Empty Pockets Full Stomachs: How Monetary Scarcity and Monetary Primes Lead to Caloric Desire

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Monetary scarcity and money primes may induce people to desire more calories. This Pavlovian association between money and food appears driven by the instrumental, secondary reinforcer value of money rather than by its primary rewarding qualities: The effect only holds for food choices but does not generalize to nonfood items and is not moderated by individual sensitivity for reward (study 1). The effect also is restricted to persons who adopt an instrumental value of money (study 2). In addition, merely priming people with money can lead to caloric desire, but this effect disappears with monetary satiation (study 3). In line with the value heuristic, people lacking money or those primed with money perceive food items as less caloric because they value calories more. Accordingly, they prefer bigger portions.

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EXTENDED ABSTRACT

Briers et al. (2006) showed that desire for monetary resources motivates people to acquire or maintain resources in the food domain. Their study demonstrates that people eat more candy in a taste test when they desire money than when their desire for money is lower. In this research, we set out to investigate how monetary scarcity might lead to higher food intake. We identify and test two ways in which money, a commodity that has no biological significance in itself, can become a strong motivator for gathering food. Specifically, we test whether the effect of monetary scarcity on food consumption results from the instrumental, secondary reinforcer value of money rather than its primary rewarding qualities. In line with the value heuristic (Dai, Wertenerbrock, and Brendl 2008), we also assume that monetarily deprived people perceive food items as less caloric because they value calories more. Accordingly, this perception can lead to a preference for more caloric food and/or bigger portions.

Money represents an instrument to obtain natural incentives (e.g., food) but is not directly consumable. According to operant psychology, money therefore is a conditioned (or secondary) reinforcer that gains its motivational property only because of its repetitive pairing with unconditioned (or primary) reinforcers (Skinner 1953). Similarly, standard economic theory posits that money is an instrument or tool for obtaining biologically relevant incentives (Lea and Webley 2005). Once a Pavlovian association exists, the conditioned stimulus (e.g., money) can trigger a motivation (desire) for an unconditioned reward (e.g., food) (Berridge and Robinson 2003). Because of its instrumental quality, money might be conditioned to different types of primary incentives. According to Skinner (1953), if a single kind of conditioned reinforcer gets paired with many different kinds of unconditioned reinforcers, the reinforcing effect will become independent of the deprivation of any of them. Thus, money would have the same motivational properties as natural incentives or primary rewards.

Recent consumer research offers evidence that induced appetites can instigate a greater urgency to consume anything rewarding (Li 2008; Van den Bergh, Dewitte, and Warlop 2008; Wadhwa, Shiv, and Nowlis 2008). Appetitive stimuli (e.g., rich desserts, sex cues, food samples) can prompt people to seek anything that offers a high incentive value (e.g., money, candy bars, a massage) and thus affect subsequent consumption across domains. Both Van den Bergh and colleagues (2008) and Wadhwa and colleagues (2008) suggest that a general reward system gives rise to this effect. That is, if money alone can instigate an increase in appetitive motivation, just as a primary reward does, it also may induce people to desire more food, as well as other kinds of reward. The effect of monetary scarcity on caloric intake thus may be driven by the activation of a general reward system.

As far as we know, money cues have not been used as the independent variable in this stream of research. Moreover, recent advances in parsing rewards into specific psychological components might challenge a view of money as a primary reward. Berridge and Robinson (2003) distinguish between “liking” and “wanting,” though both are necessary for rewards to occur in the fullest sense. Yet wanting may occur without liking: Drug addicts crave drugs, such as nicotine, even when they do not derive much pleasure from them. It is the attribution of wanting that makes a conditioned stimulus an object of desire. As an instrument, money may be conditioned on food rewards but is not directly consumable; money is “wanted” but not “liked,” in which case it may not be a reward with appetitive properties. Building on the distinction between wanting and liking, we posit that the association between money and food may be driven by the instrumental, secondary reinforcer value of money rather than by its primary rewarding qualities.

In four experiments, we consider both explanations and thereby obtain more evidence that suggests the effect derives from the instrumental value of money, that is, money as a conditioned stimulus of food. In study 1, we show that the effect of monetary scarcity differs for food versus nonfood rewards. The results also suggest that participants’ sensitivity to rewards does not moderate the effect of monetary scarcity on subsequent food choices. In study 2, we pit the two possible explanations against each other by investigating the role of symbolic meanings of money (Rose and Orr 2007). Specifically, in study 2a, we find that the effect of monetary scarcity on caloric desire is greater for persons who view money as an instrument, and in study 2b, we establish a link between desire for calories and money as an instrument more directly by manipulating, instead of measuring, the meaning of money. To follow up on the idea of money as a conditioned stimulus strongly associated with food, in study 3, we investigate whether priming people with money (i.e., priming as an unconscious reminder of the concept of money) produces the same results. In a 2 (money vs. fish screensavers; Vohs et al. 2006) X 2 (monetary satiation vs. control) between subjects design, participants primed with money on average choose a larger brownie, but only when money is scarce. Furthermore, study 2 and 3 also imply that calorie (under)estimation is mediating the effect of monetary scarcity and money primes on subsequent food choices.

In sum, this research illustrates how money scarcity, as well as money primes, can induce people to consume more (caloric) food. We also demonstrate that money can lead people to underestimate the caloric content of food, which prompts them to choose larger food portions or more caloric dishes. This effect of money (scarcity and primes) on food consumption stems from the Pavlovian association that results from a pairing of money and food, in which money represents a secondary reinforcer or instrument to acquire food. Although this series of experiments contributes to a growing body of research that shows out-of-domain effects of appetitive stimuli (Li 2008; Van den Bergh et al. 2008; Wadhwa et al. 2008), we do not believe a general reward system gives rise to this effect.

Investigating the money–food association further might help explain why poor people appear especially vulnerable to overeating and its poor health effects (Drewnowski and Specter 2004). Although reduced physical activity and specific food manufacturing and marketing practices might be (partly) responsible for the societal correlation between obesity and poverty, no research attempts to understand why, for example, food manufacturing and marketing practices have a stronger impact on poor people than on rich people. Perhaps in modern societies, the attraction to money is so powerful that (all-pervading) monetary cues can tempt money-deprived people easily to eat more (caloric) food. That is, this series
of experiments might render a proximal account for the well-documented societal link between obesity and poverty, based on individual experiences of money deprivation.

REFERENCES