The Impact and Mechanism of External Resource Scarcity on Employee Compensation and Reward Preferences: Postprint

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Abstract

Previous research on the choice between time and monetary rewards has primarily adopted an employee tenure perspective. However, this perspective cannot directly explain variations in employees' preferences for time versus monetary rewards when external environmental resources are scarce. Grounded in life history theory, this study investigates how the scarcity of external environmental resources (e.g., employment resources and natural resources) influences employees' preferences for time versus monetary rewards and the underlying mechanisms. Using samples of university students about to enter the workforce and corporate employees, we find that both external employment resource scarcity and external natural resource scarcity lead employees to prefer monetary over time rewards. The underlying mechanism is that individuals' psychological representations become more concrete when external environmental resources are scarce, and this effect is more pronounced among high materialists (Experiments 1 and 2). The conclusion discusses theoretical contributions and advancements to research on resource scarcity, time, and money.

Full Text

The Influence and Mechanism of External Environmental Resource Scarcity on Employee Compensation Reward Preferences

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Abstract

Previous research on the choice between time and monetary rewards has primarily examined employee tenure. However, this perspective cannot directly explain differences in employee preferences for time versus monetary rewards when external environmental resources become scarce. Drawing on life history theory, this paper investigates how scarcity (or abundance) of external environmental resources (such as employment resources and natural resources) influences employee preferences for time versus monetary rewards, as well as the underlying mechanisms. Using samples of college students about to enter the workforce and current employees, we find that both external employment resource scarcity and natural resource scarcity increase preference for monetary over time rewards. The underlying mechanism is that resource scarcity leads to more concrete psychological representations, and this effect is more pronounced among individuals with high materialistic values (Experiments 1 and 2). We conclude by discussing theoretical breakthroughs and advancements for research on resource scarcity, time, and money.

Keywords: time and monetary reward preferences; resource scarcity; psychological representation; materialistic values
Classification: B849:C93

The external environmental resources on which human survival depends—employment resources and natural resources (such as air and water)—are becoming increasingly scarce and depleted. Will this scarcity affect employees' preferences when choosing between time and money as compensation rewards? Current research in organizational behavior and human resources, both domestically and internationally, rarely addresses this question, despite its significant theoretical value and practical importance. Notably, domestic scholar Li Linfeng (2016) examined demographic variables affecting employee compensation preferences, finding that employees with 0–3 years of tenure prefer monetary rewards, while those with four or more years prefer time rewards. However, Li' s conclusions suffer from several limitations: First, employees with shorter tenure may prefer money due to lack of financial stability, which the author did not further discuss; second, the author did not examine how external environmental resource scarcity affects employee compensation preferences, despite such scarcity threatening employees' economic security. This paper directly investigates whether external environmental resource scarcity influences employee preferences for compensation reward types, as well as the underlying mediating and moderating mechanisms.

We propose that external environmental resource scarcity will lead employees to prefer monetary rewards over time rewards. Specifically, life history theory (LHT; Kaplan & Gangestad, 2005) suggests that individuals in harsh environments adopt fast life strategies (focusing on immediate gains) rather than slow life strategies (emphasizing future benefits) (Griskevicius et al., 2013). Temporal distance is closely linked to psychological representation; people represent

distant events more abstractly and near events more concretely (Liberman & Trope, 1998). Therefore, we argue that when employees face harsh environments such as resource scarcity, their thinking becomes more concrete. Research indicates that activating concrete representations leads people to prefer money, while activating abstract representations leads them to prefer time (Macdonnell & White, 2015). Consequently, the concrete psychological representation triggered by external environmental resource scarcity will lead employees to prefer monetary rewards that match this concrete representation rather than time rewards. Given that materialistic values represent individual differences in the importance placed on money, high materialists value money more and are more likely to define their success through financial achievement (Richins, 2004). We further predict that the effect of external environmental resource scarcity on monetary reward preference will be more pronounced among high materialists.

Using samples of college students about to enter the workforce and current employees, we conducted two experiments to test how external environmental resource scarcity influences employee reward preferences. Theoretically, this paper examines whether external environmental resource scarcity affects employee compensation preferences, advancing research in life history theory, time, and money. Practically, it provides theoretical foundations and practical guidance for organizational compensation system design and employee motivation enhancement.

2.1 Individual Preferences for Time Versus Monetary Rewards Under External Environmental Resource Scarcity

Life history theory explains how all organisms (including humans) develop and adopt different life history strategies (Kaplan & Gangestad, 2005) and optimize the allocation of limited resources (Charnov, 1993; Griskevicius, Tybur, Delton, & Robertson, 2011). The tendency or process of life history trade-offs can be conceptualized as life history strategy (LHS), a continuous spectrum with "fast strategy" and "slow strategy" as its poles (Lin & Wang, 2015). Different individuals adopt different life history strategies to allocate resources when facing life challenges (Kaplan & Gangestad, 2005). External environmental factors, such as resource scarcity, are key determinants of individual life history strategies (Ellis, Figueredo, Brumbach, & Schlomer, 2009). Research indicates that individuals' life history strategies change with environmental conditions (Griskevicius, Delton, Robertson, & Tybur, 2011; Griskevicius, Tybur, et al., 2011). Specifically, when individuals perceive the future external environment as unstable and insufficient, they adopt fast life history strategies emphasizing short-term outcomes (e.g., earlier marriage and childbearing). Conversely, when they perceive the future environment as stable and abundant, they adopt slow life history strategies emphasizing long-term development (e.g., pursuing more education for personal advancement) (Belsky & Pluess, 2009a, 2009b; Griskevicius, Delton et al., 2011; Peng et al., 2016).

In summary, life history theory suggests that when external environmental re-

sources are scarce, individuals focus on the present, whereas when resources are abundant, they focus on the future.

When individuals focus on the present versus the future, their psychological representations of things differ. Construal level theory (CLT; Vallacher & Wegner, 1989) posits that people' s reactions to events depend on their psychological representations. The theory further proposes that when perceiving events as temporally distant, people tend to represent them abstractly (high-level construal) and prefer what is highly desirable but potentially unfeasible. When perceiving events as temporally near, they tend to represent them concretely (low-level construal) and prefer what is less desirable but highly feasible (Liberman & Trope, 1998; Liberman, Trope, & Wakslak, 2007). In addition to temporal distance, spatial distance, social distance, and hypotheticality (probability) follow the same pattern: when spatial distance is near, social distance is near, and probability is high, psychological representations are concrete; otherwise, they are abstract (Li, Zhou, & Zhou, 2009). Given that life history theory suggests people in harsh environments cannot see a distant future and focus only on the near present, we propose that harsh environments such as external environmental resource scarcity activate concrete psychological representations, while resource-abundant non-harsh environments activate abstract psychological representations.

Research indicates that people represent money and time differently in their psychological representations. Money is more concrete than time; mentioning time leads people to think of more abstract and distant concepts such as happiness and life (Aaker, Rudd, & Mogilner, 2011; Rudd, Vohs, & Aaker, 2012), while mentioning money leads people to think of more concrete and near concepts such as paper currency, spending (Vohs, Mead, & Goode, 2006), purchasing necessities, and working hard (Mogilner, 2010). Thus, individuals represent money using more concrete thinking and time using more abstract thinking (Macdonnell & White, 2015). Research shows that people' s choices match their psychological representations. When psychological representations are concrete, people choose near, concrete things; when representations are abstract, they choose distant, abstract things (Liberman, Trope, & Wakslak, 2007). We further propose that compared with no resource scarcity, harsh environments such as external environmental resource scarcity activate concrete (vs. abstract) psychological representations, leading people to prefer monetary rewards that match this concrete representation rather than time rewards. Based on this, we derive the following hypotheses:

Hypothesis 1: Compared with no external environmental resource scarcity, employees are more likely to choose monetary rewards over time rewards when external environmental resources are scarce.

Hypothesis 2: The effect of external environmental resource scarcity on employees' preference for monetary over time rewards is mediated by psychological representation.

2.2 The Moderating Role of Materialistic Values on Resource Scarcity and Monetary Reward Preference

Materialism is a personal value emphasizing the importance of possessing material wealth (Richins & Dawson, 1992). High and low materialists behave differently (Mogilner & Aaker, 2009). High materialists tend to associate the self with money, enjoy the pleasure of consumption and material possession, while low materialists value economic success less and focus more on satisfying intrinsic needs (Kasser & Ryan, 1993). High materialists desire higher income levels (Richins & Dawson, 1992), and their material desires often place them in a non-leisurely lifestyle, spending less time with family and more time working and earning money (Roberts & Clement, 2007; Vohs, Mead, & Goode, 2006). This suggests that high materialists are more willing to sacrifice time to obtain money. Therefore, we believe that high materialists prefer monetary rewards over time rewards.

We further argue that high materialists' preference for monetary over time rewards will be more pronounced under external environmental resource scarcity. Because scarcity of survival resources threatens individuals' basic sense of security (Ellis et al., 2009), materialism often serves as a compensatory strategy when individuals feel insecure, reducing the pain and anxiety caused by insecurity (Kasser, Ryan, Zax, & Sameeroff, 1995). Research further finds that when external resources are scarce, individuals think more concretely and focus on details and peripheral cues (Griskevicius, Delton et al., 2011). Therefore, we believe that when high materialists perceive external environmental resource scarcity, their thinking becomes more concrete, leading them to cope with resource scarcity by choosing monetary rewards or strengthening their monetary preferences.

We contend that low materialists may not necessarily cope with resource scarcity by choosing money or accumulating wealth. Instead, they may adopt other coping strategies, such as strengthening interpersonal connections. Therefore, resource scarcity may not increase monetary preference among low materialists. Based on this, we derive the following hypothesis:

Hypothesis 3: The effect of external environmental resource scarcity on employees' preference for monetary over time rewards is moderated by materialistic values. This effect is more pronounced among individuals with high materialistic values.

We test these hypotheses through two experiments. The samples include both current employees and prospective employees (college students). Experiment 1 is a laboratory experiment using college students, focusing on how external employment resource scarcity influences preferences for time versus monetary rewards. Experiment 2 is a field experiment using employees to enhance ecological validity and generalizability. Notably, there are many types of external environmental resources; this paper focuses on two resources most closely related to employees' work and life: employment resources and natural resources.

Experiment 1

Experiment 1 aims to test Hypotheses 1, 2, and 3 using external employment resource scarcity, examining employees' preferences for time versus monetary rewards and the underlying mediating and moderating mechanisms. Additionally, Experiment 1 tests whether positive and negative emotions might serve as alternative explanations. Isen and Patrick' s (1982) mood maintenance hypothesis suggests that people in positive emotional states avoid risk, while those in negative emotional states tend to take risks to obtain gains. When external employment resources are scarce, people perceive insecurity, which may induce negative emotions and lead them to prefer monetary over time rewards. Following Hill et al. (2012), this experiment manipulates external environmental resource scarcity through employment resource scarcity (reading news about employment difficulties).

Based on focus group interviews, we learned that employment is one of the most concerning topics for prospective employees (college students). Therefore, we selected four news excerpts describing employment resource scarcity, each approximately 200 words. Participants rated each excerpt on perceived employment resource scarcity (1 = not scarce at all, 7 = very scarce). A pretest (N = 132) found that the second excerpt had the highest employment scarcity rating (M = 5.94, SD = 0.85). This excerpt was used as the scarcity manipulation in Experiment 1.

Experimental Design: Experiment 1 used a single-factor between-subjects design with external employment resource scarcity (scarcity group vs. control group vs. no-scarcity group). The dependent variable was reward type choice (vacation vs. bonus). Experiment 1 measured participants' positive and negative emotions to test for alternative explanations. One hundred twenty college students about to enter the workforce (62 males, mean age = 21.34 years, SD = 1.12) participated in Experiment 1.

Procedure: First, external resource scarcity was manipulated. Participants were randomly assigned to three groups: the external employment resource scarcity group read material about employment resource scarcity, the no-scarcity group read material about optimistic employment prospects, and the control group read employment-unrelated material. All three groups then answered questions about the material (to increase familiarity) and rated perceived employment resource scarcity (1 = not scarce at all, 7 = very scarce). After an unrelated distractor task (simple arithmetic problems to reduce suspicion about the experiment' s purpose), participants completed the compensation reward choice, answering: "Suppose you are now a corporate employee. To reward your recent excellent performance, your boss offers two options. Which would you prefer? (A) Relative to receiving one day' s income, I would prefer a time reward of one day off; (B) Relative to receiving one day off, I would prefer a monetary reward of one day's income."Next, participants completed the materialism scale, using 15 items (= 0.862) from Richins and Dawson' s (1992) 18-item

scale with factor loadings above 0.5, rating each item' s relevance to themselves (1 = not at all, 5 = very much). Items were summed (six reverse-scored) to create a total score. Participants then completed the 19-item Behavioral Identification Form (BIF; Liberman & Trope, 1998; = 0.871), where each behavior has two explanation options (one concrete, one abstract). For example, "washing clothes" was described as "1 = removing stains from clothes, 2 = putting clothes in the washing machine." Participants selected the description matching their current thinking (1 = choose a, 2 = choose b), and the 19 items were summed. Finally, participants completed positive and negative affect measures (PANAS; Watson, Clark, & Tellegen, 1988; = 0.857), rating each emotion (1 = very slightly, 5 = very much). At the end, participants reported demographic information including gender and age.

Manipulation Check: Independent samples t-tests revealed that the external employment resource scarcity group perceived higher employment resource scarcity than both the no-scarcity group (M_scarcity = 5.65, SD = 1.12 vs. M_no-scarcity = 3.10, SD = 1.18, t(78) = 9.78, p < 0.001; Cohen' s d = 2.22, effect-size r = 0.74) and the control group (M_scarcity = 5.65, SD = 1.12 vs. M_control = 4.20, SD = 1.03, t(78) = 5.15, p < 0.001; Cohen' s d = 1.35, effect-size r = 0.56). To test whether the three groups differed in emotional intensity, a one-way ANOVA was conducted on mean positive and negative emotion scores. Results showed similar positive emotion scores across groups (M_scarcity = 3.31, SD = 0.98 vs. M_no-scarcity = 3.25, SD = 1.19 vs. M_control = 3.34, SD = 1.14; F(1, 119) = 0.19, p = 0.826) and similar negative emotion scores (M_scarcity = 3.23, SD = 1.31 vs. M_no-scarcity = 3.19, SD = 0.98 vs. M_control = 3.17, SD = 1.00; F(1, 119) = 0.74, p = 0.481), indicating that the scarcity manipulation did not produce differences in emotional intensity. These results confirm the successful manipulation of external employment resource scarcity.

Main Results: First, external employment resource scarcity was coded as 1, control as 0, and no-scarcity as -1; time reward was coded as 0 and monetary reward as 1. In the scarcity group (n = 40), 37 participants (92.5%) chose money; in the control group (n = 40), 24 participants (60%) chose money; and in the no-scarcity group (n = 40), 13 participants (32.5%) chose money. Hypothesis tests comparing sample percentages between the scarcity group and both the control and no-scarcity groups were significant ((2.10) > 0.05(1.96); (3.24) > 0.05(1.96)). Additionally, a chi-square test (n = 120) revealed significant differences among the three groups (^{2} = 30.50, p < 0.001). Therefore, external employment resource level significantly affected preferences for time versus monetary rewards; employees preferred monetary rewards more when external employment resources were scarce, supporting Hypothesis 1.

Second, following Muller, Judd, and Yzerbyt (2005), moderated mediation analysis was conducted to test the mediating mechanism of psychological representation. In the first regression model, resource level, materialistic values, and their interaction term were entered into a logistic regression equation (dependent

variable: time vs. money reward choice). The interaction term significantly predicted time versus money reward preference (p = 0.034). In the second model, the interaction term significantly affected psychological representation (p = 0.004). In the third model, psychological representation significantly predicted time versus money reward choice (p = 0.006), but the interaction term' s predictive effect was not significant (p = 0.876; see Table 1). These results indicate that psychological representation fully mediates the effect, supporting Hypothesis 2.

Table 1 Mediation Analysis Steps and Results for Psychological Representation in Experiment 1

Equation	Exp(B)
Equation 1/Step 1	<0.0001
Equation 2/Step 2	<0.0001
Equation 3/Step 3	-0.72

Note: X = external resource level; Mo = materialistic values; X × Mo = external resource level × materialistic values; Me = psychological representation; dependent variable Y1 = time vs. money choice; dependent variable Y2 = psychological representation.

Regarding alternative explanations, we tested whether emotions mediated the effect of external employment resource scarcity on reward preferences using Baron and Kenny' s (1986) three-step approach. With positive emotion and negative emotion as mediators, the direct effect of external employment resource scarcity on time versus money reward preference remained significant (p < 0.001), while the indirect effects of positive emotion (p = 0.36) and negative emotion (p = 0.57) were not significant. Therefore, neither positive nor negative emotion influenced the effect of external employment resource scarcity on reward preferences.

Finally, logistic regression was used to test the moderating effect of materialistic values. Results showed that the interaction between resource scarcity and materialistic values significantly predicted reward preference (Exp(B) = 0.21, SE = 0.74, Wald = 4.51, p = 0.034). Materialistic values were divided into high materialism (one standard deviation above the mean) and low materialism (one standard deviation below the mean). A chi-square test (n = 41) revealed significant differences in time versus money reward preferences across the three resource levels (^{2} = 12.37, p = 0.009). Specifically, among high materialists, the scarcity group chose monetary rewards more frequently than the control and no-scarcity groups (^{2} = 8.21, p = 0.021; see Figure 1 [Figure 1: see original paper]). Among low materialists, the three resource levels did not differ significantly in monetary reward choices (^{2} = 1.96, p = 0.413; see Figure 2 [Figure 2: see original paper]). These results support Hypothesis 3.

Figure 1 [Figure 1: see original paper] High Materialistic Values and Compensation Reward Preferences Across Different External Employment Resource

Levels in Experiment 1

Figure 2 [Figure 2: see original paper] Low Materialistic Values and Compensation Reward Preferences Across Different External Employment Resource Levels in Experiment 1

Experiment 1 examined individual preferences for time versus monetary rewards under external employment resource scarcity, testing the mediating role of psychological representation and the moderating role of materialistic values. Results supported Hypotheses 1, 2, and 3. The experiment demonstrated that external employment resource scarcity leads prospective employees to represent things more concretely, which in turn increases preference for monetary rewards matching this concrete representation. The effect was more pronounced among high materialists, as resource scarcity activated their concrete psychological representations. Finally, Experiment 1 ruled out alternative mediating mechanisms (positive and negative emotions). Nevertheless, Experiment 1 has limitations: it used college student participants making hypothetical reward choices, leaving open the question of whether these findings would replicate in real work environments.

Experiment 2 aims to replace the external resource scarcity manipulation and test the replicability of Experiment 1' s conclusions in actual work settings. Changing the manipulation increases the robustness of Experiment 1' s results and reduces dependence on a specific priming method. Additionally, Experiment 2 uses real employees to test actual preferences, enhancing theoretical explanatory power. Since changing the scarcity manipulation might cause emotional differences affecting choices, Experiment 2 also measures positive and negative emotions.

Experiment 2

Experimental Design: One hundred fifty employees (78 males, age range 23–46 years, mean age = 31.27 years, SD = 5.14) participated in Experiment 2. The experiment used a single-factor between-subjects design with external natural resource scarcity (scarcity vs. no-scarcity vs. control), with time versus monetary reward choice as the dependent variable. Employee participants came from various management levels (high, middle, low) and positions (management, R&D, finance, etc.) in a large comprehensive enterprise.

Procedure: First, participants read the external natural resource scarcity priming material. After completing an unrelated distractor task, a company supervisor (a 40-year-old accounting manager) visited employees' offices and announced: "I just received notice from Director XX that, to commend everyone' s recent performance, our company is offering two reward options. I am now collecting your choices: Option A—relative to receiving one day' s income, I would prefer a time reward of one day off; Option B—relative to receiving one day off, I would prefer a monetary reward of one day' s income. Please write your chosen option on the paper provided." Research assistants distributed paper to each employee,

collected the papers after choices were made, and then employees completed the materialism scale, Behavioral Identification Form, and emotion scales (same as Experiment 1). Finally, employees reported demographic information including gender, age, and tenure.

Manipulation Check: The scarcity group perceived higher resource scarcity than both the no-scarcity group (M_scarcity = 5.71, SD = 1.08 vs. M_no-scarcity = 3.21, SD = 1.13; t(98) = 10.39, p < 0.001; Cohen's d = 2.26, effect-size r = 0.749) and the control group (M_scarcity = 5.71, SD = 1.08 vs. M_control = 4.13, SD = 1.21; t(98) = 6.72, p < 0.001; Cohen' s d = 1.38, effect-size r = 0.567). To test whether the three groups differed in emotional intensity, a one-way ANOVA was conducted on mean positive and negative emotion scores. Results showed similar positive emotion scores (M_scarcity = 3.35, SD = 1.15 vs. M_no-scarcity = 3.29, SD = 1.31 vs. M_control = 3.31, SD = 1.17; F(1, 149) = 0.03, p = 0.972) and similar negative emotion scores (M_scarcity = 3.42, SD = 1.22 vs. M_no-scarcity = 3.37, SD = 1.26 vs. M_control = 3.33, SD = 1.18; F(1, 149) = 0.04, p = 0.841), indicating that the scarcity manipulation did not produce differences in emotional intensity. These results confirm the successful manipulation of external natural resource scarcity.

Main Results: External natural resource scarcity was coded as 1, control as 0, and no-scarcity as -1; time reward was coded as 0 and monetary reward as 1. First, we tested employee preferences for time versus monetary rewards across resource levels. In the scarcity group (n = 50), 43 participants (86%) chose money; in the control group (n = 50), 31 participants (62%) chose money; and in the no-scarcity group (n = 50), 15 participants (30%) chose money. Hypothesis tests comparing sample percentages between the scarcity group and both the control and no-scarcity groups were significant ((2.74) > 0.05(1.96); (4.05) > 0.05(1.96)). A chi-square test (n = 150) revealed significant differences among the three groups (^{2} = 32.71, p < 0.001). Therefore, external natural resource scarcity level significantly affected preferences for time versus monetary rewards, supporting Hypothesis 1.

Second, we tested the mediating mechanism of psychological representation (same as Experiment 1). In the first model, the interaction between external resource scarcity and materialistic values significantly predicted time versus money reward preference (p = 0.008). In the second model, the interaction term significantly affected psychological representation (p = 0.038). In the third model, psychological representation significantly predicted time versus money reward choice (p = 0.001), but the interaction term' s predictive effect was not significant (p = 0.226; see Table 2). These results indicate that psychological representation fully mediates the effect, supporting Hypothesis 2.

Table 2 Mediation Analysis Steps and Results for Psychological Representation in Experiment 2

Equation	Exp(B)
Equation 1/Step 1	<0.0001
Equation 2/Step 2	<0.0001
Equation 3/Step 3	X × Mo

Note: X = external resource level; Mo = materialistic values; X × Mo = external resource level × materialistic values; Me = psychological representation; dependent variable Y1 = time vs. money choice; dependent variable Y2 = psychological representation.

Regarding alternative explanations, we tested whether emotions mediated the effect of external natural resource scarcity on reward preferences using the same method as Experiment 1. Results showed that the direct effect of external natural resource scarcity on time versus money reward preference remained significant ($p < 0.001$), while the indirect effects of positive emotion ($p = 0.51$) and negative emotion ($p = 0.27$) were not significant. Therefore, neither positive nor negative emotion influenced employees' reward preferences.

Finally, we tested the moderating effect of materialistic values. Logistic regression results showed that the interaction between resource scarcity level and materialistic values significantly predicted time versus money reward preference (Exp(B) = 0.72, SE = 0.13, Wald = 7.09, $p = 0.008$). Materialistic values were divided into high and low groups (same as Experiment 1). A chi-square test ($n = 47$) revealed significant differences in reward preferences across the three resource levels ($^2 = 9.25$, $p = 0.010$). Specifically, among high materialists, the natural resource scarcity group chose monetary rewards more frequently than the control and no-scarcity groups ($^2 = 6.78$, $p = 0.034$; see Figure 3 [Figure 3: see original paper]). Among low materialists, resource level did not significantly affect monetary reward choices ($^2 = 2.11$, $p = 0.349$; see Figure 4 [Figure 4: see original paper]). These results support Hypothesis 3.

Figure 3 [Figure 3: see original paper] High Materialistic Values and Compensation Reward Preferences Across Different External Natural Resource Levels in Experiment 2

Figure 4 [Figure 4: see original paper] Low Materialistic Values and Compensation Reward Preferences Across Different External Natural Resource Levels in Experiment 2

Experiment 2 used employee samples and primed external natural resource scarcity to test the effect of external environmental resource scarcity on employee compensation reward preferences. The results replicated Experiment 1' s findings, again supporting Hypotheses 1, 2, and 3. Moreover, Experiment 2 advanced Experiment 1' s results in terms of sample, situational realism, and external validity.

5.1 Theoretical Contributions

First, this research identifies a new perspective showing that individual preferences for time versus money are influenced by external environmental factors. Previous scholars have primarily studied how priming money or time concepts affects individual behavior and decision-making (Kahneman & Tversky, 1984; Okada & Hoch, 2004; Ortona & Scacciati, 1992; Soman, 2001), with few studies examining the choice between money and time as a dependent variable. Domestic scholar Li Linfeng (2016) examined how tenure affects employee preferences for time versus monetary rewards but focused on demographic variables without exploring whether external environmental factors influence employee compensation preferences. This paper finds that individual preferences for time versus money are also affected by whether external environmental resources are scarce. Therefore, by exploring this novel perspective on time and money preferences, this research complements and extends existing studies. Additionally, this paper demonstrates that Macdonnell and White' s (2015) conclusions apply to resource scarcity contexts, providing theoretical advancement for their work.

Second, this research finds that resource scarcity also affects preferences for time versus monetary rewards, advancing existing resource scarcity research and life history theory. Scholars have noted that external environmental resource scarcity influences individual behavior and cognition (de Hauw & de Vos, 2010; Tausig & Fenwick, 1999) but have not directly examined whether such scarcity affects time versus money preferences. For example, Hill et al. (2012) proposed the "lipstick effect"—that lipstick sales increase during economic crises—and Laran and Salerno (2013) found that resource scarcity leads people to seek and consume more high-calorie foods. However, these studies cannot answer whether resource scarcity affects time versus money preferences. This paper directly tests this theoretical question, enriching existing resource scarcity research. Furthermore, previous life history theory research found that external environmental resource scarcity leads people to adopt "fast" life history strategies (Griskevicius, Delton et al., 2011), but whether monetary desire constitutes a "fast" strategy was unclear. This paper finds that people choose monetary rewards under resource scarcity, indirectly suggesting that monetary preference is a "fast" life history strategy. This conclusion advances life history theory research.

Third, this research finds that external environmental resource scarcity increases high materialists' desire for money, advancing existing materialism research. Studies show that materialism negatively correlates with self-esteem, happiness, and life satisfaction, and positively correlates with physical and psychological illness (Roberts & Clement, 2007). To achieve greater economic success and wealth accumulation, high materialists need to acquire more resources (Richins & Dawson, 1992), and economic instability-induced insecurity leads them to seek material compensation to reduce distress (Chan & Prendergast, 2007). Previous research generally holds that high and low materialists behave differently (Mogilner & Aaker, 2009), with high materialists valuing money more (Kasser

& Ryan, 1993). This paper finds that high and low materialists differ significantly in their time versus money reward preferences under resource scarcity, with high (vs. low) materialists preferring monetary rewards. This conclusion advances materialism research by showing that high materialists' monetary preferences are also influenced by situational factors.

5.2 Managerial Implications

This research offers several implications for management practice. First, as uncertainty in organizational internal and external environments increases, how to respond has become a key issue for both researchers and practitioners (Griffin, Parker, & Mason, 2010). This paper finds that when external environmental resources are scarce (e.g., economic downturns, natural resource shortages), employees prefer monetary over time rewards, providing managers with a valuable reference point: when external environments fluctuate, organizations should consider increasing monetary rewards for employees.

Second, as society develops, monetary rewards are no longer the only means to motivate employees; employees may value other non-monetary rewards such as vacation time. Therefore, managers can offer time rewards to employees with long tenure or health issues. Compared with monetary rewards, vacation rewards of equal value may be more valued by employees. Only by scientifically and reasonably designing incentive measures can managers effectively enhance employee satisfaction.

Third, this research finds that employees with high materialistic values have stronger desires for monetary rewards. Monetary rewards are the most direct and fundamental way for employees to obtain material wealth and one of the most important motivational methods. Understanding the internal mechanism between individuals' materialistic values and reward type preferences has implications for employee benefits and incentive policy design. Therefore, understanding employees' materialistic values helps organizations select employees who fit company culture and values, effectively reducing turnover intentions and better controlling employee mobility.

5.3 Limitations and Future Directions

Despite using scenario priming to test for the first time how external environmental resource scarcity affects time versus money reward preferences and their mediating and moderating mechanisms, this research has limitations. The main limitation is the inability to collect data on employee preferences from companies experiencing actual external environmental resource scarcity (e.g., economic downturns). However, we speculate that our conclusions would still hold for samples experiencing actual resource scarcity, which future research should test. Additionally, there are many types of external environmental resources, and this paper only examined employment and natural resources, leaving unclear whether our conclusions apply to other external environmental resources.

Beyond addressing these limitations, future research could examine: First, whether employees' money attitudes and achievement motivation affect their compensation reward preferences. This paper tested how materialistic values affect time versus money reward preferences. Previous research found that money attitudes moderate the relationship between materialistic values and pay satisfaction (Liao & Wang, 2008), and that achievement motivation negatively affects materialism (Johnson & Grotts, 2013). Future research could test whether money attitudes and achievement motivation also affect compensation reward preferences. Second, research finds that individuals at low construal levels have lower self-control, leading them to focus on luxury and scarce goods to compensate for deprivation, resulting in compensatory consumption (Fujita, Trope, Liberman, & Levin-Sagi, 2006). Therefore, future research could examine whether self-control affects employees' preferences for time versus monetary rewards.

This paper examined employee preferences for time versus monetary rewards under external environmental resource scarcity. Through experiments, we found that resource scarcity leads individuals to represent things more concretely, which in turn increases preference for monetary rewards matching this concrete representation over time rewards, with this effect more pronounced among high materialists. Our findings indicate that current scarcity of external environmental resources such as employment and natural resources leads people to focus on the present, prefer monetary over time rewards, and sacrifice leisure time to work hard.

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Note: Figure translations are in progress. See original paper for figures.