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How Consumers Spend and Distribute Money Tainted by Anger*

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Abstract

Purpose: Anger has become one of the dominantly experienced emotions in recent years, particularly under the COVID-19 pandemic. Considering the critical role that anger plays in consumers' lives, the present research examines how feeling angry about money influences consumers' spending and money distribution decisions. **Research design and methodology.** Three experiments were conducted using different emotion induction methods (i.e., dictator game, autobiographical recall, and scenario). **Results.** Feeling angry about money decreased pro-social spending (i.e., less money distribution to the others), but it did not affect virtuous or utilitarian spending for the self—unlike past finding on negative feelings that increased utilitarian spending. Furthermore, whereas anger-tainted money decreased pro-social spending of that money, guilt-tainted money increased pro-social spending. However, the effects of guilt versus anger were not completely symmetrical. The antagonistic effect of anger was diffusive across spending on distant and close others, whereas the pro-social effect of guilt was limited to distant others. **Conclusions:** These findings help policy makers and financial institutions forecast how money will be distributed or circulated when it is likely to be dampened by anger under the pandemic. They also highlight the importance of examining the effects of discrete emotions (e.g., anger vs. guilt) beyond valence.

Keywords : Anger, Consumer Spending, Money Distribution, Guilt, Mental Accounting

JEL Classification Code: I30, M30, P46

1. Introduction

Anger has been one of the most frequently experienced emotions for decades (Averill 1982; Fischhoff, Gonzalez, Lerner, & Small, 2005; Lerner, Gonzalez, Small, & Fischhoff, 2003; Mishira, 2017), and it has also become the dominant public emotion during the COVID-19 pandemic. A recent study that analyzed 20 million pandemic-related social media tweets found that the prevailing public emotion shifted from fear to anger as the pandemic prolonged (Lwin, Lu, Sheldenkar, Schulz, Shin, Gupta, & Yang, 2020). The increasing popularity of “rage rooms,” where people can

smash things as a way to relieve their anger is simply another indicator for the mounting daily anger. Importantly, this anger is often closely associated with people's financial problems. For instance, people report feeling angry about their reduced income or insufficient pandemic relief payments.

In fact, situations in which people feel angry about money is not limited to the pandemic-triggered economic crisis. The recent tumble in bitcoin prices by over 30% within just a few weeks' time instigated anger among the bitcoin investors. Although the investors mainly expressed anger against specific causes of the price crash (e.g., Elon

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Musk, the CEO of Tesla who announced that Tesla would no longer accept the digital currency), they also seem to be angered about the decreased value of their virtual currency. Past experimental studies also have shown that people feel angry about their financial disadvantage when they receive a financial reward that is less than they expected or believed that they deserve (e.g., when receiving less reward than their partner's for an equal performance; Austin & Walster, 1975). These real-world cases and experimental results altogether suggest that people often come across situations in which they feel angry about money.

If people can feel angry about money, would this anger associated with money affect how they spend or distribute it? Past research has found that people often have feelings towards money, and those feelings change how the money is used (Levav & McGraw, 2009; Di Muro & Noseworthy, 2013). For example, feeling disgusted towards worn, dirty bills motivates people to spend the money in ways that can alleviate the disgust associated with the money (Di Muro & Noseworthy, 2013). However, no extant research to date has examined the effects of anger associated with money on people's spending decisions. Recognizing the significant role that anger plays in people's daily lives, the current research focuses on the emotion of anger, and investigates how people spend money—in particular, how people distribute money between themselves and others—when the money is associated with anger.

In the following section, I review relevant literature on mental/emotional accounting and on emotions (including anger) that informed my predictions on how people would spend or distribute money associated with anger. I then present results from three experiments that corroborate my hypotheses. Finally, I discuss the contributions of the findings, and directions for future research.

2. Literature Review

2.1. The Effects of Emotions on Consumer Spending

Mental accounting research has postulated that people mentally categorize money and this mental categorization affects how people spend the money (Thaler, 1999). For instance, people categorize their income based on whether it was earned frivolously or seriously (e.g., gambling winnings vs. income tax return) and then spend it either frivolously or seriously in a way that matches how it was earned (e.g., eating out vs. paying the rent; Thaler, 1999). Levav and McGraw (2009) extended mental accounting to the domain of emotions and introduced “emotional accounting”. They posited that money can be categorized based on the feelings associated with the money and these feelings affect how the money is spent. Specifically, they demonstrated that when

negative feelings are associated with money (e.g., gift money received from an ill uncle), people use it less on hedonic purchases and more on utilitarian purchases, compared to when positive feelings are associated with money (e.g., gift money received from a healthy uncle). They further showed that increasing utilitarian spending is preferred over decreasing hedonic spending when money is associated with negative feelings because increased utilitarian spending helps alleviate the negative feelings, while decreased hedonic spending only prevents exacerbation of those feelings.

Despite Levav and McGraw (2009)'s seminal contribution to the mental accounting literature, their findings had an important limitation. As discussed in their paper, their research took a valence-based approach, which distinguishes feelings based on positive or negative nature, instead of distinguishing specific types of emotions (e.g., anger and guilt, both of which have negative valence). However, emotion research has vastly moved from taking a valence-based approach to studying discrete emotions because this latter approach offers better predictions for consumer judgments and behaviors (e.g., Scherer, Schorr, & Johnstone, 2001; Zeelenberg & Pieters, 2006). Specifically, appraisal theory argues that emotions arise from specific cognitive appraisals of emotion-eliciting events, and these emotion-associated appraisals affect people's follow-up judgements and behaviors (e.g., Lerner & Keltner, 2000; Scherer et al., 2001; Smith & Ellsworth, 1985). Anger, for example, arises from the appraisal that a negative event was caused by others (vs. the self), and accordingly, angry people tend to engage in punitive actions towards others (Lerner & Tiedens, 2006; Smith & Ellsworth, 1985). In contrast, guilt is elicited from the appraisal that the self (vs. another) is responsible for a negative event, and therefore, guilty people tend to engage in actions that compensate for the harm done to others (Baumeister, Stillwell, & Heatherton, 1994). The functionalist approach is another emotion theory that contends for studying specific emotions beyond valence. This approach views each emotion as a solution to a specific problem or opportunity (Keltner & Gross, 1999). Accordingly, it emphasizes the function of an emotion as to ready a person's psychological and behavioral processes in a way that can address the problem or opportunity (Frijda, 1986; Keltner & Gross, 1999; Zeelenberg & Pieters, 2006). For instance, anger functions to redress anger-eliciting problems by preparing one's body to fight against opposing targets (Lerner & Tiedens, 2006), whereas fear functions to avoid a danger by preparing one's body to run away from dangerous objects or situations (Zeelenberg & Pieters, 2006).

Consistent with these calls for research on discrete emotions beyond valence, a few researchers extended the findings of Levav and McGraw (2009) by examining how specific emotions associated with money influence

consumers' spending. First, Di Muro and Noseworthy (2013) found that people feel disgusted about worn, dirty bills and this disgust motivates people to get rid of those bills (i.e., spend more than save) because the key function of disgust is expulsion or avoidance of revulsive stimuli that can cause contagion. Their research spurred a few other studies related to money tainted either physically or morally, but these later works only speculated that disgust was the driver of their effects rather than directly measuring the emotion (Galoni & Noseworthy, 2015; Stellar & Wiler, 2014; Tasimi & Gelman, 2017; Xie, Yu, Zhou, Sedikides, & Vohs, 2014; Yang, Wu, Zhou, Mead, Vohs, & Baumeister, 2013). Second, a few studies examined guilt as the driver of how consumers spend ill-gotten money. Specifically, Kardos and Castano (2012) showed that participants felt guilty about immorally acquired money and the money was spent less on vacations. Although they measured guilt, their study could not advance beyond the findings of emotional accounting because the effect of guilt associated with money was identical to the effect of negative feelings associated with money observed by Levav and McGraw (2009)—i.e., reduced hedonic spending—not to mention that the finding was based on only a single scenario study. Chen, Chen, & He, (2017) showed that consumers felt guilty about money earned immorally, and the guilt caused devaluation of the tainted (vs. untainted) income. As a result, consumers increased risk-seeking investment using the tainted (vs. untainted) money that held less value.

In line with the past research that focused on a discrete emotion rather than valence-based mood, the present research investigates the effect of anger on consumers' spending decisions. To this end, I examine not only the effect of anger on various spending categories to identify the unique category that is affected by anger, but I also directly compare the effect of anger with that of guilt in a single study. Although some of the aforementioned past research examined the effect of discrete emotion on consumer spending (e.g., either disgust or guilt), none has directly compared the effects of different emotions of the same valence in one study. I next review past research on anger (as well as that of guilt) and build predictions regarding how anger (vs. guilt) would affect the spending of anger-tainted money.

2.2. The Effects of Anger on Consumer Spending

Smith and Ellsworth (1985) identified six cognitive appraisals that underlie different emotions, and anger was found to be highly associated with the following three dimensions—certainty, control, and responsibility. Specifically, anger arises from the appraisals that others are responsible for negative events over which those individuals had control. Anger is also associated with a sense of certainty

about what had happened and what the cause was. These three dimensions distinguish anger from other negative emotions, such as guilt, sadness, or fear (Lerner & Keltner, 2000; Smith & Ellsworth, 1985). Guilt differs from anger in the self-other responsibility dimension; unlike anger, guilt is experienced when the cause of the negative event is the self, not others (Smith & Ellsworth, 1985). On the other hand, sadness differs from anger in that sadness is associated with low personal control; that is, the control of a sadness-inducing event was with either the circumstance or fate, rather than a human (Keltner, Ellsworth, & Edwards, 1993; Smith & Ellsworth, 1985). Finally, fear and anger differ highly in the certainty dimension; whereas anger is associated with certainty about what has happened, fear is associated with high uncertainty or unpredictability about the fear-eliciting event (Lerner & Keltner, 2000; Smith & Ellsworth, 1985).

Because anger arises from the perceived certainty that a highly controllable negative event was caused by others, the most representative outcome of anger is aggression and punitive, antagonistic actions (Frijda, 1986; Goldberg, Lerner, & Tetlock, 1999; Lerner, Goldberg, & Tetlock, 1998; Lerner & Tiedens, 2006; Tiedens, 2001). Anger is associated with the motivation to hurt, hit, or yell at a target (Roseman, Wiest, & Swartz, 1994; Lerner & Tiedens, 2006). Anger also decreases trust in others (Dunn & Schweitzer, 2005) while it increases blame for others (Keltner et al., 1993). Accordingly, anger is one of the typical other-condemning negative emotions (Haidt, 2003). However, anger differs from contempt and disgust, which are also other-condemning emotions, in that anger typically arises from the impairment of individual rights, whereas disgust arises from violation of purity/sanctity, and contempt from violation of communal codes (e.g., hierarchy) (Rozin, Lowery, Imada, & Haidt, 1999). Therefore, I expect that when financial harm is caused to people's self-interest, or when people receive less money than they expected or believed they deserved, they would feel angry (rather than contemptuous or disgusted) about the money received. Furthermore, following the punitive, other-condemning effects of anger, I hypothesize that compared to untainted money, money tainted by anger would be spent less on others.

Despite the decreased (virtuous) spending on others, I do not expect anger to affect virtuous or utilitarian spending for the self because increasing or decreasing such spending would not assuage anger, which requires alleviation through punishing or hurting others' welfare (Frijda, 1986; Lerner & Tiedens, 2006; Roseman et al., 1994). This expectation diverges from the findings of Levav and McGraw (2009) who suggested that utilitarian spending would increase when money is associated with negative feelings in general. The unique effect of anger on other-related spending but not on self-related virtuous or utilitarian spending would reinforce

the importance of examining the effects of discrete emotions beyond valence.

The decreased other-related spending not only refers to spending less on the perpetrators (which would be obvious), but also on strangers and close others who have nothing to do with the anger-eliciting event. This expectation is based on the diffusing power of anger (Lerner & Tiedens, 2006). Specifically, anger is notorious for blinding the angry person with aggression, and thus, the punitive effects of anger are often carried over to unrelated people (Goldberg et al., 1999; Keltner et al., 1993; Lerner et al., 1998; Lerner & Tiedens, 2006). Therefore, I expect that, compared to money not associated with anger, money associated with anger would be spent less on others, regardless of whether these others are strangers or close others (e.g., donate less to charities, or spend less on buying gifts for family and friends).

The proposed prediction for the effect of anger on consumer spending is the opposite of the prediction for the effect of guilt. Like anger, guilt is a negative emotion that arises from the violation of individual rights or freedom (Horberg, Oveis, & Keltner, 2011). However, they differ in their appraisal of self-other responsibility (Smith & Ellsworth, 1985), and thus, they motivate actions in opposite directions. Because guilt arises from one's own failure that caused harm to others, the most typical reaction from a guilty person is found to be pro-social actions, including increased charitable donations for strangers (Baumeister et al., 1994; Tangney, Stuewig, & Mashek, 2007). However, I do not expect guilt to increase spending on close others because spending on close others is not a pure pro-social act that can alleviate guilt; that is, the money spent stays in the relationship and the close other can return the favor in the future. Accordingly, the effect of guilt associated with money will be limited to distant others, unlike that of anger. Therefore, I hypothesize that compared to untainted money, money tainted by guilt would increase spending on distant others (but not on close others). In contrast, money tainted by anger would decrease other-related spending (both on distant and close others) compared to untainted money.

I next present three studies that tested my predictions. Studies 1 and 2 demonstrate how associating money with anger decreases other-related spending (both for strangers and close others) using real anger induction methods—i.e., dictator game (study 1) and autobiographical recall (study 2). They also show that anger associated with money does not affect virtuous or utilitarian spending for the self, unlike past findings on negative feelings associated with money (Levav & McGraw, 2009). Study 3 shows the opposing effects of anger and guilt using a scenario method.

3. Methodology and Results

3.1. Study 1: Anger and Decreased Pro-social Spending

Study 1 tests the effects of anger attached to money on various spending categories. I expected that anger will decrease pro-social spending on distant and close others, but not virtuous or utilitarian spending for the self.

3.1.1. Method

A computerized dictator game was used to experimentally induce anger. One hundred forty-seven undergraduate students from a large North American University played two rounds of the dictator game: a fair round and an unfair round. In each round, participants played the role of recipient and allegedly played against a different partner, although distributions were in fact determined by the computer. In both rounds, participants received \$50 of “game money” (a type of virtual currency used only within the lab) from their partner. However, in the fair round, the partner had been endowed with \$100 (i.e., participants were given 50%), whereas in the unfair round, the partner had been endowed with \$500 (i.e., participants were only given 10%). I expected that the \$50 received in the unfair round would be tainted by anger, whereas the \$50 received in the fair round would not. The order of the rounds was counterbalanced, resulting in a 2 (fairness: fair vs. unfair) $\times$ 2 (order: fair-first vs. unfair-first) mixed design.

After each round, participants responded to several manipulation checks. First, they indicated the extent to which the distribution of money was unfair, unethical, and immoral on a scale from 1 (not at all) to 9 (very much). Second, they reported the extent to which they felt six negative emotions toward the money (1 = not at all; 9 = extremely; adapted from Levav & McGraw, 2009): guilty, shameful, embarrassed, contemptuous, disgusted, and angry. The target emotion was anger, but I also measured five other negative emotions that have commonly been studied in the moral emotions literature (e.g., Tangney et al., 2007) in a randomized order to prevent any possible demand effect.

Finally, participants responded to the key dependent variables that asked how they would spend the \$50. On a scale ranging from 1 (very unlikely) to 9 (very likely), participants indicated how likely they were to spend some of the money on the following categories (in a randomized order): charitable donations, buying gifts for others, spending on utilitarian products (e.g., textbooks, products that promote work efficiency, etc.), and spending on virtuous products (e.g., healthy food, fitness equipment, etc.). Next, participants indicated how they would distribute the money between (1) themselves versus charity, (2) hedonic versus utilitarian products, and (3) vice versus virtuous products. These questions were measured on a different 9-point scale (-4 = spend all on self/hedonic/vice products, +4 = donate all to charity/spend all on utilitarian/virtuous products). Finally, participants specified how much of the \$50 they would pre-

commit to a charity of their own choice.

3.1.2. Results

Manipulation checks. As expected, participants felt more unfair, immoral, and unethical about the \$50 ($\alpha = .93$) when they received it out of \$500 ($M = 5.92$) than when received out of \$100 ($M = 1.32$; $F(1, 145) = 391.66, p < .001$). Participants also felt more angry about the money received in the unfair round ($M = 4.42$) than in the fair round ($M = 1.04$; $F(1, 145) = 177.08, p < .001$).

Charitable donations. Since the effect of fairness on charitable donations depended on the order of the rounds ($F(1, 145) = 38.71, p < .001$), I only analyzed the first round for this measure. Participants in the unfair condition were less likely to donate some of the money ($M = 2.73$) than those in the fair condition ($M = 3.91$; $F(1, 145) = 8.60, p = .004$), suggesting that anger about money reduces pro-social spending. Note that analyzing across rounds provided directional yet marginal results ($F(1, 146) = 3.04, p = .083$).

No order effects were observed for the other measures (all F 's < 1), so I analyzed the remaining measures across rounds. In line with the first result, participants were less likely to distribute the money to charity (vs. on themselves) when they received it in the unfair round ($M = -2.84$) than in the fair round ($M = -2.54$; $F(1, 146) = 6.50, p = .012$). Moreover, participants pre-committed less of the money to a charity in the unfair round ($M = \$5.89$) than in the fair round ($M = \$7.53$; $F(1, 143)^1 = 5.27, p = .023$).

Buying gifts for close others. As expected, participants were less likely to buy gifts for others after the unfair round ($M = 4.84$) than after the fair round ($M = 5.45$; $F(1, 146) = 3.95, p = .049$).

Utilitarian or virtuous spending for the self. Unexpectedly, participants were less likely to spend the money on utilitarian products in the unfair round ($M = 4.79$) than in the fair round ($M = 5.41$; $F(1, 146) = 5.44, p = .021$). However, three other related measures (i.e., distribution to utilitarian vs. hedonic products; spending on virtuous products; and distribution to virtuous vs. vice products) were not affected by whether the money was received in the unfair round or in the fair round (all F 's < 2.47 ; all p 's $> .10$; see Table 1 for means).

3.1.3. Discussion

Study 1 results indicate that when money is tainted by anger, people are likely to reduce pro-social spending (both on distant and close others), but not utilitarian or virtuous spending for the self. Although I observed anger-tainted money to decrease spending on utilitarian products in one of the measures, I believe this was a random effect because I did not observe the effect on three other related measures in this study and on related measures in the next study. Importantly, regardless of whether this effect was random or not, the result

clearly shows that the effect of anger associated with money is different from the effect of negative mood associated with money, which increased (rather than decreased) utilitarian spending (Levav & McGraw, 2009).

3.2. Study 2: Anger toward Money in Real-Life

Although study 1 demonstrated that anger can reduce spending on others, its implications are limited as the game had no consequence outside of the lab. Study 2 was designed to replicate the effect of anger using participants' real-life experiences for enhanced external validity.

3.2.1. Method

I recruited 114 participants through Mechanical Turk. To detect participants who were responding randomly, I included an Instructional Manipulation Check (IMC, Oppenheimer, Meyvis, & Davidenko, 2009) for this online pool. Nineteen participants failed the IMC and thus were excluded from all analyses.

Participants were randomly assigned to either the anger or control condition. In the anger condition, participants recalled and wrote about a recent occasion in which they received or earned money that made them feel angry (e.g., receiving less than what they deserved). In the control condition, participants simply wrote about a recent occasion in which they received or earned money. Next, all participants rated the extent to which they felt six emotions toward the money they had just described (as in study 1).

Participants then responded to spending decision questions. First, participants indicated what they would have done if, after receiving the money, they had been asked by a good friend to donate some of the money to a charity (1 = definitely would not donate, 9 = definitely would donate). They also specified the amount they would have donated (out of the total amount of money, which they also specified). Second, participants recalled and wrote about how they spent the money in reality (i.e., actual spending). Based on this recall, participants rated the extent to which they had actually spent the money (1) on charitable donations and (2) on buying gifts for others (1 = not at all; 9 = very much). Participants also indicated how they had distributed the money (1) to a charity (vs. themselves), and (2) to others (vs. themselves), on a scale ranging from 0% to 100%.

3.2.2. Results and Discussion

Five participants (two in the control, and three in the anger condition) did not follow the recall instructions (e.g., no money was received) and were thus excluded from all analyses.

Manipulation check. As intended, participants in the anger condition ($M = 7.27$) felt angrier about the money than those in the control condition ($M = 1.47$; $F(1, 88) = 279.60; p$

< .001).

Charitable donation as a response to a friend's request. Participants in the anger condition would have been less likely to donate their money when asked by a friend ($M = 3.88$) than those in the control condition ($M = 5.06$; $F(1, 88) = 4.21$; $p = .043$). Consistent with this result, participants in the anger condition were willing to donate less amount ($M = \$11.18$) than those in the control condition ($M = \$22.13$, $F(1, 86) = 3.82$; $p = .054$)². This difference in the donation amount was not due to the difference in the total amount received since participants recalled similar amounts in the anger and control conditions (\$398 vs. \$414; $F < 1$).

Actual donation to charity. When asked about how they had actually spent the money, neither participants in the anger nor control condition indicated spending much of it on charity ($M_{\text{Anger}} = 1.54$, $M_{\text{Control}} = 1.59$; $F < 1$), though participants in the control condition did indicate distributing somewhat more to charity versus themselves ($P = 17\%$) than participants in the anger condition ($P = 7\%$; $F(1, 88) = 3.64$; $p = .060$). These weak results are not surprising given that most people only donate to charities when they are asked to do so (Liu & Aaker, 2008), resulting in a floor effect.

Actual spending on others. Participants in the anger condition did, however, indicate spending less of their money on others versus themselves ($P = 23\%$) than those in the control condition ($P = 39\%$; $F(1, 88) = 5.89$; $p = .017$). They also spent less of the money on buying gifts for others ($M = 2.00$) than participants in the control condition ($M = 2.86$), but this difference was not significant ($F(1, 88) = 2.34$; $p = .130$).

Actual spending on utilitarian or virtuous products for the self. No significant effect was observed between how participants spent anger-tainted money and untainted money on the following categories: utilitarian products, virtuous products, distribution to utilitarian (vs. hedonic) products, and distribution to virtuous (vs. vice) products (all F 's < 1; see Table 1 for means).

In sum, participants who felt angry about money spent less of that money on others (than on themselves), compared to participants in the control condition. Moreover, they indicated that they would have donated less of that money to charities in response to a friend's request if they still had the money with them.

3.3. Study 3: Anger versus Guilt

Study 3 tested the opposite effects of anger versus guilt in a single study. I expected that pro-social spending of tainted money will decrease if people feel angry about the money but increase if people feel guilty about the money.

3.3.1. Method

Two hundred and twenty three undergraduate students from a large North American University participated in the

study in partial fulfillment of a course requirement. At the beginning of the study, I collected a response to be used as covariate for the spending decisions: participants were asked to imagine that they found a \$100 bill on the street and asked to indicate how they would distribute the money between following categories: (1) self versus charity, (2) hedonic versus utilitarian products, and (3) vice versus virtuous products (e.g., "100% on charities" and "100% on yourself"). Next, participants read a product refund scenario that instantiated one of three conditions: guilt, anger, or control. In all scenarios, participants received a 50% refund for a returned product. This refund either was based on official store policy (control condition), resulted from participants lying about product damage (guilt condition), or was less than what participants were entitled to due to an immoral decision by the store manager (anger condition).

Next, participants responded to the immorality and emotion manipulation questions as in study 1, with the following change. As immorality manipulation check in the anger (guilt) condition, participants were asked to rate how immoral, dishonest, and unethical they felt about the store manager (themselves) when thinking about the refund.

Finally, participants indicated to what extent they would spend the refund on charitable donations, and buying gifts for others. They also indicated how they would distribute the refund between charitable donations and themselves. These three spending decisions were measured on the 9-point scale identical to those used in study 1.

3.3.2. Results and Discussion³

Manipulation Checks. Our emotion manipulation was successful. First, participants in the guilt ($M = 6.50$; $F(1, 220) = 152.26$, $p < .001$) and anger ($M = 7.88$; $F(1, 220) = 322.76$, $p < .001$) conditions reported higher feelings of immorality ($\alpha = .98$) when thinking about the refund than did those in the control condition ($M = 2.46$). Second, participants in the guilt condition ($M = 6.34$) felt guiltier toward the refund than those in the control ($M = 3.40$; $F(1, 220) = 43.45$, $p < .001$) and anger conditions ($M = 3.56$; $F(1, 220) = 41.78$, $p < .001$). Third, participants in the anger condition ($M = 7.51$) felt angrier toward the refund than those in the control ($M = 3.88$; $F(1, 220) = 101.29$, $p < .001$) and guilt conditions ($M = 3.56$; $F(1, 220) = 111.11$, $p < .001$). Finally, participants in the guilt condition felt more guilt than anger (6.34 vs. 3.56; $F(1, 220) = 61.71$, $p < .001$) and participants in the anger condition felt more anger than guilt (7.51 vs. 3.56; $F(1, 220) = 167.55$, $p < .001$), whereas there was no such difference in the control condition (3.40 vs. 3.88; $F < 1$).

Spending Decisions. An ANCOVA using the \$100 bill spending responses as the covariate was conducted. Compared to participants in the control condition ($M = 2.75$), those in the guilt condition were more likely to donate their money to charitable organizations ($M = 3.60$; $F(1, 219) = 6.00$,

$p = .015$), whereas those in the anger condition were less likely to donate their money ($M = 2.13$; $F(1, 219) = 3.76$, $p = .054$). A similar pattern was obtained for the distribution of the refund to themselves versus charity. Compared to control participants ($M = -2.02$), those who felt guilty about the money distributed slightly more of it to charity ($M = -1.38$; $F(1, 152) = 3.51$, $p = .063$), whereas those who felt angry about the money distributed less of it to charity ($M = -2.65$; $F(1, 152) = 3.80$, $p = .053$). Finally, participants in the anger condition were less likely to spend their tainted money on gifts for others ($M = 2.78$) than were those in the control condition ($M = 4.40$; $F(1, 83) = 6.62$, $p = .012$). In contrast,

participants in the guilt condition were not more likely to spend their money on gifts for others ($M = 5.04$) than those in the control condition ($F(1, 83) = 1.17$, $p > .10$).

These results support that feeling angry about money decreases pro-social spending of the tainted money, whereas feeling guilty about money increases pro-social spending of the tainted money. Importantly, the effects of guilt versus anger are not completely symmetrical. The punitive effect of anger was observed for spending on both distant and close others, whereas the pro-social effect of guilt was limited to distant others.

Table 1: Results of Studies 1 to 3: Spending Decisions

	Condition	Spending on distant others			Spending on close others		Utilitarian or virtuous spending on the self			
		Charitable donation	Charity(vs. self)	Amount donated	Others (vs. self)	Gifts for others	Utilitarian products	Utilitarian (vs. hedonic)	Virtuous products	Virtue (vs. vice)
Study 1	Anger	2.73 ^a	-2.84 ^a	\$5.89 ^a	--	4.84 ^a	4.79 ^a	.80	5.11	1.01
	Control	3.91 ^b	-2.54 ^b	\$7.53 ^b	--	5.45 ^b	5.41 ^b	.76	5.57	1.07
Study 2	Actual donation				Actual spending					
	Anger	1.54	7% ^c	--	23% ^a	2.00	3.27	69%	2.61	67%
	Control	1.59	17% ^d	--	39% ^b	2.86	3.53	65%	2.65	71%
	Hypothetical donation (per friend's request)									
	Anger	3.88 ^a	--	\$11.18 ^c						
	Control	5.06 ^b	--	\$22.13 ^d						
Study 3	Anger	2.13 ^c	-2.65 ^c	--	--	2.78 ^a	--	--	--	--
	Guilt	3.60 ^a	-1.38 ^c	--	--	5.04	--	--	--	--
	Control	2.75 ^{b d}	-2.02 ^d	--	--	4.40 ^b	--	--	--	--

Note 1: Means with superscripts a, b represent significant differences ($p < .05$).

Note 2: Means with superscripts c, d represent marginal differences ($.05 < p < .63$).

4. General Discussion

4.1. Summary and Contributions

In an “age of anger” (Mishria, 2017), I investigated how feeling angry about money influences people’s spending, in particular, how people will distribute the money between themselves and others. Through three studies that adopted different emotion induction methods (dictator game, recall, and scenario), I found that money associated with anger decreases spending on others or distribution of the money to others (vs. to the self). This decreased spending included both spending on distant others (e.g., charitable giving) and close others (e.g., buying gifts for a friend). Unlike the findings of Levav and McGraw (2009) that suggested negative feelings associated with money would increase utilitarian spending, I did not find anger to affect utilitarian

spending, despite it being a negative emotion. Furthermore, I also tested the opposing effects of anger and guilt in one study and showed that anger decreases spending on others, but guilt increases spending on others. Interestingly, anger’s antagonistic effect on others diffused across spending on distant and close others, whereas the pro-social effect of guilt was limited to distant others. These results reinforce the importance of studying discrete emotions, not just the emotion valence, when examining their effects on consumer spending, in particular, consumers’ decisions on how to distribute money between themselves and others.

The present research contributes to both theory and practice in several ways. First, it enriches our understanding of the effects of anger when anger has become one of the most frequently and dominantly experienced emotions nowadays (e.g., Lwin et al., 2020; Mishira, 2017). The current findings can help policy makers and financial institutions to predict and make preparations regarding how

consumers will respond to anger-evoking financial policies or products, and how money will be distributed or circulated when income is dampened with anger, particularly under the pandemic. Second, past research on anger examined its effect on various aspects of people's judgments and decision making (e.g., depth of information processing, attributional tendency, risk perception, etc.; see Lerner & Tiedens, 2006 for a review), but none to date has examined its effect on people's spending or money distribution decisions. The current research advances the literature on anger (and emotion in general) by investigating the effect of anger on consumer spending when the anger is associated with money. Third, the present research advances past findings of emotional accounting (Levav & McGraw, 2009) by moving beyond the valence-based approach and demonstrating that discrete emotions of the same valence (guilt vs. anger) can have opposite effects on consumers' decision to distribute money between themselves and others.

4.2. Directions for Future Research

Future research can examine whether anger unrelated to money (incidental anger) decreases spending on others, as anger associated with money does. Levav and McGraw (2009) have shown that feelings associated with money has different effects from feelings unassociated with money. Specifically, feeling negative about money received from an ill uncle decreased hedonic spending, but this decrease was not observed when participants heard a similarly bad news (i.e., illness of a close family friend) while the money was received from a healthy uncle. That is, negative feelings decreased hedonic spending only when the feelings were bound to the money. In contrast, anger may not be bound to a specific set of money due to its diffusive potential even when the anger was originally triggered from a financial issue. In this case, anger originating from money and incidental anger may have undifferentiated effects on consumer spending.

Another possible avenue for future research is to examine whether anger elicited from exerting self-control has similar effects with anger triggered from others' infringement upon one's rights. Gal and Liu (2011) show that exerting self-control makes people engage in angry behaviors (e.g., preference for anger-themed movies). Although anger is often considered as a typical moral emotion (Haidt, 2003), Gal and Liu (2011)'s finding suggests that anger may arise from personal, non-moral domains. It would be worthwhile to explore whether the effect of anger depends on its moral degree. For instance, self-control anger might not affect the spending decisions related to others, but instead affect decisions related to the self.

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Endnotes:

1. Three participants did not specify the amount and thus were naturally dropped from this analysis.
2. Donation amounts were log transformed to control for skewness. One observation (\$5,000) exceeded the mean by more than three standard deviations and was thus excluded from the analysis.
3. Due to a computer program error, responses to two of the dependent measures were lost for a subset of participants, resulting in reduced sample sizes for buying gifts for others (n = 87) and relative distribution to charities versus themselves (n = 156).