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Publication date
2017
Document Version
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Citation for published version (APA):
El Haji, A. (2017). *Experimental studies on the psychology of property rights*. [Thesis, fully internal, Universiteit van Amsterdam].

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2. The Moral Distinction between Theft and Piracy

2.1. Introduction

Consumers' tendency to pirate is a major societal concern. Piracy can be defined as copying or sharing copyrighted content without the owner's consent. The Business Software Alliance (2012) finds that 57% of computer users self-reported that they pirate. Despite legal and public communication campaigns to deter consumers from pirating, there is little indication that the piracy rate has dropped. Measures to prevent piracy seem to be of little effect (Sinha, Machado and Sellman 2010). Firms seem to implicitly accept that piracy is difficult to eradicate and that efforts to prevent it are futile (Bhattacharjee, Gopal and Sanders 2003). Although piracy is widespread and continues to constitute a major challenge for firms and governments (Lessig 2004), it is still unclear why consumers are much more prone to engage in piracy than theft.

Extant research on consumer piracy has focused primarily on factors that can be associated with the decision to pirate or not (e.g., Hennig-Thurau, Henning and Sattler 2007; Levin, Dato-on and Rhee 2004; McCorkle *et al.* 2012; Sinha and Mandel 2008; Watson, Zizzo, and Fleming 2015). However, these studies do not separate factors that are also associated with the theft of physical objects. For example, a higher probability of being caught decreases the likelihood of piracy (Sinha and Mandel 2008), but this relationship also exists for physical goods (Antia *et al.* 2006). For a clearer understanding of why piracy is prevalent while theft is

not, it is pertinent to explicitly compare these two closely related types of criminal behavior.

This research aims to understand to what extent a moral distinction between theft and piracy exists, and which factors adequately explain the distinction. We argue that extending prospect theory to how consumers evaluate outcomes that affect others can provide a succinct explanation of the moral distinction between theft and piracy. Standard prospect theory posits that humans are more sensitive to losses than to gains (Kahneman and Tversky 1979). We argue that consumers are not only relatively more sensitive to causing losses to themselves but also to others. Specifically, consumers are expected to be averse to causing *possessive* losses even if this loss is a gain to the consumer. We dub this tendency second-person loss aversion (SPLA).

Considering theft always involves dispossessing owners while piracy does not dispossess the owner of the focal good, a moral distinction between the two types of criminal behavior is predicted in which piracy is evaluated less negatively than theft. Although piracy does result in losses in form of foregone gains, studies show that this type of loss weighs less than possessive losses (Brenner *et al.* 2007; Kahneman, Knetsch and Thaler 1991). An implication of the existence of SPLA is that the likelihood of piracy is predicted to be high if perceived value is also high because there is no increase in possessive losses to offset the attractiveness. On the other hand, however, the likelihood of theft is expected to be low if perceived value is high because a higher perceived value translates to a greater magnitude of possessive losses. Although on the surface the tangibility of the focal good seems to be a distinguishing

characteristic between stolen and pirated goods, SPLA predicts that this distinction is not relevant.

2.2. Theoretical framework

2.2.1. Piracy

Research on piracy primarily aims to understand why consumers pirate (Watson *et al.* 2015). For example, Hennig-Thurau *et al.* (2007) study why consumers share pirated movies while Levin *et al.* (2004), McCorkle *et al.* (2012), and Sinha and Mandel (2008) focus on the determinants of sharing pirated music. Unfortunately, these studies do not explain why piracy is more prevalent than other types of deviant consumer behavior. This would require an explicit comparison between piracy and related criminal behavior. Piracy has often been compared with theft or even categorized as such (Goodenough and Decker 2008). But there is little evidence of whether consumers have a different moral attitude toward piracy than toward theft, and whether this translates into a moral gap between the propensity to pirate and the propensity to steal.

Standard economic theory predicts that the likelihood of criminal behavior is a function of three variables: 1) value of the focal good, 2) probability of being caught, and 3) the magnitude of the punishment if caught (Becker 1968; Mazar *et al.* 2008). The standard economic prediction is, therefore, that the likelihood of piracy and theft are equal if these three variables are equal as well. It can be argued that piracy is more prevalent because the probability of being caught and the magnitude of the punishment are both lower than in the case of theft. This would imply that

consumers do not morally differentiate between theft and piracy, and that mere economic considerations determine the likelihood of theft and piracy. However, some studies suggest that consumers do differentiate morally between theft and piracy and that this moral distinction should partially explains why piracy is more prevalent than theft (e.g., Cockrill and Goode 2012; Nunes *et al.* 2004). The distinction is also reflected in the codified law of various countries, where violations of intellectual property rights are considered less severe than violations of physical property rights (Yu 2011). To be able to pinpoint the source of a moral distinction between the two forms of larceny, it is pertinent to identify the differences between theft and piracy.

Both theft and piracy constitute expropriating a good without the owner's consent. If the good is for sale, theft or piracy occurs if the consumer refuses to pay. The economic consequences of both theft and piracy are similar. Namely, the legitimate owner loses the possibility to sell the good at a profit to the perpetrator, which is also known as foregone gains (Thaler 1980). However, a notable and observable difference between theft and piracy is the nature of the focal good. Theft applies to physical goods, such chairs and books, while piracy applies to information goods, such as music, imagery, and texts. Thus, a moral distinction between theft and piracy is bound to stem from a difference in the type of goods involved. We identify two characteristics that differ between physical goods and information goods: 'rivalry' and 'tangibility'.

2.2.2. Rivalry and tangibility

'Rivalry' is a basic notion within economics and can be defined as the extent to which joint consumption or possession of a single good is possible. More precisely, the number of consumers being able to consume the same good at the same time without affecting individual consumption experience determines the degree of rivalry. Only one consumer at a time ($N = 1$) can consume a perfectly rivalrous good. For example, the comfort of a chair is enjoyed by at most one consumer. A perfectly *non*-rivalrous good can be enjoyed by an unlimited number of consumers ($N = \infty$). The content of a news article, for example, can be shared and read widely without affecting the quality of the article. However, many goods are neither perfectly rivalrous nor perfectly non-rivalrous ($1 < N < \infty$). Trains, for example, are able to accommodate more than one person to provide the same good until the train gets too crowded to be able to provide a seat for an additional traveler.

The notion of rivalry provides a more precise understanding of the distinction between the types of good associated with theft and piracy. It can be argued that theft only pertains to goods that are (almost) perfectly rivalrous (e.g., cars, jewelry), while piracy only relates to perfectly non-rivalrous goods (e.g., information goods). As a result, theft always has as a consequence that it dispossesses the current user because rivalrous goods can only be expropriated by inflicting a possessive loss to the victim. Even though in the case of piracy there is a victim, this victim does not experience a possessive loss. Thus, the moral distinction between theft and piracy might originate from the extent to which each act causes a possessive loss to the victim.

Another difference between physical and information goods is tangibility. Physical goods are inherently tangible and information goods are inherently intangible. Peck and Shu (2009) show that touching an object increases the perceived ownership of that object, which in turn increases the perceived value. As tangibility implies that the product can be controlled physically – and physical control is associated with a higher degree of perceived ownership – consumers tend to have stronger feelings of entitlement toward tangible goods (Pierce, Kostova and Dirks 2003). Tangibility also signals that the producer had to incur costs to produce the good, which increases the perceived value (Nunes *et al.* 2004). The psychological effect of tangibility on product evaluation and perceived ownership is also observable when the ability to touch a good is only imagined (d'Astous and Kamau 2010; Peck, Barger and Webb 2013).

Besides rivalry, tangibility might contribute to the moral distinction between theft and piracy. Peck and Shu (2009) argue that tangibility facilitates establishing ownership as non-owners deem it feasible that someone else, arguably the rightful owner, already had the focal tangible product in her possession. This moral conclusion might deter consumers from appropriating tangible goods. As information goods are inherently intangible, it is much more difficult to signal the possibility of ownership. Therefore, information goods are more likely to be perceived as having no owner at all, which in turn decreases the moral barrier to refuse paying for information goods.

Rivalry and tangibility are distinct characteristics of any consumable good. Theft is arguably often associated with rivalrous

and tangible goods. In contrast, appropriating non-rivalrous intangible goods (e.g., downloading music) is usually not considered to be theft. Legally, taking the train without paying for a ticket is considered evasion, and copying a book without the publisher's consent is categorized as infringement. An archetypical pirated good is both non-rivalrous and intangible (Table 2.1). It is unknown to what extent each characteristic (i.e., tangibility and rivalry) contributes to the moral distinction between theft and piracy. We draw from prospect theory to address this research gap.

Table 2.1: ***Tangibility, rivalry and appropriation type***

		Rivalry	
		Rivalrous	*Non-rivalrous*
Tangibility	*Tangible*	Chairs (Theft)	Public transportation (Evasion)
	Intangible	Domain names (Theft)	E-books (Piracy)

Notes. For each possible combination a prototypical example is provided. The term for appropriating the type of good without the owner's consent is in parentheses.

2.2.3. Second-person loss aversion

Prospect theory states that losses weigh more than gains in individual decision-making (Kahneman and Tversky 1979). Prospect theory was initially applied to risky choices to explain anomalies such as the observation that consumers tend to reject profitable lotteries that have as a possible outcome a salient loss. Research on loss aversion primarily focused on how possible outcomes for the self are evaluated. There is a growing body of

evidence demonstrating that loss aversion applies not only to situations in which the self is potentially affected but also when others are (Andersson *et al.* 2015; Polman 2012; Nunes *et al.* 2004). We make a distinction between first-person loss aversion (FPLA) and second-person loss aversion (SPLA). FPLA conforms to the standard interpretation of loss aversion; decision-makers give more weight to one's own losses than one's own gains. SPLA, however, takes into account how choices impact one's own gains and losses *and* the impact on the gains and losses of others.

A difference between FPLA and SPLA is the nature of the aversion. Camerer (2005) argues that FPLA is an emotional reaction, more precisely, a fear of incurring losses to onself. As SPLA takes into account a second person, emotions such as empathy are likely involved (Crockett *et al.* 2014). A possible consequence is that, besides choice behavior, SPLA implicates moral considerations (Baron 1995; Liberman, Idson and Higgins 2005; Van Beest *et al.* 2005; Zhou and Wu 2011). Kahneman, Knetsch and Thaler (1986) show that the effect of loss aversion can be captured in terms of fairness. They show that cutting the wages of workers is considered unfair even if it is legally allowed and is the optimal choice, given market conditions. However, the outcome is considered fair if it can be obtained by making sure that the percentage wage increase is lower than the inflation rate. Their findings strongly suggest that loss aversion affects moral considerations once the possible impact on other people is taken into account.

SPLA is conceptually different from an aversion to harm others. The aversion to harm others is a well-established moral human

preference to avoid hurting others (Haidt 2007). SPLA differs in two respects from harm aversion. First, SPLA explicitly compares the outcome for the self with the outcome for the other while harm aversion focuses solely on the outcome for the other. Particularly, this research focuses on the scenario that a gain to the self might lead to a loss to a second person. Second, SPLA focuses on losses and gains of possessions as understood in the literature on loss aversion (Brenner *et al.* 2007). Harm aversion, however, focuses solely at possible negative outcomes for others and the negative outcome might also include physical harm, which is beyond the scope of loss aversion.

SPLA might provide a novel explanation of why a moral distinction between theft and piracy likely exists, which in turn can explain why piracy is more likely to occur than theft. A core assumption is that consumers stand to gain from acquiring a good through either theft or piracy. Amoral consumers would be indifferent between stealing and pirating if the perceived gain from doing so, together with the probability of being caught and the extent of the punishment if caught, are the same in both cases. In contract, moral consumers might perceive the impact on the victim. Under SPLA, moral consumers will refrain from piracy or theft if the perceived loss to the victim outweighs the gain (Van Beest *et al.* 2005). It is unclear, however, whether the perceived loss to the victim of piracy is of the same magnitude as in the case of theft. This depends on the consumers' perception of what constitutes a loss.

We identify two types of losses that can arise if a good is appropriated without being paid for. The first type of loss is the

loss of the possibility to profit, which constitutes foregone gains. Foregone gains are gains that would have materialized if the good had been paid for. Foregone gains are caused both in the case of theft and in the case of piracy. When the Recording Industry Association of America and the Motion Picture Association of America argue that piracy is equivalent to theft, they base this moral equivalence on the fact that both acts result in foregone gains (Yu 2011). The second type of loss is losing possession of the good itself. Recent evidence strongly suggests that consumers care more about the loss of possession than foregone gains (Brenner *et al.* 2007; Dommer and Swaminathan 2013). Brenner *et al.* (2007) show in two studies that consumers are more averse to a loss of possession than a loss in terms of valence. Novemsky and Kahneman (2005) show that the unintentional loss of possession, especially in the case of theft, induces a stronger effect of loss aversion.

2.2.4. Overview of experiments

Four experiments were designed to investigate to what extent SPLA provides an explanation of the moral distinction between theft and piracy. Experiment 1 establishes whether a moral distinction between theft and piracy does indeed exist. Experiment 2 shows the extent to which the nature of the good (physical or digital) affects the likelihood of piracy and theft. Experiments 1 and 2 compare piracy and theft without disentangling the specific causes of a moral distinction. Experiments 3 and 4 explore three possible explanatory variables: rivalry, tangibility, and the presence of foregone gains. Experiment 3 aims to compare to what extent tangibility and rivalry contribute to explaining the distinction. In

Experiment 4 rivalry is separated from the presence of foregone gains. Based on SPLA we predict that rivalry is the strongest contributor of the moral distinction between theft and piracy because rivalry makes possessive losses possible.

2.3. Experiment 1: Moral evaluation of piracy and theft

Experiment 1 is designed to test whether consumers morally dissociate between piracy and theft. We argue that due to SPLA theft is considered less fair than piracy. Participants are asked to indicate to what extent they agree with a negative or positive moral evaluation of either piracy or theft. Acts that are considered unambiguously immoral have a high level of agreement with a negative moral evaluation and a low level of agreement with a positive moral evaluation. As theft implies imposing a possessive loss on the victim, we predict that theft falls squarely in this category (Kahneman *et al.* 1986). Although piracy also imposes losses on the victim, these losses are not possessive losses. We therefore predict that the moral evaluation of piracy is distinct from theft in the sense that piracy is not considered unambiguously immoral.

2.3.1. Method

Sixteen paid students (M_{age} = 23, SD = 4.28) participated in a 2 (action: theft, piracy) x 2 (moral evaluation: positive, negative) within-subject design. Participants were recruited using announcement boards available across campus.

We obtained moral attitudes toward piracy and theft using a questionnaire containing statements with either a positive or negative moral evaluation of the action. For example, a negative moral evaluation of theft could be stated as "I think that punishment for theft is a good thing" and a positive moral evaluation of piracy could be stated as "The prevalence of piracy is a good development." Each sentence is either constructed with the words theft or piracy and the moral evaluation is either positive or negative.

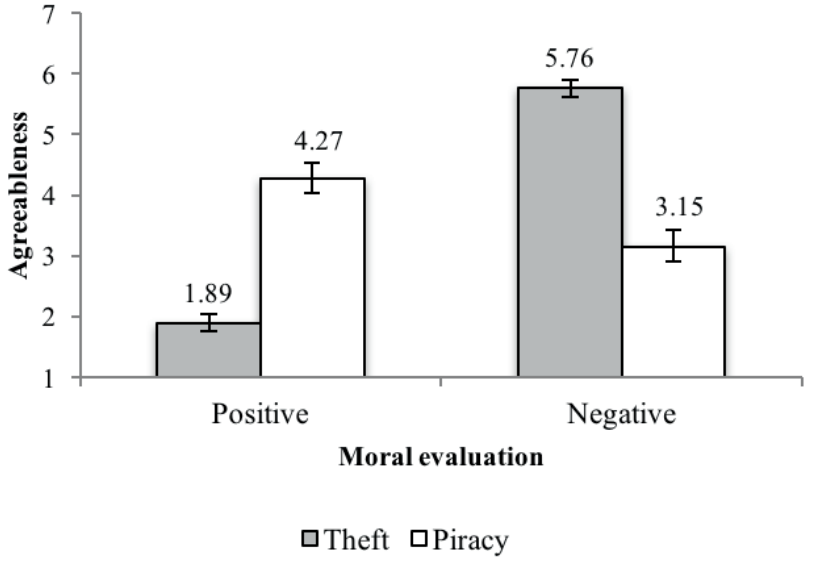
The format of these statements is adopted from Van Berkum *et al.* (2009) who used similar statements but with different actions to obtain moral attitudes. Each of the four conditions has 40 statements and the order of presentation was randomized. Thus, the total number of statements is Theft (2) x Piracy (2) x Valence (2) x Number (40) = 320. The statements were displayed on a computer screen. After presenting each statement participants were asked to report on the extent to which they agreed with the statement. Participants could indicate their agreeableness on a 7-point Likert scale (1 = "I completely disagree", and 7 = "I completely agree"). To capture the participant's intuitive response, there was a seven-second time limit for the response to each statement. The mean score of the responses in each condition was calculated and used for further analysis. The internal consistency of the statements in all four conditions is high (Cronbach $\alpha > .80$). At the beginning of the experiment participants were provided a general definition of theft and piracy to avoid any confusion about the specific crime (i.e., digital piracy and, thus, not actual violent piracy at sea).

2.3.2. Results

A 2 (action: theft, piracy) x 2 (moral evaluation: positive, negative) repeated measures analysis of variance (ANOVA) revealed a significant main effect of moral evaluation ($F(1,15) = 26.05$, $p < .001$, $\eta_p^2 = .64$) but did not show a significant main effect of type of action ($F(1,15) = 1.50$, $p = .24$, $\eta_p^2 = .09$). As predicted, there was a significant interaction effect between moral evaluation and type of action ($F(1,15) = 81.11$, $p < .001$, $\eta_p^2 = .84$; Figure 1.1). As a robustness check we repeated the analysis for each quartile of responses and we found that each quartile yielded the same outcome.

In line with our hypothesis, participants agreed more with a negative evaluation of theft (M = 5.76, SD = .55) than with a positive evaluation of theft (M = 1.89, SD = .58; paired-samples *t*-test, $M_{diff} = 3.87$, SD = 1.02, $t(15) = 15.18$, $p < .001$). The opposite seems to be true for piracy; participants agreed more with a positive evaluation of piracy (M = 4.27, SD = 1.07) than with a negative evaluation of piracy (M = 3.15, SD = .98; paired-samples *t*-test, $M_{diff} = 1.12$, SD = 1.93, $t(15) = 2.31$, $p = .04$). Furthermore, participants agreed more with a positive moral evaluation of piracy than a positive moral evaluation of theft (paired-samples *t*-test, $M_{diff} = 2.37$, SD = 1.27, $t(15) = 7.48$, $p < .001$). But participants agreed less with a negative moral evaluation of piracy than a negative moral evaluation of theft (paired-samples *t*-test, $M_{diff} = 2.61$, SD = 1.07, $t(15) = 9.75$, $p < .001$).

Figure 2.1: ***Moral evaluation of theft and piracy***



Note. Scale ranges from 1 ("I completely disagree") to 7 ("I completely agree").

2.3.3. Discussion

As predicted, the moral evaluations of theft and piracy differ significantly, which provides support for the existence of a moral distinction between the two. A positive moral evaluation of theft attracts a low level of agreement while a negative moral evaluation of theft is associated with a high level of agreement. Thus, theft is categorized as immoral and this categorization is unambiguous. On the other hand, participants seem to have another attitude towards piracy. Participants agree significantly more with a positive evaluation of piracy than with a negative one. Due to the perception

that theft imposes losses while piracy does not, it was predicted that theft is considered morally worse than piracy. We find that theft is evaluated unambiguously as immoral (*i.e.*, average agreement with a negative moral evaluation is beyond the middle of the scale in Figure 1.1) while piracy is considered moral (*i.e.*, average agreement with a positive moral evaluation is beyond the middle of the scale). However, participants' moral attitude toward piracy is not as strong as it is toward theft – which suggests that piracy is not considered fully moral. Even though piracy deprives victims of the possibility to profit (i.e., foregone gains), this alone does not seem sufficient to render the perception of piracy as immoral.

2.4. Experiment 2: Likelihood of cheating

Experiment 1 provided evidence of the existence of a moral distinction between theft and piracy. Experiment 2 was designed to test the prediction that people are less likely to commit theft than piracy due to an aversion to cause possessive losses to others (Van Beest *et al.* 2005). In Experiment 2 participants were asked to indicate how much they would be willing to pay for either a digital or physical copy of the same good. After providing an amount, participants were given the opportunity to cheat the seller and get the good for free.

Under SPLA the harm of losing a physical good is greater than the harm of copying a digital good. As a result, buyers are inclined to pay more to offset the harm. Therefore, we predict that the willingness to pay for physical goods is higher than for digital goods. Similarly, buyers who are given the opportunity to obtain a good through cheating (digital → piracy; physical → theft) are

expected to take into account the magnitude of the possessive loss. Thus, the likelihood of cheating is predicted to be higher if the focal good is digital.

2.4.1. Method

Three-hundred-and-sixty unpaid students (M_{age} = 23.10, SD = 4.92) participated in a single factor (type of good: physical, digital) between-subjects design. The participants were invited by e-mail to participate in a vignette study. Vignettes are often employed to study moral preferences (Rai and Holyoak 2010).

The vignette in this study starts with the following context, which is the same for both conditions: "Imagine visiting the website of a musician who has just released his first album." To avoid any association that may exist with a real musician, we add: "You have never heard of this musician before. After listening to samples of his album, it becomes clear to you that you enjoy listening to his music." Participants are then informed that they can purchase the album using a Name Your Own Price (NYOP) mechanism, which requires that the price needs to be positive (Kim, Natter and Spann 2009): "Today only it is possible to purchase the album for any positive amount from his website. Anywhere else the price is €20." A reference price is provided to reduce possible price variance (Johnson and Cui 2013).

In the tangible condition it is made clear to the participant that "[a]fter your purchase, you will receive the album on CD by post express on the same day." In the intangible condition it is mentioned that the album will be delivered on the same day "as a

download." Furthermore, to make the victim salient, it is emphasized in both conditions that the musician is the sole recipient of the revenues (Jenni and Loewenstein 1997): "It is made clear on the website that all revenues go to the musician."

After reading the vignette, participants are asked to report the amount they would be willing to pay for the album. It was made clear that the amount has to be positive and, thus, it is not possible to obtain the product by paying nothing. After confirming the amount, participants are informed that an error occurred during the payment procedure due to a glitch. As a result of this glitch, participants are given the opportunity to reduce their provided amount to zero, which is violation of the NYOP mechanism. Thus, participants who change the amount to zero cheat the seller, considering it was not possible to get the album for free. Cheating in the physical condition amounts to theft, while in the digital condition cheating can be interpreted as an act of piracy.

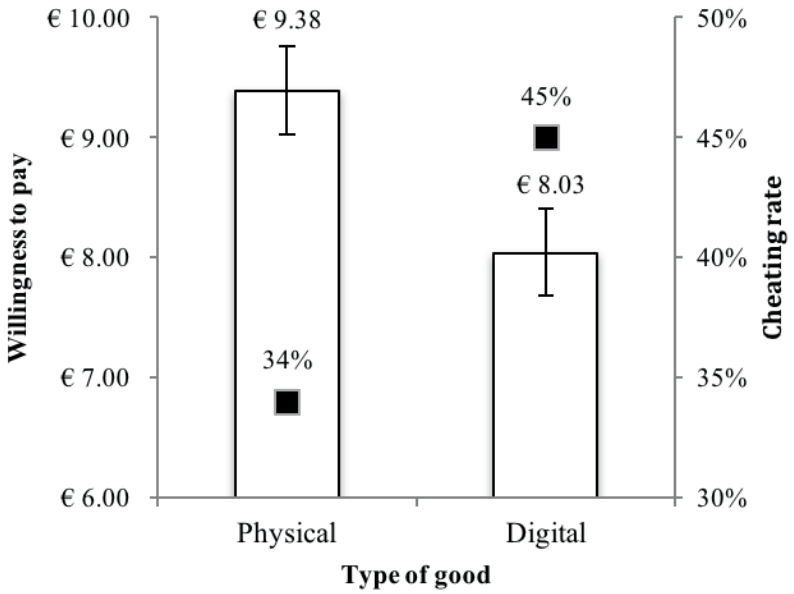
2.4.2. Results

The willingness to pay for a physical copy of the album (M = 9.38, SD = 5.07, Median = 10.00) was significantly higher than for a digital copy of the album (M = 8.03, SD = 4.72, Median = 8.00; ($F(1,358) = 6.78$, $p = .01$, $\eta_p^2 = .02$). To ascertain that this difference does not depend on a preference for physical mediums, we assessed which medium participants prefer to be able to control for this effect. Sixty-six percent indicated that in general they preferred the physical version (Binomial, $p < 0.01$). After controlling for this preference, a comparison of the means still

revealed that the willingness to pay is significantly higher if the copy is physical ($F(1,357) = 6.41$, $p = .01$, $\eta_p^2 = .02$).

Cheating is significantly more likely if the album is digital (45%) compared to a physical copy (34%; $\chi^2 = 4.36$, $p < .05$). We controlled for willingness to pay in a logistic regression. More specifically, including an interaction variable (price × digital copy) in the logistic regression revealed a significant interaction effect ($\beta = .10$, S.E. = .05, $\chi^2 = 4.10$, $p < .05$). This effect indicates that a higher willingness to pay is correlated with a higher likelihood of cheating if the copy is digital. In contrast, a higher willingness to pay is correlated with a lower likelihood of cheating if the copy is physical ($\beta = -.09$, S.E. = .04, $\chi^2 = 7.23$, $p < .01$).

Figure 2.2: ***Willingness to pay and cheating rate***



Notes. Bars represent average willingness to pay for each medium. Black rectangles represent the relative frequency of participants who chose to cheat for each medium.

2.4.3. Discussion

Willingness to pay for the physical version is significantly higher than for the digital version of the same good. Considering that the context between the two situations was the same, the difference can be attributed to a difference in medium type. Interestingly, the willingness to pay is inversely related to the cheating rate. Further analysis shows this effect is only true for the physical version whereas the effect is inversed for the digital version. The current pattern of findings constitutes strong evidence in support of an

explanation based on SPLA. The finding that participants are willing to pay to more to compensate the seller if the perceived loss of selling is greater as well is in line with SPLA. Buying the physical version of the album results in a possessive loss and as a result consumers are willing to pay more to compensate for this loss. Similarly, the finding that relatively fewer participants are prepared to cheat if the medium is physical reveals that in this case cheating is considered more harmful than if if the medium is digital.

2.5. Experiment 3: Tangibility versus rivalry

The previous experiments provide evidence that the moral acceptability of theft is lower compared to piracy (Experiment 1) and that theft is less likely to occur than piracy (Experiment 2). We argue that this distinction results from SPLA, which consists of an aversion to cause possessive losses to others. In Experiment 2, however, tangibility and rivalry are confounded. Specifically, the good that could be pirated in Experiment 2 was either non-rivalrous and intangible or rivalrous and tangible. In Experiment 3 these factors are disentangled. We predict that rivalry matters more for the moral acceptability of either theft or piracy than tangibility. Specifically, the theft or piracy of rivalrous goods is predicted to be less acceptable than that of non-rivalrous goods. The reason is that a victim only experiences a possessive loss if the good is rivalrous. Tangibility might also affect the moral acceptability of pirating or stealing a good (Peck and Shu 2009). However, this effect is expected to be smaller than the effect of rivalry on the moral acceptability of theft and piracy because it is assumed that

tangibility can only amplify existing considerations due changes in saliency while rivalry acts as a trigger of moral considerations.

2.5.1. Method

Two-hundred-and-seven unpaid students (M_{age} = 20, SD = 1.79) participated during class in a 2 (Tangibility: tangible, intangible) x 2 (Rivalry: rival, non-rival) within-subject design.

In this experiment participants were presented with four vignettes of which the order was randomized. Each vignette starts with the following context: "A music store sells a physical and a digital version of a music album that is only available in this shop. The price for both versions is the same." Then the focal good, which is either tangible or intangible, is introduced: "Jan and Marie are interested in the *physical/digital* edition. They do not know each other. Marie buys a *physical/digital* edition." To elicit moral outrage Jan robs Marie: "Jan *takes/downloads* the album that Marie just bought and runs out of the store." The vignette ends with information on whether Marie is still able to get a copy for herself, which is an operationalization of rivalry: "The store owner has *no* more copies. Jan was fully aware of this. Marie *will therefore receive a free/can therefore not receive* a replacement product. Jan foresaw this." If Marie is able to receive a replacement then the stolen good can be considered non-rivalrous considering that Marie was not deprived as a result of theft or piracy. However, if Marie is unable to receive a replacement then the stolen album is rivalrous because Marie was deprived as a result of either theft or piracy. It is always emphasized that Jan foresaw whether a replacement was

available to clarify Jan's foreknowledge of the moral consequences of his action.

After each vignette, participants evaluated the moral severity of Jan's action with a visual analogue scale. The right end of the scale indicates that Jan's action is completely acceptable and the left end represents Jan's action as being completely unacceptable.

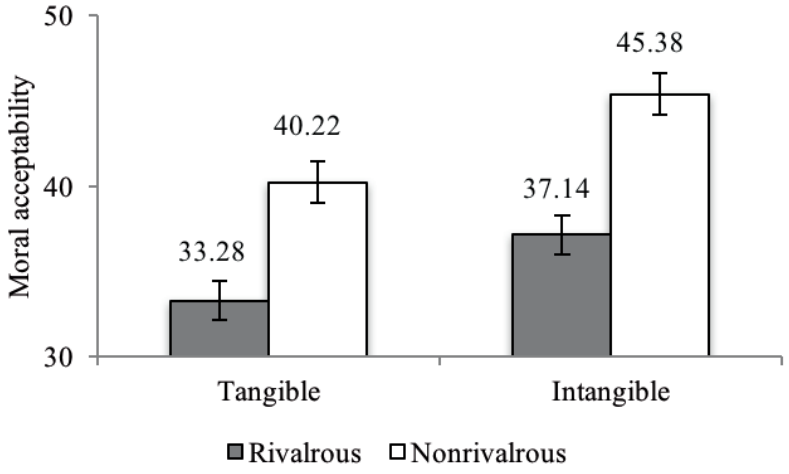
2.5.2. Results

A 2 (tangibility: tangible, intangible) x 2 (rivalry: rival, non-rival) repeated measures analysis of variance (ANOVA) yielded significant main effects of tangibility ($F(1,204) = 37.52$, $p < .001$, $\eta_p^2 = .16$) and rivalry ($F(1,204) = 90.12$, $p < .001$, $\eta_p^2 = .31$). The interaction between tangibility and rivalry was not significant ($F(1,204) = 1.08$, $p = .30$, $\eta_p^2 = .01$). Note that the effect size of rivalry is almost twice the effect size of tangibility, indicating that rivalry accounts for considerably more of the variance in moral acceptability than tangibility.

As predicted, participants were more likely to report Jan's behavior as being less acceptable if it deprived the victim of obtaining the music album ($M_{rival} = 35.25$ versus $M_{nonrival} = 42.76$; paired-samples *t*-test, $M_{diff} = 7.51$, $SD = 12.55$, $t(205) = 8.61$, $p < .001$). This effect occurred for both types of goods (digital: paired-samples *t*-test, $M_{diff} = 8.30$, $SD = 13.96$, $t(205) = 8.53$, $p < .001$; physical: paired-samples *t*-test, $M_{diff} = 7.02$, $SD = 15.70$, $t(205) = 6.42$, $p < .001$).

Stealing a intangible digital music album was considered more acceptable than stealing a tangible physical music album ($M_{physical}$ = 36.73 versus $M_{digital}$ = 41.27; paired-samples *t*-test, M_{diff} = 4.54, SD = 10.63, $t(205) = 6.14$, $p < .001$). The effect of tangibility can be found while considering the rivalrous ($M_{physical}$ = 33.28 versus $M_{digital}$ = 37.07; paired-samples *t*-test, M_{diff} = 3.79, SD = 12.59, $t(205) = 4.32$, $p < .001$) and non-rivalrous ($M_{physical}$ = 40.28 versus $M_{digital}$ = 45.38; paired-samples *t*-test, M_{diff} = 5.10, SD = 14.37, $t(205) = 5.09$, $p < .001$) treatments separately.

Figure 2.3: ***Moral evaluation of theft and piracy***



Note. Scale ranges from 0 ("Completely unacceptable, just as wrong as murder") to 100 ("Completely acceptable, there is nothing wrong with this behavior").

2.5.3. Discussion

Stealing or pirating rivalrous goods is considered less acceptable compared to doing the same with non-rivalrous goods. Obtaining a rivalrous good implies, by definition, that someone else loses possession of the good, which does not happen if the good is nonrivalrous. The observed link between rivalry and moral acceptability is in line with the notion that an aversion to causing possessive losses underpins the moral distinction between theft and piracy. Earlier studies show that imposing losses on others is considered more unfair than obtaining the same outcome without imposing losses (e.g., Kahneman *et al.* 1986). Furthermore, we find that the theft or piracy of intangible goods is more acceptable compared to stealing or pirating tangible goods. This supports earlier studies that find a relationship between tangibility and perceived ownership (Kamleitner and Feuchtl 2015; Peck and Shu 2009; Peck *et al.* 2013). Importantly, the effect of tangibility is much less pronounced than the effect of rivalry. This result underscores the relative importance of SPLA in explaining the moral distinction between theft and piracy.

2.6. Experiment 4: Foregone gains versus rivalry

In the previous experiment, there were two possible victims: Marie and the storeowner. In the rivalrous condition, the storeowner is unable to compensate Marie and, thus, Marie is the victim because she is monetarily worse off. In the non-rivalrous treatments Marie was not worse off in the end because the storeowner compensated her loss by providing a replacement. However, in this case the

storeowner has one fewer copy to sell profitably to someone else. This results in so-called foregone gains. Foregone gains are gains that could have been generated in the future but are not. Experiment 4 aims to separate the effect of rivalry from the effect of foregone gains.

Kahneman *et al.* (1991) argue that "out-of-pocket" losses, which affect current possessions, are considered more painful than foregone gains and that this distinction is revealed in fairness considerations. More recent studies show that the strongest type of "out-of-pocket" losses refers to possessive losses (Brenner *et al.* 2007; Dommer and Swaminathan 2013). A possessive loss can be defined as the deprivation of access to a good, which can be considered theft if the deprived person is also the owner. Considering that possessive losses can only occur if the good is rivalrous, we expect that rivalry is more pronounced than foregone gains in determining the moral acceptability of theft and piracy.

2.6.1. Method

Sixty-three unpaid students (M_{age} = 18.75, SD = 1.51) participated during class in a 2 (rivalry: rivalrous, nonrivalrous) x 2 (foregone gains: absent, present) within-subjects design.

Similar to the previous experiment, the participants were presented with four different vignettes in randomized order. Each vignette starts with the following context: "Jan needs a license code for using a computer program." We varied whether Jan is aware of options to purchase a license code: "He *knows/does not know* where to purchase a license code." Jan cannot cause foregone gains

if he is not aware of any channels through which to purchase a license code. However, if Jan is aware of a way to obtain a license code, he is causing the seller of the computer program to incur foregone gains.

All vignettes continue with the fact that "Jan finds on the internet a license code generator for the software program." The generated code is either rivalrous or non-rivalrous. A rivalrous code would deprive someone else: "The license code generator generates only codes of paying users. As a result Jan would deny someone access to the program." But a non-rivalrous code does not deprive anyone because the code is unused: "The license code generator generates only codes that nobody has. As a result Jan would not deny anyone access to the program." In all vignettes Jan commits piracy by generating a code: "Jan generated a license code and enters it."

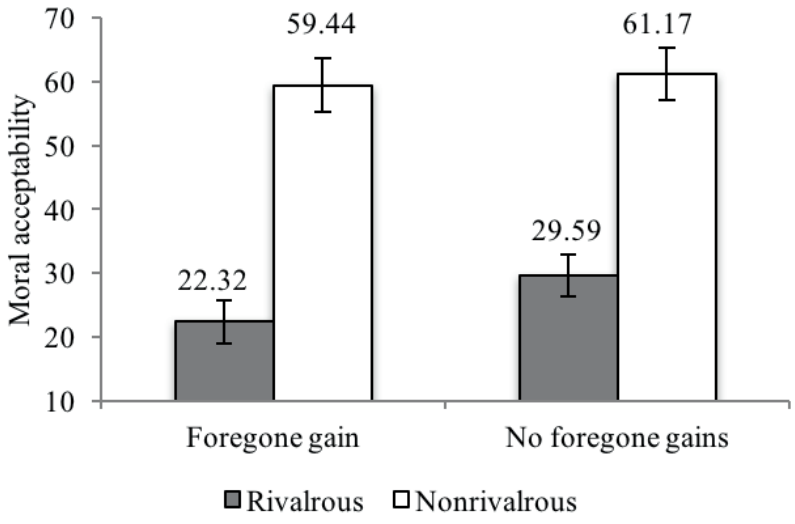
Again similar to the previous experiment, after each vignette participants are asked to evaluate the moral severity of Jan's action. We again employed a visual analogue scale on which participants could indicate their perceived moral severity. The left end of the scale represents Jan's action as being completely unacceptable (0) and the right end of the scale indicates that Jan's action is completely acceptable (100).

2.6.2. Results

A 2 (rivalry: rivalrous, non-rivalrous) x 2 (foregone gains: absent, present) repeated measures analysis of variance (ANOVA) revealed a significant main effect of rivalry ($F(1,62) = 47.84$, $p < .001$, $\eta_p^2 = .44$) and the presence of foregone gains ($F(1,62) = 7.19$,

p = .009, η_p^2 = .10). The interaction effect, however, between rivalry and the presence of foregone gains was not significant ($F(1,62) = 1.53$, $p = .22$, $\eta_p^2 = .02$). Participants find Jan's behavior significantly more unacceptable if generating a license code deprives someone else, irrespective of the presence of foregone gains (foregone gains absent, paired-samples t-test, $M_{diff} = 31.59$, SD = 43.96, $t(62) = 5.70$, $p < .001$; foregone gains present, paired-samples t-test, $M_{diff} = 37.13$, SD = 42.51, $t(62) = 6.93$, $p < .001$).

Figure 2.4: ***Perceived moral acceptability, rivalry and foregone gains***



Note. Scale ranges from 0 ("Completely unacceptable") to 100 ("Completely acceptable").

2.6.3. Discussion

Piracy of a rivalrous good is considered much less acceptable than the piracy of a non-rivalrous good. In the experiment the only difference between the rivalrous and non-rivalrous treatment is whether another person is deprived access to making use of a software package. In contrast to Experiment 3, the possessive loss in this experiment is not physical as the victim did not physically lose possession of any good. Loss of access is sufficient to trigger a large effect on the moral acceptability of piracy.

We also find that the presence of foregone gains significantly decreases the acceptability of piracy. Earlier studies show that foregone gains are often ignored or underweighted in individual decision-making (Frederick *et al.* 2009; Kahneman *et al.* 1991). Furthermore, this study confirms the hypothesis that rivalry matters more for the moral acceptability of piracy than foregone gains. Although the effect size of foregone gains is smaller than that of rivalry, it does reveal that foregone gains are not completely ignored in determining the moral acceptability of piracy.

2.7. Discussion

Piracy is a major public policy issue that has received little attention in the literature. Extant research on piracy focuses primarily on the determinants of piracy behavior without providing an empirical comparison with the often-related criminal offence of theft (e.g., Hennig-Thurau *et al.* 2007). Te current study examines to what extent the moral acceptability of theft and piracy differ and whether extending loss aversion can provide a novel explanation of

this distinction. An aversion to causing losses to others even if this is a gain to the focal person, which we dubbed second-person loss aversion, is an underexplored extension of prospect theory (Andersson *et al.* 2015; Polman 2012). Four experiments were designed to examine the existence of a moral distinction based on SPLA and explore alternative explanations.

Experiment 1 shows that theft is considered unambiguously morally unacceptable while the moral perception of piracy is more ambiguous. This provides support for the hypothesis that a moral distinction between theft and piracy exists. Experiment 2 reveals that this moral distinction also affects choice behavior. We find that the likelihood of piracy is significantly higher than that of theft. Furthermore, Experiment 2 also confirms our prediction that a higher willingness to pay results in a lower likelihood of theft but in a higher likelihood of piracy. Experiments 3 and 4 provide evidence that the moral distinction is primarily caused by an aversion to causing possessive losses to others. Possessive losses only occur if the good is rivalrous. Experiment 3 shows that rivalry matters more than tangibility in determining the moral acceptability of theft and piracy. In Experiment 4 the effect of rivalry was compared with the effect of foregone gains. Again, we find that rivalry dominates the moral perceptions of piracy. Collectively, the four experiments provide strong evidence of the existence of a moral distinction between theft and piracy and that SPLA underpins this distinction.

The current pattern of results makes at least three contributions. First, we show that comparing piracy with theft provides a better theoretical understanding of piracy behavior. The empirical

literature on piracy has focused primarily on identifying variables that are associated with piracy behavior. This research strategy resulted in a large number of variables associated with piracy behavior (Hennig-Thurau, Henning and Sattler 2007; Levin, Dato-on and Rhee 2004; McCorkle *et al.* 2012; Sinha and Mandel 2008). Although some studies also included variables that are specific to piracy (e.g., moral attitude toward piracy), the theoretical relevance of piracy is underdeveloped. The current study contributes to a theoretically more rigorous understanding of piracy behavior by focusing on determinants that are idiosyncratic to piracy (Nunes *et al.* 2004). To this end, piracy is compared with theft to identify factors that constitute the source of the moral distinction between the two behaviors.

Second, we demonstrate the relative importance of rivalry in explaining the moral distinction between theft and piracy. Earlier studies on piracy often only make a distinction between physical and digital goods (e.g., Hennig-Thurau *et al.* 2007). A more precise taxonomy of goods is possible by disentangling rivalry and tangibility. Rivalry and tangibility often overlap and sometimes the terms are used interchangeably, which has led to confusion in the literature (Lysonski and Durvasula 2008). This confusion results from observations indicating that most rivalrous goods are tangible and most intangible goods are non-rivalrous, which are often categorized as physical and digital respectively. However, rivalrous goods are not necessarily tangible and neither are intangible goods necessarily non-rivalrous. For example, internet domain names (e.g., google.com) are rivalrous and intangible. From a legal point of view, U.S. courts have clarified that the appropriation of

intangible rivalrous goods can be considered theft rather than a form of piracy even though these goods are categorized as digital goods (Henning 2013). This conclusion is counterintuitive considering that in the legal literature a defining characteristic of piracy is intangibility (Arias 2007). Empirically, we find that rivalry weighs considerably more than tangibility in determining the moral acceptability of theft and piracy.

Third, our application of loss aversion highlights the theoretical implications of prospect theory to moral decision-making. Research on loss aversion has primarily focused on how potential losses to oneself affect decision-making (Kahneman and Tversky 1979). Although early studies on loss aversion suggest that there is a relationship between loss aversion and moral considerations (e.g., Kahneman *et al.* 1986), few studies explored the nature of this relationship and its implications further until more recently (Andersson *et al.* 2015; Polman 2012). Developing the concept of loss aversion to include gains and losses caused to others (SPLA) provides a novel explanation of the existence of a moral distinction between theft and piracy. Rivalry as a characteristic within this context matters to moral considerations because it determines whether owners are dispossessed in case of theft or piracy. Earlier studies show that people are indeed averse to causing losses to others even if they can do so profitably, which provide support for SPLA (e.g., Van Beest *et al.* 2005). The current research builds on this literature by providing evidence that SPLA can shape moral perceptions and economic decision-making. SPLA predicts that consumers are less likely to steal than to pirate because stealing deprives another person of access even though this loss is a gain to

the perpetrator. We indeed find that theft and piracy elicit different attitudes and that this can be attributed to SPLA.

A possible limitation of this study is the use of vignettes. Experiment 2, 3 and 4 consists of participants responding to hypothetical scenarios that are not common in the field. Studies on moral decision-making often rely on such scenarios (Rai and Holyoak 2010). To overcome this limitation future research might aim to provide experimental evidence of SPLA from the field. A number of field experiments already provide evidence for the existence of FPLA (e.g., Ganzach and Karsahi 1995). Considering that theft and piracy often occur in considerably different contexts, it is difficult to imagine a field experiment, at least with a natural setting, which can test the existence of SPLA in the context of criminal behavior. Nevertheless, alternative methods, such as framed field experimentation, might provide the prerequisite conditions to test SPLA in the field (Harrison and List 2004).

Our findings have managerial implications for policy-makers and practitioners who aim to mitigate piracy. A common tactic to deter consumers from committing piracy is to morally equate piracy with theft. For example, the Motion Picture Association argued in a public service announcement that "[d]ownloading pirated films is stealing, stealing is against the law" (Loughlan 2007). We find that consumers make a clear moral distinction between theft and piracy. This moral distinction is rooted in how consumers perceive losses that are caused as a result of their actions. Our research provides evidence that possessive losses weigh more than foregone gains. As piracy only causes foregone gains it is more difficult to convince consumers of the immorality of piracy. Therefore, our research

suggests that public relationship strategies that involve the moral equivalence between theft and piracy are ineffective. A more viable strategy would be to create artificial scarcity to render a non-rivalrous good a rivalrous good. Consumers are less likely to commit piracy if they are aware that someone else will be deprived of her copy as a result.