Impoverished Generosity: The Impact of Material Scarcity on Generous Behavior from a Self-Construal Perspective

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Abstract

Scarcity mindset resulting from resource scarcity exerts significant influences on individuals' cognition, emotion, and behavior. Current research has yet to reach a consensus on the relationship between scarcity and generosity behavior, and the underlying mechanisms of their paradoxical relationship remain unclear. Drawing on the concept of face from the self-construal perspective, this research employs three studies (five sub-studies) to investigate the role of face consciousness in the relationship between scarcity and generosity behavior. The findings reveal: (1) Face consciousness moderates the relationship between scarcity and generosity behavior: For individuals with high face consciousness, their generosity behavior increases under conditions of resource scarcity, showing no significant difference from resource-abundant individuals; whereas for individuals with low face consciousness, their generosity behavior is significantly lower than that of resource-abundant individuals. (2) The motivation for resource-scarce individuals to engage in generosity behavior is to save face rather than to gain face. This study theoretically reveals the deep psychological mechanisms underlying their relationship, which helps to clarify the contradictory relationship between scarcity and generosity behavior.

Full Text

Generosity in Poverty: The Impact of Material Scarcity on Generous Behavior from a Self-Construction Perspective

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Abstract

The scarcity mindset resulting from resource deprivation significantly influences individuals' cognition, emotion, and behavior. Current research has yet to reach a consensus on the relationship between scarcity and generous behavior, and a clear understanding of the mechanisms underlying this contradictory relationship remains lacking. This study examines the role of face consciousness in the relationship between scarcity and generous behavior from a self-construction perspective, employing three studies (comprising five sub-studies). The findings reveal that: (1) Face consciousness moderates the relationship between scarcity and generous behavior. For individuals with high face consciousness, generous behavior increases under resource scarcity and shows no significant difference from resource-abundant individuals; whereas for those with low face consciousness, generous behavior is significantly lower than that of resource-abundant individuals. (2) Individuals experiencing resource scarcity engage in generous behavior to save face rather than to gain face. This study theoretically uncovers the deep psychological mechanisms of this relationship and helps clarify the contradictory association between scarcity and generous behavior.

Keywords: scarcity, face consciousness, gaining face, saving face, generous behavior
Classification Code: B849: C91

Scarcity refers to a psychological state in which individuals' needs or desires remain unfulfilled due to actual or perceived resource deprivation (Lei et al., 2020; Krosch & Amodio, 2019). Natural disasters and economic crises can trigger individuals' perception of global resource scarcity (Laran & Salerno, 2013), while credit card bill reminders can activate perceptions of monetary scarcity (Park et al., 2020). The scarcity mindset resulting from resource deprivation exerts important influences on individuals' cognition, emotion, and behavioral patterns (O' Donnel et al., 2021; Rad et al., 2022).

Does scarcity increase or decrease generous behavior? Resource depletion theory posits that scarcity limits the possibility of generous behavior. From this perspective, research suggests that resource-scarce individuals exhibit higher competitive orientation (Roux et al., 2015), fewer proactive donation behaviors (Penner et al., 2005), and lower donation amounts (Korndörfer et al., 2015). However, an alternative hypothesis grounded in social context theory argues that resource-scarce individuals, who frequently face life stressors, develop a more contextualist cognitive style and greater dependence on others (Keltner et al., 2014). Consequently, they demonstrate stronger willingness to establish social relationships, greater attention to others' well-being, and more generous behavior (Durante et al., 2017; Piff et al., 2010). To address these contradictory findings, preliminary research has examined measurement standards of scarcity (Malika et al., 2023), differences in target recipients of prosocial behavior (Kuang et al., 2021; Madsen et al., 2023), types of prosocial behavior (Han et al., 2023), and contexts of socioeconomic inequality (Stéphane et al., 2015; Schmukle et

al., 2019). Overall, however, current understanding of the mechanisms linking scarcity and generous behavior remains unclear.

Generous behavior possesses social interaction attributes (Thielmann et al., 2020), making it crucial to examine how interpersonal interaction factors influence its complexity. Face, a universal social psychological phenomenon, is key to understanding people' s lifestyles and significantly impacts interpersonal behavior (Tsang et al., 2013; Li & Zhao, 2013). Face represents subtle norms in social interaction that can maintain, enhance, or diminish interactive behaviors (Chan et al., 2009). Therefore, to better address the aforementioned issues, this study adopts a self-construction perspective to investigate the role of face consciousness between resource scarcity and generous behavior. This exploration will help clarify the contradictory relationship between resource scarcity and generous behavior while enriching theoretical research in the scarcity domain. Additionally, it holds important practical significance for understanding how the scarcity mindset affects generous behavior and promotes relational harmony among relatively impoverished individuals on the path to rural revitalization.

1.1 Face from a Self-Construction Perspective

Self-construction theory posits that individuals' cognition of the self and their relationship with their surroundings constitutes an important factor influencing psychological and behavioral manifestations (Markus & Kitayama, 2003). Stephens et al. (2014) applied self-construction theory to social class research, considering the role of resource distribution in shaping self-other relationships. They argued that individuals with abundant disposable resources, facing fewer external threats, focus more on self-related goals and outcomes, exhibiting a "solipsistic" cognitive pattern. In contrast, resource-scarce individuals are more frequently exposed to threatening situations, focusing more on external environments and demonstrating "contextualism."

In social psychology, face refers to an individual' s identity in a specific context and their cognitive response to social evaluation of their behavior in that context (Hwang, 2006; Wei et al., 2023). People feel they "have face" (you mianzi) from positive social evaluation and "lose face" (diu mianzi) from negative evaluation (Ho, 1976; Han, 2016). Although some researchers consider face a fundamental human need, it is particularly complex in Chinese culture (Hwang & Han, 2010; Wei et al., 2023). Researchers have distinguished between social face (mian) and moral face (lian), where the former is status obtained through personal effort, talent, or ability—such as knowledge, beauty, capability, wealth, or social connections—while the latter concerns social evaluation of moral character (Ho, 1976; Hwang, 2006; Qi, 2011). Individuals in social interactions are easily influenced by group expectations and social norms, with social face having more direct relevance to these behaviors (Zhang, Tian, & Grigoriou, 2011). Based on this, the present study focuses exclusively on the social face (mian) dimension. Face can be both a personality trait and a state that varies with context. As a trait, it is typically described as "thick-faced" or "thin-faced," with thick-faced

individuals experiencing fewer negative emotions, while thin-faced individuals more easily feel face loss when behaving inappropriately (Hwang & Han, 2010). As a state, face is dynamic, with individuals losing or gaining face depending on the situation. According to self-construction theory, resource-abundant individuals exhibit higher "solipsism" while resource-scarce individuals show higher "contextualism," suggesting that for resource-scarce individuals with strong face consciousness, their behavioral patterns will differ when face-related situations are activated.

1.2 The Moderating Role of Face in Resource Scarcity and Generous Behavior

Generous behavior refers to individuals' willingness to provide others with more help or support than usual or expected, such as time or money (Park et al., 2017). While humanity benefits from others' generosity, it requires resource expenditure from the giver, making it difficult to explain through standard economic theory (Park et al., 2017). Current research on the relationship between scarcity and generous behavior presents inconsistent findings. Some studies suggest that scarcity-induced competitive orientation leads people to focus more on competing with others and reduces generous behavior (Nhim et al., 2019), with scarce individuals showing significantly less sharing behavior (Petersen et al., 2014). Korndörfer et al. (2015) conducted eight studies with representative samples, finding that lower social class individuals exhibited significantly less prosocial behavior than higher social class individuals. However, opposite results have also emerged, revealing a "having less, giving more" phenomenon. Data show that American families with incomes below $25,000 donate 4.2% of their income to charities, while families earning $100,000 or more contribute only 2.7% (Louie & Rieta, 2018). Other research finds that higher-income individuals provide less help to strangers in need (Piff et al., 2010).

Research identifies face as key to explaining social interaction complexity (Kim & Nam, 1998). Under scarcity, individuals with different levels of face consciousness may exhibit different generous behaviors. Since generous behavior directly relates to others' or society' s interests and involves social relationship sensitivity, individuals with strong face consciousness, who are more sensitive to social relationships, are more susceptible to social situational influences (Zhang & Zhou, 2023). Face consciousness drives people to act according to recognized social norms and values, even sacrificing personal interests to gain prestige and positive impressions (Hardy & Van Vugt, 2006). Research finds that individuals with high face consciousness comply more with social norms and engage in more pro-environmental behavior (Wu et al., 2022; Shi et al., 2018). In social strategies, those with high face consciousness adopt social reciprocity strategies, helping others in exchange for recognition and support (Leimgruber, 2018; Brañas-Garza et al., 2017). Such individuals derive self-esteem satisfaction and pleasure from others' recognition and support (Jin & Kang, 2010; Jiang & Shan, 2016). Xie and Shi (2021), using Chinese impoverished individuals as

participants, found that financially deprived individuals exhibited more prosocial behavior, particularly in public settings, highlighting the role of Chinese face consciousness. Additional evidence indicates that individuals with high face consciousness are more inclined to help those they perceive as having been treated unjustly (Yu & Sun, 2019).

Based on this analysis, we propose that even under material scarcity, individuals with strong face consciousness may still engage in generous behavior—the so-called "poor but generous" phenomenon. Conversely, for individuals with low face consciousness, since external evaluation and recognition are not primary motivational sources, they make more rational and objective decisions, better managing stress from social evaluation without being affected by negative emotions or physiological costs (Kesebir, 2017). In other words, individuals with low face consciousness under material scarcity can more rationally consider their economic status and make less generous behavior to cope with limited resources. Based on this analysis, we propose Hypothesis 1:

Hypothesis 1: Face consciousness moderates the relationship between scarcity and generous behavior. For individuals with high face consciousness, resource scarcity leads to more generous behavior with no significant difference from resource-abundant individuals; for those with low face consciousness, generous behavior is significantly lower than that of resource-abundant individuals.

1.3 Generosity: Gaining Face or Saving Face?

Current research distinguishes between two dimensions of face: gaining face and avoiding losing face (Hwang, 2006). When receiving positive or negative social evaluation, these two processes involve distinctly different experiences (Hwang, 2006). If personal behavior aligns with social role requirements, individuals can "gain face" and enjoy the positive feelings of having face; otherwise, they "lose face" and suffer the negative emotional and physiological consequences (Kim & Nam, 1998). The criteria for evaluating face gain and loss differ. Using academic performance as an example, exceeding average standards can gain face, but falling below average does not necessarily cause face loss (Ho, 1976). Only when performance falls below the minimum level for one' s status does face loss occur (Zhang, Cao, & Grigoriou, 2011).

Face management theory posits that when individuals face face threats, their need to save face constitutes an extremely strong social motivation (Goffman & Newill, 1967). This is because the negative consequences of losing face far outweigh the positive effects of gaining face—losing face causes guilt and embarrassment, leading people to avoid losing face even if they don' t actively seek to gain it (Liao & Bond, 2011; Wang & Wu, 2021). From a psychological perspective, unlike gaining face, saving face relates to individuals' defense mechanisms (Cupach & Carson, 2002). When facing potential face loss, saving face protects self-esteem and social identity. Overall, although individuals must demonstrate above-expected social performance to gain face, they must also maintain their

social performance at an acceptable level to avoid losing face (Ho, 1976).

Based on this analysis, we propose that under material scarcity, people engage in generous behavior more to save face than to gain face. We therefore propose Hypothesis 2:

Hypothesis 2: Saving face mediates the relationship between material scarcity and generous behavior.

1.4 Overview of Studies

The target of generous behavior influences how scarcity affects generosity (Kuang et al., 2021). Both individual characteristics and others' features affect social interactions (Van Doesum et al., 2017). Previous research has explored social class effects on generosity toward strangers (Piff et al., 2010) and toward classmates or friends (Benenson et al., 2007). This study selects two types of generosity to verify consistent results: interpersonal generosity directed at classmates/friends and rule-compliance/charitable generosity directed at third-party organizations.

Three studies (comprising five sub-studies) test these hypotheses. Study 1 includes Study 1a and Study 1b. By manipulating scarcity perception, Study 1a uses the common Chinese life scenario of "sharing a bill" (sui fenzi) while Study 1b uses a restaurant selection scenario for treating others to meals, examining face consciousness' s role between scarcity and generous behavior. Building on Study 1, Study 2 (Study 2a, Study 2b) incorporates rule-compliance/charitable generosity scenarios, measures individuals' scarcity mindsets, and manipulates perceived face importance to further explore relationships among these factors. Study 3 investigates the pathways through which scarcity influences generous behavior.

Study 1a

2.1.1 Participants

This study employed a single-factor experimental design with material scarcity versus abundance conditions. Using G*Power 3.1 with an effect size of $f^2 = 0.25$ and statistical power $(1-\beta)$ of 0.80, the planned sample size was 128 participants. Data were collected through the Credamo platform, which has demonstrated good data reliability in previous research (Song et al., 2023). We included two attention-check questions to screen out inattentive respondents. The final sample consisted of 198 valid participants (67 males, 33.8%; 131 females, 66.2%) with a mean age of 30.58 years (SD = 8.25, range = 19–56). Participants were randomly assigned to two experimental groups (99 per group).

2.1.2 Procedure

First, we manipulated participants' material scarcity perception using a method from previous research (Bickel et al., 2016). Scarcity condition participants read a scenario describing "facing unemployment with no income until finding a new job," while abundance condition participants read about "a job transfer with a 2% salary increase." After reading, participants described their living conditions and feelings in that scenario, with instructions to write as much as possible. They then responded to the manipulation check item: "Currently, if my income does not increase, it will be difficult to maintain my lifestyle."

Second, participants completed a generosity scenario task. The scenario involved "giving a cash gift (sui fenzi) to a dormitory roommate who is moving to a new home in the same city." Instructions specified that "there is no uniform standard for the amount, but it generally ranges between 100-500 yuan." After reading the scenario, participants indicated "the final amount you decide to give," which served as the generosity measure.

Third, participants completed the Face Need Scale (Zhang, Cao, & Grigoriou, 2011). This 11-item scale includes representative items such as "I try to hide my flaws from others." The scale' s internal consistency coefficient α was 0.90.

Finally, participants completed demographic variables including gender, age, and income.

2.1.3 Results

An independent samples t-test on the manipulation check item revealed that scarcity condition participants reported significantly higher scarcity perception ($M = 4.37$, $SD = 0.84$) than abundance condition participants ($M = 2.55$, $SD = 1.12$), $t(196) = 13.01$, $p < 0.01$, Cohen' s $d = 1.84$, indicating successful scarcity manipulation.

Moderating Effect of Face Consciousness on Material Scarcity and Generous Behavior

We first conducted normality tests on the cash gift amounts, finding skewness $= 0.59$ and kurtosis $= -0.32$. Following the criterion that skewness < 2 and kurtosis < 7 indicates normal distribution (Finney & DiStefano, 2006), the data were suitable for further analysis.

To examine the moderating mechanism of face consciousness between scarcity and generous behavior, we used Model 1 from the PROCESS 3.2 plugin, with scarcity as the independent variable (scarcity group coded as 0, abundance group as 1), face consciousness as the moderator, and cash gift amount as the dependent variable. After controlling for gender, age, marital status, education level, and monthly income, results showed a significant moderating effect of face consciousness, $\beta = -0.29$, $t = -2.01$, $p < 0.05$, 95% CI $= [-0.5682, -0.0055]$. Simple slope analysis revealed that for scarcity condition individuals, face con-

sciousness significantly positively predicted their final gift amount, $\beta = 0.63$, t = 3.35, p < 0.01, 95% CI = [0.2581, 0.9945]; however, for abundance condition individuals, face consciousness had no significant effect on gift amount, $\beta = 0.07$, t = 0.38, p = 0.70, 95% CI = [0.2581, 0.9945]. These results support Hypothesis 1.

[Figure 1: see original paper] Interaction Effect of Scarcity and Face Consciousness on Gift Amount

Study 1b

2.2.1 Participants

Consistent with Study 1a, this study used a single-factor experimental design. Using G*Power 3.1, the planned sample size was 128 participants. The formal experiment recruited 188 valid participants (68 males, 36.2%; 120 females, 63.8%) with a mean age of 29.99 years (SD = 8.04, range = 20–59). Participants were randomly assigned to the scarcity condition (95 participants) and abundance condition (93 participants).

2.2.2 Procedure

First, participants underwent the same scarcity manipulation as in Study 1a. Next, they completed a generosity scenario task adapted from previous research (Jeong et al., 2019) involving a "treating to a meal" scenario. The specific scenario stated: "One day during this period, you go to dinner with a colleague and decide to pay the bill. Two restaurants meet your requirements; please choose between them."

- Restaurant 1: 119 yuan per person
- Restaurant 2: 149 yuan per person

Participants then responded to: (1) "To what extent would you choose Restaurant 1?" (2) "To what extent would you choose Restaurant 2?" Subsequently, participants completed the Face Consciousness Scale (Chan et al., 2009) to measure face from a different angle. This 8-item scale includes representative items such as "I hate being looked down upon" and uses a 7-point scoring system where higher scores indicate stronger face consciousness. The scale' s internal consistency coefficient α was 0.85. Finally, participants completed demographic variables including age, gender, marital status, and monthly income.

2.2.3 Results

An independent samples t-test on the manipulation check item revealed that scarcity condition participants reported significantly higher scarcity perception (M = 4.36, SD = 0.70) than abundance condition participants (M = 2.48, SD = 0.88), t(186) = 16.27, p < 0.001, Cohen' s d = 2.38, indicating successful scarcity manipulation.

Moderating Effect of Face Consciousness on Material Scarcity and Generous Behavior

Using scarcity, face consciousness level, and restaurant type as independent variables, participants' restaurant selection intention as the dependent variable, and demographic variables as covariates, we conducted a mixed-factor ANCOVA. Results showed a significant main effect of scarcity: scarcity condition individuals showed significantly higher intention to choose the 119-yuan restaurant ($M = 5.49$, $SD = 0.17$) than the 149-yuan restaurant ($M = 3.22$, $SD = 0.17$), $F(1, 179) = 10.56$, $p < 0.01$, partial $^2 = 0.09$. The main effect of face consciousness was also significant: low face consciousness individuals showed significantly higher intention to choose the 119-yuan restaurant ($M = 5.55$, $SD = 0.18$) than high face consciousness individuals ($M = 3.50$, $SD = 0.18$), $F(1, 179) = 5.39$, $p < 0.05$, partial $^2 = 0.03$.

Crucially, the three-way interaction among scarcity, face consciousness level, and restaurant type was significant, $F(1, 179) = 5.98$, $p < 0.05$, partial $^2 = 0.03$. We then analyzed the interaction between scarcity and restaurant choice at different face consciousness levels.

For low face consciousness individuals, the interaction between scarcity and restaurant type was significant, $F(1, 79) = 15.37$, $p < 0.01$, partial $^2 = 0.16$. Specifically, scarcity condition participants showed marginally significantly higher intention to choose the 119-yuan restaurant ($M = 5.88$, $SD = 1.47$) than abundance condition participants ($M = 5.26$, $SD = 1.61$), $t(79) = 1.95$, $p = 0.05$. However, for the 149-yuan restaurant, scarcity condition participants' selection intention ($M = 2.69$, $SD = 1.48$) was significantly lower than abundance condition participants ($M = 4.31$, $SD = 1.75$), $t(79) = -4.66$, $p < 0.01$ (see left panel of Figure 2).

For high face consciousness individuals, no significant interaction existed between scarcity and restaurant type, $F(1, 95) = 1.17$, $p = 0.28$. Specifically, scarcity condition participants' intention to choose the 119-yuan restaurant ($M = 5.11$, $SD = 1.92$) did not differ significantly from abundance condition participants ($M = 5.17$, $SD = 1.67$), $t(95) = -0.17$, $p = 0.86$. Similarly, for the 149-yuan restaurant, scarcity condition participants' selection intention ($M = 3.95$, $SD = 1.92$) did not differ significantly from abundance condition participants ($M = 4.38$, $SD = 1.67$), $t(95) = -1.69$, $p = 0.11$ (see right panel of Figure 2).

[Figure 2: see original paper] Interaction Effect of Scarcity and Face Consciousness on Restaurant Selection

2.3 Summary of Study 1

Study 1 employed two sub-studies (Study 1a and Study 1b) using common Chinese interpersonal behaviors– "sharing a bill" and "treating to a meal" – as relational generosity scenarios to examine the relationship among scarcity,

face consciousness, and generous behavior in interpersonal contexts. Results revealed that for material scarcity condition participants with strong face needs and high face consciousness, their cash gift amounts and restaurant price selections did not differ significantly from abundance condition participants. These findings support Hypothesis 1. Since Study 1 scenarios involved interpersonal relationship circles (limited to friends), Study 2 extends generous behavior to rule-compliance/charitable contexts using "financial allocation" and "charitable donation" scenarios while manipulating face importance perceptions to further explore the relationships among material scarcity, face consciousness, and generous behavior.

Study 2a

3.1.1 Participants

This study also employed a single-factor experimental design, measuring individuals' scarcity mindset through questionnaires while priming high versus low face importance. Using G*Power 3.1 as in Study 1a, the planned sample size was 128 participants. The formal experiment recruited 190 valid participants (68 males, 35.8%) with a mean age of 29.23 years (SD = 7.27, range = 19-52). Participants were randomly assigned to the face importance group (96 participants) and face unimportance group (94 participants).

3.1.2 Procedure

First, participants completed scarcity perception measurement. This study treated scarcity mindset as a trait, measuring it with the Poverty Mindset Scale (Sharma & Alter, 2012). This 11-item scale includes representative items such as "Due to lack of money, daily family consumption also brings me great stress." Using a 7-point scale (1 = not at all true, 7 = very true), higher scores indicate stronger poverty mindset. The scale' s internal consistency coefficient α was 0.95.

Participants were then randomly assigned to high versus low face importance conditions, reading respective text materials: "The dictionary defines face as: Face is social status and evaluation obtained through personal achievement in society. Face is very important/not important at all to people. Please write at least 5 reasons why face is important/unimportant with detailed explanations." This primed face importance perception. Participants then responded to the manipulation check: "To what extent do you agree that face is very important?" using a 5-point scale (1 = not at all important, 5 = very important), where higher scores indicated greater perceived face importance.

Next, participants completed a generosity tendency measurement adapted from previous research (Clobert et al., 2015). The task asked participants to imagine winning 100,000 yuan in a lottery and indicate how they would allocate the money. Participants were presented with an allocation table to specify the percentage distributed to themselves, family, friends, and charitable organizations.

Finally, participants completed demographic variables including gender, age, marital status, and monthly income.

3.1.3 Results

An independent samples t-test on the manipulation check item revealed that face importance condition participants reported significantly higher face importance perception ($M = 5.23$, $SD = 0.64$) than face unimportance condition participants ($M = 2.27$, $SD = 1.04$), $t(188) = 23.72$, $p < 0.01$, Cohen' s $d = 3.45$, indicating successful face manipulation.

Interactive Effects of Scarcity and Face Importance on Monetary Allocation

Using scarcity level and face importance as independent variables, fund allocation proportion as the dependent variable, and demographic variables as covariates, we conducted ANCOVA. Consistent with previous research, we operationalized generous behavior as the amount allocated to others (excluding oneself), including allocations to family, friends, charitable organizations, and other categories.

Results revealed a significant main effect of scarcity on the proportion allocated to others: scarcity condition individuals allocated significantly less to others ($M = 37.05$, $SD = 1.74$) than abundance condition individuals ($M = 47.21$, $SD = 1.79$), $F(1, 181) = 15.13$, $p < 0.05$, partial $^2 = 0.08$. The main effect of face importance was not significant: the proportion allocated to others did not differ between face importance ($M = 42.51$, $SD = 1.69$) and face unimportance conditions ($M = 41.75$, $SD = 1.66$), $F(1, 181) = 0.15$, $p = 0.74$.

Importantly, scarcity and face importance showed a significant interaction, $F(1, 181) = 4.38$, $p < 0.05$, partial $^2 = 0.07$. Simple effects analysis revealed that for individuals who considered face unimportant, scarcity condition participants allocated significantly less to others ($M = 35.41$, $SD = 15.11$) than abundance condition participants ($M = 49.70$, $SD = 18.66$), $t(92) = -4.07$, $p < 0.01$, Cohen' s $d = -0.38$. However, for those who considered face important, scarcity condition participants' allocation to others ($M = 40.25$, $SD = 16.89$) did not differ significantly from abundance condition participants ($M = 43.24$, $SD = 13.95$), $t(94) = -0.94$, $p = 0.35$. See Figure 3.

[Figure 3: see original paper] Interaction Effect of Scarcity Mindset and Face Importance on Self vs. Others Allocation

Study 2b

3.1.1 Participants

This study measured scarcity through questionnaires and primed face importance, employing a single-factor experimental design. Using G*Power 3.1, the planned sample size was 128 participants. The study recruited 192 participants

(79 males, 41.14%) with a mean age of 30.48 years (SD = 8.60, range = 20-56). Participants were randomly assigned to the face importance group (95 participants) and face unimportance group (97 participants).

3.1.2 Procedure

First, participants completed scarcity measurement and face priming (same as Study 2a). Different from Study 2a, this study altered the generosity measurement scenario. Participants first viewed a proposal letter (see left panel of Figure 4) calling for community contributions to build a public square. To verify careful reading, they answered: "How many sets of fitness equipment are mentioned in the proposal?" Incorrect responses led to data exclusion. Participants then responded to: (1) "To what extent do you support the proposal?" (2) "What is your willingness to donate in this fundraising activity?" Both used 1-7 point scales, with higher scores indicating stronger donation willingness. (3) "If you were a community member, how much would you donate in this activity? ____ yuan (please choose between 0-500 yuan)." Finally, participants completed demographic variables including gender, age, marital status, education level, and monthly income.

[Figure 4: see original paper] Experimental Materials Used in This Study

3.1.3 Results

Manipulation Check

An independent samples t-test confirmed that face importance condition participants reported significantly higher face importance perception (M = 5.35, SD = 0.63) than face unimportance condition participants (M = 2.18, SD = 1.03), $t(190) = 25.64$, $p < 0.01$, Cohen' s d = 3.72, indicating successful face manipulation.

Effects of Scarcity and Face Importance on Donation Willingness

We first conducted normality tests on donation amounts, finding skewness = 0.64 and kurtosis = −0.21, indicating normal distribution. To examine the effects of scarcity and face importance on donation willingness, we conducted ANCOVA with scarcity level and face importance as independent variables, donation amount as the dependent variable, and demographic variables as covariates. Results showed no significant main effects of scarcity or face importance on donation amounts, but a significant interaction effect on donation willingness, $F(1, 177) = 3.57$, $p < 0.05$, partial $^2 = 0.02$. Simple effects analysis revealed that for individuals who considered face unimportant, scarcity condition participants' average donation amount (M = 66.62, SD = 6.86) was significantly lower than abundance condition participants (M = 90.69, SD = 8.14), $t(93) = -2.83$, $p < 0.01$, Cohen' s d = −0.84. However, for those who considered face important, scarcity condition participants' average donation amount (M = 81.97, SD

= 7.80) did not differ significantly from abundance condition participants (M = 77.58, SD = 7.26), t(95) = 1.30, p = 0.21. See Figure 5.

[Figure 5: see original paper] Interaction Effect of Scarcity and Face Importance on Donation Amount

3.3 Summary of Study 2

Study 2 employed two scenario experiments (Study 2a and Study 2b) using fund allocation and community donation contexts, manipulating face importance to examine interactive effects of scarcity and face importance on generous behavior. Results supported our hypotheses: for individuals with high face needs, resource-scarce individuals did not differ significantly from resource-abundant individuals in the proportion allocated to others (Study 2a) or average donation amount (Study 2b). However, for those with low face needs, resource-scarce individuals allocated significantly less to others and donated significantly less than resource-abundant individuals. Study 3 further explores the pathway through which scarcity influences generous behavior.

Study 3: Gaining Face or Saving Face–The Pathway of Scarcity' s Effect on Generous Behavior

Building on Studies 1 and 2, Study 3 uses questionnaire measures to examine the roles of gaining face and saving face in the relationship between scarcity and generous behavior tendency.

4.1 Participants

Using G*Power with medium effect size $f^2 = 0.25$ and statistical power $(1-\beta)$ of 0.80, the required sample size was 210 participants. We recruited 300 participants through Credamo, obtaining 299 valid questionnaires (86 males, 28.8%). The mean age was 31.27 years (SD = 6.88, range = 19-58). Demographic characteristics: 81 unmarried (27.10%), 217 married (72.60%), 1 divorced (0.3%); education: 18 junior high school or below (6%), 211 undergraduates (70.6%), 70 graduate students or above (23.4%); monthly income: 53 below 5,000 yuan (17.7%), 108 between 5,000-10,000 yuan (36.1%), 107 between 10,000-20,000 yuan (35.8%), 31 at 20,000 yuan or above (10.40%).

4.2 Measures

Scarcity Perception. We measured scarcity using the Poverty Mindset Scale (same as Study 2a).

Face Consciousness. We used the Face Need Scale (Zhang, Cao, & Grigoriou, 2011), which includes two dimensions: gaining face (6 items, e.g., "I hope others see me as better off than most people") and saving face (5 items, e.g., "I try to hide my flaws from others"). Using a 7-point scale (1 = not at all true,

7 = very true), higher scores indicate stronger gaining face and saving face tendencies. The scale' s overall internal consistency α was 0.90, with $\alpha = 0.89$ for the gaining face subscale and $\alpha = 0.91$ for the saving face subscale.

Generous Behavior. We used Smith and Hill' s (2009) Interpersonal Generosity Scale (IGS), comprising 10 items such as "In my relationships with others, I am a very generous person" and "I often consider others when making decisions." Using a 7-point scale (1 = strongly disagree, 7 = strongly agree), higher scores indicate stronger generous behavior tendency. The scale' s internal consistency α was 0.85.

4.3.1 Common Method Bias Test

We used Harman' s single-factor test for common method bias. The first common factor explained 28.28% of total variance, below the 40% critical threshold, indicating no serious common method bias.

4.3.2 Descriptive Analysis

Descriptive statistics for all variables appear in Table 1. Poverty mindset correlated moderately with both gaining face ($r = 0.20$, $p < 0.01$) and saving face ($r = 0.36$, $p < 0.01$). Poverty mindset correlated negatively with interpersonal generosity ($r = -0.18$, $p < 0.01$). Gaining face did not correlate significantly with interpersonal generosity ($r = -0.06$, $p = 0.42$), while saving face correlated significantly and positively with generous behavior ($r = 0.30$, $p < 0.01$).

Descriptive Statistics (n = 299)

4.3.4 Mediating Role of Gaining Face and Saving Face

Using Mplus 7.0, we conducted structural equation modeling with poverty mindset as the independent variable, interpersonal generosity as the dependent variable, gaining face and saving face as mediators, and demographic variables as controls. We employed bootstrap resampling with 1,000 iterations and 95% and 99% confidence intervals. Results showed a saturated model with a significant total indirect effect, $\beta = 0.12$, $p < 0.01$, 99% CI = [−0.19, 0.01]. The indirect effect accounted for 130% of the total effect (0.12 / [−0.21 + 0.12] = −130%). Specifically, the indirect effect of scarcity on generous behavior through gaining face was not significant, $\beta = 0.02$, 95% CI = [−0.01, 0.047]. However, the indirect effect through saving face was significant, $\beta = 0.11$, $p < 0.01$, 95% CI = [0.02, 0.21].

[Figure 6: see original paper] Role of Gaining Face/Saving Face in the Relationship Between Scarcity and Generous Behavior

4.4 Summary of Study 3

Using questionnaire measures with 299 participants, Study 3 examined the roles of gaining face and saving face in the relationship between material scarcity and interpersonal generous behavior. Results revealed that material resource-scarce individuals do not engage in generous behavior to gain face, but they do exhibit generosity to maintain their face. These findings support Hypothesis 2.

Current research on the relationship between material scarcity and generous behavior remains inconsistent. This study, grounded in self-construction theory and focusing on face consciousness, investigated the role of face consciousness in the relationship between material scarcity and generous behavior through three studies (five sub-studies). This research enriches existing theoretical perspectives and provides new theoretical support for better understanding generous behavior across different social contexts.

5.1 Resource Depletion Orientation vs. Social Context Orientation

Under resource constraints, do people prioritize resource conservation or rely more on the social context when engaging in generous behavior? Our results demonstrate that, without considering individual face needs, scarcity significantly negatively predicts generous behavior. However, based on situational cognitive differences, the relationship between scarcity and generous behavior also varies with individuals' self-construction.

Resource depletion theory suggests that only resource-abundant individuals engage in prosocial behavior, as scarcity constrains prosocial behavior (Penner et al., 2005). Research indicates that even with strong altruistic tendencies, resource constraints create higher trade-off costs in resource allocation, requiring more evaluation when making money-related decisions (Shah et al., 2018; Dolan et al., 2021). Our findings suggest that generous behavior does not disappear under objective resource scarcity. According to previous research, this may occur because scarcity experiences increase empathy (Cui et al., 2022) or because resource-scarce individuals share resources expecting reciprocity (Raihani & Bshary, 2015). More importantly, in Chinese cultural contexts where "guanxi" (relationships) is paramount in interpersonal interactions, understanding resource scarcity' s impact on generous behavior from a self-construction perspective is particularly crucial. Correctly understanding the relationship between material scarcity and generous behavior requires simultaneous consideration of resource depletion and social context. Although face exists across cultures, its importance is more pronounced in collectivist cultures with interdependent cultural orientations (Wei et al., 2023). Individuals' self-worth, performance, and social image all require others' validation, and the display of prosocial behavior serves as an important means to obtain positive evaluation.

Of course, with China' s modernization, urban-rural social structures have be-

gun shifting from dualistic to unified, and increased residential mobility has gradually made interpersonal networks more superficial (Zhang & Zhao, 2023; Zhao et al., 2021). Face, as a culturally influenced variable, also changes with modernization. In this context, will generous behavior among resource-scarce individuals also change?

5.2 "Poor but Generous" : A Psychological Defense Mechanism

"Poor but generous" describes the phenomenon where individuals with less material wealth are more likely to engage in generous or donating behavior. Some scholars have explained this phenomenon from an economic perspective. For example, Novermsky and Kahneman (2005) argued from a loss aversion perspective that resource-scarce individuals, having experienced material difficulties, express generosity to alleviate the pain of loss. Building on this foundation, this study adopts a psychological perspective, proposing that "poor but generous" behavior represents a way for individuals to maintain self-esteem, social identity, and other psychological feelings through generous actions—a manifestation of defense mechanisms.

Face management theory posits that when individuals face face threats, their needs to gain face and avoid losing face constitute extremely strong social motivations (Goffman & Newill, 1967). Saving face through effort protects individuals from psychological distress caused by negative emotions. Research indicates that individuals sensitive to negative evaluation and inclined toward self-protection work harder to avoid losing face (Zhang, 2011). Not everyone needs to gain face, but everyone strives to avoid losing face because the consequences of losing face are more severe. Therefore, saving face functions as a defense mechanism to maintain normal social relationships (Cupach & Carson, 2002). Our study provides theoretical support for these conclusions, finding that material-scarce individuals engage in generous behavior to save face. These results support previous research. From this perspective, individuals' generous behavior driven by face concerns serves to maintain self-esteem and social identity, reflecting their need to perceive self-worth and establish connections with others. Under material scarcity, individuals present a positive image through generous behavior to reduce negative impacts of social evaluation. Of course, excessive pursuit of face can cause serious negative consequences such as competitive and vain psychology (Wang et al., 2018). How to balance face maintenance of self-esteem with its potential negative effects, and further explore face' s psychological mechanisms and impacts as a defense mechanism, represents an important direction for future research with significant theoretical and practical implications.

5.3 Scarcity Mindset and Individual Psychology and Behavior

Building on cognitive resource limitation theory, Shah et al. (2018) integrated cognitive psychology and economics perspectives to explain individuals' decision-making patterns when facing resource scarcity (De Bruijn & Antonides, 2022). Resource scarcity leads individuals to form a scarcity mindset, which further influences judgment and decision-making (Huijsmans et al., 2019). However, current scarcity research primarily relies on foreign findings, and Chinese research on scarcity and its effects remains in its early stages (Lei et al., 2020). China has achieved victory in poverty alleviation, eliminating absolute poverty, but relative poverty will persist for some time. The prosocial behavior (e.g., generosity, cooperation) of relatively impoverished individuals deserves particular research attention. Relatively poor individuals' prosocial behavioral consciousness remains relatively weak, with serious "opportunism" and "free-riding" phenomena in many cooperative behaviors (Xu et al., 2016). Research on scarcity mindsets and prosocial behavior among relatively impoverished individuals can promote social harmony and scientifically manage relative poverty.

Regarding prosocial behavior among relatively impoverished individuals, research using Chinese farmers as participants found that long-term resource-scarce Chinese farmers have strong prosocial consciousness and are more willing to cooperate (Yang et al., 2020). Banerjee and Duflo' s (2007) survey results show that poorer individuals typically spend more money on holiday gifts for friends, and wealth-deprived, resource-scarce individuals are more willing to donate (Kraus et al., 2010). Macro-level research also finds that individuals in resource-scarce collectivist cultural contexts exhibit more cooperative behavior (Henrich et al., 2001). This study suggests these findings occur because scarce individuals have stronger dependence on others (Samu et al., 2020). Overall, however, these studies remain at the descriptive level, with limited research on corresponding psychological mechanisms and boundary conditions. Exploring which cultural elements function in this relationship from a cultural perspective represents a worthwhile research direction.

5.4 Limitations and Future Directions

First, research must fully consider the complexity of scarcity, generous behavior, and their relationship. This study used "sharing a bill" and "treating to a meal" scenarios as relational generosity behaviors and "fund allocation" and "social donation" scenarios as rule-compliance/charitable generosity measures. However, these scenarios all employed laboratory simulation methods. Some research suggests that individuals use different decision-making strategies in laboratory simulations versus real-life situations (Dolan et al., 2021). While some studies have used real indicators to measure scarcity levels, such as car ownership (Paul & Rana, 2012), most research still relies on laboratory scenario priming and self-reported outcomes (e.g., class label selection). Moreover,

scarcity types are complex: temporally, they can be divided into long-term versus short-term scarcity (Shah et al., 2018); categorically, they include material, temporal, and psychological scarcity, with different types affecting individual psychology and behavior through different mechanisms (Cannon et al., 2019). Future research could simultaneously examine effects of different scarcity types on generous behavior.

Second, this study employed cross-sectional design, preventing verification of psychological and behavioral outcomes after generous behavior among high face consciousness individuals. The sayings "swollen face to act fat" and "preferring death over losing face" both reflect subjective experiences after scarce individuals engage in generous behavior. How should we view generous behavior driven by face consciousness? Additionally, due to objective factors, data were collected around November 2022, and all data came from online collection due to objective constraints. Future research could verify these findings using offline samples. In summary, although this study yielded valuable findings, limitations remain for future improvement, particularly regarding potential boundary conditions and psychological mechanisms requiring further exploration.

Finally, future practice must consider face' s role in charitable nudging and social governance. Under resource scarcity, face can stimulate generous behavior, suggesting face could be leveraged to nudge individual generosity. However, excessive face influence creates substantial social and psychological pressure, harming individual mental health. Balancing face' s role becomes crucial. Additionally, this study provides important insights for social governance under rural revitalization. As densely populated areas with frequent social interaction, rural regions can benefit from moderate generous behavior to promote social trust, reduce tension, improve interpersonal relationship quality, and create more harmonious, stable social environments. Moderate generosity can also help impoverished areas obtain necessary support, promote social justice, and facilitate socioeconomic development. Rural areas frequently face resource shortages (e.g., water, land, labor). Understanding different aspects of scarcity mindset can help better comprehend rural residents' behavioral patterns. Considering scarcity mindset factors in policy formulation and implementation can better promote generous behavior and mutual assistance development.

Conclusion

From a self-construction perspective on face consciousness, this study employed three studies (five sub-studies) combining questionnaires and experimental simulations to examine face consciousness' s role between material resource scarcity and generous behavior. Findings reveal that for resource-scarce individuals, those with high face consciousness exhibit more generous behavior; their motivation for generous behavior lies not in gaining face but in saving face. This study is the first to explain the everyday phenomenon of "poor but generous" from a face perspective, helping clarify contradictions in current research on the scarcity-generosity relationship. It also provides important practical insights for

promoting prosocial behavior among relatively impoverished individuals on the path to rural revitalization.

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Supplementary Materials for Study 1a Data Analysis

In Study 1a' s dependent variable measurement, beyond the final cash gift amount used in the main text, we also measured individuals' intentions for different gift amounts (participants rated on 1-5 scales), and gift amount ranges (minimum and maximum amounts they would give) to corroborate our hypotheses from different angles. Specific items were:

Gift intention: "In this situation, to what extent would you be willing to give 100 yuan?" "In this situation, to what extent would you be willing to give 200 yuan?" "In this situation, to what extent would you be willing to give 300 yuan?" "In this situation, to what extent would you be willing to give 400 yuan?" "In this situation, to what extent would you be willing to give 500 yuan?"

Gift range: "In this situation, the maximum amount you would be willing to give is _____ yuan." "In this situation, the minimum amount you would be willing to give is _____ yuan."

We analyzed main effects and moderating effects for these measures. Results follow:

1. Main Effects of Resource Scarcity on Gift Intentions and Gift Ranges

Independent samples t-tests explored differences in gift intentions and ranges. Results showed:

- For 100 yuan: No significant difference between scarcity ($M = 3.46$, $SD = 1.40$) and abundance conditions ($M = 3.16$, $SD = 1.69$), $t(196) = 1.37$, $p = 0.17$.
- For 200 yuan: No significant difference between scarcity ($M = 3.48$, $SD = 1.20$) and abundance conditions ($M = 3.60$, $SD = 1.32$), $t(196) = -0.62$, $p = 0.54$.
- For 300 yuan: Scarcity condition ($M = 2.92$, $SD = 1.25$) was significantly lower than abundance condition ($M = 3.47$, $SD = 1.10$), $t(196) = -3.32$, $p < 0.01$.
- For 400 yuan: Scarcity condition ($M = 2.08$, $SD = 1.11$) was significantly lower than abundance condition ($M = 2.98$, $SD = 1.29$), $t(196) = -5.26$, $p < 0.01$.
- For 500 yuan: Scarcity condition ($M = 1.82$, $SD = 1.27$) was significantly lower than abundance condition ($M = 2.72$, $SD = 1.53$), $t(196) = -4.49$, $p < 0.01$.
- Minimum amount: Scarcity condition ($M = 141.88$, $SD = 92.62$) was significantly lower than abundance condition ($M = 182.83$, $SD = 96.67$), $t(196) = -3.04$, $p < 0.01$.
- Maximum amount: Scarcity condition ($M = 302.10$, $SD = 158.48$) was significantly lower than abundance condition ($M = 413.49$, $SD = 170.28$), $t(196) = -4.77$, $p < 0.01$.

- Gift range: Scarcity condition (M = 160.22, SD = 127.75) was significantly lower than abundance condition (M = 230.67, SD = 143.69), t(196) = −3.65, p < 0.01. See Figure 1.

[Figure 1: see original paper] Main Effect of Scarcity on Gift Intentions

Additionally, to examine effects of resource scarcity and face consciousness on generous behavior intentions, we conducted ANOVA with resource scarcity and face consciousness as independent variables and gift intentions at different amounts, minimum gift amount, maximum gift amount, and gift range as dependent variables. Results showed no significant differences for 100 yuan, 200 yuan, 300 yuan gift intentions, minimum gift amount, or gift range, all ps > .05.

However, for relatively high gift amounts, the interaction between resource scarcity and face consciousness was significant. Specifically, for 400 yuan gift intention, the interaction was significant, F(1, 189) = 2.83, p < .01. For 500 yuan gift intention, the interaction was also significant, F(1, 189) = 2.41, p < .05. For maximum gift amount, the interaction was significant, F(1, 189) = 3.24, p < .05.

Table 1 Resource Scarcity and Face Consciousness Effects on Different Gift Amounts

Gift Amount	Scarcity Main Effect	Face Consciousness Main Effect	Scarcity × Face Consciousness
100 yuan	3.46 (1.40) vs. 3.16 (1.69)	3.48 (1.55) vs. 3.55 (1.23)	−0.62
200 yuan	3.48 (1.20) vs. 3.60 (1.32)	3.26 (1.22) vs. 3.14 (1.20)	−0.62
300 yuan	2.92 (1.25) vs. 3.47 (1.10)**	2.71 (1.38) vs. 2.45 (1.58)	−3.32**
400 yuan	2.08 (1.11) vs. 2.98 (1.29)**	2.39 (1.18) vs. 2.13 (1.38)	−5.26**
500 yuan	1.82 (1.27) vs. 2.72 (1.53)**	3.18 (1.56) vs. 3.14 (1.20)	−4.49**
Minimum Amount	141.88 (92.62) vs. 182.83 (96.67)**	164.71 (95.45) vs. 160.50 (97.93)	−3.04**
Maximum Amount	302.10 (158.48) vs. 413.49 (170.28)**	371.15 (180.85) vs. 347.15 (167.21)	−4.77**

Gift Amount	Scarcity Main Effect	Face Consciousness Main Effect	Scarcity × Face Consciousness
Amount Range	160.22 (127.75) vs. 230.67 (143.69)**	206.67 (142.25) vs. 186.65 (138.46)	−3.65**

Note: **p < .01, *p < .05. For gift intentions, values are means (SD). For amount variables, values are means (SD) in yuan.

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