The corporate legality game a lab experiment on the impact of policies, frames and information

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Abstract

A company engaging in illicit practices can undermine competitors operating within legal boundaries, ultimately eroding the public good of legality and integrity. Recently established institutional legality ratings aim to address this issue. We investigate the impact of these ratings through a randomized experiment simulating redistributive policies. These policies tax "defectors" (buyers of unrated products) and benefit "co-operators" (buyers of legality-rated products) to promote legality and combat corruption. Our findings show that redistribution mechanisms, the legality frame, and conformity information design significantly mitigate the Prisoner's Dilemma, leading to notable deviations from the Nash Equilibrium. Concerning anti-corruption strategies, our results suggest that consumer willingness to pay for legality can be substantially boosted by redistribution policies and cultural processes inducing conformity to legality norms. This study highlights how legality ratings issued by institutions, when effectively communicated to consumers and combined with redistribution actions, can increase demand for legal products.

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Introduction

The definition of corruption as "the misuse of entrusted power for private benefit" (Pope, 2000) underscores the intrinsic link between corruption and public goods, which forms the foundation of our research. The provision of public goods necessitates the exercise of delegated powers by the state, inherently creating opportunities for corruption (Eigen & Eigen-Zucchi, 2003). Ideally, effective public institutions should be characterized by uncorrupted bureaucracy to bring economic growth along (La Porta et al., 1999). The Human Development Index (2013) explicitly includes corruption in the cluster of social capital levers for policy intervention.

Although experts and public opinion are increasingly aware of the seriousness of corruption, they recognize that fighting it—and contributing to the public good of enforcing legality—is a challenging task. Most of the literature rightly considers corruption as a specific attribute of government officials, acknowledging that this characteristic makes it extremely difficult to combat (Corrado & Rossetti, 2018). The threat of elections, along with the frequent updates of expectations through opinion polls, can pressure politicians to be more accountable. Additionally, consumers' and investors' choices play a role in holding corporations accountable. However, government officials are not easily removed, and their actions are much harder to control and make accountable. Yet, it is important to note that corrupting agents, such as individuals or corporate organizations, are the other side of corrupt government officials. Therefore, one dimension of legality and corruption involves corporations and their specific practices related to competition, taxation, and financing (Ivanyna et al., 2015).

A relevant initiative tackling the problem of corruption on the side of enterprises and corporations was promoted at the end of 2012 by the Italian Competition Authority (2012)[1] (i.e. *Autorità Garante della Concorrenza e del Mercato*, hereafter referred to as *ICA*) that established the legality rating to award firms committed to legal practices and to combat corruption. To apply for the legality rating, Italian firms must have achieved a turnover of at least two million euros in the previous year and must have been in the registry of businesses for at least two years. After evaluating the information provided by a company, the ICA assigns a rating from 1 to 3 stars, based on the quantity and quality of the criteria the company meets. Legality is a central criterion in this process since "Having in place organizational frameworks to prevent and contrast corruption" is the most salient attainment that firms must prove to reach the highest 3-star legality rating. The legality rating is valid for two years, after which a firm can apply for rating confirmation. The rating can be revoked at any time by the ICA if one or more requirements are no longer met. Full details of the legality rating mechanism are in Appendix 1.

The ICA rating mechanism inspired us to investigate how legality can be enforced through a randomized experiment to observe whether the legality rating impacts consumers' choices and their willingness to pay. One of the primary objectives of our paper is to investigate the impact of corporate legality ratings on consumer choices

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[1] The ICA is an independent agency created by the Law No. 287 of 10 October 1990 whose goal is to enforce the Competition Act.

and their willingness to pay for legality, using a lab experiment. We approach this by modelling the scenario as a "Vote-with-the-Wallet Game" (VWG) (Becchetti & Salustri, 2015), a hybrid contribution multiplayer prisoner's dilemma (PD).[2] In this game, a company awarded with the legality rating sells a more expensive product that contributes to the public good of legality and reduces corruption. Our experiment tests whether consumers are willing to pay a premium for this public good when they are adequately informed about it.

In this paper, we examine the impact of the legality rating in several original perspectives. We model the choice between products from producers labelled with the legality rating and products from unlabelled producers as a multiplayer PD. We show that the Nash equilibrium, where all players prefer to buy the unrated product, is Pareto dominated by the choice of buying the legality-rated product for reasonable parametric intervals. Within this theoretical framework, we pursue a twofold goal using a lab experiment: i) to test whether the legality rating significantly increases the willingness to pay for products sold by the legality-rated companies; and ii) to assess whether fiscal policies that transfer resources from defectors to cooperators increase the consumption share of products sold by the legality-rated companies. In the experiment, participants are asked to choose between a product that costs more (not identified/identified with the legality rating product in non-framed/framed treatments) for 20 consecutive rounds, and a product that costs less (not identified/identified with the unrated product in non-framed/framed treatments). At the end of each round, the number of players who opted for the two alternatives is revealed. For games involving redistribution policies, a mechanism simulating a fiscal advantage for the rated product is introduced at the end of the tenth round. This mechanism redistributes part of the extra gains of "defectors" (i.e. those who bought the cheaper product from the unrated firm) to "cooperators" (i.e. those who bought the more expensive product from the rated firm). It is noteworthy that the redistribution mechanism tested in our experiment closely resembles many policy rules that are already implemented in reality. The most telling example relates to feed-in tariffs that provide subsidies to individuals choosing renewable energy (i.e. installing solar panels) which are paid by all taxpayers in a balanced government budget framework (Couture & Gagnon, 2010; Klein et al. 2007; Mendonça 2009; European Commission, 2008).[3] Feed-in tariffs are adopted in around 63 countries (for Europe see European Parliament, 2001) and grossly correspond to our approach of redistributing from defectors to cooperators in a multiplayer PD. In this perspective, our

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[2] Other settings, like the Ultimatum Game (UG) could provide alternative behavioural frames with respect to the PD. However, we opted for the PD as the UG is typically played only once therefore reciprocation cannot explain robust behavioural patterns. On the other hand, PD highlights the conflict between self-interest and cooperation, and better suits a context like the one of this study that aims to investigate participants' conformity and conditional cooperation within a repeated game. The iterated PD, which involves playing the same player repeatedly, allows individuals to build strategic relationships by reacting to and punishing an opponent's past behaviour (Bland et al., 2017).

[3] Indeed, according to a recent European Commission update on renewable energy policies in the European Union (EU), "well-adapted feed in tariff regimes are generally the most efficient and effective support schemes for promoting renewable electricity" (European Commission, 2008).

experiment is designed to test whether redistribution policies combined with the legality rating adoption may contribute to the public good of legality and shall fight the public bad of corruption in the same way as they are intended to do with feed-in tariffs in environmental sustainability.

Finally, we test whether different information structures have varying impacts on our treatments. We compare the choices made in sessions where we provide information about the past number of cooperators within the same group to those in sessions where we share the information about the past average number of cooperators across other treatments with the same characteristics (conformity treatment). Our experiment is based on the standard definitions of conformity and conditional cooperation found in the literature. Conformity pertains to the extent to which individuals adjust their behaviour to align with societal norms (see Moscovici, 1985 and Cialdini & Trost, 1998 among others). The two main rationales for doing so are, according to the literature (Carpenter, 2004), avoiding disutility for deviating from social norms, and taking advantage of the information processed by others. In a distinct manner, conditional cooperation involves the tendency to contribute more to a public good as others contribute more (Fischbacher & Gächter, 2010; Fischbacher et al., 2001). These two definitions imply that conformity primarily pertains to culture and social norms, whereas conditional cooperation lays in the behaviour of players within the same game, possibly within the same reference group, and affects the player's payoff through their choices.

Our paper also draws on significant strands of literature concerning the differentiation in social and/or environmental sustainability (see Bagnoli & Watts, 2003, and Windsor, 2006, and Lyon & Maxwell, 2002 as a more general reference to these issues), as well as the associated experimental studies (Cason & Gangadharan, 2002; Rode et al., 2008, and Vasileiou & Georgantzis, 2015). An important distinction of our study is the unique focus on legality as a corporate responsibility attribute. Specifically, we exclusively examine the demand-side dynamics of corporate social responsibility (CSR) by exogenously setting prices and characteristics on the supply side. An additional distinctive aspect of our contribution to the aforementioned literature involves testing the impact of a very specific (balanced budget) policy on the consumer side. This policy collects taxes from defectors (buyers of the traditional product) to subsidise cooperators (buyers of the CSR product). In this context, we depart from the extensive literature on efficient tax/subsidy schemes addressing the underprovision of public goods in voluntary contribution games (Falkinger et al., 2000). More precisely, we adopt the same rationale in devising a simple self-financing scheme that, without private information, may increase the aggregate provision of the public good (in our case, embedded in the choice of the responsible product).

This paper comprises seven sections, encompassing introduction and conclusions. In the second section, we discuss the relationship between the literature on corruption and the objectives of our study. The third section outlines the VWG, modelled as a multiplayer PD. In the fourth section, we detail our experimental design. The fifth section presents and discusses the results of hypothesis testing, while the sixth section delves into the econometric findings. Finally, the seventh section provides the main conclusions drawn from our study.

Corruption literature and legality as a public good

Legality – as opposed to corruption – allows (and supports) a system "where advancement based on merit is the rule and favouritism the exception" so that "governments and markets alike promote value, and prosperity results" (Mungiu-Pippidi, 2015). When abuses occur and corruption takes over "social allocation is directed preferentially rather than ethically" (p.196). In systems that fail to limit corruption those in power hinder virtuous individuals (i.e. either firms, or persons) in order to seize their privileged access to resources (Corrado & Rossetti, 2018). This latter situation results in a shared "public bad", therefore legality can be considered as a public good. Consequently, the widespread presence of corruption prevents talented people and clean activities from flourishing (Morano-Foadi, 2006), thereby producing an adverse selection that picks out the worst players—either citizens or firms. Helliwell et al. (2015) finds that corruption is among the six factors that explain 75 percent of the differences in happiness across countries, providing strong support for our claim that an anticorruption choice produces a positive externality contributing to the production of a public good.

The rationale for considering legality a public good, a fundamental hypothesis in the theoretical benchmark presented in Section "The model", hinges on several arguments: i) with tax dodging or tax evasion the company reduces public resources available for the provision of public goods and services (thereby making the nexus with the enjoyment of public goods of the general population straightforward); ii) with money laundering it reinforces criminal organizations and competes unfairly with other companies exploiting a cheaper source of external finance; iii) with its illegal behaviour it corrupts government officials to obtain unfair advantage in public procurement; iv) by using illegal practices it takes advantage of unfair competition at the risk of crowding out from the market more efficient legal firms. More specifically points ii)-iv) generate unfair social allocation which translates into a public bad especially for the weakest individuals of the society (see Section "Corruption literature and legality as a public good"). Clearly, a legal corporate conduct entails a public good component and a positive externality even though it is costlier than the illegal conduct (as it can be easily understood by what said at points i)-iv)) and is therefore reasonable to assume that companies choosing the illegal conduct may underprice those choosing the legal conduct.

Within this context, it is worth noting that while legality is regarded as a public good in itself, different types of public good exist. Some, like the survival of legally profitable enterprises, are more economically driven, while others, like fairness, are guided by deontological principles. In this respect, our experiment aims to test whether the legality rating and redistribution policies may contribute to increase the public good of legality and to fight the public bad of corruption. Likewise, concerning conformity and conditional cooperation, if the former mostly relates to utility considerations about belonging to a group, the latter refers to the inclination to contribute more to a public good the more other subjects contribute. In this respect, the experiment sets up a simple self-financing scheme that may increase the aggregate provision of the public good incorporated into the choice of the responsible product. It follows that the implementation of legality ratings, redistributive mechanisms, and provisions of information could

indeed support actual improvements for society and the market, against different kinds of corruption—points ii)-iv). Given the reflections above, the "extra cost" that legal companies must bear to keep their lawful behaviour will turn into higher prices for consumers who still choose to buy products from them. Eventually, this extra cost will translate, *coeteris paribus*, into the positive externality produced by the legal corporate conduct, and it will lead to the reduction of the overall corruption within society. We provide a theoretical benchmark for this trade-off in the section that follows.

The model

By adapting the model by Becchetti and Salustri (2015) to the vote-with-the-wallet choice in presence of legality rating, the utility conditional to the choice of 'voting with the wallet' for (i.e. buying) the legality-rated product (vl) or buying the conventional product (vc) in the simplest two-player game can be written as:

$$U_i(S) = \begin{cases} \lambda + \alpha - \gamma & if \ S = (vl, vl) \\ \frac{1}{2}\lambda + \alpha - \gamma & if \ S = (vl, vc) \\ \frac{1}{2}\lambda & if \ S = (vc, vl) \\ 0 & if \ S = (vc, vc) \end{cases}$$

where $S := \left(S^i, S^{-i}\right) \in \{vc, vl\}^2$ indicates the strategy profile.

The parameter $\lambda \in [0, +\infty)$ measures the total value of the contribution to the public good of legality given by the vote-with-the-wallet choice (i.e. the purchase of the legality-rated product), as this choice contributes to transform legality into a competitive factor thereby increasing the advantage that other corporations have in choosing for the legality rating and contributing too to the public good described in Section "Corruption literature and legality as a public good". However, this effect crucially depends on the share of players choosing the (vl) strategy (which is trivial in the two-player version, while less so in the multiplayer version which follows). The parameter $\alpha \ [0, +\infty)$ measures the non-negative utility arising from the satisfaction of player's other-regarding preferences[4] (if any) when buying the product with legality rating. The parameter $\gamma \ [0, +\infty)$ represents the price difference between the two choices, that is, the cost difference between the price of the product awarded with the legality rating and that of the conventional product.

Based on the literature reviewed in the previous sections, it is reasonable to assume that illegal practices—such as tax evasion, access to cheaper external finance through money laundering, and the corruption of government officials to gain advantages in public procurement—provide an unfair competitive edge and

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[4] This assumption finds strong ground in results within experimental literature providing ample evidence of distribution and intention-based other regarding preferences such as (positive and negative) reciprocity (Rabin, 1993), inequity aversion (Fehr and Schmidt, 1999, and Bolton and Ockenfels, 2000), other-regarding preferences (Cox, 2004), social welfare preferences (Charness and Rabin, 2002), betrayal aversion (Bohnet and Zeckhauser, 2004) and various forms of pure and impure (warm glow) altruism (Andreoni, 1989, 1990).

enable companies that do not adhere to legal standards to underprice those that are legally compliant.[5] In the model (and in the experiment structure which follows) we as well assume for simplicity that players are not income-constrained in the game, or that $Y_i > \gamma$ for all $i = 1,2$ (where Y_i is the income of the i-th player).[6]

Following Becchetti and Salustri (2015), we know that, if $G = (N, (S^i)_{i \in N}, (U_i)_{i \in N}$, $N = \{1,2\}$ and $S^i = \{vl, vc\}$, (vc,vc) is the unique NE of the game when $\frac{1}{2}\lambda + \alpha < \gamma$ and (vl,vl) otherwise. The PD arises in the area of intermediate values of the extra cost of the legal product γ where $\frac{1}{2}\lambda + \alpha < \gamma < \lambda + \alpha$. In this interval the strategy pair (vl,vl) Pareto dominates the unique NE—(vc,vc).

Again in Becchetti and Salustri (2015), $n > 2, G_n = (N, (S^i)_{i \in N}, (U_i)_{i \in N})$, $N = \{1, \dots, n\}$, and $S^i = \{v, a\}$ for each $i \in N$ in the multiplayer version of the game. The new payoff function is:

$$U_i(S^i, S^{-i}) = \begin{cases} \frac{j+1}{n}\lambda + \alpha - \gamma & \text{if } S^i = vl \\ \frac{j}{n}\lambda & \text{if } S^i = vc \end{cases}$$

with j measuring the number of players choosing the vl strategy in S^{-i}. The unique NE of the game is (vc,vc) when $\frac{1}{n}\lambda + \alpha < \gamma$, while (vl,vl) otherwise.[7] The qualifying difference with respect to the two players' game is the extension of the parametric interval of the PD since the latter occurs when $\left(\frac{1}{n}\lambda + \alpha < \gamma < \alpha + \lambda\right)$.

Given our focus on large consumer markets with a substantial number of "players," the results from the multiplayer game indicate that the PD is highly relevant. Additionally, Becchetti and Salustri (2015) demonstrate that mutual conventional voting faces challenges related to renegotiation proofness. They also show that forming coalitions of voters paradoxically increases the incentive for free-riding and purchasing conventional products. These considerations underscore the importance of implementing redistribution policies.

The experimental design

The experiment consists of 18 sessions. During each session a group of 10 participants plays two finitely repeated versions of the VWG: in the "non-redistribution" version, the 10 players choose repeatedly, independently and anonymously between

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[5] In this sense, when looking at how we model the choice of the legality-rated company, our model fits the Besley and Ghatak's (2007) definition of corporate social responsibility as the stance of companies who "retail public goods".

[6] In other terms, this implies that only players without income constraints can participate to the game.

[7] More specifically, Becchetti and Salustri (2015) demonstrate the conditions under which the suboptimal equilibrium of the PD can be overcome, leading to full cooperation by players adopting two different strategies: Pavlov and a "proportional Tit-for-Tat strategy." In the Pavlov strategy, players continue to vote responsibly regardless of whether all other players do the same, and they also vote responsibly even after all players voted for conventional products in the previous stage, thereby creating a new opportunity for a mutually responsible voting equilibrium. With the proportional Tit-for-Tat strategy, the probability of voting responsibly is determined by the proportion of responsible voters among co-players in the previous round. When the number of players exceeds two, this strategy becomes a mixed strategy.

two goods, *A* and *B*. Each round, players receive an endowment of 20 tokens and must buy one of the following two goods: good *A*, costing 10 tokens, or good *B*, costing 5 tokens. Regardless of their choice, each player receives 3 tokens for every other player who purchased good *A* (see Table 13). This aspect of the game simulates the positive externality of purchasing good *A* produced by the legal company. This payoff structure creates a free-rider problem, as buying good *B* is the dominant strategy regardless of the share of players choosing good A (see Table 14).

Additionally, we consider a second version of the VWG that includes a redistributive mechanism. In this version, at the end of each round, 2.5 tokens are transferred from each player who chose good *B* to a common fund. Before the next round begins, this fund is equally distributed among all players who chose good *A* (see Tables 15 and 16). In this second payoff structure, buying good *A* becomes the dominant strategy.

We conduct these two games using a within-subjects design, counterbalancing the order of play. Furthermore, we conduct a between-subjects design[8] (Charness et al., 2012) with the three following treatments:

1. In the "baseline" treatment, only basic neutral instructions[9] are provided without explaining why good *A* is more expensive than good *B* (i.e. 10 Experimental Currency Units (ECUs) versus 5 ECUs, where 2 ECUs = 1 euro) or why players receive a bonus (i.e. 3 ECUs representing the positive externality of each player choosing legality, with a total market contribution to the public good of 30 if all players buy good *A*). Each session consists of 20 rounds divided into two phases: the "no redistribution phase" and the "redistribution phase". In the "no redistribution phase", 10 rounds are played as initially described. In the "redistribution phase", during each of the remaining 10 rounds, 1 ECU is taken from each player buying product *B* and redistributed equally among those who chose product *A* at the end of each round. This treatment simulates a policy action aimed at redistributing resources from defectors to co-operators.

2. In the "frame" treatment the game is played as in the "baseline" treatment, but with a non-neutral description of the two products. Specifically, it is explained that product *A* is provided by a company awarded by a 3-star ICA legality rating. Participants can read detailed characteristics of the legality rating system in a leaflet provided by experimenters.

3. The "conformity" treatment is like the "frame" treatment, but with additional information about how many players on average bought product *A* during the corresponding rounds in previous sessions with the same characteristics. Instead of providing the number of cooperators within the same group, this information is used to assess the extent to which players conform to prior evidence they become aware of. Specifically, players in sessions 13 to 15 (and 16 to 18) are informed of the average share of cooperators observed in sessions 7 to 9 (and 10 to 12), respectively. This design aims to disentangle the effect of conditional cooperation from conformity-driven behaviour.

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[8] In a within-subjects (or repeated-measures) study design the same person tests all the conditions. On the contrary, in a between-subjects (or between-groups) study design different people test each condition.

[9] See Appendix 3 for full instruction details.

Table 1 Experimental design

Treatment	No. of sessions	Phase 1 (10 rounds)	Phase 2 (10 rounds)	Phase 3	No. of players
Baseline	1—3	Baseline	Redistribution	Questionnaire	30
	4—6	Redistribution	Baseline	Questionnaire	30
Frame	7—9	Frame	Frame + Redistribution	Questionnaire	30
	10—12	Frame + Redistribution	Frame	Questionnaire	30
Conformity	13—15	Frame (conformity)	Frame (conformity) + Redistribution	Questionnaire	30
	16—18	Frame (conformity) + Redistribution	Frame (conformity)	Questionnaire	30

The three treatments above are played in six combinations to counterbalance the "baseline" phase with the "redistribution" phase, thus avoiding order effects. Each combination is repeated over three consecutive sessions. Table 1 shows the whole design.

Experimental procedures

The data used for the present study were collected by means of an experiment administered by the Behavioral Economics Research Group (BERG) of the University of Cagliari (Italy). The BERG recruited 180 volunteers (with exact gender balance in each session) among the students of different academic disciplines and performed the experiment in November 2015.

The overall experiment accounted for 18 sessions with 10 participants playing their own games from a computer terminal each of them had been randomly assigned to. The z-Tree platform (Fischbacher, 2007) was used to program the experiment.

After the participants reached their respective terminals, general instructions were read aloud and they were informed that the experiment consisted of two phases, but they received only the specific instructions for phase one. Questions about the structure of the game, the procedures and the payment rules were then answered privately. Participants played the first ten rounds of the game.

When everyone had completed phase one, subjects were given phase two instructions, which were read aloud. The exact sequence of what happened in each round is as follows: i) experimenters ask to each player her/his belief about the number of co-operators in each round; ii) the players play the VWG (in the baseline, frame or conformity variant); iii) the number of co-operators for that round (but not their identity) is publicly revealed; iv) players are asked to grade (on a 0–10 scale) their satisfaction for the game, for their own behavior and for the behavior of other players in the session in three different questions. After the end of the 20th period (i.e. the second part) of every session, each participant is required to fill out a questionnaire about his/her socio-demographic characteristics, her/his degree of trust towards the

others and of satisfaction with life, his/her political orientation, and about her/his use of social networks (see Appendix 4).

Eventually 1 of the 20 rounds played by each player is drawn randomly at the end of each session and cashed to her/him together with her/his profit from the whole game. Moreover, each participant gets a gratuity of 5 ECUs as a participation fee, and this token sums up to the final individual earnings. Last, players are paid 5 ECUs if they correctly guess the number of co-operators in an extracted round in order to incentivize the formulation of their beliefs.

With reference to the Becchetti and Salustri (2015) model described in Section "The model", the relevant parameters for the experiment are set as follows:

$$n = 10, \lambda = 30, \gamma = 5$$

with $\alpha = 0$ for simplicity.

This implies that players' payoff function may be written as[10]:

$$U_i\left(S^i, S^{-i}\right) = \begin{cases} \frac{j+1}{n}\lambda - \gamma & \text{if } S^i = vl \\ \frac{j}{n}\lambda & \text{if } S^i = vc \end{cases} = \begin{cases} \frac{j+1}{10}3 - 5 & \text{if } S^i = vl \\ \frac{j}{10}3 & \text{if } S^i = vc \end{cases}$$

where j is the number of players who chose the strategy vl strategy in S^{-i}. Given the parametric values chosen in our experiment, (vc,vc) is the unique (inefficient) NE of the multiplayer game in the baseline treatment since $\frac{1}{n}\lambda + \alpha < \gamma < \lambda + \alpha$ (i.e. $3 < 5 < 30$). However, in redistribution treatment things change and cooperating players have non-inferior payoffs if they are less than three (see Table 16) in Appendix 3) given that in this case few (< 3) cooperatorsreceive the tax collected from many defectors (> 7).

Note as well that welfare calculated as the sum of product sales' revenues (if we consider the cost paid to purchase one of the two products as welfare for product sellers) or as the sum of players' profits is monotonically increasing in the number of cooperative choices since the latter produce a sizeable externality for all other players.

Hypothesis testing

In order to outline formally the hypotheses to be tested in the experiment let us define $C_{(i,t)}$ as the strategy selected in round t by the i-th player of game G, where $G \in \{$Base, Legality Frame, Legality Frame Conformity, Redistribution, Redistribution Legality Frame Conformity$\}$ indicates the session type with $C \in \{vl, vc\}$, vl being the strategy of choosing the "responsible" product (product A) and vc the strategy of choosing the conventional product (product B).

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[10] Note that in our utility function we do not have the endowment since the parameters are expressed as differentials between the choice of vote and the choice of abstain.

Based on these definitions and by conveniently setting the strategy $vl = 0$ and the strategy $vc = 1$, we can test:

o Hypotheses 1a: (no effect of the legality frame in absence of redistribution policies)

$$H0 : C_{i,t(Base)} = C_{i,t(LegalityRating)}$$

$$HA : C_{i,t(Base)} \neq C_{i,t(LegalityRating)}$$

With this hypothesis we test the null of absence of effects of the legality rating frame vis-à-vis the "blind" vote with the VWG benchmark. In the blind benchmark players know by inspecting game payoffs that, when purchasing the more expensive good, a positive externality is created for all players irrespective of the choices of the latter. No other information or meaning is given to the two products. Note as well that in this base treatment, under the NE the share of players choosing the more expensive good incorporating the public good component (vc strategy) should be zero.

o Hypothesis 2: (no redistribution effect under the VWG)

$$H0 : C_{i,t(Base)} = C_{i,t(Redistribution)}$$

$$HA : C_{i,t(Base)} \neq C_{i,t(Redistribution)}$$

With this hypothesis we test the null that the redistribution mechanism has no effect in the "blind" VWG where the more expensive good that incorporates the public good component is not identified with the legality rating product. Rejection of this hypothesis in direction of a significantly higher share of cooperators under the policy mechanism would imply that a balanced budget policy device redistributing from defectors to cooperators significantly increases the share of cooperators and, with it, total welfare in the game (measured as the sum of utilities of all players).

o Hypothesis 3: (no policy effect under legality rating frame)

$$H0 : C_{i,t(LegalityRating)} = C_{i,t(RedistributionLegalityRating)}$$

$$HA : C_{i,t(LegalityRating)} \neq C_{i,t(RedistributionLegalityRating)}$$

Under hypothesis 3 we test the null that the redistribution policy in presence of the legality frame has no effects on the share of "responsible" choices.

o Hypothesis 4: (non-differential base/legality rating redistribution effect)

$$H0 : C_{i,t(Redistribution)} = C_{i,t(RedistributionLegalityRating)}$$

$$HA : C_{i,t(Redistribution)} \neq C_{i,t(RedistributionLegalityRating)}$$

The null of our hypothesis 4 is that the legality frame makes no significant difference in the share of players voting for the legality-rated product in presence of the policy redistribution mechanism.

The combination of these tests provides important insights on the relevance/effectiveness of the frame and of the policy mechanisms as a significant departure from a zero share of players choosing the (*vl*) strategy in the base and in the legality frame treatment implies departure from the NE.

Note finally that it is possible to verify the welfare effects of the redistribution mechanism in the blind VWG by calculating the average difference in payoffs between players in the base and in the redistribution mechanism. Since the redistribution mechanism is balanced budget the total welfare gain is the product of the average difference for the number of players participating in the game. The same approach can be followed to verify the welfare effect of the redistribution mechanism under the legality frame.

Similar hypotheses can be formulated to compare the effect of providing information about the other members of the same group versus the effect of information about the average behaviour of the members of the other groups in the same treatments. This comparison allows us to disentangle behaviours inspired by conditional cooperation from those driven by simple conformity.

Empirical findings

Experimental findings on all observations, irrespective of round dynamics, show that the null of hypothesis 1 is rejected and the legality frame matters (Table 2). More specifically the frame raises by around 9 percent the share of cooperators (from 27.8 to 36.5 percent) (χ^2 10.33, p-value 0.001) under the standard (non-conformity) information treatment. The share of cooperators is slightly higher under the conformity information treatment (39.8 percent) and significantly higher than under the base treatment also in this case (χ^2 19.297, p-value 0.001). The share of cooperators in the redistribution treatments is significantly different from the corresponding shares in non-redistribution treatments, and more so under the base than under the legality framed treatments (hypotheses 2 and 3). More specifically, the share of players choosing the more expensive product rises to 37.5 percent with the introduction of the redistribution mechanism in the base treatment (χ^2 12.745, p-value 0.000), to 41.7 percent in the legality frame treatment (but the significance of the difference vis-à-vis the non-redistribution framed treatment is much weaker given the effect of the frame, χ^2 3.364, p-value 0.067) and to 45.3 percent in the legality frame treatment with conformism (again a weaker difference vis-à-vis the non-redistribution frame with conformism, χ^2 3.712, p-value 0.054). The issue in the last two cases is that the legality frame already raises the share of cooperators with respect to the base treatment so that the additional effect of the redistribution policy is much weaker. If we look at the average share of cooperators in the non-framed treatments with redistribution (37.5 percent) and the average share of cooperators in the legality framed (non-redistribution) treatments (36.5 and 39.8 percent) we find that they

Table 2 Hypothesis testing (aggregate observations)

Alternatives compared	Obs	Players (%) cooperating with each alternative	Pearson χ^2	P-value
Base vs Redistribution	1200	0.278—0.375	12.745	0.000
Frame vs Redistribution Frame	1200	0.365—0.417	3.364	0.067
Frame (conformity) vs Redistribution Frame (conformity)	1200	0.398—0.453	3.712	0.054
Base vs Frame	1200	0.278—0.365	10.327	0.001
Base vs Frame (conformity)	1200	0.278—0.398	19.297	0.000
Redistribution vs Redistribution Frame	1200	0.375—0.417	2.178	0.140
Redistribution vs Redistribution Frame (conformity)	1200	0.375—0.453	7.587	0.006
Base—before vs Redistribution—after	600	0.337—0.363	0.469	0.494
Base—after vs Redistribution—before	600	0.22—0.387	19.717	0.000
Frame—before vs Redistribution Frame – after	600	0.403—0.403	0.000	1.000
Frame—after vs Redistribution Frame – before	600	0.327—0.43	6.810	0.009
Frame (conformity)—before vs Redistribution (conformity) Frame—after	600	0.383—0.433	1.552	0.213
Frame (conformity)—after vs Redistribution (conformity) Frame—before	600	0.413—0.473	2.188	0.139

are very close suggesting that the legality rating is almost a substitute of the redistribution policy in absence of the frame.

The average share of cooperators in the framed redistribution treatments (in both the conformity and non-conformity treatments) is higher than under the (non-framed) redistribution treatments (45.3 and 41.7 vs 37.5 percent) but the legality frame produces a significantly higher share of co-operators in redistribution treatments only in the first case (χ^2 7.587, p-value 0.006).

When splitting the redistribution effect between sessions where the redistribution treatment comes first and those where redistribution comes after we find that the effect is concentrated on the first case. That is, the most relevant effect is the fall in the share of cooperators in sessions starting with redistribution after redistribution ceases.

For a synthetic view on our findings note that the combination of frame, redistribution mechanism and conformity treatment (sessions 13–15 in the second ten rounds and sessions 16–18 in the first ten rounds) produces a growth in the production of the positive externality of around 63 percent vis-à-vis the benchmark base treatment, while the same growth is 31, 35 and 43 percent in the frame, redistribution and frame plus conformity treatments respectively. Note as well that the legality frame under the conformity information treatment (sessions 13–15 in the first ten rounds and sessions 16–18 in the second ten rounds) produces a share of co-operators close to 40 percent, well above the NE of that treatment in which no one should cooperate.

Note however that if we repeat the same tests using no more than single round choices per participant results are quite different also due to the more limited number of observations. More specifically in this respect, we test the redistribution effect for homogeneous sessions (base, frame and frame plus conformity respectively) at beginning of session-treatment (1st versus 11th round) and end session-treatment (10st versus 20th round). These findings show that the frame has an important reinforcing effect and that the impact of the redistribution mechanism becomes dynamically stronger over rounds. This is likely to depend on our choice of creating a "light" mechanism that does not make the responsible choice the Nash equilibrium of the game as in Becchetti et al. (2015).

The main explanation for the differences of findings between Tables 2 and Table 3 is that cooperation starts high and then declines due to a typical phenomenon of conditional cooperation.

To have clearer indication of the effect of our treatment we must therefore inspect the dynamics of participant choices across rounds (Section "Dynamic descriptive findings") and then estimate a specification controlling for round effects (Section "Dynamic hypothesis testing").

Dynamic descriptive findings

The dynamics of the average share of cooperators plotted in Figs. 1a-1f give further insights on what is behind results from static tests. In the non-framed sessions starting with the base treatment, the number of cooperators in the first round is 53 percent and irregularly declines down to 33 percent in the last (10th) non-redistribution round (Fig. 1a). With the introduction of the redistribution mechanism, it jumps up to

Table 3 Hypothesis testing (individual round observations)

	Obs	Players (%) cooperating under each specific treatment	Pearson chi-squared	Prob
Treatment vs "no- treatment" (only independent observations are considered—i.e. rounds 1st and 11th)				
Base vs Base (redistribution)	120	44.17—37.90	1.930	0.165
Frame vs Frame (redistribution)	120	55.00—37.53	15.012	0.000
Conformity vs Conformity (redistribution)	120	64.17—37.21	35.731	0.000
Base vs Frame+Conformity	180	52.22—37.37	15.996	0.000
Base (redistribution) vs Frame+Conformity (redistribution)	180	56.67—37.13	27.659	0.000

	Obs	Players (%) cooperating under each specific treatment	Pearson chi-squared	Prob
Treatment vs "no- treatment" (only last-conditioned observations are considered—rounds 10th and 20th)				
Base+Base (redistribution)	120	31.67—38.75	1.734	0.188
Frame+Frame (redistribution)	120	37.50—35.83	0.096	0.757
Conformity+Conformity (redistribution)	120	40.00—34.58	1.014	0.314
Base+Frame+Conformity	180	31.67—41.11	3.468	0.063
Base (redistribution)+Frame (redistribution)+Conformity (redistribution)	180	41.11—31.67	3.468	0.063

50 percent in the 11th round and ends up at a level (36 percent), which is higher than 20 percent, that is, the upward bound of the share of cooperators which makes cooperation the highest payoff strategy. First round shares of cooperators in framed sessions starting with absence of redistribution mechanisms are higher (70 and 66 percent respectively under the conformity and non-conformity treatments), reflecting the relevance of the legality frame (Figs. 1c and 1e). However, they irregularly decline to a final share of 30 and 33 percent respectively. The jump generated by the introduction of the redistribution mechanism is sharp, bringing the share of cooperators to 66 (in framed conformity sessions) and 50 percent (in framed non-conformity sessions).

Patterns of sessions starting with redistribution treatments are different as expected. In the non-framed sessions, we start with an average share of cooperators of 40 percent, and we end up to 36 percent in the 10th session. The elimination of the redistribution mechanism produces a downward jump to 33 percent leading to the "equilibrium" share of cooperators of 20 percent in the last session (Fig. 1b).

Initial shares of cooperators in the framed sessions starting with the redistribution mechanisms are higher (70 and 63 percent respectively in the conformity and non-conformity treatments). In both cases the shares fall to 43 percent in the last session before the end of the redistribution mechanism. There is almost no downward jump in the 11th session when the redistribution mechanism is removed, and the final shares of cooperators are respectively 43 and 33 percent (above the equilibrium level of 20 percent).

Dynamic hypothesis testing

In order to identify the statistically significant factors driving the dynamics of the vote with the wallet game we estimate the following fully augmented logit specification:

$$
\begin{aligned}
PGChoice_{i,t,s} = {} & \beta_0 + \beta_1 AvgGroupPGChoice_{t-1,s} + \beta_2 RedistributionBase_{t,s} \\
& + \beta_3 \text{LegFrame}_{t,s} + \beta_4 Leg\text{FrameRedistribution}_{t,s} + \beta_5 \text{LegConfFrame}_{t,s} \\
& + \beta_6 Leg\text{ConfFrameRedistribution}_{t,s} + \beta_7 Round + \beta_8 [E(AvgGroupPGChoice_{t-1,s}) \\
& - AvgGroupPGChoice_{t-1,s}] + \sum \delta_i SocioDem_i + \varepsilon_{i,t,s}
\end{aligned}
$$

where *PGChoice* is a (0/1) dummy taking value 1 if the *i*-th individual purchases in session *s* at round *t* the relatively more expensive good A generating a positive payoff externality on the other player. The first regressor—$AvgGroupPGChoice_{t-1,s}$ —is the lagged average share of responsible voters. Note that the (one round) lagged average players' choice considered in all treatments excluding the conformity treatments is that about which the player is informed, that is, the (one round) lagged average choice of players in the same session (see the instructions in Appendix 3). In conformity treatments the information corresponds to the mean of the three (one round) lagged average players' choices in the corresponding non-conformity sessions (i.e. the average of what happened in sessions 7–9 (10–12) for each session going from 13 to 15 (16 to 18)). The substantial difference between the two cases is that in the first we reveal information that directly affects players' payoffs, while in the second case information that may produce cultural conformity but does not
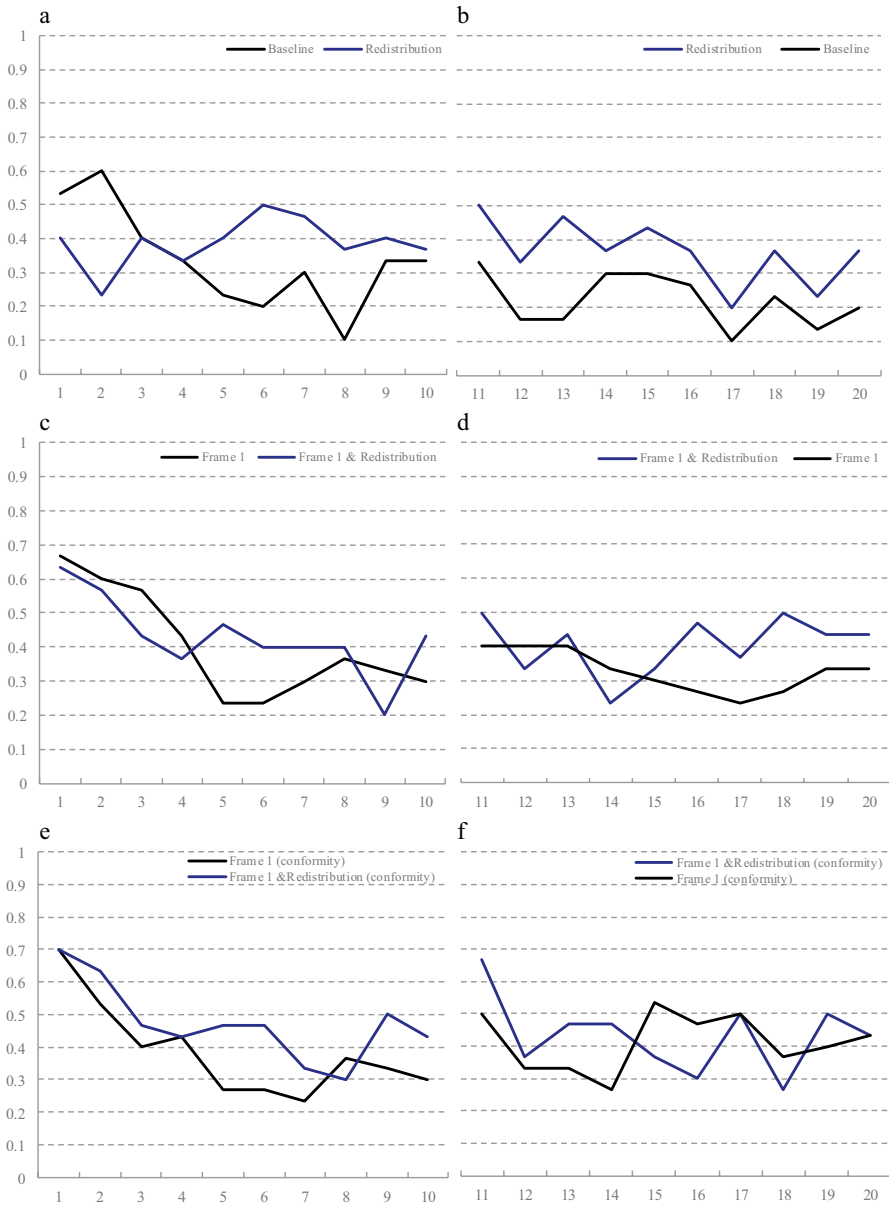
Fig. 1 a-f Share of players choosing the "responsible" product under different treatments

affect directly players' payoffs. Hence, the null of absence of conditional coopera-
tion implies that $\beta_1 = 0$ (excluding conformity treatments from the estimate) while we
have conditional cooperation when β_1 is positive and significant under non-conform-
ity treatments and conformity when β_6 is positive and significant under conformity
treatments.

The variables that follow in the specification pick up intercept changes in presence of different types of treatments. *RedistributionBase* is a dummy equal to 1 if the redistribution mechanism is applied in the baseline session *s* at round *t*, *LegFrame (LegFrame-Conformity) is* a dummy equal to 1 if the legality frame (legality frame with conformity) treatment applies, while the L*egFrameRedistribution* and *LegConfFrameRedistribution* dummies pick up the two (non-conformity and conformity) framed treatments with redistribution mechanism. The base treatment is the omitted benchmark. The variable *Round* picks up the round number thereby controlling for the presence of dynamic effects in the share of cooperators. $E\big(AvgGroupPGChoice_{i,t-1,s}\big) - AvgGroupPGChoice_{t-1,s}]$ is a variable picking up the effect of past errors in the expectation on the number of cooperating players. *SocioDem* variables capture the socio-demographic factors we add as controls in the estimates[11] (age, gender, mother education, father education, mother professional status, father professional status). The detailed definitions of variables used in econometric estimates are provided in Table 4.

Econometric findings

The first specification only includes dummies for different treatments, while in the subsequent augmented specifications we gradually introduce socio-demographic controls (Table 5, columns 1 and 2). All coefficients are marginal effects. The *Round* variable is negative and weakly significant documenting that the decay effect already observed in Figs. 1A-1E (the number of players making the cooperative choice that progressively falls as far as the number of rounds grows) is econometrically significant. The null of absence of conformity/conditional cooperation[12] is rejected since the coefficient of the lagged players' choice (β_1) is positive and significant. Its positive sign implies that a fall in the share of cooperators in the previous round reduces the probability of the player's cooperative choice in the round that follows. Coefficients on dummies picking up different treatments show that redistribution always generates a significant increase in the probability of a cooperative choice whatever the underlying reference treatment (base, frame with/without conformism in the other session rounds). The legality frame is positive but not significant in the dynamic estimate. In terms of economic significance redistribution raises by around 10 percent the probability of a cooperative choice. The probability raises to 12–15 percent if we the redistribution treatment is combined with the legality frame and to 15–17 percent if it combined with the legality frame in conformity sessions. The legality frame and the legality frame in the conformity session raise per se the probability of a cooperative choice respectively of 7–9 percent and 10–12 percent.

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[11] For further details on the socio-demographic variables and their impact see questions 1–11 of the Questionnaire in Appendix 3 and detailed descriptive and econometric findings in Appendix 4. Even though the role of socio-demographic characteristics exceeds the scope of this study, further discussion of participants' traits especially concerning their satisfaction and preferences in a legality social dilemma is in the associated paper by Becchetti et al. (2020).

[12] This variable picks up both conformity and conditional cooperation since it is common to conformity and non-conformity treatments. The test is differentiated in the separate estimates that follow in Tables 6 and 7.

Table 4 Definition of variables used in the Econometric estimates

Variable	Definition
Responsible choice	Dummy taking value 1 if the individual opts for product A, and 0 otherwise
Responsible choice (average)	Average share of individuals opting for product A in a given game round
Belief about A	Expected number of participants who will buy product A during a given game round
Base	Dummy taking value 1 for baseline sessions, and 0 otherwise
LegFrame	Dummy taking value 1 for legality framed sessions, and 0 otherwise
LegConfFrame	Dummy taking value 1 for legality framed sessions with conformity information design, and 0 otherwise
RedistributionBase	Dummy taking value 1 when the redistributive mechanism takes place in baseline sessions, and 0 otherwise
LegFrameRedistribution	Dummy taking value 1 when the redistributive mechanism takes place in legality framed sessions, and 0 otherwise
LegConfFrameRedistribution	Dummy taking value 1 when the redistributive mechanism takes place in session with conformity information design, and 0 otherwise
Round	Number of session round
Gender (male)	Dummy taking value 1 if the individual is a man, and 0 otherwise (according to question 1. of the questionnaire)
Age	Age according to question 2. of the questionnaire (in Appendix 4)
Living condition	Three dummies generated according to question 4. of the questionnaire (see Appendix 4)
Education (father's side)	Five dummies generated according to question 5. of the questionnaire (see Appendix 4)
Education (mother's side)	Five dummies generated according to question 6. of the questionnaire (see Appendix 4)
Employment status (father's side)	Ten dummies generated according to question 7. of the questionnaire (see Appendix 4)
Employment status (mother's side)	Ten dummies generated according to question 8. of the questionnaire (see Appendix 4)
Income level	Six dummies generated according to question 10. of the questionnaire (see Appendix 4)

If we augment our specification with the difference between the one period lagged belief on the share of cooperative choices and the one period lagged share of cooperative choices, we find that the variable is positive and significant (Table 5, column 3). This implies that players do not follow an error correction rule in their choices.

In Tables 6 and 7 we repeat the estimates by excluding the legality frame respectively with and without the conformity treatment. Findings from these Tables mainly show that the round effect (decline in cooperation) is much stronger when we exclude framed with conformity sessions.[13] As well the "error correction" term is no more positive and significant (Table 7).

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[13] We test whether there is a significant difference with a dummy picking up the differential conditional cooperation effect in the overall sample estimate of Table 4 but the dummy is not significant. Hence the difference between the two coefficients observed in Tables 6 and 7 is not statistically significant.

Table 5 The determinants of the cooperative choice: marginal effects (dy/dx) from pooled clustered dynamic estimates (Huber-White sandwich estimator). Dependent variable: (0/1 dummy taking value one if player chooses product A)

	(1)	(2)	(3)	(4)
AvgGroupPGChoice$_{t-1}$	0.205***	0.236***	0.207***	0.159***
	(0.055)	(0.055)	(0.057)	(0.058)
RedistributionBase	0.100***	0.103***	0.105***	0.095***
	(0.030)	(0.031)	(0.031)	(0.031)
LegFrameRedistribution	0.124***	0.150***	0.154***	0.132***
	(0.030)	(0.032)	(0.032)	(0.032)
LegConfFrameRedistribution	0.149***	0.166***	0.171***	0.161***
	(0.031)	(0.033)	(0.033)	(0.033)
LegFrame	0.075**	0.099***	0.102***	0.084***
	(0.030)	(0.032)	(0.032)	(0.032)
LegConfFrame	0.103***	0.116***	0.119***	0.124***
	(0.030)	(0.032)	(0.032)	(0.032)
Round	-0.003*		-0.003*	-0.001
	(0.002)		(0.002)	(0.002)
E (AvgGroupPGChoice$_{t-1}$)—Avg-GroupPGChoice$_{t-1}$				0.031***
				(0.005)
Socio-demographics		√	√	√
Observations	3,420	3,420	3,420	3,420

Standard errors in parentheses: *** $p < 0.01$, ** $p < 0.05$, * $p < 0.1$

Table 6 The determinants of the cooperative choice: marginal effects (dy/dx) from pooled clustered dynamic estimates (Huber-White sandwich estimator)—framed conformity sessions excluded. Dependent variable: (0/1 dummy taking value one if player chooses product A)

	(1)	(2)	(3)	(4)
AvgGroupPGChoice$_{t-1}$	0.158**	0.214***	0.156**	0.109
	(0.066)	(0.066)	(0.069)	(0.070)
RedistributionBase	0.101***	0.103***	0.108***	0.095***
	(0.030)	(0.030)	(0.030)	(0.030)
LegFrameRedistribution	0.126***	0.164***	0.172***	0.143***
	(0.030)	(0.033)	(0.033)	(0.033)
LegFrame	0.077***	0.112***	0.118***	0.096***
	(0.030)	(0.032)	(0.032)	(0.032)
Round	-0.005***		-0.005***	-0.003*
	(0.002)		(0.002)	(0.002)
E (AvgGroupPGChoice$_{t-1}$)—Avg-GroupPGChoice$_{t-1}$				0.037***
				(0.006)
Socio-demographics		√	√	√
Observations	2,280	2,280	2,280	2,280

Standard errors in parentheses: *** $p < 0.01$, ** $p < 0.05$, * $p < 0.1$

Table 7 The determinants of the cooperative choice: marginal effects (dy/dx) from pooled clustered dynamic estimates (Huber-White sandwich estimator)—framed non-conformity sessions excluded. Dependent variable: (0/1 dummy taking value one if player chooses product A)

	(1)	(2)	(3)	(4)
AvgGroupPGChoice$_{t-1}$	0.187**	0.218***	0.174**	0.127
	(0.082)	(0.079)	(0.085)	(0.087)
RedistributionBase	0.101***	0.106***	0.109***	0.104***
	(0.031)	(0.032)	(0.032)	(0.032)
LegConfFrameRedistribution	0.159***	0.182***	0.187***	0.180***
	(0.031)	(0.034)	(0.034)	(0.034)
LegConfFrame	0.105***	0.123***	0.127***	0.130***
	(0.031)	(0.034)	(0.034)	(0.034)
Round	-0.002		-0.003	-0.002
	(0.002)		(0.002)	(0.002)
E (AvgGroupPGChoice$_{t-1}$)—Avg-GroupPGChoice$_{t-1}$				0.019***
				(0.006)
Socio-demographics		√	√	√
Observations	2,280	2,280	2,280	2,280

Standard errors in parentheses: *** $p < 0.01$, ** $p < 0.05$, * $p < 0.1$

The fact that information on other players behaviour is processed differently in conformity treatment sessions (where players are informed not about past behaviour of those in their same session but about the average past behaviour of those playing in the three sessions of the same kind without conformity treatment) is documented by a specific test where we check whether the difference between beliefs about the number of cooperators and the actual number of cooperators is the same in non-conformity versus conformity treatments.

More specifically, we test whether:

$$H0 : \text{Ei}[\text{nCoop}_{t\,(Conformity)}] - [\text{nCoop}_{t-1(Conformity)}]$$
$$= \text{Ei}[\text{nCoop}_{t\,(NonConformity)}] - [\text{nCoop}_{t-1(NonConformity)}]$$

where $\text{Ei}[\text{nCoop}_{t\,(Conformity)}]$ is the expected number of cooperators in one's own session formulated at time t after information on co-operators in t-1 is revealed and *Conformity (NonConformity)* indicates all sessions with/without the conformity treatment. We find that the null is rejected in direction of a narrower difference in the conformity treatment (t-stat 3.852, p-value 0.000). This implies that experiment participants adjust their belief more when having information on what players in other similar sessions have done (conformity treatment) than when having information on what players of their same session have done (non-conformity treatment). On the contrary, the same difference when we look at choices and not at beliefs is not significant. The combined effect of these findings supports the hypothesis that players are influenced relatively more by information under the conformity treatment in terms of beliefs, even though econometric findings rejecting the error correction hypothesis document that this is not the case for choices.

Conclusions

Corrupt corporate practices can have detrimental effects on legality, creating negative externalities for society as a whole. Examples include money laundering, which promotes unfair competition and strengthens criminal organizations, tax evasion that reduces resources for public goods provision, and corruption of government officials in procurement processes, leading to the misallocation of resources.

In our paper we depart from the experience of the institutional legality ratings in Italy to examine the overall effectiveness of these ratings in combating corruption through influencing consumer behaviour. Specifically, we investigate the impact of these ratings on the multiplayer Prisoner's Dilemma game, where participants must choose between a more expensive legal product contributing positively to legality and a cheaper illegal alternative. Through a randomized experiment, we assess the effects of framing the legality rating of the more expensive product, and of implementing redistribution policies that transfer part of the revenues from defectors to cooperators.

Our key findings are as follows: i) the legality frame under the conformity treatment leads to a share of co-operators close to 40%, well above the NE of the game in which cooperations should not take place; ii) redistribution significantly increases cooperative behaviour (both in static tests and dynamic estimates), even though in the redistribution treatments the non-cooperative choice remains the strategy with the highest payoff when the number of cooperators in the group exceeds 20 percent; iii) the legality frame in baseline treatments is significant in static tests and in the dynamic estimates; iv) the combination of frame, redistribution mechanism and conformity information design generates a growth in the cooperative choice (and therefore in the production of the positive externality) of around 63 percent vis-à-vis the benchmark base treatment. v) dynamic estimates document the presence of decay of cooperation over time; vi) separate dynamic estimates for conformity/non-conformity treatments show that the effect of the legality frame and of the one period lagged behaviour of other players is stronger (even though not statistically significantly different) under the conformity frame. Separate test shows that adjustment of beliefs is stronger under the conformity treatment.

Our experiment suggests a clear consumer willingness to pay for legality, which can be further bolstered by redistribution policies and cultural norms promoting conformity. Institutional legality rating systems, like those utilized by the ICA in Italy, have the potential to direct consumer demand towards rated products when paired with effective advertising and redistribution measures. Additionally, our study highlights the significant impact of redistribution policies and cultural conformity initiatives in enhancing consumer willingness to pay for legality and driving demand for legal products.

APPENDIX 1 – LEGALITY RATING

The Legality Rating is an instrument designed to increase the competitiveness of lawful companies by supporting their ethical and honest initiatives. It was approved by the Italian Parliament at the end of 2012

Two conditions must be met by the enterprises that work in Italy in order to ask for the legality rating:

1. Achieving a turnover of at least two million of euros in the year before asking for the legality rating. This value must be ascribed either to the single enterprise, or to the group to which the single enterprise belongs to and whose balance-sheet was duly approved;
2. To be signed up in the registry of businesses for at least two years.

Companies willing to be rated can apply throughout an online form, and follow the guidelines published on the AGCM website.

The legality rating ranges from a minimum score of one star to a maximum score of three stars, and it is awarded by the Italian Competition Authority (2012, 2016) on the base of information directly provided by the company and further verified through cross-checks with data owned by the public administration.

"One-star"-legality rating

In order to be eligible for the minimum score (i.e. the "one-star"-legality rating) a firm must fulfil the following requirements:

1. The entrepreneur and other relevant individuals must not be the recipients of preventive and / or precautionary measures, nor must they be convicted for tax-related crimes. They must not be addressed by judicial sentences for mafia, nor must they be involved with mafia activities of any sort. The firm must not have been submitted to compulsory administration, nor must it have been convicted for administrative wrongdoings.
2. In the 2-years period before applying for the legality rating the firm must not have been convicted for serious crimes related to anti-trust, for breaching the code of consumption, for not respecting norms about safety and security of the working place, or for not complying with the obligations towards employees and collaborators as for remunerations, contributions, insurance responsibilities, and fiscal matters. Moreover, the firm must not have been under scrutiny for declaring less income than what verified, for having experienced revocations of public funds that were not duly paid back by the firm itself, or for not having paid taxes. Likewise, the enterprise must not have received any sanction by the Italian Anti-Corruption Authority implying the prohibition either to sign contracts with the public administration, or to participate to auctions for public procurement.
3. Eventually, the company must declare to use exclusively traceable payment methods in order to process financial transactions whose value is higher than one thousand euros.

"Two-star" and "three-star"-legality rating

More requirements are needed for firms to be rated with two or three stars of legality. If at least six of the following accomplishments are met, then a firm will obtain two stars:

1. Complying with the Legality Protocol signed by the Ministry of Internal Affairs and the Italian Industrial Federation, with its guidelines for implementation, and with the Protocol signed by the Ministry of Internal Affairs and the Association of Cooperatives together with local prefectures and trade associations;
2. Using traceable payment methods also to process financial transactions whose amounts are lower than the threshold stated by the law;
3. Adopting an organizational framework apt to the conformity control as stated by the law;
4. Adopting processes that grant the Corporate Social Responsibility;
5. Being registered to lists of entities that are not prone to mafia infiltrations;
6. Endorsing the ethical codes of self-regulation that are defined by trade associations;
7. Having in place organizational frameworks to prevent and contrast **corruption**.

Denunciations of crimes by the entrepreneur and her family and collaborators, if followed by legal penal consequences, shall be hold in high esteem.

Duration of the legality rating

The legality rating lasts two years since its release, and it can be renewed upon request.

If one of the minimum prerequisites fails to exist, the ICA will revoke the one-star rating.

If conditions upon which a two-star or a three-star rating were awarded stop to be present, the ICA can reduce the legality rating.

The ICA will keep its website up to date with the list of companies awarded with the legality rating, along with effective dates and subsequent suspensions and revocations.

ENGLISH WEB PAGES ABOUT THE LEGALITY RATING BY AGCM:
https://en.agcm.it/en/media/detail?id=9ef62182-22ad-4283-b743-5ac27148c084
POLICY DOCUMENTS MENTIONING THE LEGALITY RATING BY AGCM:
Page 2: http://ec.europa.eu/competition/ecn/brief/03_2012/it_powers.pdf

APPENDIX 2 – SUMMARY STATISTICS AND COMPLETE ESTIMATION TABLES

Table 8 Summary statistics

Variable	Obs	Mean	Std. Dev	Min	Max
ChoiceA	3600	0.381	0.486	0	1
AvgGroupChoiceA	3600	0.381	0.169	0	0.9
Belief about A	3600	3.959	1.928	0	10
Base	1200	0.500	0.500	0	1
Frame	3600	0.167	0.373	0	1
Frame (conformity)	3600	0.167	0.373	0	1
Redistribution (base)	3600	0.167	0.373	0	1
Redistribution (frame)	3600	0.167	0.373	0	1
Redistribution (conformity)	3600	0.167	0.373	0	1
Gender (male)	3600	0.500	0.500	0	1
Age	3600	24.911	4.454	18	42
Living conditions					
(live alone)	3600	0.061	0.240	0	1
(live with the family)	3600	0.706	0.456	0	1
(live with other-not-related people)	3600	0.233	0.423	0	1
Education (father's side)					
(primary school)	3600	0.083	0.276	0	1
(middle school)	3600	0.356	0.479	0	1
(high school)	3600	0.428	0.495	0	1
(university)	3600	0.122	0.328	0	1
(other)	3600	0.011	0.105	0	1
Education (mother's side)					
(primary school)	3600	0.094	0.292	0	1
(middle school)	3600	0.383	0.486	0	1
(high school)	3600	0.372	0.483	0	1
(university)	3600	0.139	0.346	0	1
(other)	3600	0.011	0.105	0	1
Employment status (father's side)					
(self-employed)	3600	0.139	0.346	0	1
(clerk)	3600	0.133	0.340	0	1
(manual)	3600	0.128	0.334	0	1
(executive)	3600	0.056	0.229	0	1
(retired)	3600	0.300	0.458	0	1
(housework)	3600	0.000	0.000	0	1
(student)	3600	0.000	0.000	0	1
(entrepreneur)	3600	0.089	0.285	0	1
(unemployed)	3600	0.050	0.218	0	1
(other)	3600	0.106	0.307	0	1

Table 8 (continued)

Variable	Obs	Mean	Std. Dev	Min	Max
Employment status (mother's side)					
(self-employed)	3600	0.067	0.249	0	1
(clerk)	3600	0.211	0.408	0	1
(manual)	3600	0.050	0.218	0	1
(executive)	3600	0.006	0.074	0	1
(retired)	3600	0.094	0.292	0	1
(housework)	3600	0.428	0.495	0	1
(student)	3600	0.006	0.074	0	1
(entrepreneur)	3600	0.033	0.180	0	1
(unemployed)	3600	0.028	0.164	0	1
(other)	3600	0.078	0.268	0	1
Income level					
(up to 15.000)	3600	0.350	0.477	0	1
(15.001—25.000)	3600	0.250	0.433	0	1
(25.001—35.000)	3600	0.200	0.400	0	1
(35.001—50.000)	3600	0.100	0.300	0	1
(50.001—90.000)	3600	0.083	0.276	0	1
(higher than 90.000)	3600	0.017	0.128	0	1

Table 9 Full regression findings for Table 5

	Responsible choice			
	(1)	(2)	(3)	(4)
AvgGroupPGChoice$_{t-1}$	0.600**	0.880***	0.609**	0.487*
	(0.290)	(0.278)	(0.291)	(0.293)
RedistributionBase	0.619***	0.581***	0.616***	0.587***
	(0.152)	(0.151)	(0.151)	(0.152)
LegFrameRedistribution	0.753**	0.831**	0.882***	0.818**
	(0.345)	(0.336)	(0.339)	(0.336)
LegConfFrameRedistribution	0.962***	0.943***	1.008***	0.979***
	(0.350)	(0.339)	(0.342)	(0.339)
LegFrame	0.417	0.522	0.548	0.498
	(0.346)	(0.336)	(0.339)	(0.336)
LegConfFrame	0.562	0.578*	0.606*	0.616*
	(0.349)	(0.339)	(0.342)	(0.338)
E (AvgGroupPGChoice$_{t-1}$)—AvgGroupPGChoice$_{t-1}$				0.086***
				(0.025)
Male		-0.138	-0.140	-0.144
		(0.275)	(0.278)	(0.274)
Age		0.037	0.038	0.035
		(0.032)	(0.032)	(0.032)
Living condition (live with the family)		-0.730	-0.714	-0.740
		(0.610)	(0.615)	(0.608)
Living condition (live with other people)		-1.171*	-1.156*	-1.180*
		(0.631)	(0.636)	(0.628)
Education (father's side; middle school)		-0.364	-0.366	-0.333
		(0.513)	(0.517)	(0.510)
Education (father's side; high school)		-0.417	-0.413	-0.388
		(0.549)	(0.553)	(0.546)
Education (father's side; university)		-1.104*	-1.095*	-1.030
		(0.650)	(0.654)	(0.647)
Education (father's side; other)		-5.534**	-5.565**	-5.460**
		(2.243)	(2.250)	(2.231)
Education (mother's side; middle school)		0.080	0.065	0.074
		(0.505)	(0.509)	(0.502)
Education (mother's side; high school)		-0.241	-0.255	-0.255
		(0.558)	(0.562)	(0.555)
Education (mother's side; university)		-0.609	-0.617	-0.610
		(0.678)	(0.684)	(0.675)
Education (mother's side; other)		4.824***	4.855***	4.802***
		(1.859)	(1.868)	(1.852)
Employment status (father's side; clerk)		0.073	0.077	0.071
		(0.494)	(0.498)	(0.492)

Table 9 (continued)

	Responsible choice			
	(1)	(2)	(3)	(4)
Employment status (father's side; manual)		0.688	0.701	0.691
		(0.479)	(0.483)	(0.477)
Employment status (father's side; executive)		0.106	0.114	0.083
		(0.683)	(0.688)	(0.679)
Employment status (father's side; retired)		-0.104	-0.098	-0.079
		(0.469)	(0.473)	(0.467)
Employment status (father's side; entrepreneur)		-0.135	-0.112	-0.147
		(0.609)	(0.614)	(0.607)
Employment status (father's side; unemployed)		-0.555	-0.545	-0.519
		(0.725)	(0.730)	(0.721)
Employment status (father's side; other)		0.906*	0.914*	0.927*
		(0.544)	(0.548)	(0.542)
Employment status (mother's side; clerk)		0.244	0.234	0.229
		(0.573)	(0.578)	(0.571)
Employment status (mother's side; manual)		-0.341	-0.356	-0.355
		(0.777)	(0.783)	(0.773)
Employment status (mother's side; executive)		-1.728	-1.691	-1.721
		(2.221)	(2.238)	(2.211)
Employment status (mother's side; retired)		0.461	0.448	0.431
		(0.721)	(0.727)	(0.718)
Employment status (mother's side; housework)		-0.408	-0.422	-0.416
		(0.552)	(0.556)	(0.549)
Employment status (mother's side; student)		0.107	0.090	0.154
		(1.673)	(1.688)	(1.666)
Employment status (mother's side; entrepreneur)		-0.218	-0.235	-0.212
		(0.887)	(0.893)	(0.883)
Employment status (mother's side; unemployed)		0.522	0.531	0.566
		(0.915)	(0.922)	(0.911)
Employment status (mother's side; other)		-1.226*	-1.240*	-1.224*
		(0.741)	(0.746)	(0.737)
Income level (15.001—25.000)		0.010	0.006	0.019
		(0.355)	(0.358)	(0.353)
Income level (25.001—35.000)		-0.017	-0.033	-0.008
		(0.394)	(0.397)	(0.392)
Income level (35.001—50.000)		-0.257	-0.268	-0.237
		(0.503)	(0.506)	(0.500)
Income level (50.001—90.000)		0.744	0.757	0.757
		(0.543)	(0.547)	(0.541)
Income level (higher than 90.000)		1.401	1.363	1.394
		(1.374)	(1.384)	(1.369)

Table 9 (continued)

	Responsible choice			
	(1)	(2)	(3)	(4)
Round	-0.026***		-0.026***	-0.020**
	(0.008)		(0.008)	(0.009)
Constant	-1.253***	-1.142	-0.797	-1.067
	(0.281)	(1.342)	(1.357)	(1.343)
Socio-demographics		√	√	√
Wald χ2	52.01	79.95	88.04	99.79
	(0.00)	(0.00)	(0.00)	(0.00)
Observations	3,420	3,420	3,420	3,420
Number of id	180	180	180	180

Standard errors in parentheses

*** $p<0.01$, ** $p<0.05$, * $p<0.1$

Table 10 Full regression findings for Table 6

	Responsible choice			
	(1)	(2)	(3)	(4)
AvgGroupPGChoice$_{t-1}$	0.474	0.887***	0.481	0.376
	(0.341)	(0.323)	(0.342)	(0.343)
RedistributionBase	0.623***	0.570***	0.622***	0.580***
	(0.151)	(0.150)	(0.151)	(0.152)
LegFrameRedistribution	0.761**	0.910***	0.987***	0.893***
	(0.303)	(0.301)	(0.305)	(0.299)
LegFrame	0.424	0.609**	0.652**	0.580*
AvgGroupPGChoice$_{t-1}$	(0.303)	(0.301)	(0.305)	(0.298)
E (AvgGroupPGChoice$_{t-1}$)—AvgGroupPGChoice$_{t-1}$				0.111***
				(0.029)
Male		-0.005	-0.006	0.001
		(0.281)	(0.285)	(0.277)
Age		0.041	0.042	0.039
		(0.035)	(0.036)	(0.035)
Living condition (live with the family)		-0.302	-0.285	-0.358
		(0.592)	(0.600)	(0.584)
Living condition (live with other people)		-0.848	-0.821	-0.880
		(0.610)	(0.618)	(0.602)
Education (father's side; middle school)		-0.183	-0.183	-0.129
		(0.509)	(0.515)	(0.501)
Education (father's side; high school)		-0.358	-0.343	-0.305
		(0.546)	(0.553)	(0.538)
Education (father's side; university)		-1.015	-1.017	-0.957
		(0.654)	(0.662)	(0.644)
Education (father's side; other)		-1.010	-0.993	-0.912
		(1.556)	(1.574)	(1.531)
Education (mother's side; middle school)		-0.119	-0.146	-0.116
		(0.544)	(0.550)	(0.535)
Education (mother's side; high school)		-0.307	-0.330	-0.308
		(0.587)	(0.594)	(0.578)
Education (mother's side; university)		-0.386	-0.421	-0.405
		(0.750)	(0.760)	(0.739)
Education (mother's side; other)		-0.222	-0.218	-0.219
		(0.501)	(0.507)	(0.493)
Employment status (father's side; clerk)		0.072	0.076	0.071
		(0.487)	(0.493)	(0.480)
Employment status (father's side; manual)		-0.948	-0.958	-0.969
		(0.835)	(0.845)	(0.821)
Employment status (father's side; executive)		-0.910*	-0.917*	-0.859*
		(0.478)	(0.484)	(0.471)
		-0.900	-0.876	-0.926

Table 10 (continued)

	Responsible choice			
	(1)	(2)	(3)	(4)
Employment status (father's side; retired)		(0.588)	(0.595)	(0.579)
		-0.364	-0.354	-0.355
Employment status (father's side; entrepreneur)		(0.765)	(0.774)	(0.752)
		0.751	0.754	0.776
Employment status (father's side; unemployed)		(0.556)	(0.563)	(0.548)
		-0.122	-0.153	-0.177
Employment status (father's side; other)		(0.609)	(0.617)	(0.599)
		-0.542	-0.573	-0.570
Employment status (mother's side; clerk)		(0.755)	(0.765)	(0.744)
		-1.837	-1.821	-1.958
Employment status (mother's side; manual)		(1.949)	(1.973)	(1.921)
		-0.118	-0.146	-0.192
Employment status (mother's side; executive)		(0.806)	(0.816)	(0.794)
		-0.314	-0.344	-0.350
Employment status (mother's side; retired)		(0.598)	(0.606)	(0.589)
		0.000	-0.020	0.009
Employment status (mother's side; housework)		(0.930)	(0.941)	(0.917)
		1.328	1.346	1.389
Employment status (mother's side; student)		(0.991)	(1.003)	(0.976)
		-1.117	-1.155	-1.146
Employment status (mother's side; entrepreneur)		(0.726)	(0.735)	(0.715)
		-0.031	-0.047	-0.040
Employment status (mother's side; unemployed)		(0.362)	(0.367)	(0.357)
		0.201	0.174	0.205
Employment status (mother's side; other)		(0.375)	(0.380)	(0.369)
		-0.548	-0.573	-0.522
Income level (15.001—25.000)		(0.530)	(0.536)	(0.522)
		1.215*	1.233**	1.219**
Income level (25.001—35.000)		(0.620)	(0.628)	(0.611)
		1.787	1.767	1.836
Income level (35.001—50.000)		(1.238)	(1.253)	(1.221)
Round	-0.036***		-0.036***	-0.029***
	(0.010)		(0.010)	(0.010)
Constant	-1.076***	-1.191	-0.703	-1.048
	(0.272)	(1.373)	(1.397)	(1.363)
Socio-demographics		√	√	√
Wald χ2	44.07	66.53	76.85	92.27
	(0.00)	(0.00)	(0.00)	(0.00)
Observations	2,280	2,280	2,280	2,280
Number of id	120	120	120	120

Standard errors in parentheses

*** $p < 0.01$, ** $p < 0.05$, * $p < 0.1$

Table 11 Full regression findings for Table 7

	Responsible choice			
	(1)	(2)	(3)	(4)
AvgGroupPGChoice$_{t-1}$	0.702*	1.042***	0.700*	0.598
	(0.416)	(0.385)	(0.416)	(0.421)
RedistributionBase	0.611***	0.571***	0.610***	0.597***
	(0.154)	(0.153)	(0.154)	(0.154)
LegConfFrameRedistribution	0.982***	0.984***	1.042***	1.023***
	(0.360)	(0.353)	(0.356)	(0.355)
LegConfFrame	0.554	0.577	0.611*	0.618*
	(0.360)	(0.354)	(0.356)	(0.355)
E (AvgGroupPGChoice$_{t-1}$)—AvgGroupPGChoice$_{t-1}$				0.049
				(0.031)
Male		-0.360	-0.362	-0.369
		(0.373)	(0.375)	(0.373)
Age		0.034	0.034	0.033
		(0.041)	(0.042)	(0.041)
Living condition (live with the family)		-0.614	-0.581	-0.593
		(0.953)	(0.958)	(0.953)
Living condition (live with other people)		-0.989	-0.957	-0.962
		(0.969)	(0.975)	(0.970)
Education (father's side; middle school)		-0.303	-0.299	-0.284
		(0.748)	(0.752)	(0.749)
Education (father's side; high school)		-0.458	-0.449	-0.432
		(0.815)	(0.820)	(0.816)
Education (father's side; university)		-0.547	-0.523	-0.487
		(0.985)	(0.990)	(0.986)
Education (father's side; other)		-5.443**	-5.478**	-5.430**
		(2.400)	(2.410)	(2.405)
Education (mother's side; middle school)		0.512	0.516	0.511
		(0.693)	(0.696)	(0.693)
Education (mother's side; high school)		-0.329	-0.330	-0.347
		(0.806)	(0.810)	(0.806)
Education (mother's side; university)		-0.680	-0.675	-0.683
		(0.924)	(0.929)	(0.924)
Education (mother's side; other)		5.596***	5.632***	5.590***
		(1.959)	(1.968)	(1.962)
Employment status (father's side; clerk)		0.428	0.435	0.411
		(0.607)	(0.610)	(0.607)
Employment status (father's side; manual)		1.178*	1.197*	1.185*
		(0.608)	(0.612)	(0.609)
Employment status (father's side; executive)		0.144	0.158	0.131
		(0.897)	(0.902)	(0.898)
Employment status (father's side; retired)		0.535	0.553	0.547
		(0.614)	(0.617)	(0.614)

Table 11 (continued)

	Responsible choice			
	(1)	(2)	(3)	(4)
Employment status (father's side; entrepreneur)		1.240	1.279	1.226
		(0.897)	(0.902)	(0.898)
Employment status (father's side; unemployed)		-0.803	-0.800	-0.793
		(0.861)	(0.865)	(0.861)
Employment status (father's side; other)		0.461	0.481	0.484
		(0.698)	(0.702)	(0.699)
Employment status (mother's side; clerk)		0.345	0.336	0.328
		(0.677)	(0.681)	(0.678)
Employment status (mother's side; manual)		-0.824	-0.829	-0.843
		(1.018)	(1.024)	(1.019)
Employment status (mother's side; executive)		0.216	0.214	0.202
		(0.869)	(0.874)	(0.870)
Employment status (mother's side; retired)		-0.818	-0.825	-0.825
		(0.646)	(0.650)	(0.647)
Employment status (mother's side; housework)		0.360	0.353	0.393
		(1.717)	(1.727)	(1.719)
Employment status (mother's side; student)		0.360	0.353	0.393
		(1.717)	(1.727)	(1.719)
Employment status (mother's side; entrepreneur)		-1.128	-1.156	-1.117
		(1.163)	(1.169)	(1.164)
Employment status (mother's side; unemployed)		1.334	1.338	1.341
		(1.073)	(1.078)	(1.073)
Employment status (mother's side; other)		-1.210	-1.205	-1.192
		(0.941)	(0.946)	(0.942)
Income level (15.001—25.000)		-0.271	-0.279	-0.268
		(0.441)	(0.444)	(0.442)
Income level (25.001—35.000)		0.085	0.065	0.080
		(0.531)	(0.534)	(0.531)
Income level (35.001—50.000)		-0.012	-0.024	-0.015
		(0.665)	(0.669)	(0.666)
Income level (50.001—90.000)		0.610	0.617	0.628
		(0.681)	(0.685)	(0.682)
Round	-0.023**		-0.023**	-0.020*
	(0.011)		(0.011)	(0.011)
Constant	-1.325***	-1.448	-1.152	-1.249
	(0.319)	(1.869)	(1.884)	(1.876)
Socio-demographics		√	√	√
Wald χ^2	39.24	69.55	73.00	75.52
	(0.00)	(0.00)	(0.00)	(0.00)
Observations	2,280	2,280	2,280	2,280
Number of id	120	120	120	120

Standard errors in parentheses

*** $p<0.01$, ** $p<0.05$, * $p<0.1$

APPENDIX 3 – INSTRUCTIONS

Table 12

English Translation

General instructions

Welcome and thanks for participating to this experiment.

Our goal is to verify the impact of some factors on our decision processes

Together with other participants you will have to take decisions in different situations. Depending of your decisions along with those of the other participants you will get a certain number of points. One among all your decision will be picked randomly and the points you get in that particular situation will be converted in euros (with the exchange rate 2 points = 1 euro) and paid to you in cash. Besides, you will receive 5 points for participating. These points will sum up to those gained during the experiment.

Your identity and those of the other participants to the experiment will never be revealed even after the end of the experiment. Also your choices and answers will be dealt with anonymously (without reference to your identity).

Overall the experimental session will last approximately one hour

We ask you to work alone and in silence.

Thanks for your participation!

Specific instructions

Baseline Condition

In this session you will be asked to choose (for 10 rounds) which, between two products (product A and product B), you intend to buy. For every round you will be given an endowment of 20 points that you will be able to spend to purchase one of the two products. At each round, after your choice and the choices of all other players, we will tell to you and them, without revealing their identity, how many players have chosen product A and product B. After this information you will play the following round.

Round *n*

You receive an endowment of 20 points. You must choose whether to buy:

Product A;

Product B.

Product A costs 10 points. If you buy product A you will receive 3 points for any of the other players choosing to buy product A.

Product B costs 5 points. If you buy product A you will receive 3 points for any of the other players choosing to buy product A.

The effect on your payoff of the two players' choices (buying product A or product B) are summarized in the table which follows: (table 13).

Each of the 10 players is in the same situation as you and faces the same payoff table.

Your final payoff from each of the different choices you may make (conditional to other participants' choices) is summarized in the following table: (table 14)

Original Italian

Istruzioni Generali

Benvenuto e grazie per aver deciso di partecipare a questo studio.

Siamo interessati alla comprensione di alcuni fattori che influenzano i nostri processi decisionali.

Durante questo studio ti troverai a dover prendere delle decisioni in differenti situazioni. Le tue decisioni insieme alle decisioni prese dagli altri partecipanti allo studio determineranno la vincita di un certo numero di punti. Tra tutte le decisioni che prenderai, una verrà estratta in maniera casuale, e i punti guadagnati in quella situazione verranno convertiti in euro e pagati realmente (tasso di conversione 2 punti = 1 euro). Per la sola partecipazione, poi, riceverai 5 punti che andranno a sommarsi a quelli guadagnati durante la sessione.

La tua identità e l'identità degli altri partecipanti non verranno mai svelate, né ora né dopo la fine dello studio. Anche tutte le tue scelte e ogni tua risposta verrà trattata in maniera assolutamente anonima senza nessun riferimento alla tua identità. Nel complesso la sessione durerà approssimativamente un'ora.

Ti chiediamo di lavorare da solo e in silenzio.

Grazie ancora per la tua partecipazione!

Istruzioni specifiche

Gioco Base

In questa situazione dovrai scegliere ripetutamente (per 10 volte) quale tra due prodotti (prodotto A e prodotto B) acquistare. Ogni volta ti verrà assegnata una certa dotazione di punti che potrai spendere per l'acquisto di uno dei prodotti. Dopo che tu e tutti gli altri avranno scelto, ti verrà comunicato (in maniera anonima) quanti giocatori hanno scelto il prodotto A e quanti il prodotto B prima di giocare nuovamente.

Periodo *n*

Ricevi una dotazione iniziale di 20 punti. Devi decidere se:

Acquistare il prodotto A;

Acquistare il prodotto B.

Il prodotto A costa 10 punti. Acquistando il prodotto A otterrai 3 punti per ognuno degli altri giocatori che, nel tuo gruppo, ha scelto di acquistare come te il prodotto A.

Il prodotto B costa 5 punti. Acquistando il prodotto B otterrai 3 punti per ognuno degli altri giocatori che, nel tuo gruppo, ha scelto di acquistare il prodotto B.

Le conseguenze (in termini di guadagni) delle due possibili scelte (acquistare il prodotto A o il prodotto B) sono riassunte nella tabella 1 (tabella 13).

Ognuno dei 10 partecipanti si trova nella tua stessa situazione e ha la stessa tabella che descrive i guadagni a seconda delle scelte effettuate dagli altri giocatori.

Il tuo guadagno per ognuna delle 10 scelte dipende non solo da quale bene decidi di acquistare tu, ma anche dalle scelte di acquisto che faranno gli altri giocatori, secondo lo schema della tabella 14.

Quale prodotto scegli?

Prodotto A;

Prodotto B.

Table 12 (continued)

Please choose:

Product A;

Product B.

Redistribution Condition

Same as in the Base treatment plus:

Notice that, at the end of each round 1 point will be subtracted from the payoff of all those participants who have chosen product B. All those points will form a common fund that will equally divided among the participants who have chosen product A.

The effect on your payoff of the two players' choices (buying product A or product B) are summarized in the table which follows: (table 15)

Each of the 10 players is in the same situation as you and faces the same payoff table.

Your final payoff from each of the different choices you may make (conditional to other participants' choices) is summarized in the following table: (table 16)

Please choose:

Product A;

Product B.

Frame Condition

As in the Baseline plus framed description of Product A as follows

Product A is a product or service provided by an enterprise awarded with the "3-star legality rating". This rating can be conferred by the Italian Competition Authority (2012, 2016) (i.e. Autorità Garante della Concorrenza e del Mercato, "Authority" from now on) upon request of a company. In order to be signaled with the 3-star rating a company must have in place organizational frameworks to prevent and fight of corruption. Specifically, conditions for 3-star rating are stated by the Authority as follows: 1. the entrepreneur must not be involved in lawsuit for mafia, tax-evasion, antitrust behaviours, unfair practices towards employees and customers, and bad administration (minimum accomplishments to be 1-star rated);

2. the enterprise mush accomplish ministerial codes of conduct, employ trackable paying methods, adopt organisational frameworks liable to the legal conformity control, endorse processes that guarantee the Corporate Social Responsibility, be listed among enterprises that are not tied to mafia, and adhere to existing ethical codes of conduct;

3. have in place organizational frameworks to prevent and fight corruption.

Product A costs 10 points. By buying product A you gain 3 points directly, and you will gain 3 points for each player who purchases product A too

Product B is a product or service provided by an enterprise which is not awarded with the legality rating issued by the Authority (i.e. either the company did not enquire for the rating, or it asked for the rating but did not obtain it).

Product B costs 5 points. By buying product B you do not gain any point directly, but you will still gain 3 points for each player who purchases product A.

Redistribuzione

Come nel trattamento base più:

Nota Bene: Rispetto alla situazione precedente però, ora c'è una novità. Ad ogni giocatore che avrà scelto il prodotto B verrà prelevato 1 punto che andrà a formare un fondo complessivo che verrà, poi, redistribuito in parti uguali a tutti i giocatori che avranno scelto il prodotto A.

Le conseguenze (in termini di guadagni) delle due possibili scelte (acquistare il prodotto A o il prodotto B) sono riassunte nella tabella 15.

Ognuno dei 10 partecipanti si trova nella tua stessa situazione e ha la stessa tabella che descrive i guadagni a seconda delle scelte effettuate dagli altri giocatori.

Il tuo guadagno per ognuna delle 10 scelte dipende non solo da quale bene decidi di acquistare tu, ma anche dalle scelte di acquisto che faranno gli altri giocatori, secondo lo schema della tabella 16.

Quale prodotto scegli?

Profotto A;

Prodotto B.

Frame

Come nel gioco base più la descrizione del prodotto A come segue

Il prodotto A è un bene venduto da un'impresa a cui è stato attribuito il certificato "3 stelle di legalità".

Questo certificato viene rilasciato dall'Autorità Garante della Concorrenza e del Mercato (AGCOM) su richiesta dell'impresa interessata. Per ottenere "3 stelle di legalità" è necessario che:

1. L'imprenditore non sia coinvolto in processi per mafia, evasione fiscale, comportamenti anticoncorrenziali, comportamenti scorretti ai danni di lavoratori e consumatori, e cattiva amministrazione (requisiti minimi per l'ottenimento di "1 stella di legalità");

2. L'impresa operi nel rispetto dei codici di condotta ministeriali, utilizzi sistemi di pagamento tracciabili, adotti modelli organizzativi che garantiscano i controlli di conformità, adotti processi in linea con la responsabilità sociale, compaia negli elenchi di imprese non legate all'organizzazione mafiosa, aderisca ai codici etici e di condotta esistenti;

3. abbia "adottato modelli organizzativi di prevenzione e di contrasto della corruzione".

Il prodotto A costa 10 punti. Acquistando il prodotto A otterrai 3 punti per ognuno degli altri giocatori che, nel tuo gruppo, ha scelto di acquistare come te il prodotto A.

Il prodotto B è un bene o fornito da un'impresa priva del certificato di legalità AGCOM (può non averlo richiesto oppure non rispetta tutti i requisiti di cui sopra).

Il prodotto B costa 5 punti. Acquistando il prodotto B otterrai 3 punti per ognuno degli altri giocatori che, nel tuo gruppo, ha scelto di acquistare il prodotto A.

Table 13

	Payoff	
Your choice	Product A	Product B
Participation bonus	5 points	5 points
Endowment	20 points	20 points
Cost	-10 points	-5 points
Benefit (from the choice of other participants)	+3 points for each participant choosing product A	+3 points for each participant choosing product A

Table 14

How many players choose good A	When you buy A				When you buy B			
	Endow-ment	Cost	*Benefit* *3 X n =*	*TOTAL*	Endow-ment	Cost	*Benefit* *3 X n =*	*TOTAL*
10	20	-10	30	**40**	-	-	-	-
9	20	-10	27	**37**	20	-5	27	**42**
8	20	-10	24	**34**	20	-5	24	**39**
7	20	-10	21	**31**	20	-5	21	**36**
6	20	-10	18	**28**	20	-5	18	**33**
5	20	-10	15	**25**	20	-5	15	**30**
4	20	-10	12	**22**	20	-5	12	**27**
3	20	-10	9	**19**	20	-5	9	**24**
2	20	-10	6	**16**	20	-5	6	**21**
1	20	-10	3	**13**	20	-5	3	**18**
0	-	-	-	-	20	-5	0	**15**

Table 15

Your choice	Payoff	
	Product A	Product B
Participation bonus	5 points	5 points
Endowment	20 points	20 points
Cost	-10 points	-5 points
Benefit (from the choice of other participants)	+3 points for each participant choosing product A	+3 points for each participant choosing product A
Redistribution effect	The share of the total points withdrawn from the buyers of B equally distributed among the buyers of A	-1 point

While in sessions 7–15 at the end of each round is provided the number of co-players choosing product A among the members of the same group, in sessions 16–18 along with the information about the average share of co-operators observed in the parallel sessions 10–12. This kind of information is provided to disentangle conditional cooperation from conformist-type behaviour

Table 16

How many players choose good A	When you buy A					When you buy B				
	Endowment	Cost	Benefit 3 X n=	Redistribution	TOTAL	Endowment	Cost	Benefit 3 X n=	Redistribution	TOTAL
10	20	-10	30	-	40.0	-	-	-	-	-
9	20	-10	27	0.1	37.1	20	-5	27	-1	41.0
8	20	-10	24	0.3	34.3	20	-5	24	-1	38.0
7	20	-10	21	0.4	31.4	20	-5	21	-1	35.0
6	20	-10	18	0.7	28.7	20	-5	18	-1	32.0
5	20	-10	15	1.0	26.0	20	-5	15	-1	29.0
4	20	-10	12	1.5	23.5	20	-5	12	-1	26.0
3	20	-10	9	2.3	21.3	20	-5	9	-1	23.0
2	20	-10	6	4.0	20.0	20	-5	6	-1	20.0
1	20	-10	3	9.0	22.0	20	-5	3	-1	17.0
0	-	-	-	-	-	20	-5	0	-1	14.0

APPENDIX 4 – QUESTIONNAIRE

1. Gender: □₁ M   □₀ F

2. Age: _____ years

3. District of residence_____

4. Housing condition:
   a. Live alone
   b. Live with family
   c. Live with other (not related) people

5. Father's education

   □₁ Primary School   □₂ Middle School
   □₃ Upper Intermediate/High school   □₄ University degree
   □₅ Other_____

6. Mother's education

   □₁ Primary School   □₂ Middle School
   □₃ Upper Intermediate/High school   □₄ University degree
   □₅ Other_____

7. Father's professional status

   □₁ Self-employed   □₂ Clerk
   □₃ Manual worker   □₄ Executive
   □₅ Retired   □₆ Homemaker
   □₇ Student   □₈ Entrepreneur
   □₉ Unemployed   □₁₀ Other_____

8. Mother's professional status

   □₁ Self-employed   □₂ Clerk
   □₃ Manual worker   □₄ Executive
   □₅ Retired   □₆ House activity
   □₇ Student   □₈ Entrepreneur
   □₉ Unemployed   □₁₀ Other_____

9. How many people are there in your household (including yourself)? _____

We would like to remind you that these data will only serve statistical purposes, that information will be handled anonymously and it shall never be disclosed at disaggregated level

10. Please, mark the class to which your annual household income (net) in 2015 belongs to

    □₁ up to 15.000   □₂ 15.001 - 25.000   □₃ 25.001 - 35.000
    □₄ 35.001 - 50.000   □₅ 50.001 - 90.000   □₆ higher than 90.000

11. On a scale from 0 to 10, please indicate your level of satisfaction with the experience of having undergone this experiment:

    Not satisfied at all =0   Completely satisfied =10

0	1	2	3	4	5	6	7	8	9	10

12. On a scale from 0 to 10, please indicate your level of satisfaction about the behaviour of the players who participate in your same game:

Not satisfied at all = 0   Completely satisfied = 10

0	1	2	3	4	5	6	7	8	9	10

13. On a scale from 0 to 10, please indicate your level of satisfaction about your own behaviour in the game:

Not satisfied at all = 0   Completely satisfied = 10

0	1	2	3	4	5	6	7	8	9	10

14. On a scale from 0 to 10, how would you rate the overall trustworthiness of others?

None = 0   Complete = 10

0	1	2	3	4	5	6	7	8	9	10

15. On a scale from 0 to 10, how would you rate your overall satisfaction with life?

Not satisfied at all = 0   Completely satisfied = 10

0	1	2	3	4	5	6	7	8	9	10

16. On a scale from 0 to 10, how would you rate your satisfaction about your financial situation?

Not satisfied at all = 0   Completely satisfied = 10

0	1	2	3	4	5	6	7	8	9	10

17. Please tick the box that mostly represent your political orientation:

Extreme LEFT			Extreme RIGHT

18. Have you got an account on Facebook?

☐$_1$YES   ☐$_0$NO

19. If you have an account on Facebook, how many friends do you have approximately on your account?

20. Have you got an account on Twitter?

☐$_1$YES   ☐$_0$NO

21. If you have an account on Twitter, how many people do you follow?
22. If you have an account on Twitter, by how many people are followed by?

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