

The effect of financial scarcity on discretionary spending, borrowing, and investing

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ABSTRACT

Past research indicates that individuals with scarce resources focus on urgent needs. We hypothesize and find that individuals with scarcer financial resources have greater discretionary expenditures such that they engage in more discretionary spending, borrowing, and investing. We demonstrate that one possible explanation for why those with scarcer financial resources have greater discretionary expenditures is because they have more optimistic future perceptions. We support our predictions using a sample of over 60,000 observations from a survey in rural India, two archival datasets from surveys in Italy and Germany, and two pre-registered online experiments. We control, test and rule out different alternative explanations. The results of this research extend the findings in financial scarcity and discretionary consumption literatures. Additionally, we provide actionable guidelines for managers and public policy makers on how to nudge individuals with financial scarcity.

Keywords: financial scarcity, future perceptions, discretionary spending, discretionary borrowing, discretionary investing, optimism

Introduction

The experience of scarcity is a pervasive facet of human life (Booth 1984). Even in resource-rich societies, consumers experience scarcity on day-to-day basis (e.g., limited financial resources, limited edition products, shortage of resources: Cialdini 2009; Dadzie 1989; Gierl and Huettl 2010; Lepisto and Hannaford 1980; McKinnon, Smith, and Hunt 1985; Papadopoulos 1983). As a result, scarcity has attracted the attention of researchers from several disciplines, including marketing (Fan et al. 2018; Hamilton et al. 2019; Kristofferson et al. 2017; Suri et al. 2007). Prior research in scarcity of resources (e.g., power, food) indicates that individuals with scarce resources engage in a range of behaviors, including compensatory consumption (Rucker and Galinsky 2008) and selfish behaviors (Dubois et al. 2011; Roux et al. 2015). In this research, our focus is on individuals with scarce financial resources and their discretionary expenditures.

Consumers often perceive as if their financial resources in life are scarce (Roux et al. 2015) when their financial resources to satisfy the necessary needs are insufficient (i.e., objective financial scarcity, absolute, Mani et al. 2013; Mullainathan and Shafir 2013) or when they want more than what they have and cannot buy what they want (i.e., subjective perception of financial scarcity, relative, Fan et al. 2019). Accordingly, in the US, 10% of the respondents to the survey conducted by Statista Research Department in 2019 indicated that they were very or extremely concerned about not having enough money for monthly bills. Similarly, a survey conducted in 2019 showed that Italian Millennials were concerned about their financial capacity and 22% of them suggested that their financial capacity worsened their quality of life. In India, financial concerns are still high in the minds of consumers aged 55 or more as fear of losing job is maximum in this age group. All these numbers suggest that the experience of financial scarcity is universal and decisions related to finances are important (Haws, Bearden, and Nenkov 2012).

Scarcity research in finance, economics, psychology, sociology, and marketing investigate the characteristics of individuals with scarcer financial resources (Bernheim, Garrett, and Maki 2001; Hill 2001; Johnson, Mermin, and Murphy 2007). Research in cognitive and affective psychology provide reasons for why different consumers around the world experience financial scarcity as well as reasons for behaviors of individuals with scarcer financial resources (Mani et al. 2013; Salerno et al. 2020). Similarly, research in marketing focuses on the behavior of financially scarce consumers and building on social, cognitive, and affective psychological theories, provide reasons for the different behavior of consumers with scarce financial resources (Yoon and Kim 2018; Palley et al. 2019). Overall, research suggests that financial scarcity affects individual behaviors (Sharma and Alter 2012; Tully et al. 2015), reducing well-being (Diener et al. 1999; Mullainathan and Shafir 2013; Wilkinson and Pickett 2009).

Ideally, individuals with scarce financial resources such as the ones with high amounts of debt should manage their money efficiently. While economic theories predict that these individuals should use a rational financial decision-making process that provides the best long-term results for them, research in behavioral economics and numbers suggest that even these consumers that have high consumer debt engage in discretionary consumption (Dickerson 2016). For example, the amount of credit card debt in the U.S. was higher in 2019 than the period of 2008 financial crisis and according to a recent poll, thirty-two percent of the adults who said they have credit card debt identified discretionary spending as the primary contributor to that debt while only 23 percent on necessary purchases contributed to their credit card debt (Williams 2019), suggesting that one has to have a clear understanding of the living expenses (i.e., non-discretionary and discretionary expenditures) for a good successful financial future. However, research in marketing is limited to understand the non-

discretionary and discretionary expenditures of consumers with financial scarcity (please see Table 1 for the review of literature on financial scarcity).

Insert Table 1 about here

Given the importance of understanding the expenses, in general, but discretionary expenses (i.e., personal consumer expenditures less food, medical care, and housing; Fornell, Rust, and Dekimpe 2010) in particular, and the lack of previous research, we focus on discretionary expenditures of consumers with scarcer financial resources. In doing so, we integrate literatures on financial scarcity and optimistic future perceptions. To have a broader understanding of these consumers' discretionary expenditures, not only we focus on their discretionary spending but we also investigate how these consumers borrow for discretionary spending and engage in discretionary investing. Theoretically, we build on the findings of cognitive psychology, optimistic future perceptions, and financial scarcity. We propose that individuals with greater financial scarcity may perceive the future to be more optimistic, resulting with more discretionary expenditures (i.e., spending, borrowing, and investing).

We test and find support for the hypotheses in three large-scale studies, including a survey and two longitudinal archival studies, and two pre-registered online experiments. In our studies, we investigate both subjective (studies 1a, 1b, 3b) and objective (i.e., studies 2, 3a) perceptions of financial scarcity, using different samples (i.e., samples from India (study 1a), Italy (study 2), Germany (study 3a), and US (studies 1b and 3b)). We investigate different discretionary expenditures, including discretionary spending (study 1a, 1b, 3a, 3b), discretionary borrowing (study 2), and discretionary investing (study 3a). We provide evidence for the hypothesized effects in both correlational (studies 1a, 2, 3a) and causal (studies 1b and 3b) tests. The results of the studies show that consumers with scarce financial

resources have more discretionary expenditures (studies 1a, 1b, 2, 3a, 3b) and theoretically their optimistic future perceptions explain why these individuals with scarcer financial resources have more discretionary expenditures (studies 3a, 3b).

This paper offers theoretical contributions in financial scarcity literature, in general, behavioral implications and cognitive consequences of financial scarcity, in particular. This research's insights extend the literature on behavioral implications of financial scarcity in two ways. First, previous research in financial scarcity shows that individuals with scarce financial resources engage in a variety of behaviors (Sharma and Alter 2012; Van Kerckhove et al. 2020; Yoon and Kim 2018). The findings of this research extend these findings by showing that individuals with scarcer financial resources have more discretionary expenditures. Second, in examining the discretionary expenditures of financially scarce consumers, this research investigates a broad spectrum of expenditures by including spending, borrowing, and investing expenses, which further extends the previous literature on behavioral consequences of financial scarcity, which mostly focused on only one type of consumption episode such as spending on material versus experiential consumption (Tully et al. 2015).

The findings of this research extend the literature on cognitive consequences of financial scarcity. Previous research on cognitive consequences of financial scarcity shows that individuals expect to have the same number of slack resources, both in the present and in the future (Zauberman and Lynch 2005). Diverging from previous literature and extending the findings of previous research, our findings indicate that individuals with financially scarce resources think that they will have more resources in the future (i.e., they are optimistic about the future), which further influences their discretionary expenditures.

Moreover, this paper also empirically contributes to the previous literature in financial scarcity. Previous research in marketing and psychology have been conducted with

participants with relatively more homogeneous levels of resources such as college students (Hamilton et al. 2019). We contribute to this stream of research in financial scarcity by testing our predictions using a survey from farmers in rural India and two longitudinal studies from Italy and Germany as well as online panel participants.

We suggest that the findings of this paper can be used by public policy makers and managers by nudging consumers in different ways. The results of this research show that those with scarcer financial resources, whether they are in India, Italy, Germany, or in the U.S., engage in more discretionary spending, borrowing, and investing and this is because they have a more optimistic future perception. Since discretionary consumptions may lead to severe consequences including mental health, we suggest that one way that the public policy makers can urge these people to save or enrol in a pension scheme rather than spend, borrow, or invest for discretionary investing is by using choice architecture and message framing. From a managerial perspective, the results of this research show that although consumers with scarcer financial resources engage in discretionary consumption, they are less likely to do so for the non-discretionary consumption. Considering both the positive (e.g., pleasure) and negative (e.g., depression) consequences of discretionary consumptions, we suggest managers to develop mechanisms such as cost-effective discretionary products so that people with financial scarcity can use discretionary products without any major negative consequence.

Conceptual background

Financial Scarcity

When resources to satisfy the necessary needs are insufficient, scarcity occurs (Mani et al. 2013; Mullaniathan and Shafir 2013). How consumers think and feel about their financial situation is captured by subjective financial well-being and it can be conceptualized along a continuum that ranges from “better off” to “worse off” (Diener et al. 1999; Sharma & Alter 2012). Consumers can assess their subjective financial well-being position by evaluating their financial situation against a range of subjective (e.g., past states, ideal states) or objective (e.g., income, wealth) components (Sharma & Alter 2012). This is consistent with the view of absolute and relative scarcity (Daoud 2010). Relatedly, past research in financial scarcity conceptualized financial scarcity as objective and/or subjective (please see Table 1 in Web Appendix for different definitions of financial scarcity in previous literature).

Research that conceptualized financial scarcity as objective tested for the effects of low income (Mani et al. 2020; Goldsmith et al. 2020; Madrian et al. 2017), growing up in low socio-economic status (SES) family or having low SES (Thompson et al. 2020; Mittal et al. 2020; Griskevicius et al. 2013), being an impoverished consumer and at the bottom of the pyramid (Hill 2020; Martin & Hill 2015; Durante et al. 2015), having high amount of debt (Wilcox et al. 2011), having high debt to asset ratio (Sussman & Shafir 2012), and lacking financial means (Haushofer & Fehr 2014).

Previous research suggests that the subjective components exert a stronger influence on subjective financial wellbeing than the objective components (Diener et al. 1999). Relatedly, research that conceptualized financial scarcity as subjective tested for the effects of experience of financial scarcity as having a discrepancy between one’s current resource levels and a higher, more desirable reference point (Cannon et al. 2019), a psychological state in which people feel financially inferior relative to a salient comparison standard because they perceive a deficit in their financial situation (Sharma & Keller 2017; Sharma et al. 2014; Sharma & Alter 2012), having the belief that one’s financial situation restricts his or her

desired consumption or when the consumer has less than she feels she needs (Fan et al. 2019; Paley et al. 2019; Cook & Sadeghein 2018; Tully et al. 2015), and relative rank of a person's income (Briers & Laporte 2013).

Extant research in marketing and psychology has investigated it as being both objective or subjective, in which resource scarcity is defined as the real or perceived lack of financial capital that the consumer invests in order to acquire and use goods and services (Yang & Zhang 2021; Hamilton 2021; Hamilton et al. 2019; Ravi & Zhu 2016; Roux et al. 2015). Consistently, in this research, we define financial scarcity as the condition in which consumers are not able to get what they want given their real or perceived lack of financial resources.

Financial scarcity has an effect in many aspects of individuals' life, and it is a key predictor of overall individual well-being, being comparable in magnitude to the overall combined effect of job satisfaction, physical health assessment, and relationship support satisfaction (Netemeyer et al. 2018). A part of the research on scarcity has investigated a variety of sociological, political, economic, and personal characteristics of resource-constrained people, such as their living conditions (Hill 2001; Ludwig, Duncan, and Hirschfield 2001; Rosa et al. 2012), health (Johnson, Mermin, and Murphy 2007), education (Bernheim, Garrett, and Maki 2001), and social capital (Cleaver 2005). The emerging themes revolve around three main areas: i) cognitive consequences (e.g., information processing, attention, cognitive functioning and load), affective consequences (e.g., susceptibility, negative emotions, and pride) and behavioral implications (e.g., spending).

Financial scarcity has cognitive consequences. It impedes cognitive functioning (Mani et al. 2013), increases concerns about the lasting utility of their purchases (Tully et al. 2015), increases cognitive load closer to payday (Mani et al. 2020), changes how people allocate attention by leading them to engage more deeply in some problems while neglecting others

(Shah and Shafir 2012), creates the need for constant focus and attention, and can distract from the very opportunities otherwise designed to alleviate the effects of poverty (Gennetian and Shafir 2015), induce a parsimonious mindset reflected in the use of less costly resources (Scopelliti et al. 2014), increases prioritization (Fernbach et al. 2015), increases promotion orientation (Fan et al. 2019), and opportunity cost consideration (Spiller 2011), activate a top-down rather than a bottom-up processing strategy in approaching creative tasks (Scopelliti et al. 2014). Consumers with scarce financial resources categorize fewer biracial individuals as belonging to their in-group (Rodeheffer et al. 2012) and perceive African Americans as "Blacker" (Krosch and Amodio 2014). Activating the perception of having too little prompts a tendency to focus on problems for which resource inadequacy is salient, creating attentional neglects in other domains and resulting in excessive borrowing (Shah, Mullainathan, and Shafir 2012) and enhances product use creativity by making consumers think beyond the traditional functionality of a given product (Mehta and Zhu 2016).

The affective consequences of financial scarcity include stress (Haushofer and Fehr 2014; Moschis 2007), less confidence to self (Mittal et al. 2020), negative affective states (Haushofer and Fehr 2014; Lee-Yoon et al. 2020), and more value for pride (Salerno et al. 2020). More importantly, financial scarcity influences the general well-being of the individuals (Martin and Hill 2015; Netemeyer et al. 2018; Shah et al. 2015). Specifically, research shows that societal poverty, satisfaction with one's household financial situation and individual saving ability influences well-being (Marin and Hill 2015) such that in high poverty societies, saving improves well-being. Other research shows that the relative importance of perceived stress related to money management to overall well-being varies by income groups (Netemeyer et al. 2018) and autonomy and relatedness perceptions improve poverty's negative influence on life satisfaction when basic life necessities are available (Martin and Hill 2012).

Among the three emerging themes, behavioral implications are the most studied for the immediate relevance of its effects. Households experiencing financial scarcity spend less on purchases of durables (Karlsson et al. 2005), spend their money more quickly (Cole et al. 2008), are less susceptible to context effects (Shah et al. 2012), engage in less word-of-mouth (WOM) (Paley et al. 2019), prefer options to earn over options to save (Sharma and Keller 2017), prefer range-offers (Fan et al. 2019), and respond more positively to approach (vs. avoidance) framed messages (Sarial-Abi & Ulqinaku 2020). These individuals with scarce financial resources purchase goods that are unavailable to other consumers in their environment (Sharma and Alter 2012), prefer material goods over experiences (Tully et al. 2015), desire for more assortment (Van Kerckhove et al. 2020) and variety (Yoon and Kim 2018), prefer a greater choice share of the favorite vs. nonfavorite item (Zhu and Ratner 2015), prefer sustainable products when the product's prosocial (vs. personal) benefits are emphasized and when the costs to the self are low (Goldsmith, Roux, and Wilson 2019), take more risks and approach temptations more quickly (Griskevicius et al. 2013), increase preference for consumption of high versus low calorie food items (Laran and Salerno 2012), tend to cheat more for financial gains and judge deprived moral offenders who cheat for financial gains less harshly (Sharma et al. 2014).

Although previous research is extant to investigate the behavior of individuals with financial scarcity, literature is silent in terms of understanding the expenditures in general, discretionary expenditures, in particular, of individuals with scarce financial resources. In this research, we provide an answer to this question.

Discretionary Expenditures and Financial Scarcity

How consumers allocate their expenditures across different categories is important, more so for consumers with scarce financial resources. Expenses can be divided as non-discretionary and discretionary. Non-discretionary expenses are considered mandatory. They include expenses such as housing, taxes, debt, groceries, utilities and maintenance of the household, basic clothing, automobile and gasoline expenses (Fornell, Rust, and Dekimpe 2010). These are expenses that must be paid to keep things running and the consumers have to pay on regular basis. They are usually referred to as needs.

Some expenses, on the other hand, are not necessary to maintain a household. These expenses, which are classified as discretionary expenses, are paid by the consumers at their own discretion. Discretionary expenditures are usually defined as personal consumer expenditures less food, medical care, and housing (Fornell, Rust, and Dekimpe 2010). It is consumer spending on things that they want to buy rather than what they need (Danziger 2004). Discretionary income is income available after necessities have been paid by the consumer (Semon 1962). These expenses have nothing to do with a household's day-to-day operations and are related with consumer lifestyle and choice.

What is included as a discretionary expense is subjective. What defines a discretionary expense depends on who's doing the buying as what is necessity is determined by the individual consumer (Semon 1962). Accordingly, non-discretionary and discretionary spending can be better understood if they are treated as products that lie somewhere on a non-discretionary-discretionary continuum (Crouch et al. 2017). Nevertheless, some of the most widely used discretionary item list in the literature include: luxury goods, travel and vacations, restaurants and other entertainment-related activities, leisure activities, ancillary spending on housing such as renovations, investments, hobby and sports-related expenses such as gym memberships (Crouch et al. 2017; Hawes 1979; Luo, Ratchford, and Yang 2013).

Scholars in marketing have focused on modelling how consumers allocate their limited discretionary income to meet different consumption needs, in which trade-offs must be made across a wide range of expenditure categories (e.g., food, apparel, recreation, transportation, medical and personal care). However, the empirical studies that examine consumer expenditures are mostly descriptive in nature (Ferber 1956; Ostheimer 1958). This past research focuses on particular consumption category such as food (Rogers and Green 1978), energy (Fritzsche 1981), services (Soberon-Ferrer and Dardis 1991) or they examine a specific demographic group such as working wives (Bellante and Foster 1984) or elderly (Goldstein 1968). Related research shows that customer satisfaction positively influences discretionary spending because consumers want to spend their money in ways that give them the most satisfaction (Yeung et al. 2013). Relatedly, consumers with higher-income are more able to allocate larger amounts of money to discretionary spending, including consumer durables, savings, and eating out (Dyran, Skinner, and Zeldes 2004; Stilley, Inman, and Wakefield 2010).

As expected, non-discretionary expenditures are more stable and do not fluctuate as a result of customer satisfaction or economic conditions as much as the discretionary expenditures (Lamey et al. 2007). Consistently, research shows that during times of recession (i.e., when there is negative GDP growth for two or more consecutive quarters), consumers' disposable income may reduce or consumers may save more or pay down debt holding their disposable income (Kamakura and Du 2012), all of which suggests that during times of recession discretionary consumption should reduce.

Yet, numbers consistently show that those consumers who indicate that they have scarce financial resources, who by definition have a lower chunk of money that can be devoted to discretionary purchases, continue to have discretionary expenditures (Malika, Maheswaran, and Shailendra 2020). This is detrimental for these consumers' finances and

poses a clear societal challenge. In this research, we show that despite what economic assumptions would predict, consumers who have scarcer financial resources have more discretionary expenditures and we provide one possible reason for why these consumers may have more discretionary expenditures – i.e., they have a “rose-colored” view of the future and have more optimistic future perceptions, which lessens the focus on saving for future mandatory consumption (i.e., non-discretionary consumption) with the effect of increasing present discretionary expenditures. We next provide the rationale behind the more optimistic future perceptions of consumers with financial scarcity.

Financial Scarcity and Optimistic Future Perceptions

Previous research in financial scarcity suggests that scarcity of resources leads individuals to focus on the present and neglect the future such that people with scarce financial resources are more likely to prefer smaller, sooner over larger, later monetary rewards (Callan et al. 2011), borrow more (Shah et al. 2012) and consume food with more calories (Briers and Laporte 2013). Research in economics, sociology, and psychology provide reasons for why scarce resources lead to present-focused behavior.

According to the economic perspective, people with scarce financial resources act present-focused because they lack the resources to improve their situation (Jachimowicz et al. 2017; Sen 1987). Sociological perspective suggests “culture of poverty” that has misguided motivations and goals as the reason for the present-focused behavior of financially scarce individuals (Jachimowicz et al. 2017; Lewis 1966). More recently, psychological perspective suggests that having scarce financial resources impedes cognitive functioning (Mani et al. 2013), changes how people allocate attention by leading them to engage more deeply in some problems while neglecting others (Shah and Shafir 2012). Scarcity of resources captures the

mind (Mullainathan & Shafir, 2013) so that people with scarce financial resources cannot plan for their future. Other research in delay discounting (i.e., tendency to prefer sooner payoffs with smaller values over later payoffs with larger values) also supports the view that having scarce financial resources leads to more present-focused and myopic behaviour (Haushofer and Fehr 2014; Carvalho et al. 2016; Pepper and Nettle 2017).

One reason for this present-focused and myopic behaviour is that people with scarce financial resources perceive a threat such that maximizing outcomes in the present becomes priority (Goldsmith, Griskevicius, and Hamilton 2020). Accordingly, research also shows that behaviour like gambling provides opportunities for the financially scarce people to achieve the goals they feel they deserve (Callan, Shead, and Olson 2011). Relatedly, self-affirmation (Moeini-Jazani, Albalooshi, and Seljeseth 2019) and community trust (Jachimowicz et al. 2017) are two suggested interventions for these people with financial scarcity to cope with their financial scarcity and reduce their present-focused and myopic behaviour.

Consumers in general and consumers with scarce financial resources in particular often need to assess the overall situation of their finances in order to make financial decisions in the long-term. These assessments depend on both the objective amount they have in their current bank accounts and how their finances will change over time (Berman et al. 2016). Research shows that consumers who overestimate the amount of spare money they will have in the future take out loans that they won't be able to repay in the future (Lynch and Zauberman 2006; Thaler and Benartzi 2004). Consistently, the more the available resources that the consumers expect to have in the future, the more likely they are to discount delayed expenditure of that resource (Zauberman and Lynch 2005). This is consistent with the finding that although households in the US were on average worse off in 2013 than they were in 2010, consumers had consistently predicted improvements in their finances over this period

according to Federal Reserve Board Survey of Consumer Finances, which shows that more consumers expected their future financial situation to be better off when the median net worth of U.S. families fell by 2% (Berman et al. 2016; Bricker et al. 2014). Extending the findings of the previous research, we suggest one alternative possible reason for why individuals with scarce financial resources may continue to have high discretionary expenditures. Specifically, we suggest optimistic future perceptions of individuals with scarce financial resources to explain their discretionary expenditures.

Optimistic people believe that a good outcome will occur, while a bad outcome will not, suggesting that optimism varies as a function of individual's expectation for a given outcome to be positive or negative (Reimann et al. 2014). While some research treats optimism as context-dependent, other research suggests that optimism is a trait related to the generalized expectation that outcomes will be more likely to be positive than negative (Scheier & Carver, 1985).

In general, individuals "tend to think that they are invulnerable" (Weinstein, 1980, p. 806) and "are mostly overoptimistic about the future" (Chambers, Windschitl, and Suls, 2003; p. 1343). This unrealistic optimism suggests that individuals usually perceive their own future as more positive than the average person's, leading them to believe that positive events are more likely to happen to them than to the average person (e.g., Burger & Burns, 1988; Campbell, Greenauer, Macaluso, & End, 2007; Lek & Bishop, 1995; Weinstein, 1980, 1982, 1984, 1987; Weinstein & Klein, 1995). Relatedly, extant research in optimism showed potential explanations for individual's optimism, including a self-serving motivational bias designed to protect self-esteem and guard against depression (e.g., Chambers & Windschitl, 2004; Helweg-Larsen & Shepperd, 2001; Taylor & Brown, 1988).

Integrating developments in financial scarcity and research on optimism, we suggest that there are at least two reasons for why individuals with scarcer financial resources will

have more optimistic future perceptions. First, people with scarce financial resources perceive a threat (Goldsmith, Griskevicius, and Hamilton 2020) and optimistic thinking can help these people to protect their self-esteem and guard against negative consequences of having financial resources. Hence, similar to the research that shows how self-affirmation (Moeini-Jazani, Albalooshi, and Seljeseth 2019) or community trust (Jachimowicz et al. 2017) that helps consumers with scarce financial resources to cope with the scarcity and have less myopic behaviour, thinking optimistic about the future can also be one way for these consumers to cope with their financial scarcity. Second, previous research in financial scarcity suggests that scarcity of resources leads individuals to focus on the present and neglect the future (Mullainathan and Shafir 2013). Hence, it stands to reason that for those consumers with scarce financial resources, temporal proximity of the future is distant. Consistently, individuals with scarce resources will focus on managing the scarcity at hand. Research shows that temporal proximity can decrease optimism (Shepperd, Ouellette, & Fernandez, 1996). Hence, consumers with scarcer financial resources, as they perceive the future to be more temporarily distant, may be more optimistic.

Discretionary Expenditures, Financial Scarcity and Optimistic Future Perceptions

In this section, we discuss our predictions related to how optimistic future perceptions of consumers with scarcer financial resources influence their discretionary expenditures, which will be reflected in their spending, borrowing, and investing decisions.

Discretionary spending. Integrating findings in financial scarcity and optimistic future perceptions literatures, we suggest that consumers with scarcer financial resources will engage in more discretionary spending. Research shows that financial scarcity impedes cognitive functioning (Mullainathan and Shafir 2013) and those with scarcer financial

resources have limited cognitive capacity (Mani et al. 2013; Mani et al. 2020). As discussed previously, these consumers with scarcer financial resources also have the tendency to think about the future more optimistically either to cope with their scarce financial resources or because they perceive the future to be distant than the present. Research shows that when optimistic individuals have limited cognitive capacity, their decisions are based on heuristics, in which they focus on favorableness of the outcomes, leading to more anticipatory purchases (Eagly & Chaiken, 1993; Chan et al. 2013). In the context of this research, the more favourable outcomes are the discretionary expenditures, which the consumers want rather than need. Hence, we suggest that consumers with scarcer financial resources, who have limited cognitive capacity, will engage in more discretionary spending, and this is because these consumers will have more optimistic future perceptions. Hence, we propose:

H_{1a}: Consumers with greater financial scarcity will engage in more discretionary spending.

Discretionary borrowing. Borrowed money is “money available for use by one entity that is owned by another” (Sharma et al. 2021). Research in consumer borrowing suggest that consumers’ willingness to borrow stem from consumer characteristics (e.g., age, attitude toward the credit, income; Kim and DeVaney 2001; Zhu and Meeks 1994), the underlying purchase (e.g., physical longevity of purchases, material versus experiential purchases; Hirst et al. 1994; Tully and Sharma 2018), and the terms of the loan (e.g., interest rates, credit limits, repayment options; Gross and Souleles 2002; Soman and Cheema 2002; Tully and Sharma 2018). Further research also demonstrate that psychological factors related to consumers’ finances also impact the borrowing decision (Sharma et al. 2021). More specifically, consumers’ subjective wealth (Sharma and Alter 2012; Sussman and Shafir 2012; Tully et al. 2015) also influence their borrowing decisions.

Much of the existing literature focuses on consumers' overall debt levels without focusing on discretionary borrowing, with exceptions of Tully et al. 2021 and Tully and Sharma (2018). However, understanding discretionary borrowing decisions is important given that a growing trend in the use of debt is for funding the discretionary purchases (Leonhardt 2019; Weisbaum 2019).

Integrating findings on financial scarcity, discretionary borrowing, and optimistic future perceptions, we suggest that consumers with scarcer financial resources will engage in more discretionary borrowing. Most consumers borrow when they want to make a purchase but do not have sufficient funds (Tully and Sharma 2018). It stands to reason that as discretionary purchases are what these consumers want rather than need, consumers with scarce financial resources will be more inclined for discretionary borrowing. We suggest that consumers with scarcer financial resources will not have sufficient resources to engage in discretionary consumption, they will have more optimistic future perceptions, leading them to engage in more discretionary borrowing. Hence, we propose:

H_{1b}: Consumers with greater financial scarcity will engage in more discretionary borrowing.

Discretionary investing. According to Merriam-Webster dictionary, investment is “the outlay of money usually for income or profit.” By definition, any investment decision is a discretionary expenditure as the money is not spend on something mandatory but is at the discretionary of the consumer.

Although much of the research on investment decisions focused on company-level investments (Srinivasan, Gary, and Arvind 2005; Graham and Kristina 2008), there is also limited research in marketing on consumers' investment decisions (e.g., Minton and Schrand 1999). Research in this area suggests that risk aversion is an important factor influencing financial and investment decisions (Markowitz 1952; Merton 1972; Shiv et al. 2005; Zhou

and Pham 2004). Risk aversion is a function of reference points (Kwon and Lee 2009), the extent of sunk costs (Zeelenberg and Van Dijk 1997), and financial loss (Kahneman, Knetsch, and Thaler 1991). On the other hand, research on consumer optimism and investment behavior show that optimistic people are more likely to underestimate risks, invest more in stocks or are more likely to seek risks (Puri and Robinson 2007; Disatnik and Steinhart 2015).

Integrating findings in financial scarcity, optimistic future perceptions and investment decision literatures, we suggest that consumers with scarcer financial resources will have more optimistic future perceptions, which influence them to be more willing to take risks, resulting in more discretionary investing. Hence, we propose (see figure 1 for the conceptual framework of this paper):

H_{1c}: Consumers with greater financial scarcity will engage in more discretionary investing.

H₂: Optimistic future perceptions of consumers with scarcer financial resources will mediate the effect of scarce financial resources on discretionary expenditures.

Insert Figure 1 about here

Study 1a: Discretionary spending evidence from India

In study 1a, we tested H_{1a} that individuals with greater financial scarcity engage in more discretionary spending. We tested this prediction using data collected from a survey of small-scale farmers in a state in eastern India and using non-discretionary and discretionary items present at the households of these farmers.

Sample

In this study, we used the Household Survey conducted for researchers in a European Business School by CMS India, which is a social research organization in New Delhi. Participants were 1,106 respondents (49% male; 93.22% belong to the Hindu religion; 71.34% received either no formal education or received only primary education) representing their household (53.53% identified as head of the household) in Bihar, India. The average number of members in the household was 13 ($M = 13.27$, $SD = 3.17$) and 78.21% of the respondents indicated a monthly income of maximum between Rs 5000 and Rs 7499 with 50.45% reported a total monthly income between Rs 2000 and Rs 4999 (i.e., approximately between \$28 to \$70). 60.13% belong to the Other Backward Class (OBC) as caste¹.

The households that participated in the survey were randomly picked from the database shared by Digital Green, which is a global development organization that empowers smallholder farmers to lift themselves out of poverty by harnessing the collective power of technology and grassroots-level partnerships" (<https://www.digitalgreen.org/india/>). The data was collected between September and October 2015 and was given to the authors for free for their research purposes.

Measures²

Financial scarcity. Participants expressed their self-reported perceptions of financial scarcity measured by the extent to which they had enough money to spend (1 = never, 2 = sometimes, 3 = often, 4 = always; $M = 2.52$ $SD = 0.84$). We reverse coded this variable so that the higher the participants' scores, the higher their perceptions of financial scarcity,

¹ Other Backward Class (OBC) is a term used by the Government of India to classify castes (i.e., a form of stratification) which are socially or educationally disadvantaged.

² The original questions used in the survey are provided in the Web Appendix Table 2.

reasoning that those who reported that they do not have enough money to spend (vs. those who have enough money to spend) would feel more financially scarce ($M = 2.48$ $SD = 0.84$).

Discretionary spending. The survey asked participants to indicate whether they have a smart phone (1 = yes and 2 = no; 5.42% yes), kerosene oil stove (1 = yes and 2 = no; 2.98% yes), telephone (1 = yes and 2 = no; 0.27% yes), mobile phone (1 = yes and 2 = no; 87.25% yes), car/tractor (1 = yes and 2 = no; 1.72% yes), cycle (1 = yes and 2 = no; 77.40% yes), motorcycle (1 = yes and 2 = no; 9.40% yes), clock (1 = yes and 2 = no; 44.39% yes), sewing machine (1 = yes and 2 = no; 9.67% yes), refrigerator (1 = yes and 2 = no; 0.45% yes), DVD (1 = yes and 2 = no; 1.27% yes), television (1 = yes and 2 = no; 12.39% yes), radio (1 = yes and 2 = no; 4.25% yes), and satellite (1 = yes and 2 = no; 5.42% yes) at their household.

Consistent with previous research that defines non-discretionary expenditures as expenses that must be paid to keep things running and the consumers have to pay on regular basis such as housing, taxes, debt, groceries, utilities and maintenance of the household, basic clothing, automobile and gasoline expenses (Fornell, Rust, and Dekimpe 2010), we identified kerosene oil stove, telephone, mobile phone, car/tractor, cycle, motorcycle, satellite, clock, sewing machine, refrigerator, television, and radio as non-discretionary items at home.

Consistent with previous research that defined discretionary expenditures that has nothing to do with a household's day-to-day operations (Fornell, Rust, and Dekimpe 2010), we identified the smartphone (Hubner, Fleisch, and Ilic 2020) and DVD as discretionary items at home.

Demographic control variables. In this study, we controlled for income (1 = up to Rs 1999; 2 = Rs 2000 to Rs 4999; 3 = Rs 5000 to Rs 7499; 4 = Rs 7500 to Rs 10000; 5 = Rs 10001 or more), educational attainment (1 = no formal education; 2 = primary; 3 = middle; 4 = middle but below matric; 5 = matric; 6 = intermediate/senior secondary; 7 = degree and above), gender (1 = male; 2 = female), household composition (number of people living in

the household, 5-24 members), caste (1 = SC, 2 = ST, 3 = OBC, 4 = General), religion (1 = Hindu, 2 = Muslim, 3 = Sikh, 4 = Christian), and whether the participants were the head of the household (1 = yes, 2 = no).

Alternative explanation. Previous research shows that financial scarcity influences perceptions of stress (Netemeyer et al. 2018) and how innovative and creative (Mehta and Zhu 2016) consumers are. Consistent with previous research, we tested the role of stress and openness to new ideas as alternative explanations for the effect of financial scarcity on discretionary spending. Specifically, as a proxy for perceptions of stress, we used the answers to the question “Over the past two weeks, how often did you feel stressed?” on a 4-points scale (1 = never/rarely; 2 = sometimes; 3 = often; 4 = always, $M = 2.01$, $SD = 0.75$). As a proxy for openness to new ideas, we used the answers to the question “Do you believe you are open to new ideas? For example, are you open to girls living alone in the city for school or girls working outside the village?” on a 4-points scale (1 = never/rarely; 2 = sometimes; 3 = often; 4 = always, $M = 3.11$, $SD = 0.94$).

Data analysis and results

Discretionary and non-discretionary spending. We estimated a logistic regression to test that the more individuals reported financial scarcity, the more they would be likely to have a discretionary item at home. Hence, we tested the effect of individuals’ financial scarcity on whether they have a smartphone and/or DVD, controlling for the average total monthly household income, highest education level, family composition, caste, religion, gender, and whether the respondent was the head of the household. We predicted that financial scarcity of the respondents would be positively related to having a smartphone and/or DVD at home, a proxy we used for discretionary spending.

As predicted, the results, expressed in odds ratio to indicate the effect size also, suggest that the greater the financial scarcity of the individuals, the more their discretionary spending when proxied with owning a smartphone ($b_{\text{FINANCIALSCARCITY}} = 0.405, p = .019$, effect size in terms of odds ratio = 1.50, $p = .019$; Model 1, Table 3 in Web Appendix). We did not find the predicted effects when using the likelihood of owning DVD as a proxy for discretionary spending ($p = .178$). Using as a proxy for discretionary spending the likelihood of having either a smart phone or DVD at home, the results suggest that greater financial scarcity is associated with marginally greater likelihood of having spent money on purchasing at least a smart phone or DVD (or both), $b_{\text{FINANCIALSCARCITY}} = 0.309, p = .053$, effect size in terms of odds ratio = 1.362, $p = .053$ (Model 2, Table 3 in Web Appendix). These findings provide initial support for H_{1a} .³

Results of the logistic regression on having a sewing machine ($b = -0.33, p = .012$), telephone ($b = -1.436, p = .084$), mobile phone ($b = -0.513, p < .001$), TV ($b = -0.217, p = 0.068$), car/tractor ($b = -0.728, p = .027$) suggested a greater financial scarcity is associated with lower likelihood of having engaged in these non-discretionary spending when proxied with owning these items separately (please see Table 4 in Web Appendix for detailed reporting).

Alternative explanations. We then tested for different alternative explanations for the relationship between financial scarcity and discretionary spending using PROCESS Macro Model 4 (Hayes and Preacher 2014) with 10,000 iterations, where financial scarcity was specified as the independent variable, perceptions of stress and openness to new ideas as the mediating variables and owning a smart phone at home as the dependent variable. The results show that there is no indirect relationship of financial scarcity and likelihood of owning a

³ In Table 3 in Web Appendix, we also report Model 1a and 2a, which do not include any of the control variables.

smart phone through perceptions of stress ($\beta = 0.029$, 95% CI = 0.000 to 0.073) or through openness to new ideas ($\beta = -0.01$, 95% CI = -0.067 to 0.04).

The results of study 1 support our prediction that consumers with scarcer financial resources engage in more discretionary spending, which we proxied with owning a smart phone and/or DVD at home. Moreover, we ruled out perceptions of stress and openness to new ideas as alternative explanations that explain the relationship between financial scarcity and discretionary spending. Although the results of this study support our prediction, as the study was a survey, the results only show correlational relationship with its limitations. One of the limitations of the study is that the experience of financial scarcity at the time of the purchase of the smart phone is not known. Given the limitations of this study, in study 1b, we test for the causal relationship between financial scarcity and discretionary spending using an online experiment.

Study 1b: Discretionary spending evidence from an online experiment

Sample

In study 1b, we randomly assigned participants to a financial scarcity (vs. no financial scarcity) condition. We also randomly assigned participants to discretionary expenditure (vs. non-discretionary expenditure) condition. We measured attitudes toward the brand. As we predict that consumers with scarcer financial resources engage in more discretionary spending (H_{1a}), we predicted that consumers with scarcer financial resources will respond more positively to a brand when the brand offers discretionary (vs. non-discretionary) service. We pre-registered the study at AsPredicted.com (#66057).

Sample

We asked MTurk to collect data from four hundred and fifty adults in exchange for monetary compensation. The target sample was based on a priori power analyses (power of .95, small-medium effect sizes ($f = 0.25$), an alpha level of .05, Faul, Erdfelder, Lang, and Buchner 2007). Sixty participants failed the attention check⁴. We did all the analyses with the remaining two hundred and ninety adults (236 male; $M_{\text{age}} = 35.71$, $SD = 10.53$). The study used a 2 (financial scarcity vs. control) x 2 (discretionary expenditure vs. non-discretionary expenditure) between-subjects design.

Measures

Financial scarcity. Participants were first randomly assigned to either the financial scarcity or control condition. Following past research (Tully et al. 2015), we manipulated financial scarcity by inducing individual-level scarcity, in which one's personal financial resources are physically limited. Specifically, participants first read that "Everyone has financial constraints in their lives, but the factors that contribute to these constraints tend to vary. What are the factors that require you to be careful with how you spend your money? What limits your monthly discretionary income? Include the aspects of your current situation that most contribute to your financial constraints (e.g., mortgage or rent, family expenses, uncertainty of future income, health care costs, student loans, lack of income, limited savings, bills that need to be paid, expensiveness of entertainment . . .). Participants in the control condition wrote down what they did on the current day (adapted from Roux et al., 2015).

Discretionary (vs. non-discretionary) expenditure. Participants were then randomly assigned to discretionary (vs. non-discretionary) expenditure condition (please see Web Appendix for the stimuli used in study 1b). Following the definition of discretionary

⁴ Participants answered the following attention check question: "It is important that you pay attention to this survey. Please tick "strongly disagree"." The responses of those participants that failed the attention check question are removed from the analyses.

expenditures in previous literature that categorizes travel as a discretionary expenditure (Crouch et al. 2017; Hawes 1979; Luo, Ratchford, and Yang 2013), participants in the discretionary expenditure condition saw an ad about an adventure travel agency. Specifically, they read: “Liberty Travel is an adventure tourism provider for people who are seeking adventure outside of their home country. We arrange adventure activities with our partner adventure parks and provide support. Liberty Travel provides highly-personalized care for each client. We will take the stress and worry out of your adventure abroad by coordinating bookings and travel arrangements.” Following the definition of non-discretionary expenditures in previous literature that categorizes medical expenses as a non-discretionary expenditure (Fornell, Rust, and Dekimpe 2010), participants in the non-discretionary expenditure condition saw an ad about a medical travel agency. Specifically, they read: “Liberty Travel is a medical tourism provider for people who are seeking medical treatment outside of their home country. We arrange health procedures with our partner clinics and provide support. Liberty Travel provides highly-personalized care for each client. We will take the stress and worry out of your treatment abroad by coordinating appointments and travel arrangements.”

Manipulation check. As a check for manipulation, thinking about their relative financial situation, participants indicated the extent to which they feel financially restricted on a scale of 7-points (1 = not at all and 7 = very much; $M = 5.06$, $SD = 1.39$).

Attitudes toward the brand. We measured participants’ attitude toward the Liberty Travel using a five-item scale (Ahluwalia, Burnkrant, and Unnava 2000; Swaminathan, Page, and Gürhan-Canli 2007): bad/good, low quality/high quality, undesirable/desirable, harmful/beneficial, unfavorable/favorable ($\alpha = .93$).

Control variables. As control variables, participants indicated their income, age, gender, and whether they have any medical conditions that they need medical treatment (1 = not at all and 7 = very much).

Data Analysis and Results

Manipulation check. As intended, participants in the financial scarcity condition indicated that thinking about their relative financial situation, they feel more restricted compared to participants in the control condition, $M_{\text{FINANCIALSCARCITY}} = 5.40$ $SD = 1.28$ vs. $M_{\text{CONTROL}} = 4.90$ $SD = 1.42$, $F(1, 388) = 11.23$, $p = .001$.

Attitudes toward the brand. Consistent with our prediction, an ANOVA analysis on participants' brand attitude reveals the predicted interaction effect of financial scarcity (vs. control) and discretionary (vs. non-discretionary) expenditure conditions, $F(1, 386) = 4.93$, $p = .027$. Specifically, the results of the planned contrast suggest that participants in the financial scarcity condition respond more positively to the travel agency when the travel agency offers adventure (vs. medical) travel, $M_{\text{DISCRETIONARY}} = 5.92$ $SD = .95$ vs. $M_{\text{NON-DISCRETIONARY}} = 5.25$ $SD = 1.43$, $F(1, 386) = 10.14$, $p = .002$. These more positive attitudes towards the brand when the travel agency offers adventure (vs. medical) travel services do not persist for participants in the control condition, $M_{\text{DISCRETIONARY}} = 5.67$ $SD = 1.14$ vs. $M_{\text{NON-DISCRETIONARY}} = 5.56$ $SD = 1.10$, $F(1, 386) = .54$, $p = .463$. These findings provide support about the prediction that individuals with scarce financial resources engage in more discretionary spending (H_{1a}).

Results of the planned contrast between participants in the financial scarcity (vs. control) condition do not suggest a significant difference on attitudes towards discretionary expenditure ($M_{\text{FINANCIALSCARCITY}} = 5.92$ $SD = .95$ vs. $M_{\text{CONTROL}} = 5.67$ $SD = 1.14$, $F(1, 386) = 1.84$, $p = .175$) or on attitudes towards non-discretionary expenditures ($M_{\text{FINANCIALSCARCITY}} = 5.25$ $SD =$

1.43 vs. $M_{\text{CONTROL}} = 5.56$ $SD = 1.10$, $F(1, 386) = 3.22$, $p = .073$). Results hold when controlling for income, age, gender, and the extent to which the participant have a medical condition that needs medical treatment, (Table 5 in Web Appendix, Model 1) and when we do not include controls (Table 5 in Web Appendix, Model 2).

The results of Study 1b support our prediction that consumers with scarcer financial resources engage in more discretionary (vs. non-discretionary) spending, which is evidenced with their more positive attitudes toward the brand that offers a discretionary (vs. non-discretionary) service. In study 2, we test our prediction about the relationship between financial scarcity and discretionary borrowing using evidence from Italy.

Study 2: Discretionary borrowing evidence from Italy

In study 2, we tested our predictions that individuals with greater financial scarcity engage in more discretionary borrowing (H_{1b}). In this study, we used the Survey on Household Income and Wealth (SHIW) conducted by GfK (Growth from Knowledge), which is a global leader in data and analytics, providing consumer and marketing insights, for the Bank of Italy (i.e., Banca D'Italia). The survey is done in annual basis since the 1960s and it collects data on various aspects of incomes, savings (i.e., income, wealth, liabilities, and payment methods) as well as other aspects of economic and financial behavior (e.g., payment methods employed) of Italian households. The data on households is published regularly in the Bank of Italy's Statistic series and is freely available for research purposes for the period from 1995 to 2016.

Sample

The survey comprises about 8,000 households, including over 300 Italian municipalities and is completed by the head of the household (i.e., the person responsible from the household budget). The dataset provides a total of 223,996 observations⁵ covering a period from 1995 to 2016 (data were provided for the following years: 1995, 1998, 2000, 2002, 2004, 2006, 2008, 2010, 2012, 2014, 2016). Due to missing values in the survey, our analyses consist of a smaller number of observations, as reported in the analyses.

Overall, looking at the demographic characteristics of the respondents, 51.46% of them were females, 38.72% of them defined themselves as head of household, 50.95% of respondents reported being married, 34.5% reported as having none or only a primary school certificate, 38.81% reported being unemployed. Respondents-as-representatives-of-Italian-households were used as unit of analyses, hence, information on demographics that could be included in our model was limited. However, it was possible to use some information at a family level, such as the number of household members ($M = 3.23$, $SD = 1.33$) and the number of household income earners ($M = 1.85$, $SD = 0.84$).

Measures⁶

Financial scarcity. We used a proxy for financial scarcity that was the logarithm of the sum of the amount of the following liabilities: individuals' mortgage residual on the main residence, mortgage residual on other properties, residual loans for household needs, residual business loans, trade debts for family business, and residual debt with friends or relatives ($M = 9.54$, $SD = 1.61$). While in study 1a, we used a self-reported measure of the extent to which individuals believe that they have enough money for personal use, in this study, we used an

⁵ This corresponds to $n = 123,209$ unique/distinct respondents to the survey over the period from 2006 to 2015. In this manuscript, by observation we refer to specific data points measured once or more times for each respondent.

⁶ The original questions used in the survey are provided in the Web Appendix Table 2.

objective measure of households' financial liabilities, driven by the assumption that households with more liabilities are more likely to be financially scarce than those with lower ones (e.g., Dickerson 2016). Indeed, previous research (Dickerson 2016) has interchangeably used the term financial scarcity with cash-starved, using the liabilities (e.g., mortgages and loans amounts) as an indicator of financial scarcity (Moty, Ariely, Ayal, Cryder, and Rick 2011; Wilcox, Block, and Eisenstein 2011).

Discretionary borrowing. We created a variable, borrowing for discretionary consumption by summing the number of loans taken for household appliances, motor vehicles, and furniture ($M = 0.09$, $SD = 0.35$) and another variable borrowing for non-discretionary consumption by adding the number of loans for non-discretionary consumption (i.e., daily expenses, and education⁷; $M = 0.01$, $SD = 0.02$). We expected the coefficient of the effect of financial scarcity on borrowing for discretionary consumption to be positive and significant.

Control variables. We used as control variables the financial assets and savings of respondents, as possible variables that could have an impact on the discretionary spending and discretionary borrowing. Hence, first, we controlled for financial assets, which comprise deposits, government securities, other securities, trade credit or credit due from other households. We used the logarithm of this variable as a control in the model ($M = 11.50$, $SD = 1.98$). Moreover, we also controlled for savings, again, using the logarithmic value of the variable ($M = 8.99$, $SD = 1.30$).

Data analysis and results

⁷ Student loans, which are educational costs, are non-discretionary expenses because they are part of fixed expenses (<https://www.thebalance.com/discretionary-expense-definition-1293678>).

Discretionary borrowing. We tested our prediction that financial scarcity influences discretionary borrowing using *xттobit* syntax in STATA, given the nature of our dependent variable (i.e., a countable number that does not take negative values). Indeed, Tobin (1958) originally used the tobit model in a context of counting the consumption of consumer durables where purchases were left-censored at zero, which is perfectly in line with our dependent variable.

The results of the longitudinal tobit estimation, presented in Table 6 in Web Appendix (Model 1 and Model 2), indicated that greater households' financial scarcity is associated with greater number of debts taken on for discretionary consumption ($b = 0.078, p < .001$) and debts taken on for non-discretionary consumption ($b = 0.004, p < .001$). However, a comparison of the coefficients for the impact of discretionary, as opposed to non-discretionary, consumption revealed a significant difference between the impact of the former one on the later ($\text{Chi}^2_{(1)} = 1916.10, p < .001$). These results provide support in favor of H_{1b} .

Overall, the results of study 2 support our prediction that individuals with greater financial scarcity engage in more discretionary spending and discretionary borrowing. The results show that the effect is robust to the use of control variables suggesting that engaging in discretionary borrowing is not because of differences in individuals' assets or total savings. In study 3a, we test the predictions H_{1a} , H_{1c} and H_2 that individuals with greater financial scarcity engage in more (a) discretionary spending and (b) discretionary investing because they perceive the future to be more optimistic. We test these predictions with a longitudinal dataset from Germany.

Study 3a: Mediating effect of optimistic future perceptions – Evidence from Germany

In this study, we used an archival longitudinal savings dataset, “Saving and Old-Age Provision in Germany” collected by GESIS Leibniz-Institut für Sozialwissenschaften (SAVE). The main goal of the study is to create an empirical base to better understand households’ asset choices and saving behavior. Consistently, the data is collected at the household level with detailed information on income, real and financial assets, debt, psychological questions, questions on health, expectations, and attitudes ([Saving and Old-Age Provision in Germany \(SAVE\) | Munich Center for the Economics of Aging - MEA \(mpg.de\)](#)). Accordingly, the final data is publicly available for scientific research and stored at the German Central Data Archive (ZA).

Sample

The overall complete dataset includes 23,660 observations ($n = 6,949$ households) on the savings of individuals between 2001 and 2013, including information on “facts and psychological factors that determine dealing with money as well as interest sensitivity of individuals” (GESIS 2013). Due to the fact that some variables were only collected in specific years, our dataset includes a total of 8,933 observations – hence, data points – a (51.30 % male; $M_{\text{age}} = 53.98$, $SD = 15.51$; 42.93% non-married; 32.19% with a bachelor’s degree; 64.78% not employed or looking for work; 77.48% caring children).

Measures⁸

Financial scarcity. To measure respondents’ financial scarcity, we used the sum of their financial liabilities, coherently with study 2 ($M = 0.37$, $SD = 0.44$). Financial liabilities

⁸ The original questions used in the survey are provided in the Web Appendix Table 2.

were measured as the sum of building society loan, amount of mortgages, amount of consumer credit loans, amount of family loans, and the amount of other loans.

Discretionary spending and investing. We measured respondents' discretionary spending and discretionary investing behavior using two measures. We used the measure in which participants were asked to indicate the extent to which they place a whole day's income on a bet⁹ ($M = 1.32$, $SD = 2.42$) as a proxy for discretionary spending and the extent to which they invest 5% of their annual household income in the shares of one company¹⁰ ($M = 2.12$, $SD = 2.80$) as a proxy for discretionary investing. The items were measured on scales from 0 (very unlikely) to 10 (very likely).

Optimistic future perceptions. In the survey, respondents were explicitly asked about their views on various aspects of their future: improvement in the economic development of Germany, their personal financial situation, their personal health situation, and the health situation of their partner on scales of 0 to 10, where 0 denotes very negative (i.e., pessimistic) and 10 denotes very positive (i.e., optimistic). Optimistic future perceptions was calculated as the average of these scores, with higher scores indicating an optimistic future perceptions ($M = 5.38$, $SD = 1.66$).

Control variables. We controlled for age (in years), as well as gender (1 = male; 0 = female), educational attainment (1 = bachelor's degree; 0 = no bachelor's degree), marital status (1 = married and living with husband/wife; 0 = separated, single, divorced or widowed), whether the participant cared for children or stepchildren (1 = yes; 0 = no), whether the participant was employed or looking for work (1 = not employed due to being housewife/husband or retired/pensioned; 0 = employed or in search for a job). We also

⁹ Betting is considered as a proxy for discretionary spending because it is an expense that is incurred at the discretionary of the consumer ([Millennials Spending Less Money 'On The Casino Floor' | by Fitch | Why? Forum | Medium](#)).

¹⁰ Investing is considered as a discretionary expense as it is incurred at the discretionary of the consumer (<https://www.investopedia.com/terms/d/discretionary-investment-management.asp#:~:text=Discretionary%20investment%20management%20is%20a,at%20the%20portfolio%20manager%27s%20discretion.>).

controlled for monthly net income and used as a variable the logarithm of it ($M = 7.03$, $SD = 2.06$), accompanied by the logarithm of savings ($M = 4.38$, $SD = 3.99$), and assets ($M = 3.28$, $SD = 5.40$) as further controls.

Data analysis and results

Discretionary spending and investing behavior. We tested the effect of financial scarcity on discretionary spending and investing behavior, controlling for savings, total net income, assets, and a series of demographic variables. This panel of mixed model regression is based on 8,933 observations on a timespan of 13 years, from 2001 until 2013 given that some of the observations are lost to missing variables (i.e., variables that were not measured in a specific year). The estimated random effect intercept was positive ($b = 0.12$, $SE = .003$) and statistically significant (confidence interval: 0.12; 0.13), suggesting the need to account for the nested structure of the data.

The results indicate that an increase in financial scarcity is associated with an increase in one's willingness to place a whole day's income on a bet (i.e., discretionary spending, $\beta = 0.014$, $SE = 0.01$) and to invest 5% of income on the shares of sole company (i.e., discretionary investing, $\beta = 0.012$, $SE = 0.01$) (see Table 7 in Web Appendix, Model 1 and 2). These results provide support for the hypothesis that financial scarcity is related to greater discretionary spending and investing behavior. The findings hold also when not including the controls into the model.¹¹

Mediating effect of optimistic future perceptions. Finally, we tested the mediating effect of optimistic future perceptions on the effect of financial scarcity on discretionary

¹¹ Models 1a, 2a, in Table 7 in Web Appendix report results without controls

spending and investing behavior. For this, we used a bootstrap model in STATA with 5,000 iterations, in order to handle the longitudinal nature of the data.

The bootstrap mediation analysis, implemented in STATA with 5,000 repetitions, suggested a significant indirect mediation effect for willingness to invest 5% of income in shares of a sole company ($\beta = 8.5$, 95% CI = 6.24 to 15.26) and for willingness to place a whole day's income on a bet ($\beta = 4.84$, 95% CI = 3.24 to 11.32; please refer figure 1 in Web Appendix for full statistics).

Alternative explanation. Previous literature suggests that financial scarcity influences impulsiveness (Griskevicius et al. 2013). Hence, we tested the role of impulsiveness as an alternative explanation for the relationship between financial scarcity and discretionary spending and investing. As a proxy for impulsiveness, we used the answers to the question, in which participants indicated the extent to which “When I was a child, I used to spend my pocket money immediately” applied to them on a 11-points scale (0 = not at all and 10 = very much).

The results indicate that an increase in financial scarcity is associated with greater impulsiveness ($\beta = 0.015$, SE = 0.01, $p = .007$) and greater impulsiveness is associated to greater willingness to invest 5% of income on the shares of sole company ($\beta = 0.05$, SE = 0.01, $p < .001$), but does not have a direct effect on willingness to place a whole day's income on a bet ($\beta = 0.013$, SE = 0.01, $p = .174$).

We then tested the mediating effect of impulsiveness on the relation between financial scarcity and discretionary spending and investing behavior. We again used a bootstrap model in STATA with 5,000 iterations, in order to handle the longitudinal nature of the data. The bootstrap mediation analysis with 5,000 iterations results suggest a significant indirect mediation effect for willingness to invest 5% of income in shares of a sole company ($\beta = 0.038$, SE = 0.631, 95% CI = 0.384 to 2.673) and for willingness to place a whole day's

income on a bet ($\beta = 3.304$, $SE = 0.891$, $95\% CI = 2.329$ to 5.858) through impulsiveness, suggesting that impulsiveness can be one alternative explanation that explains the relationship between financial scarcity and discretionary spending and investing.

Overall, the results of this study support our prediction that consumers with scarcer financial resources engage in more discretionary spending and discretionary investing. Consistent with previous research (Griskevicius et al. 2013), impulsiveness of consumers with financial scarcity explain the relationship between financial scarcity and discretionary spending and discretionary investing. Extending previous research, the findings of this study show that optimistic future perceptions of consumers with scarce financial resources explain the effect of financial scarcity on discretionary spending and discretionary investing. Although this study supported our predictions, due to the nature of the dataset, we are not able to derive any causal relationships. Hence, in study 3b, we test our predictions using an online experiment.

Study 3b: Mediating effect of optimistic future perceptions – Evidence from an online experiment

In study 3b, we tested the prediction that consumers with scarcer financial resources engage in more discretionary spending (H_{1a}) and optimistic future perceptions of consumers with scarcer financial resources explain the more engagement in discretionary expenditures (H_2).

In study 3b, we randomly assigned participants to a financial scarcity (vs. control) condition. We measured optimistic future perceptions. We also measured different alternative explanations for the predicted effects and controlled for different demographic variables. We pre-registered the study at AsPredicted.com (#65750).

Sample

We asked MTurk to collect data from two hundred and fifty adults in exchange for monetary compensation. The target sample was based on a priori power analyses (power of .95, small-medium effect sizes ($d = 0.50$), an alpha level of .05, Faul, Erdfelder, Lang, and Buchner 2007). Nineteen participants either did not answer the attention check question correctly or provided not meaningful response to the financial scarcity (vs. control) conditions. We did all the analyses with the remaining two hundred and thirty-one adults (133 male; $M_{age} = 35.95$, $SD = 10.68$). 67.53% of the participants indicated that they earn less than \$40000, 13.42% indicated that they reside in California, 86.15% indicated that they're employed, 77.92% with a Bachelor's degree, 63.64% White, 74.75% heterosexual. Moreover, on a scale of 7-points (1 = not at all and 7 = very much), participants indicated their political orientation ($M = 3.58$, $SD = 1.93$). The study used a financial scarcity (vs. control) between-subjects design.

Measures

Financial scarcity. Participants were first randomly assigned to either the financial scarcity or no financial scarcity condition. Following past research (Cannon et al., 2019), we manipulated financial scarcity by inducing individual-level scarcity, in which one's personal financial resources are physically limited. Specifically, participants first read that "having financial scarcity means having more needs than what the current financial situation can satisfy." Then, they were asked to write down one episode where they did not have enough financial resources to purchase what they needed or wanted (adapted from Roux et al., 2015).

Participants in the control condition wrote down what they did on the current day (adapted from Roux et al., 2015).

Manipulation check. As a check for manipulation, thinking about their relative financial situation, participants indicated the extent to which they feel financially restricted on a scale of 7-points (1 = not at all and 7 = very much; $M = 5.14$, $SD = 1.43$).

Discretionary and non-discretionary spending. Participants were then asked to assume that they have \$3250 to spend per month after paying taxes. We wanted to control the amount that they have to spend on the expenditures. According to GOBankingRates, which analyzed the take-home salaries in 50 states, the median income in the United States is about \$56000 and consumers, who earn a \$50000 salary take home around \$3261 per month (Mekouar 2019), which is why we set the money the participants have for spending as \$3250.

They were then presented with a set of non-discretionary and discretionary expenditures and were asked to indicate the extent to which they would spend their \$3250 in seventeen 7-point scales (1 = not at all and 7 = very much). Participants were presented the non-discretionary and discretionary expenses in a randomized order. Consistent with previous research (Fornell, Rust, and Dekimpe 2010), non-discretionary expenses included: home mortgage, home rental, groceries, debt, utilities, automobile expenses, gasoline expenses, and medical care. Consistent with previous research (Soman and Cheema 2011), discretionary expenses included: home improvement, vacation expenses, restaurant expenses, entertainment expenses, leisure-activity expenses, sports-related expenses, hobby expenses, investments and savings. We averaged the scores on eight non-discretionary expenses items to compose non-discretionary expenses score ($\alpha = .84$, $M = 4.32$, $SD = 1.28$). We averaged the scores on nine discretionary expenses items to compose discretionary expenses score ($\alpha = .92$, $M = 3.61$, $SD = 1.37$).

Optimistic future perceptions. To measure participants' optimistic future perceptions, we used The Life Orientation Test-Revised (LOT-R) (Carver 2013). Participants indicated the extent to which they agree the six statements, which included three items on optimistic perceptions and three items on pessimistic perceptions, on six 7-point scales (1 = strongly disagree and 7 = strongly agree). The items included: "In uncertain times, I usually expect the best," "If something can go wrong for me, it will," "I'm always optimistic about my future," "I hardly ever expect things to go my way," "I rarely count on good things happening to me," and "Overall I expect more good things to happen to me than bad." We reverse coded the three items that are related with pessimistic perceptions and averaged the score of all six items to compose the optimistic future perceptions score, in which the higher scores indicate more optimistic future perceptions ($\alpha = .85$, $M = 3.71$, $SD = 1.32$).

Alternative explanations. As previous research offers different cognitive and affective processes for consumers with scarcer financial resources, we tested for the role of different mechanisms in this study. Specifically, we tested for the role of cognitive load, focused attention, opportunity cost consideration, temporal proximity, lasting utility of purchases, freedom of choice, desire to have personal control, perceptions of equality, and perceptions of self-image threat as a result of having scarcer financial resources, positive affect and negative affect. To test for cognitive load, consistent with previous research (Paas 1992), participants indicated the amount of mental effort they invested in the study on a scale of 7-points (1 = not at all and 7 = very much; $M = 5.54$, $SD = 1.30$).

To test for the role of focused attention, participants indicated the extent to which they need to allocate a lot of attention to their current financial situation on a scale of 7-points (1 = not at all and 7 = very much; $M = 5.52$, $SD = 1.14$). To test for the role of opportunity cost consideration, consistent with previous research (Spiller 2011), participants answered the three-item opportunity cost consideration scale on three 7-point scales (1 = not at all and 7 =

very much; $M = 5.01$, $SD = 1.18$). Items include: “I often think about the fact that spending money on one purchase now means not spending money on some other purchase later,” “When I’m faced with an opportunity to make a purchase, I try to imagine things in other categories I might spend that money on some other purchase later,” and “I often consider other specific items that I would not be able to buy if I made a particular purchase.” We averaged the scores on these three-items to compose the opportunity cost consideration score ($\alpha = .75$). To test for the role of temporal proximity, participants rated how they perceive the future to be on a 7-point scale (1 = very close to the present and 7 = very distant from the present, $M = 4.64$, $SD = 1.47$). To test for the role of lasting utility of purchases, consistent with previous research (Tully et al. 2015), participants indicated the extent to which they consider long-lasting options in their purchases on a scale of 7-point (1 = not at all and 7 = very much; $M = 5.31$, $SD = 1.18$). To test for the role of freedom of choice, participants indicated the extent to which they think they are free to make their choices on a scale of 7-point (1 = not at all and 7 = very much; $M = 5.13$, $SD = 1.30$). To test for the role of desire to have personal control, participants indicated the extent to which they think they need to regain control of their life on a 7-point scale (1 = not at all and 7 = very much; $M = 5.22$, $SD = 1.40$). To test for the role of perceptions of equality, participants indicated the extent to which they think there is economic equality among the people in today’s world on a 7-point scale (1 = not at all and 7 = very much; $M = 3.95$, $SD = 1.98$). To test for the role of perceptions of self-image threat as a result of having scarcer financial resources, participants indicated the extent to which they think their financial situation is a threat to their self-image on a 7-point scale (1 = not at all and 7 = very much; $M = 4.71$, $SD = 1.59$). To test for the role of positive affect and negative affect, participants completed the twenty-item PANAS, in which ten items tap to positive affect and ten items tap to negative affect. Consistent with previous research (Watson, Clark, and Tellegen 1988), we added the items on positive affect

to compose the positive affect score ($\alpha = .91$, $M = 47.65$, $SD = 12.09$) and added the items on negative affect to compose the negative affect score ($\alpha = .96$, $M = 34.19$, $SD = 15.64$).

Control variables. As control variables, we controlled for participants' income, age, gender, political orientation, state they reside, employment status, educational level, race, and sexual orientation.

Data Analysis and Results

Manipulation check. As intended, participants in the scarcer financial resources condition indicated that thinking about their relative financial situation, they feel more restricted compared to participants in the control condition, $M_{\text{FINANCIALSCARCITY}} = 5.38$ $SD = 1.44$ vs. $M_{\text{CONTROL}} = 4.96$ $SD = 1.40$, $F(1, 229) = 4.84$, $p = .029$.

Discretionary and non-discretionary spending. A one-way MANOVA on discretionary and non-discretionary spending indicated a significant effect of financial scarcity (vs. control) condition, Wilks' Lambda $F(2,228) = 3.79$, $p = .024$. Consistent with our prediction, participants in the financial scarcity condition have more discretionary spending than participants in the control condition, $M_{\text{FINANCIALSCARCITY}} = 3.82$ $SD = 1.54$ vs. $M_{\text{CONTROL}} = 3.46$ $SD = 1.21$, $F(1, 229) = 3.99$, $p = .047$. However, there is no difference across financial scarcity (vs. control) condition for the non-discretionary spending, $M_{\text{FINANCIALSCARCITY}} = 4.30$ $SD = 1.31$ vs. $M_{\text{CONTROL}} = 4.34$ $SD = 1.26$, $F(1, 229) = .063$, $p = .802$.

We replicated these findings when using the *sureg* command in STATA to test for the effect of financial scarcity on discretionary and non-discretionary spending. Specifically, the results suggest a significant effect of financial scarcity (vs. control) on discretionary spending ($\beta = 0.36$, $p = .045$), but not on non-discretionary spending ($p = .801$, $Chi2 = 7.04$, $p = .008$).

Given that, as expected, the effect of financial scarcity is only observed on discretionary spending, we focus the rest of the analyses on this dependent variable.

Our results marginally hold when we regress discretionary spending on financial scarcity (Table 8 in Web Appendix, Model 1) controlling for income, age, gender, political orientation, state of residence, employment status, educational attainment, sexual orientation, and race, and they significantly hold when not including the controls (Table 8 in Web Appendix, Model 2).

Optimistic future perceptions. We next test the role of optimistic future perceptions in mediating the effect of scarce financial resources (vs. not) on discretionary expenditures (H_2). A one-way ANOVA on optimistic future perceptions indicated that participants in the financial scarcity condition have more optimistic future perceptions than participants in the control condition, $M_{\text{FINANCIALSCARCITY}} = 3.93$ $SD = 1.40$ vs. $M_{\text{CONTROL}} = 3.55$ $SD = 1.23$, $F(1, 229) = 4.88$, $p = .028$.

We first tested for mediation using the analytical procedure suggested by MacKinnon (2000). Hence, we first estimated the a-path (from independent variable to the mediator), then we estimated the b-path (from the mediator to the dependent variable), and then we multiplied them to estimate the indirect effect that we are investigating. Hence, we first regressed discretionary spending on financial scarcity (vs. control) condition, $\beta_{\text{c-path}} = 0.312$, $p = .08$. We then regressed optimistic future perceptions on financial scarcity (vs. control) condition, $\beta_{\text{a-path}} = 0.403$, $p = .025$. We then regressed discretionary spending on both financial scarcity (vs. control) condition, $\beta_{\text{c'-path}} = 0.169$, $p = .314$, and optimistic future perceptions, $\beta_{\text{b-path}} = 0.354$, $p < .001$, see Table 9 in Web Appendix. As suggested by MacKinnon (2000), the mediated effect corresponds to the product of the unstandardized coefficients of the a-path and the b-path, hence $\text{a-path} * \text{b-path} = 0.403 * 0.354 = 0.142$ (95% CI = 0.026 to 0.310).

We then formally test the proposed model with PROCESS Macro Model 4 (Hayes and Preacher 2014), where financial scarcity (vs. control) condition is the independent variable, optimistic future perceptions is the mediator, and the discretionary spending is the dependent variable. The model first tests the effect of financial scarcity (vs. control) condition on optimistic future perceptions, $\beta = 0.385$, 95% CI = 0.042 to 0.728. The model then tests for the mediating effect of optimistic future perceptions on the effect of financial scarcity (vs. control) condition on discretionary spending. The results show that the overall model is significant, $R\text{-square} = .151$, $p < .001$. The results show that there is no significant effect of financial scarcity (vs. control) condition, $\beta = 0.215$, 95% CI = -0.122 to 0.551, and but significant effect of optimistic future perceptions, $\beta = 0.385$, 95% CI = 0.258 to 0.511, on discretionary spending. There is no direct effect of financial scarcity (vs. control) condition on discretionary spending, $\beta = 0.215$, 95% CI = -0.122 to 0.551, but the indirect effect of financial scarcity (vs. control) condition on discretionary spending through optimistic future perceptions is significant, $\beta = 0.148$, SE = 0.078, 95% CI = 0.015 to 0.327.

Alternative explanations. We then tested for different alternative explanations for the effect of financial scarcity on discretionary spending using PROCESS Macro Model 4 (Hayes and Preacher 2014) with 10,000 iterations, where financial scarcity (vs. control) condition is the independent variable, cognitive load, focused attention, opportunity cost consideration, temporal proximity, lasting utility of purchases, freedom of choices, desire to have personal control, perceptions of equality, perceptions of self-image threat, positive affect, and negative affect are the mediating variables, and discretionary spending is the dependent variable.

The results show that there is no indirect effect of financial scarcity (vs. control) condition on discretionary spending through cognitive load, $\beta = 0.058$, 95% CI = -0.002 to 0.140, focused attention, $\beta = 0.02$, 95% CI = -0.019 to 0.084, opportunity cost consideration,

$\beta = -0.037$, 95% CI = -0.134 to 0.046, temporal proximity, $\beta = -0.022$, 95% CI = -0.108 to 0.060, lasting utility of purchases, $\beta = 0.008$, 95% CI = -0.031 to 0.067, freedom of choice, $\beta = -0.026$, 95% CI = -0.122 to 0.059, desire to have personal control, $\beta = -0.04$, 95% CI = -0.120 to 0.010, perceptions of equality, $\beta = -0.061$, 95% CI = -0.216 to 0.093, perceptions of self-image threat, $\beta = -0.084$, 95% CI = -0.205 to 0.023, positive affect, $\beta = -0.035$, 95% CI = -0.155 to 0.089, and negative affect, $\beta = -0.026$, 95% CI = -0.178 to 0.137.¹²

The results of Study 3b show that consumers with scarce (vs. not) financial resources engage in more discretionary spending. Extending previous research, the results of study 3b also show that optimistic future perceptions of consumers with scarce (vs. not) financial resources explain the reason for why these consumers engage in more discretionary spending.

General discussion

In this paper, we study the effect of financial scarcity on discretionary expenditures (i.e., discretionary spending, borrowing, and investing). We further test for the role of optimistic future perceptions of individuals with scarcer financial resources on discretionary expenditures. This is an important topic given the prevalence of individuals with financial scarcity in the market. Moreover, there is a dearth of studies on whether individuals with scarcer financial resources engage more in discretionary spending, borrowing, and investing (Das et al. 2021).

In three large-scale studies, including a survey and two longitudinal archival studies, and two pre-registered, online experiments, we test and find support for the hypotheses. The

¹² According to MacKinnon (2000), the total effect can be estimated through the sum of all the indirect effects of the mechanisms tested in the model (i.e., $\beta_{\text{optimism}} * \beta_{\text{cognitive load}} * \beta_{\text{focused attention}} * \beta_{\text{opportunity cost consideration}} * \beta_{\text{temporal proximity}} * \beta_{\text{lasting utility of purchases}} * \beta_{\text{freedom of choices}} * \beta_{\text{desire to have personal control}} * \beta_{\text{perceptions of equality}} * \beta_{\text{perceptions of self-image threat}} * \beta_{\text{positive affect}} * \beta_{\text{negative affect}}$), which equals -0.097.

results of the studies show that consumers with scarce financial resources have more discretionary expenditures (studies 1a, 1b, 2, 3a, 3b) and theoretically their optimistic future perceptions explain why these individuals with scarcer financial resources have more discretionary expenditures (studies 3a, 3b).

Theoretical Contributions

We next discuss the contributions of the research's various findings to the literature on resource scarcity, in general, and financial scarcity, in particular.

Resource Scarcity. Existing literature in resource scarcity demonstrates the consequences of resource scarcity on consumer behavior (Cialdini 2009; Fan et al. 2019; Gierl and Huettl 2010; Kristofferson et al. 2017; Rucker and Galinsky 2008). This research's findings, which are robust across not only different countries (e.g., India vs. Italy vs. Germany vs. U.S.), but also across different measures of discretionary expenditures using survey, archival data, and online experiments, indicate that individuals with greater financial scarcity engage more in discretionary spending, borrowing, and investing. In doing so, this research's findings extend the literature on resource scarcity in a novel way by showing that resource scarcity, specifically, financial scarcity influences different discretionary expenditures, including spending, borrowing, and investing.

Empirical Testing of Financial Scarcity. Previous research in marketing and psychology have been conducted with participants with relatively more homogeneous levels of resources such as college students (Hamilton et al. 2019). Extending previous research, we contribute to this stream of research in financial scarcity by testing our predictions using a survey from farmers in rural India and two longitudinal studies from Italy and Germany as well as online panel participants. Hence, this research extends previous research on financial

scarcity by investigating the effect of financial scarcity on discretionary expenditures with participants that experience objective or subjective financial scarcity.

Financial Scarcity and Cognitive Consequences. Previous literature on financial scarcity indicates that poor individuals single-mindedly focus their attention on their urgent needs and neglect other needs, which has been interpreted to suggest that they focus their attention only on the present and ignore the future (Mullainathan and Shafir 2012). Our findings diverge, in an important way, from these findings by identifying a novel theoretical mechanism for the relationship between financial scarcity and discretionary expenditures. Specifically, individuals with financial scarcity have more discretionary expenditures because they have more optimistic future perceptions.

Moreover, extant literature in scarcity indicates that individuals expect to have the same number of slack resources, both in the present and in the future (Zauberman and Lynch 2005) because they reason that the supply and demand of money are relatively stable over time. Diverging from previous literature, this research's findings indicate that individuals with financially scarce resources rather than thinking that they will have similar slack resources in the present and in the future, think that they will have more slack resource in the future as they perceive the future to be far away from the present, leading them to have optimistic future perceptions.

Financial Scarcity and Behavioral Implications. Existing literature in financial scarcity has identified its behavioral implications. Specifically, previous research on financial scarcity has demonstrated the implications on a series of consumer behaviors, such as product choices and preferences (e.g., Fan et al. 2019; Goldsmith et al. 2019; Karlsson et al. 2005; Sharma and Alter 2012; Tully et al. 2015; Van Kerckhove et al. 2020), and spending attitudes (e.g., Cole et al. 2008; Soman and Cheema 2002; Wilcox et al. 2011). We add to previous research on financial scarcity and consumer behavior by showing how financial scarcity is

positively related to greater spending, investing, and borrowing for discretionary goods. Hence, this paper's findings extend this literature on financial scarcity, by identifying the hitherto unexamined role on various discretionary expenditures including discretionary spending, borrowing, and investing.

Public policy and managerial implications

Experience of financial scarcity is a universal problem. In March 2021, the revolving debt, which is mostly the revolving credit card debt, increased by 7.9% to about \$980 billion in the U.S. (). As financial scarcity is a consistent and growing problem, many governments and charitable organizations around the world design interventions to cope with the consequences of financial scarcity. The results of our research show that consumers with scarcer financial resources engage in more discretionary spending, discretionary borrowing, and discretionary investing. Discretionary expenditures for people with financial scarcity lead to serious consequences. For example, financial debts for people with financial scarcity lead to severe mental health issues including finishing one's life (Fitch, Hamilton, Bassett and Davey 2011), suggesting that public policy makers need to tackle this growing problem urgently with appropriate interventions.

We suggest that the findings of this paper can be used by public policy makers by nudging consumers and using persuasive communication in different ways. The results of this research show that those with scarcer financial resources, whether they are in India, Italy, Germany, or in the U.S., engage in more discretionary spending, borrowing, and investing and this is because they have a more optimistic future perception. We suggest that one way that the public policy makers can urge these people to save or enrol in a pension scheme rather than spend, borrow, or invest for discretionary investing is by using choice architecture

and message framing. Choice architecture can be used by bringing the future desired option temporarily closer to the present and making the desired future behaviour an opt-out option. This is similar to the Save More Tomorrow Program (Thaler and Benartzi 2004), in which there is a default choice of enrolling people in a pension scheme with the added provision they only start off making small contributions. Rather than urging consumers with scarcer financial resources to start saving and enrolling in the pension schemes at the present when they are only focused on their financial scarcity, a default option of saving and enrolling in the pension scheme starting in a year would be better for these consumers. This will bring the future temporarily closer for these consumers. Moreover, rather than making this choice an opt-in option, it can be presented as opt-out option. This kind of a choice architecture, where the future temporarily is closer to the present and in which the saving and enrolling in the pension scheme in a year is the opt-out option, may be better for the well-being of these consumers with scarcer financial resources. Relatedly, social trust is used extensively in nudging and public policy makers can show examples of people who have benefited from these types of schemes, in which the consumers start to save and enrol in pension schemes in a year when being financially scarce, can also help these individuals with scarcer financial resources.

From a managerial perspective, the results of this research show that although consumers with scarcer financial resources engage in discretionary consumption, they are less likely to do so for the non-discretionary consumption. Hence, managers of companies that sell discretionary goods can target people with financial scarcity. For example, fitness companies, restaurants may target people with financial scarcity. Although discretionary consumptions have certain advantages including short-term pleasure and happiness, in general they are not good for people with financial scarcity. Therefore, managers that deal with discretionary goods and services may develop innovative mechanisms through which

consumers with financial scarcity can avail their goods/services without any severe consequences. For example, since discretionary goods are costlier than non-discretionary ones, managers can provide the discretionary goods at a lower cost for the people with financial scarcity.

In sum, given the severe consequences of discretionary consumptions for people with financial scarcity, both policy makers and managers should develop mechanisms that reduce the severe consequences of discretionary consumptions.

Limitations and future research agenda

This research's findings indicate that individuals with scarcer financial resources will engage more in discretionary spending, borrowing, and investing. However, we do not consider whether individuals with financial scarcity will engage in more discretionary material consumption or experiential consumption. Additionally, we did not test for the role of different moderators (e.g., self-control) in explaining the relationship between financial scarcity and discretionary expenditures. Future research can test for the role of different moderators in extending the findings of this research.

In studies 2 and 3a, we have used the longitudinal nature of the data to test our predictions. A possible limitation of longitudinal data is the autocorrelation of the variables in time. However, a plausible solution proposed by previous psychology literature (Maxwell and Cole 2007) is to include lagged variables of the main predictor in the equation. In order to address this limitation, in studies 1b and 3b, we used experimental method to test for the causal relationship between financial scarcity and discretionary expenditures. However, in doing so, we used subjective perceptions of financial scarcity to manipulate financial scarcity. Future research can use a quasi-experiment method in which consumers who

experience objective financial scarcity and who do not experience any financial scarcity can be tested for their discretionary expenditures.

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Table 1. Key Relevant Financial Scarcity Literature

Publication	Financial Scarcity Type	Dependent Variable	Mechanism	Boundary Condition	Finding
Cognitive Consequences					
Mani et al. (2020)	Objective	Cognitive load			Individuals with scarce resources experience more cognitive load closer to payday.
Gennetian and Shafir (2015)	Objective	Need for focus and attention			Financial instability creates constant need for focus and attention and distract from the opportunities that may alleviate the effects of poverty.
Shah, Shafir, and Mullainathan (2015)	Objective	Susceptibility to context effects	Focus on pressing needs		People are less susceptible to context effects when they experience scarcity because they focus on pressing needs and recognize the trade-offs that they must make against those needs.
Mani et al. (2013)	Objective	Cognitive functioning			Poverty impedes cognitive functioning.
Shah et al. (2012)	Objective	Engagement and neglecting of issues	Attention allocation		Scarcity leads individuals to engage more deeply in some issues, while neglecting others by changing how people allocate attention.
Affective Consequences					
Martin and Hill (2015)	Objective	Well-being			How societal poverty, satisfaction with one's household financial situation and individual saving ability influence well-being is investigated. Furthermore, the role of poverty in moderating the relationship between individual financial drivers and well-being is tested. Results show that in high-poverty societies, saving improves well-being.
Lee-Yoon et al. (2020)		Negative emotions; status perceptions			Consumers with scarce financial resources experience more negative emotions and perceive an even lower status when they receive gifts intending to save money.
Salerno et al. (2020)		Value of pride	Instrumental motives		Scarcity leads consumers to value pride.
Mittal et al.	Objective –	Task completion	Confidence		People who grew up in poorer environments have longer

(2020)	growing up in poor environment	time			task completion time estimates when they experience a threat because they are less confident.
Netemeyer et al. (2018)		Overall well-being			Financial well-being is conceptualized as (1) a sense of security in one's financial future and (2) stress related to money management today. Relative importance of current stress related to money management to overall well-being varies by income groups, different antecedents of current money management stress and anticipated future financial security.
Shah et al. (2015)		Susceptibility to context effects			People with scarce sources are more susceptible to context effects.
Martin and Hill (2012)		Individual life satisfaction	Psychological need deprivation		Autonomy and relatedness improve poverty's negative influence on life satisfaction, but only if basic life necessities are available.
Behavioral Implications					
Sarial-Abi & Ulqinaku (2020)	Subjective	Responses to approach (vs. avoidance) framed messages	Depth of information processing		Consumers with financial constraints have more positive responses to an ad that had a positive approach-framed (versus a negative avoidance-framed) message and that the depth of information processing would mediate their responses to an ad that had a positive approach-framed message.
Thompson et al. (2020)	Objective – growing up in poor environment	Adaptive responses			Consumers who grew up in poorer environments demonstrate more adaptive responses to product scarcity.
Thompson, Hamilton, and Banerji (2020)	Objective – childhood SES	Willingness to wait for a chosen alternative	Exerting self-control		Consumers with low SES exhibit greater willingness to wait for a chosen alternative as they learn a model of agency that emphasizes exerting self-control.
Hamilton (2021)	Objective – low SES	Stocking up, finding items online			High SES consumers react to scarcity at their local stores by stocking up and finding items online. Low SES consumers find it more difficult to evaluate options and

					make substitutions.
Van Kerckhove et al. (2020)		Desire for assortment	Freedom of choice		Monetary scarcity leads individuals to value their freedom of choice more, leading to more desire for assortment
Thompson et al. (2020)		Responses to product scarcity			Consumers who grew up in poorer environments demonstrate more adaptive responses to product scarcity.
Mittal et al. (2020)		Task completion time	Self-confidence		People who grew up in poorer environments are less confident, resulting with estimation of longer task completion times when facing treats.
Fan et al. (2019)		Preference for range offer discounts	Promotion orientation		Resource scarcity increases promotion orientation, which consequently increases favorability for range marketing offers.
Goldsmith et al. (2019)		Interest in sustainable products	Abstract level of construal		Resource scarcity leads to preference for sustainable products when the product's prosocial (vs. personal) benefits are emphasized and when the costs to the self are low.
Paley et al. (2019)		Purchase related word-of-mouth (WOM)	Reduced anticipated pleasure of engaging in consumption		Financial constraints reduce purchase related WOM.
Yoon and Kim (2018)	Objective – low SES	Variety seeking	Desire to compensate for low sense of personal control		Low SES consumers who have low economic mobility seek for more variety than other consumers.
Cook and Sadeghein (2018)		Experience of triple scarcity effect			Consumers who have scarce financial resources experience triple scarcity effect because of internal influences, which include perceived consequences, and external influences, which include decrease lending options.
Sharma and Keller (2017)		Preferences for earning over saving			Financial deprivation increases preferences for earning over saving and reframing saving options as earning

					options increases preferences for saving for those who perceive financially deprived.
Pepper and Nettle (2017)	Objective – low SES	Present-oriented behavior	Limited control		Low SES leads to perceptions of limited control, influencing present-focused behaviour, which the authors conceptualize as “the behavioural constellation of deprivation.”
Zagorsky and Smith (2017)	Objective	Fast-food consumption			Fast-food consumption rises as income increases from the lowest to middle quintiles and adult fast-food consumption across wealth and income groups is small.
Whillans, Caruso, and Dunn (2017)		Willingness to give; donation			Wealthier individuals report greater willingness to give and donate more money to charity when the appeal emphasizes agency. Less wealthier individuals give and donate more money when the appeal emphasizes communion.
Carvalho, Meier and Wang (2016)	Objective	Intertemporal choices about monetary rewards; intertemporal choices about nonmonetary real-effort tasks; difference in risk taking, quality of decision making, performance in cognitive function tasks, heuristic judgments			Low income US households are more present-biased when they make intertemporal choices about monetary rewards but not when making intertemporal choices about nonmonetary real-effort tasks before payday. There are no before and after differences in risk taking, quality of decision making, performance in cognitive function tasks, heuristic judgments.
Fernandes et al. (2015)	Objective	Financial education			Interventions to improve financial literacy has weaker effects in low-income people.
Mittal and Griskevicius (2016)	Objective	Health coverage	Willingness to take risks		People who grow up poor are less interested in health coverage than those who grow up wealthy and differences in willingness to take risks mediate this effect. This effect reverses when people are provided

					with base-rate information about disease.
Durante, Griskevicius, Redden, and White (2015)	Objective	Resource allocations to daughters over sons	Spending on child representing reproductive investment		Poor economic conditions lead people to favour resource allocations to daughters over sons.
Chaplin, Hill, and John (2014)	Objective	Being materialistic	Self-esteem		Impoverished children are more materialistic than their wealthier counterparts when they reach adolescence and beyond because of lower self-esteem.
Kamakura and Du (2012)	Objective	Expenditure share for positional and nonpositional goods/services			Expenditure shares for positional goods vs. services decrease during a recession. However, shares for nonpositional goods versus services increase.
Wilcox, Block, and Eisenstein (2011)	Objective	Spending amount		Self-control level; available credit limit	Consumers who have an outstanding credit card debt spend more if they have high self-control and this effect is reduced when the available credit on the credit card is increased.
Cole et al. (2008)	Objective	Spending on necessities			Credit constrained consumers spend their monies more quickly and they spend more on necessities.
Karlsson et al. (2005)	Objective	Preference for durable goods; planned purchasing			Households who are worse off spend less on durable goods and planned purchases more carefully.
Soman and Cheema (2002)	Objective	Spending			Consumers who have lower amounts of credit are likely to infer that their income will be low lifetime so that they will spend less.
Mehta and Zhu (2016)		Product use creativity	Constrained mindset		Scarcity induces a constrained mindset, which enhances product use creativity.
Fernbach et al. (2015)		Priority planning vs. efficiency planning	Coping with constraint		Constraints lead to more priority planning.
Roux et al. (2015)		Selfish behavior; generous behavior	Competitive orientation		Resource scarcity leads consumers to advance their own welfare, which can manifest itself in selfish or generous behavior for personal gains.

Tully et al. (2015)		Preference for material goods over experiences	Longevity perceptions		Financial constraints lead to more preference for material goods over experiences.
Levontin, Ein-Gar, and Lee (2015)		Self-focused behavior			Resource deficiency metaphor leads people to engage in self-focused behaviors.
Zhu and Ratner (2015)		Choice share of most-preferred item from a product class	Heightened arousal		Scarcity broadens the discrepancy between liking of the favorite and nonfavorite items, resulting with a greater choice share of the favorite item because it induces arousal that polarizes the evaluations of items in the choice set.
Sharma et al. (2014)	Subjective	Immoral conduct			Financially deprived individuals cheat more for financial gains.
Haushofer and Fehr (2014)		Short-sighted and risk-averse decision-making	Negative affective states; stress		Poverty causes negative affective states and stress, which results with short-sighted and risk-averse decision-making.
Krosch and Amodio (2014)		Allocation of resources, Perceptions of African Americans			Scarcity exacerbates discrimination such that economic scarcity causes African Americans to be perceived as “Blacker.”
Sharma, Mazar, Alter, and Ariely (2014)		Cheating for financial gains; judgement of moral offenders			People who experience financial deprivation cheat more for financial gains and judge deprived moral offenders who cheat for financial gain less harshly.
Griskevicius et al. (2013)		Risk taking, impulsive behavior, approaching temptations			People who grew up in lower-SES environments take more risks, are more impulsive, and approached temptations more quickly.
Briers and Laporte (2013)		Choice and consumption of food for its energy value	Replenish the need for financial resources		People who experience financial dissatisfaction choose and consume food for its energy value to replenish their need for financial resources.
Sharma and Alter (2012)		Preference for scarce goods	Mitigation of perceptions		Financially deprived consumers prefer goods that are unavailable to other consumers.

			of financial deprivation		
Rodeheffer, Hill, and Lord (2012)		Belonging to in-group			When scarcity is cued, people categorize fewer biracial individuals as belonging to their in-group
Hill, Rodeheffer, Griskevicius, Durante and White (2012)	Objective & Subjective	Desire for products that increase attractiveness	Desire to attract mates with resources		Cues of recession increase women's desire for products that increase attractiveness to mates and this effect is driven by women's desire to attract mates with resources.
Ding, Wu, Ji, Chen, and Van Lange (2017)	Objective & Subjective	Feelings of entitlement			Wealthy individuals reject an unfair offer more often than the less wealthy because of their increased feelings of entitlement.
Spiller (2011)		Opportunity cost consideration			Consideration of opportunity cost increases with perceived constraints.
Wilcox et al. (2011)		Spending	Self-control		Consumers with high self-control spend more when they have an outstanding credit card debt.
Griskevicius, Tybur, Delton, and Robertson (2011)	Childhood SES	Risky decisions			Mortality cues lead individuals who grew up relatively poor to value the present and gamble for big immediate rewards.
Ordabayeva and Chandon (2011)		Satisfaction; status-enhancing consumption	Possession gap; position gain		Greater equality increases the satisfaction of those in the lowest tier of the distribution because possession gap between what they have and what others have decreases. However, greater equality also increases the position gains from status-enhancing consumption as it allows people in the low-tier to get ahead of the higher proportion of consumers who are grouped in the middle tiers.
Suri et al. (2007)		Processing of price information	Perceptions of quality and sacrifice		Consumers that experience scarcity have a different perception of quality and monetary sacrifice, depending on the relative price level and consumers' motivation to process information.

Suri, Kohli, and Monroe (2007)		Perceptions of quality; monetary sacrifice		Relative price level; Consumers' motivation to process information	When consumers experience scarcity, depending on the relative price level and consumers' motivation to process information, consumers' monetary sacrifice and perceptions of quality show different response patterns.
Nelson and Morrison (2005)		Preference for heavier women			Men who feel hungry or poor prefer heavier women than men who feel full or rich.
This Research					
<i>Our manuscript</i>		<i>Discretionary spending, borrowing, investing</i>	<i>Optimistic future perceptions</i>		<i>Individuals with scarcer financial resources engage more in discretionary spending, borrowing, and investing and one possible explanation for this is their optimistic future perceptions.</i>

Figure 1. Conceptual framework that shows the relationship between financial scarcity, optimistic future perceptions, and discretionary expenditures

