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Thou shalt not steal: Taking aversion with legal property claims

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ABSTRACT

Do people have an innate respect for property? In the literature, there is controversy about whether human subjects are *taking averse*. We implemented a dictator game with a symmetric action space to address potential misconceptions and framing and demand effects that may be responsible for the contradictory findings. Misconceptions can occur as a result of unclear property rights, while framing and demand effects can occur if anonymity is not preserved. Our paper is the first to implement both a strict double-blind anonymity protocol and clear property rights. We established clear property claims by asking subjects in our *legal* treatment to bring their own property to the experiment. In the *effort* treatment, the experimenter transferred the property publicly to subjects after they completed a real effort task. Our data suggest that without social enforcement, respect for property is low. Yet, the taking rate significantly differs from the theoretically predicted maximum. Consistent with the Lockean theory of property, respect for property grows when the entitlement is legitimized by the labor the owner had to invest to acquire it.

1. Introduction

As Sir William Blackstone (1830) states, a property right "is void without the total exclusion of the right of any other individual in the universe." Although economists and legal scholars use the concept of property rights in many different ways (see Hodgson, 2015; Merrill and Smith, 2001; Munzer, 2013), they all emphasize that the key to a functioning property institution is that non-owners do not interfere with owners' enjoyment of their property. In this article, we analyze whether people's respect for property is grounded in an intrinsic motivation. Do non-owners deliberately defer to other peoples' property rights?[1]

Three distinct social and behavioral mechanisms have been shown to induce respect for property. The first mechanism is *third*-party enforcement. Legal institutions, such as property and criminal law, deter non-consensual taking by imposing formal sanctions. Stigma and the enforcement of social norms also fall in this category, with the difference that sanctions are private and informal. The second mechanism is *second*-party enforcement. In the absence of a legal property regime, such as in the Hobbesian state of nature, intruders must expect aggressive use of force by possessors. Even under modern rule of law, reasonable self-defense in protecting one's own property is justified. The third mechanism is internal; non-owners may respect property out of an intrinsic motivation

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[1] We would like to define the differences between *possession, entitlement*, and *property rights* as we will use the terms in this article. In law, *possession* is the intentional de facto control over a thing; the possessor does not necessarily have to be the owner nor have a right to possess. By *entitlement* we refer to the subjective belief of having a claim to something; and *property* finally is a legal institution that both gives the owner the right to possess, use, and dispose of a thing and enforces this right against everybody else.

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grounded in an innate or socially developed sense of ownership (Eswaran and Neary, 2014; Sääksvuori, Hewig, Hecht, & Miltner, 2016; Stake, 2004). We define this intrinsic respect for property as *first*-party enforcement. The three enforcement mechanisms interact deeply with one another, which makes it difficult to disentangle internal first-party enforcement from the other forms of enforcement in natural environments (Ellickson, 1991; Kandori, 1992; Posner, 2000; Zasu, 2007). Our study focuses on the methodological challenges to isolate the effects of first-party self-enforcement and to show empirical proof of its prevalence and strength. Our research project falls within a stream of experimental literature on *taking aversion*, the behavioral trait that in the absence of any social or institutional concern induces subjects to resist taking. In particular, we refer to the experimental literature based on variations of the standard dictator game (see the literature review below). This literature presents a number of conflicting results. Some authors (Dreber, Ellingsen, Johannesson, & Rand, 2013; Grossman and Eckel, 2015; Kettner and Ceccato, 2014; Kettner and Waichman, 2016; Smith, 2015) find no evidence of taking aversion, while others (Bardsley, 2008; Cappelen, Nielsen, Sørensen, Tungodden, & Tyran, 2013; Cox, List, Price, Sadiraj, & Samek, 2016; Jakiela, 2015; Korenok, Millner, & Razzolini, 2014, 2017a, 2017b; List, 2007; Oxoby and Spraggon, 2008; Swope, Cadigan, Schmitt, & Shupp, 2008; Visser and Roelofs, 2011) provide evidence that may be suggestive of an internal respect for property. Assuming that these conflicting results may have methodological reasons, we have implemented a variation of the dictator game that allows us to address a list of methodological challenges and potential subject misconceptions that may influence results.

In our experiment, subjects play a dictator game with a symmetric action space; dictators can both give and take lottery scratchcards using a strict double-blind protocol. The main treatment manipulation concerns the origin and legitimacy of the property claim. In the LEGAL treatments, the legitimacy refers to the process of the legal regime and remains abstract, while in the EFFORTFUL treatments the legitimacy of the property claim is saliently grounded in subjects' effort. A second treatment manipulation concerns the income effect of the show-up fee.

The first challenge addressed by this design concerns the clear establishment of the passive player's property right over a tangible entitlement: subjects in our legal treatment bring their own property to the experiment, while in the effort treatment, the experimenter transferred the property publicly to subjects after they completed a real effort task. The dictator's potential decision to take requires the physical removal of this tangible property from the passive player.

The second challenge is to guarantee the subjects' double-blind anonymity, which allows us to exclude any hidden effects of second- or third-party enforcement. Our paper is the first to achieve both a strict double-blind anonymity protocol and the clear establishment of property rights.

Additionally, our design addresses the potentially confounding effects of (i) the take-only action set of dictator games rather than allowing for both taking and giving (for this reason we used the symmetric action set developed by Bardsley (2008) and List (2007)); (ii) some studies have used a within-subject design that asks subjects to make decisions multiple times and/or assigns both the role of the dictator and the passive player to the same subjects (our dictators instead decided only once and only after a clear role assignment); and (iii) the use of money or even virtual tokens as property (for this reason we used lottery scratchcards).

We have two main results to report. First, our data suggest that when shielded from social consequences and when desirability and experimenter demand effects are muted, subjects largely engage in taking and only a few fully respect others' entitlements. Nevertheless, we also find evidence of an internal respect for property; while the taking rate is high, it is still lower than the theoretically predicted maximal taking behavior. Our second result is that the effort-based property claim to the entitlement trumps the formal legal claim, thus inducing significantly more but still limited respect for property. This is consistent with the Lockean theory of property (Henry, 1999) that connects the legitimacy of the property right with the labor expended on its production.

The article proceeds as follows. In Section 2, we review the earlier literature and develop the main methodological elements of our study. In Section 3, we present the experimental design and protocol. In Section 4, we report the results. In Section 5, we conclude the paper with a brief summary and draw some implications from our findings.

2. Main methodological elements of the study in light of the literature

2.1. Evidence of taking aversion

Bardsley (2008), Cappelen et al. (2013), Krupka and Weber (2013) and List (2007) provide the first evidence of taking aversion; they extended the action space of the standard dictator game and gave subjects the possibility to give and take. Their results showed that dictators refrained from taking and took far less than the maximal possible amount; in fact, in some contexts (see the earning treatments in Cappelen et al. (2013) and List (2007)) the subjects took almost nothing. One way to measure the degree of subjects' taking aversion is to compare standard give-only dictator games where subjects can transfer an amount from themselves to the passive player with take-only dictator games where subjects can transfer from the passive player to themselves. Subjects are taking averse when they allocate a larger amount to the passive player in the take-only dictator game than they do in the payoff-equivalent give-only dictator game.[2] One set of studies that compares give-only and take-only variants of the dictator game finds almost no evidence of taking aversion. Dreber, Ellingsen, Johannesson, and Rand (2013) and Smith (2015) manipulate the social framing using the labels "giving" and "taking" in their instructions and find symmetric behavior under the two framings. Grossman and Eckel (2015) compare giving to and taking from a real charity, and Kettner and Waichman (2016) compare giving and taking behavior

[2] Notice that any experimenter's demand effect would work in the opposite way, with subjects allocating more to others when giving is the only option and allocating more to themselves when taking is the only option.

across different age groups. Chowdhury, Jeon, and Saha (2017) and Kettner and Ceccato (2014) find no *overall* asymmetry between giving and taking behavior, but they both highlight some interesting gender differences.

In contrast, other studies report a significant difference between taking and giving frames (Cappelen et al., 2013; Cox et al., 2016; Jakiela, 2015; Korenok et al., 2017a; Oxoby and Spraggon, 2008; Swope et al., 2008; Visser and Roelofs, 2011). Korenok et al. (2014) give both players an endowment and vary the maximum amount the dictator can take. The possible final payoffs are held constant between the conditions. The authors find that the payoff of the passive player increases the more the dictator has to take to reach the same payoff. Korenok et al. (2017b) analyze taking aversion by presenting dictators with a costly choice between a give-only treatment and a take-only condition; 85% of the dictators prefer a giving game and are willing to pay a mean 30% of their endowment to be assigned the game they prefer. Finally, showing how diverse the literature is, Eichenberger and Oberholzer-Gee (1998) even report a reversal of taking aversion. In their study, dictators allocate more to themselves when they can take than when they can give. Chowdhury et al. (2017) show the same effect in respect to male subjects. These seemingly contradictory findings in the literature motivate our study. We presume they have methodological reasons, and in the following paragraphs we develop the main conceptual and methodological elements of our design by reviewing earlier studies in the literature.

2.2. Clear property rights

The studies mentioned above do not clearly distinguish between framing, entitlement effects, and actual property rights. A shared characteristic of these studies is that the experimenter gives the endowment immediately to the dictator instead of transferring the property right to the passive player first. Consequently, the passive player does not have a property right at the moment the dictator makes his allocative decision, actual property the passive player receives only at the end of the experiment. This is crucial because at best this design leaves it unclear for dictators whose property they are actually taking, the passive players' or the experimenters'.

This design ambiguity is common to all previous studies we are aware of. Consider first the experiments where subjects take cash (Dreber et al., 2013; Swope et al., 2008) or coins (Kettner and Ceccato, 2014; Kettner and Waichman, 2016) out of passive players' envelopes. Here, the taking happens before the envelopes are transferred to the passive players for the first time. That passive players' have no actual property is even more obvious in more abstract designs using paper-and-pencil techniques (Korenok et al., 2017a; Oxoby and Spraggon, 2008) or in computer lab setups (Korenok, Millner, & Razzolini, 2013, 2016; Chowdhury, 2017) or in online studies, such as those by Rubinstein (2016) and Dreber et al. (2013). Notwithstanding the wording and framing the experimenters use in their instructions, all these designs abstract away from true property rights because participants make their allocative decisions with virtual tokens, that is, placeholders that allow them to claim payments after the experiment.

Our design addresses this concern and establishes clear property rights by transferring to passive players manifest control over their property before the dictators make their allocative decisions. In the LEGAL treatments, the subjects bring their own property in the form of lottery scratchcards to the experiment, and in the EFFORTFULL treatments the earned property (scratchcards) is transferred from the experimenter in front of all participants, and specific wording is used to underline this transfer.

2.3. Double-blind anonymity

Only a few studies (Cox et al., 2016; Kettner and Ceccato, 2014; Kettner and Waichman, 2016; Korenok et al., 2017a; Swope et al., 2008) that report an aversion against taking implemented a strict double-blind experimental procedure as developed in Hoffman, McCabe, and Smith (1996). Without double-blind anonymity, it is impossible to isolate intrinsic respect for property, and taking aversion may be caused by experimenter demand effects or observability effects (Nettle et al., 2013). However, to manage the double-blind anonymity protocol, all these studies jeopardize the clear assignment of property rights (see Section 2.2), as in all these papers the passive player has no property when the dictator makes the allocative decision and receives the property (if any) only at the end of the experiment. In our protocol, we address both concerns: we grant subjects double-blind anonymity and we assign clear property rights. To do so, we first had to transfer the property to the passive players; once their property rights were established, we had to pass the property to the dictators for them to make their allocative decision. Finally, we had to return the (remaining) scratchcards to the owner to whom the particular cards belonged. The whole procedure was double-blind. For all details of the anonymity protocol that we implemented, see Section 3.

2.4. Earned endowments

Allocating windfall money (as opposed to earned endowments) has long been known to inflate giving behavior in standard dictator games (Carlsson, He, & Martinsson, 2013; Cherry, Frykblom, & Shogren, 2002; Korenok et al., 2017a, 2017b). The effects of earned endowments on taking behavior are less established. List (2007) and Cappelen et al. (2013) use a dictator design with a symmetric action space in which the passive player has to earn her endowment. Earning the endowment reduced taking compared to a windfall money treatment. We therefore assume that allocating subjects windfall property would likely have inflated taking behavior. To avoid underestimating the respect for property and contrary to many other studies in the literature (see, for instance, Chowdhury et al., 2017; Kettner and Ceccato, 2014; Kettner and Waichman, 2016), we do not use windfall entitlements in our treatments.

Oxoby and Spraggon (2008) and Korenok et al. (2017a) also use earned endowments. These authors employ a take-only dictator game in which the earned endowment induced dictators to almost refrain from taking altogether. However, in these studies, when deciding how much effort to invest in producing their endowment, the passive players were aware that in a second phase of the study

a dictator game would follow; that basically transforms the whole game into a trust game where reciprocity may drive taking behavior rather than respect for property. To avoid this confound, we distributed the instructions for the dictator game only after the earning phase was over.

2.5. Nature of the entitlement

In our experiment, we used lottery scratchcards instead of cash or virtual tokens. This choice addresses two concerns. In most previous experiments, people had to make their allocative decision with either cash (Dreber et al., 2013; Kettner and Waichman, 2016; Swope et al., 2008) or with virtual tokens that were later exchanged for cash (Chowdhury et al., 2017; Grossman and Eckel, 2015; Jakiela, 2015; Oxoby and Spraggon, 2008; Smith, 2015; Visser and Roelofs, 2011). The only exception is Cox et al. (2016), who use stickers and toys because their participants are children aged 3–7. Money however represents a peculiar form of property; its only purpose is to ease the transfer of wealth among parties. The fact that it is perfectly replaceable may reduce subjects' taking aversion, as entitlement effects have been shown to be very small for money (see Svirsky, 2014).

The tangibility of scratchcards may also impact subjects' sense of property. Several legal (Green, 2012; Manesh, 2006) and behavioral studies (Stake, 2004) show that subjects are more inclined to recognize and respect others' property when it is tangible. In a similar vein, Reinstein and Riener (2012) show that in a charitable giving experiment, subjects make fewer altruistic allocations if cash is used instead of an experimental currency, and Uhlmann and Zhu (2013) report that subjects are less likely to return virtual tokens than real money when they were lost or stolen. Scratchcards are also known to induce strong entitlement effects (see, for example, Arlen and Tontrup, 2015a, 2015b). By using scratchcards we also clearly separate the allocative decision in the dictator game from the payment for the questionnaire and the show-up fee for participation in the experiment (which we paid in cash).

2.6. Symmetric action space

Our experimental design is based on a dictator game with a symmetric action space, following Bardsley (2008) and List (2007). These papers show that the behavior of the dictator depends on the permitted action space; in give-only treatments, the allocations of the dictators are more generous compared to their behavior in give-and-take treatments.

The design has also been used in several other studies (see, for instance, Krupka and Weber, 2013; Korenok et al., 2014; Khadjavi, 2015). Cappelen et al. (2013) use a large sample from the general population to confirm the robustness of the action-space effect. Furthermore, in take-only treatments (Cappelen et al., 2013) there is a significant drop in the number of dictators transferring a positive amount to the passive player. One explanation for this result might be that the take-only game induces an experimenter demand effect, as subjects have no other choice option than to take. A demand effect may lead us to underestimate subjects' true taking aversion. To avoid this choice-set effect, we use a design with a symmetric action space analogous to the one originally developed by List and Bardsley.

2.7. Between-subject design and clear role assignment

Some studies on taking behavior elicit multiple observations for each subject, such that the subjects decide repeatedly whether to take or not (Korenok et al., 2014, 2017b; Visser and Roelofs, 2011). This repeated design may induce strong demand effects and may thus overestimate the frequency of takings.

In other studies, all subjects made the allocative decision as if they were dictators, but only half were eventually paid as dictators while the other half was paid as passive players (Chowdhury et al., 2017; Jakiela, 2015; Korenok et al., 2014; Smith, 2015; Swope et al., 2008; Visser and Roelofs, 2011). Assigning roles only after subjects have made their taking or giving decision might alter their decisions as well; Iriberri and Rey-Biel (2011) find participants act more pro-socially if they have to decide allocations in standard and modified dictator games before they learn the role they are eventually assigned and paid for.[3] To avoid any potential distortion, we implemented a one-shot game with fixed roles and without using the strategy method; half of the subjects acted as dictators and the other half were passive players.

3. Experimental design

Our baseline game is a one-shot dictator game with clear role assignments where dictators can both give and take lottery scratchcards under a fully anonymous protocol. In all our treatments, subjects start with five scratchcards, each with a value of €1.[4]

3.1. Treatments

The first dimension of our treatment manipulation concerns the source of legitimacy of the entitlement. In the LEGAL treatments,

[3] Korenok, Millner, and Razzolini (2013), however, report that unclear ex-ante role assignment did not change the behavior of dictators in a give-only dictator game in their study.

[4] Lottery scratchcards (Gratta e Vinci) are sold in hundreds of thousands of bars and shops all over the country. More information about them is provided in Appendix D.

individuals brought their own five scratchcards from home. This property could have different origins; it could result from past salaries, inheritance, or it could even have been a present. But once the subjects brought the property to the lab, it was clear they had a legal claim to the scratchcards.

In the EFFORTFUL treatments, subjects performed the slider task introduced by Gill and Prowse (2012) and had to correctly position 200 sliders in less than 35 min.[5] They earned one scratchcard for every 40 sliders completed. The property right comprising the five scratchcards was observably earned and transferred from the experimenter to the participants inside the lab. Therefore, in contrast to the LEGAL treatments, it was common knowledge among all subjects why the passive players could claim the property: they earned it. To prevent any reciprocity-based behavior (see Section 2.4), we gave participants the instructions for the dictator game in the EFFORTFUL treatments only after the real effort task was over and the property rights of the scratchcards were transferred.

The second dimension of our treatment manipulation concerned the income effect of the show-up fee. We conjectured that people's respect for property may be influenced by the compensation they received for their efforts. In our treatments, we varied the show-up fee and paid subjects in the LEGAL and the EFFORTFULL treatments either €5 or €10 for participating in the study (Table 1).

3.2. Experimental protocol

The experiment was run at the CESARE Lab at LUISS University in Rome. Recruitment was conducted via ORSEE (Greiner, 2015). Email invitations contained the request for subjects to bring five scratchcards of a particular lottery with a value of 1 Euro each. The same invitation email was sent out for all treatments; however, once we had the EFFORTFUL sessions filled, we informed the recruited subjects that the scratchcards were no longer necessary for participating in the study and that they could sell them to us in case they had already bought them. We held the scratchcard requirement constant across all treatments to avoid selection effects caused by risk preferences or income effects, as having to pay 5€ in advance for buying the scratchcards may have deterred some subjects from participating in our study.[6]

Subjects gathered in front of the lab where a lab assistant who had no direct (working-) relationship with the experimenters identified the subjects and sent them one by one into the lab. In the LEGAL treatments, the assistant also checked whether subjects had brought the scratchcards with them. Once in the lab, each subject (i) was paid the show-up fee of €5 [€10], (ii) picked a colored envelope out of a non-transparent bag, (iii) put his/her scratchcards inside the envelope, and (iv) was randomly assigned a seat. The envelope was either orange or blue and contained five pieces of cardboard (the same size and consistency as the scratchcards), five stickers, and an allocation table (see pictures in the detailed instructions in Appendix A).

On their desks the subjects found paper instructions, a pen, and a privacy box, as shown in Appendix C. The privacy box offered anonymity when the subjects made their allocative decisions later in the experiment. Once all subjects were seated in the lab, the instructions were read aloud and the experiment began.

In the EFFORTFUL treatments, the experiment began with subjects performing the slider task. In the LEGAL treatments, the effort task was skipped, as subjects started the experiment with their own scratchcards. To preserve their anonymity, subjects invented a six-digit code that identified them throughout the experiment. They wrote this code first on their five stickers and attached a sticker to each of their scratchcards to mark their property and second on the allocation table so that the experimenter could match their behavior in the dictator game with the questionnaires. The subjects also wrote the scratchcards' serial numbers in the upper left quadrant of the allocation table so ownership and destination of each scratchcard could be correctly identified. Next, the experimenter tossed a coin to assign either the role of the dictator (role A in the instructions) or the role of the passive player (role B) to holders of the blue or orange envelopes.

With roles assigned, the experimenters collected the envelopes of the passive players, mixed them in a bag, and then randomly distributed the envelopes among the subjects assigned the dictator role. Dictators had to take the allocation table out of the passive player's envelope and write the serial numbers of their own scratchcard in the allocation table's lower right quadrant along with their anonymous ID code. The dictators then had to decide either to take or not take scratchcards out of the passive player's envelope or to give the passive player some of their own scratchcards. Note that in our design it was possible for dictators both to give their own scratchcards and to take scratchcards from the passive player at the same time; because of the serial numbers, these decisions could be traced. Dictators had to replace each scratchcard they took out of the passive player's envelope with one of their own cardboard placeholders. Therefore, in the end both envelopes, the passive player's and the dictator's, still contained 10 items (scratchcards plus cardboard placeholders). The procedure assured that when collecting the envelopes, the experimenters could not feel whether dictators had taken any scratchcards out of the envelope or had given additional scratchcards of their own to the passive player. Dictators had to cross out the serial numbers of all scratchcards they took from the passive player in the allocation table and had to add the numbers of all scratchcards in the table they gave to him. Once finished, they had to put the table back into the envelope and seal it. The experimenter collected the envelopes and shuffled them in a non-transparent bag before opening them one by one. As they did not know the subjects' invented codes, they could not trace the choices the dictators had made and attribute them to the subjects sitting in the laboratory. Experimenters kept the allocation tables (which constitute the experimental observation), put the pieces of cardboard and the scratchcards into a new white envelope and wrote the passive players' invented code (the players had to indicate

[5] We conducted a small pilot to assure that this time limit forced subjects to focus on the task without causing them difficulty in completing it successfully.

[6] There is no difference in the percentage of show-ups in the different treatments, confirming that no sample selection bias took place.

Table 1
Matrix of treatments.

	€10	€5
LEGAL	*LEGAL10* they bring the scratchcards, they are paid €10	*LEGAL5* they bring the scratchcards, they are paid €5
EFFORTFUL	*EFFORTFUL10* they gain the scratchcards, they are paid €10	*EFFORTFUL5* they gain the scratchcards, they are paid €5

the code on top of the allocation table) on the exterior. Dictators also put their remaining placeholders and scratchcards into a white envelope and wrote their ID code on the exterior. The experimenter then collected the dictators' own envelopes, mixed them with the envelopes of the passive players, and placed them on a table outside the lab for the subjects to pick up after the experiment was over.

3.3. Questionnaires

In the second stage, all subjects turned on the computer to fill in an incentivized questionnaire. In particular, we collected data about passive players' first-order beliefs and dictators' second-order beliefs to investigate dictators' perceptions regarding to what degree they view taking in our scenario as socially acceptable (Bicchieri, 2006; Krupka and Weber, 2013). For each pair of subjects, we first asked the passive player to indicate how many scratchcards they believed his or her assigned dictator may have sent back. We then elicited the dictator's beliefs about what the passive player may have expected her to send back. Subjects were paid an initial endowment of €1 for this belief elicitation. The passive players lost 10 cents from this endowment for each scratchcard their belief differed from the true number of lottery tickets the dictator actually sent back to them. The dictators lost 10 cents for each time they over- or underestimated the passive player's true expectation. The participants marked the questionnaires with their personal invented code, allowing the experimenters to match their beliefs with their choice data after the study was over and to pay them. We also collected socio-demographic data and elicited the subjects' valuation for a single scratchcard using a Becker–DeGroot–Marschak (BDM) mechanism, the dictator's beliefs about their assigned passive player's valuation for a scratchcard, and subjects' ethical and social value orientation (see Appendix B). A full set of the instructions is provided in Appendix A.

4. Results

We conducted 10 sessions with a total of 226 subjects—three sessions for the LEGAL10 (70 subjects) and EFFORTFUL5 (62 subjects) treatments, and two sessions for the LEGAL 5 (46 subjects) and EFFORTFUL10 (48 subjects) treatments.[7] Table 2 (columns 1–3) reports some descriptive statistics of the dictators' net payoffs (number of scratchcards in dictators' envelope after making their choice).[8] The subjects who did not respect property reached a positive net payoff; they took more tickets than they gave (if any).

Even though the amount taken still falls short of the payoff maximizing strategy of taking 100% of the passive players' scratchcards, taking prevails in all treatments, and only a minority of subjects absolutely respect property.

Result 1: Respect for property is relatively low in all treatments.

We now focus on whether the taking choice of the dictators was affected by the origin of the property claim. We compare the property claims that were established outside the lab (LEGAL) with claims established and justified through effort inside the lab (EFFORTFUL). In the LEGAL treatments, dictators take more, on average, than in the EFFORTFUL treatments, even if by looking at net payoffs the only significant difference is the one between LEGAL5 and EFFORTFUL5 (Mann–Whitney test, $z = 2.01$; p-value = 0.04).[9]

Because we observe only relatively few cases of absolute respect for property (meaning that the subject takes 0; see Table 2, column 3), in the analysis that follows we will also consider subjects in our sample who show a weaker form of respect for property, corresponding to taking a maximum of one scratchcard and leading to a net payoff smaller or equal to 6. With this wider definition of respect for property, we find significant differences between LEGAL10 and EFFORTFUL5 ($z = 2.72$; p-value = 0.006[10]) and between LEGAL5 and EFFORTFUL5 ($z = 2.36$; p-value = 0.01).

If we pool the data, ignoring the manipulation of the show-up fee, we find a significant increase in respect for property moving from LEGAL to EFFORTFUL treatments ($z = 2.38$; p-value = 0.007).

Result 2: The proportion of subjects who show at least a weak form of respect for property is higher in the EFFORTFUL treatments.

[7] Of the participants, 51% were male; the average age was 21.7; and 98% were Italian. In the EFFORTFUL sessions, all the participants managed to complete the task within the 35-min time limit.

[8] For full distributions, see Fig. 1B in Appendix B.

[9] For the distribution, see Fig. 2B in Appendix B.

[10] Two-tailed test of proportions using a dummy variable that takes a value of 1 if the net payoff is not greater than 6 and 0 otherwise.

Table 2
Descriptive statistics (standard deviations in parentheses).

Treatment	Observations	Dictator's average final payoff (scratchcards)	% of dicator respecting property (net payoff ≤5)	Mean of dictator's second-order beliefs (scratchcards)	Mean of passive player's first-order beliefs (scratchcards)
LEGAL10	35	7.74(2.27)	11.42	8.45(1.76)	8.40(1.01)
LEGAL5	23	8.43(1.90)	13.04	8.21(2.02)	7.87(1.89
EFFORTFUL 5	31	7.29(2.11)	22.58	8.13(1.82)	7.54(2.14)
EFFORTFUL10	24	7.62(2.37)	12.50	8.29(1.98)	7.41(1.69)

Our two main results find further support in a probit estimation in which we include treatment dummies and a set of controls (see Table 1B in Appendix B). We conclude this section with some considerations regarding the relationship between subjects' perception of the social acceptance of taking and their actual taking behavior by using data from our belief elicitation. Our data show that passive players expect the dictators' respect for property to be low (Table 2, columns 4 and 5). Dictators in turn seem to be aware of the passive players' low expectations. This result is in line with Smith (2015) and suggests that the property norm is perceived as equally weak for both the owner and the infringer of the property. Interestingly, however, dictators' choices are highly correlated with their second-order beliefs, that is, their estimate of the passive players' beliefs about what they, the dictators, may decide to give or take (Spearman's rho = 0.50, $p < 0.01$; see also Table 1B in Appendix B). This leads us to our third result.

Result 3: A general expectation of low respect for property characterizes all treatments. However, fewer takings are expected in the EFFORTFUL treatments.

5. Discussion and conclusions

Our experimental design addresses potential subject misconceptions and framing and social demand effects that may have been responsible for the mixed findings on taking aversion in the prior literature. In this experiment, we established unambiguous property claims by asking subjects to bring their own property to the experiment. When subjects had to earn their property rights in the lab, these rights were publicly transferred from the experimenter to the subjects. We implemented a dictator game with a symmetric action space to avoid the choice-set effects of standard take-only games and used real lottery scratchcards instead of money or virtual tokens to induce a stronger sense of property. We designed a double-blind experimental protocol to prevent both effects of second- and third-party enforcement and experimenter demand effects.

Our results are ambiguous. Once we ruled out second- and third-party enforcement and neutralized demand and framing effects, the subjects intensively engaged in taking and widely disregarded others' property. However, even in our rigorous setting, the subjects showed considerable aversion against taking. A few subjects respected property outright and did not take anything, and most subjects took at least far less than they could have, suggesting that they had to pay a moral cost for taking others' property. The respect for property grows significantly when the entitlement is legitimized by the labor the owner had to invest to gain it. This result is consistent with the Lockean theory of property that derives the legitimacy of property rights from the labor expended on their production. Yet, the weak respect for others' property that we find presents only frail evidence of the "innate sense of property" suggested by Eswaran and Neary (2014) and Gintis (2007) and of the moral taking aversion reported by Korenok et al. (2017b). The respect for property that we often observe in society, seems to be primarily grounded in second- and third-party enforcement. Nevertheless, even though weak, respect for property may help to limit the frequency of corruption and theft in society to some degree.

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Appendix A. Instructions

A.1. Introduction

This experiment, followed by a questionnaire, will last approximately an hour and a half. The experimental protocol we adopt

does not allow us to provide false or misleading information. The experimenters are committed to providing complete anonymity for the duration of the experiment. If in doubt about the experimental procedures, please do not hesitate to ask for clarification. In this experiment, some participants will be asked to make some decisions. These decisions will remain completely anonymous, meaning that neither the participants nor the experimentalists will be able to discover the names of the people who made the decisions. The interaction between the participants is managed through the use of a personal code that will be created by you in the course of the experiment.

The person who was in charge of welcoming and identifying you outside the lab is not associated with the experiment or with the subsequent data analysis. At the end of the experiment, we ask all participants to complete a questionnaire. The instructions for the questionnaire will be provided at the end of the experiment. Note that the survey is completely independent of the decisions made in the experiment.

The payment for the experiment occurred while entering the lab. There will be no further payments for the experiment. Answering the questionnaire will instead be rewarded with a payment that does not depend in any way on the decisions taken in the experiment, and no compensation will be given for the gains or losses during the experiment.

It is forbidden to communicate with the other participants for the duration of the experiment. Please turn off your mobile phone (not only the ringtone) and keep it off for the duration of the experiment. Those who do not respect these rules will have to leave the laboratory.

If you have questions to ask raise your hand at any time. An experimenter will respond privately.

A.2. The experiment

Each participant is paired with another anonymous participant in the lab. One of the two participants will be assigned the role of participant A, and the other will be participant B. Some of you have already taken a red envelope and others have a grey one. After reading the instructions, the experimenter will toss a coin to assign roles A and B. If the toss lands on heads, those participants with red envelopes will be assigned role A and those with the grey envelope will be assigned role B. If the toss lands on tails, the roles will be reversed (whoever has the grey envelope will play A and whoever has the red envelope will play B). On your table you will find a privacy box, a white envelope, and a pen. The colored envelope that you received at the entrance should contain the following things:

- Five scratchcards.
- Five cardboards the same size of the scratchcards.
- The allocation table.
- Five paper stickers.

If any of these items are missing from your envelope, please raise your hand.

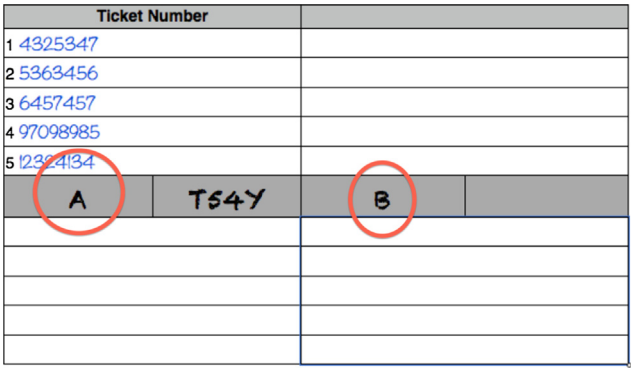
You'll have to invent a six-digit (letters and numbers) code and write it on the five stickers, which you will then attach to your five scratchcards. The experimenter will collect the envelopes from those playing role B and deliver them randomly to participants A (one envelope for each participant A). Participant A can then decide whether to give 1–5 scratchcards of his/her own to participant B, to take 1–5 scratchcards from participant B, or to leave things unchanged. If participant A decides to give his/her scratchcards to participant B, he/she must remove the scratchcards from his/her own envelope and put them in B' envelope. If he/she wants to take the scratchcards from B, he/she will have to take them from B's envelope and move them into his/her own envelope. Any scratchcard removed from any envelope must be replaced with an equal number of cardboard pieces.

Once the participants are done with their choices, the experimenter will collect all Bs' envelopes from the As; he/she will open them one by one, take note of the number of scratchcards, and put the content inside a new white envelope indistinguishable from any other and on which he/she will write B's personal code (he or she will read this code on the allocation tale inside the envelope itself). Also, all As will put their scratchcards and pieces of cardboard in a white envelope on which they will write their own invented code. All white envelopes (As' and Bs') will be placed on a table outside the laboratory. Once the experiment is over, all participants leaving the lab will pick up their own white envelopes.

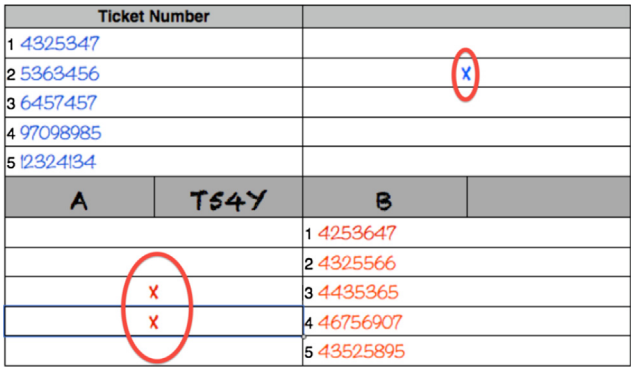
We will go through each step of the experiment. You do not need to memorize the procedure. The experimenter will describe each step, and you can always refer to the instructions. If there are no questions, we can proceed with the experiment.

Phases of the experiment

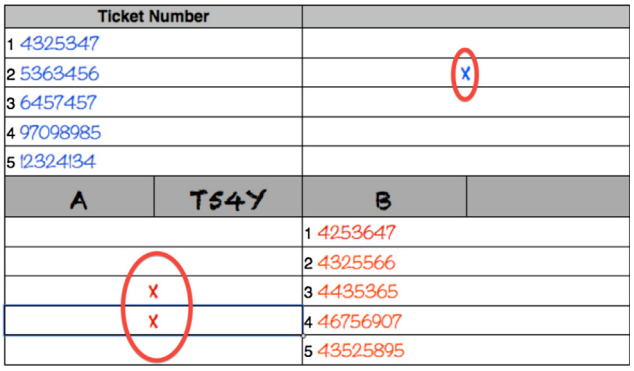
(1) Open the colored envelope and extract its contents (scratchcards, allocation table, and stickers).
(2) Invent a six-digit code (uppercase letters and numbers), avoiding obvious sequences and dictionary words. However, it must be a code that you can remember. If you feel like it, you may make note of the code on the paper provided.
(3) Write this same code on all five stickers.
(4) Stick one sticker on the back of each scratchcard.
(5) The experimenter will flip a coin to assign the two roles (A and B).
(6) Those playing role A should write: "A" in the first column of the allocation table under their own scratchcards' numbers. Their invented code in the second column, and "B" in the third column.
(7) Those playing role B must write "B" in the first column of the allocation table under their own scratchcards' numbers, their invented code in the second column, and "A" in the third column.



(8) Those playing role B must put all the material (table, scratchcards, and pieces of cardboard) in their colored envelope.
(9) One of the experimenters collects both the colored and white envelopes from participants B and distributes randomly the colored envelopes to participants A.
(10) Participants A have to store their scratchcards and pieces of cardboard in the privacy box to ensure confidentiality when making a later decision.
(11) Participants A have to put B's colored envelope in the privacy box; they have to open it and remove its content.
(12) Role A participants must write down the number of his/her scratchcards on B's table (NOT B's numbers on A's table) as follows.
(13) The participants will have to write their own invented code in the fourth column of the table B.



(14) The participants must decide whether to give some of their scratchcards (1–5) to B, or take some of B's scratchcards (1–5) or leave things unchanged. Scratchcards taken or given must be replaced with an equal number of pieces of cardboard. If A decides to take a certain number of B's scratchcards, he/she must replace these cards with an equal number of pieces of cardboard in B's envelope. If A decides to give some of his/her own scratchcards to B he must replace these cards with pieces of cardboard in their own envelope. In this way, all the envelopes have the same weight and aspect regardless of their contents. After the envelope is sealed it will be impossible to infer A's choice from the outside. This is the only decision to be made in the experiment. Participants A will leave the lab with what they put in their envelopes. Participants B will leave the lab with an envelope the contents of which depend on A's choice.
(15) Participants must take note of the scratchcards that have been given and/or taken. (In the example below, subject A has decided to give the second scratchcard with serial number 5363456 to subject B and take from him or her the third and fourth scratchcards with serial 4435365 and 46756907).



(16) Once completed, table B's must be replaced in B's colored envelope along with the scratchcards. The envelope must be closed. It will then be removed by the experimenter before being delivered to B.
(17) A will put the remaining stuff (table, scratchcards, and/or pieces of cardboard) into the white envelope and write his/her own code on the outside.
(18) When the envelopes of all participant Bs are ready, one of the experimenters will collect them.
(19) The envelopes are inspected by the experimenter. For each of B's colored envelopes, he/she removes the allocation table, puts the content in a new white envelope, and writes the invented code on the outside.
(20) All white envelopes are collected by the experimenter.
(21) All white envelopes are placed on a table outside the lab. At the end of the session, participants can collect the envelopes with their own code.

At the end of the experiment, you will be asked to complete a questionnaire and will be given further instructions. Remember that filling in this questionnaire is an independent activity, and it does not come with any kind of compensation related to the number of scratchcards taken or given in the experiment. After completing the questionnaire, you can leave the laboratory and pick up your envelope.

Appendix B

See Figs. 1B and 2B.

B.1. Regression analysis

We estimated a probit model in which the dependent variable is a dummy taking the value of 1 if the dictator takes a maximum of one ticket from the passive player and 0 otherwise. The main dependent variables are treatment dummies and the dictator's second-order beliefs. Data about the other variables used as controls have been collected via a questionnaire that includes:

- Questions about gender, age, major, and experience with experiments.
- A Becker-DeGroot-Marschak (BDM) procedure to elicit evaluations of the scratchcard.[11]
- An incentivized elicitation of the dictator's beliefs about the passive player's evaluation.[12]
- A Trolley dilemma to identify deontological types.[13]
- An incentivized Social Value Orientation (SVO) survey to determine subjects' attitudes regarding pro-sociality (see Murphy, Ackermann, & Handgraaf, 2011).

[11] The subjects were endowed with €1.50 and could offer a price for a single scratchcard ranging from €0 to €1.50.

[12] The subjects' payment for their beliefs about other's bids and beliefs is equal to $€1 - 0.10|x|$, where x is the difference between the actual value and the stated one.

[13] The subjects were asked to answer the following two questions: (1) Scenario A: "A trolley is running out of control down a track. In its path are five people who have been tied to the track. Fortunately, you can flip a switch, which will lead the trolley down a different track to safety. Unfortunately, there is a single person tied to that track. Should you flip the switch?" (2) Scenario B: As before, a trolley is hurtling down a track towards five people. You are on a bridge under which it will pass, and you can stop it by dropping a heavy weight in front of it. As it happens, there is an overweight man next to you and your only way to stop the trolley is to push him over the bridge and onto the track, killing him to save five others. Should you proceed? See Edmonds, Duncan, and Armstrong (2014) for a review of the literature on the trolley dilemma.

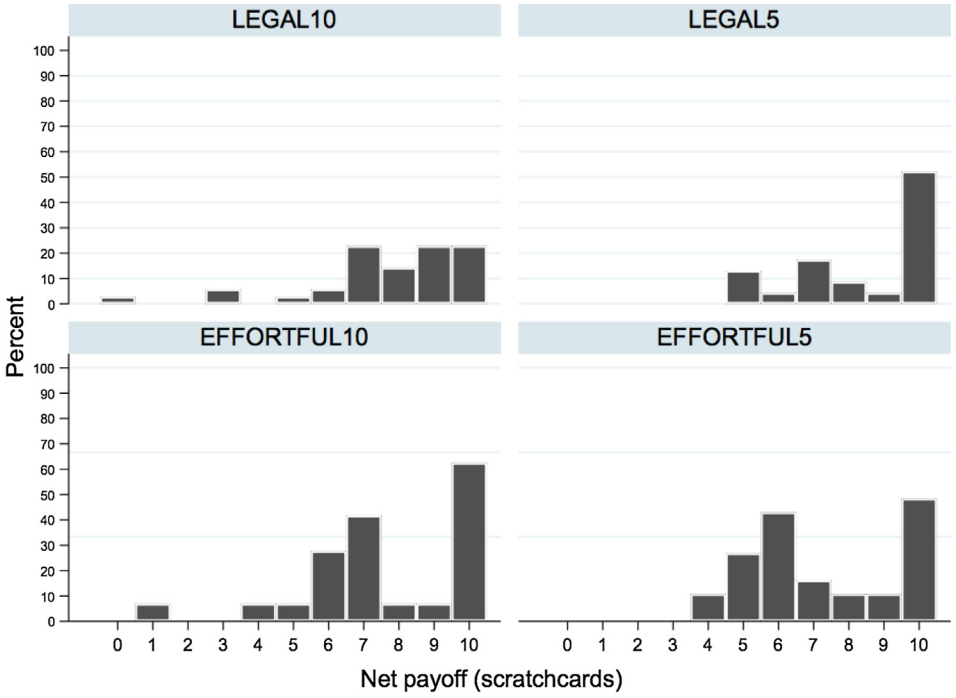


Fig. 1B. Net payoff (scratchcards) of dictators across treatments.

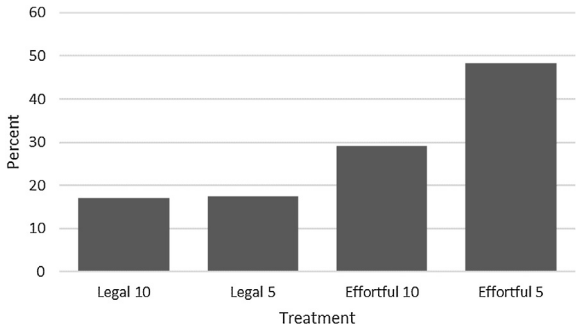


Fig. 2B. Proportion of dictators showing at least a weak respect for property (take a maximum of one ticket.

B.2. Description of the variables

- EFFORTFUL5 = 1 if the subject is in the EFFORTFUL5 treatment group and 0 otherwise;
- LEGAL5 = 1 if the subject is in the LEGAL5 treatment group and 0 otherwise,
- (the omitted dummy is LEGAL10).
- DICTATOR'S BELIEFS = number of scratchcards the dictator believes the passive player believes the dictator has taken (negative value) or given (negative value).
- DICTATOR'S BDM = Dictator's evaluation of the single scratchcard elicited through a BDM mechanism.
- DICTATOR'S BELIEF BDM = belief about the passive player's evaluation of the scratchcard.
- INDIVIDUALIST (COOPERATIVE) = 1 if the subject is classified as individualist (cooperative) based on the SVO survey (the omitted dummy is ALTRUIST).
- CONSEQUENTIALIST = 1 if the subject is classified as consequentialist based on the answer to the Trolley dilemma.
- GENDER = 1 if the subject is a female; AGE is the age of the subject; EXP = number of experiments the subject has previously participated in; MAJOR = 1 if the subject is enrolled in an economics or management program.

B.3. Results

The results of the estimation are reported in Table 1B.

Table 1B
Determinants of dictators' choices.

	Probit
EFFORTFUL5 (β_{E5})	1.00** (0.43)
LEGAL5 (β_{L5})	−0.22 (0.45)
EFFORTFUL10 (β_{E10})	0.28 (0.45)
DICTATOR'S BELIEFS	0.16* (0.09)
DICTATOR'S BDM	0.02 (0.37)
DICTATOR'S BELIEFS BDM	0.56 (0.43)
INDIVIDUALIST	0.46 (0.81)
CONSEQUENTIALIST	−0.04 (0.92)
COOPERATIVE	1.20 (0.95)
GENDER	−0.08 (0.33)
AGE	−0.007 (0.07)
MAJOR	0.04 (0.34)
N. OF EXPERIMENTS	−0.12 (0.08)
Constant	0.02(1.77)
B_{E5}-β_{L5}	1.22*** (0.45)
B_{E5}-β_{E10}	0.72 (0.11)
B_{L5}-β_{E10}	−0.50 (0.48)

Log-likelihood = −47.64; chi squared (13) = 24.46**; number of observations = 99. Standard errors in parentheses.

*** $p < 0.01$.

** $p < 0.05$.

* $p < 0.10$.

Appendix C. The card box

Appendix D. Scratchcards

At the time of the experiment, it was possible to find many types of scratchcards in Italy, all produced and sold by Lottomatica. These scratchcards varied according to their underlying game. They were all characterized by a rather homogeneous average expected value of the scratchcard and the relative maximum win. At the time of the experiment, the following were the ones available on the market: *Sette e mezzo* (maximum win €7000, expected value €0.54); *Portafortuna* (maximum win €10,000.00 expected value €0.59); *Tris e Vinci* (maximum win €10,000.00 expected value €0.60); and *Mini Cruciverba d'Oro* (maximum win €10,000.00, expected value €0.57).

References

Arlen, J., & Tontrup, S. (2015b). Does the endowment effect justify legal intervention? The debiasing effect of institutions. *The Journal of Legal Studies, 44*(1), 143–182.

Arlen, J., & Tontrup, S. (2015a). Strategic bias shifting: Herding as a behaviorally rational response to regret aversion. *Journal of Legal Analysis, 7*(2), 517–560.

Bardsley, N. (2008). Dictator game giving: Altruism or artefact? *Experimental Economics, 11*(2), 122–133.

Bicchieri, Cristina (2005). *The grammar of society: The nature and dynamics of social norms.* Cambridge University Press.

Blackstone, William (1830). *Commentaries on the laws of england. Vol. 2*. Collins & Hannay.

Cappelen, A. W., Nielsen, U. H., Sørensen, E.Ø., Tungodden, B., & Tyran, J.-R. (2013). Give and take in dictator games. *Economics Letters, 118*(2), 280–283.

Carlsson, F., He, H., & Martinsson, P. (2013). Easy come, easy go. *Experimental Economics, 16*(2), 190–207.

Cherry, T. L., Frykblom, P., & Shogren, J. F. (2002). Hardnose the dictator. *The American Economic Review, 92*(4), 1218–1221.

Chowdhury, S. M., Jeon, J. Y., & Saha, B. (2017). Gender differences in the giving and taking variants of the dictator game. *Southern Economic Journal, 84*(2), 474–483.

Cox, J. C., List, J. A., Price, M., Sadiraj, V., & Samek, A. (2016). Moral costs and rational choice: Theory and experimental evidence.

Dreber, A., Ellingsen, T., Johannesson, M., & Rand, D. G. (2013). Do people care about social context? Framing effects in dictator games. *Experimental Economics, 16*(3), 349–371.

Edmonds, D., Duncan, S., & Armstrong, G. (2014). *Would You Kill the Fat Man?* Recorded Books, Incorporated.

Eichenberger, R., & Oberholzer-Gee, F. (1998). Rational moralists: The role of fairness in democratic economic politics. *Public Choice, 94*(1–2), 191–210.

Ellickson, R. C. (1991). *Order without law: How neighbors settle disputes.* Harvard University Press.

Eswaran, M., & Neary, H. M. (2014). An economic theory of the evolutionary emergence of property rights. *American Economic Journal: Microeconomics, 6*(3), 203–226.

Gill, David, & Prowse, Victoria (2012). A structural analysis of disappointment aversion in a real effort competition. *American Economic Review, 102*(1), 469–503.

Gintis, H. (2007). The evolution of private property. *Journal of Economic Behavior & Organization, 64*(1), 1–16.

Green, S. P. (2012). *Thirteen ways to steal a bicycle: Theft law in the information age.* Harvard University Press.

Greiner, Ben (2015). Subject pool recruitment procedures: organizing experiments with ORSEE. *Journal of the Economic Science Association, 1*(1), 114–125.

Grossman, P. J., & Eckel, C. C. (2015). Giving versus taking for a cause. *Economics Letters, 132*, 28–30.

Henry, J. F. (1999). John Locke, property rights, and economic theory. *Journal of Economic Issues, 33*(3), 609–624.

Hodgson, G. M. (2015). Much of the 'economics of property rights' devalues property and legal rights. *Journal of InstitutionalEconomics, 11*(04), 683–709.

Hoffman, E., McCabe, K., & Smith, V. L. (1996). Social distance and other-regarding behavior in dictator games. *The American Economic Review, 86*(3), 653–660.

Iriberri, N., & Rey-Biel, P. (2011). The role of role uncertainty in modified dictator games. *Experimental Economics, 14*(2), 160–180.

Jakiela, P. (2015). How fair shares compare: Experimental evidence from two cultures. *Journal of Economic Behavior & Organization, 118*, 40–54.

Kandori, M. (1992). Social norms and community enforcement. *The Review of Economic Studies, 59*(1), 63–80.

Kettner, S.E., Ceccato, S., 2014. Framing matters in gender-paired dictator games.

Kettner, S. E., & Waichman, I. (2016). Old age and prosocial behavior: Social preferences or experimental confounds? *Journal of Economic Psychology, 53*, 118–130.

Khadjavi, M. (2015). On the interaction of deterrence and emotions. *Journal of Law Economics and Organization, 31*(2), 287–319.

Korenok, O., Millner, E.L., Razzolini, L., 2017. Taking aversion. mimeo.

Korenok, O., Millner, E. L., & Razzolini, L. (2013). Impure altruism in dictators' giving. *Journal of Public Economics*, 1–8.

Korenok, O., Millner, E. L., & Razzolini, L. (2014). Taking, giving, and impure altruism in dictator games. *Experimental Economics, 17*(3), 488–500.

Korenok, O., Millner, E., & Razzolini, L. (2017a). Feelings of ownership in dictator games. *Journal of Economic Psychology, 61*(C), 145–151.

Krupka, E. L., & Weber, R. A. (2013). Identifying social norms using coordination games: Why does dictator game sharing vary? *Journal of the European Economic Association, 11*(3), 495–524.

List, J. A. (2007). On the interpretation of giving in dictator games. *Journal of Political Economy, 115*(3), 482–493.

Manesh, M. (2006). The immorality of theft, the amorality of infringement. *Stanford Technology Law Review, 5*.

Merrill, T. W., & Smith, H. E. (2001). What happened to property in law and economics? *Yale Law Journal, 111*(2), 357–398.

Munzer, S.R., 2013. Philosophical foundations of property law.

Murphy, Ryan O., Ackermann, Kurt A., & Handgraaf, Michel (2011). Measuring social value orientation. *Judgment and Decision Making, 6*(8), 771–781.

Nettle, D., Harper, Z., Kidson, A., Stone, R., Penton-Voak, I. S., & Bateson, M. (2013). The watching eyes effect in the Dictator Game: It's not how much you give, it's being seen to give something. *Evolution and Human Behavior, 34*(1), 35–40.

Oxoby, R. J., & Spraggon, J. (2008). Mine and yours: Property rights in dictator games. *Journal of Economic Behavior & Organization, 65*(3), 703–713.

Posner, E. A. (2000). *Law and social norms.* Cambridge, Mass.: Harvard University Press.

Reinstein, D., & Riener, G. (2012). Decomposing desert and tangibility effects in a charitable giving experiment. *Experimental Economics, 15*(1), 229–240.

Rubinstein, A. (2016). A typology of players: Between instinctive and contemplative. *The Quarterly Journal of Economics, 131*(2), 859–890.
Sääksvuori, L., Hewig, J., Hecht, H., & Miltner, W. H. R. (2016). A neural signature of private property rights. *Journal of Neuroscience, Psychology, and Economics, 9*(1), 38.
Smith, A. (2015). On the nature of pessimism in taking and giving games. *Journal of Behavioral and Experimental Economics, 54*, 50–57.
Stake, J. E. (2004). The property 'instinct'. *Philosophical Transactions of the Royal Society B: Biological Sciences, 359*(1451), 1763.
Svirsky, D. (2014). Money is no object: testing the endowment effect in exchange goods. *Journal of Economic Behavior & Organization, 106*, 227–234.
Swope, K., Cadigan, J., Schmitt, P., & Shupp, R. (2008). Social position and distributive justice: Experimental evidence. *Southern Economic Journal,* 811–818.
Uhlmann, E. L., & Zhu, L. (2013). Money is essential: Ownership intuitions are linked to physical currency. *Cognition, 127*(2), 220–229.
Visser, M. S., & Roelofs, M. R. (2011). Heterogeneous preferences for altruism: gender and personality, social status, giving and taking. *Experimental Economics, 14*(4), 490–506.
Zasu, Y. (2007). Sanctions by social norms and the law: Substitutes or complements? *Journal of Legal Studies, 36*, 379–396.