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6. Discussion and Implications

The aim of this thesis is to contribute to our understanding of consumers' perceptions of property rights. Chapter 2 and 3 explore why consumers make a moral distinction between theft and piracy. Chapter 4 explores to what extent the nominal representation of choices can affect the likelihood of theft. Chapter 5 studies to what extent a queue position can be traded as a normal good and whether exogenous enforcement of property rights affects fairness perceptions. This chapter contains an overview of the main findings, the theoretical contributions and the managerial implications of the studies reported in this thesis.

6.1. Theoretical Contributions

6.1.1. Piracy

One of the most contentious debates concerning property rights is the issue of digital piracy. There are public policy and theoretical reasons why this debate is relevant. Piracy affects a large and growing part of modern economies, namely that of information goods. Furthermore, it is becoming easier and faster to retrieve, copy and transfer information goods. Because information goods are technically difficult to protect against unauthorized use, the enforcement of intellectual property rights relies mostly on consumer self-enforcement. Consumer self-enforcement, in turn, depends on how property rights of information goods are intuitively perceived.

Consumers' lack of respect towards intellectual property rights raises a number of theoretical questions. Extant research on piracy focuses on factors that can be associated with the decision to pirate (Watson *et al.* 2015). However, this approach is unable to identify factors that are specific to piracy. Thus, to understand the peculiar nature of piracy it is necessary to experimentally compare piracy with the oft-related property crime, theft. The experiments presented in Chapter 2 and 3 explicitly compare piracy with theft to establish whether piracy is more likely to occur than theft and to pinpoint possible explanations of this discrepancy. Chapter 3 replicates the main findings of Chapter 2 in a monetarily incentivized setting to increase the external validity of our findings.

The baseline prediction based on standard economic theory is that there is no difference between the likelihood of theft and piracy if the value of the focal good, the probability of being caught and the possible penalty are all equal. Previous studies suggest that consumers morally make a distinction between theft and piracy, which implies that economic factors alone cannot explain the prevalence of piracy (Green and Kugler 2010). However, Chapter 2 and 3 provide strong evidence that the likelihood of piracy is indeed higher than that of theft, even if economic factors are kept constant. To the best of our knowledge, these studies are the first to provide experimental evidence for this dissociation.

Chapter 2 and 3 draw from prospect theory to provide a novel explanation to the moral distinction between piracy and theft. Prospect theory stipulates that decision-makers are averse to losses. The literature on prospect theory has mainly focused on individual decision-making. As a result, most studies in this literature focus on

the scenario in which decision-makers only had to choose between outcomes concerning their own gains and losses. To explain the moral dissociation between theft and piracy, we extend the scope of loss aversion to include losses incurred by others, which is dubbed second-person loss aversion (SPLA). A notable difference between piracy and theft is that owners only experience a possessive loss in the case of theft because goods that can be subject to theft are by definition rivalrous. Chapter 2 shows that the strong aversion to theft is primarily the result of an aversion to causing possessive losses to others even though these losses are a gain to the focal decision-maker. Furthermore, Chapter 2 shows that tangibility or economic losses are much less of a concern to consumers even though earlier studies on piracy tend to focus on these factors (e.g., Hennig-Thurau *et al.* 2007).

6.1.2. Dilution Illusion

There is extensive evidence that changing the nominal representation of choices affects decision-making (e.g., Shafir *et al.* 1997). However, the literature on the effects of changing the nominal representation has primarily focused on choice sets that do not affect others. The study presented in Chapter 4 aims to discover to what extent the nominal representation of choices affects decision-making in an incentivized *interpersonal* context. Particularly, we consider how changes in the nominal representation affect the degree of theft. We hypothesized that decision-makers are likely to steal more if doing so does not affect the other nominally, which is called dilution illusion. Chapter 4 provides strong evidence in support of this hypothesis.

Furthermore, the incentivized experiment presented in Chapter 4 is to the best of our knowledge the first to provide evidence that changing the nominal representation can affect interpersonal decision-making.

The second main contribution of Chapter 4 is pinpointing whether the observed behavior is the result of strategic decision-making or a psychological bias. A possible explanation of the dilution illusion is that decision-makers might reason that others are less concerned if there are no nominal changes to their possessions. This would imply that the effect is the result of deliberate, strategic decision-making. The experimental design of the study provided decision-makers the option to revise their initial offer while revealing more information about the potential real consequences of this offer. We find that the dilution illusion is less pronounced in the final offers compared to initial offers. This implies that decision-makers tend to correct their own bias caused by the dilution illusion. Furthermore, we find that decision-makers who score high on cognitive ability are less likely to be susceptible to the dilution illusion. Combined, these findings strongly suggest that the dilution illusion is primarily a psychological bias, which effect is in line with recent literature on the relationship between intuitive decision-making and selfishness (Rand, Greene and Nowak 2012).

We argue that this psychological bias results from our intuitive perceptions of property rights. Decision-makers tend to rely on the distribution of nominal possessions to determine who owns what. However, in our experiment it was possible to disentangle the amount of nominal possessions from the monetary value that these possessions represent. We find that offers are more selfish if the

other's nominal possessions are not affected but we also find that offers are more altruistic if the focal person can only affect the amount of nominal possessions held by the other. Together, these two findings strongly suggest that decision-makers are overly focused on the distribution of nominal possessions, even if this disadvantageous to themselves. However, the extant experimental literature on theft and selfishness does not distinguish between the nominal and real possessions (e.g., Reb and Connolly 2007). Therefore, a major theoretical implication of Chapter 4 is that future studies on theft and selfishness should take into account the potential effects of the nominal representation of choices to be able to provide more precise explanations of social behavior.

6.1.3. Trading places

Chapter 5 shows that the introduction of property rights in queues can increases queue efficiency considerably. A number of studies in the theoretical literature on the application of mechanism design in queues suggest the possibility of allowing consumers to trade places to increase efficiency (e.g., Gershkov and Schweinzer 2010). To our knowledge, the study presented in Chapter 5 is the first empirical investigation to explore this possibility. As hypothesized, we find that the ability to trade places increases queue efficiency significantly. However, the initial queue efficiency and the type of auction mechanism strongly moderate to what extent an improvement in queue efficiency can be expected.

The introduction of property rights in a queue to allow consumers to trade places offers an unexplored avenue to study biases

associated with ownership. Particularly, Chapter 5 investigates whether there is any evidence for the sunk-cost effect (Arkes and Blumer 1985) and the endowment effect (Kahneman *et al.* 1990) in a queuing context. In the experiment the number of minutes spent before joining the queue was manipulated. According to standard economic theory this waiting time should be considered sunk and, thus, not affect future decision-making. We find, however, a robust sunk-cost effect across mechanisms. Particularly, in the customer-initiated auction a higher arrival time positively affect bids but in the server-initiated auction a higher arrival bids were significantly lower. This asymmetrical occurrence of the sunk-cost effect is in line with Baliga and Ely's (2011) study of the bias. However, we were unable to find any evidence for the presence of the endowment effect. A possible explanation is that consumers are less likely to be susceptible to the sunk cost effect if the focal object is intangible (Reinstein and Riener 2012). Furthermore, in the experiment consumers could only change positions; it was not possible to remove someone from the queue completely, which might have induced an endowment effect.

The study of queues in the marketing literature has primarily focused on how consumers experience waiting and how the waiting experience can be improved. Studies in this literature either consider interventions to shorten overall time or techniques to alleviate the perceived disutility of waiting (e.g., Kumar *et al.* 1997). There are studies that consider priority auctions in queues but these specific mechanisms advantages winners while everyone else in the queue is forced to wait longer without receiving any compensation (e.g., Zhou and Soman 2008). The mechanisms

studied in Chapter 5 provide a novel method of improving the waiting experience in queues that has not been considered in the marketing literature before. It allows consumers to save time while providing compensation to those who are prepared to wait longer. In other words, the considered mechanisms are able to re-arrange the queue to increase efficiency without imposing any negative externalities. Thus, we show that the study of trading mechanisms to improve waiting experience is a fruitful research avenue.

6.2. Managerial Implications

6.2.1. Piracy

Chapter 2 and 3 focus on piracy as a context to provide evidence for the existence of SPLA. Subsequently, SPLA has managerial implications for the prevention of piracy. Current public policy measures against piracy primarily aim to convince consumers that piracy is morally indistinguishable from theft (Loughlan 2007; Zamoon and Curley 2008). This strategy assumes that consumers can be convinced to change their moral attitude towards piracy. Our findings show that the moral distinction between theft and piracy is likely grounded in how losses are perceived. Thus, these public policy measures can only be effective if consumers can be convinced to perceive or weigh losses differently. However, studies show that humans are predisposed to be loss averse (e.g., De Martino *et al.* 2010; Gintis 2007). This implies that convincing consumers to perceive and weigh losses differently is difficult, which can be compared to teaching people to stop seeing visual

illusions. Therefore, it is unlikely that the current public policy measures are effective in preventing piracy.

The findings of Chapter 2 and 3 strongly suggest that rivalrous goods are more likely to be respected. This implies that piracy can be impeded to some extent if information goods can be made or at least appear to be rivalrous, which also known as digital scarcity. For example, domain names are rivalrous information goods because a broad consensus exists that the Internet Corporation for Assigned Names and Numbers is authorized to manage ownership of domain names. As a result, only legitimate owners are able to make use of their domain names. McConaghy and Holtzman (2015) argue that recent developments in applied cryptography allow for a broader application of digital scarcity. Digital scarcity is possible if a single, widely respected ledger keeps track of ownership of digital assets. Such ledgers do not exist yet for other types of information goods, such as articles, books, music and movies. The creation of these ledgers would provide consumers the option to verify easily whether their copy is authorized. Arguably, the increased transparency would encourage consumers to obtain legitimate copies.

6.2.2. Framing nominal possessions

Chapter 4 shows that the nominal representation of choices can affect decision-making in an interpersonal context. There are a number of real-life social contexts in which the nominal representation can deviate from the representation in real terms. For example, in corporate governance controlling shareholders often

have the option to issue new shares, which dilutes the value of a single share. The same controlling shareholders might also determine how the new shares are distributed, even though the value that these shares represent is appropriated from all shareholders. There are numerous cases in which controlling shareholders transferred value to themselves by diluting minority shareholders (Johnson *et al.* 2000). Interestingly, in most of these cases the law does not protect diluted shareholders even though economically it is equivalent to theft. The findings of Chapter 4 shows that there is a strong bias to consider choices in terms of their nominal representation and nudges decision-makers to be behave more selfishly as observed in the field of corporate governance. One of the possible causes of this public issue is that legislators or shareholders tend to draft laws or terms without taking into account that the nominal representation of possessions might disentangle from the possessions in real terms, which eventually can disadvantage parties that are already in a weaker bargaining position.

Chapter 4 also has implications for the presentation of financial products to consumers and firms. The value of financial products is often presented in nominal terms (Belsky and Gilovich 2010). For example, life insurances are often presented in terms of the potential nominal payoff in case of death. Less salient parameters such as contract duration and expiration events can have considerable influence on the underlying value of a life insurance. The findings of Chapter 4 suggest that insurance agents can appropriate more value from clients through adjusting parameters that do not necessarily affect the potential nominal payoff. Even

though this tendency might not be deliberate as argued in Chapter 4, insurance agents can be required to present financial figures in real terms to avoid disadvantaging clients who are also likely to be subject to the dilution illusion.

6.2.3. Property rights in queues and waiting lists

Chapter 5 considers the situation in which consumers are able to trade places in a queue. The managerial implications of this study are twofold: (1) economic and (2) moral. First, we show that on average allowing consumers to trade places in a queue increases economic efficiency. Currently, firms that are faced with long queues or waiting lists often aim to improve the user experience of waiting rather than to provide solutions that would allow consumers to save time (e.g., Kumar *et al.* 1997). Our study provides empirical support that consumers are willing to pay to save time or willing to accept money to spend more time in a queue. Specifically, consumers who have high opportunity costs are likely attracted to the option to literally buy time. While consumers with low opportunity costs are inclined to receive a monetary compensation for additional time spent in a queue. Thus, providing consumers a mechanism to trade places can considerably lower the economic cost of waiting in line and as a result considerably improve the experience of waiting in line either through decreasing time spent in a queue or receiving a financial compensation.

Second, consumers do not necessarily consider a mechanism that protects all property rights as more fair. Consumers tend to morally

disapprove of queue jumping, irrespective of whether the jumper paid the server to get ahead (Mann 1969). Arguably, this disapproval stems from the fact that the consumers standing behind the jumper are forced to wait even more without receiving any compensation. In Chapter 5 we explore two mechanisms that always compensate consumers if someone else takes their position. However, the two mechanisms differ in terms of enforcing the right to 'refusing to sell'. In the server-initiated auction mechanism this right is not enforced while in the customer-initiated auction mechanism consumers are able to prevent to sell their position to someone else. We find that consumers considered the server-initiated auction is considered more fair than the customer-initiated auction. Furthermore, we provide evidence that fairness considerations explain why a majority of the participants voted for implementing the server-initiated auction mechanism. The managerial implication of these findings is that managers should not necessarily prefer queue position trading mechanisms that respect all property rights.