On the Discontinuity of Demand Curves Around Zero: Charging More and Selling More

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The standard economic model assumes that demand is weakly decreasing in price. While this is likely true for most price levels, it might not hold for the price of zero, where social norms might be invoked. A set of experiments shows that switching from a “low” price to a price of zero has two effects on behavior: First, in accordance with economic theory, more people demand the product. Second, whereas in the low price case some individuals demand high quantities of the product, in the zero price case most people take only one unit of the product.

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SESSION OVERVIEW

Objective:
Money is at the heart of many consumer interactions and yet has received precious little attention from the experimental scholarly world. Moreover, the concept of money has not been examined in the manner in which the proposed speakers study it: These speakers manipulate the form of money or its presence or absence, novel methods that have not been used previously to investigate money. This session brings to the forefront the notion that money is an essential component to being a consumer and deserves more attention from consumer scientists.

This session illuminates the way in which money affects a variety of consumer responses ranging from levels of consumption to emotions, from goal-strivings to interpersonal sensitivity. Money’s centrality to consumers’ lives is a foundational issue that bridges myriad subgroups. This topic provides an ideal jumping off point for lively debate, inquiry, and (we hope) future research endeavors highlighting the fascinating effects of money on consumer behavior.

Issues and Topics:

The first paper, by Vohs and colleagues, examines the most basic of effects relating to money: How does activating the concept of money change people’s behavior? In 9 experiments, Vohs et al. demonstrated that priming money led people to become more motivated in the sense that they worked harder and longer on difficult tasks (which is a good outcome). On the other hand, priming money also led people to become less sensitive toward others’ needs (obviously a bad outcome). Hence, the mere activation of money produces divergent responses, both positive and negative, which may well explain people’s love/hate relationship toward it. The second paper, by Mishra et al., picks up thematically where Vohs et al.’s conclusion leaves off, by detailing three experiments that investigate the effect of money on purchase decisions. Mishra and colleagues found fascinating evidence that money in large denominations (or crisp new bills) leads consumers to feel highly positive affect, whereas smaller denominations (or used bills that appear tattered and worn) elicit weaker affect. Furthermore, Mishra et al. when the product is hedonic and the denominations of money are small, consumers report high willingness to pay, whereas low WTP is found when the product is utilitarian and denominations are large. These findings reveal intriguing effects about the meaning of money and emotions that could impact a wealth of research (no pun intended) in the consumer realm. Last, Ariely et al. present a new twist on the quintessential question of how prices affect demand. Their research compares pricing products positively (i.e., above $0) to pricing products at $0. Positive pricing has the predictable effect of diminishing demand but when the product is priced at $0, more consumers partake in the free product (in accordance with supply/demand predictions) but each individual consumes less of the product—an unexpected effect from a monetary market standpoint. Ariely et al. note that a social market perspective neatly explains both sets of results.

EXTENDED ABSTRACTS

"Money Changes the Self"
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Miranda R. Goode, University of British Columbia

Scholarly and other discussion about the effects of money on people’s behavior range from the positive to the severely negative. On the positive side, some prize its ability to motivate behavior; on the negative side, academics and lawyers decry money’s role in harming social relationships. We wondered whether both accounts of money’s effects could be true, and we set out to test this idea empirically. The results of 9 experiments indicate that both types of outcomes follow from the mere activation of money in people’s minds. We have called the process responsible for this effect the self-sufficiency effect of money (Vohs, Mead, and Goode 2006).

Although money has been widely debated as to its effects, it has rarely been experimentally studied in the laboratory. Most of the social science research on money has focused on factors that are related to money, but that are not money itself. Nonetheless, important insights about the consequences of money on people’s behavior can be gleaned from this work. Materialism, for one, has been shown to disrupt interpersonal harmony because people high in materialism tend to value the goods that money can buy more than being close with others (Burroughs and Rindfleisch 2002). On the other hand, having money helps buffer people from the environmental shocks that naturally occur across the years of life. We thought it crucial to test the downstream associations of being reminded of money to understand the effects of money, per se, rather than related factors (e.g., income or materialism).

In six experiments, we tested for the effect of money on helping behavior. Would reminders of money lead people to become less helpful? We found that they did. In experiments 1-2, reminders of money were manipulated by asking participants to first play the game of Monopoly with a confederate. This allowed us to create a high money condition by leaving these participants with $4000 of play money and a no money control condition in which participants were not left with any play money. The next task further strengthened the conditions by asking participants to write about what life would be like with abundant finances (high money condition) versus their day tomorrow (no money condition). Afterwards, as participants walked across the lab, a second confederate dropped a bag of small pencils in front of participants and we measured how helpful they were in gathering them. We found that participants in the high money condition were less helpful than participants in the no money condition. Experiment 2 used the same manipulation, with the helping measure being amount of time participants volunteered to help the experimenter code data for her honor’s thesis. Again, high money participants were less helpful than no money participants. Experiments 3-4 used a supraliminal phrase-descrambling task to prime the concept of money nonconsciously. In this task participants either descrambled phrases relating to money (e.g., answer: “she got a raise”) or neutral phrases (e.g., answer: “it is cold outside”). Experiment 3 participants were
then asked for help by a confederate seated in the same room; in experiment 4, participants were given an opportunity to donate money to a university student fund. In both experiments, participants who were reminded of money earlier were less helpful in time (experiment 3) and money (experiment 4), relative to participants who were not reminded of money.

A second set of experiments asked whether participants who were reminded of money would be self-sufficient or selfish when faced with a difficult task with which they could receive help. In experiments 5-6, participants were given a challenging but solvable task (experiment 5) or an impossible puzzle (experiment 6) to work on, and both times they were offered help. Participants in experiment 5 were reminded of money or not via the descrambling task described above, whereas participants in experiment 6 read aloud essays written ostensibly by a student who grew up in an affluent family (high money) or a family whose finances were only just enough to make ends meet (low money). In both experiments we found that participants reminded of money were reticent to ask for help. In experiment 5, the money-primed participants worked longer before asking for help, and in experiment 6 the high money participants worked longer before asking for help, in comparison with their counterparts in the control conditions.

A third set of experiments tested wider implications of the effect. Experiments 7-9 primed money in participants by visually exposing them to pictures of currency while performing another task, whereas control conditions either had no pictures or pictures of nature. We found in experiment 7 that participants reminded of money put more distance between themselves and another participant with whom they were going to have a get-acquainted conversation (an implicit sign of social distance), as compared to participants who saw fish and those not given a visual prime. In experiment 8, we found that participants reminded of money overwhelmingly preferred to work alone on a task rather than with another participant, whereas participants in control conditions preferred to work with another participant. Last, in experiment 9, participants reminded of money preferred leisure activities that would be performed only by the self, rather than those that friends and loved ones could perform with them.

In sum, being reminded of money makes people behave self-sufficiently. Participants who were subtly reminded of money were less helpful—also asked for less help, relative to participants who were not reminded of money. Moreover, money-primed participants also preferred to be physically further from an unacquainted interaction partner relative to participants and desired to work alone and play alone. This research opens the door for discussions on the role of money in egotistic as well as goal-directed behavior.

References

“Money, Product, and Individual: The Influence of Affective Interactions on Purchase Intentions”
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Marketing researchers have extensively documented the influence of affect on consumer decision-making. The study of affective influences on judgments and choices has moved in two distinct directions; one investigating the influence of product induced affect and the other exploring the individual's affective traits such as hedonism and utilitarianism. The product can have hedonic attributes and hence generate a higher level of affect or have utilitarian attributes and engender a lower level of affect. The individual, on the other hand, could have a personality trait that seeks either more hedonic or more utilitarian outcomes, which consequently controls how one reacts to affective cues.

However, along with the product and the individual, money plays a critical role in any purchase decision. While past research enriches our understanding of the role of product induced affect and an individual's affective traits in consumer decision-making, it is relatively mute on how affect arising from money could interact with product induced affect and individual's affective traits. The study of such interactions becomes pertinent considering the findings that over and above its real value, money has acquired an affective meaning, which causes it to be desired for itself. Recent research has also shown that equivalent amounts of money can possess different levels of positive affect, highlighting the finding that money can have affect that is independent of its economic value (Mishra, Mishra and Nayakankuppam 2006).

In the light of these findings, the following questions remain unanswered: How do the varying levels of affect in money influence the purchase decisions of hedonic versus utilitarian products? How do the affective traits of an individual impact purchase decisions when money induces high versus low affective responses? This research is an attempt to answer these questions by exploring the interaction of different levels of affect from money with product level and individual level affect and its resulting influence on consumers' purchase intentions.

To answer these questions, we adopt the interactionist perspective that suggests the study of interaction among various components of a decision task rather than studying them in isolation. We explore how monetary affect interacts with product induced affect and consumer's affective traits and finally influences purchase intentions. Specifically, we predict that when the affect generated by money is stronger than the affect generated by the product, there is lower willingness to buy. On the other hand, when affect from the product is stronger than affect from money, there is higher willingness to buy. Similarly, a higher or lower affect from money compared to an individual's hedonic or utilitarian traits moderates one's willingness to buy. These predictions were tested in a simulated shopping environment where participants were given money in an envelope and shown products with price cards kept in front of them. They had the option of spending all the money, a part of the money or no money on the products. In all the experiments, participants were entered in a lucky draw in which one participant received the products chosen plus the remaining money.

In experiment 1 we varied the levels of product affect and money affect and observed the subsequent influence on willingness to buy. Hedonic products induce higher positive affect compared to utilitarian products (Hirschman and Holbrook 1982) and bills of bigger denomination induce more affect compared to equivalent bills in smaller denominations. We observe a tug-of-war between wanting to buy the product due to product-induced affect and also wanting to hold on to the money driven by money induced affect. We find that participants were more willing to buy hedonic products with bills of smaller denominations (ten $5) compared with bills of bigger denomination ($50) since the affect coming from the former is less. Similarly, participants showed a lower willingness to buy utilitarian products when they had bills in bigger denomination compared to when they have bills of smaller denomination.

Experiment 2 demonstrates the interaction between consumer level affect and the affective reaction felt towards money. Consumers can be thought of as possessing hedonic/materialistic-high
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Affect or utilitarian-low affect traits, which we measured using a trait scale. We hypothesized that because of these traits, consumers will differ on how they react to the affective cues in the shopping environment. The results indicated that participants felt the lowest inclination to buy the displayed products when they were low on the hedonism scale and had bills of large denomination and they indicated the highest willingness to buy when they were high on the materialism/hedonism scale and had bills of smaller denomination.

Experiment 3 demonstrates that money itself has the potential to generate two independent levels of affect. First, big denomination bills ($20) generate higher affect than equivalent amount of bills in smaller denomination (four $5). Second, a bill that is crisp and new has higher positive affect than an old crumpled bill. The results participants having new bills of bigger denomination, that is a new $20 bill, indicate the least willingness to buy the displayed products while participants having old bills of smaller denomination, that is old, crumpled four $5 bills, indicate the highest willingness to buy. In sum, across three experiments we study how affect from three different sources, product, individual and money, have the potential to influence the final purchase decision.

References

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The law of demand asserts that demand should weakly decrease as price increases. This downward sloping demand is due both to downward sloping individual demand, and downward sloping market demand. The downward sloping individual demand effect is due to diminishing marginal utility, meaning that we should expect the average demand per consumer to decline with price. The downward sloping market demand effect is due to consumer heterogeneity, meaning that the number of people demanding a product should decline with price.

While both effects in the law of demand are likely to hold for most price levels, we show that they might not hold for the price of zero—as the price of zero involves not only a specific price level but also social norms. As an illustration, consider a case of a birthday cake, leftover Halloween candy, or doughnuts brought to the office by a co-worker. Suppose the sweets are left unattended at the empty coffee room with a sign that says “help yourself.” You can take as much as you like, so how much would you take? Under these conditions most people, we expect, would take only the “socially acceptable” amount, but they would take much more if the price was €1 per doughnut and if the offer was made by the local bakery. This example illustrate that social norms can operate when no monetary exchanges are salient, and that the inclusion of a monetary tradeoff can interfere with these norms.

The effect of payment or lack of payment on the social norms that individuals apply is apparent in Fiske’s Relational Theory (1992). Those papers show that when money is not mentioned at all, transactions are considered to be in the social exchange domain, causing people to apply norms of fairness and reciprocity to the exchange (helping a friend move, helping someone to change a flat tire etc.). But when money is involved in the transaction, the norms and rules that people use relate more directly to market norms of exchange and cost-benefit analysis.

Together these ideas suggest that when monetary exchanges are not explicitly mentioned, social norms, but not market norms, are invoked and that when monetary exchanges are explicitly mentioned, market norms, but not social norms, are invoked. A set of 3 experiments showed this effect and that the combination of these two forces yields higher average (and total) amounts consumed when the price is low than when it is zero.

As shown in Experiment 1, we find that for the most part, with positive prices, the Law of Demand holds for both of these components. That is, when positive prices are raised, fewer individuals demand the items offered and on average individuals demand a lower quantity of the good in question. While the standard theory is observed for positive prices, when the prices decrease to zero social norms are invoked and we observe a discontinuity in the Law of Demand. When the price is reduced to zero, the first component of the Law of Demand still holds—more people demand the item relative to positive price. However, at the individual level, when the price is reduced to zero, the Law of Demand breaks down and individuals consume an amount that is dictated by the social norms—which in our case is substantially lower. The results of the first three experiments presented here support this idea. In addition, Experiment 1 provided initial evidence that the effect is generalized to other forms of exchange such as effort. Experiments 2 and 3 also indicated that the effect of price decrease to zero was particularly large for males—mostly because their demand at the €1 price condition was higher than for females.

These findings have relatively straightforward economic implications. At a micro level, firms wishing to introduce new products through samples or sales promotions may find that charging nothing will clearly increase the number of individuals who will ask for the product, which may be good or bad for the promotion (depending on whether the additional individuals are likely to become consumers). Relative to very cheap samples, free samples have a negative effect on the quantity taken by individuals. Having each individual restrict him- or herself to only one sample product might be the effect that companies are striving for, but it is also possible that from companies may want individuals to take multiple samples and try the product repeatedly over time or share it with others. Then a lower price that is not zero might be more appropriate.

References