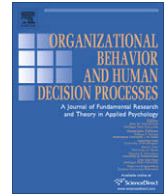




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The abundance effect: Unethical behavior in the presence of wealth

Francesca Gino^{a,*}, Lamar Pierce^b^a Kenan-Flagler Business School, University of North Carolina, Chapel Hill, NC 27599-3490, United States^b Washington University in St. Louis, Olin Business School, St. Louis, MO 63130, United States

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ABSTRACT

Three laboratory studies investigated the hypothesis that the presence of wealth may influence people's propensity to engage in unethical behavior for financial gain. In the experiments, participants were given the opportunity to cheat by overstating their performance on an anagram task. In each study, one group was stimulated by the visible proximity of monetary wealth. We found that the presence of abundant wealth led to more frequent cheating than an environment of scarcity. Our experiments also investigated the potential mechanisms behind this effect. The results showed that the presence of abundant wealth provoked feelings of envy toward wealthy others that, in turn, led to unethical behavior. Our findings offer insights into when and why people engage in unethical behavior.

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In John Grisham's novel *The firm*, an experienced lawyer advises a young associate to bill clients for each minute spent even thinking about a case (Grisham, 1991). Such unethical billing practices occur well beyond fictional realms and constitute a pervasive problem in law firms across the country (Altman, 1998). Overstatement of performance or effort represents an even broader epidemic in organizations, where employees routinely exaggerate business expenses, applicants doctor resumes, and wage-based workers over-report hours on timesheets.

Under what conditions are such individuals most likely to relax their ethical standards and overstate their effort at the expense of their organization, institutions, and clients? Research suggests that the environment in which people operate might affect their tendency to cross the ethical line. Factors such as reward systems (e.g., Hegarty & Sims, 1978), norms and culture (Treviño, Butterfield, & McCabe, 1998), and codes of conduct (Cressey & Moore, 1983; McCabe, Treviño, & Butterfield, 1996) have been shown to influence unethical behavior in organizations. Related research in psychology has demonstrated that the simple presence of environmental cues such as visual stimuli greatly influences individuals' behavior (e.g., Aarts & Dijksterhuis, 2003; Cialdini, Reno, & Kallgren, 1990). For instance, visual reminders of money (e.g., pictures of cash) have been found to significantly increase self-interested and self-serving behavior (Vohs, Mead, & Goode, 2006, 2008). Such studies suggest that cues from the environment can produce profound changes in behavior surrounding ethical and social norms.

Aside from the evidence of environmental effects of money on self-interest, there remains little understanding of how monetary-based stimuli might drive an important class of unethical behaviors: over-reporting for personal gain. The prevalence of such behavior, combined with the ubiquity of money and other assets in organizations, raises the question of whether wealthy environments are important drivers of such unethicality. In this paper, we directly test whether environmental wealth increases unethical behavior in the form of over-reporting of performance. We test this proposed link in three laboratory studies using large quantities of cash currency as a visual cue of environmental wealth.

Focusing on environmental monetary wealth, we define abundant wealth as a large pool of visible money or resources that are either shared by organizational members or possessed by individuals within the organization. Notably, organizational wealth is rarely distributed equally across employees. An organization may create a wealthy environment for the benefit of key employees and customers, yet many workers who operate in this wealthy environment may share few of its rewards. We suggest that the presence of abundant wealth leads to perceptions of inequity among those who operate in the wealthy environment without sharing in its largesse. In turn, these perceptions of negative inequity induce feelings of envy that motivate unethical behaviors such as theft and deceptive overstatement of performance. Thus, inescapable comparisons between a wealthy environment and one's own financial condition can motivate employees to engage in unethical activities they might otherwise avoid. This "abundance effect" consequently may yield higher levels of unethical behavior under conditions of abundant wealth than in conditions of scarcity.

* Corresponding author. Fax: +1 9199624425.

E-mail addresses: fgino@unc.edu (F. Gino), pierce@wustl.edu (L. Pierce).

Throughout the paper, we employ Jones's definition of unethical behaviors as acts that have harmful effects on others and are "either illegal or morally unacceptable to the larger community" (1991, p. 367).¹ Based on this definition, examples of unethical behaviors include violations of ethical norms or standards (whether legal or not), stealing, cheating, and other forms of dishonesty. The behavior studied in our experiments involves outright stealing and cheating through the overstatement of performance for personal monetary gain. These behaviors, both technically illegal and morally unacceptable to the broader community, fall well within Jones's guidelines for unethical behavior.

Theory development and hypotheses

Managers in today's organizations use money to attract, retain, and motivate employees to achieve organizational goals (Milkovich & Newman, 2002). While managerial practices (like society in general) are built on the idea that money benefits individuals, research suggests that wealth can have detrimental consequences when discrepancies in wealth exist between individuals. Such discrepancies may indeed make salient to individuals that they are in a disadvantageous position compared to others.

A long stream of research has suggested that people judge the fairness of their position in a given setting (e.g., an organization) by comparing themselves to referent others (see, for instance, equity theory by Adams (1963, 1965), and its extensions including Leventhal, 1976, and Messick & Cook, 1983). For instance, individuals value the fairness of exchanges between themselves and other people within the same environment, as well as the fairness of exchanges between themselves and the organization they work for or the environment in which they operate. Whenever misfit or lack of fairness occur in such exchanges, people might modify their effort in the relationship, distort their perception of the situation, or leave the environment (e.g., Cable & Judge, 1996). In this paper, we extend this research by suggesting that fairness or equity assessments of a person–environment exchange may not always involve specific self–other social comparisons. We focus on the effects of comparisons between an individual and the level of wealth in the environment in which she operates and examine whether the mere presence of abundant monetary wealth in an environment increases unethical behavior.

Abundant wealth and unethical behavior

We suggest that abundant wealth within an environment leads to perceptions of inequity in the same way that pay differentials between an individual and a specific referent other lead to perceptions of unfairness. Building on the assumption of distributive justice research that people care about the fairness of reward outcome distributions (Deutsch, 1985), prior studies of pay differentials have examined the attitudinal and motivational consequences of pay inequity (Adams, 1963, 1965; Greenberg, 1990a, 1990b). For instance, research has shown that an individual's perception of outcomes as unfair can translate into poor performance (Greenberg, 1993), increased turnover and absenteeism (Schwarzwald, Koslowsky, & Shalit, 1992), and lower commitment to the organization (Schwarzwald et al., 1992). In one study, Greenberg (1990a) examined employee theft rates

in manufacturing plants during a period in which temporal pay cuts were applied to some employees. He found that groups of employees whose pay was reduced had higher theft rates than groups of employees who did not experience pay cuts; in addition, when thorough explanations for the pay cut were provided, feelings of inequity and theft were lower.

In this body of research, pay and other forms of monetary rewards are linked directly to the effort an individual exerts on the job. The individual compares his own input-to-output ratio to that of referent others and perceives inequity whenever these ratios differ. We suggest that this direct comparison is not necessary for inequity perceptions to take place. The mere presence of abundant wealth should lead individuals to compare what they have to the wealth available in the environment, comparisons that could lead to perceptions of inequity when that wealth is not definitively and accurately linked to the inputs that generated it. When an individual has not observed the process through which that wealth was created, she may be unable to accurately perceive what an equitable input-to-output ratio might be. In turn, distress over inequity may lead to different emotional reactions that could motivate individuals to engage in unethical behavior in an attempt to restore equity and relieve their distress. Research has demonstrated that emotions can override rational thinking and decision making (Vohs, Baumeister, & Loewenstein, 2007) and might play an important role in driving unethical decisions (Schweitzer & Gibson, 2008). Wealth-based inequity may produce feelings of envy that, in turn, might motivate an individual to act unethically (Gino & Pierce, 2009, *in press*). Based on this reasoning, we predict the following "abundance effect":

Hypothesis 1. The presence of abundant wealth increases the likelihood of individuals to behave unethically for personal gain.

Abundant wealth, envy, and unethical behavior

Recent empirical work suggests that most people, across different cultures, are capable of feeling envy (e.g., Parrott & Smith, 1993; Salovey & Rodin, 1984; Smith, Parrott, Ozer, & Moniz, 1994). Envy arises when a person compares her own outcomes to the larger outcomes of others (Smith, Kim, & Parrott, 1988). Envy includes feelings of inferiority and resentment, and a desire for greater outcomes (Parrott & Smith, 1993), and a sense of injustice due to one's disadvantageous position, even when the disadvantage is purely subjective (Smith et al., 1994). In line with these definitions and arguments, over two decades ago, Jackson Toby suggested that "thieves may be envious of those who have more than they, and opportunities to be envious are endemic in affluent modern societies" (Toby, 1979, p. 517). The presence of abundant wealth in many modern environments increases the perception of a person's relative disadvantageous position. In the presence of abundant wealth, an individual is likely to note that she lacks resources that others have, even when the possessor of wealth is not clearly identified and is a group or an organization. As Toby suggested, these perceptions of inequity may result in feelings of envy. This reasoning leads us to expect feelings of envy to be stronger in environments of abundant wealth than in environments of scarcity. We thus hypothesize that:

Hypothesis 2. The presence of abundant wealth will stimulate feelings of envy.

Prior work has argued that envy has major implications for individual behavior in organizations, including effort, attrition, and sabotage (Ma & Nickerson, 2007; Nickerson & Zenger,

¹ Tenbrunsel and Smith-Crowe (2008) note the importance of defining unethical behavior in research on the topic. Sharing their opinion, we use a definition for unethical behavior that is commonly accepted in the organizational behavior literature.

2008). For instance, in work settings, the experience of envy leads to reduced job-related esteem, which, in turn, generates responses that are intended to rectify the threatening circumstances (Latack & Havlovic, 1992). Envy, like other emotions, can substantially influence the ethics of individual behavior (Schweitzer & Gibson, 2008), leading to deception, decreased cooperation, and overt hostility (Brigham, Kelso, Jackson, & Smith, 1997; Duffy & Shaw, 2000; Feather, 1989, 1991; Moran & Schweitzer, 2008; Parks, Rumble, & Posey, 2002).

Envy may inspire very different responses, including leaving the situation (quitting one's job or seeking a transfer) or aggressing against or derogating others (Vecchio, 2000). Envy also can stimulate harmful unethical behavior (Cropanzano, Rupp, & Byrne, 2003; Pruitt & Kimmel, 1977; Smith & Walker, 2000) by those who either overestimate their personal contributions to an environment (Zenger, 1994) or experience true inequity. We argue that envy toward wealthy targets, whether individuals or organizations, influences the likelihood that an individual will engage in unethical behavior to acquire similar wealth and reduce wealth-based inequity:

Hypothesis 3. The experience of envy will increase people's likelihood to engage in unethical behavior for personal gain.

Given our hypotheses that abundant wealth generates envy and that envy can increase unethical behavior, we also expect that envy will be an important factor in explaining the relationship between the presence of abundant wealth and unethical behavior. We thus hypothesize that:

Hypothesis 4. Feelings of envy will mediate the positive effect of abundance of wealth on unethical behavior for personal gain.

Overview of the present research

We tested these hypotheses in three laboratory studies in which participants were given the opportunity to act unethically by overstating their performance. In the studies, we asked participants to grade their own performance on an anagram task. A participant's decision to overstate her own performance resulted in a greater payment, thereby creating an incentive to cheat. We manipulated wealth by varying the amount of cash present in the room where the study took place while holding the opportunity for unethical gain constant. These studies allowed us to manipulate wealth in the environment while controlling the opportunity for unethical behavior. While the paper focuses on overstatement of performance as a specific type of unethical behavior, we believe our findings are generalizable to other unethical behaviors involving personal gain (such as theft or fraud) since other forms of dishonesty involve similar tradeoffs between personal gain (e.g., monetary earnings) and potential costs (damage to moral self-image or low probability of being caught).

Study 1

Our first study tests for the existence of an abundance effect by investigating whether the presence of monetary wealth influences an individual's likelihood to act unethically. The experiment was described to participants as a study of the relationship between perception and creativity. The task used was a modified version of Schweitzer, Ordóñez, and Douma's (2004) anagram task. As in that study, we had our participants not only list words, but also check their own work, thus giving them an opportunity to overstate their performance and engage in unethical behavior.

Pilot study

We conducted a pilot study ($N = 49$) to determine how many words, on average, people can create within a 2 min time limit. In each of eight rounds, participants were given 2 min to create words using different combinations of seven letters while following these rules: "Each word must be an English word, two or more letters long, other than a proper noun, made by using each of the seven letters only once per word, and used in only one form." We used the results of the pilot study to identify a performance goal for our main study. As in prior studies that used anagram tasks to investigate goal setting, our goal was set equal to the 90th percentile of performance (e.g., Schweitzer et al., 2004). Specifically, the goal we gave participants was to create 12 words in each round. As explained in detail below, this goal was used to determine participants' payoff during Study 1.

Methods

Participants

Fifty-three individuals (53% male; $M_{age} = 25$, $SD = 9.2$) participated in the study. Most participants (64%) were students from local universities in a city in the northeastern United States.

Design and procedure

Study 1 was conducted in two adjacent classrooms of a university in the northeastern United States. In the hall outside the classrooms, participants were randomly assigned to a room and thus to one of two conditions: the wealthy condition ($N = 27$) or the poor condition ($N = 26$). A female experimenter was responsible for the poor condition, and a second female experimenter of about the same age was in charge of the wealthy condition.

We manipulated perceptions of wealth by varying the amount of money in the cash piles from which we distributed payments in each of the two rooms. In each classroom, the cash was located on a table in the center of the room, clearly visible to all participants. In both conditions, as participants entered the classroom, they passed the table with the money and the experimenter, who was standing close to the table, handed them each a stack of 24 one-dollar bills. In the wealthy condition, this money was distributed from a large pile of cash placed on two different tables (about \$7000 in real \$1 bills; see Fig. 1 for photographs). In the poor condition, only the cash necessary to pay participants was on the table. After passing by the money, participants sat at individual desks that were situated such that they could not see each other's answers.

Once participants were seated, the experimenter read the instructions aloud. As the instructions explained, participants were asked to create words using a set of seven letters and to list them in the workbook they had received. Participants were told that to ensure anonymity, at the end of the study they would record the number of words they had created on the answer sheet placed on their desk. The answer sheet asked participants to report the number of valid words they created in each round. Participants were also told that, at the end of the study, they would put the workbook in a sealed box at the front of the room and turn in their answer sheet to the experimenter.

The experiment began with one practice round to allow participants to familiarize themselves with the task and the experimental procedure. Next, participants completed eight experimental rounds. The experimenter kept time for participants and let them know when to turn to the next page of their workbook to start a new round. For each round, participants were given seven letters and 2 min to create words following the rules given at the beginning of the study (e.g., each word needed to be two or more letters long). In both experimental conditions, we gave participants the



Fig. 1. A picture of the manipulation used in the wealthy condition, Study 1. The cash was placed on two different tables that were positioned next to each other in the center of the room where the study was conducted.

goal of creating 12 words for each round and told them that they would earn \$3 for each round in which they met this goal.² The last experimental round contained a unique set of letters for each participant that we used to match participants' workbooks with their answer sheets.

In the second stage of Study 1, we gave participants 20 min to check their own work using Scrabble[®] dictionaries. Once the 20 min had passed, the experimenter instructed participants to fill out their answer sheet and then pay themselves. Participants were instructed to keep the money they had earned and to return the unearned money and their answer sheet before leaving the room. Note that before beginning the second part of the study, the experimenters collected the blue pens that participants had been given to complete the anagram task and distributed black pens to them; we used this procedure to prevent participants from adding words while checking their own work.

Results

We used several measures of unethical behavior. Our primary measure, the overstatement score, involved coding the congruence between participants' actual productivity and their productivity claims as in Schweitzer et al. (2004). For each participant, we computed an overstatement score to represent the fraction of times the participant overstated productivity relative to the number of times he/she missed the goal (and thus had the opportunity to overstate productivity). These scores could range from 0 (i.e., a participant never overstated productivity) to 1 (a participant overstated productivity every time he/she had the chance to do so). We used three alternative measures of unethical behavior for robustness: (1) a dummy variable indicating the participant cheated at least once; (2) the number of rounds overstated; and (3) the average number of words overstated. These measures produce consistent results across our studies.

In our studies we also collected demographic information. In all the studies, we first conducted analyses that included gender, age and occupational status as independent variables. We found no

main effects or interaction effects for these variables, and we report our findings collapsed across demographic groups.

Ruling out motivation

Table 1 reports the productivity and misreporting results for the two treatment conditions. We first compared the number of valid words that participants listed in the two conditions in order to identify motivational effects of wealth. On average, participants in the wealthy condition created more valid words than did those in the poor condition (12.03 vs. 10.69) but this difference was only marginally significant, $F(1, 51) = 3.37$, $p = .072$, $\eta^2 = .06$. We also checked whether there were "careless" participants who understated their productivity one or more times and found none.

Does the presence of wealth motivate unethical behavior?

Consistent with Hypothesis 1, the average overstatement score for participants was significantly higher in the wealthy condition ($M = 0.61$, $SD = 0.29$) than in the poor condition ($M = 0.21$, $SD = 0.29$), $t(46) = 4.76$, $p < .001$. Results for the alternative measures of unethical behavior, presented in Table 2 (under Study 1), are consistent with these results, suggesting that participants were more likely to overstate their performance in the wealthy condition than in the poor condition.

Do more people cheat or do people cheat more?

We next examined the source of the higher level of overstatement in the wealthy condition. Two factors could explain this higher proportion of overstatement: (1) the number of individuals who overstated their productivity, or (2) the magnitude of overstatement by a similar number of individuals. To distinguish between these two explanations, we first compared the percentages of participants who overstated their productivity in at least one round in both treatment conditions. This percentage was significantly higher in the wealthy condition than in the poor condition (85.2% vs. 38.5%, $\chi^2[1, N = 53] = 12.31$, $p < .001$). We then examined the number of times participants overstated their productivity and considered only those participants who overstated their productivity at least once. We found no statistically significant difference in the average number of overstated rounds between the wealthy condition ($M = 2.9$, $SD = 1.50$) and the poor condition ($M = 3.0$, $SD = 1.94$), $t(31) < 1$, $p = .89$. We also examined the magnitude of the overstatement scores by condition. The percentage of participants with an overstatement score under 0.5 was equal to 20% in the wealthy condition and 74% in the poor condition. This finding suggests that despite the insignificant difference in the average number of overstated rounds across conditions, there seems to be a significant difference in the magnitude of overstatements by a similar number of individuals. Indeed, the number of high-level cheaters

² We conducted a separate pilot study with a separate, non-overlapping group of participants from the same subject pool ($N = 22$; $M_{age} = 21$, $SD = 1.43$). We first described to them the procedure used in the main study. These participants were then asked to indicate whether the rate of pay (potentially \$3 per round) was considered to be fair, using a 5-point scale (ranging from 1 = very unfair to 5 = very fair, with a scale mid-point of 3 = neither fair nor unfair). On average, participants considered the rate of pay used in the study to be fair ($M = 4.36$, $SD = 0.73$). The average rating was in fact greater than the scale mid-point ($t[21] = 8.80$, $p < .001$). This result rules out the possibility that the cheating observed in the main study occurred because people felt they were underpaid for their work during the anagram task.

Table 1
Productivity and misreporting results by round and condition, Study 1.^a

Round	Number of valid words created				Percentage of participants...			
	Wealthy condition		Poor condition		Who actually met the goal		Who claimed to meet the goal	
	Mean	SD	Mean	SD	Wealthy	Poor	Wealthy	Poor
1	11.63	3.35	10.50	4.05	37.0	46.2	85.2	46.2
2	10.30	2.89	8.88	3.82	37.0	23.1	55.6	30.8
3	11.30	3.04	9.54	3.70	40.7	26.9	77.8	42.3
4	11.63	2.24	10.15	3.44	37.0	50.0	63.0	61.5
5	12.00	2.66	10.92	2.58	48.1	46.2	81.5	57.7
6	12.19	3.15	10.73	3.47	51.9	46.2	81.5	73.1
7	11.52	2.21	10.15	3.38	40.7	42.3	85.2	61.5
8	15.67	4.80	14.62	4.88	81.5	65.4	92.6	88.5
Average	12.03	3.04	10.69	3.66	46.8	43.3	77.8	57.7

^a For the wealthy condition *N* = 27, while for the poor condition *N* = 26.

Table 2
Summary of results, Studies 1–3. Mean values are reported in columns (1) and (2). Test results are reported in column (A).

	Study 1			(A) Test	Study 3		
	(1) Poor	(2) Wealthy	(A) Test		(1) Poor	(2) Wealthy	(A) Test
Cheater dummy	10	23		14	30	$\chi^2(1, N = 74) = 16.58, p < .001, FE < .001$	
Rounds overstated	1.15	2.52		0.66	2.78	$z = -5.03, p < .001$	
Words over-reported	0.37	0.91		0.17	0.90	$z = -4.96, p < .001$	
	Study 2		(A) Test	Study 3		(A) Test	
	(1) Poor	(2) Wealthy		(1) Poor	(2) Wealthy		
Cheater dummy	17	39	$\chi^2 = 23.93, p < .001 [(1) \text{ vs. } (2)]$ $\chi^2 = 27.36, p < .001 [(1) \text{ vs. } (3)]$ $\chi^2 < 1, p = .67 [(2) \text{ vs. } (3)]$	14	30	$\chi^2(1, N = 74) = 16.58, p < .001, FE < .001$	
Rounds overstated	0.69	2.98	$z = -5.64, p < .001 [(1) \text{ vs. } (2)]$ $z = -5.66, p < .001 [(1) \text{ vs. } (3)]$ $z = -0.89, p = .38 [(2) \text{ vs. } (3)]$	0.66	2.78	$z = -5.03, p < .001$	
Words over-reported	0.25	1.17	$z = -5.33, p < .001 [(1) \text{ vs. } (2)]$ $z = -5.48, p < .001 [(1) \text{ vs. } (3)]$ $z = -0.37, p = .71 [(2) \text{ vs. } (3)]$	0.17	0.90	$z = -4.96, p < .001$	

(overstatement scores above 0.5) is significantly higher in the wealthy than in the poor condition (80% vs. 26%), $\chi^2(1, N = 48) = 14.03, p < .001$.

Discussion

The results of Study 1 provide support for the hypothesized abundance effect: a significantly higher percentage of participants acted unethically for personal gain by overstating their performance in the wealthy condition than in the poor condition. Our findings suggest that the presence of wealth increased both the number of participants willing to cheat and the magnitude of their unethical behavior.

Study 2

In our first study, an abundance of money increased performance overstatement, thus demonstrating the abundance effect. In Study 1, the wealthy condition produced more than twice as many cheaters as the poor condition. While providing strong support for our main hypothesis, our first study does not identify the mechanisms behind the abundance effect. We conducted a second study to address this concern.

Pilot study

We conducted a pilot study (*N* = 50) to identify a performance goal for Study 2 equal to the 90th percentile of performance, which

translated into a goal of nine valid words created per round. A new pilot study was needed because we shortened the amount of time given to participants in each round, from the 2 min time limit used in the first study to 90 s. We reduced the time available per round because Study 2 included a new task and because we wanted to keep the length of the entire experiment under one hour. To increase the difficulty of the task, we changed one of the rules for creating words: words were considered valid if they were three or more letters long.

Methods

Participants

One-hundred and fifty individuals (55% male, *M*_{age} = 23, *SD* = 3.77) participated in the study. Most participants (89% of them) were students from local universities in a city in the north-eastern United States. Participants were randomly assigned to one of three treatment conditions: the poor condition (*N* = 51), the wealthy condition (*N* = 48), and the wealthy-bystander condition (*N* = 51).

Design and procedure

In Study 2, we focused on two mechanisms that might increase cheating in the presence of abundant wealth. The first mechanism is an economic argument rooted in utility theory, which states that the value of each additional dollar to a recipient decreases as his or her wealth accumulates (Bernoulli, 1738). In line with this view, study participants in the wealthy condition may have justified

cheating more often than participants in the poor condition because they believed the experimenter valued the lost dollars less, and therefore would incur less harm, than did those in the poor condition. In Study 2, we attempted to control for this mechanism by varying the possession of the pile of cash in the rooms. The second mechanism that might increase cheating is envy. In the presence of abundant wealth, participants may have been more likely to cheat than those in the poor condition due to the perceptions of inequity and envy stimulated by the display of wealth.

To distinguish between these two explanations, Study 2 included a third condition. The study was presented to participants as a session of two different experiments located in the same room for their convenience. Participants were told that the first study, the “Anagram Study,” investigated individual creativity under time pressure, and that the second study, the “Zodiac and Personality Survey,” examined interactions between zodiac signs and individual characteristics. The two studies were conducted sequentially by two female experimenters in the same room: one experimenter conducted the first study, and then the second one conducted the second study. Participants were told that the two studies were separate and that they would have to fill out a different receipt for each study due to independent funding sources. We linked participants across studies through a common ID randomly assigned using bingo numbers at the beginning of each session.

In the main study of interest (i.e., the Anagram Study), participants engaged in one of three conditions. The first condition was nearly identical to the poor condition in Study 1. In this condition, the experimenters conducting the Anagram Study and the Zodiac and Personality Survey had just enough money to pay the participants. Condition 2 was nearly identical to the wealthy condition of Study 1. In this condition, the experimenter conducting the Anagram Study had a large amount of cash (\$5000) visible, and the experimenter conducting the Zodiac and Personality Survey had no visible money. In Condition 3 (wealthy-bystander condition), the experimenter conducting the Anagram Study had only enough money to pay participants (as in Condition 1), but the experimenter conducting the Zodiac and Personality Survey had \$5000 visible, from which she paid participants for her study.

Both Conditions 2 and 3 were therefore “wealthy” conditions, with the sole difference being which study possessed the wealth. In Condition 2, as in Study 1, participants could react to an abundance of wealth by taking money from the *possessor* of that wealth. In Condition 3, where the wealth was possessed by a different experimenter, any fraud came not from the wealthy experimenter, but rather from the poor experimenter in the same room. Thus, while the abundance of wealth in the room was equivalent in Conditions 2 and 3, the wealth of the victim (the anagram experimenter) was equivalent in Conditions 1 and 3. If the abundance effect were explained by the cost to the victim, then we could expect participants to cheat similarly in Conditions 1 and 3.

Study 2 made several changes to the procedure of Study 1. First, because of the addition of a second study, we reduced the number of experimental rounds from eight to six and the round length from 120 to 90 s in order to reduce the length of the Anagram Study. Second, the amount of money displayed in the wealthy condition was \$5000 rather than \$7000. We decided to display a smaller amount of money in Study 2 because of the reduced number of participants per session (between 10 and 15 participants) as compared to the previous two (20–30 participants); we were concerned that participants would be overly surprised by the larger amount of money.³ In Condition 2, the surplus cash was located on a table where the experimenter conducting the Anagram Study

sat during the session. In Condition 3, the cash instead was located on the table of the Zodiac and Personality Survey experimenter.

During both studies, the two experimenters sat in plain sight of participants at tables in two opposite corners of the experiment’s spacious room. All participants first completed the Anagram Study and then proceeded to the Zodiac and Personality Survey. As in Study 1, in the Anagram study, participants received a workbook in which to list words and an answer sheet in which to record their performance by round. After completing their work, they put the workbook in a recycling box at the front of the room. Participants also had a yellow envelope in which to put their answer sheet and the money they did not earn. At the end of the Anagram Study, they put the yellow envelope in a different box located next to the recycling box. Participants received \$2 in each of the six rounds in which they reached the goal.⁴

Once participants finished the Anagram Study, they approached the second experimenter, who gave them the materials for the Zodiac and Personality Survey and explained the procedure to them individually. The instructions from the first page of the experimental material read:

In this study, we will ask you to complete a paper survey. You will receive \$4 to complete the survey. The survey includes a variety of questions which ask about your personality, preferences, emotions, and zodiac. Answering these questions accurately requires proper reflection on how you really think, feel, and act in general. Please answer each question as best as you can. The Zodiac is made up of 12 different sun signs. Your date of birth determines which one you are. Previous research has shown that people’s zodiac sign is related to the type of judgments they make. Please indicate your Zodiac sign below and then answer the personality questionnaire.

The questionnaire included a few questions measuring episodic envy (a modified version of the scale used by Cohen-Charash & Mueller, 2007), a personality questionnaire (included to obfuscate the intent of the zodiac study), and a few demographic questions. Envy was measured by asking participants to indicate the extent to which they agreed with each of seven statements using a 7-point scale (ranging from 1: Strongly disagree to 7: Strongly agree), including “I feel envious now,” “I lack some of the things others here have,” “I feel resentment toward those here who have more than I do.” The questionnaire also included a manipulation check for the main study. Framed as questions about the relationship between zodiac signs and prediction performance, the two questions in the manipulation check asked participants to indicate how much money they thought was available for (1) the Anagram Study and (2) the Zodiac and Personality Survey, with the most accurate estimate earning an additional \$10.

Results

Manipulation check

We first checked whether our manipulations worked effectively by examining participants’ estimates of the amount of money available for each of the two studies. Participants’ estimates were lower in the poor condition ($M = \$429$) than both in the wealthy condition ($M = \$5017$, $p < .001$) and in the wealthy-bystander con-

³ It is also useful to understand whether findings are robust to variations in magnitude of stimulus, which ours appear to be.

⁴ Once again, we conducted a separate pilot study with a separate, non-overlapping group of participants from the same subject pool ($N = 28$; $M_{age} = 21$, $SD = 1.70$) and described to them the procedure used in the Study 2. These participants were then asked to indicate whether the rate of pay (potentially \$2 per round for the anagram task in addition to \$4 for completing the survey) was considered to be fair, using a 5-point scale (ranging from 1 = very unfair to 5 = very fair, with a scale mid-point of 3 = neither fair nor unfair). On average, participants considered the rate of pay used in the study to be fair ($M = 4.14$, $SD = 0.89$); the average rating was actually greater than the scale mid-point ($t[27] = 6.79$, $p < .001$).

dition ($M = \$5357, p < .001$), $F(2, 147) = 192, p < .001, \eta^2 = .72$. In addition, these estimates did not vary across the two wealthy conditions ($p = .24$). Furthermore, the within-subject effect of the estimates for the money available in the two studies was insignificant ($p = .76$). The condition \times estimate interaction effect was instead significant, $F(2, 147) = 659, p < .001, \eta^2 = .90$. Participants' estimates of the amount of money available for the Anagram Study were significantly higher in the wealthy condition ($\$4767$) than in both the poor condition ($M = \$319, p < .001$) and the wealthy-bystander condition ($M = \$266, p < .001$), and there was no difference in the estimated amount of money between the poor and the wealthy-bystander conditions ($p = .80$), $F(2, 147) = 283, p < .001, \eta^2 = .79$. However, when participants estimated the amount of money available for the Zodiac and Personality Survey, estimates were significantly higher in the wealthy-bystander ($\$5089$) condition than in both the poor condition ($M = \$110, p < .001$) and the wealthy condition ($M = \$250, p < .001$), and there was no difference in the estimated amount of money between the poor and the wealthy conditions ($p = .39$), $F(2, 147) = 611, p < .001, \eta^2 = .89$. These results suggest that our manipulation was effective in two ways. First, participants noticed and accurately estimated the relative abundance of wealth in the room. Second, they accurately attributed the wealth to particular experimenters.

Ruling out motivation

Table 3 reports the productivity and misreporting results for the three treatment conditions. On average, participants created the same number of valid words across conditions ($M_{Wealthy} = 6.87$ vs. $M_{Wealthy-bystander} = 7.17$ vs. $M_{Poor} = 6.86, F[2, 147] < 1, p = .40, \eta^2 = .01$), suggesting that abundance of wealth played little role in motivating performance. Furthermore, we verified that there were no "careless" participants who understated their productivity one or more times.

Does abundance of wealth motivate unethical behavior?

We first investigated whether the abundance effect found in Study 1 was replicated in Study 2. If the mere presence of abundant wealth stimulates unethical behavior as hypothesized, we should find greater cheating in the two wealthy conditions (2 and 3) than in the poor condition (1). To test this possibility, we compared overstatement scores across conditions using an ANOVA. Consistent with our main hypothesis, this analysis revealed a significant main effect for condition, $F(2, 147) = 28.67, p < .001, \eta^2 = .28$. Post-hoc analyses revealed that the average overstatement score was significantly lower for participants in the poor condition ($M = 0.14, SD = 0.24$) than in both the wealthy condition ($M = 0.57, SD = 0.38; p < .001$) and the wealthy-bystander condition ($M = 0.55, SD = 0.33; p < .001$). The difference in the average overstatement score for participants in the two wealthy conditions was insignificant ($p = .75$). These results are consistent with those

from the alternative measures of unethical behavior presented in Table 2 (under Study 2).

Do more people cheat or do people cheat more?

We next examined the source of the higher level of overstatement in the wealthy conditions. We first investigated the percentages of participants who overstated their productivity in at least one round in each treatment condition. This percentage was significantly higher in the wealthy conditions than in the poor condition (81.3% for the wealthy condition and 84.3% for the wealthy-bystander condition vs. 33.3% for the poor condition, $\chi^2 [2, N = 150] = 36.85, p < .001$).

Second, we examined the number of times participants overstated their productivity and included only those participants who overstated their productivity at least once. This analysis showed that there was a statistically significant difference in the average number of overstated rounds across conditions, $F(2, 96) = 6.58, p = .002, \eta^2 = .12$. Post-hoc analyses revealed that the average number of overstated rounds was higher in the wealthy condition ($M = 3.67, SD = 1.71$) than in the poor condition ($M = 2.06, SD = 1.14; p < .001$), and it was also higher in the wealthy-bystander condition ($M = 3.16, SD = 1.48$) than in the poor condition ($p = .013$). The average number of overstated rounds was roughly the same across the two wealthy conditions ($p = .14$). These results suggest that there is a difference in the magnitude of overstatements by a similar number of individuals.

Why do people cheat in the abundance of wealth?

We examined two main explanations for the abundance effect: the perceived cost to the victim and envy. The difference in the average overstatement score for participants in the two wealthy conditions was insignificant ($p = .75$), suggesting that impact on the victim plays little role in explaining the abundance effect. If participants were factoring the experimenter's decreasing marginal utility of money into their decision to behave unethically, we would have expected cheating to decrease when the victim, the anagram experimenter, had little money in the wealthy-bystander condition. Although this mechanism does not appear to drive the abundance effect, we did not assume that this finding validated an envy mechanism.

To explore the envy explanation, we compared participants' answers on the items measuring episodic envy across conditions. We first conducted a factor analyses and confirmed that all items were part of the same construct. Second, we averaged the ratings on the items defining episodic envy to provide a measure for envy (Cronbach's alpha = .92). We then subjected this measure to a between-subject ANOVA. This analysis revealed a significant effect for our conditions ($F[2, 147] = 11.59, p < .001, \eta^2 = .14$), where envy was lower in the poor condition ($M = 2.00, SD = 1.15$) than in both the wealthy condition ($M = 3.13, SD = 1.43; p < .001$) and the wealthy-bystander condition ($M = 3.11, SD = 1.45; p < .001$). In

Table 3
Productivity and misreporting results by round and condition, Study 2.^a

Round	Number of valid words created						Percentage of participants...					
	Wealthy		Wealthy-bystander		Poor		Who actually met the goal			Who claimed to meet the goal		
	Mean	SD	Mean	SD	Mean	SD	Wealthy	Wealthy-bystander	Poor	Wealthy	Wealthy-bystander	Poor
1	6.73	2.03	6.53	2.52	6.69	1.98	10.42	15.69	15.69	52.08	49.02	19.61
2	5.81	2.57	5.71	2.23	5.75	1.55	10.42	5.88	3.92	41.67	33.33	5.88
3	7.33	1.91	7.76	2.14	7.22	1.83	18.75	29.41	27.45	81.25	76.47	33.33
4	6.75	1.86	6.98	1.99	6.98	1.82	16.67	13.73	19.61	68.75	62.75	33.33
5	6.77	2.01	7.45	1.92	6.61	2.22	14.58	25.49	17.65	66.67	80.39	35.29
6	7.81	1.97	8.61	2.06	7.90	1.78	27.08	37.25	37.25	85.42	92.16	62.75
Average	6.87	2.06	7.17	2.14	6.86	1.86	14.17	18.04	16.86	62.08	60.39	25.49

^a For the wealthy-bystander condition $N = 51$, for the wealthy condition $N = 48$, and for the poor condition $N = 51$.

Table 4

Mediation analyses, Study 2. Each mediation step contains a regression analysis.

	Variables		F	R ²	ΔR^2
	Envy β	Cheating β			
<i>Mediation analysis, Step 1</i>					
Dummy for poor			28.67***	.281	
Dummy for wealthy-bystander		.407***			
Dummy for wealthy		.428***			
<i>Mediation analysis, Step 2</i>					
Dummy for poor			11.59***	.136	
Dummy for wealthy-bystander	1.10***				
Dummy for wealthy	1.13***				
<i>Mediation analysis, Steps 3 and 4</i>					
Dummy for poor			25.83***	.347	.066***
Dummy for wealthy-bystander		.328***			
Dummy for wealthy		.347***			
Envy		.072***			

Note: Cheating is measured by the overstatement score.

* $p < .05$.** $p < .01$.*** $p < .001$.

addition, envy did not vary across the two wealthy conditions ($p = .92$). These results are consistent with [Hypothesis 2](#), which predicted that the presence of wealth would stimulate feelings of envy.

Mediation analyses

We next tested the role of envy in mediating the influence of abundance of wealth on unethical behavior ([Baron & Kenny, 1986](#)). We included bootstrapping corrections based on 100,000 iterations (sampled with replacement) to correct for the non-linear and discrete nature of our dependent variable ([Efron & Tibshirani, 1986](#); [Shrout & Bolger, 2002](#)). The results of this mediation analysis are presented in [Table 4](#).

In our first regression, we used our conditions as the independent variable and participants' overstatement score as the dependent variable. As expected, this relationship was significant ($\beta_{Wealthy} = .43, p < .001$; $\beta_{Wealthy-bystander} = .41, p < .001$), suggesting that the presence of wealth influences cheating. In the second regression, we tested the relationship between presence of wealth and envy. This relationship was also significant and positive ($\beta_{Wealthy} = 1.13, p < .001$; $\beta_{Wealthy-bystander} = 1.10, p < .001$), indicating that participants in the wealthy conditions reported feeling greater envy than did those in the poor condition. In the final step, we included presence of wealth and envy as independent variables and cheating as measured by participants' overstatement score as the dependent variable. Supporting our third hypothesis (Sobel test, $Z = 2.83, p = .005$), the effect of the presence of wealth on cheating was significantly reduced ($\beta_{Wealthy} = .35, p < .001$; $\beta_{Wealthy-bystander} = .33, p < .001$) when the direct influence of envy was included in the regression ($\beta = .07, p < .001$). These results support our fourth hypothesis and demonstrate that envy partially mediates the effect of abundant wealth on unethical behavior.

Robustness checks and alternative specifications

Our use of t -statistics in analysis of variance and mediation analysis assumes normally distributed and continuous data. Our use of discrete overstatement scores censored at values of 0 and 1 violates these assumptions, and there are reasons to believe that individuals with identical overstatement scores did not behave identically. For example, an individual who performed poorly, reaching no goals, would have an overstatement score of 1 only if she cheated six times. A high-performing individual who reached five goals would have an identical score if she cheated just once. Since we might believe these two individuals exhibit different

cheating behaviors, we may wish to model the decision to cheat as *conditional* on performance.

We present results from several alternative specifications in [Table 5](#). These include two-sided Tobit models accounting for censoring, ordered probit models accounting for discrete data structure, and a conditional logit accounting for cheating being conditional on performance. Results from all these models are consistent with our main findings, showing our results are robust to misspecification.⁵

Discussion

The results of Study 2 provide further support for the hypothesized abundance effect and suggest that the presence of wealth stimulates feelings of envy. The results also demonstrate that the experience of envy increases people's likelihood to engage in unethical behavior for personal gain, and that envy partially explains the relationship between the presence of abundant wealth and individual unethical behavior.

Study 3

While Study 2 provides some preliminary evidence for envy as an important mediator in the relationship between abundant wealth and unethical behavior, our design did not allow us to rule out alternative explanations for why the mere presence of abundant wealth in the environment leads to individual unethical behavior.

Prior psychological research has demonstrated that, compared to non-monetary reminders, reminders of money lead people to focus on themselves (e.g., by expressing the desire to play and work alone) and distance themselves from others ([Vohs et al., 2006](#)), suggesting that monetary stimulation increases self-serving and self-focused behaviors. Thus, an alternative mechanism for the abundance effect might be that individuals' focus on their self-interest or their focus on greed (i.e., their self-serving desire for the pursuit of money) increase with the amount of money present

⁵ It is important to note that the robustness of our results to specification changes is partly due to the sheer magnitude of the abundance effect and the mechanism of envy. This should in no way be interpreted as evidence that t -tests are ideal for truncated, non-normally-distributed discrete data. In fact, we would suggest that in studies that identify weaker effects, these models may produce results of varying statistical significance and are encouraged for future work.

Table 5
Alternative specifications, Study 2. All models use robust standard errors.

Model	Tobit (1)	Tobit (2)	OProbit (3)	OProbit (4)	Cond. Logit (5)	Cond. Logit (6)
Dependent variable	Overstatement score	Overstatement score	Rounds cheated	Rounds cheated	Cheat dummy	Cheat dummy
Dummy for poor						
Dummy for wealthy-bystander	.76***	.63***	1.48***	1.28***	2.71***	2.43***
Dummy for wealthy	.78***	.66***	1.54***	1.37***	2.21***	1.89***
Actual performance	-.12**	-.11*	-.46***	-.45***	Absorbed	Absorbed
Envy		.12***		.28***		.43*

* $p < .05$.

** $p < .01$.

*** $p < .001$.

in the environment. Additionally, individuals may justify unethical behavior in abundant environments because they believe a marginal loss will have a minimal effect on the victim's happiness. This possibility suggests that an alternative explanation for the abundance effect is the perceived impact of over-reporting on others.

Another possibility is that wealthy environments have more assets to steal than do poor environments, or at least that wealthy environments are perceived as having more assets to spare. This "deep pockets" explanation might also apply to crime (if thieves steal more from the rich than from the poor) and lawsuits (if complainants are more inclined to sue rich defendants than poor ones). However, this intuitive explanation is not backed up by empirical data (MacCoun, 1996), including studies on crime rates (showing, for instance, that crime is higher in poor rather than rich neighborhoods, see Levitt, 1999) or lawsuits (showing no support for the effect of a defendant's wealth on juror judgments, see MacCoun, 1996). Despite the lack of empirical support for the deep-pockets hypothesis, it is important to measure whether perceptions of abundance or scarcity in an environment account for the abundance effect.

Taken together, these findings suggest that the presence of money may produce consequences other than envy that might translate into unethical behaviors. Specifically, they suggest that the presence of wealth may influence greed, self-focus, self-serving biases, individuals' perceptions of the risk of being caught, and their perceptions of norms associated with stealing or cheating in environments of abundant wealth vs. environments of scarcity. Study 3 was designed to test whether these alternative explanations can account for the abundance effect demonstrated in our first two studies.

Methods

Participants

Seventy-four individuals (56% male; $M_{age} = 21$, $SD = 3.19$) participated in the study. Most participants (92% of them) were students from local universities in a city in the southern United States. Participants were randomly assigned to one of two conditions: a poor condition ($N = 38$) or a wealthy condition ($N = 36$).

Design and procedure

Study 3 used the same procedure as in Study 2, but with three important differences. First, Study 3 included only the poor and wealthy conditions, as in Study 1, and did not include a wealthy-bystander condition. Second, we added additional measures to the Zodiac and Personality Survey in order to test for alternative mechanisms that might explain the abundance effect. The third change concerns the timing of the Zodiac and Personality Survey. While participants in Study 2 first completed the Anagram Study and then the Zodiac and Personality Survey, in Study 3, participants first completed the six rounds of the Anagram Study and then, before checking their own work and filling out their answer

sheets, they completed the Zodiac and Personality Survey. Prior to the beginning of each session, the experimenters moved the Scrabble® dictionaries into a different room. Once participants completed the six rounds of the Anagram Study, the experimenter conducting this study informed participants that she needed to leave the room for a few minutes to get the dictionaries. She asked the other experimenter to start her study so that participants would not waste any time. At that point, the second experimenter distributed the questionnaire and instructions for the Zodiac and Personality Survey. In addition to personality questions unrelated to the study, the questionnaire included measures for self-focus, self-serving bias, and feelings of envy. Finally, after a few minutes, the first experimenter returned with the Scrabble® dictionaries, waited for participants to finish working on the Zodiac and Personality Survey, and then instructed participants on how to grade their work on the anagram task. Once participants graded their work and paid themselves, they filled out a final questionnaire, which included questions about perceptions of the risk of being caught cheating, greed, and the perceived impact of over-reporting on others. We measured these variables in a questionnaire separate from the one used in the Zodiac and Personality Survey because we did not want to mention the fact that participants had the opportunity to misreport their performance before they actually graded their work.

Zodiac and Personality Survey

The questionnaire used in the Zodiac and Personality Survey included the same measures as in Study 2 plus some additional questions. As in Study 2, the items used for the scale measuring envy showed high reliability (Cronbach's $\alpha = .93$). In addition to envy, the questionnaire included a measure for situational self-focus. Situational self-focus, or self-awareness (Fenigstein, Scheier, & Buss, 1975), captures individuals' attention to their internal or personal thoughts and feelings (private self-awareness) and their attention to their features as they are presented to others (public self-awareness) (Buss, 1980). We measured self-focus by using the situational self-awareness scale (SSAS) developed by Govern and Marsch (2001). Since attention is often focused on something other than one's self, the scale also includes items measuring focus on physical surroundings. The scale consists of nine items, including statements such as, "Right now, I am aware of everything in the environment" [surroundings], "Right now, I am aware of my thoughts" [private], or "Right now, I am concerned about what other think of me" [public]. Participants were asked to indicate how much they agreed with each statement using a 7-point scale (ranging from 1: Strongly disagree, to 7: Strongly agree). Scores on the three items of each subscale of the SSAS were summed to provide one score for each subscale (each subscale showed high reliability, Cronbach's $\alpha > .80$).

The self-serving bias, or people's tendency to shade judgments in a manner favorable to themselves, was measured using two hypothetical scenarios initially developed by Babcock (2002) and

successfully used by other scholars (e.g., Nagin & Pogarsky, 2003). Each scenario describes a minor mishap for which the respondent and another individual share fault. The first involves spilling a pitcher of beer in a bar, and the second concerns a minor car accident in a parking lot. After reading each scenario, participants indicated their responses using a 7-point scale ranging from 1: "I am completely at fault" to 7: "They are entirely at fault." The sum of the two responses ranges from 2 to 14, with larger scores indicating greater self-serving bias.

As in Study 2, the questionnaire also included a manipulation check for the main study. Specifically, we asked participants to indicate how much money they thought was available for (1) the Anagram Study and for (2) the Zodiac and Personality Survey, with the most accurate estimate earning an additional \$10. After the two questions, we also asked participants to indicate to what extent they thought the funds available for each study was scarce using a 7-point scale (ranging from 1: Not at all to 7: To a great extent). With these questions, we measured participants' perceptions of available resources for each of the two studies.

Final questionnaire

Once participants completed both the Zodiac and Personality Survey and the Anagram Study, they were asked to complete a final brief questionnaire. This questionnaire was completed after participants had received their money for both studies. The questionnaire included some demographic questions, as well as questions measuring greed, perceived impact on others of the act of over-reporting performance, and perceived risk of being caught. These questions were based on prior work by Eek and Biel (2003). The question measuring greed read, "When you were completing the answer sheet during the second part of the Anagram Study, to what extent did you think of the additional bonus per round you could receive if you reached the goal?" The question measuring perceived impact of over-reporting on others read, "When you were completing the answer sheet during the second part of the Anagram Study, to what extent did you consider the fact that the fund from which participants are paid might deteriorate if too many participants performed well on the anagram task?" The last question measured risk perceptions: "It is possible that some participants did not check their work properly and thus misreported their performance on the anagram task. To what extent do you think it is possible for the experimenter to find out about such cases?" The endpoints of these scales were defined as 1 (to a very small extent) and 7 (to a very large extent).

Results

Manipulation check

We first checked whether our manipulation worked effectively by examining participants' estimates for the amount of money available for each of the two studies. Participants' estimates of the total available money for the Anagram Study were lower in the poor condition ($M = \$483$) than in the wealthy condition ($M = \$5720$) $t(72) = 20.47, p < .001$. By contrast, participants' estimates of the total available money for the Zodiac and Personality Survey were no different across the two conditions ($t(72) < 1, p = .77$).

Ruling out motivation

Table 6 reports the productivity and misreporting results for the two conditions. On average, participants created the same number of valid words across conditions ($M_{Wealthy} = 7.20$ vs. $M_{Poor} = 6.91$; $t[72] = 1.12, p = .27$), suggesting that abundance of wealth played little role in motivating performance. Furthermore, we verified that there were no "careless" participants who understated their productivity one or more times.

Does abundance of wealth motivate unethical behavior?

To test for the abundance effect in Study 3, we compared overstatement scores across the two conditions. As predicted, the overstatement score was higher in the wealthy condition than in the poor condition (.56 vs. .14), $t(72) = 6.15, p < .001$. These results were consistent with our analyses using alternative measures of unethical behavior, which are presented in Table 2 (under Study 3).

Do more people cheat or do people cheat more?

We next examined the source of the higher level of overstatement in the wealthy condition compared to the poor condition. The percentages of participants who overstated their productivity in at least one round in each treatment condition was significantly higher in the wealthy condition (83%) than in the poor condition (37%), $\chi^2(1, N = 74) = 16.58, p < .001$. We also examined the number of times participants overstated their productivity by considering only those participants who overstated their productivity at least once. We found that the average number of overstated rounds was higher in the wealthy condition ($M = 3.33, SD = 1.49$) than in the poor condition ($M = 1.79, SD = 0.89$), $t(72) = 3.58, p = .001$. These results suggest that the presence of wealth increased both the number of participants who overstated their productivity as well as the level of cheating by similar individuals.

Why do people cheat in the abundance of wealth?

In our next set of analyses, we examined the influence of different explanations for the abundance effect. We considered the following mechanisms: self-focus, self-serving biases, greed, risk perceptions, perceived impact of over-reporting on others, perceptions of scarcity, and feelings of envy. Table 7 reports the descriptive statistics of each of these measures by condition, as well as the results of tests of significance between the two treatment conditions. As shown in Table 7, we found little support for any mechanism other than envy. Envious feelings were significantly higher in the wealthy condition than in the poor condition, thus providing further support for Hypothesis 2.

Mediation analyses

We next tested whether envy mediated the relationship between abundance of wealth and unethical behavior. As we did for Study 2, we included bootstrapping corrections based on 100,000 iterations (sampled with replacement) to correct for the non-linear and discrete nature of our dependent variable (Efron & Tibshirani, 1986; Shrout & Bolger, 2002). In our first regression, we used our conditions as the independent variable and participants' overstatement score as the dependent variable. As expected, this relationship was significant ($\beta_{Wealthy} = .59, p < .001$), suggesting that the presence of wealth influences cheating. In the second regression, we tested the relationship between presence of wealth and envy and found that it was significant and positive ($\beta_{Wealthy} = 0.56, p < .001$). In the final step, we included presence of wealth and envy as independent variables and cheating as measured by participants' overstatement score as the dependent variable. Supporting our third hypothesis (Sobel test, $Z = 4.94, p < .001$), the effect of the presence of wealth on cheating was significantly reduced ($\beta_{Wealthy} = .17, p < .05$) when the direct influence of envy was included in the regression ($\beta = .74, p < .001$), thus suggesting partial mediation. The R^2 significantly increased from .34 to .72 ($p < .001$). Consistent with the findings of Study 2 and with Hypothesis 4, these results suggest that envy partially mediates the relationship between abundance of wealth and unethical behavior.

Table 6
Productivity and misreporting results by round and condition, Study 3.^a

Round	Number of valid words created				Percentage of participants...			
	Wealthy condition		Poor condition		Who actually met the goal		Who claimed to meet the goal	
	Mean	SD	Mean	SD	Wealthy	Poor	Wealthy	Poor
1	7.19	1.56	6.55	2.00	16.67	13.16	44.44	18.42
2	6.47	1.65	6.26	1.61	13.89	15.79	38.89	15.79
3	7.53	1.23	7.32	1.79	19.44	28.95	80.56	36.84
4	7.14	1.48	7.13	1.74	22.22	23.68	69.44	34.21
5	7.00	1.57	6.45	2.19	13.89	15.79	69.44	31.58
6	7.86	1.53	7.76	1.67	22.22	26.32	83.33	52.63
Average	7.20	1.50	6.91	1.83	18.06	20.61	64.35	31.58

^a For the wealthy condition $N = 36$, while for the poor condition $N = 38$.

Table 7
Potential explanations for the abundance effect, Study 3.

Measure	Wealthy condition		Poor condition		Test of significance	
	Mean	SD	Mean	SD	Mann-Whitney	p
Private self-focus	8.22	2.73	7.79	3.10	$z < 1$.48
Public self-focus	9.75	3.64	9.34	3.47	$z < 1$.77
Surroundings	9.36	3.24	8.76	2.93	$z < 1$.53
Self-bias	9.31	2.15	9.24	1.98	$z < 1$.97
Greed	1.39	0.60	1.32	0.53	$z < 1$.64
Impact on others	1.31	0.47	1.47	0.65	$z = 1.00$.32
Risk perceptions	1.33	0.54	1.32	0.47	$z < 1$.99
Perceptions of scarcity	2.83	0.94	3.11	0.89	$z = 1.29$.20
Envy	3.11	1.33	1.65	0.84	$z = 5.15$	<.001

Discussion

The results of Study 3 provide further support for the hypothesized abundance effect. Study 3 also examined the role of possible explanations for this effect. While we cannot reject alternative explanations based on null findings, it is safe to interpret our results as providing little evidence for any of the measured mechanisms other than envy. Our results demonstrate that the presence of wealth stimulates feelings of envy which, in turn, lead to unethical behavior. The results also demonstrate that envy partially mediates the effects of abundant wealth on unethical behavior.

General discussion and conclusions

It appears that people's decisions and behavior are deeply affected by the presence of wealth. In our studies, the presence of wealth did not provide additional opportunity for theft, yet its mere proximity encouraged unethical behavior. In the experiments, participants had the opportunity to cheat by overstating their performance and acquiring unearned money. In each study, at least one group was stimulated by the visible proximity of abundant wealth, which led to more frequent cheating than an environment of scarcity. The consistency of our results across the studies provides strong evidence for the abundance effect, such that an environment of abundant wealth increases unethical behavior. Wealth appears to influence the magnitude of overstatement and to push individuals beyond an ethical tipping point, corrupting them into fraud. Furthermore, the effect of the abundance of wealth on unethical behavior seems to be explained, at least in part, by feelings of envy resulting from inequity perceptions individuals experience in a wealthy environment. These findings are consistent with our theoretical argument, suggesting that abundant wealth induces inequity perceptions in those who operate in the wealthy environment. Distress from such inequity perceptions fuels feelings of envy, which, in turn, motivate unethical

behavior. While we cannot directly measure equity by manipulating participants efforts on the task, the abundant wealth used in our wealthy condition can be easily perceived as inequitable by study participants.

Limitations and directions for future research

While envy appears to be an important mechanism behind the abundance effect, other underlying mechanisms may play a role, as we have discussed. Study 3 measured some of the alternative mechanisms that might account for the abundance effect (such as self-focus or greed) and found little support for them. Future studies that manipulate these variables rather than simply measuring them might provide important insights on the mechanisms explaining the abundance effect. One important mechanism not measured here is the time inconsistency of money preferences, or what we might refer to as "impulse cheating." In a process similar to impulse buying behavior (Hirschman & Holbrook, 1982; Hoch & Loewenstein, 1991), individuals exposed to wealth may suffer rapid increases in desire for money, despite their attempts to control their behavior. In retrospect, these individuals may regret their decision to cheat, but their choices were temporarily modified by the proximity of the cash. This mechanism, which may explain proportions of the abundance effect that we cannot attribute to envy, remains a subject for future study.

Another alternative explanation for the demonstrated abundance effect is the possibility that individuals might perceive the risk of being caught to be lower in the presence of wealth. Indeed, in the presence of wealth, people might think that the owners of that wealth will have difficulty keeping track of their resources or that they will be less motivated than others to monitor for loss. Deterrence theory suggests that unethical behavior will be inhibited or deterred in direct proportion to the perceived probability of being caught and the severity of punishment for the behavior. Several studies have shown that unethical behavior is inversely related to the risk of being caught (e.g., Hill & Kochendorfer, 1969;

Leming, 1980). Similarly, prior studies have shown that unethical behavior is inversely related to the severity of the punishment (Michaels & Miethe, 1989). While this factor is likely important in field manifestations of the abundance effect, we are confident that we have controlled for it in our experimental design by assuring anonymity to participants. The lack of significant differences on the perceived risk measure used in Study 3 also suggests that this might in fact be the case.

Future research could benefit from investigating the abundance effect using different methodological approaches and samples, particularly within real organizations. Such investigations would strengthen the generalizability of the present results and could uncover important boundary conditions of both the findings and the theory we have presented. This potential research path highlights a limitation of the present work, namely the use of laboratory studies. Van den Bos (2001) suggested that researchers working with new models and theories should first test their hypotheses in experimental settings and then take these models into the field for further validation. Sharing this view, we decided to start our investigation of the effects of wealth on unethical behavior in a controlled, laboratory setting.

Another venue for future research is the study of egocentric biases in the presence of abundant wealth. Prior work on egocentric biases in responsibility allocations suggests that people focus too much on their own contributions and too little on others' contributions (e.g., Caruso, Epley, & Bazerman, 2006). The research presented here could be extended to cases in which individuals are working together on a common outcome and are given the possibility to overstate their contributions in environments of abundance vs. environments of scarcity. Studying the role of egocentric biases in overstating performance in such environments could provide interesting insights into the boundary conditions of the abundance effect.

Finally, future research could further test the theoretical framework we proposed. According to our framework, abundant wealth leads to unethical behavior through various steps which include both perceptions of inequity and feelings of envy. In our studies, we focused on the role of envy in explaining the effect of abundant wealth on individuals' likelihood to behave dishonestly. Future research could test for the full model in which abundant wealth in the environment leads to perceptions of inequity which, in turn, leads to feelings of envy. The experience of envy then leads to unethical behavior.

We acknowledge that the cash used in our studies may produce greater unethical behavior than wealth represented by objects and other organizational possessions. While the use of cash in developed countries is decreasing, organizations where cash is prevalent and visible still exist and continue to be dominant in developing countries and in criminal organizations. Employees in such organizations may be frequently exposed to environmental stimuli similar to our setting, in which abundant cash contrasts with low personal wealth or income. Although further studies are needed to simulate and understand environments where non-cash wealth is common, we feel there are direct applications of the current studies to settings characterized by non-cash wealth.

Theoretical contributions and practical implications

Our results extend prior research investigating factors influencing people's likelihood to engage in unethical behavior. Several models of unethical behavior (e.g., Ferrell & Gresham, 1985; Hegarty & Sims, 1978; Hegarty & Sims, 1979; Treviño, 1986; Treviño & Youngblood, 1990) suggest that misconduct is influenced by a person–situation interaction. Specifically, the tendency of people to engage in unethical behavior depends on both characteristics of the situation and characteristics of the individual. For instance,

prior work has shown that both individual factors (e.g., gender, age, and nationality) and personal characteristics (e.g., ethical framework, stage of moral development, religion, employment, and individual's concern for self-presentation) influence ethical behavior (for a review, see Loe, Ferrell, & Mansfield, 2000, or Ford & Richardson, 1994). Previous studies have also identified a number of contextual factors that affect ethical behavior, such as the use of incentives (Flannery & May, 2000; Schweitzer & Croson, 1999) or codes of ethics (Weaver, Treviño, & Cochran, 1999). The present work suggests that one of the situational features influencing an individual's likelihood to engage in unethical behavior is the presence of abundant wealth. While prior research has been silent on the effect of this factor, we believe it to be an important one given the prevalence of abundant and visible wealth in organizational environments.

Our research also contributes to prior work on the effects of environmental cues on individual behavior. Research suggests that the environment in which people operate activates explicit or implicit norms that, in turn, might influence the tendency to cross the ethical line. Cialdini et al. (1990), for example, found that the amount of litter in an environment subtly activates norms prescribing appropriate or inappropriate littering behavior in a given setting and, as a result, regulates littering behavior. Similarly, Aarts and Dijksterhuis (2003) show that simple visual stimulus can activate situational norms; they found that individuals automatically lowered their voices when asked to look at a photograph of a library. In these studies, there is a direct correspondence between a specific feature of the environment and a regulated behavior (e.g., litter and littering, libraries and quietness). Consistent with this body of research, our findings suggest that the presence of abundant wealth influences individuals' unethical behavior. The question of whether abundant wealth also influences people's perceptions of social norms pertaining to stealing remains open.

Finally, our work contributes to prior work on the effects of envy in driving unethical behavior. Prior research has argued that emotions such as envy might drive unethical behavior (Schweitzer & Gibson, 2008) and has found that envy promotes deception (Moran & Schweitzer, 2008). In an experimental study, Moran and Schweitzer (2008) found that participants in an ultimatum game were more likely to lie to a counterpart they envied than to a counterpart they did not envy. In our own work, we consider envy as a motivator of unethical behavior, but we depart from prior research in this area in several ways. First, we measure envy as a result of inequity perceptions in the presence of abundant wealth. Second, we show that envious feelings do not need to be directed toward a specific counterpart in order to motivate unethical behavior. We believe this to be an important distinction that deserves further investigation.

Our findings are important in light of public cases of individual unethical behavior within organizations and in society at large. Self-reporting is a common method for evaluation and compensation in today's organizations. Individuals who receive performance- and time-based compensation face strong incentives to overstate hours worked, tasks performed, and milestones accomplished. Research and teaching assistants working for professors in academia are asked to self-report the number of hours they work, as are many associates in law, accounting, and consulting firms. The opportunity to inflate compensation is broadly available in organizations of all types, as well as in transactions involving tax filings, insurance claims, and independent contracting.

Our identification of an abundance effect on unethical behavior thus has serious implications for institutions and organizations. If the mere presence of abundant wealth increases unethical behaviors such as theft, fraud, and corruption, then organizational environments may be critical determinants of employee discretionary behavior. Visible environmental wealth may stimulate unethical

behavior by employees or customers that do not possess or share the wealth, as these individuals may be driven by envy or other mechanisms to extract wealth from an opulent environment. This effect may extend beyond theft and fraud to effort, such that employees work less hard in environments of abundant wealth.

This work offers prescriptive implications for managers, as it suggests that changes in organizational policies regarding facility design and allowable employee expenses may directly impact ethical decisions throughout an organization. Our results suggest that policies such as Ikea's rule that "everyone flies economy" (Capell, 2005) may reduce envy and its consequences throughout a firm. While there may be multiple explanations for recent increased levels of employee theft at Wal-Mart (Fox News, 2007), the problem may have been stimulated or exacerbated by changes in company policies after the death of its founder. According to one employee, such changes led company executives to immediately trade their trucks for luxury cars and secure reserved parking spots (Bloomberg, 2004). Given the finding that 95% of all US businesses experience employee theft (Case, 2000) and lose almost \$52 billion per year (Weber, Kurke, & Pentico, 2003), this unethical behavior can have severe consequences for organizational performance.

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