources

Contrary to financial concerns, abundance of material resources has been understudied. The literature reports a limited number of findings on the effect of abundance of financial resources on decision-making. Shah et al. (2012) suggest that the state of abundance is also important and it needs to be studied. Roux et al. (2015) urge researchers to explicitly model and analyze how consumers change their decisions in response to abundance-related situations. There is evidence that abundance can trigger different *neural* mechanisms compared to scarcity. Huijsmans et al. (2019) find that abundance is associated with more activation in the dorsolateral prefrontal cortex region of the brain - which is associated with a goal-directed choice. Some studies link abundance to unethical behavior (Gino and Pierce, 2009), violence (Koren, 2018), attention to central attributes of products (Hansen et al., 2012), being less helpful to others (Vohs et al., 2008), cheating for others (Aksoy and Palma, 2019), and showing increased persistence (Vohs et al., 2006). There is also evidence that scarcity induces too much engagement with certain attributes, therefore, it is reasonable to expect that abundance may induce less engagement with the same attributes (Shah et al., 2012, 2015). For instance, if economic agents are more preoccupied with money when they face scarcity, they should be less preoccupied with financial issues in a state of abundance (Mullainathan and Shafir, 2014; Gennetian and Shafir, 2015). Perceptional abundance can also affect food choices. For instance, showing a picture of a stack of money results in less enjoyment of eating a chocolate (Quoidbach et al., 2010). Similarly, Laran and Salerno (2013) find that inducing people with thoughts of abundance makes them more likely to choose a garden salad more frequently than cupcakes. Zhu and Ratner (2015) show that when induced with abundance, subjects chose a lesser amount of their most preferred yogurt and vegetables compared to a scarcity condition.

Price Salience

One of the important mechanisms studied in related studies is that when prices increase, the quality attribute becomes more salient and some consumers frequently choose high-quality and expensive products compared to the state before the price hike. Hastings and Shapiro (2013) study parallel price increases in the U.S. gasoline market and provide evidence that the income effect cannot explain this behavior.[6]

Some experimental studies have also analyzed the salience of attributes in consumer choices by exogenously varying price levels.[7] This emerging line of research mostly employs parallel price changes (i.e., proportionally changing relative prices in the same direction) and/or vertically differentiated products (e.g., Internet services with low- and high-speed, smartphones from different brands). In reality, relative prices also change, such as retail store sales on high-quality products (Ortmeyer et al., 1991), or surcharges (or sin taxes) on unhealthy food items (Shah et al., 2014). Moreover, in the consumer psychology literature, some studies have established a link between salience and hedonic food choices, where the choice alternatives are not close substitutes and consumers may have strong preferences for one of the alternatives (Elder and Mohr, 2016; Huang and Wyer Jr, 2015). Therefore, the relationship between exogenously manipulated price salience, relative prices changes, and hedonic food choices is an under-addressed research inquiry in economics.

We conclude the literature review by highlighting that the aforementioned studies provide support to the notion that real and induced mental monetary concerns and feelings of scarcity or abundance of material resources can affect economic decision making.

The Price Salience Theoretical Model

We develop our theoretical model building from the salience model developed by Bordalo et al. (2013). We focus on a case where agent i chooses one of two available alternatives in $X \equiv \{a, b\}$ and each product has two decision attributes, quality and price, $X \equiv \{(q_a, p_a), (q_b, p_b)\}$, respectively. We also assume that $\mathscr{X} = \{X_1, X_2, ..., X_n\}$ is a set of binary choice sets.

[6] The change of the relative salience of choice attributes has also been explained by the "range effect". Kőszegi and Szeidl (2012) model the source of salience as the attribute dimension that places the alternatives on the edges of a large range of values. Bushong et al. (2015) predict that in large ranges of attribute values, fixed differences might seem unimportant. On the other hand, Bordalo et al. (2013) show that the salience of an attribute arises in comparison with the "average attribute" level of the choice set. Bondi et al. (2017) offer a good example to portray predictions of Kőszegi and Szeidl (2012) and Bushong et al. (2015). When choosing between living in Los Angeles and Chicago, decision-makers may over-focus on the weather attribute in which Los Angeles stands out, but they forget other dimensions such as cost of living and job prospects (Kőszegi and Szeidl, 2012). Since in this decision context, the weather attribute has a large range of values, the difference between Chicago and New York along this dimension might seem negligible (Bushong et al., 2015). Hence, when the choice set includes Los Angeles, Chicago, and New York, the decision-maker may prefer New York, even when it is not the optimal choice.

[7] See for example, Azar (2011); Dertwinkel-Kalt et al. (2017); Somerville (2019). Most of the empirical studies in this literature, explore salience in financial decisions (See Beshears et al. (2018) for a review of the relevant studies).

In this model, q and p denote the quality and price of the product, respectively. The following weighted linear utility function represents the net utility, that agent i derives from consuming product k:

$$V_k = (1 - w_p)q_k - w_p p_k \tag{1}$$

where, decision weights are non-negative and we normalize the sum of the weights to one. We assume that the weights agents assign to each product attribute is a function of individual characteristics, and they do not change across decisions in $\mathscr{X}$.

Definition 1: 1.1 When attribute salience is not present in the decision environment, the agent assigns equal weights ($w_p = 0.5$) to the price and quality attributes of product k.

1.2 If the quality or price is salient in the decision environment, the utility function will have unequal decision weights with the following relative magnitudes, $w_p < 0.5$ (low price salience), and $w_p > 0.5$ (high price salience), respectively.

1.3 If the agent has a lexicographic preference, then she has either $w_p = 0$, or $w_p = 1$. When $w_p = 1$ ($w_p = 0$), the agent makes her decisions solely considering the price (quality) attribute of product k.

Definition 2: The weight of price is a symmetric and continuous function $w_p(\cdot)$, with ordering property. Let $\gamma \in \{0, 1\}$, and $\gamma = 1$ if the agent has a low income level, and $\gamma = 0$ if the agent has a high income level. Then by using the ordering property we can get $w_p(\gamma = 0) < w_p(\gamma = 1)$ for any price weight.

For any $X \in \mathscr{X}$, we can formulate the choice correspondence induced by (1) as $C(X) = argmax_{a \in X}[(1 - w_p)q_a - w_p p_a]$. Then $C(X) = \{a\}$ if $(1 - w_p)q_a - w_p p_a > (1 - w_p)q_b - w_p p_b$.

Assume $\varepsilon \sim F$ is symmetric with zero mean. We also assume that F is an increasing function. Then, because of the symmetry of F around zero:

$$Pr[C(X) = \{a\}] = Pr[((1 - w_p)q_a - w_p p_a) - ((1 - w_p)q_b - w_p p_b) + \varepsilon > 0]$$

$$= F((1 - w_p)q_a - w_p p_a) - ((1 - w_p)q_b - w_p p_b)) \tag{2}$$

Remark 1: 1.1 If there is no salience and the decision maker assigns equal weights to each attribute ($w_p = 0.5$), then according to our choice correspondence, $C(X) = \{a\}$ if $q_a - p_a > q_b - p_b$. This relationship shows that the agent prefers a if the unweighted relative gain from quality is higher for a compared to b.

1.2 If the agent has a lexicographic preference and $w_p = 1$ (or $w_p = 0$), then $C(X) = \{a\}$ if $p_a < p_b$ (or

$q_a > q_b$). Thus, lexicographic preferences can be captured as a special case of our general model.

1.3 If attribute salience is present in the decision environment, then the relative magnitudes of weights affect which product will be chosen by agent i.

$$(1 - w_p)(q_a - q_b) - w_p(p_a - p_b) > 0 \tag{3}$$

The main difference between our model and the salience model of Bordalo et al. (2013) is that we do not explicitly model which choice alternative has a higher quality. Thus, we do not rely on the comparison of quality/price ratios of the alternatives. We assume that q is valued based on idiosyncratic individual preferences and we fix the decision alternatives in $\mathscr{X}$. This is a reasonable assumption for food products, in which consumers have strong homegrown preferences. We infer the relative quality difference of alternatives by exogenously changing the relative price difference across choice sets. Moreover, we assume that when the agent makes choices in the multiple price list schedule, she already has pre-determined (homegrown) weights for the choice attributes. Therefore, in our model, attribute weights are modified before the choice task.

Suppose, the agent prefers alternative a in X. Then according to our linear utility function we define, ***Lemma 1***:

1.1 If $p_a = p_b$, then from the agent's perspective, product a is qualitatively superior to product b. Intuitively, if the price of product a and product b is the same, the agent's choice reveals which of the products has a superior quality to the agent.

1.2 *a*) If $p_a < p_b$, then the term $-w_p(p_a - p_b)$ increases the magnitude of the utility of choosing product a. If price has high salience ($w_p > 0.5$), then the term $-w_p(p_a - p_b)$ contributes more to the magnitude of the net utility. *b*) Conversely, this contribution is discounted if $w_p < 0.5$. *c*) Moreover, as the magnitude of $p_a - p_b$ shrinks, the agent bases her decision predominantly on the magnitude of the term $(1 - w_p)(q_a - q_b)$.

1.3 If $p_a > p_b$, then the magnitude of $(1 - w_p)(q_a - q_b)$ should be high enough to compensate for the negative effect of the price difference. In other words the agent is willing to pay a price premium to obtain the product with her revealed higher quality.

Remark 2: 2.1: One important conclusion from Lemma 1 is that when the price of a is equal to the price of b, the agent exhibits her true preference.

2.2: Another conclusion is that if we fix the relative quality difference in $\mathscr{X}$, then by exogenously changing the relative price difference between product a and product b, we can infer the relative quality difference the agent assigns to each choice alternative.

Definition 3: (*Constant-Relative-Quality*) If $X, X' \in \mathscr{X}$, with $X \equiv \{(q_a, p_a), (q_b, p_b)\}$ and $X' \equiv \{(q_a, p'_a), (q_b, p'_b)\}$, then these choice sets have *constant-relative-quality.* Notice that in the *constant-relative-quality* choice sets, choice decisions are driven by relative price changes.

Proposition 1: Assume that $p_a - p_b < p'_a - p'_b < 0$ in *constant-relative-quality* choice sets, where $q_a < q_b$ is also true. Notice that when $q_a < q_b$ and $p_a > p_b$, the decision outcome is trivial. When the low-quality alternative a is more expensive or the high quality alternative b is less expensive, then the agent will choose b. Then for every $\triangle_q = q_a - q_b$ there exists at least one non-zero value of w_p that will induce the agent who preferred a in X to prefer b in X'.

Proof: See the proof of Proposition 1 in Appendix A.

Proposition 1 shows that when we fix the choice alternatives across choice sets in $\mathscr{X}$ and we only exogenously change the relative price differences between product a and product b, for each quality difference level, there exists a range of the decision weight for the price attribute that will cause an agent to switch from one of the alternatives to the other without experiencing a sign change for the relative price difference. This conclusion means that for certain values of the price weight and relative price changes, the decision maker will switch from the low-quality and lower price product to the high-quality and higher priced product.

By following the steps in the proof, it can be easily shown that for $q_a > q_b$ and $p'_a - p'_b > p_a - p_b > 0$ and for *constant-relative-quality* choice sets, there exists a certain range of w_p that induces the agent who chose a in X to choose b in X'.

Remark 3: In *constant-relative-quality* choice sets, if an agent chooses the low-quality and lower price (high-quality and higher price) alternative a in X, then for every relative price decrease (increase) there exists a price salience weight that will induce switching from a to b in X'.

Proposition 2: For *constant-relative-quality* choice sets $X, X' \in \mathscr{X}$, with $X \equiv \{(q_a, p_a), (q_b, p_b)\}$ and $X' \equiv \{(q_a, p'_a), (q_b, p'_b)\}$, among the agents who choose a in X, high-income agents will be more likely to choose b in X' compared to low-income subjects.

Proof: See the proof of Proposition 2 in Appendix A.

Proposition 2 shows that high-income agents are more likely to choose a in X and b in X' compared to low-income agents.

Let's introduce $\psi(\cdot,\cdot) > 0$, which is a strictly increasing continuous function. The function $\psi(\cdot,\cdot)$ illustrates how the salience of attributes increases depending on the economic decision environment. We assume that in some decision contexts the agent experiences high price salience without experiencing price and/or income changes. For example, in Mani et al. (2013) inducing thoughts of financial constraints significantly affected the behavior of participants without any changes to price or income.

Definition 4: Let $\lambda \in \{0,1\}$, and $\lambda = 1$ if the agent is in a *high price salience* state, and $\lambda = 0$ otherwise. Then:

$$\psi(\lambda = 1, w_p) > \psi(\lambda = 0, w_p) \tag{10}$$

Let $C(x)$ be the choice correspondence introduced in (1), without loss of generality, will obtain this form $C(X,\lambda) = argmax_{a \in X}[(1-\psi(\lambda,w_p))q_a - \psi(\lambda,w_p)p_a]$. Then $C(X,\lambda) = \{a\}$ if $(1-\psi(\lambda,w_p))(q_a - q_b) > \psi(\lambda,w_p)(p_a - p_b)$. Since F is an increasing function and it is symmetric around zero, then:

$$Pr[C(X,\lambda) = \{a\}] = Pr[(1-\psi(\lambda,w_p))(q_a - q_b) - \psi(\lambda,w_p)(p_a - p_b) + \varepsilon > 0]$$

$$= F((1-\psi(\lambda,w_p)(q_a - q_b) - \psi(\lambda,w_p)(p_a - p_b)) \tag{11}$$

Proposition 3: For the same choice sets (where $q_a < q_b$ and $p_a - p_b < 0$ are true), if the agent is in a *high price salience* state, then she will have a higher probability of choosing a compared to the agent who is not in *high price salience* state.

Proof: See the proof of Proposition 3 in Appendix A.

Remark 4: Based on Proposition 3, one can easily show that, for the same choice sets (where $q_a < q_b$ and $p_a - p_b < 0$), if the agent is in a *low price salience* state, then she will have a higher probability of choosing b compared to the agent who is not in a *low price salience* state.

Experiment

Subjects

A total of 170 subjects (non students) from the Southwestern United States were recruited to participate in the experiment in January of 2018. The recruitment was done through advertisements in local newspapers. Bulk recruitment emails were also sent to community members in our subject database. To qualify for the study, participants had to be at least 18 years old and not have a history of any eating disorder and/or dietary restrictions. Nine sessions were conducted through the course of three consecutive days. Participants

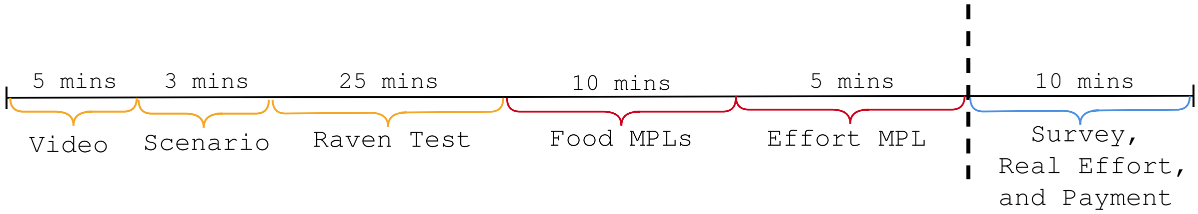


Figure 1: Procedures and timeline of the experiment.

Notes: a) The allocated time for the Raven test was 25 minutes and it was strictly enforced, b) The other tasks were not time-restricted, and this figure showcases the average amount of time subjects spent on those tasks, c) The dashed line represents the random determination of the binding choice set.

received a $25 compensation fee minus the cost of any food purchases they made during the experiment.

Video stimuli and price salience

The experiment consisted of a between-subjects design, in which participants were randomly assigned to one of three experimental conditions: 1) No Price-Salience, 2) Low Price-Salience, and 3) High Price-Salience. We conducted three sessions per day. Sessions started at 9 am, 12 pm, and 3 pm, and each session was only dedicated to one of the experimental conditions. We randomized the order of the experimental conditions across sessions. Figure 1 displays the procedures and the timeline of the experiment.

In the Low Price-Salience condition (n = 50), subjects watched a 5-minute video showcasing financial resource abundance. The video depicted a shopping frenzy, where participants had to fill their shopping carts with products within a specified time limit and without paying attention to price tags. Subjects in the High Price-Salience condition (n = 63) were induced to think about everyday financial demands by watching a 5-minute video about financial problems of poor households in the United States. The video part of our design resembles the video stimuli employed by Dalton et al. (2017). Finally, in the No Price-Salience condition (n = 57), subjects were exposed to a 5-minute neutral video at the beginning of the session. The neutral video resembled a computer screen-saver. The purpose of the neutral video was to expose subjects to a visual stimulus with the same amount of time as in the other conditions, but without any meaningful content, and by this way aligning the control condition with the treatments.

After watching their assigned videos, subjects in the High and Low Price-Salience conditions went through price-salience hypothetical scenarios of financial hardships. We used the hypothetical scenarios from Mani et al. (2013) with some minor modifications. In the High Price-Salience condition, we used the scenario of the Hard condition in Mani et al. (2013) without any changes. Mani et al. (2013) report that the scenario of the Hard condition induced monetary concerns and this effect was severe for relatively poor subjects in their study compared to relatively rich subjects (separated by median income). We expected that the video stimulus and the financial hardship scenario in the High Price-Salience would increase the salience of the price attribute. However, we replaced the words associated with financial hardships in the scenario of the High Price-Salience treatment with their antonyms to use in the Low Price-Salience condition. For instance, to induce feeling of abundance of financial resources, we replaced "an unforeseen event requires of you an immediate $2,000 expense" with "an unforeseen lottery win gives you a $2,000 gain" in the scenario of the Low Price-Salience condition. The scripts are available in the Appendix. We expect that the video stimulus and the scenario of the Low Price-Salience treatment will make the price (quality) less (more) salient.

The session monitor read the scenarios out loud following the scripts in the Low and High Price-Salience conditions, and then asked subjects to reflect on the scenarios for three minutes. In the No Price-Salience control condition, the session monitor waited three minutes to time-wise align this condition with the treatments.

Experimental design and procedures

After watching their assigned video (and also going through the scenarios in the Low and High Price-Salience conditions), subjects completed a cognitive performance task that included 24 problems from the Raven's Progressive Matrices test (Raven, 2000; Segovia et al., 2019). This test is commonly used to measure fluid intelligence independent of acquired knowledge. Each problem consisted of a 3x3 matrix with the bottom right figure missing. Subjects were asked to choose from a set of 8 alternatives, which figure fitted the overall pattern of the matrix. This task had a time limit and subjects were allowed to spend 25 minutes to complete it. Before starting the test, the session monitor went through several examples to make sure participants had a clear understanding of the instructions.

The Raven's test task enabled us to control the possible cognitive impairments due to our induced price salience treatments, which has been documented by Mani et al. (2013). After solving the Raven's test, participants completed two Multiple-Price-Lists (MPL) tasks, one with food items and the other one with beverage products.[8] In one of the food MPL tasks, we followed Shiv and Fedorikhin (1999) and asked subjects to choose either a chocolate cake or a salad. In the other food MPL task, the choice trade-off was between a 16.9 ounces bottle of Fiji water and a 20.0 ounces Coca Cola bottle.

Each food MPL task consisted of 11 binary choices. In each choice question, participants had to choose between two food products with varying prices. Each choice decision was presented separately. A recent study by Brown and Healy (2018) shows that separately presenting MPL choices may enhance the incentive compatibility of MPL designs. Before the MPL task, subjects were informed that the food choices were

[8] We refer to these MPLs as food MPLs in Figure 1 and the rest of the article.

Table 1: Choice Question of the Multiple Price Lists

1)	Produt A ($0)	Product B($5.0)
2)	Produt A ($0.5)	Product B($4.5)
3)	Produt A ($1.0)	Product B($4.0)
4)	Produt A ($1.5)	Product B($3.5)
5)	Produt A ($2.0)	Product B($3.0)
6)	Produt A ($2.5)	Product B($2.5)
7)	Produt A ($3.0)	Product B($2.0)
8)	Produt A ($3.5)	Product B($1.5)
9)	Produt A ($4.0)	Product B($1.0)
10)	Produt A ($4.5)	Product B($0.5)
11)	Produt A ($5.0)	Product B($0)

real, and one of their choices would be randomly implemented and participants would pay for their selected product and receive it at the end of the experiment. Thus, the food MPLs were incentivized.

In Appendix A, Figure A1 panels (a) and (b) depict the first questions from the food MPLs. Table 1 shows how the relative prices of the products change across the food MPL rows. In the first choice question of the food MPLs, product A was free (i.e., $0) and product B was $5.0.[9] If a decision-maker switches from product A to product B in the first choice question of the MPLs, it indicates that the agent is willing to pay $5.0 to buy a bottle of Fiji water or a salad instead of getting a coca-cola or a chocolate cake for free. It also shows that the decision-maker is willing to incur an additional $5.0 expense to buy a low-calorie food product. Similarly, if the decision-maker switches from product A to product B in the second question, he is willing to pay a $4.0 premium to buy a low-calorie food item. Accordingly, switching in the sixth choice question, where the price of product a and product b is identical ($2.50), indicates that the decision-maker only prefers to buy a bottle of Fiji water or a salad when the price of the low-calorie and high-calorie products are the same. Notice that the choice in the sixth choice question of the MPLs reveals the agent's true preference when the price attribute does not play a role in the purchasing decision. Switching at the seventh choice indicates the consumer minimizes the expenditures (Lemma 1). Switching after the seventh choice question suggests that the decision-maker is willing to pay a price premium to buy the high-calorie food item, perhaps because of an implied difference in perceived flavor.

One of the food MPLs and one choice decision were randomly selected to be the binding food MPL and choice question at the end of the experiment. Subjects had to purchase the product they chose in the binding decision. Notice that, the binding price was individual-specific. For instance, if the second choice question was selected as binding, then the binding price was $0.5 for subjects who selected product A, and $4.5 for subjects who selected product B. Note that the binding round was not selected until the end of the

[9]In the food MPLs, the product in the left always started with a price of $0, it was the same ($ 2.50) in decision 6, and it reached the price of $5.0 in the final choice question. However, we randomized the place of the low-calorie (a salad and a bottle of Fiji water) and high-calorie (a chocolate cake and a bottle of Coca Cola) products. For half of the subjects the low-calorie item was on the left and vice versa for the other half.

experiment. This is an important design feature for the next part of of our experimental design.

Once the two food MPLs were completed, subjects were given the opportunity to offset the cost of their purchases by performing a real effort task. The real effort task consisted of copying one paragraph from Charles Dickens's popular novel "A Christmas Carol".[10] This part of the experiment, was only revealed to subjects after they completed their decisions in both food MPL tasks, and before the randomization to reveal the binding food MPL and the choice question. Figure A1 panel (c) depicts the effort MPL that was used to elicit subject's willingness-to-work to offset the cost of their purchases at all possible price points. For instance, if a decision-maker switches from "No" to "Yes" in the fourth choice question, it indicates that the agent is willing to pay up to $1.0 for the chosen product and not perform the real effort task to offset the purchasing cost. The switching point in the real effort task represents a reservation wage for the participant's labor supply. Switching in the fourth question indicates that in the ($0, $1.0) range, they are not willing to supply their labor (effort) or equivalently that their reservation wage for the real effort task is $1.0. This part of the design enables us to investigate one of the central topics in the labor economics literature in a controlled environment, which includes analyzing labor supply decisions to cover food purchases, reminiscent of welfare program participants (Finkelstein and Notowidigdo, 2019; Hoynes and Schanzenbach, 2012; Fernandez and Saldarriaga, 2013).

After the determining the binding task, if the randomly selected binding price is above the subject's reservation wage for exerting the effort, then the participant is required to perform the real effort task. For instance, if a subject switched from "No" to "Yes" in the sixth choice question, and the binding price was $3.0, the subject was invited to perform the real effort task and receive $3.0 in exchange, which would essentially offset the food purchase. However, if the randomly selected choice question revealed that the binding price for the subject was $1.0, then the subject had to pay the cost of the product out of her participation fee. Subjects who completed the effort task received a compensation of $25 and their chosen food product. Otherwise, subjects had to pay the price of the product and receive the food product they selected and the remaining amount from their $25 participation fee. Finally, subjects filled a demographic survey.

Research Hypotheses

Table 2 lays out the predictions for the values of the weight of the price attribute, quality perceptions, price salience levels, and consumption types based on our theoretical model and our research design. In our

[10]Five minutes was enough to accomplish this task. The expected earning was $2.50 for completing a 5-minute task. This translates into a $30-payment for an hour - which significantly exceeds minimum-wage levels across the United States.

theoretical model, we showed that there exists a range of values for the price attribute weights that creates low price salience and consequently induces consumers to switch from the low-quality and low price food item to the high-quality and high price alternative. In our experiment, we employ an MPL format which enables us to identify consumers who have price attribute weight values that lead to *low price-salience* behavior and they consequently prefer low-calorie food alternatives. More specifically, if the consumer switches from the high-calorie food item to the low-calorie alternative in the first five choices of the food MPLs, our model shows that she is willing-to-pay a premium to obtain the low-calorie option. In this case, the values of her weights for the price attribute is in the range of $[0, 0.5)$, and we label this kind of consumption behavior as *Health-seeking consumption.*

In the sixth choice of the food MPLs, both food items have the same price ($2.50) and the price attribute is not part of the decision process. This choice task helps us to elicit the true food preferences of consumers when the price is identical. Potentially, there might be two consumer types based on the outcome of the sixth choice question of the food MPLs: a) agents who switch from the high-calorie to the low-calorie alternative, or b) still prefers the high-calorie option. If the consumer switches from the high- to the low-calorie alternative, then she truly prefers the low-calorie option. However, the consumer is not willing to pay a premium to buy the product. This means that the agent puts a higher weight on price compared to quality when she is in the high price-salience state. We label this type of behavior as *Health-conscious consumption*, meaning that this type of consumers prefer low-calorie choices, but are not willing to pay a premium to buy low-calorie food products.

If the consumer switches from the high- to the low-calorie alternative in the seventh choice task, it means that she tries to minimize her food consumption expenditures. This behavior indicates that the agent has lexicographic preferences and her price weight is 1 ($p_w = 1$) and we categorize this behavior as *Cost-minimizing consumption*. However, if she switches after the seventh choice task, it shows that she is willing-to-pay a premium to buy the high-calorie alternative, presumably because of strong homegrown preferences for flavor. Accordingly, she is in the low price-salience state and she exhibits *Pleasure-seeking consumption.*

In our model, Proposition 2 shows that high-income individuals are more likely to have lower values for the weight of the price attribute and be in the low price-salience state compared to low-income individuals. Proposition 2 predicts that high-income subjects will switch earlier in the food MPLs compared to low-income participants. Therefore, we predict that the percentage of health-seeking subjects will be higher in the high-income group compared to low-income participants.

Since low-income individuals are more likely to be affected by budget constraints and less likely to

Table 2: Model predictions about the range of the values of the price attribute weight and consumer types

Switching Point	Prediction	Salience Level and Food Preference	Type
1-5	$w_p \in [0, 0.5)$, $q_a < q_b$	Low price-salience, prefers low-calorie food	Health-seeking consumption
6	$w_p \in (0.5, 1)$, $q_a < q_b$	High price-salience, prefers low-calorie food	Health-conscious consumption
7	$w_p = 1$, $q_a \gtreqless q_b$	High price-salience, quality of food does not matter	Cost-minimizing consumption
8-11	$w_p \in [0, 0.5)$ and $q_a > q_b$	Low price-salience, prefers high-calorie food	Pleasure-seeking consumption

choose low-calorie and higher priced alternatives, we can also expect that being in the low-income group will increase the probability of exhibiting health-conscious consumption. Accordingly, we expect that being in the low-income group will increase the likelihood of demonstrating cost-minimizing behavior.

Hypothesis 1a: High-income subjects will be more likely to be in the health-seeking category compared to low-income participants.

Hypothesis 1b: High-income subjects will be less likely to be in the health-conscious category compared to low-income participants.

Hypothesis 1c: High-income subjects will be less likely to be in the cost-minimizing category compared to low-income participants.

Hypothesis 1d: On average, high-income subjects will switch from the high- to the low-calorie alternative in earlier choices of the food MPLs compared to the low-income group.

In our model, Proposition 3 shows that the values of the attribute weights can change depending on the price-salience state. We employ two states (i.e., treatments) in our experiment. We expect that in the High (Low) Price-Salience condition, subjects will have higher (lower) values for the price attribute weight. Thus, we expect that the low and high price-salience states will change the likelihood of subjects to be in the health-seeking, health-conscious, and cost-minimizing categories.

Hypothesis 2a: Subjects in the Low (High) Price-Salience condition will be more (less) likely to be in the health-seeking category compared to the No Price-Salience condition.

Hypothesis 2b: Subjects in the Low (High) Price-Salience condition will be less (more) likely to be in the health-conscious category compared to the No Price-Salience condition.

Hypothesis 2c: Subjects in the Low (High) Price-Salience condition will be less (more) likely to be in the cost-minimizing category compared to the No Price-Salience condition.

Price salience effects on reservation wages

Previous literature shows a strong relationship between labor supply and participation in welfare programs, and how poor households modify their labor supply depending on program structures and eligibility criteria (e.g., Yelowitz (1995); Hoynes et al. (1996); Eissa and Liebman (1996); Moffitt (2002); Blundell et al. (2016)). Recent findings suggest that factors in the decision environment affect contract choices and labor effort (Imas et al., 2016; De Quidt, 2017). Our study offers a unique insight in this discussion using an experimental approach. Our design enables us to explore a causal link between induced price salience and labor supply effort. Since subjects make 11 choice decisions in the real effort MPL and they reveal their reservation wages for performing a real effort task to compensate the costs of their food expenditures. This aspect of our design helps us to document the causal link between induced price salience and labor supply. We expect that low-income subjects will have a lower-reservation wage for their labor supply compared to high-income subjects. Moreover, we expect that being in the High (Low) price-salience condition will decrease (increase) the reservation wage. The results of this section have important policy implications for food assistance welfare programs.

Hypothesis 3a: Subjects in the Low Price-Salience condition will have a higher reservation wage for labor supply compared to the No Price-Salience condition.

Hypothesis 3b: Subjects in the High Price-Salience condition will have a lower reservation wage for labor supply compared to the No Price-Salience condition.

Hypothesis 3c: Subjects in the high-income group will have a higher reservation wage compared to low-income participants.

Results

Before testing our research hypotheses, we conduct a balance check of the demographic profiles of subjects across the experimental conditions and also test whether our results are affected by the impairment of cognitive function as previously found by Mani et al. (2013) and follow-up studies. We also discuss the observed frequencies of the predicted consumer types when there is no price salience in the decision environment.

In Appendix A, Table A1 shows the pairwise comparison of income, gender, race, education levels, Body Mass Index (BMI), marital status and household size for all participants. The randomization of participants across experimental conditions is successful, as demographic measures are balanced, except for gender. There is a weakly significant difference between the High Price-Salience and Low Price-Salience conditions in terms of the proportion of males. The percentage of male subjects is almost 16% higher in the High Price-Salience condition compared to the Low Price-Salience condition. Therefore, the gender (Male) variable is controlled for in our analyses. In this article, the food MPLs provide a crucial measure of economic decisions. The consistency of choices in each MPL is of great importance for our findings. If subjects switch columns multiple times in the MPL, it indicates that they either have inconsistent preferences or they misunderstood the experimental protocols. Charness et al. (2013) suggest that dropping observations with multiple switching points assures that the analysis only includes subjects who understand the experimental protocols and reveal their true preferences. Therefore, in our analyses, we only keep observations with a single switching point in the MPLs.

Table A1 shows that there are 50, 56, 45 subjects with consistent preferences in the No Price-Salience, Low Price-Salience and High Price-Salience conditions, respectively. We ended up having observations from 95 subjects with consistent choices for the High Price-Salience and No Price-Salience conditions combined, 101 subjects with consistent choices for the High Price-Salience and Low Price-Salience conditions combined, and 106 subjects for the Low Price-Salience and No Price-Salience conditions combined. In this regard, our sample sizes are very similar to Mani et al. (2013). In the major analysis of their study, Mani et al. (2013) report their findings from three lab experiments with 101, 100, 96 subjects, respectively.

In Appendix A, Table A2 reports the results of regression analyses to test whether induced price salience affects the cognitive performance of low-income subjects compared to high-income subjects.[11] Since we measure the cognitive performance by Raven scores, if price salience impedes cognitive function then we expect to observe a significantly lower number of correct answers for low-income subjects compared to the high-income group in the High Price-Salience condition. Table A2 panel (a) reports OLS regression results when the High Income variable is 1 for subjects with effective income above the median. There is no reduction in the cognitive capacity overall or for low-income individuals in our experiment. To check the robustness of our results to the median split procedure, we also conduct the same analysis specifying income as a continuous variable. The results of this robustness check are presented in Table A2 panel (b). Our results are consistent; neither the experimental conditions, nor their interactions with the continuous income variable have a significant impact on cognitive performance. Although, we observe that the variable for income is independently correlated with performance in the Raven's test, the effect is only marginally significant. Thus, we do not replicate the effect of price salience on cognitive performance found in Mani et al. (2013). In this regard, our results align with Wicherts and Scholten (2013) and Carvalho et al. (2016) who fail to replicate the main findings of Mani et al. (2013) that monetary concerns impair cognitive performance.

[11] We follow Mani et al. (2013) in constructing our income variable. In line with their study, we compute effective income by dividing household income by the square root of household size. Across all experimental conditions, the distribution of the effective income variable has the following parameters: 1% percentile=\$7,559.29, 50% percentile=\$31,819.81, mean=\$41,648.73, 99% percentile=\$ 106,066.00. Moreover, in line with Mani et al. (2013), we define our "poor" and "rich" subsamples based on the median split of the effective income variable.

We conclude that the impairment of cognitive function is not contaminating our results, and our findings can only be attributed to the exogenously manipulated price salience. Thus, our results suggest *attribute salience* as an alternative channel that transmits the effect of price inducement of food choices.

Table 3 shows the frequencies of the predicted consumer types across experimental conditions. Since food preferences are idiosyncratic and we do not have a prior knowledge about the distribution of each type in the population, we initially assume that the above mentioned consumer types are equally likely to be observed in our experiment. We start our primary analysis by evaluating the observed frequencies in the No Price-Salience condition and statistically compare observed frequencies to expected benchmarks under the assumption that each consumer type is equally likely to be represented in the population.[12] The observed frequency of health-seeking subjects in the No Price-Salience condition is not significantly different ($p = 0.84$) than the random benchmark. The rest of the categories are significantly different compared to their random benchmarks. Since in the No Price-Salience condition, we do not introduce salience, we can argue that the observed frequencies constitute a raw distribution of modeled categories in the population. Interestingly, the observed proportion of health-conscious and cost-minimizing consumption behaviors are higher than the random benchmark. Contrarily, the frequency of pleasure-seeking participants is lower than the predicted random level. Table 3 also shows that 73% of subjects are in either the health-seeking or health conscious category. Therefore, it is not surprising that we observe relatively less frequent pleasure-seeking behavior. We conclude that almost three-quarters of our subjects prefer low-calorie food items and 43% of the total subject sample are willing to pay a premium to buy low-calorie food items. It is noteworthy that across all the experimental conditions, the frequency of pleasure-seeking consumers are significantly lower than the random benchmark and it remains around 10%. This group represents the segment of consumers who exhibit strong preferences for high-calorie food products and are willing-to-pay up to $5.00 to buy hedonic flavor. Across experimental conditions, cost-minimizing behavior is also observed more frequently than the random benchmark. Our analysis indicates that when there is no price salience in the decision environment, 73% of consumers exhibit strong preferences for low-calorie food items and 16% of the total consumer population is primarily motivated by monetary concerns.

Result 1

Hypothesis 1a states that high-income subjects will be more likely to be in the health-seeking category compared to low-income participants. Figure 2 showcases the effect of income levels on the likelihood of being in each modeled consumption category in the pooled sample for all experimental conditions. Indeed,

[12] See Toussaert (2018) for a similar approach.

Table 3: The Observed Frequencies of Modeled Consumer Types

Experimental Condition	Consumer Type	% of Subjects	Number of Choices	Random Benchmark	*p-value*
No Price-Salience			100		
	Health-seeking consumption	43%	43	42%	p=0.84
	Health-conscious consumption	30%	30	8%	p<0.01
	Cost-minimizing consumption	16%	16	8%	p<0.01
	Pleasure-seeking consumption	11%	11	42%	p<0.01
High Price-Salience			90		
	Health-seeking consumption	39%	35	42%	p=0.46
	Health-conscious consumption	38%	34	8%	p<0.01
	Cost-minimizing consumption	14%	13	8%	p<0.01
	Pleasure-seeking consumption	9%	8	42%	p<0.01
Low Price-Salience			112		
	Health-seeking consumption	34%	38	42%	p=0.06
	Health-conscious consumption	31%	35	8%	p<0.01
	Cost-minimizing consumption	24%	27	8%	p<0.01
	Pleasure-seeking consumption	11%	12	42%	p<0.01
Total	All Types and All Conditions		302		

The *p-values* are the result of a two-sided binomial test whether the observed percentages are equal to the benchmark percentages, when subjects choosing their preferred food products in both MPLs. Three subjects never switched from the low- to high-calorie alternative in our experiment. Therefore, the switching point variable is a positive integer values in the range of [1,12]. Random benchmarks are calculated as 1/12*(number of choices in each category). For instance, for the Health-seeking category it is 1/12*(5)=0.42.

being in the high-income group increases the probability of being in the health-seeking category ($two-sided\ Wilcoxon\ test : Z = -10.78,\ p < 0.01$). Since high-income subjects can afford to be in the health-seeking category, according to Hypothesis 1b and 1c, we expect to observe the percentage of high-income participants to be lower in the health-conscious and cost-minimizing conditions compared to the low-income group. Figure 2 displays that the fitted probability of the high-income group to be in the health-conscious category is higher ($two-sided\ Wilcoxon\ test : Z = -6.24,\ p < 0.01$), and for the cost-minimizing conditions is lower ($two-sided\ Wilcoxon\ test : Z = -14.97,\ p < 0.01$) compared to the low-income group. Thus, we fail to reject Hypothesis 1a and 1c, and reject Hypothesis 1b. Interestingly, we observe that being in the low-income group increases the likelihood of being in the pleasure-seeking category ($two-sided\ Wilcoxon\ test : Z = -9.40,\ p < 0.01$).

Figure A2 presents the results of the consumer types, by separately fitting the likelihood of each consumption category for each experimental condition. We observe that in the No Price-Salience condition, being in the high-income group significantly increases the likelihood of demonstrating health-seeking behavior. Moreover, as observed in the pooled analysis, high-income subjects are less likely to be in the cost-minimizing and pleasure-seeking conditions. However, this effect vanishes in the other conditions. Namely, decreasing

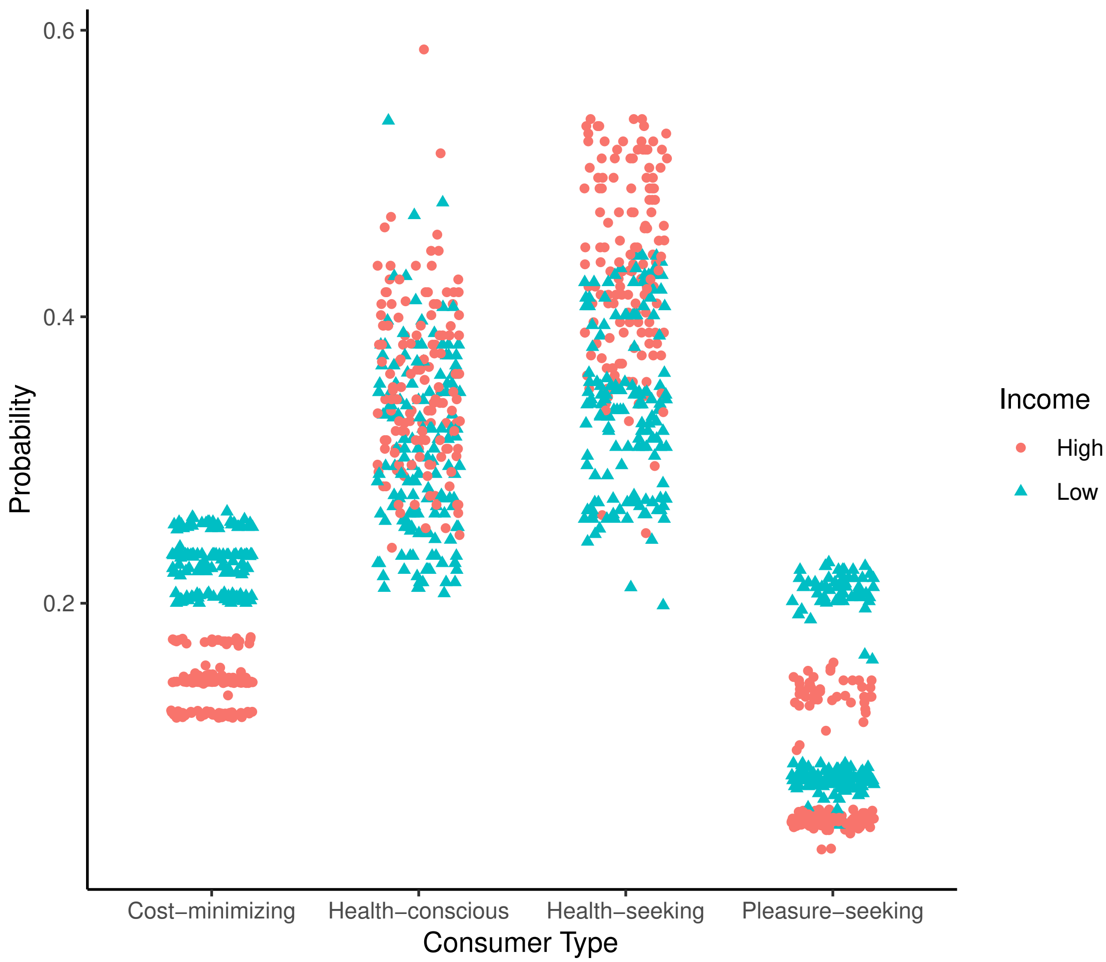


Figure 2: The role of income levels in predicting consumer types.

The probability estimations correspond to multinomial logit regression results where food type, gender, logged values of Raven scores and income are independent predictors. The estimation results are from the pooled sample, when experimental conditions are not controlled. This approach helps us to capture the direct effect of the income across all experimental condition.

or increasing the salience of the price attribute decreases the probability of the high-income group to be in the health-seeking category. It should be noted that the significant gap between high- and low-income groups in terms of health-seeking behavior in the No Price-Salience conditions is closed because of changes in the behavior of the high-income group in the other experimental conditions. Figure A2 shows that the high income group aligns its behavior with the low-income subjects in the Low and High Price-Salience conditions. Thus, we conclude that high-income participants behave similarly to low-income participants when exposed to both Low and High Price-Salience conditions.

Hypothesis 1d makes a more general statement and focuses on average switching points. This hypothesis predicts that on average high-income subjects will switch earlier compared to low-income participants. Table 4 panel (a) and (b) show that, on average, high-income subjects switch from the high- to the low-calorie alternative in earlier food choice tasks of the MPLs compared to low-income participants. Thus, we confirm Hypothesis 1d.

Overall, Result 1 shows that being in the high-income group is correlated with earlier switching in early choice tasks of the food MPLs. However, when we analyze the association of income levels with modeled consumption categories, we can only confirm the predicted outcomes for the No Price-Salience condition. In the Low and High Price-Salience conditions, high-income subjects converge to the behavior of low-income subjects.

Result 2

In general, Hypothesis 2 predicts a causal relationship between price salience and switching from high- to low-calorie food items. Hypothesis 2a states that subjects in the Low (High) Price-Salience will be more (less) likely to be in the health-seeking category. However, according to Figure 3, being in the Low Price-Salience condition reduces the probability of health-seeking behavior compared to the No Price-Salience condition ($two-sided\ Wilcoxon\ test: Z = -5.89,\ p < 0.01$). We also observe that the High Price-Salience condition lowers the probability of being in the health-seeking category compared to the No price-Salience condition ($two-sided\ Wilcoxon\ test: Z = -2.01,\ p = 0.02$). Thus, we partially confirm Hypothesis 2a. Moreover, we observe that being exposed to the High Price-Salience condition increases the likelihood of being in the health-conscious condition compared to the No Price-Salience condition ($two-sided\ Wilcoxon\ test: Z = -6.79, p < 0.01$). So, we reject the predictions of Hypothesis 2b with our analysis.

Contrary to the prediction of Hypothesis 2c, being in the Low Price-Salience condition marginally increases the likelihood of demonstrating a cost-minimizing behavior. Overall, we cannot confirm Hypothesis 2b, and 2c, while partially substantiating the prediction of Hypothesis 2a. We also observe the reverse effect compared to what was predicted in hypothesis 2a and 2c.

The results of Table 4 are aligned with Result 2. We observe that the Low and High Price-Salience conditions do not affect the average switching points. However, their interactions with income significantly change the average switching points. Income is endogenous, but our experimental conditions are exogenously assigned, thus our results bear causality nature. Interestingly, in both Low and High Price-Salience conditions, high-income subjects switch later. As mentioned before, Figure A2 panel (a) shows that when there is no salience in the decision environment, high-income subjects are more likely to exhibit health-seeking behavior, but this effect vanishes in the Low and high Price-Salience conditions.

We conclude that Low and High Price-Salience conditions do not affect average switching directly, but they influence the behavior of high-income subjects and cause the income effect to vanish by reverting

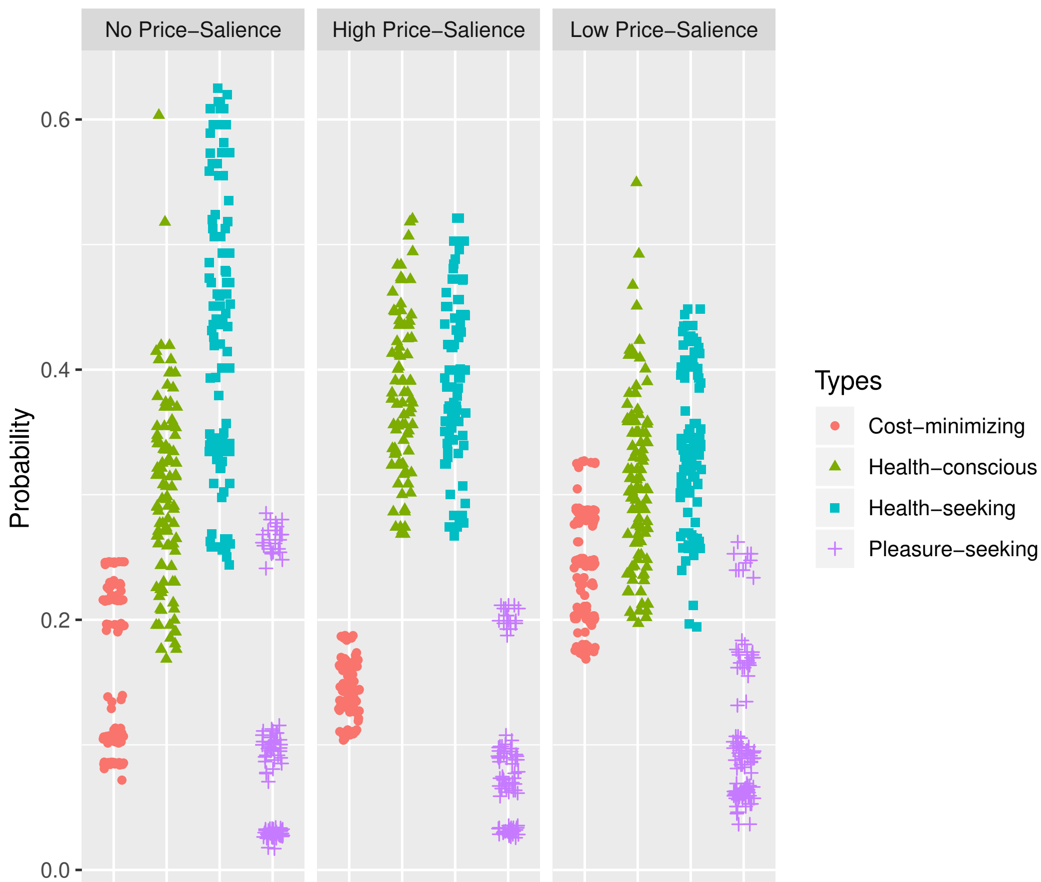
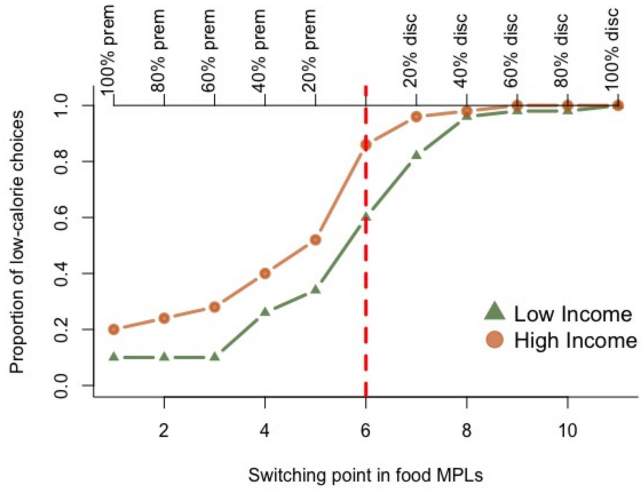


Figure 3: The role of experimental conditions in predicting consumer types.

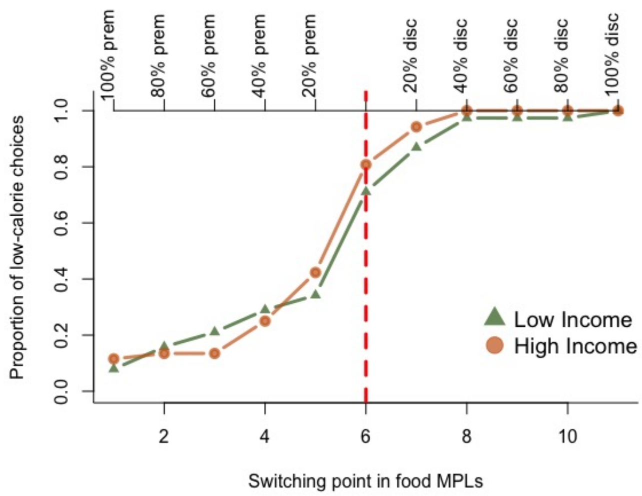
The probability estimations correspond to multinomial logit regression results where food type, gender, logged values of Raven scores, income and experimental conditions are independent predictors.

the consumption behavior of high-income subjects to the behavior of low-income subjects. Contrary to predictions of Hypothesis 2a, the Low Price-Salience condition decreases the probability of being in the health-seeking condition.

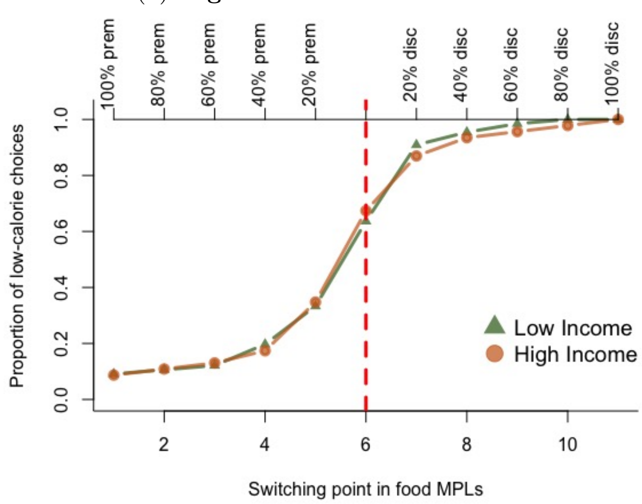
Figure 4 presents the empirical Cumulative Distribution Functions of switching points across experimental condition. As was mentioned earlier, product prices are the same at switching point 6. The real market prices of products used in the experiment are close to $2.50. Therefore, if a subject switches from the high- to low-calorie alternative in the first choice set of the food MPLs, s/he is willing to pay $5.0 to buy the product. This also means that the subject is willing pay a 100% premium (compared to the real market value of $2.50) to buy the high-quality food product. Switching points to the left of the vertical red dashed lines in Figure 4 indicate willingness to pay a non-zero premium for low-calorie food products. Another important point about Figure 4 is that, in the current market conditions, most low-calorie and healthy food



(a) **No Price-Salience Condition**



(b) **High Price-Salience Condition**



(c) **Low Price-Salience Condition**

Figure 4: The empirical Cumulative Distribution Function (CDF) of switching points across experimental conditions.

Table 4: Switching point analysis in food choices

(a) Censored Poisson Regression Results

	(1) Switching Point	(2) Switching Point	(3) Switching Point
High Price-Salience	0.0325	0.0362	−0.193
	(0.34)	(0.38)	(−1.56)
Low Price-Salience	0.161*	0.157*	−0.00980
	(1.68)	(1.70)	(−0.09)
log (Raven Score)	0.0469	0.0450	0.0147
	(0.34)	(0.36)	(0.14)
Male	0.145**	0.123	0.112
	(1.97)	(1.53)	(1.53)
Food Choice (dummy)	−0.0252	−0.0380	−0.00342
	(−0.32)	(−0.48)	(−0.05)
High Income (dummy)		−0.0628	−0.312**
		(−0.78)	(−2.52)
High Price-Salience * High Income			0.427**
			(2.48)
Low Price-Salience * High Income			0.322**
			(1.96)
Constant	1.517***	1.563***	1.783***
	(3.66)	(4.05)	(5.05)
N	302	302	302

t statistics in parentheses
* $p < 0.10$, ** $p < 0.05$, *** $p < 0.01$

(b) OLS regression results

	(1) Switching Point
High Price-Salience	−0.349
	(−0.73)
Low Price-Salience	0.0814
	(0.20)
log(Raven Score)	0.375
	(0.94)
Male	0.814***
	(3.25)
Food Choice (dummy)	−0.298
	(−1.23)
High Income (dummy)	−0.943**
	(−2.14)
High Price-Salience * High Income	0.768
	(1.24)
Low Price-Salience * High Income	1.063*
	(1.79)
Constant	4.455***
	(3.65)
N	302

t statistics in parentheses
* $p < 0.10$, ** $p < 0.05$, *** $p < 0.01$

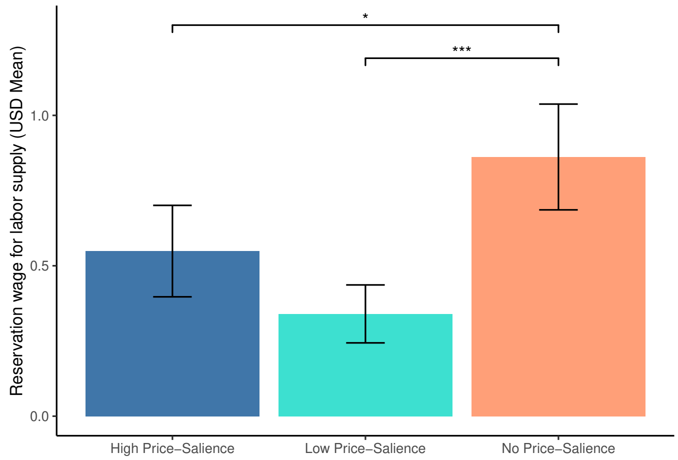
products are relatively more expensive than high-calorie food alternatives. This essentially means that the real market prices of low-calorie and high-quality food products are on the left side of the vertical red dashed lines.

Figure 4 panel (a) shows that in almost 50% of the choices, the high-income group switches to low-calorie food products in the first five choice sets in the No Price-Salience condition. The low-income group is willing to pay a non-zero premium only in 30% of the choices. However, in the High and Low Price-Salience conditions, the difference between the low- and high-income group disappears. Overall, when prices of low- and high-calorie products are the same, two-thirds of the participants choose the low-calorie options. When the price of the low-calorie alternative is discounted by 20%, over 95% of the food choices are healthy across all experimental conditions.

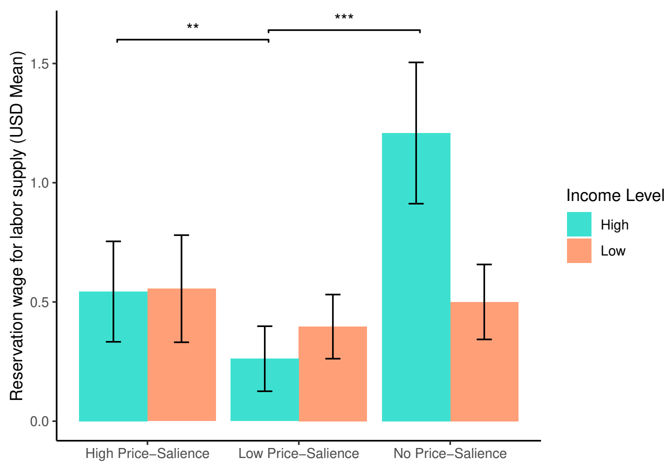
It is worthwhile to mention that at a 40% discount (when a low-calorie alternative is 40% cheaper compared to its average real market value of $2.50) both the low- and high-income group completely switch to low-calorie alternatives. Notice that, when the price is highly salient the high-income group mimics the low-income group and substantially reduces its willingness to pay a premium. Interestingly, we observe that the high-income group acts similarly to the low-income group in the Low Price-Salience condition as well. These results align with the results depicted in Table 4.

Result 3

Hypothesis 3a (3b) states that being in the Low (High) Price-Salience state increases (decreases) the reservation wage for performing a real effort task to cover the food expenses. Figure 5 presents the comparison of average switching points in the real effort MPL across experimental conditions. We confirm Hypothe-



(a) This graph shows the willingness of subjects to do the real effort task across the experimental conditions. The y-axis shows the average possible binding price until which subjects did not want to complete the real effort task. For instance, the subjects in the No Price-Salience condition did not want to complete the real effort task if the binding price was around 80 cents or less.



(b) This graph shows the willingness of subjects to do the real effort task across the experimental conditions and income groups.

Figure 5: Reservation wage for labor supply across the experimental conditions

sis 3b and show that being in the High Price-Salience condition decreases the reservation wage. However, we observe that being in the Low Price-Salience state also decreases the reservation wage, contrary to the prediction of Hypothesis 3a.

Hypothesis 3c predicts a positive relationship between a high-income status and the reservation wage. We confirm that being in the high-income status is positively correlated with the reservation wage for labor supply in the No Price-Salience condition. In the other conditions, we observe that in the presence of low and high price salience, high-income subjects mimic the behavior of low-income subjects and reduce their

Table 5: Censored Poisson regression for switching point analysis in real effort task

	(1) Switching Point	(2) Switching Point	(3) Switching Point
High Price-Salience	-0.250^{*}	0.0120	0.0120
	(-1.83)	(0.06)	(0.06)
Low Price-Salience	-0.376^{***}	-0.0597	-0.0597
	(-2.73)	(-0.31)	(-0.31)
High Income (dummy)	0.143	0.477^{**}	0.477^{**}
	(1.23)	(2.56)	(2.56)
log(Raven Score)	0.350	0.350	0.350
	(1.43)	(1.44)	(1.44)
Male	0.166	0.196	0.196
	(1.35)	(1.54)	(1.54)
Switching Point (Beverage)	0.0263	0.0304	0.0304
	(0.78)	(0.90)	(0.90)
Switching Point (Food)	-0.0282	-0.0248	-0.0248
	(-1.04)	(-0.90)	(-0.90)
High Price-Salience * High Income		-0.473^{*}	-0.473^{*}
		(-1.70)	(-1.70)
Low Price-Salience * High Income		-0.668^{**}	-0.668^{**}
		(-2.31)	(-2.31)
Constant	0.0484	-0.191	-0.191
	(0.07)	(-0.27)	(-0.27)
N	138	138	138

t statistics in parentheses
* $p < 0.10$, ** $p < 0.05$, *** $p < 0.01$

reservation wages. The observed behavior of high-income agents in labor supply decision is closely aligned with Result 1 and 2. Thus, we confirm Hypothesis 3c only for the No Price-Salience condition.

Subjects revealed their reservation wages for exerting a real effort task in the effort-MPL after making their food choices in the food MPLs. If a subject switches earlier indicating she is willing-to-pay a premium to buy the low-calorie alternative; then in the effort MPL she has a higher incentive to reduce her reservation wage for performing a real effort task to compensate her food purchase expenses. Thus, their labor supply decisions can also be related to their previous food choices. Table 5 presents regression analyses where we explicitly control for the switching points in the food MPLs and other demographic variables. The results show that decisions in the food MPLs do not affect the labor supply decisions of subjects across all experimental conditions.

The results presented in Table 5 also confirm our results in Figure 5 and show that high-income subjects switch later in the effort MPL in the No Price-Salience condition. This result means they have a higher reservation wage for supplying their labor. However, high-income subjects switch earlier in the High and Low Price-Salience conditions and this result confirms our findings in figure 5 panel (b). Interestingly, when we control the interactions of the experimental conditions with income, the direct effects of the Low and High Price-Salience conditions on reservation wages disappears. This effect is documented in Figure 5 panel (a).

We conclude that food expenses do not affect the reservation wage for labor supply in our experiment.

Moreover, inducing price salience affects the reservation wage only for high-income subjects. When exposed to Low and High Price-Salience, participants in the high-income group reduce their reservation wage for exerting a real effort to compensate their food expenses. Our results partially confirm Hypothesis 3b and 3c, and we cannot support Hypothesis 3a with our findings.

Conclusion

The importance of salience in choice attribute evaluation stands out as one of the central tendencies in recent consumer choice modeling (Bordalo et al., 2013, 2015, 2017; Chetty et al., 2009; Kőszegi and Szeidl, 2012; Gabaix, 2014; Hastings and Shapiro, 2013; Bushong et al., 2015; Gabaix, 2017; Dertwinkel-Kalt and Köster, 2017; Towal et al., 2013). We develop a theoretical model and show that there exists a strong relationship between price salience and product purchases. We conduct a lab experiment where price salience is exogenously manipulated by inducing price salience following the protocol developed by Mani et al. (2013). Our outcome measures are incentivized food purchases and we employ a Multiple-Price-List (MPL) framework to identify consumer types and test our hypotheses. Our study contributes to the attribute salience literature in economics by demonstrating that induced price salience also has an impact on the food choices of individuals across the income spectrum.

We find that high-income consumers are more likely to exhibit health-seeking (willing to pay a premium to buy low-calorie food products) and health-conscious (willing to buy the low-calorie food item when it has the same price as the high-calorie alternative) consumption behaviors compared to the low-income group. Our results also suggest that being in the low-income group increases the likelihood of following the cost-minimizing (always prefer the lower priced alternative) and pleasure-seeking (willing to pay a premium to buy high-calorie food products) behaviors. However, when induced with low or high price salience, high-income subjects align their consumption decisions with the low-income group and reduce their willingness-to-pay to buy low-calorie products. We conclude that the variation of our outcome measures across experimental conditions are mainly driven by high-income subjects. Low-income subjects show the same behavior whether or not the salience is present in the decision environment. This may explain why some studies documented null effect for labor-intensive public programs in poor countries (e.g., see Beegle et al. (2015)). However, high-income participants are very sensitive to the salience of price and react to it by mimicking the low-income group. Thus, our experimental framework also provides a useful information for designing nutritional assistance programs. First, it highlights potential effects of price-salience levels for the middle and upper-middle income groups. Second and most importantly, it provides a measure of the size of the discounts needed to incentivize agents to switch to low-calorie food alternatives.

We also find that being exposed to high price salience decreases the likelihood of being in the health-seeking category and increases the likelihood of health-conscious consumption. Based on our analysis on the behavior of the high-income group across experimental conditions, we conclude that the observed variations are mainly driven by high-income participants. We interpret this finding as a decreasing willingness-to-pay of high-income participants to buy low-calorie food items when induced with price salience. Subjects with a higher income move from health-seeking to health-conscious category when reminded about monetary costs or gains.

The existing literature primarily studies the effects of transitory and permanent income shocks on consumer spending (Jappelli and Pistaferri, 2010). However, an emerging literature also documents the effect of reference-point, memory and attention to consumer expenditures (Bordalo et al., 2019, 2017; Simonsohn and Loewenstein, 2006). Our results align with this new line of research and show that induced price-salience can also significantly change consumer spending.

Finally, we explore the relationship between food expenditures, price salience and labor supply by eliciting our subjects' reservation wage to perform a real effort task to cover their food expenditures. Some studies have already scrutinized the role of salience in this context (Imas et al., 2016; De Quidt, 2017). To our knowledge, our study is the first study to analyze the labor supply decisions via eliciting real reservation wages of economic agents with varied price salience levels. As our theoretical model predicts, we find that when there is no price salience, high-income subjects indicate a higher reservation wage to perform a real effort task to compensate their food expenditures. However, being exposed to low or high price salience changes the behavior of the high income group and they reduce their reservation wages to the same level of low-income participants. Our results also overlap with recent experimental findings documenting the positive impact of income shocks on reservation wages (Nebioğlu and Giritligil, 2018).

Overall, our findings show that price is always salient for low-income individuals. Therefore, the low-income group does not react to our experimental price salience conditions. The unidirectional reaction of the high-income group to both low and high price salience suggests that individuals with a higher income exhibit price salient behavior only when they are exposed to factors in the decision environment reminiscent of monetary transactions. Thus, our study presents a new behavioral insight about income elasticity which is important in projecting the effects of different market shocks (e.g., commodity price changes, tax hikes, subsidies, etc.) on consumer spending and labor supply.

Our results may be specific to the products studied in our experiment and the magnitude of the discount needed to induce consumers to switch to low-calorie food alternatives may differ depending on the type of food. However, in general, our findings show that consumers are differentially responsive to price changes under price-salience environments. From this standpoint, the use of MPL settings as an instrument to study the trade-offs between healthy and unhealthy food options in an incentivized framework has a great potential for policy analysis.

References

Adamkovič, M. and Martončik, M. (2017). A review of consequences of poverty on economic decision-making: a hypothesized model of a cognitive mechanism. *Frontiers in psychology*, 8:1784.

Aksoy, B. and Palma, M. A. (2019). The effects of scarcity on cheating and in-group favoritism. *Journal of Economic Behavior & Organization*.

Allcott, H. and Kessler, J. B. (2019). The welfare effects of nudges: A case study of energy use social comparisons. *American Economic Journal: Applied Economics*, 11(1):236–76.

Amabile, T. M., Barsade, S. G., Mueller, J. S., and Staw, B. M. (2005). Affect and creativity at work. *Administrative science quarterly*, 50(3):367–403.

Amar, M., Ariely, D., Ayal, S., Cryder, C. E., and Rick, S. I. (2011). Winning the battle but losing the war: The psychology of debt management. *Journal of Marketing Research*, 48(SPL):S38–S50.

Angrist, J. D. and Evans, W. N. (1998). Children and their parents' labor supply: Evidence from exogenous variation in family size. *American Economic Review*, pages 450–477.

Argyle, M. (1989). Do happy workers work harder? the effect of job satisfaction on work performance. *How harmful is happiness*, pages 94–105.

Azar, O. H. (2011). Does relative thinking exist in real-world situations? a field experiment with bagels and cream cheese. *Economic Inquiry*, 49(2):564–572.

Beatty, T., Bitler, M. P., Cheng, X., and van der Werf, C. (2019). Snap and paycheck cycles. *NBER Working Paper*, (w25635).

Beegle, K., Galasso, E., and Goldberg, J. (2015). Direct and indirect effects of malawi's public works program on food security.

Bernanke, B. (1985). Adjustment costs, durables, and aggregate consumption. *Journal of Monetary Economics*, 15(1):41–68.

Beshears, J., Choi, J. J., Laibson, D., and Madrian, B. C. (2018). Behavioral household finance. Technical report, National Bureau of Economic Research.

Bettman, J. R., Luce, M. F., and Payne, J. W. (1998). Constructive consumer choice processes. *Journal of consumer research*, 25(3):187–217.

Blundell, R., Costa Dias, M., Meghir, C., and Shaw, J. (2016). Female labor supply, human capital, and welfare reform. *Econometrica*, 84(5):1705–1753.

Bondi, T., Csaba, D., and Friedman, E. (2017). Range effects in multi-attribute choice: An experiment. Technical report, Working paper, unpublished.

Bordalo, P., Gennaioli, N., and Shleifer, A. (2013). Salience and consumer choice. *Journal of Political*

Economy, 121(5):803–843.

Bordalo, P., Gennaioli, N., and Shleifer, A. (2015). Competition for attention. *The Review of Economic Studies*, 83(2):481–513.

Bordalo, P., Gennaioli, N., and Shleifer, A. (2017). Memory, attention, and choice. Technical report, National Bureau of Economic Research.

Bordalo, P., Gennaioli, N., and Shleifer, A. (2019). Memory and reference prices: an application to rental choice. In *AEA Papers and Proceedings*, volume 109, pages 572–76.

Brown, A. L. and Healy, P. J. (2018). Separated decisions. *European Economic Review*, 101:20–34.

Bushong, B., Rabin, M., and Schwartzstein, J. (2015). A model of relative thinking. *Unpublished manuscript, Harvard University, Cambridge, MA*.

Carr, J. B. and Packham, A. (2019). Snap benefits and crime: Evidence from changing disbursement schedules. *Review of Economics and Statistics*, 101(2):310–325.

Carvalho, L. S., Meier, S., and Wang, S. W. (2016). Poverty and economic decision-making: Evidence from changes in financial resources at payday. *American Economic Review*, 106(2):260–84.

Charness, G., Gneezy, U., and Imas, A. (2013). Experimental methods: Eliciting risk preferences. *Journal of Economic Behavior & Organization*, 87:43–51.

Chetty, R., Looney, A., and Kroft, K. (2009). Salience and taxation: Theory and evidence. *American economic review*, 99(4):1145–77.

Cotti, C. D., Gordanier, J., and Ozturk, O. D. (2018). Hunger pains? snap timing, and emergency room visits. *SNAP Timing, and Emergency Room Visits (November 14, 2018)*.

Currie, J. (2004). The take up of social benefits. Technical report, National Bureau of Economic Research.

Dalton, P. S., Jimenez, V. H. G., and Noussair, C. N. (2017). Exposure to poverty and productivity. *PloS one*, 12(1):e0170231.

Darmon, N. and Drewnowski, A. (2008). Does social class predict diet quality? *The American journal of clinical nutrition*, 87(5):1107–1117.

De Quervain, D. J., Fischbacher, U., Treyer, V., Schellhammer, M., et al. (2004). The neural basis of altruistic punishment. *Science*, 305(5688):1254.

De Quidt, J. (2017). Your loss is my gain: a recruitment experiment with framed incentives. *Journal of the European Economic Association*, 16(2):522–559.

Deck, C. and Jahedi, S. (2015). The effect of cognitive load on economic decision making: A survey and new experiments. *European Economic Review*, 78:97–119.

Dertwinkel-Kalt, M., Köhler, K., Lange, M. R., and Wenzel, T. (2017). Demand shifts due to salience effects: Experimental evidence. *Journal of the European Economic Association*, 15(3):626–653.

Dertwinkel-Kalt, M. and Köster, M. (2017). Salient compromises in the newsvendor game. *Journal of Economic Behavior & Organization*, 141:301–315.

Deshpande, M. (2016a). Does welfare inhibit success? the long-term effects of removing low-income youth from the disability rolls. *American Economic Review*, 106(11):3300–3330.

Deshpande, M. (2016b). The effect of disability payments on household earnings and income: Evidence from the ssi children's program. *Review of Economics and Statistics*, 98(4):638–654.

Drolet, A. and Frances Luce, M. (2004). The rationalizing effects of cognitive load on emotion-based trade-off avoidance. *Journal of Consumer Research*, 31(1):63–77.

Dubé, L., LeBel, J. L., and Lu, J. (2005). Affect asymmetry and comfort food consumption. *Physiology & Behavior*, 86(4):559–567.

Duflo, E., Gale, W., Liebman, J., Orszag, P., and Saez, E. (2006). Saving incentives for low-and middle-income families: Evidence from a field experiment with h&r block. *The Quarterly Journal of Economics*, 121(4):1311–1346.

Eissa, N. and Liebman, J. B. (1996). Labor supply response to the earned income tax credit. *The quarterly journal of economics*, 111(2):605–637.

Elder, R. S. and Mohr, G. S. (2016). The crunch effect: Food sound salience as a consumption monitoring cue. *Food quality and Preference*, 51:39–46.

Ellis, A. and Masatlioglu, Y. (2019). A behavioral foundation for endogenous salience.

Fernandez, F. and Saldarriaga, V. (2013). Conditional cash transfers, payment dates and labor supply: Evidence from peru. Technical report, Documento de Trabajo.

Field, E. (2007). Entitled to work: Urban property rights and labor supply in peru. *The Quarterly Journal of Economics*, 122(4):1561–1602.

Finkelstein, A. (2009). E-ztax: Tax salience and tax rates. *The Quarterly Journal of Economics*, 124(3):969–1010.

Finkelstein, A. and Notowidigdo, M. J. (2019). Take-up and targeting: Experimental evidence from snap. *The Quarterly Journal of Economics*, 134(3):1505–1556.

Gabaix, X. (2014). A sparsity-based model of bounded rationality. *The Quarterly Journal of Economics*, 129(4):1661–1710.

Gabaix, X. (2017). Behavioral inattention. Technical report, National Bureau of Economic Research.

Gabaix, X., Laibson, D., Moloche, G., and Weinberg, S. (2006). Costly information acquisition: Experimental analysis of a boundedly rational model. *The American Economic Review*, pages 1043–1068.

Gelber, A., Moore, T. J., and Strand, A. (2017). The effect of disability insurance payments on beneficiaries' earnings. *American Economic Journal: Economic Policy*, 9(3):229–61.

Gennetian, L. A. and Shafir, E. (2015). The persistence of poverty in the context of financial instability: A behavioral perspective. *Journal of Policy Analysis and Management*, 34(4):904–936.

Gino, F. and Pierce, L. (2009). The abundance effect: Unethical behavior in the presence of wealth. *Organizational Behavior and Human Decision Processes*, 109(2):142–155.

Goldin, J. and Homonoff, T. (2013). Smoke gets in your eyes: cigarette tax salience and regressivity. *American Economic Journal: Economic Policy*, 5(1):302–36.

Goodman-Bacon, A. (2016). The long-run effects of childhood insurance coverage: Medicaid implementation, adult health, and labor market outcomes. Technical report, National Bureau of Economic Research.

Graham, C., Eggers, A., and Sukhtankar, S. (2004). Does happiness pay? In *Challenges for Quality of Life in the Contemporary World*, pages 179–204. Springer.

Hamrick, K. S. and Andrews, M. (2016). Snap participants' eating patterns over the benefit month: a time use perspective. *PloS one*, 11(7):e0158422.

Hansen, J., Kutzner, F., and Wänke, M. (2012). Money and thinking: Reminders of money trigger abstract construal and shape consumer judgments. *Journal of Consumer Research*, 39(6):1154–1166.

Hastings, J. S. and Shapiro, J. M. (2013). Fungibility and consumer choice: Evidence from commodity price shocks. *The quarterly journal of economics*, 128(4):1449–1498.

Haushofer, J. and Fehr, E. (2014). On the psychology of poverty. *Science*, 344(6186):862–867.

Hayashi, F. (1985). The effect of liquidity constraints on consumption: a cross-sectional analysis. *The Quarterly Journal of Economics*, 100(1):183–206.

Herweg, F., Müller, D., and Weinschenk, P. (2018). Salience in markets. *Handbook of Behavioral Industrial Organization*, page 75.

Hoynes, H. W. et al. (1996). Welfare transfers in two-parent families: Labor supply and welfare participation under afdc-up. *Econometrica*, 64(2):295–332.

Hoynes, H. W. and Schanzenbach, D. W. (2012). Work incentives and the food stamp program. *Journal of Public Economics*, 96(1-2):151–162.

Huang, Z. T. and Wyer Jr, R. S. (2015). Diverging effects of mortality salience on variety seeking: The different roles of death anxiety and semantic concept activation. *Journal of Experimental Social Psychology*, 58:112–123.

Huijsmans, I., Ma, I., Micheli, L., Civai, C., Stallen, M., and Sanfey, A. G. (2019). A scarcity mindset alters neural processing underlying consumer decision making. *Proceedings of the National Academy of Sciences*, 116(24):11699–11704.

Huseynov, S., Palma, M. A., and Ahmad, G. (2019). Does the magnitude of relative calorie distance affect food consumption?

Imas, A., Sadoff, S., and Samek, A. (2016). Do people anticipate loss aversion? *Management Science*, 63(5):1271–1284.

Jappelli, T. and Pistaferri, L. (2010). The consumption response to income changes. *Annu. Rev. Econ.*, 2(1):479–506.

Kemp, E., Bui, M., and Grier, S. (2013). When food is more than nutrition: Understanding emotional eating and overconsumption. *Journal of Consumer Behaviour*, 12(3):204–213.

Kıbrıs, O., Masatlioglu, Y., and Suleymanov, E. (2018). A theory of reference point formation. *Unpublished Paper*.

Königsheim, C., Lukas, M., and Nöth, M. (2019). Salience theory: Calibration and heterogeneity in probability distortion. *Journal of Economic Behavior & Organization*, 157:477–495.

Koren, O. (2018). Food abundance and violent conflict in africa. *American Journal of Agricultural Economics*, 100(4):981–1006.

Kőszegi, B. and Szeidl, A. (2012). A model of focusing in economic choice. *The Quarterly journal of economics*, 128(1):53–104.

Kuhn, M. A. (2018a). Cyclical food insecurity and electronic benefit transfer. Technical report, Working Paper.

Kuhn, M. A. (2018b). Who feels the calorie crunch and when? the impact of school meals on cyclical food insecurity. *Journal of Public Economics*, 166:27–38.

Lakdawalla, D. and Philipson, T. (2007). Labor supply and weight. *Journal of Human Resources*, 42(1):85–116.

Laran, J. and Salerno, A. (2013). Life-history strategy, food choice, and caloric consumption. *Psychological science*, 24(2):167–173.

Leshem, D. (2016). Retrospectives: What did the ancient greeks mean by oikonomia? *Journal of Economic Perspectives*, 30(1):225–38.

Lovett, N. (2018). Food stamps, income shocks, and crime: Evidence from california. *The BE Journal of Economic Analysis & Policy*, 18(4).

Lyubomirsky, S., King, L., and Diener, E. (2005). The benefits of frequent positive affect: Does happiness lead to success? *Psychological bulletin*, 131(6):803.

Mani, A., Mullainathan, S., Shafir, E., and Zhao, J. (2013). Poverty impedes cognitive function. *science*, 341(6149):976–980.

Moffitt, R. (2002). Welfare programs and labor supply. Technical report, National Bureau of Economic Research.

Mullainathan, S. and Shafir, E. (2014). Freeing up intelligence. *Scientific American Mind*, 25(1):58–63.

Nebioğlu, D. and Giritligil, A. E. (2018). Wealth effects and labor supply: An experimental study.

Ogden, C. L., Fakhouri, T. H., Carroll, M. D., Hales, C. M., Fryar, C. D., Li, X., and Freedman, D. S. (2017). Prevalence of obesity among adults, by household income and education—united states, 2011–2014. *MMWR. Morbidity and mortality weekly report*, 66(50):1369.

Ortmeyer, G., Quelch, J. A., and Salmon, W. (1991). Restoring credibility to retail pricing. *MIT Sloan Management Review*, 33(1):55.

Palma, M. A. (2017). Improving the prediction of ranking data. *Empirical Economics*, 53(4):1681–1710.

Quoidbach, J., Dunn, E. W., Petrides, K. V., and Mikolajczak, M. (2010). Money giveth, money taketh away: The dual effect of wealth on happiness. *Psychological Science*, 21(6):759–763.

Raven, J. (2000). The raven's progressive matrices: change and stability over culture and time. *Cognitive psychology*, 41(1):1–48.

Rivlin, G. (2007). In silicon valley, millionaires who don't feel rich. *The New York Times*, 5.

Roux, C., Goldsmith, K., and Bonezzi, A. (2015). On the psychology of scarcity: When reminders of resource scarcity promote selfish (and generous) behavior. *Journal of consumer research*, 42(4):615–631.

Segovia, M., Palma, M. A., and Nayga, R. M. (2019). The effect of food anticipation on cognitive function: An eye tracking study. In *Plos One*.

Shafir, E. and Mullainathan, S. (2012). On the psychology of scarcity. *Presentation to the*.

Shah, A. K., Mullainathan, S., and Shafir, E. (2012). Some consequences of having too little. *Science*, 338(6107):682–685.

Shah, A. K., Shafir, E., and Mullainathan, S. (2015). Scarcity frames value. *Psychological Science*, 26(4):402–412.

Shah, A. M., Bettman, J. R., Ubel, P. A., Keller, P. A., and Edell, J. A. (2014). Surcharges plus unhealthy labels reduce demand for unhealthy menu items. *Journal of Marketing Research*, 51(6):773–789.

Shapiro, M. D. and Slemrod, J. (2003). Consumer response to tax rebates. *American Economic Review*, 93(1):381–396.

Shiv, B. and Fedorikhin, A. (1999). Heart and mind in conflict: The interplay of affect and cognition in consumer decision making. *Journal of consumer Research*, 26(3):278–292.

Shiv, B. and Fedorikhin, A. (2002). Spontaneous versus controlled influences of stimulus-based affect on choice behavior. *Organizational Behavior and Human Decision Processes*, 87(2):342–370.

Shiv, B. and Nowlis, S. M. (2004). The effect of distractions while tasting a food sample: The interplay of informational and affective components in subsequent choice. *Journal of Consumer Research*, 31(3):599–608.

Simonsohn, U. and Loewenstein, G. (2006). Mistake: The effect of previously encountered prices on current housing demand. *The Economic Journal*, 116(508):175–199.

Smith, T. A., Berning, J. P., Yang, X., Colson, G., and Dorfman, J. H. (2016). The effects of benefit timing and income fungibility on food purchasing decisions among supplemental nutrition assistance program households. *American Journal of Agricultural Economics*, 98(2):564–580.

Somerville, J. (2019). Choice-set-dependent preferences and salience: An experimental test.

Spears, D. (2011). Economic decision-making in poverty depletes behavioral control. *The BE Journal of Economic Analysis & Policy*, 11(1).

Spiller, S. A. (2011). Opportunity cost consideration. *Journal of Consumer Research*, 38(4):595–610.

Stephens Jr, M. (2003). " 3rd of tha month": Do social security recipients smooth consumption between checks? *American Economic Review*, 93(1):406–422.

Taubinsky, D. and Rees-Jones, A. (2017). Attention variation and welfare: theory and evidence from a tax salience experiment. *The Review of Economic Studies*, 85(4):2462–2496.

Thaler, R. (1985). Mental accounting and consumer choice. *Marketing science*, 4(3):199–214.

Thaler, R. H. (1999). Mental accounting matters. *Journal of Behavioral decision making*, 12(3):183–206.

Thomas, M., Desai, K. K., and Seenivasan, S. (2010). How credit card payments increase unhealthy food purchases: Visceral regulation of vices. *Journal of consumer research*, 38(1):126–139.

Todd, J. E. (2014). Revisiting the supplemental nutrition assistance program cycle of food intake: Investigating heterogeneity, diet quality, and a large boost in benefit amounts. *Applied Economic Perspectives and Policy*, 37(3):437–458.

Todd, J. E. and Gregory, C. (2018). Changes in supplemental nutrition assistance program real benefits and daily caloric intake among adults. *Food policy*, 79:111–120.

Toussaert, S. (2018). Eliciting temptation and self-control through menu choices: A lab experiment. *Econometrica*, 86(3):859–889.

Towal, R. B., Mormann, M., and Koch, C. (2013). Simultaneous modeling of visual saliency and value computation improves predictions of economic choice. *Proceedings of the National Academy of Sciences*, 110(40):E3858–E3867.

Tversky, A. and Kahneman, D. (1981). The framing of decisions and the psychology of choice. *Science*, 211(4481):453–458.

Vohs, K. D. (2013). The poor's poor mental power. *Science*, 341(6149):969–970.

Vohs, K. D., Mead, N. L., and Goode, M. R. (2006). The psychological consequences of money. *science*, 314(5802):1154–1156.

Vohs, K. D., Mead, N. L., and Goode, M. R. (2008). Merely activating the concept of money changes personal and interpersonal behavior. *Current Directions in Psychological Science*, 17(3):208–212.

Wales, T. J. and Woodland, A. D. (1983). Estimation of consumer demand systems with binding non-negativity constraints. *Journal of Econometrics*, 21(3):263–285.

Wicherts, J. M. and Scholten, A. Z. (2013). Comment on "poverty impedes cognitive function". *Science*, 342(6163):1169–1169.

Wilcox, D. W. (1989). Social security benefits, consumption expenditure, and the life cycle hypothesis. *Journal of Political Economy*, 97(2):288–304.

Yelowitz, A. S. (1995). The medicaid notch, labor supply, and welfare participation: Evidence from eligibility expansions. *The Quarterly Journal of Economics*, 110(4):909–939.

Zhu, M. and Ratner, R. K. (2015). Scarcity polarizes preferences: The impact on choice among multiple items in a product class. *Journal of Marketing Research*, 52(1):13–26.

Appendix A

Proof of Proposition 1:

Part I: Since the agent prefers a in X:

$$(1 - w_p^*)(q_a - q_b) - w_p^*(p_a - p_b) > 0 \tag{4}$$

To find the cut-off value of w_p^* we can write this equality as:

$$(1 - w_p^*)\triangle_q - w_p^*(p_a - p_b) = 0$$

$$\triangle_q = w_p^*(\triangle_q + p_a - p_b)$$

$$\underline{w}_p = \frac{\triangle_q}{\triangle_q + p_a - p_b} \tag{5}$$

Then, for $1 > w_p^* > \underline{w}_p$ the agent will choose a in X.

Part II: In order for the agent to choose b in X' the following should hold:

$$(1 - w_p^*)(q_a - q_b) - w_p^*(p'_a - p'_b) < 0$$

$$(1 - w_p^*)\triangle_q - w_p^*(p'_a - p'_b) < 0$$

Again, to find the cut-off value of w_p^* we can write this equality as:

$$(1 - w_p^*)\triangle_q - w_p^*(p'_a - p'_b) = 0$$

$$\triangle_q = w_p^*(\triangle_q + p'_a - p'_b)$$

$$\overline{w}_p = \frac{\triangle_q}{(\triangle_q + p'_a - p'_b)} \tag{6}$$

then the agent will choose b in X' if $0 < w_p^* < \overline{w}_p$

Part III:

Since $\overline{w}_p > \underline{w}_p$

Then the agent will always choose a in X and b in X' if $w_p^* \in (\underline{w}_p, \overline{w}_p)$. □

Proof of Proposition 2:

Let's denote the price weight of agents who choose a in X as $w_p^* \sim U$, which follows a continuous uniform distribution. According to Definition 2, $w_p^*(\gamma = 0) < w_p^*(\gamma = 1)$. Then, w_p^* is a composite of two non-intersecting distributions: $w_p^* = w_p^*(\gamma = 0) \bigcup w_p^*(\gamma = 1)$. Then it is safe to assume that $w_p^*(\gamma = 0)$ and $w_p^*(\gamma = 1)$ are uniform distributions with support $(\underline{w}_p, m)$ and $(m, 1)$ for $m \in (0, 1)$, respectively. We also know that only the weights in $(\underline{w}_p, \overline{w}_p)$ cause switching from a to b in X'. Thus, all we need to show is that a random value $\tilde{w_p^*}(\gamma = 0)$ from the distribution of $w_p^*(\gamma = 0)$ is more likely to be in the interval of $(\underline{w}_p, \overline{w}_p)$ compared to a random value $\tilde{w_p^*}(\gamma = 1)$ from the distribution of $w_p^*(\gamma = 1)$.

Case I: Consider the case when $(\underline{w}_p < m < \overline{w}_p < 1)$, then for $Pr(\underline{w}_p < \tilde{w_p^*}(\gamma = 0) < \overline{w}_p)$ we can obtain the following:

$$Pr(\underline{w}_p < \tilde{w_p^*}(\gamma = 0) < \overline{w}_p) = \int_{\underline{w}_p}^{\overline{w}_p} \frac{1}{m - \underline{w}_p} dx$$

$$Pr(\underline{w}_p < \tilde{w_p^*}(\gamma = 0) < \overline{w}_p) = \frac{\overline{w}_p - \underline{w}_p}{m - \underline{w}_p} \tag{7}$$

since $m - \underline{w}_p < \overline{w}_p - \underline{w}_p$, then $Pr(\underline{w}_p < \tilde{w_p^*}(\gamma = 0) < \overline{w}_p) = 1$

and for $Pr(\underline{w}_p < \tilde{w_p^*}(\gamma = 1) < \overline{w}_p)$ we can obtain the following:

$$Pr(\underline{w}_p < \tilde{w_p^*}(\gamma = 1) < \overline{w}_p) = \int_{\underline{w}_p}^{\overline{w}_p} \frac{1}{1 - m} dx$$

$$Pr(\underline{w}_p < \tilde{w_p^*}(\gamma = 1) < \overline{w}_p) = \frac{\overline{w}_p - \underline{w}_p}{1 - m} \tag{8}$$

since $1 - m$ can be lower, equal or greater than $\overline{w}_p - \underline{w}_p$, $Pr(\underline{w}_p < \tilde{w_p^*}(\gamma = 1) < \overline{w}_p) \in (1, 0)$. Therefore, in this case we obtain $Pr(\underline{w}_p < \tilde{w_p^*}(\gamma = 0) < \overline{w}_p) > Pr(\underline{w}_p < \tilde{w_p^*}(\gamma = 1) < \overline{w}_p)$.

Case II: Consider the case when $(\underline{w}_p < \overline{w}_p < m < 1)$, then for $Pr(\underline{w}_p < \tilde{w_p^*}(\gamma = 0) < \overline{w}_p)$ we still obtain the same previous relationship:

$$Pr(\underline{w}_p < \tilde{w_p^*}(\gamma = 0) < \overline{w}_p) = \frac{\overline{w}_p - \underline{w}_p}{m - \underline{w}_p} \tag{9}$$

Since $m - \underline{w}_p > \overline{w}_p - \underline{w}_p$, then $Pr(\underline{w}_p < \tilde{w_p^*}(\gamma = 0) < \overline{w}_p) \in (1, 0)$.

For $Pr(\underline{w}_p < \tilde{w_p^*}(\gamma = 1) < \overline{w}_p)$, since $(m, 1) \cap (\underline{w}_p, \overline{w}_p) = \emptyset$, then $Pr(\underline{w}_p < \tilde{w_p^*}(\gamma = 1) < \overline{w}_p) = 0$

Therefore, in this case we obtain $Pr(\underline{w}_p < \tilde{w_p^*}(\gamma = 0) < \overline{w}_p) > Pr(\underline{w}_p < \tilde{w_p^*}(\gamma = 1) < \overline{w}_p)$.

The results of Case I and II yield that $Pr(\underline{w}_p < \tilde{w_p^*}(\gamma = 0) < \overline{w}_p) \geq Pr(\underline{w}_p < \tilde{w_p^*}(\gamma = 1) < \overline{w}_p)$. □

Proof of Proposition 3:

Proof: Consider any $X \in \mathscr{X}$, $X = \{a, b\}$, such that $q_a < q_b$ and $p_a - p_b < 0$. Moreover, $\lambda \in \{0, 1\}$ and by Definition 4:

$$\psi(\lambda = 1, w_p) > \psi(\lambda = 0, w_p)$$

We can use this relationship to obtain:

$$(1 - \psi(\lambda, w_p)(q_a - q_b) - \psi(\lambda = 1, w_p)(p_a - p_b) > (1 - \psi(\lambda, w_p)(q_a - q_b) - \psi(\lambda = 0, w_p)(p_a - p_b) \tag{12}$$

Then based on (3), we obtain:

$$Pr[C(X, \lambda = 1) = \{a\}] > Pr[C(X, \lambda = 0) = \{a\}] \tag{13}$$

□

Question 1.

Product A	Product B
	
Price is $0	Price is $5.0

(a) The first question of the MPL for beverage choices

Question 1.

Product A	Product B
	
Price is $0	Price is $5.0

(b) The first question of the MPL for food choices

	Question: Would you like to complete the extra task to cover your purchase	**Your answer (Yes/No)**
1)	if the price of the selected food item is $0	Yes: _____ No: _____
2)	if the price of the selected food item is $0.5	Yes: _____ No: _____
3)	if the price of the selected food item is $1	Yes: _____ No: _____
4)	if the price of the selected food item is $1.5	Yes: _____ No: _____
5)	if the price of the selected food item is $2.0	Yes: _____ No: _____
6)	if the price of the selected food item is $2.5	Yes: _____ No: _____
7)	if the price of the selected food item is $3.0	Yes: _____ No: _____
8)	if the price of the selected food item is $3.5	Yes: _____ No: _____
9)	if the price of the selected food item is $4.0	Yes: _____ No: _____
10)	if the price of the selected food item is $4.5	Yes: _____ No: _____
11)	if the price of the selected food item is $5.0	Yes: _____ No: _____

(c) The MPL for the real effort task

Figure A1: MPLs for food products and for the real effort task

The scenario of treatments are as follows

:

Scenario (High Price-Salience): Imagine that an unforeseen event requires of you an immediate \$2,000 expense. Are there ways in which you may be able to come up with that amount of money on a very short notice? How would you go about it? Would it cause you long-lasting financial hardship? Would it require you to make sacrifices that have long-term consequences? If so, what kind of sacrifices?

Scenario (Low Price-Salience): Imagine that an unforeseen lottery win gives you a \$2,000 gain. Can you come up with a spending plan budget with that amount of money on a very short notice? How would you spend this money? Would it cause you long-lasting financial relief? Would gaining the extra money help you to have benefits that have long-term advantages? If so, what kind of benefits?

Table A1: Balance table for the experimental conditions

Variable	(1) No Price-Salience	(2) High Price-Salience	(3) Low Price-Salience	(4) High- vs No Price-Salience	(5) Low- vs No Price-Salience	(6) High- vs Low Price-Salience
Income	39,230.500	46,278.078	40,087.840	7,047.581	857.343	6,190.238
	(25,941.646)	(29,507.125)	(30,130.980)	(5,688.897)	(5,493.602)	(5,976.985)
Male	0.340	0.444	0.286	0.104	-0.054	0.159*
	(0.479)	(0.503)	(0.456)	(0.101)	(0.091)	(0.096)
White	0.640	0.711	0.679	0.071	0.039	0.033
	(0.485)	(0.458)	(0.471)	(0.097)	(0.093)	(0.093)
High School Education	0.080	0.044	0.071	-0.036	-0.009	-0.027
	(0.274)	(0.208)	(0.260)	(0.050)	(0.052)	(0.048)
College Education	0.560	0.489	0.518	-0.071	-0.042	-0.029
	(0.501)	(0.506)	(0.504)	(0.103)	(0.098)	(0.101)
Graduate School Education	0.360	0.467	0.411	0.107	0.051	0.056
	(0.485)	(0.505)	(0.496)	(0.102)	(0.096)	(0.100)
BMI	25.290	24.625	26.155	-0.664	0.865	-1.529
	(5.595)	(4.403)	(6.138)	(1.041)	(1.146)	(1.088)
Married (dummy)	0.460	0.378	0.429	-0.082	-0.031	-0.051
	(0.503)	(0.490)	(0.499)	(0.102)	(0.098)	(0.099)
Household Size	2.820	2.644	2.893	-0.176	0.073	-0.248
	(1.304)	(1.351)	(1.448)	(0.273)	(0.269)	(0.281)
Observations	50	45	56	95	106	101

* $p < 0.10$, ** $p < 0.05$, *** $p < 0.01$

BMI is calculated based on self-reported measures of height and weight.

Table A2: The Performance of Subjects in the Raven Test across Experimental Conditions (OLS results)

(a) With a dummy for high income subjects

	(1) log(Raven Score)	(2) log(Raven Score)	(3) log(Raven Score)	(4) log(Raven Score)
High Price-Salience	0.0615	0.0667	0.0565	0.0640
	(1.23)	(1.33)	(0.98)	(1.07)
Low Price-Salience	−0.0611	−0.0670	−0.135*	−0.118
	(−0.99)	(−1.11)	(−1.81)	(−1.59)
High Income (dummy)		−0.0662	−0.130	−0.108
		(−1.43)	(−1.60)	(−1.30)
High Price-Salience *High Income			0.0262	0.0105
			(0.26)	(0.11)
Low Price-Salience * High Income			0.153	0.120
			(1.26)	(1.00)
Male				0.0595
				(1.23)
Education	No	No	No	Yes
Constant	2.825***	2.858***	2.890***	2.826***
	(68.50)	(72.89)	(78.21)	(38.16)
N	151	151	151	151

t statistics in parentheses

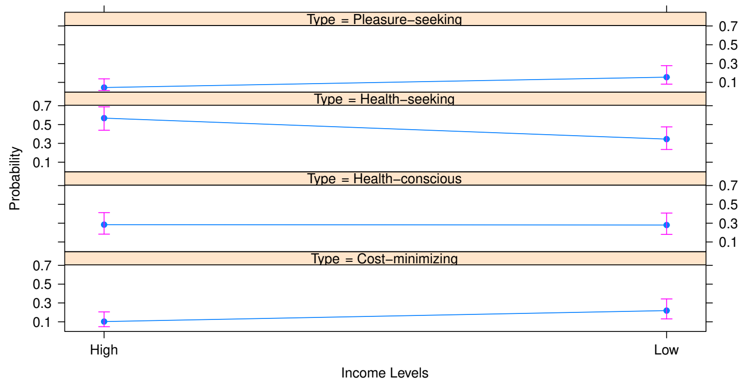
* $p < 0.10$, ** $p < 0.05$, *** $p < 0.01$

(b) With a continuous variable of income

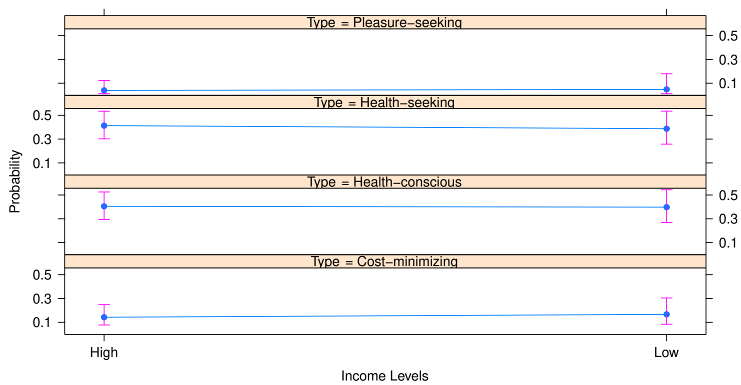
	(1) log(Raven Score)	(2) log(Raven Score)	(3) log(Raven Score)	(4) log(Raven Score)
High Price-Salience	0.0615	0.0684	−0.0103	0.00544
	(1.23)	(1.34)	(−0.15)	(0.07)
Low Price-Salience	−0.0611	−0.0603	−0.161*	−0.135
	(−0.99)	(−0.98)	(−1.81)	(−1.49)
Income (continuous)		−0.00969	−0.0264**	−0.0219*
		(−1.25)	(−2.03)	(−1.71)
High Price-Salience * Income			0.0195	0.0154
			(1.20)	(0.91)
Low Price-Salience * Income			0.0256	0.0192
			(1.28)	(0.97)
Male				0.0545
				(1.11)
Education	No	No	No	Yes
Constant	2.825***	2.863***	2.929***	2.846***
	(68.50)	(64.27)	(68.61)	(35.42)
N	151	151	151	151

t statistics in parentheses

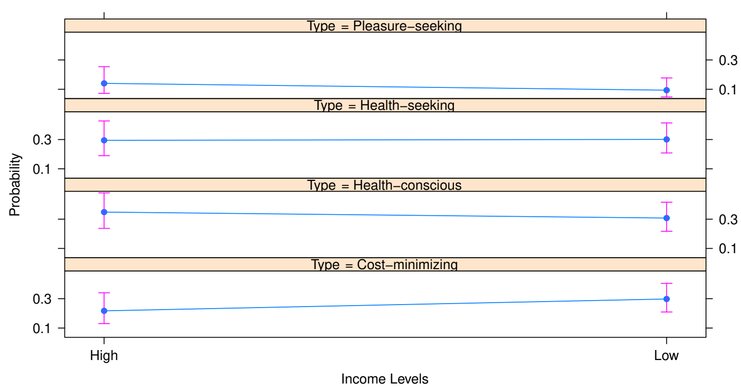
* $p < 0.10$, ** $p < 0.05$, *** $p < 0.01$



(a) No Price-Salience Condition



(b) High Price-Salience Condition



(c) Low Price-Salience Condition

Figure A2: The role of income levels in predicting consumer types. The probability estimations correspond to multinomial logit regression results where food type, gender, logged values of Raven scores and income are independent predictors. The estimation results are from the sub-samples based on experimental conditions. This approach helps us to capture the effect of the income in each experimental condition.