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Experimental Insights on Anti-Social Behavior: Two Meta-Analyses

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Abstract

We conduct two meta-analyses on antisocial behavior in experimental settings in which such behavior is not rationally motivated by pecuniary incentives. We investigate the impact of its potential determinants. The first meta-analysis employs aggregate data across experimental settings from 93 published and unpublished studies (22,200 participants), using laboratory, field and online experiments carried out since 2000. We find that antisocial payoff destruction varies depending on the experimental setting, being highest in vendetta games and possibly lowest in social dilemma games. There is significant heterogeneity across the studies, including within game classes, making inference difficult. The second meta-analysis includes only money burning experiments (for which we have the largest number of observations: 46 studies and around 15,000 participants). It finds evidence of negative discrimination against outsiders, of exogenously disadvantaged subjects destroying more often, and of more antisocial behavior in one-shot interactions. The strategy method biases antisocial behavior upwards. We do not generally find publication bias, either in aggregate or in relation to money burning experiments. Field studies display more antisocial behavior than laboratory experiments. Taken together, our results point to the value of more laboratory experiments that systematically build on paradigmatic experimental designs to enable comparability and the identification of key economic drivers of antisocial behavior.

Keywords: Antisocial Behavior, Meta-Analysis, Money Burning Games, Experiments.

JEL Classification Codes: C72, C91, C93, D91

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1. Introduction

Antisocial behavior is ubiquitous in the real world and often results in large efficiency costs (Gangadharan, Grossman and Vecci 2020). Over the last two decades, while more heterogenous and smaller than the experimental research on prosocial behavior, there has been a proliferation of experimental studies attempting to help us better understand the incidence and causes of antisocial behavior.[1] In this article, we present two meta-analyses on antisocial behavior in economic experiments, where antisocial behavior is defined as the act of reducing/destroying other players' income without any prospects of pecuniary gains.

Our general meta-analysis includes 93 studies (22,200 participants) and 332 observations (treatments) using laboratory, online, and field experiments across 38 countries. It considers experiments where antisocial behavior can be identified, belonging to the sets of money burning/Joy of Destruction games, vendetta games, contests, allocation and coordination games, and social dilemmas with counter-punishment. The largest set of relevant experiments relates to money burning/Joy of Destruction games (15,057 participants and 197 observations), and therefore we also report a second meta-analysis that includes only this set.

To understand what general lessons we can glean from experiments on antisocial behavior, we examine both the intensive and the extensive margins of antisocial behavior: that is, both the frequency of destruction and average destruction rates. Specifically, we evaluate whether antisocial behavior is driven by income inequality, group identity, social observability, the cost of destruction, pressure by authority and whether interactions are one-shot or repeated. We also determine the impact of methodological variables such as publication bias, house money effects, use of strategy method, and differences in antisocial behavior among lab online and field experiments. We are aware of only one attempt of meta-analysis related to ours, but with a narrower focus. Sanjaya (2021) analyzes only average destruction rates and only on a subset of our money burning/Joy-of-Destruction games (44 studies, 88 observations).

In our general meta-analysis we find that subjects engage in payoff destruction in about 30% of the times and destroy on average 20% of the maximum amount that can be destroyed. The level of antisocial behavior differs significantly across games, with the highest destruction rates observed in vendetta games (60% of all decisions and 51% of the upper cap) and the lowest in social dilemmas with counter-

[1] For example, Abbink and Herrmann 2011; Abbink, Masclet and van Veelen 2011; Abbink and Sadrieh 2009; Bolle, Tan and Zizzo 2014; Cavatorta, Zizzo and Daoud 2020; Cinyabuguma, Page and Putterman 2006; Denant-Boemont, Masclet and Noussair 2007; Harbring and Irlenbusch 2008, 2011; Harbring et al. 2007; Nikiforakis 2008; Nikiforakis and Engelmann 2011; Wang 2017; Zizzo and Oswald 2001; Zizzo 2003.

punishment (14% of all decisions and 5% of the upper cap). There is also considerable heterogeneity within game classes. Nevertheless, in the general meta-analysis, destruction rates are higher towards outgroup members, and one-shot interaction also leads to more subjects engaging in destructive behavior. Within money burning/Joy-of-Destruction games, exogenously income disadvantaged subjects are more likely to destroy. There are dimensions of social pressure that appear to matter. Methodologically, the use of the strategy method biases destruction rates upwards, while house money effects and within-subject manipulations do not. There is no evidence of a publication bias and we find a consistently higher level of antisocial behavior in field experiments compared to laboratory experiments.

The rest of this paper is structured as follows. Section 2 provides an overview of the experimental games included in the meta-analysis. Section 3 describes the methodology we followed in generating and analyzing our dataset. Section 4 reports our results, and section 5 concludes with a discussion of our findings.

2. Experimental games included in the meta-analysis

We focus on experimental studies in which subjects decide to reduce the earnings of others without the prospect of financial gains, as opposed to, for example, games in which destroying money is entirely or partially profit-maximizing. By this definition, the papers included in the meta-analysis can be classified into six classes of economic games: Money burning / joy-of-destruction games, vendettas, allocation games, coordination games, contests, and social dilemmas with counter-punishment.[2]

Money burning games. In the money burning game (also knowns as the Joy-of-Destruction game) subjects can choose to reduce the other players' income with or without a cost to themselves (Abbink and Herrmann 2011; Abbink and Sadrieh 2009; Zizzo and Oswald 2001; Zizzo 2003).[3] As there are no financial gains to this act, a payoff-maximizing, rational agent would choose not to engage in 'money burning'. Thus, any income reduction corresponds to antisocial behavior, for example due to spite or malice. Replications of the money burning game and their variants have consistently supported the finding that individuals are willing to reduce other players' income, even at a cost to themselves (e.g., Abbink, Masclet and Mirza 2018; Abbink, Masclet and van Veelen 2011; Dickinson and Masclet 2019;

[2] We do not include ultimatum games in our meta-analysis. Ultimatum games have already been analyzed in Oosterbeek et al.'s (2004) meta-analysis. With the exception of those studies that use the strategy method, the incidence of rejection in ultimatum games is not only endogenous to proposer behavior, but also proposers normally keep offers rejection thresholds, leading to data that would be problematic to interpret in terms of our meta-analysis.

[3] In what follows we use the terminology of money burning games to refer to both money burning games and Joy-of-Destruction games, as the two labels refer to the same game structures, if sometimes aiming to identify different determinants of antisocial behavior.

Dickinson, Masclet and Peterle 2018; Gangadharan et al. 2019; Gangadharan, Grossman and Vecci 2018; Gangadharan et al. 2017; Grosch and Rau 2020; Grossman and Komai 2013; Sadrieh and Schröder 2016, 2017; Zizzo and Fleming 2011).

Vendettas. The vendetta game was developed by Bolle, Tan and Zizzo (2014) and further examined in Umashev (2019), Sugden and Wang (2020) and Cavatorta, Zizzo and Daoud (2021). It studies how an initial act of aggression can lead to socially inefficient feuds. The game involves two players moving alternatingly across a finite number of periods. Each player receives an amount of money or an exogenous percentage of winning a lottery, and at each player's turn, they can choose to steal their co-player's money or winning probability in blocks of percentage, but at a cost. The game ends if no player steals from each other in two consecutive periods or when both cannot steal any longer. Under self-interest, altruism, reciprocity, or inequality aversion, counter-stealing should not occur in the subgame perfect equilibrium under equal initial endowment (Bolle, Tan and Zizzo 2014).

Allocation games. By allocation games we refer to variants of the dictator game in which the player chosen as dictator can decrease the opponent's earnings without any pecuniary consequences for themselves (Bracht and Zylbersztejn 2018; García-Gallego, Georgantzis and Ruiz-Martos 2019; Sadrieh and Schröder 2016). We also include choice experiments, in which subjects can choose between different income allocations among themselves and their opponents (Beckman et al. 2002; Fehr, Glätzle-Rützler and Sutter 2013). In these games, the decision is considered costless burning if the subject chooses an option in which their partner receives a lower payoff while they receive a payoff equal to the optimal amount, and costly burning if they receive a payoff less than the optimal amount.

Coordination games. Even though the coordination game class consists of a range of games, we only consider the first-strike game and the mobbing game. In the first-strike game, two or more players accumulate earnings over many rounds, and they can deactivate the opponent in any round. The deactivated player would lose all current earnings and face reduced future payoffs, without any monetary gains to the decision makers, which makes deactivating a hostile act (Abbink and de Haan 2014; Abbink, Dong and Huang 2020; Simunovic, Mifune and Yamagishi 2013). In the mobbing game, subjects are divided into groups and can nominate a group member to be 'mobbed' (Abbink and Doğan 2019). If the same person is nominated by all other players, that person loses all their earnings. Following the inclusion criteria, we only include treatments in which mobbing players do not gain financially even if mobbing was successful. Because of the nature of the game, destruction decisions in the mobbing game are in terms of group decisions instead of individual decisions.

Contests. We consider two distinct types of contest games for our analysis. The first type involves a standard tournament in which subjects compete for a prize via a real-effort task under piece-rate or tournament compensation schemes, and then have a chance to underreport other players' scores (Carpenter, Matthews and Schirm 2010; Charness, Masclet and Villeval 2014). The second type resembles a gift exchange game in which an employer (principal) offers a wage and a prize to multiple employees (agents) (Falk, Fehr and Huffman 2008; Harbring and Irlenbusch 2005, 2008, 2011). The agents then compete for the chosen prize by paying a cost to exert productive effort and sabotage the effort of others. Each unit of effort increases an agent's output by one unit, while each unit of sabotage reduces the output of other agents by one unit. In this case, sabotaging can be partially explained by self-interest as agents earn a higher pay-off by winning the game (Harbring and Irlenbusch 2005).[4]

Social dilemmas with counter-punishment. This set of games includes experiments where subjects play a social dilemma game in the first stage followed by a subsequent stage of one round or multiple rounds of punishment and counter-punishment.[5] The social dilemma stage typically involves the public goods games (PGG), prisoner's dilemmas (PD), trust games (TG), and power-to-take games (PTT). In the punishment and counter-punishment stage, in each and every round, subjects can either: a) punish whoever they want whether or not they were punished in the previous round (Nikiforakis and Engelmann 2011; Nikiforakis, Noussair and Wilkening 2012; Fehr and Schurtenberger 2018; Engel, Kube and Kurschilgen 2021), or b) only be allowed to punish those who punished them in the previous round (Cinyabuguma, Page and Putterman 2006; Denant-Boemont, Masclet and Noussair 2007; Berná 2013, Kern 2014; Engel et al 2014; Campos-Vazquez and Mejia 2016). The cycles of retaliatory punishment and counter-punishment in these experiments bare close resemblance to vendettas, especially in the later stages where punishment appears fueled by anger, revenge or nastiness, and often result in very negative outcomes for both subjects (Hopfensitz and Reuben 2009; Nikiforakis and Engelmann 2011).

3. Methodology

This section presents our study selection process, hypotheses, and procedures. We start by discussing the inclusion and exclusion criteria by which we conducted the literature search (3.1). We then proceed

[4] For the second type, we deducted the equilibrium level of sabotage from the total reported amount and divided it by the maximum sabotage amount that could be exerted in order to calculate the proportion of destruction that is not fuelled by material incentives,

[5] Our study examines both second-party and third-party punishment behaviours. We do not include social dilemmas with only punishment due to the difficulty in identifying an antisocial component of behavior within this large literature. Balliet and Van Lange (2013) is a meta-analysis on social dilemmas with punishment.

with describing our datasets (3.2) and analytical methods (3.3). We close the section with details on our variables and hypotheses (3.4).

3.1 Inclusion and exclusion criteria

We use economics papers that: (a) present novel experimental data and follow the standard experimental economics methodology (i.e. financial incentives, no deception), (b) demonstrate antisocial behavior which involves subjects destroying other players' income and which is not a profit-maximizing or dominant strategy from the perspective of a purely self-interested agent who cares only about his or her own payoff from the game, (c) are published journal articles or working papers that were last updated after January 2000, and (d) are written in the English language.

Based on the first criterion, we excluded experiments studying hypothetical and unincentivized decisions. Papers using the strategy method, such as Dickinson and Masclet (2019), are included as long as all decisions are incentivized or at least one randomly chosen decision among them is payoff relevant. We also excluded papers on social dilemmas with only punishment and no counter-punishment, because it is difficult to disentangle antisocial preferences with prosocial motives associated with punishment decisions in these contexts. We also did not include second-price auctions, in which an agent who knows he cannot win might feel tempted to raise his bid above his own evaluation in order to minimize the winner's profit, because we could not establish a clear-cut rule to disentangle spiteful bidding from overbidding due to other reasons such as lack of understanding or mistakes.

3.2 Literature search and dataset

Figure 1 summarizes our selection process and the number of studies excluded at each step. Details on each study are presented in Online Appendix B. To identify relevant studies on antisocial behavior in non-cooperative games, four main sources were utilized: EconLit, Scopus, Web of Science, and Google Scholar. All databases were searched using combinations of keywords on types of game (Joy of Destruction, money burning, vendetta, contests/tournaments/competition, lotteries, riots), types of antisocial behavior or behavioral reason behind these actions (sabotage, spite, malice, envy), as well as other descriptive aspects of the studies (economic, experiment, game, game theory). The search phrase used was: *experiment* AND economic AND antisocial* AND game AND (destroy* OR burn* OR nast* OR sabotage* OR contest OR competition OR tournament OR lottery OR riots OR spite* OR malice*)*. The search was limited to economic journal articles and working papers written in English published from 2000 to 2020 and yielded between 2,000-5,000 hits on EconLit, Scopus and Web of Science. An independent search on Google Scholar using the same combination of keywords resulted in 7,470 hits,

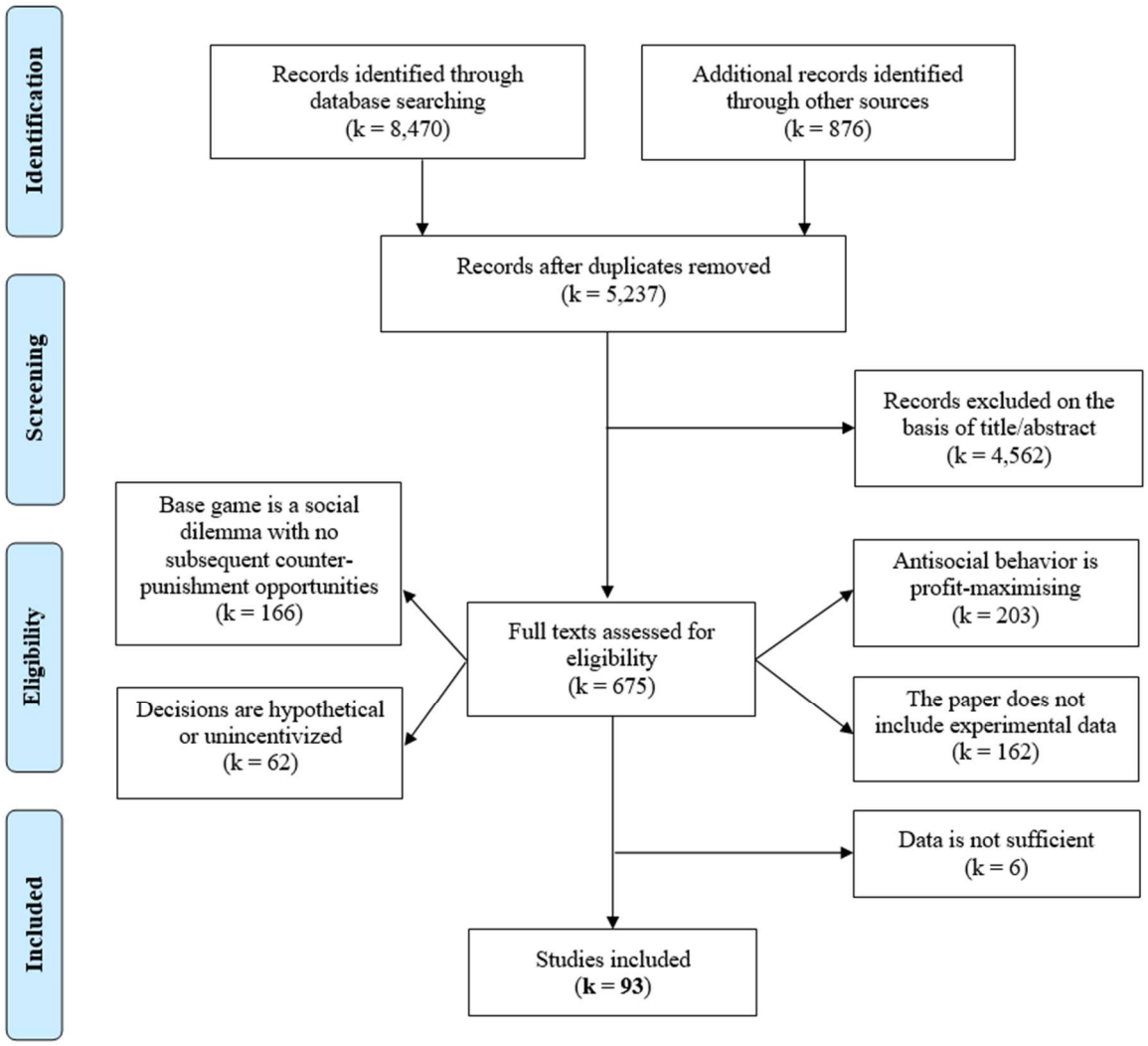
of which Google Scholar displayed the first thousand. To identify papers on social dilemma games with counter-punishment produced from the year 2000 onwards, we also conducted a search using the search phrase *counter punishment AND antisocial AND experiment* on the same databases, which returned between 488-692 results.

To supplement the electronic search, we conducted a manual search through the reference sections of all papers included in the first stage. Relevant papers based on title and abstract were then extracted for full text screening. We searched studies using Google Scholar's 'cited by' function to find further research not containing the above keywords or not explicitly referring to spiteful preferences as antisocial behavior and thus not included in the initial search, identifying a further 23 studies. We also posted a topic in the ESA Experimental Methods Discussion group calling for more published and unpublished papers and were suggested with 27 studies, among which five were added to our list as they met the inclusion criteria. All searches and screening were conducted between August and December 2020.

For all articles, we first attempted to infer the necessary information from the test statistics and/or figures provided. If this was not possible, we contacted the authors to obtain the primary data between July and October 2021. After receiving data from 59 of the 75 sets of contacted authors, we ended up with sufficient measures for 93 studies.

Table 1 summarizes the distribution of the included studies categorized by types of games and geographic region. Overall, our dataset includes 93 studies (22,200 participants) and 332 observations (treatments) using laboratory, online, and field experiments across 38 countries. Specifically, 52 studies (15,927 subjects) examined destruction in Money burning and vendetta games, 20 (2,923 subjects) examined social dilemma with counter-punishment opportunities, and the rest (21 studies, 3,350 subjects) looked at contest, allocation, and coordination games. The majority of experiments are conducted in Europe (55 studies, 14,261 subjects), followed by America (16 studies, 2,785 subjects), Asia-Pacific (17 studies, 4,054 subjects) and Africa (5 studies, 1,100 subjects). Lastly, of the 93 studies, 29 were unpublished at the time the meta-analysis was conducted.

Figure 1: Flow diagram of the literature search



Our data is aggregated to the player type within a treatment, and an 'observation' is defined as each of these treatments by type. For example, if, within a treatment, subjects are randomly assigned into Low- and High-income categories and the study reports sufficient data, we coded the treatment into four observations – High versus High, High versus Low, Low versus High, and Low versus Low. If, in the same treatment, subjects make decisions against other players from the same group and from a different group, we separated the treatment into two observations – Ingroup and Outgroup. If there is no type, we have one observation per treatment. We use *n* to refer to the number of these observations and *k* to refer to the number of studies.

Table 1: Summary of included articles by classes of games

Classes of Games	*Number of (% of total)*			*Number of Observations (n)* by Geographic location			
	Articles	**Observations**	**Subjects**	**Africa**	**America**	**Asia-Pacific**	**Europe**
Allocation games	8 (9%)	18 (5%)	1,491 (7%)	0	1	8	9
Contests	9 (10%)	43 (13%)	1,426 (6%)	0	5	0	38
Coordination games	4 (4%)	12 (4%)	433 (2%)	0	0	8	4
Money burning games	49 (53%)	197 (59%)	15,057 (68%)	21	42	32	102
Social Dilemmas	20 (21%)	46 (14%)	2,923 (13%)	0	7	7	32
Vendetta games	3 (3%)	16 (5%)	870 (4%)	0	0	5	11
Total	**93 (100%)**	**332 (100%)**	**22,200 (100%)**	**21 (6%)**	**55 (17%)**	**60 (18%)**	**196 (59%)**

Notes: The coordination game class consists of the first-strike and mobbing games. The allocation game class includes dictator, double-dictator, heaven-dictator, allocation, and voting games. N refers to the number of observations.

3.3 Analytical methods

Following Gerlach, Teodorescu and Hertwig (2019), we use two standardized measures to compare the frequency and magnitude of antisocial behavior across diverse game settings.

Mean destruction decision rate (M_{dd}) measures the average percentage of times subjects engaged in destruction. Specifically, we calculate the mean destruction decision rate by dividing the number of decisions in which subjects decide to destroy other players' income by the total number of decision opportunities. Thus, it captures the *extensive margin* of antisocial behavior.

$$M_{dd} = \frac{Number\ of\ destruction\ decisions}{Total\ number\ of\ opportunities\ to\ destroy}$$

Mean destruction rate (M_{dr}) measures the average percentage of income subjects destroyed relative to the maximum amount that they could destroy. Specifically, it is calculated by subtracting the mean amount of income subjects destroyed by the equilibrium level of destruction determined by the game and dividing the result by the maximum amount of income subjects were allowed to destroy. Thus, it measures how much subjects are willing to destroy or the *intensive margin* of destruction.

$$M_{dr} = \frac{Amount\ destroyed - Equilibrium\ destruction}{Maximum\ amount\ allowed\ to\ destroy}$$

To analyze the two continuous dependent variables, we treat them as individual 'effect sizes'. We first use random-effects (RE) meta-analysis procedures to determine the average level of antisocial behavior for our full sample and for the subsamples based on game classes, separately for M_{dd} and M_{dr}. RE meta-analysis allows the true effects to vary between studies by assuming that they have a normal distribution around a mean effect (Hedges 1983; Hedges and Vevea 1998; DerSimonian and Laird 1986). These are simply aggregated estimates for the overall level of antisocial behavior in the relevant samples; they do not control for independent variables. The procedure weighs each observation by the inverse of its standard error, thus assigning more importance to results from studies with larger samples and smaller deviation from the mean (Whitehead and Whitehead 1991).

RE meta-regressions allow us to include independent variables in the analysis and thus explain the between-study heterogeneity as a function of moderators (Berlin and Antman 1994, Berkey et al 1995, Thompson and Higgins 2002). These models account for potential additional variability unexplained by the included moderators, by assuming that the true effects follow a normal distribution around the linear predictor (Thompson and Sharp 1999, Harbord and Higgins 2008). They can be considered either an extension to fixed-effects meta-regression that allows for residual heterogeneity or an extension to random-effects meta-analysis that includes study-level covariates and other controls.

3.4 Independent variables and hypotheses

This section presents our hypotheses for the effects of potential moderators and experimental settings, namely inequality, group identity, observability, cost, and house money effect, on antisocial behavior, based on economics theories and experimental evidence. We then present the methodological and other variables to be included in the main regression analysis. Table 2 presents the complete set of independent variables used in our analysis.

Table 2: List of independent variables

Variable	Type	Description/Specification
Game variables		
Game	Factorial	Classes of game: 0. Allocation games 1. Contests 2. Coordination games 3. Money burning games 4. Social dilemmas with counter-punishment 5. Vendettas
Economic variables		
Inequality	Factorial	Whether inequality in earnings is due to real effort (endogenous inequality) or a certain arbitrary attribute determined by the experimenter/luck (exogenous inequality). Exogenous inequality can be classified as advantageous (when the conductor of antisocial behavior receives an unfair advantage over his or her opponent) or disadvantageous (otherwise). Four categories pertaining to the source of inequality: 0. No inequality 1. Endogenous inequality 2. Exogenous advantageous inequality 3. Exogenous disadvantageous inequality
Group identity	Factorial	Whether group identity is induced in the experiment and whether it pertains to ingroup aggression or outgroup aggression. Type of intergroup discrimination: 0. No group identity 1. Outgroup 2. Ingroup
Observability	Factorial	Whether antisocial behavior can be observed by: 0. No one (Hidden) 1. The victims 2. Other subjects but not the victims
Pressure	Dichotomous	0. The study does not use pressure from an authority 1. The study uses pressure from an authority
Costly	Dichotomous	0. Destruction comes at a monetary cost 1. Destruction is free
One-shot	Dichotomous	0. The game is repeated 1. The game is one-shot
Methodological and other variables		
Experiment type	Factorial	Experiment type: 0. Online 1. Laboratory 2. Field
Published	Dichotomous	0. Unpublished or working paper 1. Published journal article
Between-subject	Dichotomous	0. Within-subject design 1. Between-subject design
Strategy method	Dichotomous	0. The study uses direct response 1. The study uses strategy method
House money effect	Dichotomous	0. Endowment is earned by subjects 1. Endowment is exogenously given by the experimenter
Number of players	Discreet	Number of players interacting in a group
Region	Factorial	0. Africa 1. America 2. Asia-Pacific 3. Europe

Inequality. In line with the theoretical and experimental literature on inequality aversion (e.g., Fehr and Schmidt 1999; Charness and Rabin 2002; Abbink, Masclet and Mirza 2018; Abbink, Masclet and van Veelen 2011; Gangadharan, Grossman and Vecci 2018; Grosch and Rau 2020; Zizzo and Oswald 2001; Zizzo 2003) we predict that subjects would behave more antisocially when they are exogenously disadvantaged in terms of income relative to when they are not.[6]

Hypothesis 1 (H1): *Subjects make antisocial decisions less often and destroy less income when they play against a more disadvantaged player rather than an advantaged player or when there is no inequality.*

Group identity. The theory of social identity predicts that when placed in groups, regardless of whether they are natural or artificially induced, people tend to favor the ingroup at the expense of the outgroup (e.g., Tajfel 1978; Tajfel and Turner 1979; Akerlof and Kranton 2000; Chen and Li 2009; Hargreaves Heap and Zizzo 2009; Bauer, Chytilová and Miguel 2020). Following this literature, we hypothesize that antisocial behavior would be lower against ingroup members and higher against outgroup members relative to groups with no group identity manipulation.

Hypothesis 2+ (H2+): *The frequency and extent of antisocial behavior is lower against ingroup subjects than under no group identity manipulation (positive discrimination)*.

Hypothesis 2- (H2-): *The frequency and extent of antisocial behavior is higher against outgroup subjects than under no group identity manipulation (negative discrimination)*.

Social observability and pressure. Both theory and experimental evidence on social observability and the effect of eye cues suggest that people tend to behave less antisocially when their action can be observed by others (e.g., Bohnet and Frey 1999; Haley and Fessler 2005; Ernest-Jones, Nettle and Bateson 2011; Ekström 2012; Kraft-Todd et al. 2015; Dear, Dutton and Fox 2019). Consistently with the literature, we would expect to observe less antisocial behavior when such behavior is observable to victims and to other subjects compared to when it is hidden to them. An exception to this observation occurs when individuals are peer pressured to take an antisocial action along the lines of the literature on obedience to authority (Karakostas and Zizzo, 2016).

[6] The predictions in other cases are more ambiguous. On the one hand we may expect inequality averse exogenously advantaged subjects to destroy less, but, on the other hand, this depends on how game details including specifically the expectation of being attacked by others. For settings in which inequality is induced endogenously (i.e., as a result of choices by the subjects themselves), other factors inducing selection in specific income brackets complicate the interpretation of any findings.

Hypothesis 3a (H3): *The frequency and extent of antisocial behavior is (a) lower when their actions can be observed by other subjects and (b) when there is social pressure from an authority.*

Economic cost. Standard economic theory posits that consumption of goods increases when the cost of obtaining it increases. Under the assumption that the act and outcome of destruction is an ordinary good and not a Giffen good, we expect less antisocial behavior when such behavior is costly compared to when it is costless.[7]

Hypothesis 4 (H4): *The frequency and extent of antisocial behavior is higher if acting antisocially comes at a monetary cost.*

Repetition vs one-shot. Repeated play with the same players yields the possibility of retaliation. Therefore, we expect one-shot interaction to lead to greater antisocial behavior than in the case of repeated interaction with other players.

Hypothesis 5 (H5): *The frequency and extent of antisocial behavior is higher with one-shot than with repeated interaction.*

Methodological variables. One methodological concern is that laboratory money burning exaggerates the relevance of antisocial behavior. The Experiment type variable checks the effect of having an online or a field experiment relative to a laboratory experiment. Another methodological concern is that research on antisocial behavior may suffer from publication bias. Published work may differ from unpublished work for its average scientific quality rather than just due to publication bias. Nonetheless, our Published variable provides one test for the extent of publication bias. A third methodological concern is that in at least some experiments money is given and not earned; as a result, potentially, there may be a house money effect increasing the incidence of antisocial behavior. The house money effect variable allows us to test for this. Within-subject designs may be more subject to experimenter demand effects (Zizzo 2010) and, while generally benign (Brandts and Charness 2011) and used infrequently, the use of the strategy method might also lead to bias: this leads to additional methodological variables. Taken together, these methodological variables speak to different dimensions that may reduce the external validity of experimental evidence on antisocial behavior.

[7] Ideally, we would be able to test how the frequency and extent of antisocial behavior decreases with the size of the cost. However, there is too much heterogeneity across studies (not just in terms of game structures, but also in destruction technologies) for us to be able to test this.

Additional controls. We expect there to be considerable heterogeneity across games and therefore our main meta-analysis below includes controls for games. Additional controls are for geographic region the study was conducted in, the number of players and whether the experiment is one-shot or repeated.

4. Results

Our results are grouped into four subsections. Section 4.1 provides an overview of antisocial behavior for our complete and unweighted dataset. Section 4.2 presents a meta-analysis summary of studies by game class and economic variables. Section 4.3 examines the impact of our economic, methodological and other variables on antisocial behavior using meta-regressions on the complete dataset. Finally, section 4.4 restricts the meta-regression analysis to the largest game class subset, i.e., to the money burning (joy of destruction) games, to identify the robustness of our results within a more homogenous set of studies.

4.1 Overview of complete dataset

Our dataset contains a total of 332 observations (93 studies) for the destruction decisions and 312 observations (85 studies) for the destruction rate. Table 3 reports the descriptive statistics for our complete set of variables. On average, subjects reduced their co-players' income in 30% of all destruction opportunities and destroyed approximately 20% of the maximum amount that could be destroyed. 59% of our observations examines antisocial behavior in money burning games and 68% are from published studies. Figure 2 depicts the distributions of our outcome variables, showing considerable variation across studies.

Table 3: Descriptive statistics

Variable	N	Mean	Std.dev.	Std. er.	Min	Max
Destruction decisions rate (M_{dd})	332	.30	.22	.01	.01	.88
Destruction rate (M_{dr})	312	.21	.19	.01	.01	.84
Allocation games	332	.05	.23	.01	0	1
Contest	332	.13	.34	.02	0	1
Coordination games	332	.04	.19	.01	0	1
Money burning	332	.59	.49	.03	0	1
Social dilemma	332	.13	.33	.02	0	1
Vendetta	332	.05	.21	.01	0	1
Endogenous inequality	332	.45	.50	.03	0	1
Exogenous inequality	332	.19	.40	.02	0	1
Exogenous advantageous inequality	332	.09	.29	.02	0	1
Exogenous disadvantageous inequality	332	.11	.31	.02	0	1
Group identity	332	.27	.45	.02	0	1
Outgroup	332	.10	.30	.02	0	1
Ingroup	332	.08	.27	.01	0	1
Observed by others	332	.12	.33	.02	0	1
Observed by victims	332	.54	.50	.03	0	1
Pressure	332	.02	.14	.01	0	1
Costly	332	.75	.43	.02	0	1
One-shot	332	.67	.47	.03	0	1
Published	332	.68	.47	.03	0	1
Between-subject	332	.91	.28	.02	0	1
Strategy method	332	.16	.36	.02	0	1
House money effect	332	.57	.50	.03	0	1
Number of players in group	332	3.68	2.51	.14	2	14
Lab/Online	332	.84	.37	.02	0	1
Africa	332	.06	.24	.01	0	1
America	332	.17	.37	.02	0	1
Asia-Pacific	332	.18	.39	.02	0	1
Europe	332	.59	.49	.03	0	1

Notes: Data is unweighted. N refers to the number of observations.

Figure 2: Distribution of antisocial behavior

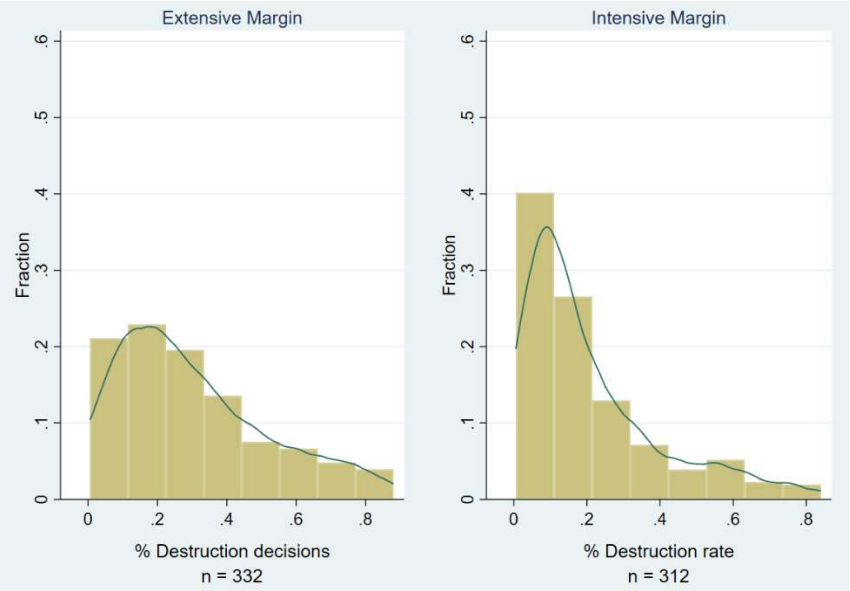


Table 4 shows how antisocial behavior differs across classes of games. The highest destruction is observed in the vendetta game, where subjects engaged in payoff destruction in 60% of all decisions and destroyed 51% of the maximum amount. In contrast, antisocial behavior is lowest in social dilemmas, with only 14% of destruction decisions and 6% of the upper cap destroyed via punishment and counter-punishment. This indicates that the difference in game contexts might have induced subjects towards feuding in vendettas and cooperating in social dilemmas, thus lowering destruction in the latter case (e.g., Ferraro and Vossler 2010; Abbink, Masclet and van Veelen 2011; Bolle, Tan and Zizzo 2014). The dependence of antisocial behavior on its context is further discussed in section 5.

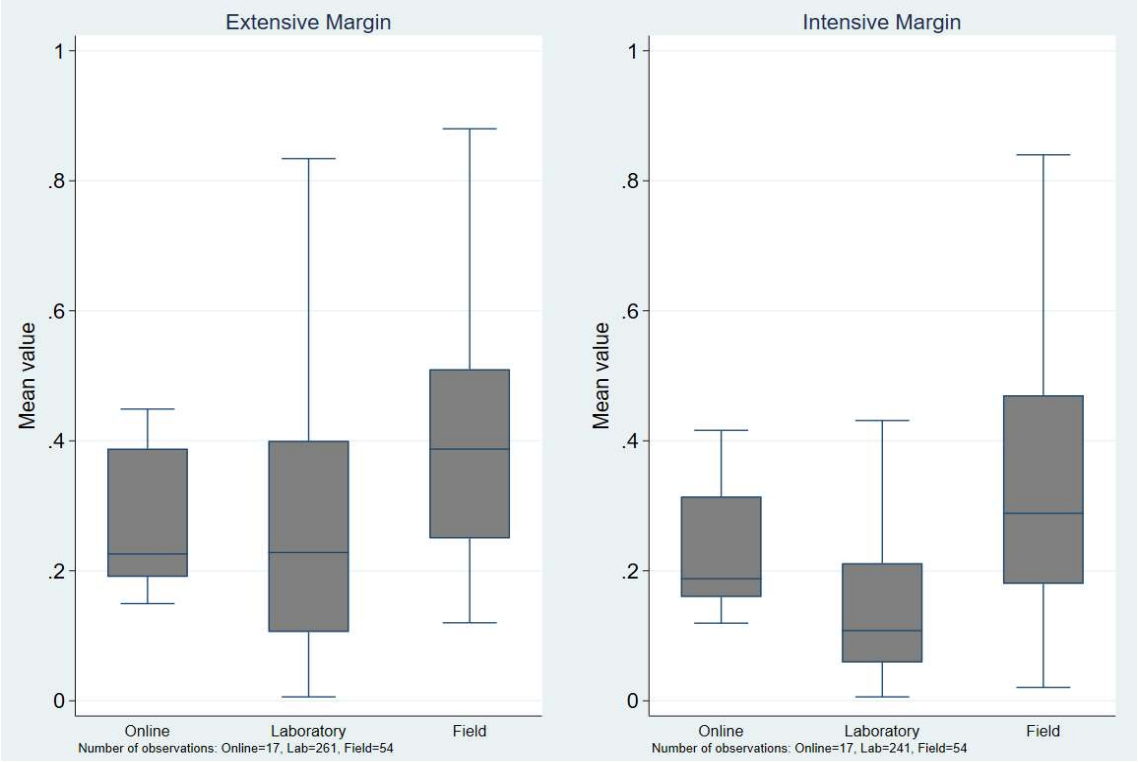
Table 4: Antisocial behavior by classes of games

Classes of games	**Destruction decisions** *(extensive margin)*			**Destruction rate** *(intensive margin)*		
	N	**Mean**	**SD**	**N**	**Mean**	**SD**
Allocation games	18	0.25	0.12	16	0.21	0.14
Contests	43	0.48	0.27	35	0.15	0.15
Coordination games	12	0.39	0.23	12	0.39	0.23
Money burning games	197	0.28	0.18	192	0.21	0.17
Social dilemmas with counter-punishment	46	0.14	0.12	41	0.06	0.06
Vendettas	16	0.60	0.17	16	0.51	0.17
Total	332	0.30	0.22	312	0.21	0.19

Notes: Data is unweighted.

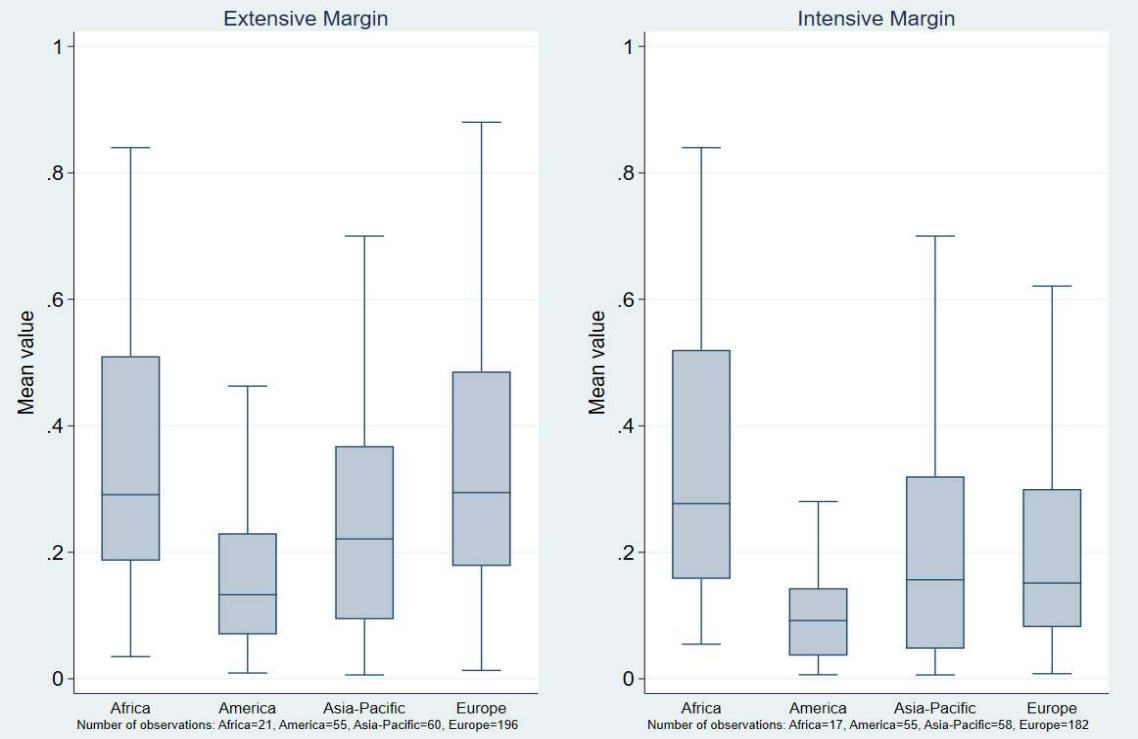
Figures 3 and 4 break down the data by regions and by types of experiments. Figure 3 shows that antisocial behavior seems to be highest among field experiments, while Figure 4 seems to suggest more antisocial behavior in Africa.

Figure 3: Antisocial Behavior by Experiment Type



Notes: Data is unweighted and excludes outlier values.

Figure 4: Antisocial Behavior by Geographic Region



Notes: Data is unweighted and excludes outlier values.

4.2 Meta-analysis: distributional analysis

4.2.1 Variation across game classes

We first conduct a univariate random-effects meta-analysis on the whole dataset. The overall levels of antisocial behavior are 30% for the destruction decisions (CI = [28%, 32%]) and 20% for the destruction rate (CI = [18%, 22%]). Figure 5 summarizes our findings, split by game class and publication status. Details on each observation can be found in Online Appendix B.

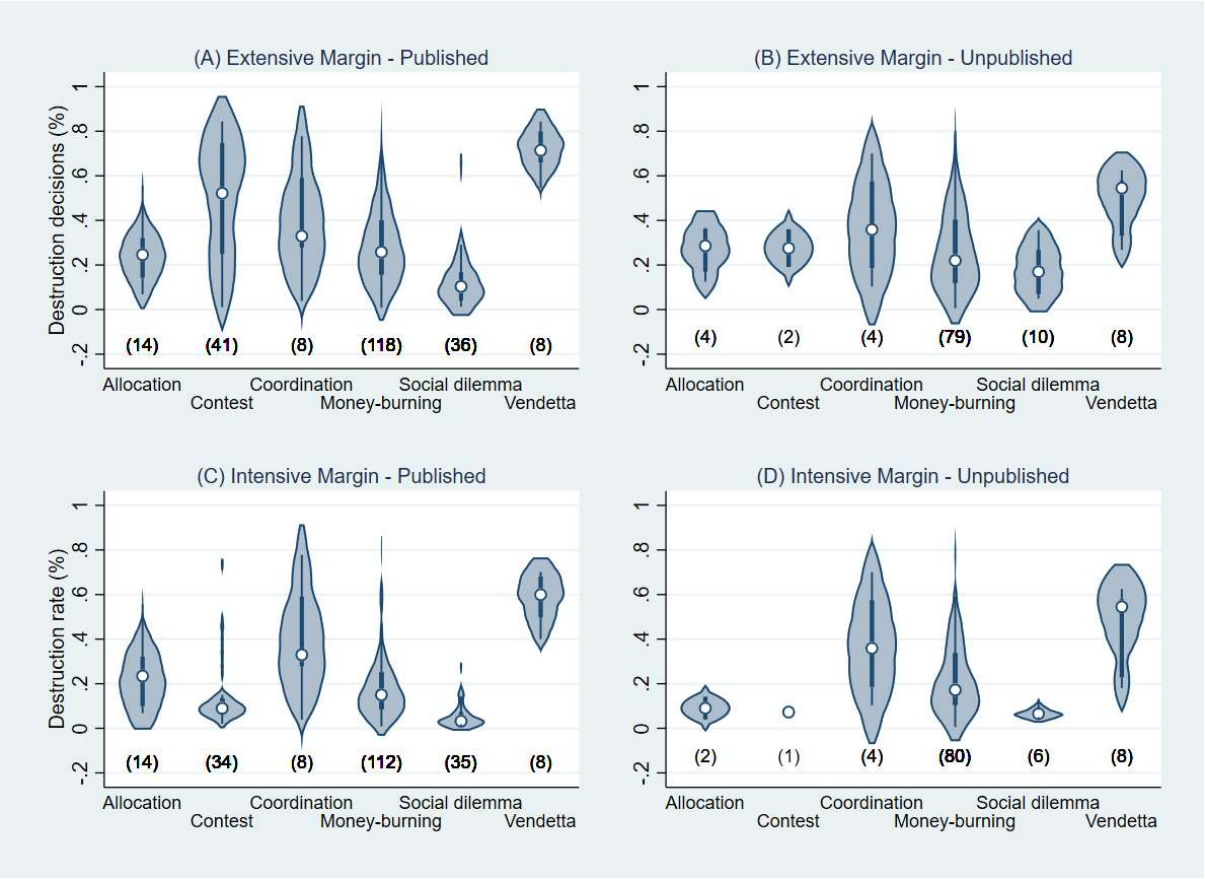
As shown in Figure 5, destruction decisions and destruction rates varied significantly across games and within games. Heterogeneity (in terms of I^2 and τ^2) was above 70% in all game classes, which is expected due to large variations across game and experimental designs. Other meta-analyses studying behavior across different experimental paradigms (e.g., Gerlach, Teodorescu and Hertwig 2019; Li, Maniadis and Sedikides 2021) also reported substantial heterogeneity of above 80% among their studies. Allowing for this variability, destruction decisions frequency and destruction rates are highest for vendetta games and lowest for social dilemmas with counter-punishment, as per Table 4 above.

To test for publication bias, we ran specialized meta-analysis regressions with game dummies, a Published dummy and game x dummies interaction terms (see Table A3 in the Online Appendix). We find no evidence of publication bias for any classes of games other than for vendetta games, where the result is driven by the particularly small sample of papers involved.[8] The absence of a publication bias for money burning games is especially reassuring given that it is the class of games for which we do not have to be concerned by small sample issues.[9] Further tests of publication bias are presented in section 5.

[8] Table 1 shows that we only had 3 papers in the vendetta games sample. Only one out of three is unpublished and it tends to have a lower vendetta rate, which may be plausibly explained by the different framing of the instructions relative to the other two papers.

[9] For money burning games, the coefficient is virtually 0 for decision rates and -0.04 and at $p < 0.1$ for destruction rates, meaning that, if a bias were to exist, if anything it would be in the direction of slightly under-estimating money burning.

Figure 5: Plots by game class and publication status



(A): Published, Destr. Decisions						
Random effect	Mdd = 25%	Mdd = 49%	Mdd = 40%	Mdd = 27%	Mdd = 12%	Mdd = 72%
[95% CI]	[19%, 32%]	[40%, 57%]	[23%, 57%]	[25%, 30%]	[9%, 16%]	[65%, 79%]
	z = 7.37	z = 11.52	z = 4.66	z = 21.23	z = 6.43	z = 20.79
	p < 0.001	p < 0.001	p < 0.001	p < 0.001	p < 0.001	p < 0.001
Observations	n = 14	n = 41	n = 8	n = 118	n = 36	n = 8
Heterogeneity	I^2 = 97%	I^2 = 100%	I^2 = 99%	I^2 = 99%	I^2 = 100%	I^2 = 97%
	τ^2 = 0.02	τ^2 = 0.07	τ^2 = 0.06	τ^2 = 0.03	τ^2 = 0.01	τ^2 = 0.01
(B): Unpublished, Destr. Decisions						
Random effect	Mdd = 26%	Mdd = 26%	Mdd = 38%	Mdd = 27%	Mdd = 18%	Mdd = 47%
[95% CI]	[14%, 37%]	[10%, 42%]	[13%, 63%]	[23%, 31%]	[11%, 25%]	[38%, 57%]
	z = 2.57	z = 3.12	z = 2.97	z = 12.38	z = 5.21	z = 9.46
	p < 0. 001	p < 0.05	p < 0. 05	p < 0.001	p < 0.001	p < 0.001
Observations	N = 4	N = 2	N = 4	N = 67	N = 10	N = 8
Heterogeneity	I^2 = 73%	I^2 = 77%	I^2 = 100%	I^2 = 100%	I^2 = 100%	I^2 = 95%
	τ^2 = 0.01	τ^2 = 0.01	τ^2 = 0.07	τ^2 = 0.04	τ^2 = 0.01	τ^2 = 0.02

(C): Published, Destr. Rate						
Random effect	Mdd = 23%	Mdd = 15%	Mdd = 40%	Mdd = 19%	Mdd = 5%	Mdd = 59%
[95% CI]	[16%, 30%]	[10%, 20%]	[23%, 57%]	[16%, 22%]	[4%, 7%]	[51%, 66%]
	z = 6.17	z = 5.69	z = 4.71	z = 12.32	z = 6.28	z = 15.14
	p < 0.001	p < 0.001	p < 0.001	p < 0.001	p < 0.001	p < 0.001
Observations	N = 14	N = 34	N = 8	N = 112	N = 35	N = 8
Heterogeneity	I^2 = 99%	I^2 = 100%	I^2 = 100%	I^2 = 100%	I^2 = 100%	I^2 = 98%
	τ^2 = 0.02	τ^2 = 0.02	τ^2 = 0.06	τ^2 = 0.02	τ^2 = 0.002	τ^2 = 0.01
(D): Unpublished, Destr. Rate						
Random effect	M_{dd} = 8%	M_{dd} = 7%	M_{dd} = 38%	M_{dd} = 23%	M_{dd} = 7%	M_{dd} = 44%
[95% CI]	[0%, 18%]	[0%, 14%]	[13%, 63%]	[19%, 27%]	[5%, 9%]	[30%, 57%]
	z = 1.67	z = 2.10	z = 2.97	z = 11.33	z = 6.68	z = 6.48
	p < 0.01	p < 0.05	p < 0. 005	p < 0. 001	p < 0.001	p < 0.001
Observations	N = 2	N = 1	N = 4	N = 80	N = 6	N = 8
Heterogeneity	I^2 = 79%	I^2 = .	I^2 = 100%	I^2 = 100%	I^2 = 94%	I^2 = 98%
	τ^2 = 0.004	τ^2 = .	τ^2 = 0.07	τ^2 = 0.03	τ^2 = 0.000	τ^2 = 0.04

Notes: Violin plots showing the distribution of destruction decisions/rates by game class and published/unpublished status of underpinning observations. Game classes from left to right: Allocation – Contest – Coordination – Money-burning – Social dilemma – Vendetta. The number below each violin plot represents the number of observations underpinning the corresponding violin plot. The white dot represents the median of the relevant sample. The thick bar in the center represents the interquartile range. The thin line represents the rest of the distribution, except for "outliers" that lie outside the range of the lower/upper adjacent values (first quartile – 1.5 IQR, third quartile + 1.5 IQR). On each side of the line is a kernel density estimation to show the distribution shape of the data. Wider sections of the violin plot represent a higher probability that members of the population will take on the given value; and the skinnier sections represent a lower probability. As the method involves smoothing, distributions can go below zero. The table below the figure presents the summary statistics of the random-effects models: M_{dd} is the extensive margin [with 95% confidence interval]; k is the number of studies; and n is the number of observations. I^2 describes the percentage of variation across studies that is due to heterogeneity rather than chance (Higgins and Thompson 2002, Higgins et al 2003); and τ^2 is the between-study variance.

4.2.2 Variation across subgroups by economic variables

Tables 5 and 6 provide descriptive statistics by economic variables for which we have hypotheses (descriptive statistics for other variables can be found in Tables A1 and A2 in the Online Appendix).

Because the number of studies looking at different factors varies across games, the results of statistical tests should be taken with caution, and be verified via the meta-analysis regressions in the next sub-sections. The fact that there is the most destruction under inequality is a case in point: this is very likely to reflect the specific features of the large number of studies that have no inequality. More plausibly, cost appears to reduce destruction rates. Group identity does not appear to affect destruction decisions, but, when subjects are split by groups, destruction rates are higher. Being observed by others seems to lead to less destruction, while pressure by an authority seems to increase it. Other results are in a more plausible direction.

Table 5: Summary of extensive margin by economic variables

Group	N	M_{dd}	Lower 95%	Upper 95%	Q	P>Q	τ^2	% I^2	H^2
Cost									
Costless	83	0.34	0.29	0.38	20597.98	0.00	0.04	99.40	166.50
Costly	249	0.29	0.26	0.32	93926.42	0.00	0.05	99.96	2499.86
Inequality									
No inequality	138	0.41	0.37	0.45	23959.69	0.00	0.06	99.79	482.2
Endogenous	130	0.22	0.19	0.25	40671.16	0.00	0.03	99.93	1531.05
Exogenous advantageous	29	0.19	0.15	0.24	2665.12	0.00	0.01	99.47	190.20
Exogenous disadvantageous	35	0.26	0.21	0.30	2596.52	0.00	0.02	99.27	136.30
Group identity									
No group	274	0.30	0.28	0.33	1.10E+05	0.00	0.05	99.95	2176.93
Outgroup	32	0.31	0.23	0.38	2803.32	0.00	0.05	99.85	662.70
Ingroup	26	0.28	0.21	0.34	1303.79	0.00	0.03	99.56	227.71
Observability									
Not observed	148	0.29	0.25	0.33	24499.53	0.00	0.05	99.87	745.22
Observed by others	4	0.14	0.09	0.19	7.22	0.07	0.00	56.56	2.30
Observed by victim	180	0.31	0.28	0.34	88688.21	0.00	0.05	99.96	2430.70
Pressure									
No pressure	325	0.30	0.27	0.32	1.2e+05	0.00	0.045	99.95	1944.45
Pressure	7	0.41	0.23	0.58	111.21	0.00	0.052	93.61	15.65
One-shot									
Repeated	109	0.27	0.22	0.32	36903.11	0.00	0.070	99.98	4292.87
One-shot	223	0.31	0.29	0.34	48552.91	0.00	0.033	99.83	574.58
Overall	**332**	**0.30**	**0.28**	**0.32**	**1.20E+05**	**0.00**	**0.05**	**99.95**	**1912.41**

Notes: *Cost* refers to whether destruction was free or costly. *Inequality* is *endogenous* when it is due to effort, *exogenous* when it is due to luck, *exogenous advantageous* when a subject has an advantage over their opponent, and *exogenous disadvantageous* when their opponent has an advantage. To induce *group identity*, a subject is matched against either members of their own group (*ingroup*) or players from other groups (*outgroup*). Antisocial behavior can be *observed by other players*, *observed by the victim*, or no one (*not observed*). *Pressure* = 1 when subjects are under pressure to comply by an authority and = 0 otherwise. Finally, the game can be played only once (*one-shot*) or repeatedly (*repeated*).

Table 6: Summary of intensive margin by economic variables

Group	N	M_{dd}	Lower 95%	Upper 95%	Q	P>Q	τ^2	% I^2	H^2
Cost									
Costless	81	0.26	0.22	0.30	11474.08	0.00	0.03	99.67	306.24
Costly	231	0.19	0.16	0.21	23000000	0.00	0.03	99.99	8543.76
Inequality									
No inequality	127	0.28	0.24	0.31	22335.06	0.00	0.04	99.87	775.33
Endogenous	121	0.13	0.10	0.15	27863.98	0.00	0.02	99.99	7627.36
Exogenous advantageous	29	0.18	0.11	0.24	3036.83	0.00	0.03	99.80	490.25
Exogenous disadvantageous	35	0.22	0.17	0.27	2363.66	0.00	0.02	99.46	185.30
Group identity									
No group	254	0.19	0.17	0.21	230000.00	0.00	0.03	99.99	7712.46
Outgroup	32	0.27	0.20	0.35	2589.46	0.00	0.05	99.85	646.61
Ingroup	26	0.25	0.18	0.31	1198.97	0.00	0.03	99.58	239.28
Observability									
Not observed	146	0.16	0.13	0.19	15239.05	0.00	0.03	99.87	764.44
Observed by others	4	0.13	0.04	0.21	36.08	0.00	0.01	87.11	7.76
Observed by victim	162	0.24	0.21	0.27	210000.00	0.00	0.04	99.99	10194.9
Pressure									
No pressure	305	0.20	0.18	0.22	240000.00	0.00	0.03	99.98	6578.49
Pressure	7	0.41	0.23	0.58	111.21	0.00	0.05	93.61	15.65
One-shot									
Repeated	103	0.12	0.09	0.14	28110.23	0.00	0.02	99.99	9283.65
One-shot	209	0.25	0.22	0.28	61534.63	0.00	0.04	99.91	1055.82
Overall	312	0.20	0.18	0.22	240000.00	0.00	0.03	99.98	6638.53

Notes: *Cost* refers to whether destruction was free or costly. *Inequality* is *endogenous* when it is due to effort, *exogenous* when it is due to luck, *exogenous advantageous* when a subject has an advantage over their opponent, and *exogenous disadvantageous* when their opponent has an advantage. To induce *group identity*, a subject is matched against either members of their own group (*ingroup*) or players from other groups (*outgroup*). Antisocial behavior can be *observed by other players*, *observed by the victim*, or no one (*not observed*). *Pressure* = 1 when subjects are under pressure to comply by an authority and = 0 otherwise. Finally, the game can be played only once (*one-shot*) or repeatedly (*repeated*).

4.2.3 Meta-regressions on complete dataset

We begin this section by examining the impact of our economic variables on the levels of destruction. We then explore how the games, methodological variables and geographic location influence antisocial behavior.

Table 7: Meta-regression on complete dataset

	Destruction decision *(extensive margin)*			Destruction rate *(intensive margin)*		
	Model 1	**Model 2**	**Model 3**	**Model 4**	**Model 5**	**Model 6**
Game – Base: Money-burning						
Allocation games	-0.0188	-0.0499	-0.0284	0.00758	0.0166	0.0517
	(0.0457)	(0.0469)	(0.0453)	(0.0406)	(0.0415)	(0.0381)
Contest	0.200***	0.181***	0.169***	-0.0609**	-0.0294	0.0358
	(0.0314)	(0.0358)	(0.0376)	(0.0287)	(0.0308)	(0.0301)
Coordination games	0.121**	0.117**	0.186***	0.188***	0.225***	0.313***
	(0.0549)	(0.0579)	(0.0585)	(0.0464)	(0.0484)	(0.0471)
Social dilemma	-0.137***	-0.106***	-0.0856**	-0.149***	-0.0784**	-0.0405
	(0.0299)	(0.0411)	(0.0408)	(0.0268)	(0.0367)	(0.0348)
Vendetta	0.324***	0.246***	0.335***	0.304***	0.275***	0.335***
	(0.0476)	(0.0538)	(0.0536)	(0.0407)	(0.0455)	(0.0446)
Economic Variables						
Inequality – Base: No inequality						
Endogenous		-0.0970***	0.0269		-0.0780***	-0.0225
		(0.0282)	(0.0384)		(0.0244)	(0.0319)
Exogenous advantageous		-0.168***	-0.0634		-0.0607*	0.0252
		(0.0387)	(0.0413)		(0.0335)	(0.0347)
Exogenous disadvantageous		-0.101***	-0.0170		-0.0387	0.0330
		(0.0372)	(0.0416)		(0.0317)	(0.0344)
Group identity - Base: No group identity						
Outgroup		0.0189	-0.0201		0.0511*	0.0270
		(0.0363)	(0.0352)		(0.0306)	(0.0286)
Ingroup		-0.0280	-0.0690*		0.0255	0.0161
		(0.0390)	(0.0396)		(0.0328)	(0.0318)
Observability – Base: Hidden						
Observed by others		-0.120	-0.177*		-0.0495	-0.0722
		(0.0934)	(0.0916)		(0.0789)	(0.0739)
Observed by victim		0.0255	-0.00101		0.0216	0.000854
		(0.0258)	(0.0250)		(0.0237)	(0.0219)
Pressure		0.0436	0.103		0.138**	0.273***
		(0.0751)	(0.0733)		(0.0643)	(0.0606)
Costly		-0.00898	-0.0114		0.0253	-0.0325
		(0.0273)	(0.0277)		(0.0240)	(0.0233)
One-shot		0.0306	-0.0420		0.0766***	0.0362
		(0.0255)	(0.0277)		(0.0219)	(0.0223)
Methodological and Other Variables						
Published			0.0322			0.00892
			(0.0240)			(0.0200)
Between-subject			-0.0143			0.0398
			(0.0458)			(0.0398)
Strategy method			0.0528*			0.111***
			(0.0306)			(0.0271)
House money effect			0.0958***			-0.0249
			(0.0366)			(0.0312)
Number of players			0.00317			0.00507
			(0.00550)			(0.00475)
Experiment type – Base: Laboratory						
Online			0.0644			0.0877*
			(0.0621)			(0.0516)
Field			0.168***			0.166***

			(0.0387)			(0.0338)
Region – Base: Europe						
Africa			-0.0626			0.0364
			(0.0446)			(0.0396)
America			-0.112***			-0.0775***
			(0.0279)			(0.0222)
Asia-Pacific			-0.0966***			-0.0446*
			(0.0304)			(0.0248)
Constant	0.274***	0.315***	0.236***	0.206***	0.142***	0.0899
	(0.0133)	(0.0389)	(0.0753)	(0.0116)	(0.0338)	(0.0653)
Observations	332	332	332	312	312	312
p-value	2.53e-25	2.26e-28	4.38e-43	1.39e-24	6.78e-32	5.98e-57

Notes: All models were specified using random-effects meta-regressions which weigh each observation by the inverse of its standard error, assigning more weight to results from studies with larger samples and smaller deviation from the mean. (Thompson and Sharp 1999, Harbord and Higgins 2008).
Standard errors in parentheses, * p < 0.10, ** p < 0.05, *** p < 0.01

Games variables. Different game classes generally display robust differences. Relative to the largest class of games (money burning games), vendetta games exhibit a considerably larger frequency of destruction decisions and larger destruction rates, by about 1/3 when including all covariates. Coordination games also exhibit more destruction decisions and higher decision rates. Contest games also exhibit more destruction decisions, while the negative coefficient on the destruction rate is insignificant once we control for all covariates. Social dilemmas with counter-punishment have less destruction decisions, though the negative coefficient on the destruction rates is again insignificant once we control for all covariates. Overall, the picture is broadly consistent with the one emerging from Table 4 and Figures 5 and 6 above.

Economic Variables. The coefficients on exogenous advantageous inequality are negative and significant at the 1% level in Model 2 and at the 10% level in Model 5 but become insignificant when controls are added in Model 3 and 6. This indicates that, when subjects play against disadvantaged opponents, they engage in destruction as much as when there is no inequality. The coefficient on exogenous disadvantageous inequality is negative and significant at the 10% significance level in Model 2, which is counter-intuitive; however, this effect disappears when accounting for other factors in Model 3. Additionally, we found a negative effect of endogenous inequality on the destruction rate, indicating that subjects destroy less from their opponent when endowment is earned rather than exogenously given. Nonetheless, this effect also vanishes with the addition of controls.

Result 1 (H1): *There is no evidence to support greater antisocial behavior by exogenously disadvantaged subjects.*

The coefficients on 'Outgroup' are statistically insignificant, not corroborating an effect of outgroup discrimination on antisocial behavior. In contrast, the coefficients for 'Ingroup' are negative and

marginally significant at the 10% significance level for Model 3 (that is, when controlling for all covariates), suggesting that subjects are more lenient towards ingroup members than towards other players in the same experimental session. Specifically, subjects make roughly 7% less destruction decisions when matched against the ingroup compared to when no groups are formed.

Result 2 (H2): *Controlling for covariates, positive discrimination might reduce the frequency of antisocial behavior towards ingroup subjects. However, we find no negative discrimination on antisocial behavior towards outgroup subjects.*

The coefficient on 'Observed by others' is negative and marginally significant (once again controlling for covariates) at the 10% level in Model 3. Subjects appear to engage in less antisocial behavior when their actions can be observed relative to when they are hidden. The effect size is relatively large: on average, subjects make 18% less destruction decisions when their action is observable to others; but the 10% level significance points to large variability across observations. Surprisingly, we found a positive effect on 'Observed by victims' that is significant at the 5% level in Model 5, which is counter-intuitive; nonetheless, this effect disappears with the inclusion of other controls. We note that the number of observations where antisocial behavior can be observed by others is relatively small (5 observations) compared to when it is observed by victims (188 observations) or hidden (168 observations), suggesting that the overall effects might have been driven by influential observations. 'Pressure' increases the destruction rate, though not the frequency of destruction.[10] We further examine these findings in section 5.

Result 3 (H3): (a) *In the complete sample, subjects appear to make antisocial decisions less often when their actions can be observed by other participants and the experimenters, but not when they are observed by the victims.* (b) *Pressure by an authority to destroy leads them to destroy more often.*

As predicted by standard economic theory, we find that subjects engage in less destruction when there is a financial cost associated with such actions. However, the coefficients on 'Costly' are not significantly at the 10% level in any of the relevant models.

Result 4 (H4): *We did not find an effect of cost on either destruction decisions or destruction rates.*

[10] However, this is driven by a single study (Karakostas and Zizzo 2016). As a robustness check, we excluded Karakostas and Zizzo (2016) along with the variable Pressure and ran the meta-regressions again. The results are similar to Table 7 with no significant differences to either size or significance of coefficients.

While one-shot interaction significantly increases destruction rates by around 8% in Model 5, the effect disappears once we control for the Model 6 covariates.

Result 5 (H5): *We did not find an effect of one-shot interaction on destruction decisions or (robustly) on destruction rates.*

Methodological variables. The use of the strategy method appears problematic in that it appears to increase destruction rate and possibly also the frequency of destruction decisions. The results of other methodological variables are reassuring. Specifically, it does not matter whether the experiment is between-subject or within-subject. It also does not matter whether the observation comes from the roughly 2/3 of our observations that come from published studies or from the roughly 1/3 of our observations that come from unpublished studies, which speaks against publication bias. Finally, online studies possibly have a higher destruction rate (by around 9%, $p < 0.1$) and field studies have a higher frequency of destruction decisions and a higher destruction rates (in both cases by around 17%) relative to laboratory experiments.

Result 6: Use of the strategy method biases destruction rates upwards.

Result 7: There is no aggregate evidence of publication bias.

Result 8: Field studies have more antisocial behavior than laboratory experiments, for both destruction decisions and destruction rates.

Geographical variables. Both levels of destruction are significantly lower in experiments conducted in America and Asia-Pacific compared to those conducted in Europe (see Models 3 and 6), which is consistent with the descriptive statistics. There is no difference in the levels of destruction detected among studies conducted in Africa and Europe.

4.2.4 Meta-regressions on money burning experiments

We conjecture that a key explanation of why we may be getting such weak results in relation to our key economic variables, and possibly in relation to some methodological variables, is the sheer heterogeneity that we observe between and within game classes, as shown in section 4.2. We can control at least for the former by running a meta-analysis on a single game class. The class of money burning games is the one game class which has around 60% of our observations and which therefore has enough statistical power to enable a meaningful meta-analysis to be conducted. We can then verify the extent to which within game class heterogeneity can be explained by our economic (and other) variables.

The money burning dataset includes 46 studies (197 observations and 15,057 subjects) for the destruction decisions and 42 studies (192 observations and 14,164 subjects) for the destruction rates. Overall, the picture is similar to Table 7 except for the newly found significant effects for endogenous inequality, exogenous disadvantageous inequality, outgroup discrimination, and one-shot interaction.

Table 8: Meta-regression on money-burning dataset

	Destruction decisions *(Extensive margin)*		**Destruction rate** *(Intensive margin)*	
	Model 1	**Model 2**	**Model 3**	**Model 4**
Economic variables				
Inequality – Base: No inequality				
Endogenous inequality	-0.0122	0.103**	-0.125***	-0.0234
	(0.0331)	(0.0456)	(0.0339)	(0.0420)
Exogenous advantageous	-0.0991**	0.0144	-0.128***	-0.0300
	(0.0387)	(0.0420)	(0.0392)	(0.0380)
Exogenous disadvantageous	-0.0354	0.0831**	-0.0657*	0.0134
	(0.0361)	(0.0419)	(0.0359)	(0.0372)
Group identity - Base: No group identity				
Outgroup	0.0596*	0.0512	0.0761**	0.0663**
	(0.0349)	(0.0380)	(0.0347)	(0.0324)
Ingroup	0.00907	0.00194	0.0503	0.0453
	(0.0365)	(0.0409)	(0.0364)	(0.0348)
Observability – Base: Hidden				
Observed by others	-0.167*	-0.187*	-0.124	-0.0672
	(0.0941)	(0.101)	(0.0945)	(0.0890)
Observed by victim	-0.0281	-0.0498	-0.0238	-0.0178
	(0.0304)	(0.0313)	(0.0328)	(0.0286)
Pressure	0.0909	0.223***	0.130**	0.274***
	(0.0659)	(0.0678)	(0.0660)	(0.0598)
Costly	-0.00269	-0.0392	0.0247	-0.0265
	(0.0279)	(0.0314)	(0.0290)	(0.0287)
One-shot	0.224***	0.159***	0.124***	0.0882**
	(0.0341)	(0.0465)	(0.0327)	(0.0375)
Methodological Variables				
Published		-0.0211		-0.0528*
		(0.0302)		(0.0270)
Between-subject		0.140**		0.0782
		(0.0561)		(0.0484)
Strategy method		0.0108		0.125***
		(0.0357)		(0.0337)
House money effect		0.0302		-0.0213
		(0.0406)		(0.0375)
Number of players		-0.00155		0.00153
		(0.00657)		(0.00577)
Experiment type – Base: Laboratory				
Online		0.105*		0.0699
		(0.0623)		(0.0548)
Field		0.213***		0.105***

		(0.0422)		(0.0392)
Region – Base: Europe				
Africa		-0.0316		0.0384
		(0.0424)		(0.0398)
America		-0.0469		-0.0614**
		(0.0367)		(0.0311)
Asia-Pacific		-0.0446		-0.0281
		(0.0437)		(0.0368)
Constant	0.120**	-0.0361	0.149***	0.0755
	(0.0501)	(0.0894)	(0.0493)	(0.0767)
Observations	197	197	192	192
p-value	1.20e-12	4.25e-20	5.65e-11	6.68e-28

Notes: All models were specified using random-effects meta-regressions which weight each observation by the inverse of its standard error, assigning more weights to results from studies with larger samples and smaller deviation from the mean. (Thompson and Sharp 1999, Harbord and Higgins 2008).

More people destroy when they are exogenously disadvantaged than when they are exogenously advantaged, with the equality baseline being between the two. While harder to interpret, endogenous inequality also increases the frequency of destruction. However, destruction rates are unaffected.

Result 9 (H1): *In the money burning games exogenously disadvantaged subjects destroy more often.*

There is now clear evidence of negative discrimination against outsiders: destruction rates are higher with respect to subjects who are not part of one's own group.

Result 10 (H2): *In the money burning games there is no positive discrimination towards ingroup subjects*. *However, there is evidence of negative discrimination in the shape of a higher destruction rates against outgroup subjects.*

In relation to the social information variables, the picture is the same for the money burning sample as for the complete sample.

Result 11 (H3): *In the money burning games* (a) *subjects appear to make antisocial decisions less often when their actions can be observed by other participants and the experimenters, but not when they are observed by the victims;* (b) *pressure by an authority to destroy leads them to destroy more.*

We also replicate our previous results on H4 with the money burning sample. The coefficient on One-shot is now significant in all models ($p < 0.01$).

Result 12 (H4): *In the money burning games we did not find an effect of cost on either destruction decisions or destruction rates.*

Result 13 (H5): *In the money burning games, one shot interaction increases the frequency of destruction decisions as well as destruction rates.*

The picture with geographical variables is less pronounced than in the complete sample. In part this may be a matter of statistical power, but point coefficients also tend to be smaller. Destruction rates however remain statistically significantly lower in Europe than in America.

5. Discussion and Conclusion

Our meta-analyses investigated the potential determinants of antisocial behavior and how such behavior varies across different aspects of the experimental design. A key choice was in how to define the boundaries of antisocial behavior. We only considered behavior that entails subjects reducing another player's income without any pecuniary gains and is not a dominant strategy of a payoff-maximizing, rational agent. This excludes behavior that may be partially explained by self-interest or is difficult to disentangle from other motives, such as overbidding in the second-price auctions[11] or antisocial punishment in the public goods game when not followed by counter-punishment.[12]

Overall, we find that subjects engaged in socially inefficient payoff destruction in 30% of the times and destroyed about 20% of the maximum destruction allowed. The highest level of destruction is observed in the vendetta game, while destruction is lowest in social dilemmas with counter-punishment. One explanation is that the moral cost of destruction is lower in the money burning and vendetta games, which are contexts where antisocial behavior is salient by nature (Abbink and Herrmann 2011; Zizzo and Oswald 2001; Zizzo 2003). This result also suggests that the economic setting matters for nastiness: the social dilemma context where cooperation is socially desirable may have prompted subjects towards cooperating in these games (e.g., Ferraro and Vossler 2010; Zizzo 2010), as opposed to rivalry and nasty feuding in vendettas (e.g., Abbink et al. 2011; Bolle, Tan and Zizzo 2014).

There is significant heterogeneity not just across but also within different classes of games. This heterogeneity makes inference regarding economic variables difficult, particularly given the limited

[11] A spiteful agent is interested in increasing her own payoff while simultaneously decreasing the payoff of her opponent (Brandt and Weiß 2001; Brandt, Sandholm and Shoham 2005). Overbidding could be classified as spiteful when an agent, knowing she would lose for sure, places a bid higher than her own value and lower than the winning bidder's value in order to raise the price he has to pay and thus reduces his profit (e.g., Cooper and Fang 2008; Kogan and Morgan 2010; Nishimura et al. 2011; Kirchkamp and Mill 2021). However, some bidders also overbid because they derive positive utility from winning, over and beyond any monetary payoffs ('joy of winning'), or due to random errors (e.g., Cooper and Fang 2008; Tan 2020).

[12] Antisocial punishment refers to the sanctioning of people who behave pro-socially (Herrmann, Thöni and Gächter 2008; Rand and Nowak 2011, Irwin and Horne 2013, Thöni 2014). For our analysis, we do not examine antisocial punishment separately and instead focus on punishment with opportunities to counter-punish as many papers do not provide a clear definition of antisocial punishment or report it separately from direct punishment, which might have motives that do not fit with our inclusion criteria.

number of studies looking at antisocial behavior – let alone all the key economic variables - in most classes of games.

Nevertheless, some results emerge. There is some tentative evidence that the frequency of destruction is reduced with social pressure, specifically being observed by others (but not the victim) and pressure by an authority. Within money burning games, exogenously disadvantaged subjects are clearly more likely to destroy than exogenously advantaged subjects. In the general meta-analysis, destruction rates are higher towards outgroup members, though the result seems to be at least partially driven by settings other than money burning games. Whereas much of the literature focuses on the pro-social benefit of group identity (such as Tajfel et al. 1971; Tajfel 1978; Tajfel and Turner 1979; Akerlof and Kranton 2000), this result shows that group identity may be damaging towards outsiders (as emphasized in Hargreaves Heap and Zizzo 2009; Zizzo 2011; Eswaran and Neary 2022). Furthermore, we also find that one-shot interaction plausibly increases anti-social behavior, at least in the money burning sub-sample.

The use of the strategy method biases destruction rates upwards in both the complete dataset and in the money burning subsample; this is consistent with Oosterbeek et al. (2004), who found a higher rejection rate in their meta-analysis of ultimatum games. The results on house money effects and within-subject manipulations are less clear. They may increase the frequency of destruction decisions (in the complete sample or the money burning sample, respectively), but there is no evidence to suggest that we should be concerned about an effect on destruction rates.

Two methodological findings speak to the value of experimental findings on antisocial behavior, including traditional laboratory experiments. First, there is no evidence of publication bias leading to findings of spuriously high antisocial behavior. This is true in aggregate and in the sample of money burning experiments. It also true for almost all of the other classes of games, although the small samples lead to limitations in these tests, including particularly the one class of games where we find an effect (vendetta games), as this is driven by a single paper (Umashev 2019) within an overall sample of 3 papers.[13] Second, we find a consistently higher level of antisocial behavior in field experiments compared to lab experiments, both in the complete dataset and the money burning dataset. Our results on lab versus field lends support to the external validity of laboratory experiments (Anderson and Bushman 1997; Armantier and Boly 2012; Alm et al. 2015; Stoop 2014; Kachurka et al. 2021) and specifically to the importance of antisocial behavior as elicited in the laboratory literature.

[13] If we were to take the estimate of publication bias in the vendetta games at its face value, we note that the level of antisocial behavior observed would remain comparable to that of the large class of money burning experiments.

Sanjaya (2021) can only consider a small set of independent variables given his small sample. He does not have a field experiment variable but rather a combination of covarying proxies to it, such as a Students dummy. His results are consistent with ours regarding field experiments having more destruction, whereas in his smaller sample he finds a 'Working paper' effect that we do not replicate in our larger sample. He has a 'One-shot' variable that is positive and significant in one out of two of his more ambitious models. Two other of his findings are consistent with ours: namely, his one regional variable, 'Europe', displays a significantly positive coefficient, while his 'Costly' variable is not significant once co-variates are included. Neither Sanjaya (2021) nor us were able to look at a more refined measure of price of antisocial behavior than simply whether it is costly or not: the reason is the heterogeneity of such price technologies across games, not only across classes of games, but also within the class of money burning games. This is a case in point in which the heterogeneity across experimental designs does not permit robust inference. While Sanjaya (2021) does not look at within-sample heterogeneity, we found this as a major concern.

Apart from the scale and scope, a further advantage of our study over Sanjaya (2021) lies with our meta-analysis technique. While he uses standard linear regressions with observations weighted by the number of observations, our meta-analysis procedure weighs each study by the inverse of the variance of the effect estimate (i.e. 1 over the square of its standard error). Thus, larger studies with smaller standard errors, contribute more to the weighted average estimate than smaller studies with larger standard errors, which improves the precision of the estimate (Whitehead and Whitehead 1991). Our meta-regressions also account for the between-study variance unexplained by the included moderators by assuming that the true effects follow a normal distribution around the linear predictor (Thompson and Sharp 1999, Harbord and Higgins 2008).

If we consider together our methodological results on the absence of any upward bias of antisocial behavior in lab experiments, on the broad absence of publication bias, and on the excessive heterogeneity obstructing firm conclusions on key economic variables, we conclude that there is value in more laboratory experiments that systematically build on paradigmatic experimental designs to enable comparability and the identification of key economic drivers of antisocial behavior.

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Experimental Insights on Anti-Social Behavior:

Two Meta-Analyses

Online Appendix

Appendix A. Additional figures

Table A1: Summary of extensive margin by other variables

Group	N	M_{dd}	Lower 95%	Upper 95%	Q	P>Q	τ^2	% I^2	H^2
Game									
Allocation games	18	0.26	0.20	0.31	565.92	0.00	0.01	95.77	23.65
Contest	43	0.48	0.40	0.56	12482.05	0.00	0.07	99.63	269.35
Coordination games	12	0.40	0.26	0.53	1967.98	0.00	0.05	99.36	155.58
Money-burning	197	0.27	0.25	0.30	25269.26	0.00	0.03	99.83	577.93
Social dilemma	46	0.14	0.10	0.17	26907.94	0.00	0.01	99.94	1736.79
Vendetta	16	0.60	0.51	0.68	917.67	0.00	0.03	98.51	67.05
Published									
Unpublished	107	0.28	0.24	0.32	22985.07	0.00	0.04	99.92	1207.61
Published	225	0.31	0.28	0.34	56420.63	0.00	0.05	99.93	1527.69
Between-subject									
Within-subject	29	0.32	0.27	0.37	1064.59	0.00	0.02	99.07	107.46
Between-subject	303	0.30	0.27	0.32	110000.00	0.00	0.05	99.95	2170.62
Strategy method									
Direct response	280	0.28	0.26	0.31	110000.00	0.00	0.05	99.96	2231.50
Strategy method	52	0.39	0.34	0.45	3224.68	0.00	0.04	97.80	45.49
House money effect									
Earned endowment	142	0.20	0.17	0.22	43463.85	0.00	0.03	99.93	1480.22
Given endowment	190	0.38	0.35	0.41	25363.33	0.00	0.05	99.70	333.27
Experiment									
Online	17	0.27	0.22	0.32	425.27	0.00	0.01	96.41	27.89
Laboratory	261	0.28	0.26	0.31	67124.74	0.00	0.05	99.93	1529.39
Field	54	0.40	0.35	0.45	7868.43	0.00	0.03	99.84	629.09
Region									
Africa	21	0.35	0.25	0.44	5026.81	0.00	0.05	99.96	2254.98
America	55	0.18	0.13	0.22	6364.04	0.00	0.02	99.87	761.44
Asia-Pacific	60	0.25	0.20	0.30	7878.99	0.00	0.04	99.90	1014.57
Europe	196	0.35	0.32	0.38	44541.98	0.00	0.05	99.89	941.50
Overall	**332**	**0.30**	**0.28**	**0.32**	**1.20E+05**	**0.00**	**0.05**	**99.95**	**1912.41**

Notes: *Published* refers to whether the experiment/study was published or unpublished at the time the meta-analysis was conducted. A *between-subject* design randomises each subject to a single treatment, while a *within-subject* design exposes the same subject to different treatments. In an experiment, subjects are asked to either make selections for all contingent choices (*strategy method*) or choose actions on the path of play (*direct-response*). *House money effect* refers to whether the endowment was *earned* by subjects or exogenously *given* to subjects by the experimenter. Experiment can be carried out *online*, in the *laboratory*, or in the *field*. Finally, *region* refers to the geographic location where the experiment was conducted. *Number of players* is not included as it is not a categorical variable.

Table A2: Summary of intensive margin by other variables

Group	N	M_{dd}	Lower 95%	Upper 95%	Q	P>Q	τ^2	% I^2	H^2
Game									
Allocation games	16	0.21	0.15	0.28	1311.91	0.00	0.02	99.35	154.18
Contest	35	0.15	0.10	0.19	4467.38	0.00	0.02	99.59	246.87
Coordination games	12	0.39	0.26	0.53	3423.46	0.00	0.05	99.58	236.20
Money-burning	192	0.21	0.18	0.23	31895.67	0.00	0.03	99.86	725.94
Social dilemma	41	0.05	0.04	0.07	12199.92	0.00	0.00	99.96	2389.83
Vendetta	16	0.51	0.43	0.59	1119.18	0.00	0.03	98.62	72.62
Published									
Unpublished	101	0.24	0.20	0.28	19113.86	0.00	0.04	99.92	1222.92
Published	211	0.19	0.16	0.21	39202.55	0.00	0.03	99.99	7418.49
Between-subject									
Within-subject	27	0.27	0.21	0.34	3704.14	0.00	0.03	99.63	272.40
Between-subject	285	0.20	0.18	0.22	240000.00	0.00	0.03	99.99	7231.85
Strategy method									
Direct response	263	0.17	0.15	0.19	230000.00	0.00	0.03	99.98	5951.26
Strategy method	49	0.39	0.32	0.45	3280.23	0.00	0.04	98.16	54.36
House money effect									
Earned endowment	132	0.13	0.11	0.16	33094.13	0.00	0.02	99.99	8624.47
Given endowment	180	0.26	0.23	0.28	27303.64	0.00	0.04	99.82	567.94
Experiment									
Online	17	0.24	0.18	0.29	554.56	0.00	0.01	97.44	39.03
Laboratory	241	0.17	0.15	0.19	48511.90	0.00	0.03	99.98	6194.77
Field	54	0.33	0.28	0.39	12438.11	0.00	0.04	99.93	1398.07
Region									
Africa	17	0.35	0.23	0.47	7215.05	0.00	0.06	99.98	5509.27
America	55	0.09	0.07	0.11	9311.87	0.00	0.00	99.75	405.40
Asia-Pacific	58	0.21	0.17	0.26	6283.27	0.00	0.03	99.93	1418.73
Europe	182	0.22	0.19	0.25	39741.34	0.00	0.04	99.99	7536.96
Overall	**312**	**0.20**	**0.18**	**0.22**	**240000.00**	**0.00**	**0.03**	**99.98**	**6638.53**

Notes: *Published* refers to whether the experiment/study was published or unpublished at the time the meta-analysis was conducted. A *between-subject* design randomises each subject to a single treatment, while a *within-subject* design exposes the same subject to different treatments. In an experiment, subjects are asked to either make selections for all contingent choices (*strategy method*) or choose actions on the path of play (*direct-response*). *House money effect* refers to whether the endowment was *earned* by subjects or exogenously *given* to subjects by the experimenter. Experiment can be carried out *online*, in the *laboratory*, or in the *field*. Finally, *region* refers to the geographic location where the experiment was conducted. *Number of players* is not included as it is not a categorical variable.

Table A3: Meta-regression with game variables x game interactions

	Destruction decisions *(Extensive margin)* **Model 1**	**Destruction rate** *(Intensive margin)* **Model 2**
Base: Money-burning		
Allocation games	-0.00636	-0.141
	(0.0971)	(0.112)
Contest	-0.00124	-0.157
	(0.134)	(0.158)
Coordination games	0.111	0.150*
	(0.0923)	(0.0791)
Social dilemma	-0.0896	-0.159**
	(0.0604)	(0.0652)
Vendetta	0.205***	0.206***
	(0.0676)	(0.0580)
Published	0.00704	-0.0430*
	(0.0268)	(0.0233)
Base: Money-burning x Published		
Allocation games x Published	-0.0175	0.185
	(0.110)	(0.121)
Contest x Published	0.209	0.117
	(0.138)	(0.161)
Coordination games x Published	0.0157	0.0637
	(0.114)	(0.0975)
Social dilemma x Published	-0.0624	0.0272
	(0.0696)	(0.0719)
Vendetta x Published	0.236**	0.189**
	(0.0945)	(0.0811)
Constant	0.269***	0.230***
	(0.0205)	(0.0175)
Observations	332	312
p- value	4.25e-24	1.01e-22

Notes: Standard errors in parentheses, * p < 0.10, ** p < 0.05, *** p < 0.01

Appendix B. Dataset

This table provides details of all studies/observations included in the meta-analysis.

Study	Region	Game	M_{dd}	M_{dr}	N	Endogenous	Exogenous	Exogenous advantageous	Exogenous disadvantageous	Group identity	Outgroup	Ingroup	Observed by others	Observed by victim	Costly	House money effect	Experiment	One-shot	Published	Between-subject	Strategy method	No of players
Abbink de Haan 2014	Europe	coordination	0.00	0.00	26	1	0	0	0	0	0	0	0	1	1	1	Lab	0	1	1	0	2
Abbink de Haan 2014	Europe	coordination	0.78	0.78	27	1	0	0	0	0	0	0	0	1	1	1	Lab	0	1	1	0	2
Abbink de Haan 2014	Europe	coordination	0.34	0.34	56	1	0	0	0	0	0	0	0	1	1	1	Lab	0	1	1	0	2
Abbink de Haan 2014	Europe	coordination	0.68	0.68	50	1	0	0	0	0	0	0	0	0	1	1	Lab	0	1	1	0	2
Abbink Doğan 2019	Europe	coordination	0.27	0.27	15	0	0	0	0	0	0	0	0	0	0	0	Lab	0	1	1	0	4
Abbink Dong Huang 2020	Asia-Pacific	coordination	0.45	0.45	58	1	0	0	0	0	0	0	0	1	1	1	Lab	0	0	1	0	2
Abbink Dong Huang 2020	Asia-Pacific	coordination	0.10	0.10	58	1	0	0	0	0	0	0	0	1	1	1	Lab	0	0	1	0	2
Abbink Dong Huang 2020	Asia-Pacific	coordination	0.70	0.70	60	1	0	0	0	0	0	0	0	1	1	1	Lab	0	0	1	0	2
Abbink Dong Huang 2020	Asia-Pacific	coordination	0.27	0.27	52	1	0	0	0	0	0	0	0	1	1	1	Lab	0	0	1	0	2
Abbink Herrmann 2009	Europe	MB	0.14	0.14	72	1	0	0	0	0	0	0	0	0	1	1	Lab	0	0	1	0	8
Abbink Herrmann 2009	Europe	MB	0.42	0.42	72	1	0	0	0	0	0	0	0	0	1	1	Lab	0	0	1	0	8
Abbink Herrmann 2011	Europe	MB	0.10	0.10	69	0	0	0	0	0	0	0	0	0	1	0	Lab	1	1	1	0	2
Abbink Herrmann 2011	Europe	MB	0.26	0.26	62	0	0	0	0	0	0	0	0	1	1	0	Lab	1	1	1	0	2
Abbink Masclet Mirza 2018	Europe	contest	0.48	0.48	108	1	0	0	0	0	0	0	1	1	1	1	Lab	1	1	1	0	6
Abbink Masclet Mirza 2018	Europe	contest	0.43	0.43	48	1	0	0	0	0	0	0	1	1	1	1	Lab	0	1	1	0	6
Abbink Masclet Mirza 2018	Europe	contest	0.31	0.31	54	1	1	1	0	0	0	0	1	1	1	1	Lab	1	1	1	0	6
Abbink Masclet Mirza 2018	Europe	contest	0.14	0.14	54	1	1	0	1	0	0	0	1	1	1	1	Lab	1	1	1	0	6
Abbink Masclet Mirza 2018	Europe	contest	0.37	0.37	27	1	1	1	0	0	0	0	1	1	1	1	Lab	0	1	1	0	6
Abbink Masclet Mirza 2018	Europe	contest	0.25	0.25	27	1	1	0	1	0	0	0	1	1	1	1	Lab	0	1	1	0	6
Abbink Masclet van Veelen 2011	Europe	MB	0.31	0.31	57	0	1	1	0	0	0	0	0	1	1	0	Lab	1	0	1	0	2
Abbink Masclet van Veelen 2011	Europe	MB	0.19	0.19	103	0	1	0	1	0	0	0	0	1	1	0	Lab	1	0	1	0	2
Abbink Masclet van Veelen 2011	Europe	MB	0.17	0.17	56	0	1	1	0	0	0	0	0	1	1	0	Lab	1	0	1	0	2
Abbink Masclet van Veelen 2011	Europe	MB	0.30	0.30	56	0	1	0	1	0	0	0	0	1	1	0	Lab	1	0	1	0	2
Abbink Sadrieh 2009	Europe	MB	0.09	0.05	20	1	0	0	0	0	0	0	0	1	0	1	Lab	0	1	1	0	2
Abbink Sadrieh 2009	Europe	MB	0.39	0.20	20	1	0	0	0	0	0	0	0	0	0	1	Lab	0	1	1	0	2
Andrighetto et al 2016	Europe	SD	0.13	0.04	48	1	0	0	0	0	0	0	1	1	1	1	Lab	0	1	1	0	4
Andrighetto et al 2016	Europe	SD	0.13	0.03	48	1	0	0	0	0	0	0	1	1	1	1	Lab	0	1	1	0	4
Andrighetto et al 2016	Europe	SD	0.16	0.04	48	1	0	0	0	0	0	0	1	1	1	1	Lab	0	1	1	0	4
Andrighetto et al 2016	Europe	SD	0.14	0.03	48	1	0	0	0	0	0	0	1	1	1	1	Lab	0	1	1	0	4
Baillon Selim van Dolder 2013	Europe	MB	0.39	0.39	51	0	0	0	0	0	0	0	0	0	1	0	Online	1	1	1	0	2
Baillon Selim van Dolder 2013	Europe	MB	0.18	0.18	49	0	0	0	0	0	0	0	1	0	1	0	Online	1	1	1	0	2
Baillon Selim van Dolder 2013	Europe	MB	0.19	0.19	53	0	0	0	0	0	0	0	1	0	1	0	Online	1	1	1	0	2

Balafoutas Grechenig Nikiforakis 2014	Europe	allocation	0.14	0.14	80	0	1	0	1	0	0	0	0	1	1	0	Lab	1	1	1	1	3
Bauer et al 2018a	Europe	MB	0.42	0.47	74	0	0	0	0	1	1	0	1	1	1	0	Field	1	1	1	1	2
Bauer et al 2018a	Europe	MB	0.77	0.82	33	0	0	0	0	1	1	0	1	1	1	0	Field	1	1	1	1	2
Bauer et al 2018a	Europe	MB	0.19	0.18	41	0	0	0	0	1	1	0	1	1	1	0	Field	1	1	1	1	2
Bauer et al 2018a	Europe	MB	0.88	0.82	21	0	0	0	0	1	1	0	0	1	1	0	Field	1	1	1	1	2
Bauer et al 2018a	Europe	MB	0.47	0.42	74	0	0	0	0	1	0	1	1	1	1	0	Field	1	1	1	1	2
Bauer et al 2018a	Europe	MB	0.51	0.57	33	0	0	0	0	1	0	1	1	1	1	0	Field	1	1	1	1	2
Bauer et al 2018a	Europe	MB	0.23	0.26	41	0	0	0	0	1	0	1	1	1	1	0	Field	1	1	1	1	2
Bauer et al 2018a	Europe	MB	0.67	0.57	21	0	0	0	0	1	0	1	0	1	1	0	Field	1	1	1	1	2
Bauer et al 2018a	Europe	MB	0.29	0.26	53	0	0	0	0	1	0	1	0	1	1	0	Field	1	1	1	1	2
Bauer et al 2018b	Europe	MB	0.32	0.32	222	0	0	0	0	1	0	0	0	0	1	0	Field	1	0	1	1	2
Bauer et al 2018b	Europe	MB	0.29	0.29	222	0	0	0	0	1	0	0	0	0	1	0	Field	1	0	1	1	2
Bauer et al 2018b	Europe	MB	0.55	0.55	222	0	0	0	0	1	0	0	0	0	1	0	Field	1	0	1	1	2
Bauer et al 2018b	Europe	MB	0.42	0.42	346	0	0	0	0	1	0	0	0	0	1	0	Field	1	0	1	1	2
Bauer et al 2018b	Europe	MB	0.38	0.38	346	0	0	0	0	1	0	0	0	0	1	0	Field	1	0	1	1	2
Bauer et al 2018b	Africa	MB	0.51	0.51	346	0	0	0	0	1	0	0	0	0	1	0	Field	1	0	1	1	2
Bauer et al 2018b	Africa	MB	0.53	0.53	426	0	0	0	0	1	0	0	0	0	1	0	Field	1	0	1	1	2
Bauer et al 2018b	Africa	MB	0.44	0.44	426	0	0	0	0	1	0	0	0	0	1	0	Field	1	0	1	1	2
Bauer et al 2018b	Africa	MB	0.80	0.80	426	0	0	0	0	1	0	0	0	0	1	0	Field	1	0	1	1	2
Bauer et al 2018b	Africa	MB	0.59	0.59	417	0	0	0	0	1	0	0	0	0	1	0	Field	1	0	1	1	2
Bauer et al 2018b	Africa	MB	0.52	0.52	417	0	0	0	0	1	0	0	0	0	1	0	Field	1	0	1	1	2
Bauer et al 2018b	Africa	MB	0.84	0.84	417	0	0	0	0	1	0	0	0	0	1	0	Field	1	0	1	1	2
Beckman et al 2002	Asia-Pacific	allocation	0.29	0.29	40	0	0	0	0	0	0	0	0	0	0	0	Lab	0	1	1	0	5
Beckman et al 2002	Asia-Pacific	allocation	0.32	0.32	40	0	0	0	0	0	0	0	0	0	0	0	Lab	0	1	1	0	5
Beckman et al 2002	America	allocation	0.23	0.23	40	0	0	0	0	0	0	0	0	0	0	0	Lab	0	1	1	0	5
Beckman et al 2002	Asia-Pacific	allocation	0.13	0.13	40	0	0	0	0	0	0	0	0	0	0	0	Lab	0	1	1	0	5
Beckman et al 2002	Asia-Pacific	allocation	0.07	0.07	40	0	0	0	0	0	0	0	0	0	0	0	Lab	0	1	1	0	5
Bigoni Bortolotti Özen 2019	Europe	SD	0.07	0.07	30	1	0	0	0	1	1	0	0	0	0	1	Lab	1	0	1	0	2
Bigoni Bortolotti Özen 2019	Europe	SD	0.12	0.12	30	1	0	0	0	1	1	0	0	0	0	1	Lab	1	0	1	0	2
Blackwell Diamond 2016	America	MB	0.22	0.10	18	0	0	0	0	0	0	0	0	1	0	0	Lab	1	0	1	0	2
Blackwell Diamond 2016	America	MB	0.22	0.12	18	0	0	0	0	0	0	0	0	1	0	0	Lab	1	0	1	0	2
Blackwell Diamond 2016	America	MB	0.00	0.00	21	0	0	0	0	0	0	0	0	1	0	0	Lab	1	0	1	0	2
Blackwell Diamond 2016	America	MB	0.00	0.00	21	0	0	0	0	0	0	0	0	1	0	0	Lab	1	0	1	0	2
Blackwell Diamond 2016	America	MB	0.23	0.18	35	0	0	0	0	0	0	0	0	1	0	0	Lab	1	0	1	0	2
Blackwell Diamond 2016	America	MB	0.11	0.09	35	0	0	0	0	0	0	0	0	1	0	0	Lab	1	0	1	0	2
Bolle et al 2014	Europe	vendetta	0.83	0.70	48	0	0	0	0	0	0	0	0	1	0	0	Lab	1	1	1	0	2
Bolle et al 2014	Europe	vendetta	0.77	0.62	48	0	0	0	0	0	0	0	0	1	0	0	Lab	1	1	1	0	2
Bolle et al 2014	Europe	vendetta	0.84	0.70	48	0	0	0	0	0	0	0	0	1	0	0	Lab	1	1	1	0	2
Bolle et al 2014	Europe	vendetta	0.67	0.51	48	0	0	0	0	0	0	0	0	1	0	0	Lab	1	1	1	0	2

Bolle et al 2014	Europe	vendetta	0.73	0.58	48	0	0	0	0	0	0	0	0	1	0	0	Lab	1	1	1	0	2
Bolle et al 2014	Europe	vendetta	0.65	0.49	48	0	0	0	0	0	0	0	0	1	0	0	Lab	1	1	1	0	2
Bolle et al 2014	Europe	vendetta	0.70	0.66	48	0	0	0	0	0	0	0	0	1	0	0	Lab	1	1	1	0	2
Bolle et al 2014	Europe	vendetta	0.55	0.40	48	0	0	0	0	0	0	0	0	1	0	0	Lab	1	1	1	0	2
Bracht Zylbersztejn 2018	Europe	allocation	0.25	0.09	99	0	0	0	0	0	0	0	0	1	0	0	Lab	1	1	1	0	2
Bracht Zylbersztejn 2018	Europe	allocation	0.18	0.08	99	0	0	0	0	0	0	0	0	1	0	0	Lab	1	1	1	0	2
Caldara et al 2017	America	MB	0.07	0.04	43	0	0	0	0	0	0	0	0	1	1	0	Lab	1	1	1	0	2
Caldara et al 2017	America	MB	0.18	0.12	28	0	0	0	0	0	0	0	0	0	1	0	Lab	1	1	1	0	2
Caldara et al 2017	America	MB	0.20	0.10	41	0	0	0	0	0	0	0	0	1	1	0	Lab	0	1	1	0	2
Campos-Vazquez Mejia 2016	America	SD	0.66	0.14	11	1	0	0	0	0	0	0	0	1	1	1	Lab	1	1	1	0	4
Carpenter Matthews Schirm 2010	America	contest	0.01	0.06	112	1	0	0	0	0	0	0	0	0	0	1	Lab	1	1	1	0	8
Carrillo 2020	America	MB	0.60	0.19	294	0	0	0	0	0	0	0	0	1	0	0	Field	1	0	1	0	2
Carrillo 2020	America	MB	0.50	0.15	294	0	0	0	0	0	0	0	0	1	0	0	Field	1	0	1	0	2
Carrillo 2020	America	MB	0.44	0.14	294	0	0	0	0	0	0	0	0	1	0	0	Field	1	0	1	0	2
Celse 2016	Europe	MB	0.25	0.07	36	0	1	0	1	0	0	0	0	1	1	0	Lab	1	1	1	0	2
Celse 2016	Europe	MB	0.44	0.21	36	0	1	0	1	0	0	0	0	1	1	0	Lab	1	1	1	0	2
Celse 2016	Europe	MB	0.30	0.06	37	0	1	0	1	0	0	0	0	1	1	0	Lab	1	1	1	0	2
Charness Masclet Villeval 2014	Europe	contest	0.14	0.02	73	0	0	0	0	0	0	0	0	0	1	0	Lab	1	1	1	0	3
Charness Masclet Villeval 2014	Europe	contest	0.27	0.05	73	0	0	0	0	0	0	0	0	0	1	0	Lab	0	1	1	0	3
Cinyabuguma Page Putterman 2006	America	SD	0.25	0.02	64	1	0	0	0	0	0	0	1	1	1	1	Lab	0	1	1	0	4
Cinyabuguma Page Putterman 2006	America	SD	0.06	0.01	64	1	0	0	0	0	0	0	1	1	1	1	Lab	1	1	1	0	4
Dawes et al 2007	America	MB	0.28	0.06	40	0	1	0	1	0	0	0	0	0	1	0	Lab	1	1	1	0	4
Dawes et al 2007	America	MB	0.14	0.02	40	0	1	1	0	0	0	0	0	0	1	0	Lab	0	1	1	0	4
Dawes et al 2007	America	MB	0.15	0.04	40	0	0	0	0	0	0	0	0	0	1	0	Lab	0	1	1	0	4
Denant-Boemont Masclet Noussair 2007	Europe	SD	0.10	0.02	24	1	0	0	0	0	0	0	0	1	1	1	Lab	0	1	1	0	4
Denant-Boemont Masclet Noussair 2007	Europe	SD	0.10	0.02	24	1	0	0	0	0	0	0	1	0	1	1	Lab	0	1	1	0	4
Denant-Boemont Masclet Noussair 2007	Europe	SD	0.12	0.02	24	1	0	0	0	0	0	0	1	1	1	1	Lab	1	1	1	0	4
Denant-Boemont Masclet Noussair 2007	Europe	SD	0.12	0.02	24	1	0	0	0	0	0	0	1	1	1	1	Lab	1	1	1	0	4
Dickinson Masclet 2019	Europe	MB	0.15	0.15	96	0	0	0	0	0	0	0	0	1	1	0	Lab	1	1	1	1	2
Dickinson Masclet 2019	Europe	MB	0.14	0.14	27	0	0	0	0	0	0	0	0	1	1	0	Lab	1	1	1	1	2
Dickinson Masclet Peterle 2018	Europe	MB	0.29	0.29	12	0	1	0	1	1	1	0	0	1	1	0	Lab	1	1	1	1	8
Dickinson Masclet Peterle 2018	Europe	MB	0.10	0.10	12	0	1	0	1	1	1	0	0	1	1	0	Lab	1	1	1	1	8
Dickinson Masclet Peterle 2018	Europe	MB	0.61	0.61	12	0	1	0	1	1	1	0	0	1	1	0	Lab	1	1	1	1	8
Dickinson Masclet Peterle 2018	Europe	MB	0.15	0.15	12	0	1	0	1	1	1	0	0	1	1	0	Lab	1	1	1	1	8
El Harbi et al 2019	Africa	MB	0.07	0.04	28	0	0	0	0	0	0	0	0	1	1	0	Lab	1	1	1	0	2
El Harbi et al 2019	Africa	MB	0.04	0.35	28	0	0	0	0	0	0	0	0	0	1	0	Lab	1	1	1	0	2
El Harbi et al 2019	Africa	MB	0.35	0.45	40	0	0	0	0	0	0	0	0	0	1	0	Lab	0	1	1	0	2
El Harbi et al 2019	Africa	MB	0.45	0.05	22	0	0	0	0	0	0	0	0	0	1	0	Lab	0	1	1	0	2
Engel et al 2014	Europe	SD	0.11	0.03	68	1	0	0	0	0	0	0	0	1	1	1	Lab	1	1	1	0	4
Engel et al 2014	Europe	SD	0.09	0.04	48	1	0	0	0	0	0	0	0	1	1	1	Lab	1	1	1	0	4

Engel Kube Kurschilgen 2021	Europe	SD	0.18	0.04	68	1	0	0	0	0	0	0	0	1	1	1	Lab	1	0	1	0	4
Engel Kube Kurschilgen 2021	Europe	SD	0.16	0.05	72	1	0	0	0	0	0	0	0	1	1	1	Lab	1	0	1	0	4
Engel Kube Kurschilgen 2021	Europe	SD	0.36	0.08	64	1	0	0	0	0	0	0	0	1	1	1	Lab	0	0	1	0	4
Engel Kube Kurschilgen 2021	Europe	SD	0.27	0.06	60	1	0	0	0	0	0	0	0	1	1	1	Lab	1	0	1	0	4
Engelmann Nikiforakis 2015	Asia-Pacific	SD	0.10	0.02	40	1	0	0	0	0	0	0	1	1	1	1	Lab	1	1	1	0	4
Falk Fehr Huffman 2008	Europe	contest	0.19	-99.00	80	0	0	0	0	0	0	0	0	1	1	0	Lab	1	0	1	0	3
Fallucchi Quercia 2018	Europe	contest	0.19	0.74	52	1	1	1	0	0	0	0	0	0	1	1	Lab	1	1	1	0	4
Fehl et al 2012	Europe	SD	0.13	0.09	96	1	0	0	0	0	0	0	1	1	1	1	Lab	1	1	1	0	4
Fehl et al 2012	Europe	SD	0.02	0.02	42	1	0	0	0	0	0	0	1	1	1	1	Lab	1	1	1	0	2
Fehr 2018	Europe	MB	0.17	0.10	88	1	0	0	0	0	0	0	0	0	1	1	Lab	1	1	1	0	4
Fehr 2018	Europe	MB	0.23	0.20	88	1	0	0	0	0	0	0	0	0	1	1	Lab	1	1	1	0	4
Fehr 2018	Europe	MB	0.31	0.30	72	1	0	0	0	0	0	0	0	0	1	1	Lab	1	1	1	0	4
Fehr Glätzle-Rützler Sutter 2013	Europe	allocation	0.56	0.56	717	0	0	0	0	0	0	0	0	1	0	0	Field	1	1	0	0	2
Fehr Glätzle-Rützler Sutter 2013	Europe	allocation	0.29	0.29	717	0	0	0	0	0	0	0	0	1	0	0	Field	1	1	0	0	2
Fehr Schurtenberger 2018	Europe	SD	0.26	0.13	428	1	0	0	0	0	0	0	0	1	1	1	Lab	1	0	0	0	4
Fehr Schurtenberger 2018	Europe	SD	0.29	0.09	244	1	0	0	0	0	0	0	0	1	1	1	Lab	0	0	0	0	4
Fu et al 2017	Asia-Pacific	SD	0.23	0.28	40	1	0	0	0	0	0	0	0	1	1	1	Lab	1	1	1	0	4
Fu et al 2017	Asia-Pacific	SD	0.28	0.13	40	1	0	0	0	0	0	0	1	1	1	1	Lab	0	1	1	0	4
Gangadharan et al 2018	Asia-Pacific	MB	0.39	0.40	492	0	1	1	0	0	0	0	0	1	1	0	Field	0	0	1	0	2
Gangadharan et al 2018	Asia-Pacific	MB	0.40	0.35	492	0	1	0	1	0	0	0	0	1	1	0	Field	0	0	1	0	2
Gangadharan et al 2019	America	MB	0.08	0.08	10	1	0	0	0	1	0	1	0	0	1	1	Lab	0	1	1	0	6
Gangadharan et al 2019	America	MB	0.02	0.02	10	1	1	1	0	1	1	0	0	0	1	1	Lab	0	1	1	0	6
Gangadharan et al 2019	America	MB	0.05	0.05	10	1	1	0	1	1	1	0	0	0	1	1	Lab	0	1	1	0	6
Gangadharan et al 2019	America	MB	0.07	0.07	10	1	0	0	0	1	0	1	0	0	1	1	Lab	0	1	1	0	6
Gangadharan et al 2019	America	MB	0.08	0.08	10	1	0	0	0	1	0	1	0	0	1	1	Lab	0	1	1	0	6
Gangadharan et al 2019	America	MB	0.02	0.02	10	1	1	1	0	1	1	0	0	0	1	1	Lab	0	1	1	0	6
Gangadharan et al 2019	America	MB	0.02	0.02	10	1	1	0	1	1	1	0	0	0	1	1	Lab	0	1	1	0	6
Gangadharan et al 2019	America	MB	0.09	0.09	10	1	0	0	0	1	0	1	0	0	1	1	Lab	0	1	1	0	6
Gangadharan et al 2019	America	MB	0.09	0.09	11	1	0	0	0	0	0	0	0	0	1	1	Lab	0	1	1	0	6
Gangadharan et al 2019	America	MB	0.01	0.01	11	1	1	1	0	0	0	0	0	0	1	1	Lab	0	1	1	0	6
Gangadharan et al 2019	America	MB	0.06	0.06	11	1	1	0	1	0	0	0	0	0	1	1	Lab	0	1	1	0	6
Gangadharan et al 2019	America	MB	0.16	0.16	11	1	0	0	0	0	0	0	0	0	1	1	Lab	0	1	1	0	6
Gangadharan Grossman Vecci 2018	Asia-Pacific	MB	0.04	0.04	27	1	0	0	0	1	0	0	0	0	1	1	Lab	0	0	1	0	10
Gangadharan Grossman Vecci 2018	Asia-Pacific	MB	0.05	0.05	27	1	1	0	1	1	0	0	0	0	1	1	Lab	0	0	1	0	10
Gangadharan Grossman Vecci 2018	Asia-Pacific	MB	0.02	0.02	27	1	1	1	0	1	0	0	0	0	1	1	Lab	0	0	1	0	10
Gangadharan Grossman Vecci 2018	Asia-Pacific	MB	0.01	0.01	27	1	0	0	0	1	0	0	0	0	1	1	Lab	0	0	1	0	10
Gangadharan Grossman Vecci 2018	Asia-Pacific	MB	0.11	0.11	17	1	0	0	0	1	0	0	0	0	1	1	Lab	0	0	1	0	10
Gangadharan Grossman Vecci 2018	Asia-Pacific	MB	0.20	0.20	17	1	1	0	1	1	0	0	0	0	1	1	Lab	0	0	1	0	10
Gangadharan Grossman Vecci 2018	Asia-Pacific	MB	0.02	0.02	17	1	1	1	0	1	0	0	0	0	1	1	Lab	0	0	1	0	10

Gangadharan Grossman Vecci 2018	Asia-Pacific	MB	0.01	0.01	17	1	0	0	0	1	0	0	0	0	1	1	Lab	0	0	1	0	10
Gangadharan Grossman Vecci 2018	Asia-Pacific	MB	0.09	0.09	25	1	0	0	0	1	0	0	0	0	1	1	Lab	0	0	1	0	10
Gangadharan Grossman Vecci 2018	Asia-Pacific	MB	0.11	0.11	25	1	0	0	0	1	0	0	0	0	1	1	Lab	0	0	1	0	10
Gangadharan Grossman Vecci 2018	Asia-Pacific	MB	0.01	0.01	25	1	0	0	0	1	0	0	0	0	1	1	Lab	0	0	1	0	10
Gangadharan Grossman Vecci 2018	Asia-Pacific	MB	0.05	0.05	25	1	0	0	0	1	0	0	0	0	1	1	Lab	0	0	1	0	10
Gangadharan Grossman Vecci 2018	Asia-Pacific	MB	0.16	0.16	22	1	0	0	0	1	0	0	0	0	1	1	Lab	0	0	1	0	10
Gangadharan Grossman Vecci 2018	Asia-Pacific	MB	0.15	0.15	22	1	0	0	0	1	0	0	0	0	1	1	Lab	1	0	1	0	10
Gangadharan Grossman Vecci 2018	Asia-Pacific	MB	0.04	0.04	22	1	0	0	0	1	0	0	0	0	1	1	Lab	1	0	1	0	10
Gangadharan Grossman Vecci 2018	Asia-Pacific	MB	0.07	0.07	22	1	0	0	0	1	0	0	0	0	1	1	Lab	1	0	1	0	10
García-Gallego Georgantzis Ruiz-Martos 2019	Europe	allocation	0.13	0.10	126	0	0	0	0	0	0	0	0	1	0	0	Lab	1	1	1	0	2
Gino Pierce 2009	America	MB	0.00	0.00	20	1	0	0	0	0	0	0	0	1	0	1	Lab	1	1	1	0	2
Gino Pierce 2009	America	MB	0.28	0.28	20	1	1	0	1	0	0	0	0	1	0	1	Lab	0	1	1	0	2
Gino Pierce 2009	America	MB	0.00	0.00	20	1	1	1	0	0	0	0	0	1	0	1	Lab	0	1	1	0	2
Gino Pierce 2009	America	MB	0.00	0.00	20	1	0	0	0	0	0	0	0	1	0	1	Lab	0	1	1	0	2
Gordon Puurtinen 2020	Europe	SD	0.03	0.10	40	1	0	0	0	0	0	0	1	1	0	1	Lab	0	1	1	0	4
Gordon Puurtinen 2020	Europe	SD	0.01	0.03	32	1	0	0	0	0	0	0	1	1	1	1	Lab	1	1	1	0	4
Gordon Puurtinen 2020	Europe	SD	0.02	0.07	44	1	0	0	0	0	0	0	1	1	1	1	Lab	1	1	1	0	4
Gordon Puurtinen 2020	Europe	SD	0.05	0.08	48	1	0	0	0	0	0	0	1	1	0	1	Lab	1	1	1	0	4
Grosch Rau 2020	Europe	MB	0.50	0.30	40	1	1	0	1	0	0	0	0	0	0	1	Lab	1	1	1	1	2
Grosch Rau 2020	Europe	MB	0.20	0.12	20	1	1	1	0	0	0	0	0	0	0	1	Lab	1	1	1	1	2
Grosch Rau 2020	Europe	MB	0.25	0.10	20	1	1	1	0	0	0	0	0	0	0	1	Lab	1	1	1	1	2
Grosch Rau 2020	Europe	MB	0.31	0.21	48	1	0	0	1	0	0	0	0	0	0	1	Lab	1	1	1	1	2
Grosch Rau 2020	Europe	MB	0.21	0.07	24	1	0	1	0	0	0	0	0	0	0	1	Lab	1	1	1	1	2
Grosch Rau 2020	Europe	MB	0.25	0.13	24	1	0	1	0	0	0	0	0	0	0	1	Lab	1	1	1	1	2
Grosch Rau 2020	Europe	MB	0.29	0.15	38	0	1	0	1	0	0	0	0	0	0	0	Lab	0	1	1	1	2
Grosch Rau 2020	Europe	MB	0.32	0.15	19	0	1	1	0	0	0	0	0	0	0	0	Lab	0	1	1	1	2
Grosch Rau 2020	Europe	MB	0.42	0.22	19	0	1	1	0	0	0	0	0	0	0	0	Lab	0	1	1	1	2
Grossman Komai 2013	America	MB	0.18	0.18	80	1	0	0	0	1	0	1	0	0	1	1	Lab	0	0	1	0	10
Grossman Komai 2013	America	MB	0.08	0.08	80	1	1	1	0	1	1	0	0	0	1	1	Lab	1	0	1	0	10
Grossman Komai 2013	America	MB	0.13	0.13	80	1	1	0	1	1	1	0	0	0	1	1	Lab	0	0	1	0	10
Grossman Komai 2013	America	MB	0.11	0.11	80	1	0	0	0	1	0	1	0	0	1	1	Lab	0	0	1	0	10
Gupta 2018	Asia-Pacific	MB	0.36	0.15	180	1	0	0	0	0	0	0	0	0	1	1	Field	0	0	1	0	4
Harbring Irlenbusch 2008	Europe	contest	0.69	0.13	24	0	0	0	0	0	0	0	0	1	1	0	Lab	0	1	1	0	3
Harbring Irlenbusch 2008	Europe	contest	0.65	0.09	32	0	0	0	0	0	0	0	0	1	1	0	Lab	0	1	1	0	5
Harbring Irlenbusch 2008	Europe	contest	0.78	0.07	32	0	0	0	0	0	0	0	0	1	1	0	Lab	0	1	1	0	5
Harbring Irlenbusch 2008	Europe	contest	0.79	0.08	32	0	0	0	0	0	0	0	0	1	1	0	Lab	0	1	1	0	5
Harbring Irlenbusch 2008	Europe	contest	0.62	0.05	64	0	0	0	0	0	0	0	0	1	1	0	Lab	0	1	1	0	9
Harbring Irlenbusch 2008	Europe	contest	0.78	0.12	64	0	0	0	0	0	0	0	0	1	1	0	Lab	0	1	1	0	9
Harbring Irlenbusch 2008	Europe	contest	0.84	0.08	64	0	0	0	0	0	0	0	0	1	1	0	Lab	0	1	1	0	9

Harbring Irlenbusch 2011	Europe	contest	0.52	0.12	72	0	0	0	0	0	0	0	0	0	1	0	Lab	0	1	1	0	4
Harbring Irlenbusch 2011	Europe	contest	0.71	0.15	72	0	0	0	0	0	0	0	0	0	1	0	Lab	0	1	1	0	4
Harbring Irlenbusch 2011	Europe	contest	0.76	0.13	72	0	0	0	0	0	0	0	0	0	1	0	Lab	0	1	1	0	4
Harbring Irlenbusch 2011	Europe	contest	0.77	0.09	72	0	0	0	0	0	0	0	0	0	1	0	Lab	0	1	1	0	4
Harbring Irlenbusch 2011	Europe	contest	0.75	0.08	72	0	0	0	0	0	0	0	0	0	1	0	Lab	0	1	1	0	4
Harbring Irlenbusch 2011	Europe	contest	0.11	0.03	36	0	0	0	0	0	0	0	0	0	1	0	Lab	0	1	1	0	4
Harbring Irlenbusch 2011	Europe	contest	0.37	0.09	36	0	0	0	0	0	0	0	0	0	1	0	Lab	0	1	1	0	4
Harbring Irlenbusch 2011	Europe	contest	0.65	0.07	36	0	0	0	0	0	0	0	0	0	1	0	Lab	0	1	1	0	4
Harbring Irlenbusch 2011	Europe	contest	0.59	0.08	36	0	0	0	0	0	0	0	0	0	1	0	Lab	0	1	1	0	4
Harbring Irlenbusch 2011	Europe	contest	0.69	0.05	36	0	0	0	0	0	0	0	0	0	1	0	Lab	0	1	1	0	4
Harbring Irlenbusch 2011	Europe	contest	0.16	0.05	36	0	0	0	0	0	0	0	0	0	1	0	Lab	0	1	1	0	4
Harbring Irlenbusch 2011	Europe	contest	0.47	0.07	36	0	0	0	0	0	0	0	0	0	1	0	Lab	0	1	1	0	4
Harbring Irlenbusch 2011	Europe	contest	0.45	0.07	36	0	0	0	0	0	0	0	0	0	1	0	Lab	0	1	1	0	4
Harbring Irlenbusch 2011	Europe	contest	0.62	0.12	36	0	0	0	0	0	0	0	0	0	1	0	Lab	0	1	1	0	4
Harbring Irlenbusch 2011	Europe	contest	0.58	0.12	36	0	0	0	0	0	0	0	0	0	1	0	Lab	0	1	1	0	4
Harbring Irlenbusch 2011	Europe	contest	0.49	0.08	36	0	0	0	0	0	0	0	0	0	1	0	Lab	0	1	1	0	4
Harbring Irlenbusch 2011	Europe	contest	0.76	0.13	36	0	0	0	0	0	0	0	0	0	1	0	Lab	0	1	1	0	4
Harbring Irlenbusch 2011	Europe	contest	0.79	0.11	36	0	0	0	0	0	0	0	0	0	1	0	Lab	1	1	1	0	4
Harbring Irlenbusch 2011	Europe	contest	0.83	0.09	36	0	0	0	0	0	0	0	0	0	1	0	Lab	1	1	1	0	4
Harbring Irlenbusch 2011	Europe	contest	0.83	0.08	36	0	0	0	0	0	0	0	0	0	1	0	Lab	1	1	1	0	4
Hopfensitz Reuben 2009	Europe	SD	0.21	0.09	68	1	0	0	0	0	0	0	0	1	1	1	Lab	1	1	1	0	2
Jauernig Uhl 2019	Europe	MB	0.52	0.32	23	1	0	0	0	0	0	0	0	0	0	0	Lab	1	1	1	0	2
Jauernig Uhl 2019	Europe	MB	0.27	0.03	41	1	0	0	0	0	0	0	0	0	0	0	Lab	1	1	1	0	2
Jauernig Uhl 2019	Europe	MB	0.22	0.14	222	1	0	0	0	0	0	0	0	0	0	0	Lab	1	1	1	0	2
Jauernig Uhl Luetge 2016	Europe	MB	0.43	0.19	35	1	0	0	0	1	1	0	0	0	0	0	Lab	1	1	1	0	2
Jauernig Uhl Luetge 2016	Europe	MB	0.37	0.21	35	1	0	0	0	1	1	0	0	0	0	0	Lab	1	1	1	0	2
Jauernig Uhl Luetge 2016	Europe	MB	0.56	0.25	34	1	0	0	0	1	1	0	0	0	0	0	Lab	1	1	1	0	2
Jauernig Uhl Luetge 2016	Europe	MB	0.41	0.16	34	1	0	0	0	1	1	0	0	0	0	0	Lab	1	1	1	0	2
Jauernig Uhl Luetge 2016	Europe	MB	0.40	0.18	80	1	0	0	0	1	0	1	0	0	0	0	Lab	1	1	1	0	2
Jauernig Uhl Luetge 2016	Europe	MB	0.30	0.11	80	1	0	0	0	1	0	1	0	0	0	0	Lab	1	1	1	0	2
Jauernig Uhl Luetge 2017	Europe	MB	0.23	0.09	57	1	0	0	0	0	0	0	0	0	0	0	Lab	0	1	1	0	2
Jauernig Uhl Luetge 2017	Europe	MB	0.26	0.09	57	1	0	0	0	0	0	0	0	0	0	0	Lab	0	1	1	0	2
Johnson Salmon 2016	America	contest	0.10	0.10	56	1	0	0	0	0	0	0	0	0	1	0	Lab	1	1	1	0	2
Johnson Salmon 2016	America	contest	0.07	0.07	55	1	0	0	0	0	0	0	0	0	1	0	Lab	1	1	1	0	2
Johnson Salmon 2016	America	contest	0.08	0.08	40	1	0	0	0	0	0	0	0	0	1	0	Lab	1	1	1	0	2
Johnson Salmon 2016	America	contest	0.10	0.10	39	0	0	0	0	0	0	0	0	0	1	0	Lab	1	1	1	0	2
Kamei Putterman 2015	America	SD	0.06	0.01	40	1	0	0	0	0	0	0	1	1	1	1	Lab	1	1	1	0	4
Kamei Putterman 2015	America	SD	0.04	0.01	36	1	0	0	0	0	0	0	1	1	1	1	Lab	1	1	1	0	4
Kamei Putterman 2015	America	SD	0.04	0.01	40	1	0	0	0	0	0	0	0	1	1	1	Lab	1	1	1	0	4

Kamei Putterman 2015	America	SD	0.09	0.02	48	1	0	0	0	0	0	0	0	1	1	1	Lab	1	1	1	0	4
Karakostas Zizzo 2016	Europe	MB	0.08	0.08	40	0	0	0	0	0	0	0	0	1	1	0	Lab	1	1	1	0	2
Karakostas Zizzo 2016	Europe	MB	0.15	0.15	40	0	0	0	0	0	0	0	0	0	1	0	Lab	1	1	1	0	2
Karakostas Zizzo 2016	Europe	MB	0.18	0.18	40	0	0	0	0	0	0	0	0	1	1	0	Lab	1	1	1	0	2
Karakostas Zizzo 2016	Europe	MB	0.30	0.30	40	0	0	0	0	0	0	0	0	1	1	0	Lab	0	1	1	0	2
Karakostas Zizzo 2016	Europe	MB	0.43	0.43	54	0	0	0	0	0	0	0	0	1	1	0	Lab	1	1	1	0	2
Karakostas Zizzo 2016	Europe	MB	0.59	0.59	56	0	0	0	0	0	0	0	0	1	1	0	Lab	0	1	1	0	2
Karakostas Zizzo 2016	Europe	MB	0.60	0.60	80	0	0	0	0	0	0	0	0	1	1	0	Lab	0	1	1	0	2
Karakostas Zizzo 2016	Europe	MB	0.70	0.70	40	0	0	0	0	0	0	0	0	1	1	0	Lab	1	1	1	0	2
Kebede Zizzo 2015	Africa	MB	0.29	0.08	240	1	0	0	0	0	0	0	0	0	1	1	Field	1	1	1	0	6
Kebede Zizzo 2015	Africa	MB	0.26	0.12	60	1	0	0	0	0	0	0	0	0	1	1	Lab	0	1	1	0	6
Kebede Zizzo 2015	Africa	MB	0.19	0.05	60	1	0	0	0	0	0	0	0	0	1	1	Lab	1	1	1	0	6
Kern 2014	Europe	SD	0.05	0.06	72	1	0	0	0	0	0	0	0	1	1	1	Lab	1	0	1	0	4
Kern 2014	Europe	SD	0.05	0.03	72	1	0	0	0	0	0	0	0	1	1	1	Lab	1	0	1	0	4
Kessler Ruiz-Martos Skuse 2012	Europe	MB	0.16	0.11	606	0	0	0	0	0	0	0	0	0	0	1	Lab	1	0	1	0	2
Koch 2013	Europe	MB	0.05	-99.00	102	0	0	0	0	0	0	0	0	0	0	0	Lab	1	0	1	1	2
Masclet Noussair Villeval 2013	Europe	SD	0.17	0.06	72	1	0	0	0	0	0	0	0	0	1	1	Lab	1	1	1	0	4
Mihok 2015	Asia-Pacific	allocation	0.36	0.20	20	1	0	0	0	0	0	0	0	1	1	1	Lab	1	0	1	1	2
Mihok 2015	Asia-Pacific	allocation	0.37	0.22	28	1	0	0	0	0	0	0	0	1	1	1	Lab	1	0	1	1	2
Mill Morgan 2020	Europe	MB	0.33	0.31	749	0	1	0	1	1	0	1	0	1	0	0	Online	1	0	0	0	2
Mill Morgan 2020	Europe	MB	0.44	0.42	872	0	1	0	1	1	1	0	0	1	0	0	Online	1	0	0	0	2
Mill Morgan 2020	Europe	MB	0.45	0.41	430	0	1	0	1	1	0	1	0	1	0	0	Online	1	0	0	0	2
Mill Morgan 2020	Europe	MB	0.43	0.40	565	0	1	0	1	1	1	0	0	1	0	0	Online	1	0	0	0	2
Mill Morgan 2020	Europe	MB	0.17	0.13	749	0	1	0	1	1	0	1	0	1	1	0	Online	1	0	0	0	2
Mill Morgan 2020	Europe	MB	0.21	0.15	872	0	1	0	1	1	1	0	0	1	1	0	Online	1	0	0	0	2
Mill Morgan 2020	Europe	MB	0.22	0.16	430	0	1	0	1	1	0	1	0	1	1	0	Online	0	0	0	0	2
Mill Morgan 2020	Europe	MB	0.21	0.14	565	0	1	0	1	1	1	0	0	1	1	0	Online	0	0	0	0	2
Mill Morgan 2020	Europe	MB	0.15	0.12	749	0	1	1	0	1	0	1	0	1	0	0	Online	0	0	0	0	2
Mill Morgan 2020	Europe	MB	0.23	0.20	872	0	1	1	0	1	1	1	0	1	0	0	Online	0	0	0	0	2
Mill Morgan 2020	Europe	MB	0.19	0.16	430	0	1	1	0	1	0	1	0	1	0	0	Online	1	0	0	0	2
Mill Morgan 2020	Europe	MB	0.23	0.19	565	0	1	1	0	1	1	0	0	1	0	0	Online	1	0	0	0	2
Müller Schwieren Spitzer 2016	Europe	MB	0.34	0.33	56	0	0	0	0	0	0	0	0	0	1	0	Lab	1	0	1	0	4
Müller Schwieren Spitzer 2016	Europe	MB	0.07	0.01	44	0	0	0	0	0	0	0	0	0	1	0	Lab	1	0	1	0	4
Müller Schwieren Spitzer 2016	Europe	MB	0.02	0.02	44	0	0	0	0	0	0	0	0	0	1	0	Lab	1	0	1	0	4
Müller Schwieren Spitzer 2016	Europe	MB	0.12	0.03	52	0	0	0	0	0	0	0	0	0	1	0	Lab	1	0	1	0	4
Nadelhoffer et al 2013	America	MB	0.26	0.21	34	0	1	0	1	0	0	0	1	1	0	0	Online	1	1	1	1	3
Nadelhoffer et al 2013	America	MB	0.40	0.31	35	0	1	0	1	0	0	0	0	1	0	0	Online	0	1	1	1	3
Nicklisch Wolff 2011	Europe	SD	0.03	0.17	72	1	0	0	0	0	0	0	1	1	1	1	Lab	0	1	1	0	4
Nicklisch Wolff 2011	Europe	SD	0.02	0.16	72	1	0	0	0	0	0	0	1	1	1	1	Lab	0	1	1	0	4

Nikiforakis 2008	Europe	SD	0.18	0.06	48	1	0	0	0	0	0	0	0	1	1	1	Lab	1	1	1	0	4
Nikiforakis 2008	Europe	SD	0.29	0.06	48	1	0	0	0	0	0	0	0	1	1	1	Lab	1	1	1	0	4
Nikiforakis Engelmann 2011	Asia-Pacific	SD	0.18	0.02	52	1	0	0	0	0	0	0	1	1	1	1	Lab	1	1	1	0	4
Nikiforakis Engelmann 2011	Asia-Pacific	SD	0.10	0.05	52	1	0	0	0	0	0	0	1	1	1	1	Lab	1	1	1	0	4
Nikiforakis Noussair Wilkening 2012	Asia-Pacific	SD	0.02	0.02	64	1	0	0	0	0	0	0	1	1	1	1	Lab	1	1	1	0	4
Nikiforakis Noussair Wilkening 2012	Asia-Pacific	SD	0.02	0.02	52	1	0	0	0	0	0	0	1	1	1	1	Lab	1	1	1	0	4
Prediger Vollan Herrmann 2014	Europe	MB	0.23	0.23	60	0	0	0	0	0	0	0	0	1	1	0	Field	1	1	1	0	2
Prediger Vollan Herrmann 2014	Europe	MB	0.40	0.40	60	0	0	0	0	0	0	0	0	1	1	0	Field	1	1	1	0	2
Rustichini Vostroknutov 2014	America	MB	0.23	0.15	21	1	0	0	0	0	0	0	0	0	1	1	Lab	1	1	1	0	14
Rustichini Vostroknutov 2014	America	MB	0.16	0.10	14	1	0	0	0	0	0	0	0	0	1	1	Lab	1	1	1	0	14
Rustichini Vostroknutov 2014	America	MB	0.41	0.31	30	1	0	0	0	0	0	0	0	0	1	1	Lab	1	1	1	0	14
Rustichini Vostroknutov 2014	America	MB	0.44	0.28	32	1	0	0	0	0	0	0	0	0	1	1	Lab	1	1	1	0	14
Sadrieh Schröder 2016	Europe	allocation	0.36	0.36	28	0	0	0	0	0	0	0	0	0	1	0	Lab	1	1	1	0	2
Sadrieh Schröder 2016	Europe	allocation	0.24	0.24	28	0	1	1	0	0	0	0	0	0	1	0	Lab	1	1	1	0	2
Sadrieh Schröder 2016	Europe	allocation	0.34	0.34	29	0	1	0	1	0	0	0	0	0	1	0	Lab	1	1	1	0	2
Sadrieh Schröder 2016	Europe	allocation	0.28	0.28	30	0	0	0	0	0	0	0	0	0	1	0	Lab	1	1	1	0	2
Sadrieh Schröder 2017	Europe	MB	0.37	0.20	59	0	1	1	0	0	0	0	0	1	0	0	Lab	1	1	1	0	2
Sadrieh Schröder 2017	Europe	MB	0.20	0.08	111	0	1	1	0	0	0	0	0	1	1	0	Lab	1	1	1	0	2
Sadrieh Schröder 2017	Europe	MB	0.32	0.12	99	0	1	1	0	0	0	0	0	1	1	0	Lab	1	1	1	0	2
Saleh 2020	Asia-Pacific	MB	0.37	0.37	58	0	0	0	0	1	0	1	0	1	0	0	Field	1	0	0	0	2
Saleh 2020	Asia-Pacific	MB	0.24	0.24	58	0	0	0	0	1	0	1	0	1	1	0	Field	1	0	0	0	2
Saleh 2020	Asia-Pacific	MB	0.12	0.12	58	0	0	0	0	1	0	1	0	1	1	0	Field	1	0	0	0	2
Saleh 2020	Asia-Pacific	MB	0.49	0.49	66	0	0	0	0	1	1	0	0	1	0	0	Field	1	0	0	0	2
Saleh 2020	Asia-Pacific	MB	0.29	0.29	66	0	0	0	0	1	1	0	0	1	1	0	Field	1	0	0	0	2
Saleh 2020	Asia-Pacific	MB	0.38	0.38	66	0	0	0	0	1	1	0	0	1	1	0	Field	1	0	0	0	2
Sanjaya 2019	Asia-Pacific	MB	0.26	0.26	127	0	0	0	0	0	0	0	0	1	1	0	Field	1	0	1	1	2
Sanjaya 2019	Asia-Pacific	MB	0.25	0.25	204	0	0	0	0	0	0	0	0	1	1	0	Field	1	0	1	1	2
Islam et al 2020	Asia-Pacific	MB	0.65	0.24	360	0	0	0	0	0	0	0	0	1	1	0	Field	1	0	1	0	2
Islam et al 2020	Asia-Pacific	MB	0.66	0.24	402	0	0	0	0	0	0	0	0	1	1	0	Field	1	0	1	0	2
Shaikh 2019	Europe	MB	0.06	0.06	18	0	1	1	0	0	0	0	0	1	1	1	Lab	1	0	1	0	2
Shaikh 2019	Europe	MB	0.39	0.71	18	0	1	0	1	0	0	0	0	1	1	1	Lab	1	0	1	0	2
Simunovic Mifune Yamagishi 2013	Asia-Pacific	coordination	0.50	0.50	32	0	0	0	0	0	0	0	0	1	1	0	Lab	1	1	1	0	2
Simunovic Mifune Yamagishi 2013	Asia-Pacific	coordination	0.04	0.04	26	0	0	0	0	0	0	0	0	1	1	0	Lab	1	1	1	0	2
Simunovic Mifune Yamagishi 2013	Asia-Pacific	coordination	0.29	0.29	73	0	0	0	0	1	0	1	0	1	1	0	Lab	1	1	1	0	2
Simunovic Mifune Yamagishi 2013	Asia-Pacific	coordination	0.32	0.32	59	0	0	0	0	1	1	0	0	1	1	0	Lab	1	1	1	0	2
Umashev 2019	Asia-Pacific	vendetta	0.58	0.58	82	0	0	0	0	1	0	1	0	1	0	0	Lab	1	0	0	1	2
Umashev 2019	Asia-Pacific	vendetta	0.54	0.54	82	0	0	0	0	0	0	0	0	1	0	0	Lab	1	0	0	1	2
Umashev 2019	Asia-Pacific	vendetta	0.55	0.55	82	0	0	0	0	1	1	0	0	1	0	0	Lab	1	0	0	1	2
Umashev 2019	Asia-Pacific	vendetta	0.63	0.63	38	0	0	0	0	1	0	1	0	1	0	0	Lab	1	0	1	1	2
Umashev 2019	Asia-Pacific	vendetta	0.58	0.58	40	0	0	0	0	1	1	0	0	1	0.00	0.00	Lab	1	0	1	1	2

Vicente Vilela 2020	Africa	MB	0.17	0.17	243	0	0	0	0	1	0	0	0	1	1	0	Field	1	0	1	0	2
Vicente Vilela 2020	Africa	MB	0.19	0.19	37	0	0	0	0	1	0	0	0	1	1	0	Field	0	0	1	0	2
Vicente Vilela 2020	Africa	MB	0.28	0.28	37	0	0	0	0	1	0	0	0	1	1	0	Field	1	0	1	0	2
Vicente Vilela 2020	Africa	MB	0.15	0.15	38	0	0	0	0	1	0	0	0	1	1	0	Field	1	0	1	0	2
Vicente Vilela 2020	Africa	MB	0.00	0.00	30	0	0	0	0	1	0	0	0	1	1	0	Field	1	0	1	0	2
Vorlaufer 2019	Africa	MB	0.19	0.19	62	0	0	0	0	0	0	0	0	0	1	0	Field	1	1	1	0	2
Vorlaufer 2019	Africa	MB	0.29	0.29	55	0	0	0	0	0	0	0	0	1	1	0	Field	1	1	1	0	2
Vorlaufer 2019	Africa	MB	0.16	0.16	120	0	0	0	0	0	0	0	1	0	1	0	Field	1	1	1	0	2
Schier & Waligora 2016	Europe	contest	0.36	0.07	36	0	0	0	0	0	0	0	0	1	1	0	Lab	1	0	1	0	2
Wang 2017	Europe	vendetta	0.30	0.20	72	1	0	0	0	0	0	0	0	1	0	1	Lab	1	0	1	0	2
Wang 2017	Europe	vendetta	0.27	0.18	104	1	0	0	0	0	0	0	0	1	0	1	Lab	1	0	1	0	2
Wang 2017	Europe	vendetta	0.36	0.26	150	1	0	0	0	0	0	0	0	1	0	1	Lab	1	0	1	0	2
Wobker Kenning 2013	Europe	MB	0.34	0.43	31	1	0	0	0	0	0	0	0	1	1	1	Lab	1	1	1	0	2
Wobker Kenning 2013	Europe	MB	0.29	0.53	31	1	0	0	0	0	0	0	0	1	1	1	Lab	1	1	1	0	2
Zeballos 2018	America	MB	0.46	0.11	114	1	0	0	0	0	0	0	0	0	1	1	Field	1	1	0	0	5
Zeballos 2018	America	MB	0.13	0.02	171	1	0	0	0	0	0	0	0	0	1	1	Field	1	1	0	0	5
Zeballos 2018	America	MB	0.40	0.09	113	1	0	0	0	0	0	0	0	0	1	1	Field	1	1	0	0	5
Zeballos 2018	America	MB	0.14	0.02	172	1	0	0	0	0	0	0	0	0	1	1	Field	1	1	0	0	5
Zevallos Porles 2018	Europe	MB	0.00	0.00	20	0	0	0	0	0	0	0	0	1	1	0	Lab	1	0	1	0	2
Zevallos Porles 2018	Europe	MB	0.10	0.10	20	0	0	0	0	0	0	0	0	1	0	0	Lab	1	0	1	0	2
Zhang Brown Xie 2020	America	MB	0.09	0.09	64	0	0	0	0	0	0	0	0	0	0	1	Lab	1	1	1	0	2
Zhang Brown Xie 2020	America	MB	0.15	0.15	60	0	0	0	0	0	0	0	0	0	0	1	Lab	1	1	1	0	2
Zhang Ortmann 2016	Asia-Pacific	MB	0.28	0.28	47	0	1	1	0	0	0	0	0	1	0	0	Lab	1	1	1	0	2
Zhang Ortmann 2016	Asia-Pacific	MB	0.15	0.15	48	0	1	1	0	0	0	0	0	1	0	0	Lab	1	1	1	0	2
Zhang Ortmann 2016	Asia-Pacific	MB	0.17	0.17	48	0	1	1	0	0	0	0	0	1	0	0	Lab	1	1	1	0	2
Zizzo 2003	Europe	MB	0.38	0.15	16	1	0	0	0	0	0	0	0	0	1	1	Lab	1	1	1	0	4
Zizzo 2003	Europe	MB	0.34	0.08	16	1	0	0	0	0	0	0	0	0	1	1	Lab	1	1	1	0	4
Zizzo 2003	Europe	MB	0.25	0.11	20	1	0	0	0	0	0	0	0	0	1	1	Lab	1	1	1	0	4
Zizzo 2003	Europe	MB	0.20	0.04	20	1	0	0	0	0	0	0	0	0	1	1	Lab		1	1	0	4
Zizzo 2003	Europe	MB	0.20	0.02	16	1	0	0	0	0	0	0	0	0	1	1	Lab		1	1	0	4
Zizzo Fleming 2011	Europe	MB	0.40	0.23	216	0	0	0	0	0	0	0	0	0	1	0	Lab		1	1	0	2
Zizzo Oswald 2001	Europe	MB	0.55	0.20	29	1	0	0	0	0	0	0	0	0	1	1	Lab		1	1	0	4
Zizzo Oswald 2001	Europe	MB	0.50	0.25	29	1	0	0	0	0	0	0	0	0	1	1	Lab		1	1	0	4
Zizzo Oswald 2001	Europe	MB	0.60	0.21	29	1	0	0	0	0	0	0	0	0	1	1	Lab		1	1	0	4
Zizzo Oswald 2001	Europe	MB	0.55	0.13	29	1	0	0	0	0	0	0	0	0	1	1	Lab		1	1	0	4

Notes: MB = Money burning, SD = social dilemma, n.r. = not reported

Appendix C. Meta-analysis references list

This list consists of all papers included in the general meta-analysis[1]

1. Abbink, K., & de Haan, T. (2014). Trust on the brink of Armageddon: The first-strike game. *European Economic Review, 67*, 190-196.
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[1] Papers used for the money burning games meta-analysis are marked with a *.

14. Beckman, S. R., Formby, J. P., Smith, W. J., & Zheng, B. (2002). Envy, malice and Pareto efficiency: An experimental examination. *Social Choice and Welfare, 19*(2), 349-367.
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