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Some Consequences of Vulnerability in Consumers' Life
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## Some Consequences of **Vulnerability in Consumers' Life**

Emanuela Stagno



# Some Consequences of Vulnerability in Consumers' Life

by Emanuela Stagno

A dissertation submitted to BI Norwegian Business School for the degree of PhD

PhD specialisation: Marketing

Series of Dissertations 7/2021 BI Norwegian Business School

#### Emanuela Stagno

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#### **Acknowledgments**

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#### **Ethical Statement**

The data collection for the studies in Chapter 4 has been ethically approved by a committee at BI Norwegian Business School and by Norwegian Center for Research Data (reference: 707351). In all other studies, we did not collect personable and identifiable information and we complied with the data protection protocols at BI Norwegian Business School.

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#### Introduction

Under the label of *consumer vulnerability*, researchers have included a variety of studies that focus on consumers who face challenging situations in the marketplace because of consumers' individual characteristics (e.g., age, income), external conditions (e.g., stereotypes, repression), or individual states (e.g., grief, mood) (Baker et al., 2005). Studies on vulnerable consumers investigate for instance how persuasion attempts affect elderly consumers (Moschis, 1992), how racial and ethnic minority consumers experience systemic restricted choice (Bone et al., 2014), or how homeless consumers meet their daily needs (Hill & Stamey, 1990). In marketing and consumer research, consumer vulnerability has often been a misunderstood or misused expression that is equated with demographic characteristics, discrimination, or disadvantage (Baker et al., 2005). Previous research seems to have applied the concept of vulnerable consumers in many isolated domains without considering the possible commonalities between different sources of vulnerabilities, beyond the objective belongingness to what the society would commonly define as a disadvantaged group (e.g., the poor, the elderly). For such reason, recent studies have called for a conceptual clarification of this notion (Hill & Sharma, 2020).

In this dissertation, we define consumer vulnerability as "a state in which consumers are subject to harm because their access to and control over resources is restricted in ways that significantly inhibit their abilities to function in the marketplace" (Hill & Sharma, 2020, p. 554). Specifically, consumers are vulnerable not only because they belong to a specific socioeconomic group (e.g., elderly, children, lower income, and minorities), but also because they lack a combination of resources-control that makes them susceptible to marketplace harm. Consumers are not vulnerable in general. Vulnerability can occur in different areas and with differences among people such that any given person is likely to display high vulnerability in some domains, but low vulnerability in others (Shultz & Holbrook, 2009). An

old person might be independent and able to provide for herself, but be easily manipulated by information in a promotion because of poor eyesight. Meanwhile, in contrast, a young person might be able to read all the information about a promotion, but feel she lacks financial resources because of not having a job. The experience of lacking something (control or resources) is what renders consumers vulnerable and exposes them to harm.

Understanding why and when consumers are vulnerable is critical to develop effective policies and marketing actions that can protect all consumers. Currently, much consumer legislation is underpinned by the notion of the 'average consumer', and how the average consumer would behave (EPRS, 2021). However, all people—young or old, healthy or ill, poor or rich—have found or will find themselves in a position of vulnerability. For example, the evidence that more than 3.4 million people in UK have taken payment deferrals on mortgages and other credit products in 2019 (FCA Perimeter Report, 2020) signals that not only poor people are struggling with their financial situation. It is not enough for researchers and policymakers to focus on policies that target problematic issues or characteristics associated with a particular segment of consumers. The acknowledgement that vulnerability can be context-dependent pushes us to develop intervention that get to the heart of consumer vulnerability: namely, the lack of sufficiently abundant control and resources (Hill & Sharma, 2020).

Despite a limited number of articles documenting consumer vulnerability (see Hill & Sharma 2020 for a review on the topic), little is known about the psychological mechanisms behind vulnerability, and about potential coping strategies consumers might use when dealing with vulnerability. In this dissertation, we contribute to the literature on consumer vulnerability by investigating how different types of vulnerabilities affect consumers' behavior. We focus on three types of vulnerabilities: (1) lack of financial resources, (2) experience of physical pain, and (3) exposure to artificial intelligence (AI). We discuss

similarities and differences among these three vulnerabilities, and propose different interventions based on different coping strategies that consumers employ for each vulnerability.

#### Contribution of the Dissertation

The three types of vulnerabilities (lack of financial resources, experience of physical pain, and exposure to AI) are common experiences in everyday life. Many consumers feel they lack resources at some point of their life. This feeling is common across different socioeconomic levels. Studies report that consumers can experience the feeling of lacking resources, even if they are among the richer people in a country (Paley et al., 2018). The experience of pain is even more pervasive than that of lacking financial resources. We can all relate to the feeling of pain. Consumers spend billions of euros every year on medication and health care to alleviate pain (e.g., Statista, 2019). Finally, recent developments in artificial intelligence and smart technologies have affected how consumers live and work. In many sectors, machines are becoming good substitutes for human power. We often rely on machines to do the job for us or help us across many domains. However, despite their benefits, AI technologies can make consumers feel exploited, misunderstood, replaced, or alienated (Puntoni et al., 2021). All these vulnerabilities affect how consumers behave in the marketplace. Although previous findings have separately explored some of the possible consequences of different types of vulnerability, existing research has not integrated various types of vulnerability into a comprehensive framework that jointly examines the psychology and the consequences of vulnerability in consumers' lives.

The experiences of lacking financial resources, being in pain, and being exposed to AI share a number of common psychological consequences in consumers' minds. Both being poor and being in pain impair various cognitive functions (e.g., Mani et al., 2013; Berryman et al., 2013), reducing resources available to exercise control over thoughts and actions. Most

importantly, all vulnerabilities generate the feeling of lacking some sort of control. Literature on lack of financial resources argues that financially deprived consumers feel they lack control over the environment and compensate in domains that can restore control (Sharma & Alter, 2012). When people are in pain, they also experience lack of control and feeling of helplessness (Ferris et al., 2019). Finally, when interacting with AI' solutions, consumers might experience the feeling of having to give up control and autonomy to the machine (Rijsdijk & Hultink, 2003). Outsourcing tasks to AI can lead consumers to experience a loss of self-efficacy (Puntoni et al., 2021), and loss of control, which has important psychological consequences (Botti & Iyengar, 2006). Overall, we propose that all vulnerabilities lead to similar psychological consequences. However, how consumers will respond to each vulnerability and compensate for lack of control and resources might vary.

In all vulnerabilities, people experience self-discrepancy between the current position and a desired state (Mandel et al., 2017). People in pain, for example, would like to stop the pain. We propose that consumers will act differently depending on the extent to which they want to compensate for the lack of resources or try to regain control. In Chapter 1, we propose that consumers who lack financial resources will prefer to buy a product instead of using a sharing service because ownership provides consumers with a sense of security and control. Moreover, consumers who lack financial resources do not want to experience a reminder of their current situation every time they have to return a product in a sharing service. In Chapters 2 and 4, we argue for a different type of compensatory behavior. According to previous research, consumers who lack resources in one domain (e.g., monetary) tend to compensate by substituting the lacking resources with ones in either similar or different domains (Dorsch et al., 2017). We propose that the presence of others can compensate for the lack of financial resources (Chapter 2) and pain (Chapter 4) by reducing vulnerability to an external threat and alleviating the cognitive load in consumers' minds. Finally, in Chapter 3,

we show how citizens react to AI exposure in a public context. We propose that when people are in the presence of AI surveillance they feel observed and this feeling leads consumers to act more prosocially. However, when technology is perceived as an agent, people tend to give up control and delegate to AI the responsibility to intervene and help other people. Overall, across the different chapters, we show how vulnerability impacts consumers' life with repercussion for both individuals and society.

#### Clarification of Some Constructs in the Dissertation

#### **Objective versus Subjective Lack of Financial Resources**

The fact that poverty has a dramatic impact on consumer behavior is undisputed (Hill, 2020). Early research in consumer behavior has studied disadvantaged consumers living in rural communities (Lee et al., 1999), or the global poor (Martin & Hill, 2012). Other studies have considered conditions that elicit the feeling of poverty in an experimental setting (Mani et al., 2013), setting the stage for research that investigates not only actual poverty but also scarcity and the subjective perception of lacking financial resources (see Cannon et al., 2019 for a review on the topic).

In the dissertation, we mostly focus on the perceived lack of financial resources for two reasons. First, as stated in the introduction, consumer vulnerability goes beyond objective socioeconomic measures. Both low and high-income consumers can experience the lack of resources in particular contexts and we are interested in studying consequences of when consumers feel vulnerable in these temporary moments. Second, we propose that the findings on poverty and scarcity could be interpreted using an identity perspective (Reed et al., 2012). According to the multiple identity theory (e.g., Stryker, 2007), people have multiple identities and their behaviors are influenced by the extent to which that particular identity is salient (Reed, 2004). Similarly, we argue that the poor are not always behaving counterproductively,

but that they become more vulnerable and susceptible to harm when their concerns about the economic situations are activated. Thus, perceived lack of financial resources activates an identity that people use to deal with financial constraints.

#### Physical versus Psychological Pain

In the literature, findings about physical and psychological pain have been often interchanged, as both imply some suffering on the consumers' side. The main findings that advocate for an overlap between social and physical pain come from the demonstration that both types of pain share neurochemistry and brain activation patterns (Eisenberger, 2012). However, recent studies indicate that gross anatomical neural overlap is nonspecific to core pain-processing brain regions (e.g., Iannetti et al., 2013; Woo et al., 2014). The shared neurological activity between social and physical pain is likely more connected to salience, threat, or unpleasantness, rather than anything specific to pain per se (Eisenberger, 2015).

In addition to neuroscience findings, extant research has shown that physical and psychological pain might share some psychological processes, too. Both physical and psychological pain capture attention (e.g., Moore et al., 2012; Baumeister et al., 2000), generate unpleasantness and undermine fundamental needs (e.g., Lieberman & Eisenberger, 2009; Baumeister et al., 2007), and motivate increased resource accumulation (e.g., Geha et al., 2014; Gabriel & Valenti, 2016). However, the degree to which the psychological consequences and behavioral outcomes happen depends on the type of pain (Ferris et al., 2019). For example, people in physical pain direct attention to the body and the present moment (Eccleston & Crombez, 1999). Instead, people who experience social pain often focus their attention on salient social information and social actors (Papini et al., 2015). Despite some similarities and differences between physical and social pain, we need more research to clarify when the two types of pain overlap versus differ and what their consequences on consumer behavior are (Ferris et al., 2019).

In Chapter 4, we focus on the effect of physical pain on social conformity. Research has shown that psychological pain and social exclusion leads to higher willingness to conform (Mead et al., 2011). We propose that physical pain might also lead to higher conformity, but that this occurs through a different psychological process. Thus, our findings contribute to clarify why and when physical and social pain have consequences on consumers' willingness to conform.

#### Overview of the Dissertation

In the current dissertation, we present three types of vulnerabilities and examine some coping strategies that vulnerable consumers put in place to deal with domain-specific vulnerabilities. In Chapters 1 and 2<sup>1</sup>, we focus on the lack of financial resources. In Chapter 3<sup>2</sup>, we discuss exposure to AI. In Chapter 4<sup>3</sup>, we investigate the consequences of physical pain. In Figure 1.0, we provide an overview of the dissertation.

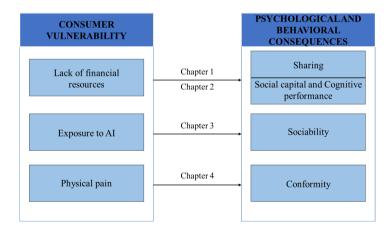


Figure 1.0. Overview of the Dissertation

<sup>2</sup> In Chapter 3, I collaborate with Matilda Dorotic, Associate Professor at BI Norwegian Business School, and my supervisor Luk Warlop.

<sup>&</sup>lt;sup>1</sup> In both chapters, I collaborate with my two co-supervisors.

<sup>&</sup>lt;sup>3</sup> Klemens Knöferle, Luk Warlop, and I collaborate with Selin Atalay, Professor of Marketing at Frankfurt School of Finance and Management.

In Chapter 1, we theoretically propose, and empirically test the negative effect of feeling financially constrained on participation in access-based services (ABS henceforth) across five studies. Based on previous findings, we predict that feeling financially constrained will reduce consumers' willingness to use ABS for three main reasons. First, financially constrained consumers prefer lasting products over experiences (Tully et al., 2015). Thus, when choosing between buying and using an ABS, financially constrained consumers will prefer to buy the product. Second, financially constrained consumers tend to avoid behaviors that reinforce negative feelings about their financial situation (Paley et al., 2018). We believe that financially constrained consumers will try to avoid the act of returning the product, common in ABS, because it will remind them that they could not afford the product. Third, while some consumers believe that ABS are more economically savvy and more flexible forms of consumption than ownership, other consumers perceive ABS as "cheap" solutions for people who cannot afford to buy products (Bardhi & Eckhardt, 2012). Financially constrained consumers care more about others' judgments than others do (Dietze & Knowles, 2016). The fear of being judged negatively by others would lead financially constrained consumers to favor the traditional option (buying) over the more innovative way of consumption (ABS).

In Chapter 2, we build on previous research showing that lack of financial resources can affect individuals' cognitive abilities. The concern for lacking financial resources creates a cognitive burden in the mind of the poor, which affects choice and action (Mani et al., 2013). We propose that social capital, defined as the "ability of people to secure benefits by virtue of membership in social networks or other social structures" (Portes, 1998, p. 6), can alleviate the financial concern of the poor and restore their cognitive capacity. Through social capital, individuals can experience different benefits (Bourdieu, 1985): they can gain direct access to economic resources (i.e., subsidized loans, investment tips, protected markets); they

can increase their cultural capital through contacts with experts or individuals of refinement (i.e., embodied cultural capital); or, alternatively, they can affiliate with institutions that confer valued credentials (i.e., institutionalized cultural capital). Previous research shows that low-income individuals with higher community trust (i.e., the extent to which people trust the individuals in their neighborhood) make less myopic intertemporal decisions because they believe their community will act as a buffer, or cushion, against their financial need (Jachimowicz et al., 2017). We believe that social capital is a resource the poor may use to compensate for the lack of financial resources. Three lab studies provide partial support for our hypothesis.

In Chapter 3, we study how the presence of AI surveillance technologies affects citizens' willingness to help in a public context. In particular, we build on recent findings (e.g., Puntoni et al., 2021) to show that the presence of AI technologies can either increase or decrease citizens' willingness to help. When people feel observed, people tend to act according to social norms and help more (van Bommel et al., 2014). However, according to the transhumanist narrative (Puntoni et al., 2021), when AI becomes more independent, people are more likely to delegate tasks to AI and help less others. We propose that the extent to which consumers perceive the technology as anthropomorphic can reconcile the two conflicting predictions. In two studies, we show that citizens feel less responsible to intervene and help less when they perceive AI as able to help instead of them. Citizens tend to help more when they perceive AI as having lower agency.

Finally, in Chapter 4, we examine the influence of physical pain on consumers' willingness to conform to others. When people are in pain, they often feel threatened and look at others to feel reassured. Individuals who are in pain often experience lack of control and helplessness. Groups can serve as a resource to empower people who lack a sense of personal agency and control (Stollberg et al., 2017). Specifically, a threat to personal control increases

people's readiness to act as group members (Fritsche et al., 2013). Therefore, we expect that higher physical pain will lead to higher willingness to conform. To test our hypothesis, we are conducting a lab experiment with a heating circulator machine used to manipulate pain, and one online study.

### Chapter 1 – Owning or Sharing? How Feeling Financially Constrained Decreases Participation in Access-Based Services

Many consumers feel financially constrained at some point in their lives. Feeling financially constrained is common across different socioeconomic levels. Studies report that consumers experience the feeling of being financially constrained, even if they are among the richer people in a country (Paley et al., 2018). Since such experiences are pretty common, it comes as no surprise that previous research has investigated how these constraints affect consumer attention, preferences, and choice (Shah et al., 2012; Sharma & Alter, 2012; Tully et al., 2015; Paley et al., 2018). However, to the best of our knowledge, no research has examined whether financial constraints affect consumers' sharing behavior. The sharing economy democratizes marketplaces, expands opportunities for small businesses and individuals, and enables access to resources (Eckhardt et al., 2019). Understanding the drivers of sharing behavior and the ways in which the sharing economy contributes to society are still unanswered questions (Eckhardt et al., 2019). In the paper, we examine one form of sharing behavior that has been of significant impact in the current marketplace: market-based sharing, also called access-based consumption (Bardhi & Eckhardt, 2012).

Access-based consumption involves "transactions that may be market-mediated in which there is no transfer of ownership" (Bardhi & Eckhardt, 2012, p. 881). Examples of access-based services (ABS) vary from car- or bike-sharing services (Zipcar, Santander Cycle) to online borrowing platforms for bags, fashion, or jewelry (Bag Borrow or Steal, Rent the Runway). Transactions in ABS happen between two parties: a provider who owns the product and decides to share in ABS, and a user who needs a product and decides to use an ABS. In the paper, we take the perspective of consumers who decide to use an ABS instead of buying a product.

A growing body of literature has started to examine the reasons underlying consumers' choice to use ABS (e.g., Lamberton & Rose, 2012; Hazée et al., 2019). However, because

participation rates in many sharing services are still low, there might be other reasons than the ones proposed in the literature for consumers' not using ABS. Adoption of access-based consumption to replace ownership-based consumption could allow low earners to have access to commodities they could not otherwise afford (Dillahunt & Malone, 2015), and therefore be attractive to the financially constrained. In light of a) the pervasiveness of financial constraints and b) the importance of ABS, a better understanding of the impact of financial constraints on access-based consumption is important for the managers of sharing services and for consumers.

Building on the findings of how financially constrained consumers feel and behave (e.g., Shah et al., 2012), we argue in the current research that feeling financially constrained reduces consumers' willingness to engage in ABS. In the paper, we propose three alternative explanations for why we expect that feeling financially constrained reduces people's preference for ABS. So far, we have tested our hypothesis in five experiments. The results of the experiments turned out to be either non-significant or conflicting with each other. For this reason, we will conduct additional experiments in the future.

In our paper, we make three contributions. First, we investigate a new relationship between the feeling of being financially constrained and participation in ABS. Second, we increase the understanding of whether or not the sharing economy enhances societal well-being (Eckhardt et al., 2019). The potential benefits of the sharing economy (i.e., increased access to resources, democratization of the marketplace) are lost if only a small portion of the population takes part in it. It is therefore important for both companies and public policy makers to understand the psychological barriers that prevent consumers from participating in the sharing economy. The feeling of being financially constrained is one such potential psychological barrier. Finally, we will present ways in which companies can overcome financially constrained consumers' resistance to adopting ABS.

#### Theoretical Framework

Feeling Financially Constrained. Feeling financially constrained results from the belief that one's desired consumption is restricted by one's financial situation (Tully et al., 2015). Although objective financial indicators (i.e., income) can affect consumers' perception of financial constraints, feeling financially constrained may to a substantial degree depend on comparisons with salient standards (e.g., past selves or similar peers) highlighting that one does not have the necessary resources to satisfy one's consumption-related desires (Sharma & Alter, 2012; Paley et al., 2018).

In general, decreased subjective wealth prompts individuals to react in ways that either directly or indirectly address the perceived deficit in their financial situation (Sharma & Alter, 2012). A common theme across prior research findings is that financially deprived consumers seek ways to alleviate the unpleasantness of their state. For example, financially constrained people tend to direct their attention to resources that can help them reduce the feeling of financial scarcity (Shah et al., 2012; Sharma & Alter, 2012). Financially deprived consumers also show higher preferences for scarce products than for abundant ones (Sharma & Alter, 2012); they prefer material goods over experiences (Tully et al., 2015), and they engage in less purchase-related word of mouth (Paley et al., 2018) in an effort to move the focus away from their financial means.

While much of the research mentioned above has explored how financial constraints influence consumers' attention, purchase behavior, and post-purchase behaviors, less work has examined how feeling financially constrained may influence less traditional modes of acquisition and consumption. Thus, in the current study we investigate one of the less traditional modes of consumption, namely access-based consumption. Specifically, we examine whether and how perceived financial constraints affect consumers' likelihood to use ABS.

ABS. Recent studies have focused on the major drivers of and barriers to access-based consumption. Consumers' adoption and usage of ABS depend on various factors, including transaction utility (i.e., good deals), price, perceived degree of substitutability between ownership and sharing, the flexibility of the service, prior knowledge, product scarcity, the technical costs associated with sharing, and the fear of contamination (Lamberton & Rose, 2012; Hazée et al., 2019). Consumers' motivations for using ABS include economic and environmental consciousness, status associated with access, variety seeking, lifestyle, and materialistic values (Lawson et al., 2016).

However, the lack of widespread acceptance of ABS in practice (Yao, 2019) suggests that the current drivers of and barriers to adoption of ABS identified in the literature are not exhaustive. In the current research, we propose that feeling financially constrained is a key psychological barrier related to ABS. Feeling financially constrained creates an interesting paradox in ABS contexts for two main reasons. On one side, few lower-income consumers participate in market-mediated sharing, such as bike-sharing (Badger, 2015). Previous studies have also shown that people's financial standing correlates positively with the use of leasing; for example, people who have higher income are more inclined to engage in services with high degrees of social obligation (Aspara & Wittkowski, 2019). On the other side, by engaging in access-based consumption, low-income consumers can afford products that would otherwise be too expensive and can gain the most from the sharing economy (Fraiberger & Sundararajan, 2015).

Feeling Financially Constrained and Access-Based Consumption. Based on previous findings, we have developed three arguments for why we predict that feeling financially constrained will reduce consumers' willingness to use ABS.

The first argument builds on the finding that financial deprivation prompts consumers to seek resources that are capable of mitigating the sense of deprivation (Sharma & Alter,

2012). Financially constrained consumers are in an unfavorable position in which their financial standing limits their desired level of consumption (Paley et al., 2019). This state can result in consumers' feeling a lack of control over their environment. When consumers feel they lack control, they often adopt strategies to regain control in the same domain or in a different domain (Mandel et al., 2017). Since purchasing a product gives consumers control over the purchased object (Bardhi & Eckhardt, 2012), financially constrained consumers will be more inclined to buy a product than to use ABS to access it. This predicted behavior is also in line with the finding that financial constraints increase consumers' concern about products' longevity, leading to higher preferences for (lasting) material goods over (transient) experiences (Tully et al., 2015). Thus, when choosing between buying and using ABS, financially constrained consumers will, on average, prefer to buy the product.

The second argument relies on the finding that consumers who feel financially constrained tend to avoid behaviors that reinforce negative feelings about their financial situation (Paley et al., 2018). When consumers feel financially constrained, they usually experience unpleasantness and negative feelings (Sharma & Alter, 2012). By definition, in ABS, consumers have only temporary access to the product and they have to return it after use. During consumption, consumers usually develop an attachment to the product. The act of returning the product is therefore often experienced as unpleasant or painful, and makes consumers think about why they could not afford to buy the product in the first place.

Therefore, it is possible that financial constraints increase the anticipated unpleasantness of returning the product and/or of having to pay repeatedly (vs. having to pay only one time when they buy). Since financially constrained consumers tend to avoid behaviors that reinforce negative feelings about their financial situation (Paley et al., 2018), we predict that financial constraints reduce willingness to use ABS. Moreover, when given the option between using an ABS and buying the product, financially constrained consumers should

prefer to buy the product because buying a product is not associated with the negative feeling of having to return it.

The third argument builds on the idea that using ABS can signal different values (Bardhi & Eckhardt, 2012). Some consumers believe that ABS is associated with being a more economically savvy and more flexible form of consumption than ownership is. These consumers are proud of using ABS. Other consumers, however, are embarrassed to be seen using sharing services because they perceive them as "cheap" solutions for people who cannot afford to buy products (Bardhi & Eckhardt, 2012). The feeling of being financially constrained often emerges in social contexts, in which people compare their finances with those of others. Lower-class consumers, who usually feel more financially constrained than upper-class consumers, care more about others' judgments than do upper-class consumers (Dietze & Knowles, 2016). Therefore, we believe that they would be more inclined to perceive ABS negatively. The fear of being judged negatively by others would lead financially constrained consumers to favor the traditional option (buying) over the more innovative consumption option, ABS.

Independently of the explanations proposed, in all three cases, we thus predict that financial constraints decrease consumers' willingness to use ABS and will cause consumers to favor purchase over ABS when given the option to choose.

#### Overview of the Studies

We conducted five studies to test the effect of perceived financial constraints on consumers' willingness to use ABS. The studies can be categorized in two ways: how they manipulate the feeling of financial constraints and how they operationalize the dependent variable. Appendix A shows a summary of the main information about each study.

#### Study 1

Our aim in Study 1 was to test whether consumers who feel financially constrained are less willing to use ABS and prefer to buy a product.

*Method.* Three hundred and six participants (141 female,  $M_{age} = 32.64$ ,  $SD_{age} = 9.25$ ) took part in an online study on Prolific in exchange for \$1. The study employed a 3 (feeling financially constrained: financial constraints, food constraints, control) single factor between-participants design. The study consisted of two phases: the financial deprivation phase and the product evaluation phase.

In the financial deprivation phase, participants performed a writing task. In the financial/food constraints condition, participants wrote a short essay about factors that may contribute to their financial/food constraints in everyday life. In the control condition, participants wrote about factors that contribute to make something a fact (Tully et al., 2015). While the topics in the financial constraint and the control conditions of Tully et al. (2015) were comparable in terms of the amount of writing required by the participants, these topics were quite imbalanced in their levels of concreteness. In the financial constraints condition, participants could list facts or episodes. In the control conditions, participants needed to think more abstractly to fulfill the task. Thus, we introduced the food constraint condition for two main reasons: first, to have a control condition more similar to the financial constraint condition in terms of abstraction; second, to test whether our hypothesis was specific to feeling financially constrained or generalizable to feeling constrained in other domains.

In the product evaluation phase, participants read a description of what ABS are and how they work. Then, we presented 15 product categories in random order (clothing, bike, bag, book, car, power drill, carnival costume, shoes, movie, wedding dress or tuxedo, blender, house, lawn mower, hammer, pet). Participants had to decide whether, in case they needed

one of the products, they would buy it or rent it through an ABS on a 7-point scale (1 = I would prefer to buy the product, 7 = I would prefer to use an ABS).

As a manipulation check, we asked participants to indicate the extent to which they felt financially constrained (1 = Not at all, 7 = Very much). We also asked participants questions assessing familiarity, social utility, and transaction utility of sharing services (Lamberton & Rose, 2012). Finally, participants reported demographics, including gender, age, nationality, income, and perceived wealth.

Manipulation Check. A one-way ANOVA showed a significant difference among the three experimental groups regarding their feeling of financial constraints (F(2,285) = 5.25; p = .001). In particular, participants in the financial constraints condition ( $M_{finances} = 4.97$ ,  $SD_{finances} = 1.47$ ) felt more financially constrained than did participants in the food constraints condition ( $M_{food} = 4.26$ ,  $SD_{food} = 1.54$ ; p = .001), but not more constrained than did participants in the control condition ( $M_{control} = 4.61$ ,  $SD_{control} = 1.51$ ; p = .106).

*Results.* We excluded from the analysis 20 participants who failed an instructional manipulation check (Oppenheimer et al., 2009). The results of the main analysis for the different product categories are reported in Table 1.1.

Table 1.1. Results of Study 1

	Car	Hammer	Pet	House	Movie	Shoes	Bike	Clothing
Control	2.66a	2.21a	1.63a	2.37a	5.85a	1.22ª	2.62ª	1.49 <sup>b</sup>
	(1.95)	(1.78)	(1.44)	(1.83)	(1.61)	(0.61)	(1.86)	(0.96)
Finances	2.87a	2.28 <sup>a</sup>	2.13 <sup>b</sup>	2.69a	5.63a	1.34ª	3.09 <sup>a</sup>	1.88a
	(2.13)	(1.75)	(1.88)	(1.95)	(1.71)	(0.96)	(2.14)	(1.54)
Food	2.27 <sup>b</sup>	2.45 <sup>a</sup>	1.68 <sup>a</sup>	2.21 <sup>a</sup>	5.29 <sup>a</sup>	1.43 <sup>a</sup>	2.90 <sup>a</sup>	1.74ª
	(1.69)	(1.95)	(1.34)	(1.65)	(1.88)	(1.25)	(1.97)	(1.38)
F(2,285)	2.46	0.43	2.85	1.74	2.54	1.08	1.27	2.42
p-value	.087	.649	.059	.177	.080	.340	.280	.108
	Wedding	Book	Blender	Lawn	Bag	Driller	Carnival	
	dress	Book	Dienuer	mower	Dug.	Dimer	costume	
Control	3.66ª	3.84ª	1.68 <sup>a</sup>	3.67 <sup>a</sup>	3.36 <sup>a</sup>	3.53 <sup>a</sup>	5.00	
	(2.12)	(2.15)	(1.08)	(2.44)	(2.10)	(2.16)	(1.95)	
Finances	3.70ª	3.80a	2.02ª	3.28a	3.81a	3.61a	5.05	
	(2.22)	(2.36)	(1.661)	(2.17)	(2.21)	(2.31)	(1.82)	
Food	2.670			2.20%	3.28 <sup>a</sup>	3.57ª	4.88	
rooa	3.67 <sup>a</sup>	3.85 <sup>a</sup>	2.02 <sup>a</sup>	3.38 <sup>a</sup>	3.28	3.37	4.00	
F 00 a	(2.38)	3.85 <sup>a</sup> (2.29)	(1.64)	(2.12)	(1.99)	(2.04)	(1.98)	
F(2,285)								

Note: Cells with different superscripts in each column (within each study) differ at p < .05.

Consumers generally seemed to prefer buying products over using ABS, independently of the experimental condition. When we pooled data across products' categories, we noticed that participants in the financially constrained condition ( $M_{\rm finances}$ =

3.14,  $SD_{finances} = 0.91$ ) were equally likely to prefer buying over renting as participants in the control ( $M_{control} = 2.98$ ,  $SD_{control} = 0.77$ ) and food conditions were ( $M_{food} = 2.98$ ,  $SD_{food} = 0.85$ ; F(2, 286) = 1.146, p = 0.319). The results showed that in few cases (car, pet, house, and clothing) financial constraints significantly affected the decision to buy versus rent. However, contrary to our prediction, financially constrained consumers were more willing to use ABS than were consumers in the food constraint condition.

Although the experiment provides some initial insights about the effect of financial constraints on the usage of ABS, the lack of information about different products' characteristics (e.g., price, brand, and usage frequency) made it difficult for us to disentangle the reasons behind participants' choices. For this reason, in the following studies, we focus on one or two product categories and we provide more information about the product to rule out possible alternative explanations for the effect of feeling financially constrained on participation in ABS.

#### Study 2a

Our aim in Study 2a was to test the effect of feeling financially constrained on the willingness to use ABS instead of buying the product. In contrast to Study 1, we focused on only one product (bicycle). Moreover, we introduced a new manipulation of feeling financially constrained.

*Method.* Three hundred and two participants (158 female,  $M_{age} = 35.74$ ,  $SD_{age} = 8.24$ ) took part in an online study on Prolific in exchange for \$1. The experiment employed a single factor (feeling financially constrained: receiving a fine, receiving a bonus) between-participants design. The study consisted of two phases: the financial deprivation phase and the product evaluation phase.

In the financial deprivation phase, participants read that their best friend was turning thirty in three months, and they were planning a big surprise for this occasion. The best friend

expected a big party and they needed to start saving money. In the financially constrained condition, participants read that the week before the party, the tax office notified them of a fine that they needed to pay within three working days. The amount of the fine was \$500. The only option to pay the fine was to use the budget saved for their friend's party. In the non-financially constrained condition, the tax office notified participants of a refund of the same amount. Then, participants wrote how they felt about the fine/refund and the party's organization (see Appendix B).

In the product evaluation phase, participants did a guided visualization task (Wu et al., 2017). The stimuli are reported in Appendix C. In the task, we asked participants to imagine starting a job in a new city and finding an apartment that is about a 15-minute bike ride from the new workplace. Because the apartment and the workplace are in a car-free zone, participants were considering taking a bike to work as often as possible instead of walking every day. Participants could either buy a bike or use an ABS called Bikego. To use Bikego, individuals must pay a usage cost based on the length of bicycle use: First ½ hr. – Free; All subsequent ½ hrs. – \$1.00. In addition, individuals must pay an annual membership share. Our dependent variable was how much participants were willing to pay for the annual membership.

As a manipulation check, we asked participants to indicate the extent to which they felt financially constrained after the writing task (1 = Not at all, 7 = Very much). We also asked participants questions assessing their knowledge about familiarity, social utility, and transaction utility of sharing services (Lamberton & Rose, 2012), materialism (Richins & Dawson, 1992), and mood. Finally, participants reported demographics, including gender, age, nationality, income, and perceived wealth.

*Manipulation Check*. As expected, participants in the financially constrained condition ( $M_{fin\ cons} = 5.32$ ,  $SD_{fin\ cons} = 1.65$ ) felt more financially constrained than did

participants in the non-financially constrained condition (M  $_{non\_fin\_cons} = 3.06$ , SD  $_{non\_fin\_cons} = 1.66$ ; F(1,287) = 134.81, p = .000).

**Results.** We excluded from the analysis 14 participants who failed the instructional manipulation check. A one-way ANOVA showed a non-significant difference between participants who felt financially constrained ( $M_{fin\_cons} = 68.83$ ,  $SD_{fin\_cons} = 65.74$ ) and those who did not ( $M_{not\_fin\_cons} = 63.06$ ,  $SD_{not\_fin\_cons} = 55.08$ ) in their willingness to pay for the annual membership (F(1,283) = .64, p = .424). The results showed non-significant differences when we controlled for familiarity, social utility, transaction utility, materialism, and mood. Contrary to previous findings (Lamberton & Rose, 2012), we do not find a significant relationship between common antecedents of using ABS (e.g., familiarity or social utility) and willingness to pay for ABS. Moreover, the correlation between materialism and willingness to pay for ABS is non-significant.

Since the study does not provide a specific price for the access-based option, we designed Study 2b to control for different prices of the sharing service.

#### Study 2b

Our aim in Study 2b was to rule out the economic explanation that financially constrained consumers might prefer buying the product because they think buying is cheaper than using ABS.

*Method*. Six hundred and eight participants (300 female,  $M_{age} = 37.20$ ,  $SD_{age} = 10.52$ ) took part in an online study on Prolific in exchange for \$1. The experiment employed a 2 (feeling financially constrained: receiving a fine, receiving a bonus)  $\times$  3 (price of the sharing service: \$75, \$150, \$225) between-participants design. In the study, we employed a procedure similar to that employed in Study 2a.

In the financial deprivation phase, participants read the same story as in Study 2a and then completed the writing task. In the product evaluation phase, participants again had the

option to choose between buying a bicycle and using Bikego. Differently from Study 2a, depending on the price of the sharing service condition, participants learned that the annual membership for Bikego had a price of \$75/\$150/\$225. Participants had to choose then to either buy the bike or use Bikego. In the end, we collected the same information as in Study 2a.

*Manipulation Check.* As expected, participants in the financially constrained condition ( $M_{fin\_cons} = 5.20$ ,  $SD_{fin\_cons} = 1.66$ ) felt more financially constrained than did participants in the non-financially constrained condition ( $M_{not\_fin\_cons} = 2.92$ ,  $SD_{not\_fin\_cons} = 1.74$ ; F(1,583) = 260.69, p < 0.000).

**Results**. We excluded from the analysis 24 participants who failed the instructional manipulation check. We conducted a 2 (feeling financially constrained: receiving a fine, receiving a bonus)  $\times$  3 (price of the sharing service: \$75, \$150, \$225) ANOVA on the decision to buy the bike or use Bikego. The analysis revealed a significant main effect of price of the sharing service (F(2,583) = 13.36, p = .000) and a non-significant main effect of feeling financially constrained (F(1,582) = .46, p = .497). Also, the two-way interaction of feeling financially constrained and price was non-significant (F(2,583) = .74; p = .477).

As in Study 1, in Studies 2a and 2b, participants seemed, on average, to prefer buying over sharing. We believe the reasons for participants' preferences for buying instead of using sharing services were two. First, in the previous experiments, we did not specify for how long participants needed to use the sharing services. Participants might have thought that in the long run, purchasing was more convenient than renting. Second, Studies 2a and 2b emphasized the costs associated with sharing, making buying a more appealing solution. We tried to address the two concerns in the next study.

## Study 3

Our aim in Study 3 was to test the effect of consumers' feeling financially constrained on their willingness to use ABS rather than buying, by controlling for how long consumers were going to use the ABS. Moreover, we introduced a manipulation to prime participants with the costs associated with the decision to buy or rent.

*Method.* We recruited six hundred and three participants (307 female,  $M_{age} = 31.27$ ,  $SD_{age} = 10.99$ ) on Prolific. Participants received \$0.80 in exchange for their time. The study employed a 2 (feeling financially constrained: receiving a fine, receiving a bonus)  $\times$  3 (cost priming: costs associated with sharing, costs associated with buying, no costs) between-participants design. The study was divided into two phases: a financial deprivation phase and a product evaluation phase.

In the financial deprivation phase, participants performed the same task as in Studies 2a and 2b. After the writing task and before the second phase of the study, participants were randomly assigned to one of the three cost-priming conditions. In the costs associated with the sharing (buying) condition, participants read the following: "People can gain access to the products they need in several ways. For instance, they can decide either to buy products or to rent them for a limited time. When choosing between these different acquisition modes (e.g., buying vs. renting), people often do not consider all costs associated with their final choice. Common costs associated with the decision to buy are maintenance costs, storage costs, and property taxes (Common costs associated with the decision to rent are, for example, future price increases, deposit, or penalty for extra usage). Can you list some of the costs you think are associated with the decision to rent (buy) a product?" In the no-costs condition, participants immediately started the second phase of the study.

In the product evaluation phase, participants read a scenario in which they imagined they wanted to change their bike and they could consider the option to buy a bike or rent one.

We emphasized that the price and the usage duration were the same in both options. In the end, we collected demographics and the same variables collected in Studies 2a and 2b.

*Manipulation Check.* The manipulation check showed that participants in the financially constrained condition ( $M_{fin\_cons} = 5.20$ ,  $SD_{fin\_cons} = 1.52$ ) felt more financially constrained than did participants in the financially unconstrained condition ( $M_{not\_fin\_cons} = 4.27$ ,  $SD_{not\_fin\_cons} = 1.82$ ; F(1,599) = 45.86, p = .000).

**Results.** We conducted an ANOVA to show the effect of financial constraints and cost priming on the decision to buy versus rent. Unfortunately, the two-way interaction of cost priming and financial constraints on the decision to buy versus rent was non-significant (F(2,599) = .22, p = .804). As in previous experiments, participants overall preferred to buy instead of using ABS. According to our data, the preference for buying cannot be explained by participants' associating more costs with renting than with buying. Participants mentioned on average the same amount of costs in both the renting and the buying conditions. The most frequent costs mentioned in the renting condition were price of the service, interest rate, and insurance. The most frequent costs mentioned in the buying condition were maintenance, replacement, and storage.

Despite the different contexts, in all studies so far participants seemed to prefer buying over sharing. We speculate that participants do not consider the two options (buying or sharing) as alternatives and, therefore, sharing does not appear to be a convenient solution. To avoid the explicit reference to buying, in the next two experiments, we asked participants about their willingness to use ABS without giving them the option to buy the product.

#### Study 4

Our aim in Study 4 was to test the predicted negative effect of consumers' perceived financial constraints on their likelihood to use sharing services. In contrast to Study 1, we

used one product and participants reported only the likelihood of choosing a sharing option to gain access to the product, without having the option to buy the product. We asked only for the likelihood of choosing a sharing option to avoid an explicit reference to buying.

Participants' tendency to prefer buying over sharing might explain the lack of variance in the previous experiments.

Method. We recruited three hundred participants (129 female, M<sub>age</sub> = 29.84, SD<sub>age</sub> = 10.97) on Prolific. Participants received \$0.60 in exchange for their time. We excluded five participants who failed the attention check from the final sample. The study employed a single-factor (perceived financial constraints: high, low) between-subjects design. The study was presented as "Consumers' Opinion Study." The study was divided in two phases: the financial-deprivation phase and the product evaluation phase.

To manipulate financial constraints, we implemented a slightly modified version of the scale of subjective socioeconomic status (Adler et al., 2000). Participants saw a graphical representation of a ladder with nine rungs with the instruction "Imagine that the ladder represented where people stand in the current society" (see Appendix D). Depending on the financial-status-perception condition, participants were instructed to compare themselves with the people at the very bottom or top rungs of the ladder. Participants were asked to write a short essay in which they had to compare themselves with the people either at the top or at the bottom of the ladder in terms of their wealth, income, and material possessions. As a manipulation check, we measured, using 100-point scales, participants' subjective financial status, using the summed score of four questions: "How satisfied are you with your current personal financial status? How satisfied are you with your current material possessions? How would you rate your current financial position? What would you expect your financial position to be 10 years from now?" (Kim & McGill, 2018).

In the product evaluation phase, participants read a description of a car-sharing service called CityCar (see Appendix E; Lamberton & Rose, 2012; Hazée et al., 2019). We chose car-sharing as the research context because of its prevalence in Europe and the United States.

After reading the description of the car-sharing service, participants rated their intention to use the service, their intention of recommending the service, and their familiarity with sharing services (Hazée et al., 2019). Finally, participants reported demographics, including gender, age, nationality, and income.

**Results.** As expected, participants in the low-financial-constraints condition ( $M_{low\ fc}$  = 62.24,  $SD_{low\ fc}$  = 15.32) evaluated themselves as being financially better off (less financially constrained) than did participants in the high-financial-constraints condition ( $M_{high\ fc}$  = 56.35,  $SD_{high\ fc}$  = 19.83; F(1, 295) = 8.17; p = .005). However, we did not find a significant difference between participants in the low ( $M_{low\ fc}$  = 4.22,  $SD_{low\ fc}$  = 1.60) and the high-financial-constraints conditions ( $M_{low\ fc}$  = 4.23,  $SD_{low\ fc}$  = 1.57; F(1,295) = .001; p = .981) regarding their intention to use the car-sharing service. The results were the same for intention to recommend the service.

#### Study 5

Our aim in Study 5 was to conduct a more sensitive test of the focal effect of feeling financially constrained on using ABS by conducting a process-by-moderation test of one of the possible explanations of the effect: the negative perception of sharing. We predicted that financially constrained (non-financially constrained) consumers would be less (more) willing to use a sharing service if other consumers could easily recognize that the product had been acquired through an ABS.

*Method.* Five hundred participants (257 female,  $M_{agc}$  = 34.85) took part in an online study on Prolific. Participants received \$0.70 in exchange for their time. The study employed a 2 (feeling financially constrained: low, high) × 2 (salience of sharing service: no logo, logo)

between-participants design. The study followed the same procedure as in Study 4, with the same operationalization of financial constraints and willingness to use a car-sharing service. Differently from Study 4, participants evaluated a car-sharing service after seeing an advertisement showing a car with (*without*) the car-sharing logo on the car door and the trunk (see Appendix F).

*Manipulation Check.* As expected, participants in the low-financial-constraints condition ( $M_{low\ fc}=63.20$ ,  $SD_{low\ fc}=17.46$ ) evaluated themselves as being financially better off than did participants in the high-financial-constraints condition ( $M_{high\ fc}=58.10$ ,  $SD_{high\ fc}=19.52$ ; F(1,498)=9.47; p=.002).

**Results.** We conducted a 2 (feeling financially constrained: low, high)  $\times$  2 (salience of sharing service: no logo, logo) ANOVA on the composite score of intention to use the carsharing service ( $\alpha$  = .91). The analysis revealed a significant main effect of salience of sharing service (F(1,496) = 4.85, p = .028) and a significant two-way interaction of feeling financially constrained and design (F(1,496) = 6.71; p = .010) (Figure 2.1.).

Financially constrained
Non-financially constrained
Non-financially constrained
Non-financially constrained
Non-financially constrained
Non-financially constrained
Non-financially constrained
Financially constrained
Non-financially constrained
Non-financially constrained

Figure 2.1. Results of Study 5

Note: \*\* p < 0.05, \*\*\* p < 0.01

For the no-logo condition, participants in the non-financially constrained condition reported a higher intention to use the car-sharing service than did those in the financially constrained condition (M<sub>no constr</sub> no logo = 4.29, SD<sub>no constr</sub> no logo = 1.40, M<sub>constr</sub> no logo = 3.90,  $SD_{constr}$  no logo = 1.62; F(1,496) = 4.04, p = .045). However, for the logo condition, participants in the financially constrained condition reported a higher intention to use the car-sharing service than did those in the non-financially constrained condition, although the difference was marginally significant (M<sub>no constr logo</sub> = 3.63, SD<sub>no constr fs logo</sub> = 1.50, M<sub>constr logo</sub> = 3.95,  $SD_{constr_{logo}} = 1.58$ ; F(1,496) = 2.75, p = .099). The other set of contrasts showed that nonfinancially constrained participants were more willing to use the no-logo car-sharing service than the logo one (F(1.496) = 11.50; p = .001), but financially constrained participants' intention to use the car-sharing service with or without the logo did not differ (F(1,496) = .08;p = .783). The findings suggest that, in general, having the logo on the car reduces the willingness to use the service. In addition, participants in the low-financial-constraints condition showed a higher willingness to use ABS in the no-logo condition than in the logo condition. Therefore, the results seem to indicate that, contrary to our prediction, the financially better-off consumers are the ones who negatively perceive ABS and do not want to be associated with ABS. We did not find a significant difference in willingness to use ABS for financially constrained consumers across salience of sharing service conditions.

## **Future directions**

Given the current findings, we are now discussing in what direction to take the project. From an empirical perspective, there are different possibilities. Future studies could consider opportunity costs connected to the decision to buy versus rent and leverage the incentive compatibility of the different situations. Based on our theoretical framework, we could also replicate the study on financial constraints and willingness to use ABS to better test the explanation that people are ashamed of using ABS. Moreover, we could test our hypothesis

using secondary data on the use of sharing services and different measures of income (i.e., household income, zip code). Finally, the effect of financial deprivation on sharing may depend on contextual factors different from the ones considered until now (i.e., the extent to which ABS are perceived as utilitarian vs. hedonic consumption).

From a theoretical perspective, we could approach the sharing literature from a different angle, by considering the effect of financial constraints on the decision to become a service provider, instead of user, in the ABS context. Financially constrained consumers might be less willing to share their possessions with others (even in exchange for a financial return) because they might not want to lose control over their possessions. Future studies could further investigate this idea.

# Chapter 2 – In the Mind of Poor Consumers: How and When Social Capital Helps the Poor Make Better Decisions

Poverty is one of the most pressing problems the world is facing (Haushofer & Fehr, 2014). According to the World Bank, in 2015 more than 736 million people worldwide have been living on less than \$1.90 a day. Even in the European Union in 2016, over 23% of the population was at risk of poverty and social exclusion (Eurostat, 2018). Empirical data show that being poor is associated with many negative life outcomes, such as lower levels of educational attainment and poorer health (Belle & Doucet, 2003; Kawachi & Kennedy, 1999).

The effects of lacking financial resources on individuals' behavior are long lasting. In social psychology, recent research shows that individuals who grew up in poor environments value the present more than the future (Griskevicius et al., 2011), they are less interested in investing in health insurance (Mittal & Griskevicius, 2016), and they have a significantly lower sense of control and a greater number and variety of impulsive behaviors than people who grew up in rich environments (Mittal & Griskevicius, 2014).

Three broad theoretical perspectives are used to explain why poor people behave in ways that negatively affect them. According to an economic perspective, poor people, like the rest of society, engage in actions that align with their goals in a rational manner (Nussbaum & Sen, 1993). The rational explanation for why people are poor is that they lack opportunities to change their situation. Situational factors (e.g., lack of education, lack of jobs, discrimination) explain the differences in behavior between rich and poor. These situational factors are also the main reasons why poor people behave suboptimally. The economic theory assumes that if economic opportunities increase, the poor will automatically change their behavior. A sociological perspective, also known as the culture-of-poverty model (Kane, 1987), states that poor people adapt collectively to their situation by developing an alternative culture. The set of values caused by situational constraints is passed from generation to generation through the role models of parents, family, and neighborhood. People who live in poverty adapt more and

more to the constraints until the way in which they live becomes the only thing they know. This alternative culture creates a set of norms and any attempt to move away from that environment is often psychologically effortful and might be sanctioned by the social environment (Kane, 1987). The cognitive effort required and the fear of being judged by others often lead the poor to disregard opportunities that come from outside their culture. However, such opportunities might help the poor improve their situation. Finally, a more recent psychological perspective suggests that poverty affects how people process information (Mani et al., 2013). Poverty creates a cognitive load that captures poor people's attention, leaving fewer resources available to make decisions and therefore resulting in adverse decisions.

Adopting the psychological perspective, some studies show how the negative effect of poverty on cognitive ability can be reduced by self-affirmation (Hall et al., 2014). However, research seems to overlook the role that other people play in influencing individual decisions. In this research, we propose that one resource the poor can benefit from is social capital. The concept of social capital stands for the "ability of people to secure benefits by virtue of membership in social networks or other social structures" (Portes, 1998, p. 6). To possess social capital, a person must be related to others, and it is those others, not the person himself or herself, who are the actual source of his or her advantage. For example, through interaction with other people, individuals acquire decision-relevant information with low effort (Adler & Kwon, 2002). The information provided by the network is often valid, easy to acquire, and faster to obtain. In addition, social capital provides emotional support to the group's members. The social net creates a feeling of safety that reduces fear and enables action (Portes, 1998). We expect that a high level of social capital might reduce the cognitive load created by poverty, thus helping the poor in restoring their cognitive abilities and making better decisions. Social capital is a resource different from other forms of capital, such as physical

capital or human capital, because it exists in the relations among individuals. Nevertheless, social capital is a resource that people can exploit, and as a resource, it can be either a substitute for or a complement to other resources (Adler & Kwon, 2002). Overall, we aim to answer the following research question: *How and to what extent does social capital affect the relationship between poverty and cognitive functions?* 

Our research has both theoretical and practical implications. First, it contributes to the existing literature about the psychological effects of poverty on behavior (Mani et al., 2013). Understanding the reasons behind poor people's behavior is the first step in developing effective policies that can improve their overall well-being. Second, our study contributes to the literature about the influence of other consumers on individual behavior (e.g., Duflo & Saez, 2003; Bursztyn et al., 2014; Wood & Hayes, 2012; Simpson et al., 2012). By our testing the effect of social capital on the relationship between poverty and cognitive performance, the research provides insights into how the poor can benefit from their interactions with others. Finally, the study provides new insights for the literature about resource exchangeability (Dorsch et al., 2017). People react to a lack of resources in one domain by adopting different compensatory strategies (Mandel et al., 2017). Consumers, for example, react to feeling financially deprived by preferring material possessions over experiences (Tully et al., 2015). In our research, we propose that social capital is another way through which people might compensate for the lack of financial resources and that it can actually help the poor in making better decisions.

#### **Theoretical Framework**

Research has shown that a lack of financial resources can affect individuals' cognitive abilities. When money is scarce, pressing financial concerns leave fewer cognitive resources available to guide choice and action (Mani et al., 2013). In multiple lab experiments, Mani et al. (2013) have corroborated the idea that poverty imposes a cognitive load, which in turn

impairs cognitive capacity. Cognitive executive functions usually refer to "top-down mental processes needed when you have to concentrate and pay attention, when going on automatic or relying on instinct or intuition would be ill-advised, insufficient, or impossible" (Diamond, 2013, p. 136). The lack of financial resources makes each expense a source of cognitive strain. Thus, the poor tend to focus more on those areas of life that are directly affected by poverty and neglect the rest (Shah et al., 2012). The narrowing of attention created by poverty leads to problematic decision-making, and incautious decisions such as borrowing too much money, failing to pay bills, and making heedless purchases.

Many challenges poor people face every day go beyond having low income. The poor often live in neighborhoods with higher levels of violence and crime than the rich experience; they have lower access to health care, and they have to deal more often with dysfunctional institutions (Haushofer & Fehr, 2014). Low income is therefore only one of the factors that might create a cognitive load in the poor's minds. Other factors, such as the lack of social support or high crime in the neighborhood, could create cognitive concerns for the poor and impair their judgement. Thus, we propose that the interaction poor people have with their surroundings might have a critical impact on their cognitive performance.

The ability of individuals to create and maintain social relationships, as well as the need for such relationships, has been considered a distinctive characteristic of the human condition (Sarason et al., 1990). Individual behavior is so constrained by ongoing social relationships that ignoring the influence of those relationships on behavior would inevitably result in misinterpreting the behavior (Granovetter, 1985).

The social connections created by individuals can often be used for different purposes (e.g., moral and material support). Social ties can help people emotionally and materially cope with problems and threats (Thoits, 2011). According to the "buffering hypothesis," strong ties have beneficial effects on individuals' well-being (Cohen & Wills, 1985). The perceived

availability of support provides coping resources such as a reduction in the perceived importance of the problem, a relaxation of the neuroendocrine system so that people are less reactive to perceived stress, or a facilitation of healthful behaviors. People use the coping resources to face stressful events and to deal with them, thereby reducing the impact that the events can have on their health.

Because a greater lack of financial resources is often experienced as stressful (Ruberton et al., 2016), we believe that social capital might reduce the aversive impact of financial need. Through social capital, individuals experience different benefits (Bourdieu, 1985): they can gain direct access to economic resources (subsidized loans, investment tips, protected markets); they can increase their cultural capital through contacts with experts or individuals of refinement (i.e., embodied cultural capital); alternatively, they can affiliate with institutions that confer valued credentials (i.e., institutionalized cultural capital). Previous research shows that low-income individuals with higher community trust (i.e., the extent to which people trust the individuals in their neighborhood) make less myopic intertemporal decisions because they believe their community will buffer, or cushion, against their financial need (Jachimowicz et al., 2017). We therefore propose that social capital is a resource the poor might use to compensate for financial constraints. The more the poor will experience they have social capital, the more they will feel they can rely on others not only for material, but also for emotional support. Thus, social capital can help reduce the cognitive load created by poverty and work as a mechanism that restores the cognitive resources of an individual. Our hypothesis can be summarized as follows:

H1: Social capital moderates the relationship between poverty and cognitive performance. In particular, when social capital is lacking, poorer people will perform worse than richer people in cognitive tasks. However, when social capital is available, poorer and richer people will perform similarly in cognitive tasks.

#### **Overview of the Studies**

We conducted three lab and one online studies to test the effect of lack of financial resources and social capital on cognitive performance. In all studies, we calculated the sample size for each study *a priori* using  $G^*Power$  (v 3.1; Faul et al., 2009) to have a power of 0.80 and an  $\alpha$ -error probability of 0.05 to detect the hypothesized effect. Unfortunately, in the lab studies, we are not often able to reach the required sample size. We discuss the specificities of such problem in the next paragraphs.

#### Study 1

Our primary goal in Study 1 was to provide initial evidence for our hypothesis by replicating the findings of previous studies and showing that poverty impairs cognitive functioning, measured as participants' responses to the Stroop Task. The Stroop Task is an experimental task commonly used to measure an individual's ability to deliberately inhibit dominant and automatic responses when necessary (MacLeod, 1991). It has been advocated as a good measure of successful self-regulation (Hofmann et al., 2012).

Method. One hundred sixty-eight participants (111 females;  $M_{\rm age}$  = 24.8, SD = 4.4) took part in an online experiment in exchange for NOK 100 (approx. \$11). The study was a 2 (income: low vs. high) × 2 (financial concern: easy vs. hard) × 3 (Stroop Task condition: congruent vs. neutral vs. incongruent) mixed-factorial design, with scenario serving as a between-participants factor, income as a measured moderator, and Stroop Task condition as a within-participants factor. The study was divided in different stages. First, participants read a scenario to elicit financial concerns. Then, participants performed a cognitive task, and finally provided answers to the scenario. Participants repeated the procedure two times.

At the beginning of the study, the participants performed 12 practice trials of a computer-based version of the Stroop Task. During the task, the participants saw color words (i.e., YELLOW, GREEN, and RED) on the screen that were displayed in yellow, green, or red

fonts. Participants were instructed to respond according to the font color of the word and to ignore the meaning (i.e., overriding their automatic response tendencies). The practice trials were identical to the experimental trials except that, after each practice trial, participants received feedback on their accuracy and response time. Each trial began with a fixation cross (+) for 500 ms, followed immediately by a color word. The participant had to respond to the word within 2500 ms, after which the next trial was automatically presented. Intertrial intervals were 500 ms.

After the practice trials, participants were presented with two hypothetical scenarios regarding a financial problem they might experience. The scenarios were adapted from Mani and colleagues (2013). In the first scenario, participants read that an unforeseen event had occurred and they needed to come up with an amount of money to cover the cost. In the second scenario, participants needed to buy a TV and they had to think of how to pay for the product (see the scenarios in Appendix G). The order of the two scenarios was counterbalanced among the participants. Participants were randomly assigned either to an "easy" condition, in which the costs were relatively low (e.g., the amount to cover was NOK 3,000), or to a "hard" condition, in which the costs were relatively high (e.g., the amount to cover was NOK 30,000). For both poor and rich participants, the small sums in the easy condition should evoke low monetary concerns, and thus not impair cognitive functions. In contrast, the large sums in the hard condition should evoke monetary concerns in the poor but not in the rich participants.

After viewing each scenario, and before writing the answer for how to solve the financial problem described in the scenario, the participants performed 90 experimental trials of the Stroop Task. Upon completion of the trials, the participants responded to the scenario by typing their answers on the computer and then moved on to the next scenario. In total, the participants completed 180 experimental trials, consisting of 60 congruent trials (e.g., the

word "RED" displayed in a red font), 60 incongruent trials (e.g., the word "RED" displayed in a green font), and 60 neutral trials (e.g., "XXXX" displayed in a red font).

After completing the second scenario, participants completed an online questionnaire including demographic questions (e.g., age, gender, and education), individual and family income, and a manipulation check for the scenario. Finally, the participants were debriefed, paid, and thanked for their participation.

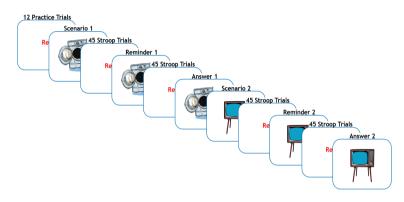


Figure 3.2. Procedure in Study 1

*Manipulation Check*. As a manipulation check of the financial concern, we asked participants how easily it would be for them to make the decisions described in the scenario on a 7-point scale (1 = Extremely difficult, 7 = Extremely easy). Participants in the easy condition ( $M_{easy} = 4.78$ ,  $SD_{easy} = 1.434$ ) reported that it would be easier for them to make the decisions whereas participants in the hard condition reported that it would be harder ( $M_{hard} = 4.30$ ,  $SD_{hard} = 1.528$ ; F(1, 164) = 4.323, p = 0.039).

**Results**. To perform the analysis, we used yearly family income as a measure of poverty. The decision is in line with the characteristics of our sample: it is mainly composed of students who are likely to rely mostly on their families to meet their expenses. As Mani and colleagues (2013) did, we defined "poor" and "rich" through a median split on the family

income variable (Iacobucci et al., 2015a). For each participant, we calculated Stroop interference by subtracting average response latencies in neutral trials from those in incongruent trials. Lower Stroop interference scores indicate greater ability to override one's dominant response tendencies (i.e., greater impulse control) (Albalooshi et al., 2020).

To test the effect of poverty on cognitive functions, we submitted the Stroop interference scores to a 2 (family income: low vs. high) × 2 (scenario: easy vs. hard) between-subjects ANOVA. The results revealed no significant main effect of family income (F(1, 164) = 0.552, p = 0.458,  $\eta^2_p = 0.003$ ), and no significant main effect of scenario (F(1, 164) = 1.062, p = 0.304,  $\eta^2_p = 0.006$ ). The results showed a marginally significant two-way interaction between family income and financial concern (F(3, 164) = 3.708, p = 0.056,  $\eta^2_p = 0.022$ ).

As predicted, low-income participants who responded to the easy scenario (e.g., the amount to cover was NOK 3,000) showed less Stroop interference ( $M_{lowincome\_easy} = 59.54$ ,  $SD_{lowincome\_easy} = 9.99$ ) than did low-income participants in the hard scenario (i.e., the amount to cover was NOK 30,000), ( $M_{lowincome\_hard} = 96.13$ ,  $SD_{lowincome\_hard} = 9.82$ , F(1, 112) = 6.820, p = 0.010, 95% CI<sub>Mean-Difference</sub> [8.925, 64.257]). Among the high-income participants, there was no significant difference in Stroop interference between those in the easy ( $M_{highincome\_easy} = 74.17$ ,  $SD_{highincome\_easy} = 13.89$ ) and those in the hard scenario conditions ( $M_{highincome\_hard} = 63.09$ ,  $SD_{highincome\_hard} = 14.96$ ; F(1, 52) = 0.295, p = 0.588). For the other set of contrasts, there was no significant difference in Stroop interference between low- and high-income participants in the easy condition (F(1,83) = 0.732, p = 0.394). In the hard condition, low-income participants showed marginally higher Stroop Task interference than high-income participants did (F(1,81) = 3.409, p = 0.067).

Financial Concern (Manipulated)

Poor Rich

Family Income (Measured)

Figure 4.2. Results of Study 1

Note: \*\* p < 0.05, \*\*\* p < 0.01

The findings corroborate the idea that poverty creates a cognitive load, and that the cognitive functions of the poor are impaired only when the financial concern is severe enough to generate a cognitive load in consumers' minds. However, although the results are in line with previous results in the literature (Mani et al., 2013), the use of a median split has often been criticized for the resulting loss of information and reduction in power (Wicherts & Scholten, 2013; Iacobucci et al., 2015b). For this reason, we repeated the analysis using family income as a continuous variable. We conducted a regression with family income, scenario, and their interaction as independent variables and our Stroop Task interference measure as the dependent variable. The results show a main effect of financial concern ( $\beta$  = 50.897, t = 2.001, p = 0.047). However, neither the main effect of family income ( $\beta$  = 6.984, t = 1.332, p = 0.185) nor the interaction ( $\beta$  = -10.028, t = -1.337, p = 0.183) was significant. We performed a sensitivity analysis with G\*Power (Faul et al., 2007) to assess the power of our study using a median split. The results show that we did not obtain enough power ( $\beta$  = 0.143) to detect the predicted effect. The findings of the sensitivity analysis provide a possible explanation of why the two different analyses give contrasting results. We are planning to

recollect the data using a larger sample size (calculated based on the reported effect size in previous publications) and the same procedure followed by Mani and colleagues (2013).

# Study 2

Our aim in Study 2 (N=134) was to test the effect of lack of financial resources on cognitive performance and the moderating effect of social capital. The procedure to measure poverty and cognitive performance was the same as that used in Study 1, with the exception that participants read only one scenario instead of two. The study employed a 2 (financial concern: easy vs. hard)  $\times$  3 (social capital: control vs. positive vs. negative) mixed-factorial design, with scenario serving as a between-participants factor, and Stroop Task serving as a within-participants factor.

Method. At the beginning of the study, participants completed a task similar to that used in Study 1 to manipulate lack of financial resources. To manipulate social capital, we created and pretested two scenarios. In one condition (positive social capital), people were asked to describe an episode in which the social system (i.e., school, police, hospital) had helped them. In the other condition (negative social capital), participants described an episode in which the social system had failed to help them. In the third condition (control), participants followed the same procedure used in Study 1; that is, they did not read any scenario regarding social capital (see Appendix H for details). Participants completed the social capital manipulation after the poverty manipulation but before performing the Stroop Task. In the end, participants performed the same Stroop Task as that used in Study 1. We also asked participants to report some demographics, including gender, age, education, nationality, and family income.

Manipulation Check for Social Capital. We asked participants to indicate the extent to which they agreed with the following statements: "I trust social systems to know things I do not"; "People who work for social systems are able to help me"; "I can count on social

systems when I have a problem" on a 7-point scale (1 = Strongly disagree, 7 = Strongly agree;  $\alpha = 0.816$ ). A one-way ANOVA showed a significant difference across the three social capital conditions (F(2, 133) = 2.972, p = 0.055). In particular, participants in the positive social capital condition (M = 4.73, SD = 0.99) were more likely to trust the system than were participants in the negative social capital condition (M = 4.28, SD = 1.17; p = 0.052) and in the control condition (M = 4.21, SD = 1.11; p = 0.029). There was no significant difference between participants in the negative and in the control social capital conditions (p = 0.763).

**Results.** To test the effect of poverty and social capital on cognitive performance, we submitted the Stroop interference scores to a 2 (financial concern: easy vs. hard) × 3 (social capital: control vs. positive vs. negative) × 2 (family income: low vs. high) between-subjects ANOVA. The results revealed no significant main effect of financial concern (F(1, 134) = .717, p = .491), social capital (F(1, 134) = .462, p = .498), and family income (F(1, 134) = .289, p = .918). Unfortunately, the three-way interaction between financial concern, family income, and social capital was also not significant (F(1, 134) = .935, p = .483).

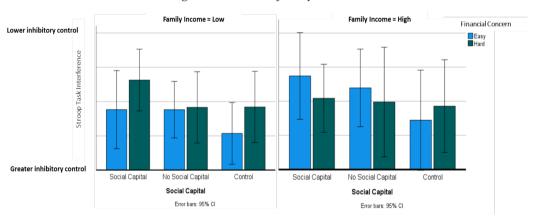


Figure 5.2. Results of Study 2

We believe that one plausible explanation for the lack of significant results is the low sample size of the study.

## Study 3

Our aim in Study 3 (N = 174) was to test the effect of lack of financial resources on cognitive performance, and the moderating effect of social capital. In contrast to Studies 1 and 2, in Study 3, we manipulated the feeling of lack of financial resources instead of measuring real (family) income.

*Method.* The study employed a 2 (lack of financial resources: low vs. high) × 2 (social capital: positive vs. negative) between-subjects design. To manipulate lack of financial resources, participants indicated the combined amount of money in their checking and savings accounts. The response scale constituted the independent variable (Nelson & Morrison, 2005). Half of the participants answered on a 9-point scale divided in small increments, from 1 (labeled "NOK 0 – NOK 1,000") to 9 (labeled "over NOK 45,000"), whereas the other half answered on a similar 9-point scale divided in much larger increments, from 1 (labeled "NOK 0-100,000") to 9 (labeled "over NOK 4,500,000"). Answering toward the top or bottom of a scale will lead participants to make inferences about their personal circumstances (Schwarz, 1999). People responding on the NOK 4,500,000 scale will feel poorer, whereas people responding on the NOK 45,000 scale will feel richer (Nelson & Morrison, 2005). Participants then completed the social capital manipulation (identical to the manipulation used in Study 2) and performed the Stroop Task. The instructions for the Stroop Task were the same as in Studies 1 and 2. At the end of the study, participants provided demographic information (gender, age, education, and income) and completed a manipulation check for feeling of poverty ("How satisfied are you with your personal finances?" on a 7-point scale; Nelson & Morrison, 2005). As a manipulation check for social capital, participants reported how much they agreed with the following statements: "There is someone around when I am in need"; "Some people really try to help me"; "I can count on people when things go wrong"; "There is someone in my life who cares about my feelings" ( $\alpha = 0.883$ ; Zimet et al., 1990).

*Manipulation Checks*. As expected, participants who answered on the scale with smaller intervals ( $M_{rich} = 3.78$ ,  $SD_{rich} = 1.755$ ) felt more satisfied with their finances than did participants who answered on the scale with higher intervals ( $M_{poor} = 3.20$ ,  $SD_{poor} = 1.508$ ; F(1, 173) = 5.583, p = 0.019). For the manipulation of social capital, we did not find a significant difference between the two social capital conditions (F(1, 173) = 0.191, p = 0.663).

**Results.** To test the effects of poverty and social capital on cognitive performance, we submitted the Stroop interference scores to a 2 (lack of financial resources: low vs. high) × 2 (social capital: positive vs. negative) between-subjects ANOVA. The results revealed a marginally significant main effect of poverty  $(F(1,174) = 3.116, p = 0.079, \eta^2_p = 0.018)$ , no main effect of social capital  $(F(1,174) = 1.753, p = 0.187, \eta^2_p = 0.010)$ , and a marginally significant two-way interaction  $(F(1,174) = 3.691, p = .056, \eta^2_p = 0.021)$ .

Contrary to our prediction, in the positive social capital condition, participants who were made to feel poor ( $M_{poor,positive} = -1.7512$ ,  $SD_{poor,positive} = 66.11$ ) performed better at the Stroop Task than did participants who were induced to feel rich ( $M_{rich,positive} = 41.0195$ ,  $SD_{rich,positive} = 124.06$ ; F(1,86) = 6.794, p = 0.010, 95%  $CI_{Mean-Difference}$  [10.380, 75.161]). In the negative social capital condition, participants across both lack of financial resources conditions performed similarly ( $M_{poor,negative} = 5.1762$ ,  $SD_{poor,negative} = 54.54$ ,  $M_{rich,negative} = 3.3676$ ,  $SD_{rich,negative} = 44.69$ ; F(1,88) = 0.012, p = 0.912). The other set of contrasts showed that participants who felt poorer performed similarly in both positive and negative social capital conditions (F(1,87) = 0.178, p = 0.678). Instead, participants who felt richer performed better in the negative social capital condition than in the positive social capital condition (F(1,87) = 5.265, p = 0.023, 95%  $CI_{Mean-Difference}$  [5.261, 70.040]).

Lower inhibitory control

\*\*

Social Capital

Rysgrive

Positive

Poor

Rich

Error bars: 95% CI

Figure 6.2. Results of Study 3

Note: \*\* p < 0.05, \*\*\* p < 0.01

One possible explanation of our findings is that the feeling of having social capital adds to the positive feelings associated with having abundant financial resources. According to this explanation, the feeling of abundance would have led participants who felt richer and with social capital to perform worse at the cognitive task than participants who felt richer but without social capital did. However, this explanation would rely on the assumption that the Stroop Task is a motivational task, an assumption that is incongruent with most of the studies that have used the task for measuring unconscious processes.

The current experiments have shown conflicting or non-significant results. To rule out the idea that the samples used could have influenced the results, we decided to conduct the next experiment online. In the online study, we tried to address the following two main concerns. First, the samples in the lab studies were mostly composed of master students living in Norway with a quite high economic status. Second, the lab studies did not allow us to reach enough participants to reach sufficient statistical power given the estimated effect size. The online study can allow us to collect responses from more people who have a more diverse background and socioeconomic status.

## Study 4

In Study 4 (N = 500), we aimed to test the effects of lack of financial resources and social capital on cognitive performance. In contrast to the previous experiments, in Experiment 4, we measured social capital instead of manipulating it.

**Method**. We employed a single-factor (perceived lack of financial resources: low, high) between-participants design. The experiment was conducted on Prolific. At the beginning of the study, participants were randomly assigned to one of the two lack of financial resources conditions (Adler et al., 2000). Participants saw a graphical representation of a ladder with nine rungs with the instructions "Imagine that the ladder represented where people stand in the current society" (see Appendix D). Depending on the financial-statusperception condition, participants were instructed to compare themselves with the people either at the very bottom rung (low perceived lack of financial resources) or at the very top rung (high perceived lack of financial resources) of the ladder. Next, participants were asked to write a short essay in which they had to compare themselves to the people either at the top or at the bottom of the ladder in terms of their wealth, income, and material possessions. As a manipulation check, we measured, using 100-point scales, participants' subjective financial status using the summed score of four questions: "How satisfied are you with your current personal financial status?"; "How satisfied are you with your current material possessions?"; "How would you rate your current financial position?"; and "What would you expect your financial position to be 10 years from now?" (Kim & McGill, 2018).

After the financial status manipulation, participants performed the Stroop Task.

Participants completed three practice trials with feedback on their performance. In total, the participants completed 36 experimental trials, consisting of 12 congruent trials (e.g., the word "RED" displayed in a red font), 12 incongruent trials (e.g., the word "RED" displayed in a green font), and 12 neutral trials (e.g., "XXXX" displayed in a red font). Finally, participants

completed a measure of perceived social capital, developed by Onyx and Bullen (2000). Examples of items are the following: "Are you an active member of a local organization or club?"; "If you need information to make a life decision, do you know where to find that information?"; "Do you agree that most people can be trusted?" (see Appendix I for the full scale).

At the end of the study, participants reported demographic information (gender, age, nationality, yearly income, education) and indicated the extent to which they agreed with the following questions about COVID-19: "I am concerned about the coronavirus"; "I spend a lot of time reading information about the coronavirus"; "I feel constrained by the regulations in my country" on a 7-point scale (1 = Strongly disagree, 7 = Strongly agree).

*Manipulation Check.* Participants in the high perceived lack of financial resources condition (M = 60.61, SD = 23.286) were less satisfied with their finances than were participants in the low perceived lack of financial resources condition (M = 64.97, SD = 23.531; F(1, 471) = 4.094, p = 0.044).

**Results.** We excluded from the analysis 28 participants who failed an attention check at the beginning of the study. We performed a principal components analysis (varimax normalized) on the items measuring perceived social capital ( $\alpha = 0.792$ ). Similarly to previous research (Onyx & Bullen, 2000), we obtained eight primary factors: local community ( $\alpha = 0.726$ ), social agency or proactivity in social context ( $\alpha = 0.484$ ), feeling of trust and safety ( $\alpha = 0.602$ ), neighborhood connections ( $\alpha = 0.689$ ), family and friends connections ( $\alpha = 0.569$ ), tolerance of diversity (r = 0.652), value of life (r = 0.351), and work connections ( $\alpha = 0.693$ ).

We ran a series of moderation analyses in PROCESS (model 1; Hayes, 2012), with perceived financial status as the independent variable, Stroop interference as the dependent variable, and the different factors of social capital as moderators. Unfortunately, none of these results showed a significant moderation by social capital of the effect of perceived financial

status on Stroop performance. We repeated the analysis with income as the main independent variable, but the results remained unchanged. Moreover, the main effect of lack of financial resources on cognitive performance also did not replicate the original findings from the literature (Mani et al., 2013).

#### **Future directions**

Given the conflicting and non-significant findings from the four experiments, we plan to first assess the robustness of the effect of lack of financial resources on cognitive performance before trying to test the moderating role of social capital. Moreover, we would like to test the effects of lack of financial resources on downstream consequences of cognitive functioning, such as impulsive behavior. Alternatively, we could rethink the construct of social capital and use an alternative manipulation, which could build on the literature of social support and highlight the role of close others (i.e., family, friends) as a source of social support for the poor as opposed to the role of institutions.

## Conclusions

Researchers and policy makers have often identified vulnerable consumers by objective indicators (e.g., age, income, education, and ethnicity). Under the umbrella concept of "consumer vulnerability", previous research has included a variety of studies which focused on specific consumers groups such as the elderly (Moschis, 1992), homeless people (Hill & Stamey, 1990), consumers with disabilities and health related conditions (Childers & Kaufman-Scarborough, 2009), and uneducated consumers (Ringold, 2005). However, this demographic or "class-based" way of identifying vulnerable consumers seems to suggest that people are vulnerable just because they belong to a specific group, neglecting the possibility that vulnerability can be context-dependent.

In this dissertation, we built on the idea that all consumers can feel vulnerable when they lack control or resources that impair their functioning in the marketplace (Hill & Sharma, 2021). We tried to answer two broader research questions: In which contexts does consumer vulnerability occur? Which coping strategies do consumers pursue when facing a specific vulnerability? We addressed these questions by focusing on three main vulnerabilities that people experience in their daily lives: lack of financial resources, exposure to AI, and physical pain. While each type of vulnerability is unique, previous research has shown that all three types lead consumers to experience a loss of control and lack of resources (e.g., Mani et al., 2013; Ferris et al., 2019; Puntoni et al., 2021). We propose that when people experience such negative feelings, they will use coping strategies in an attempt to restore control or compensate for the lack of resources. These coping strategies will in turn lead to specific behaviors.

In multiple online and lab studies, we provided some evidence on how different vulnerabilities affect consumers' choices and behavior in different contexts. Taken together, the findings provide important insights for theory, practice, and policymakers. In the next

sections, we first present the main findings and implications for different vulnerabilities. Then we draw some general conclusions on the concept of consumer vulnerability. Finally, we highlight limitations and discuss possible avenues for future research on the consequences of vulnerability in consumer research.

# Summary of Findings and Implications

Lack of financial resources. In the first two Chapters of the dissertation, we investigated two consequences of lacking financial resources: consumers' likelihood of using ABS and cognitive performance. In Chapter 1, we tested in five studies whether consumers who feel financially constrained (vs. not-financially constrained) are less likely to use sharing services. We offered different theoretical explanations to support our predicted effect, such as financially constrained consumers' preference for long-lasting products (Tully et al., 2015) or their desire to avoid negative feelings associated with a consumption experience (Paley et al., 2018; Bardhi & Eckhardt, 2012). Moreover, recent studies have proposed that people who experience scarcity could engage more in solid consumption (e.g., buying a product) than in liquid forms (e.g., sharing; Goldsmith et al., 2020). Despite the strong theoretical underpinnings of the predicted effect, the studies did not support our hypothesis.

In Chapter 2, we built on previous findings on the effect of poverty on cognitive performance (Mani et al., 2013). Based on the findings that social ties can provide emotional and material support to cope with problems and threats (Thoits, 2011), we proposed that social capital should moderate the known effect of poverty on cognitive performance and thereby help to improve the poor's cognitive abilities. In three lab studies and one online experiment, we were unable to replicate previous findings on the effect of poverty on cognitive abilities (Mani et al., 2013) and to establish the moderating role of social capital. While the studies in Chapter 1 and 2 have some limitations (e.g., not incentive compatible options), we believe that the literature studying the effects of lacking financial resources on

consumer behavior would benefit from a systematic investigation of the strength of the previously described effects and the conditions required to replicate them.

**Exposure to AI.** In Chapter 3, we focused on the effects of public AI surveillance on citizens' likelihood to help fellow citizens. In two studies, we provided preliminary evidence that citizens are more likely to help others in public spaces when the AI surveillance takes the shape of a camera, but less likely to help when the technology assumes a humanoid shape (e.g., robot). People seem to be less likely to help because they transfer the responsibility to intervene to the technology when AI is presented in anthropomorphic form.

In the chapter, we make several contributions to theory and practice. First, by exploring the potential effects of AI surveillance technologies on helping behavior in future smart cities, we answer the recent call to understand how smart technologies affect future sociability (Waytz & Gray, 2018). Second, we contribute to the literature on the effect of anthropomorphism on consumers' behavior (e.g., MacInnis & Folkes, 2017) by showing how different embodiments of AI surveillance can have both positive and negative effects on citizens' willingness to help. Finally, we answer the call for more "boundary-breaking" consumer research (MacInnis et al., 2020) in two ways. Theoretically, we show the importance of studying how technologies affect not only private consumers in commercial settings, but also citizens in public settings. Methodologically, we explore trade-offs in multidimensional choices to understand a phenomenon that has many relevant dimensions as potential drivers of the effect. To explore them, we build on previous studies using a choice-based conjoint approach to reduce social desirability bias and better reflect what citizens might actually do when making similar choices in future real-world situations.

We provide new insights for policy makers and address current concerns of the police force on how citizens will respond to the introduction of new surveillance systems (e.g., robots). Moreover, the paper sheds light on possible societal consequences that current

investments in smart cities could have on sociability. Most of the investments are currently focusing on maximizing efficiency from the government side. Our study shows the importance of considering the citizens' perspective in designing new technologies and the possible unintended consequences AI can have on our behavior as human beings.

Experience of physical pain. In Chapter 4, we focused on how physical pain affects the likelihood of conforming to other consumers. We proposed two possible explanations for the effect of pain on conformity. First, pain reduces attention and cognitive capacity, leading consumers to rely more on their instincts and on others to make decisions. Second, pain increases feeling of losing control and helplessness, leading consumers to look for safety in and restoring control through others. Currently, we are conducting an online study with patients and we have conducted one lab study, which showed conflicting findings on the effect of physical pain on conformity.

The chapter makes several contributions. First, we contribute to the literature about the psychological and behavioral consequences of experiencing physical pain. To the best of our knowledge, this is the first study to look at the relationship between physical pain and social influence. Moreover, the study will contribute to the research stream about similarities and differences between psychological and physical pain (Ferris et al., 2019). In particular, although previous research shows that psychological pain increases conformity, the reasons why physical pain might produce similar effects remain unknown. Finally, understanding the conditions under which people are more sensitive to social influence is important, especially considering that the influence of others might have negative consequences for the individuals themselves.

Consumer Vulnerability. Across the chapters, we investigated the consequences of specific cases of consumer vulnerability. Studying these different vulnerabilities enables us to draw some conclusions regarding the commonalities and differences among these

vulnerabilities and to develop recommendations as to how future research could investigate the construct of consumer vulnerability. As all vulnerabilities occur when consumers experience a lack of resources and control, it would be plausible to regard this lack of resources and control as the main drivers of consumers' subsequent behavior. Thus, researchers and policymakers could build similar interventions to alleviate the effects of these seemingly disparate vulnerabilities by focusing on the common drivers of vulnerability. For example, the effects of some of the moderators proposed in the dissertation might generalize to different vulnerabilities. Previous research has shown that social support provides both emotional and material help when people experience lack of control and resources. Social support makes pain more bearable (e.g., Brown et al., 2003) and reduces the need to conform (e.g., Allen & Levine, 1971). We extended such research by theorizing that social support can also be a resource poor people use to compensate for the lack of monetary resources. It could be interesting to further expand the concept of social support and to study whether social support might help vulnerable consumers in other domains.

Understanding the drivers of consumer vulnerability might enable us to discover not only commonalities but also differences among vulnerabilities and possible solutions. As lack of control and lack of resources are main antecedents of consumer vulnerability, we could think of different combinations of the factors control-resource to categorize and study vulnerability itself. While resources mostly refer to assets that a person needs to accomplish a desired end-state (Dorsch et al., 2017), control is commonly defined as individuals' ability to intentionally achieve certain outcomes or avoid unwanted ones (Cutright et al., 2013). We could imagine a quadrant with two dimensions: control and resources. Both dimensions vary from low to high. In this dissertation, we mostly focused on situations in which both control and resources were low (e.g., both people who lack financial resources and those in physical pain have low cognitive capacity and low self-efficacy) and on one in which both control and

resources were high (e.g., participants had the resources and capability to help but they decided not to in the presence of anthropomorphic AI). If we vary only one dimension and keep the other constant, we might observe different effects. Let's take the example of people with high control. We might argue that consumers are not vulnerable when they have high control and many resources. However, previous research has shown that an abundance of resources can also lead to detrimental effects (e.g., Inesi et al., 2011). On the other side, when people have few resources but high control, they might adopt different compensatory strategies compared to people with low control. For example, high control can already compensate for the lack of resources, and individuals might be less likely to experience negative emotions than people with both low control and few resources. Following previous research (Hill & Sharma, 2020), the combinations of resource-control could also be studied at a deeper level by distinguishing between different types of resources and control (e.g., individual, interpersonal, or structural). Overall, the interplay between resources and control and its consequences on consumers' behavior remains an open question for future research.

# **Future Research Opportunities**

The current findings shed light on different future research opportunities. First, it would be interesting to examine the role of consumers who lack financial resources not only as users of sharing services but also as providers. According to previous literature, one could argue that people who lack financial resources would be either more or less likely to act as providers in a sharing service. On one side, previous research has shown that high scarcity generates strong object attachment (Goldsmith et al., 2020). We could therefore predict that poor consumers are less likely to become service providers in a sharing economy system where they can rent out possessions to strangers. On the other side, the opportunity of gaining money from the economic exchange can make poorer people more interested in providing services than richer people. Moreover, previous studies have shown that lower-class

consumers tend to be more generous than higher-class ones (Piff et al., 2010; Piff et al., 2012). Thus, we might predict that poorer people are more likely to share their possessions. In sum, future research could investigate under which conditions poor people are more versus less likely to share.

Second, current research seems to neglect to investigate how and when the presence of other consumers can have an effect in helping people who experience lack of financial resources. Previous literature has distinguished between different forms of social support (informational, emotional, and instrumental) (Thoits, 2011). Future research could investigate whether different types of social support affect the perception of lacking financial resources. According to social resource theory (Dorsch et al., 2017), people might be more likely to exchange resources that share the same level of concreteness. For example, people who lack money are more likely to prefer material products over experiences as the products provide higher security and more tangible benefits than the experiences (e.g., Tully et al., 2015). However, it would be interesting to study if poor people's decision making might benefit more from emotional support than from informational or instrumental support. Moreover, understanding the types of support poor people look for can help understand consumers' relationships with brands and products. For example, a person who lacks financial resources might look for a product that provides emotional support (e.g., hedonic product) more than a product that provides instrumental support (e.g., utilitarian product).

Third, there are different opportunities for future research in the domain of vulnerability to AI. Previous research has mostly focused on the effect of AI on consumers' behavior in commercial settings (see Puntoni et al., 2021 for a review on the topic). However, governments are heavily investing in AI solutions that can help citizens in different domains of life. It is important to assess how citizens experience AI technologies in public domains and how the presence of these technologies will affect their behavior, beyond acceptance.

Future research could investigate whether AI influences compliance with social norms (e.g., waiting in a queue, picking up something one dropped or knocked over, waiting to enter somewhere instead of pushing), or reduces negative behaviors (e.g., violence or waste). In addition, future research could investigate how and when particular aspects of AI can influence such behaviors in public domains. For example, emphasizing different aspects of agency and experience (e.g., warmth vs. competence; Gray et al., 2007) can affect the level of compliance in the presence of AI. Moreover, it would be interesting to investigate how different types of vulnerabilities interact with each other. For example, to what extent does feeling vulnerable in the financial domain influence the likelihood of feeling exploited by AI? Which consumption contexts will make delegation to AI more psychologically aversive for vulnerable consumers? Finally, the implementation of AI technologies in public spaces brings about many moral dilemmas such as trade-offs between security and privacy or between access and transparency. More studies should investigate how people elaborate and deal with these dilemmas in public contexts.

Finally, more research should look at the consequences of physical pain on consumers' behavior. The experience of pain is common in everyday life, and consumers in pain are important actors in the marketplace. If pain increases the likelihood of conformity, it would be interesting to understand to what extent and under which conditions the effect happens. For example, would the effect still hold in situations where you have to state your opinion regarding controversial topics (e.g., abortion, civil rights, and climate change)? Would the effect still occur in situations where people are more likely to process information and assess opportunity costs (e.g., when purchasing high involvement products, when making decisions with long-term consequences)? Moreover, future research could investigate downstream consequences of the reduction in attention caused by pain. For example, pain might lead to an increase in self-focused attention, defined as "awareness for self-referent,

internally generated information" (Ingram, 1990, p.156). Higher self-focus could lead to greater attention to the body and healthier consumption choices. However, pain might also promote compensatory consumption to foster affective homeostasis and thereby lead to unhealthier consumption choices. Future research could investigate under which conditions pain affects our consumption decisions.

To conclude, in this dissertation we focused on consumer vulnerability and its consequences on consumers' behavior. Although we tried to address some open research questions in the field, the study of when and how the effects of vulnerability manifest themselves is complex and requires further research. Such future research should focus not only on the consequences but also on the antecedents of consumer vulnerability. We hope more researchers will study consumer vulnerability and consider it a topic that has great potential to benefit both individual consumers and society at large.

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## **Appendix A:** Chapter 1 – Summary of the Studies

	Study 1	Study 2 a & b	Study 3	Study 4	Study 5
Design	3 single factor between subjects	2 single factor between subjects 2 × 3 between subjects	2 × 3 between subjects	2 single factor between subjects	2 × 2 between subjects
Manipulation IV	Tully et al. (2015)	Our manipulation	Our manipulation	Adler et al. (2000)	Adler et al. (2000)
Measure DV	Buy vs. Rent	Willingness to pay for sharing services  Buy vs. Rent	Buy vs. Rent	Purchase intention for the sharing service	Purchase intention for the sharing service
Other factors manipulated		Price of the sharing service	Reminder of the costs associated with buying and renting		Logo of the product
Sample size	306	302 608	603	300	500
Products in the scenario	Multiple products	Bike	Bike	Car	Car

All the studies have been conducted on Prolific.

# **Appendix B:** Chapter 1 – Manipulation of Feeling Financially Constrained

### **Financially Constrained Condition**

Your best friend is turning thirty in three months, and you are planning a big surprise for this occasion. You have been discussing with your friend how to celebrate this birthday for the last two years. You know that your friend would really like to have a big party and you want to do your best to fulfill that wish and to make your friend happy. For this reason, you start saving money. You are planning to use the money to book a nice restaurant, to invite your closest friends, and to buy an amazing gift.

The week before the party, the tax office notifies you of a fine that you need to pay within three working days. The amount of the fine is \$500.

You realize that the amount of money you lost is equivalent to what you had saved up to pay for your friend's party. This leaves you with no money at all available for the party.

Please describe how the situation would make you feel. What are the major consequences of having to pay the fine? What would you change in the party's organization? How do you think your friend would react?

### Non-Financially Constrained Condition

Your best friend is turning thirty in three months, and you are planning a big surprise for this occasion. You have been discussing with your friend how to celebrate this birthday for the last two years. You know that your friend really would really like to have a big party and you want to do your best to fulfill that wish and to make your friend happy. For this reason, you start saving money. You are planning to use the money to book a nice restaurant, to invite your closest friends, and to buy an amazing gift.

The week before the party, the tax office notifies you of a refund that you need to collect within three working days. The amount of the refund is \$500

You realize that the sum of money you gained is equivalent to what you had saved up to pay for your friend's party. This leaves you with double the money available for the party.

Please describe how the situation would make you feel. What are the major consequences of receiving the refund? What would you change in the party's organization? How do you think your friend would react?

**Appendix C:** Chapter 1 – Stimuli Used in the Guided Visualization Task





You go to the bike shop, where you learn that you can buy an appropriate bike for about \$300.



However, you also want to check out other transportation options. You learn about the following bike sharing system, called Bikego.

**Bikego** allows users to rent a bike from terminals at self-serviced automated bike stations throughout the city. After reaching his/her destination, the user can return the bike to any station.

Bikego has several terminals in the area where you live, so the likelihood of not finding a bike is low.



**Appendix D:** Chapters 1 and 2 – Manipulation of Feeling Financially Constrained

High Perceived Financial Constraints	Low Perceived Financial Constraints		
People with the highest income and most financial resource	People with the lowest income and least financial resource		
Think at the ladder below as representing where people stand in the current society.	Think at the ladder below as representing where people stand in the current society.		
Please, compare yourself with people at the top rung of the ladder.	Please, compare yourself with people at the very bottom rung of the ladder.		
These are people who are the <b>best off</b> , <b>earn</b> the highest income, have the most money, and the most material possessions.	These are people who are the worst off, earn the lowest income, have the least money, and the least material possessions.		
Please, write a couple of sentences in which you compare yourself to these people in terms of your own wealth, income, and material possessions (i.e., think about how these people spend their money, what they can afford that you cannot, how your discretionary income differs).	Please, write a couple of sentences in which you compare yourself to these people in terms of your own wealth, income, and material possessions (i.e., think about how these people spend their money, what you can afford that they cannot, how your discretionary income differs).		

### **Appendix E:** Chapter 1 – Description of Car Sharing Service

Car-sharing services typically operate in large cities. They offer a fleet of vehicles that are available at numerous stations (reserved parking slots), spread all over the cities.

To use the car-sharing system, you first need to subscribe and then pay membership and/or usage fees (depending on the number of kilometers traveled and your reservation periods).

Everything is included: gasoline, parking fees, and insurance.

As a consumer, you can book a car by phone (thanks to a mobile application) and/or via the Internet, 7 days a week and 24 h per day, for any duration of your choice. The reservations can either be done at the last minute or weeks in advance.

Once the car is reserved, you just need to go to the station where the previous user left the car (within 7 minutes walking time maximum), unlock it using your membership card, and use it to your needs during the reservation period.

Afterwards, you need to drop the car in a designated station; all without any contact with employees or previous users.

**Appendix F:** Chapter 1 – Pictures of Car Sharing Service in Study 5



### Appendix G: Chapter 2 - Manipulation of Poverty in Study 1

### Scenario 1

Imagine that an unforeseen event requires of you an immediate NOK3000 (*NOK30000*) expense. Are there ways in which you may be able to come up with that amount of money on a very short notice? How would you go about it? Would it cause you long-lasting financial hardship? Would it require you to make sacrifices that have long-term consequences? If so, what kind of sacrifices?

### Scenario 2

Suppose you have reached the point where you must replace your old television. The model you plan to buy offers two alternative financing options: (1) You can pay the full amount in cash, which will cost you NOK 3390 (*NOK 9990*) (2) You can pay in 12 monthly payments, of NOK 400 (*NOK 1000*) each, which would amount to a total of NOK4800 (*NOK 12000*). Which financing option would you opt for? Would you have the necessary cash on hand? Would the interest be worth paying in this case?

### **Appendix H:** Chapter 2 – Manipulation of Social Capital

### Positive Social Capital

People often interact with social systems, seeking advice or support. For instance, they might interact with teachers, police officers, government employees, doctors, nurses, and labor unionists.

Fortunately, everybody remembers situations where they needed such support and received it. Please, try to recall one episode in which you experienced the support from a person working in a social system, and you could count on him/her to solve a problem. Describe the episode in great detail (i.e., when the episode happened, what type of problem you had, what the person did for you, how you personally felt before and after the interaction with the system).

### Negative Social Capital

People often interact with social systems, seeking advice or support. For instance, they might interact with teachers, police officers, government employees, doctors, nurses, and labor unionists.

Unfortunately, everybody remembers situations where they needed such support but did not receive it. Please, try to recall one episode in which you failed to experience the support from a person working in a social system, and you could not count on him/her to solve a problem. Describe the episode in great detail (i.e., when the episode happened, what type of problem you had, what the person failed to do for you, how you personally felt before and after the interaction with the system).

### **Appendix I:** Chapter 2 – Scale of Social Capital

### A. Participation in Local Community

- Do you help out as a volunteer in a local group?
- Have you attended a local community event in the past 6 months (e.g., church fete, school concert, craft exhibition)?
- Are you an active member of a local organization or club (e.g., sport, craft, social club)?
- Are you on a management committee or organizing committee for any local group or organization?
- In the past 3 years, have you ever joined a local community action to deal with an emergency?
- In the past 3 years, have you ever taken part in a local community project or working bee?
- Have you ever been part of a project to organize a new service in your area (e.g., youth club, scout hall, child care, recreation for disabled)?

### B. Social Agency or Proactivity in a Social Context

- Have you ever picked up other people's rubbish in a public place?
- Do you go outside your local community to visit your family?
- If you need information to make a life decision, do you know where to find that information?
- If you disagree with what everyone else agreed on, would you feel free to speak out?
- If you have a dispute with your neighbors (e.g., over fences or dogs) are you willing to seek mediation?
- At work, do you take the initiative to do what needs to be done even if no one asks you to?

### C. Feeling of Trust and Safety

- Do you feel safe walking down your street after dark?
- Do you agree that most people can be trusted?
- If someone's car breaks down in front of you, would you lend hem your mobile phone?
- Does your area have a reputation for being a safe place?
- Does your local community feel like home?

### D. Neighborhood Connection

- Can you get help from friends when you need it?
- If you were caring for your child and needed to go out for a while, would you ask a neighbor for help?
- Have you visited a neighbor in the past week?

- When you go shopping in your local area, are you likely to run into friends and acquaintances?
- In the past 6 months, have you done a favor for a sick neighbor?

### E. Family and Friends Connection

- In the past week, how many phone conversations have you had with friends?
- In the past week, how many phone conversations have you had with your family?
- How many people did you talk to yesterday?

### F. Tolerance of Diversity

- Do you think that multiculturalism makes life in your area better?
- Do you enjoy living among people of different lifestyles?

#### G. Value of Life

- Do you feel valued by society?
- If you were to die tomorrow, would you be satisfied with what your life has meant?

### H. Work Connections

- Do you feel part of the community where you work?
- Are your workmates also your friends?
- Do you feel part of a team at work?

### **Appendix J:** Chapter 3 – Instructions Conjoint Study

Cities regularly invest in intervention systems to deal with emergencies around the city. Intervention systems usually include trained personal (i.e., police officers, firefighters, paramedics). However, in recent years, a surge of investments has been made in equipping cities with smart technologies to help citizens in need.

**Police officers** patrol streets and intervene if the need occurs. When the police officer or you, as normal citizen, call the emergency service for backups, professional medical help is on the spot within an average of 7 minutes after the call. On average, police officers accurately identify the emergency and take correct actions in 95% of cases. On average, if needed, professional medical help is on the spot within 7 minutes after the police officer places the call.

In recent years, we have seen an increase in the implementation of technology in this context.

Intelligent surveillance cameras and smart robots detect with 95% accuracy real-time needs for emergency intervention based on visual feeds including facial recognition, smart closed-circuit TVs, and license plate recognition. As soon as a camera or a robot notices that something is wrong (e.g. a fallen person on the street), it sends a message to the emergency system with instructions to intervene. On average, professional medical help is on the spot within 7 minutes after the camera detects the problem.

In the next page, you are going to see some pictures of a city in the present time or the future. When you look around, you may encounter unexpected events (for example, you may see a person lying on the street). It is not always clear what might have happened.

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