Shared social responsibility and fair worker wages: evidence from an experimental market

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Abstract

We analyze repeated interactions occurring between workers, sellers and consumers within the framework of an experimental market. By successfully performing a task, workers allow sellers to offer a good through a market. Sellers set the price of goods and decide the wages of workers. Consumers enter the market sequentially and decide whether to accept one of the offers or to leave the market. Our data show that, especially in the first periods of the experiment, some sellers opt to pay high wages to their workers. However, this behavior is not rewarded by consumers, whose purchasing choices are almost exclusively driven by self-interest. This exposes sellers to a high level of price competition and, period after period, the propensity to act in a socially responsible way towards workers vanishes, creating a market scenario in which workers receive the minimum wage and where consumer surplus is significantly higher than those of workers and sellers. This result does not change when we manipulate the social distance between workers and consumers or when we limit opportunities for consumers to relinquish responsibility by avoiding information on workers' conditions.

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1. Introduction

Over the last few years, institutions and citizens have dedicated more attention to the (responsible) behaviors of enterprises.

The European Commission defines corporate social responsibility (CSR) "as the responsibility of enterprises for their impact on society [...]. Companies can become socially responsible by: - integrating social, environmental, ethical, consumer, and human rights concerns into their business strategy and operations -

following the law."[1] The U.S. Bureau of Economic and Business Affairs includes a Responsible Business Conduct team which "provides guidance, promotion and support for responsible business practices, engaging the private sector, labor groups, non-governmental organizations, and other governments."[2]

Consumers' purchasing choices may play a central role in initiating and sustaining social responsibility among firms (Auger et al. 2003, Bhattacharya and Sen, 2004, Vogel, 2005, Degli Antoni and Sacconi, 2013, Morgan et al. 2016, Jones, 2017). The Nielsen Global Survey of Corporate Social Responsibility and Sustainability conducted in 2015 and polling more than 30.000 consumers in 60 countries shows that 66% of the interviewees noted being willing to pay extra for products and services produced by companies committed to having a positive social and environmental impact.[3] However, according to some authors, traditional purchasing criteria such as prices, quality levels and delivery times prevail among the large majority of consumers (Boulstridge and Carrigan 2000, De Pelsmacker et al. 2005; Boccia et al. 2018). Thus, a gap seems to exist between intentions measured by surveys and actual behavior (Vogel, 2005, Vermeir and Verbeke 2006; Smith, 2007; Claudy et al. 2013).

Using an experimental approach, this paper investigates the relation between CSR and consumer choices by addressing problems associated with the presumed incoherence between consumers' declarations and their revealed preferences. We consider sellers who operate in a highly competitive posted offers market, offering a homogeneous good and making two choices: setting prices and deciding worker wages. In this specific context, a seller's socially responsible choice corresponds to the setting of high wages (hereafter we refer to "responsible sellers" as those that pay high wages to their workers). Consumers enter the market sequentially and decide whether to accept one of the offers or to leave the market.

Our main conjecture is that to obtain a socially responsible outcome in such situations, sellers and consumers must share responsibility for supporting workers[4]. In our context, socially responsible conduct by sellers (which implies higher costs over the short-run) can be sustained only in the presence of (socially responsible) consumers who are willing to reward such conduct by paying a price premium.

Moreover, we analyze how consumer behavior is affected by the amount to social distance to workers (e.g., Bohnet and Frey, 1999, Charness et al. 2007), which is manipulated by allowing workers to send messages to consumers or by providing additional information about workers' payoffs.

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[1] https://ec.europa.eu/growth/industry/corporate-social-responsibility_en, accessed: 06.01.2019. Officially, the concept of corporate social responsibility was first introduced in the EU in 2001 through the "Green paper: promoting an European framework for corporate social responsibility."

[2] https://www.state.gov/responsible-business-conduct/, accessed: 06.01.2019.

[3] Nielsen N.V. (2015), "The Nielsen Global Survey of Corporate Social Responsibility and Sustainability," https://www.nielsen.com/content/dam/nielsenglobal/dk/docs/global-sustainability-report-oct-2015.pdf accessed: 06.01.2019. The sample used for the survey applies quotas based on age and sex for each country based on Internet users. The sample is weighted to be representative of consumers with Internet access. The margin of error is ±0.6 percent.

[4] Shared social responsibility is here defined as associated with a norm of sharing resources to benefit the less privileged (Offe, 2011). A second approach to shared social responsibility involves sharing costs related to cooperation, collective action and the production of public goods by those who benefit from them (Offe, 2011). For a general discussion of the concept of shared social responsibility, see: Council of Europe (2011), "Towards a Europe of Shared social responsibility: challenges and strategies," Council of Europe Publishing https://www.coe.int/t/dg3/socialpolicies/socialcohesiondev/source/Trends/Trends_23_EN.pdf, accessed: 06.01.2019; for an experimental approach to shared social responsibility, see Gneezy et al. (2010).

Our data clearly show that consumers tend not to pay premia for responsible sellers who decide to pay higher wages to workers. Conversely, sellers that pay higher wages and ask higher prices for their goods are more likely not to sell the good. Period after period this reduces the propensity to act in a socially responsible way and a market scenario emerges in which workers receive the minimum wage, consumers' purchase decisions are driven by the level of the price and sellers are exposed to a high price competition.

We show that this result does not change when workers are given voice and can send a message to consumers or when information provided to consumers highlights the low payoff for workers. This raises doubts regarding the efficacy of these policies as a means to foster socially responsible behavior among sellers towards their workers.

The paper is organized as follows. Section 2 surveys the related literature. Section 3 describes the experimental design and procedures adopted. Section 4 discusses our theoretical hypotheses. Section 5 presents our empirical evidence. Section 6 concludes.

2. Related literature

While the empirical literature on CSR and ethical consumption is vast, consists mainly of contributions based on surveys (see the Introduction) or choice experiments (e.g., Mohr and Webb, 2005, Marquina and Morales 2012). Experimental contributions that address the gap between intentions and actual behavior are significantly less extensive. Among them, recent studies have analyzed sellers' socially responsible behaviors and consumer willingness to pay for socially responsible products by replicating such behaviors in lab-based experimental markets. Rode et al. (2008) consider triopolistic markets with six consumers. In all of their treatments, a producer incurs higher production costs than others. For a given treatment, the cost is generated through compliance with the conditions of an NGO internationally recognized as fighting child labor while for a different treatment the cause of extra costs is unknown to consumers. The authors show that consumers are willing to pay positive premia for ethically differentiated products, but when ethical differentiation is absent, consumers tend to purchase at the lowest price irrespective of the costs incurred by producers.

Vasileiou and Georgantzis (2015) replicate experimental markets with nine consumers and nine producers who interact for at least 36 periods in a lab setting. Their treatment condition involves asking producers to define not only the price (as in the baseline) but also the level of an energy-saving investment. The investment implies a higher fixed cost and is implemented to monotonically relate different contribution levels to a common fund that is equally divided among all consumers at the end of each period. While consumers tend to reward the socially responsible behaviors of sellers, their willingness to pay is not sufficient to compensate for the cost of the investment.

Bartling et al. (2014), the work most closely related to our study, considers a laboratory market in which six sellers and five consumers repeatedly interact. In each period, sellers may decide to adopt low- or high-cost production. The former generates negative externalities for third parties. The experiment is conducted on Switzerland and China. Focusing on Switzerland, the authors show that both consumers and sellers show a preference for avoiding negative impacts on third parties. Almost 50% of products are generated at the higher

(no externality) cost, and by the end of the experiment the cost of mitigating the externality is borne equally by both sellers and consumers. Socially responsible behavior is generally resilient to market conditions, which vary according to the degree of competition present among sellers and information provided to consumers. In China, low-cost production that generates negative externalities is significantly more prevalent than it is in Switzerland.

With respect to the reviewed research, the present contribution presents a main original feature: the seller's socially responsible behavior neither improves the welfare of consumers as in Vasileiou and Georgantzis (2015) nor impacts third parties without any opportunities to affect the sellers' surplus as in Rode et al. (2008) and Bartling et al. (2014). In our experimental design, through their jobs workers allow sellers to enter the market and benefit from their socially responsible decision to offer high wages. The issue concerning sellers' responsibility in terms of wage levels is of utmost interest when one considers the percentage of workers receiving low pay in OECD countries (workers who earn less than two-thirds of median earnings)[5] and an increase in labor income inequality that has especially characterized the US over the last 30 years (Piketty, 2015).

3. Experimental design and procedures

In each session, subjects were randomly assigned to the role of sellers, consumers and workers and interacted anonymously using PCs. The market included six sellers, six workers and five consumers. Each worker was associated with a seller and performed a task to generate goods that could be offered in the market by the seller. If a worker's level of production was too low, the seller could not enter the market. At the start of each period, the seller chose the wage to be paid to each worker and the price of each good. Each consumer observed the price and wage set by each seller and purchased only one good.

The experiment consisted of three treatments: the *Baseline*, *Voice* and *Info* treatments.

The Baseline

At the start of each session, each worker was matched with a seller and was asked to perform a task that involved encoding words. Each word encoded by a worker corresponded to a unit of a good available to the seller. Workers were asked to encode at least 15 words over seven minutes with the understanding that those who failed to reach the target would be excluded from the experiment together with the sellers with whom they were paired. During this task, the sellers and consumers waited. Market activity was initiated just after the task phase and involved 15 rounds of transactions. In each round, sellers incorporated one of the 15 units of a homogeneous good into the market while posting a price and setting wages for their workers. Prices must be chosen in the interval [0,60] tokens (1 token = 0.02 €) and wages could be set as 10 or 20 tokens.

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[5] According to the latest available data, they amounted to 15.6% in OECD countries in 2016 with percentages equal to 18.9% in Germany (2016), 22% in Canada (2017) and 24.5% in the US (2017): https://data.oecd.org/earnwage/wage-levels.htm#indicator-chart, accessed: 06.03.2019.

Consumers received an initial endowment of 100 tokens. In each round they entered the market one by one in a random order. They were informed of the wage paid and the price posted by each seller. Consumers could select one of the offers and confirm their selection by pressing "CONFIRM" or pass this stage without purchasing the good. When a consumer accepted the offer, the offer was still displayed to the next consumers, but the "SELECT" button was removed (see Figure 1 for an example of a selection screen). To reduce the likelihood of reputation formation, the order with which offers were displayed was randomized and changed with every round. Sellers were not identified by any label.

Figure 1: The consumer selection screen
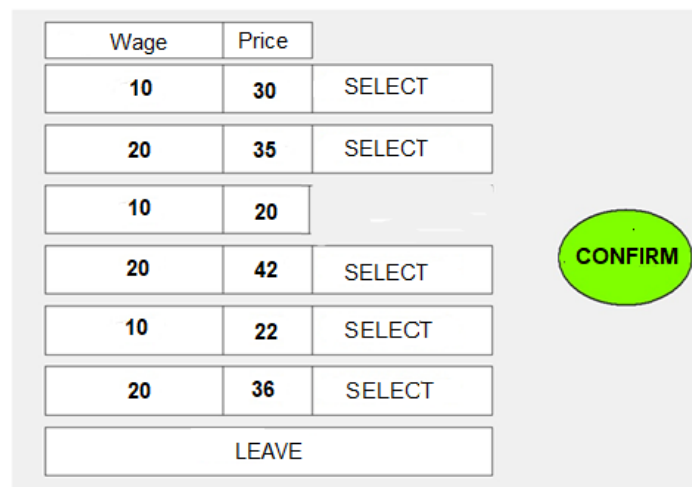
At the end of the round, all participants were presented with all of the offers and were informed of the offers that had been accepted and the order with which they had been accepted. Sellers and workers see their offers colored blue.

For each worker, the payoff of the current round was equal to her wage. The payoff for the consumer was equal to 60 minus the price when she had purchased the good and was equal to zero otherwise. The payoff for the seller was equal to the price minus the wage when her offer was accepted, and was equal to minus the wage otherwise. Sellers could accumulate negative final payoffs. In this case, their final payment for the experiment was equal to zero.

The Voice and Info treatments

The *Voice* and *Info* treatments were the same as the *Baseline* treatment, but in the *Voice* treatment, in each round, after having been presented with their wage level, workers were given the opportunity to send a message stating "do not buy" that would appear next to the offer made by the seller with whom she was matched; in the *Info* treatment, consumers were presented on their screens not only with prices and current wages but also with the accumulated payoff for each worker (wages accumulated in previous rounds)[6].

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[6]   See appendix 2 for instructions and control questions.

The experiment was conducted at the CEEL Laboratory at the University of Trento and was programmed using zTree (Fischbacher, 2007). Subjects were paid a participation fee of 3 euros. No individual participated in more than one session.

We conducted three sessions (with one market per session) per treatment with 17 subjects participating in each for a total of 153 subjects participating in the experiment. The participants were students at the University of Trento, 48% were female, 91% were Italian and 61% were enrolled in Economics or Management programs. The average payment to participants was 9.53 € (including the participation fee) and the sessions lasted approximately an hour and a half.

Participants were randomly assigned to terminals. The study instructions were distributed to them in written form and were read aloud by the experimenter. The participants were required to answer several control questions, and we did not proceed with the actual experiment until all of the participants had answered all of these questions correctly.

4. Hypotheses

In our experimental market, the transaction realizing the equal division of the total surplus is that whereby the seller offers the good at a price of 40 tokens, a consumer purchases the good at this price, and the seller pays a wage of 20 tokens to the worker. In this context, we define as shared socially responsible any combination of choices leading to an outcome which approximate the equal division benchmark.

Assuming purely self-interested subjects, we should not observe equal division arising from the market in any of our experimental treatments. In fact, sellers have a material interest in paying lower wages and consumers have an incentive to buy products available on the market at the lowest price (given their reservation prices, consumers always have an advantage in purchasing products at a price lower than 60 tokens and they are indifferent to purchasing products sold at a price of 60 tokens). This should generate fierce price competition among irresponsible sellers.

If one recognizes the possibility of prosocial and nonstrictly self-interested behavior, we may expect to observe different patterns of behavior. In all of our treatments sellers may be willing to reciprocate the worker's initial effort, which gave them the possibility to enter the market (on reciprocity based behavior, see Rabin, 1993, Fehr, Gächter, 1998, McCabe, Rigdon, Smith, 2003, Cox, 2004).

With regard to consumers' behaviors, we distinguish between the *Baseline* and the two treatments. Under the *Baseline* condition, there is no specific reason to expect any form of responsible behavior from consumers. Therefore, we expect consumers to not reward socially responsible behavior from sellers. Consequently, even in the presence of responsible sellers, the inability to coordinate and interactions with selfish consumers not rewarding fairness should lead to limited or null indications of shared social responsibility.

We can then put forward the following two hypotheses for the *Baseline* condition.

Hypothesis 1.

For the *Baseline* condition:

H1.a We are more likely to observe socially responsible sellers than socially responsible consumers, especially in the first rounds;

H1.b Consumers will not reward socially responsible behavior, progressively reducing the probability of socially responsible choices being made by sellers. Consequently, the equilibrium price should converge towards the minimum wage.

For the *Voice* and *Info* treatments, our manipulations decrease the amount of social distance between consumers and workers. Social distance decreases when "the "other" is no longer some unknown individual from some anonymous crowd but becomes an "identifiable victim" (Thomas C. Schelling 1968)" (Bohnet and Frey, 1999, p. 335). Under the *Voice* treatment, social distance is decreased by allowing workers to send a message to consumers (an approach similar to one reducing social distance is used by Frohlich and Oppenheimer, 1998, Rankin, 2006, Ben-Ner and Putterman, 2009). Under the *Info* treatment, social distance is manipulated by providing information on the payoff accumulated by workers (on social distance reduction obtained by providing different types of information to others, see Bohnet and Frey, 1999, Charness and Gneezy 2008). Since a decrease in social distance tends to favor prosocial behavior (e.g., Hoffman et al., 1996, Bohnet and Frey, 1999, Ben-Ner and Putterman, 2009), we expect to find different forms of consumer behavior under the two treatments with respect to the *Baseline* condition. Moreover, by highlighting workers' payoffs, with the *Info* treatment we aim to rule out opportunities for consumers to relinquish responsibility by avoiding information on workers' conditions (Sweeny, Miller, Shepperd 2010; Golman, Loewenstein 2017). For the *Baseline* treatment, consumers may decide not to focus on the computation of cumulative payoffs for workers to not feel guilty for their (eventual) selfish behaviors and to not perceive themselves as acting unfairly (Dana et al., 2007).

By comparing the two treatments we are able study the potential role of social distance and, according to incremental logic, the role of information avoidance with respect to consumers' behaviors in our experimental condition.

Therefore, we put forward the following three hypotheses:

Hypothesis 2

Under the *Voice* and/or *Info* treatment(s), depending on the effectiveness of a decrease in social distance and the role of information avoidance on consumers' behaviors:

H2.a Consumers are expected to be significantly more likely to pay price premia to responsible sellers than under the *Baseline* condition;

H2.b Consumers' behaviors should support responsible behaviors from sellers across the different periods;

H2.c. Sellers' and consumers' behaviors should sustain a market equilibrium more closely reflecting an equal division of the total surplus than under the *Baseline* condition.

5. Results

In this section, we analyze experimental data to investigate the five hypotheses put forward in Section 4. Section 5.1 provides descriptive statistics concerning sellers' and consumers' choices made under the three experimental conditions. Section 5.2 presents our econometric findings.

5.1 – Descriptive statistics

Sellers

Overall, sellers pay high wages only 7.78% of the time. This percentage is higher for the *Info* treatment (11.11% - i.e., 30 times) than for the *Baseline* (6.67% - 18 times) and *Voice* (5.56% - 15 times) conditions. However, the greater value applied in the *Info* condition is essentially attributable to the behavior of a single seller who pays a high wage in each round (i.e., 15 times). Many sellers do not pay high wages in any round (12 for the *Baseline* treatment, 11 for the *Voice* treatment and 8 for the *Info* treatment).

The wage patterns observed seem to support H1a and more generally seem to reveal a positive role of reciprocity in sellers' behaviors. In fact, we find a positive number of sellers who pay high wages in all of the treatments. Moreover, the percentage of high wages paid in the first rounds is higher than that for the last rounds (Figure 2). In the *Baseline* treatment, the percentage of high wages paid in the first period is 16.67% (i.e., 3 high wages paid) and a peak is registered at round 6. For the *Voice* and *Info* treatments, the peak is at round 1 with percentages equal to 38.89% (7 high wages paid) for both treatments. For all of the treatments, the probability of observing a seller paying a high wage in the first period is higher (despite a weak level of significance observed with respect to the *Baseline* condition) than it is in the aggregated subsequent periods (*Baseline*: Pearson chi2(1) = 3.0995, Pr = 0.078; *Voice*: Pearson chi2(1) = 40.8403, Pr = 0.000; *Info*: Pearson chi2(1) = 15.0670, Pr = 0.000).

Figure 2. Wages paid by sellers
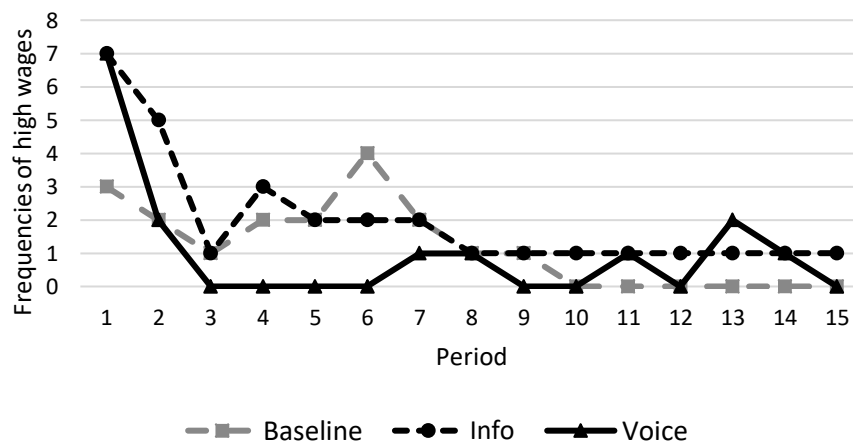
Consumers

Consumers' purchasing decisions seem to be driven by the selling price alone. Across all of the conditions, the vast majority of consumers opt for the good sold at the lowest price available in the market: representing 98.57% for the *Baseline* condition, 98.10% for the *Info* treatment and 80.10% for the *Voice* treatment. The order in which the good is purchased is positively correlated with the selling price (*Baseline*: Spearman's rho = 0.3842, prob.=0.0000; *Voice*: Spearman's rho = 0.1926, prob.=0.0040; *Info*: Spearman's rho = 0.2962, prob.=0.0000).

When consumers enter the market and observe (one or more) products offered by a seller paying a high wage and (one or more) products associated with a low wage, they opt for the former in a minority of instances: 8.96% for the *Baseline* condition, 24.32% for the *Info* treatment and 20.69% for the *Voice* treatment. Moreover, consumers tend not to purchase a product associated with a high wage when a low wage product is available at a lower price. This never happens under the *Baseline* condition, it happens six times (2.71%) for the *Voice* treatment and it occurs once for the *Info* treatment (0.49%).

Data on the *Baseline* condition presented above provide full support for H1a: under the *Baseline* condition, we are more likely to observe socially responsible sellers than socially responsible consumers, especially in the first rounds. Furthermore, H1b is supported by our descriptive statistics: under the *Baseline* condition, consumers do not reward social responsible behavior, progressively reducing the probability of socially responsible choices being made by sellers and generating an equilibrium converging towards the minimum wage as is clearly shown in Figure 2.

However, our data do not offer clear support for H2a (consumers are expected to be significantly more likely to pay price premia to responsible sellers under the *Voice* and/or *Info* condition(s) than under the *Baseline* condition) or H2b (under the *Voice* and/or *Info* condition(s), consumer behaviors should support responsible behavior from sellers across the different periods). Even though descriptive statistics seem to reveal more self-interested consumer behavior from the *Baseline* condition than from the *Voice* and *Info* treatment, we do not find a clear pattern indicating a willingness to reward socially responsible sellers. In fact, decreasing prices (Figure 3) and wage patterns (Figure 2) observed from the two treatments seem to reject H2a and H2b, respectively. Moreover, surplus division (Figure 3) does not support H2c either, according to which in the *Info* and *Voice* treatments should generate a market equilibrium more closely reflecting an equal division of the total surplus than that observed under the *Baseline* condition. In fact, consumers' behaviors lead them to appropriate a vast share of the surplus under the *Baseline, Voice* and *Info* settings. On average, in each round, the consumer's surplus, measured as the difference between her willingness to pay (60 tokens) and the price paid for products purchased, is equal to 35.17 tokens for the *Baseline* condition, 34.76 tokens for the *Info* treatment and 33.13 for the *Voice* treatment. The surplus obtained by sellers on average ranges from 9.73 observed from the *Info* treatment to 10.03 observed from the *Baseline* condition and 11.54 observed from the *Voice* treatment and is very similar to the surplus obtained on average by workers, which is equal to 11.11 for the *Info* treatment, 10.67 for the *Baseline* condition and 10.56 for the *Voice* treatment). In the next section we perform econometric estimates to integrate the empirical analyses of our Hypotheses

Figure 3. Dynamics of prices and distribution of surplus across treatments
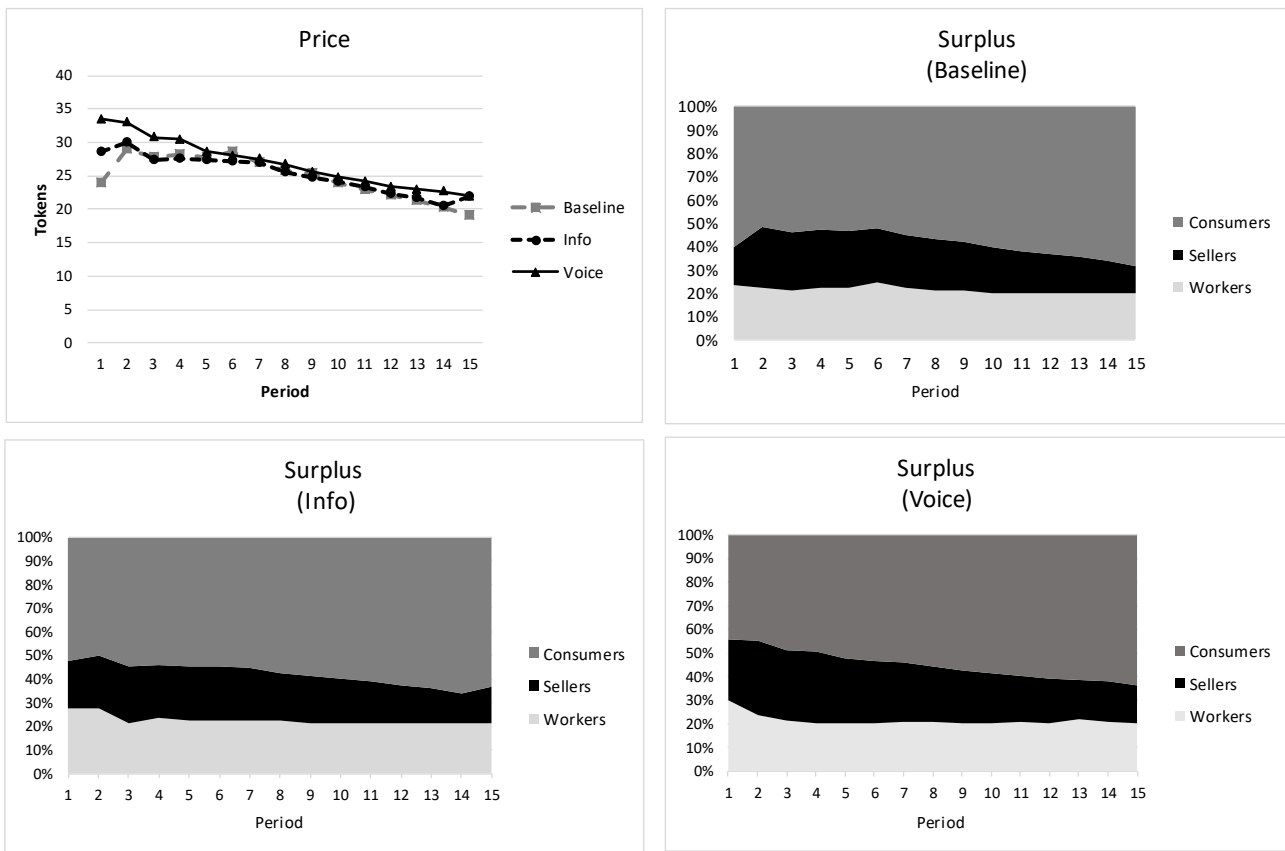
5.2 Econometric findings

In this section, we perform random effects estimations of panel data concerning sellers or consumers.

In Column 1 of Table 1, we analyze the decision made by sellers to pay high or low wages to workers. The dependent variable, *High wage*, is a dummy equal to 1 when the seller pays a high wage. The analysis clearly shows that the probability of paying high wages does not change across the three conditions. In fact, neither the dummy identifying subjects of the *Voice* treatment nor that for the *Info* treatment is statistically significant. Moreover, our t-test of the equality of *Voice* and *Info* coefficients reported in Table 1 shows that no difference characterizes the choices made by sellers involved in these two treatments. The probability of paying a high wage significantly decreases over time: the variable identifying the round in which the seller makes her choice (*Period*) has a negative and statistically significant coefficient (at 1%) with a marginal effect observed at the mean *Period* value equal to -0.172 (Std. Err.=0.028, p=0.000). Regarding the sociodemographic controls, at a 5% level of significance, we find a nonlinear effect of participants' ages; a positive effect of subjects' incomes on the probability of paying high wages and a lower probability of choosing high wages when one is enrolled in courses on Economics or Management.

Column 2 analyzes the factors that affect the order in which sellers sell their products. The dependent variable is a categorical variable ranging from 1 (when the product offered by the seller is the first sold in that period)

to 5 (when the product is purchased as the fifth choice). The Ordered probit estimate shows that the higher the selling price, the later on the product is sold. Moreover, the seller's decision to pay a high or low wage does not have any effect on the order in which the product is sold. This is confirmed also considering the possible effect of the interaction between paying a high wage and the involvement in one of the two treatments.

Column 3 investigates determinants of the probability of selling a product. The dependent variable is a dummy taking a value of 1 when the seller sells her product and with a value of 0 otherwise. The analysis shows that the higher the selling price, the lower the probability of selling the product with a marginal effect computed at the mean of the selling price of -0.075 (Std. Err.=0.010, p=0.000). Conversely, no effect on the probability of selling a product is associated with the payment of a high wage.

In columns 4 and 5 the dependent variable is a dummy equal to 1 when a consumer purchases a product sold by a seller paying a high wage. For these estimates, we focus on consumers observing in the market both (at least) one product sold by a seller paying a low wage and (at least) one product sold by a seller paying a high wage. In no case does the probability of a consumer opting to purchase a product sold by a socially responsible seller increase in one of the two treatments with respect to the *Baseline* condition. For dummies identifying subjects involved in the different treatments, explanatory variables of main interest include the *Lowest price high wage* and *Lowest price low wage,* which define the lowest price available on the market for a product associated with a high or low wage, respectively. Coherent with results given by Bartling et al. (2014), we find that consumers become progressively less likely to purchase a product sold by a socially responsible seller as the lowest price at which one is made available increases, and conversely consumers become progressively more likely to buy such a product as the lowest price at which a product sold by a seller paying a low wage increases.

In Column 5 we consider as an explanatory variable a dummy called *Lower price low wage* that captures situation in which the consumer sees in the market at least a product associated to a low wage which is offered at a lower price than the products associated with high wages. The coefficient of this variable is statistically different from zero. Interestingly, the probability of purchasing a product sold by a seller paying a high wage is higher for consumers who are currently working or with past work experience (*Work experience*).

As a whole, we find that sellers' and consumers' behaviors and the market equilibrium expected under the *Baseline* condition and captured by Hypotheses H1a and H1b characterize the other two treatments as well. From all of the treatments we observe sellers that begin reciprocating workers' efforts, paying high wages in initial periods. However, the self-interest of consumers, who tend to disregard responsible behaviors from the seller and to essentially orient their consumption choices based on the selling price, forces sellers to focus on price competition. The result is an unfair division of the surplus, with workers and sellers obtaining, as shown in Section 5.1, less than 1/3 of the surplus enjoyed by consumers. Thus, we can conclude that Hypotheses H2.a, H2.b and H2.c are not supported by our data.

Dependent variable	High wage	Choice order	Offer accepted	High wage product bought	High wage product bought
Sample	Sellers	Sellers	Sellers	Consumers	Consumers
Model	Probit	Ordered probit	Probit	Probit	Probit
Info	0.134	-0.043	-0.095	-0.273	-0.736
	(0.538)	(0.145)	(0.181)	(0.640)	(0.621)
Voice	0.357	-0.118	0.043	-0.125	-0.076
	(0.565)	(0.144)	(0.180)	(0.691)	(0.627)
Period	-0.172***			-0.003	0.064
	(0.028)			(0.060)	(0.042)
Lowest price high wage				-0.515***	
				(0.102)	
Lowest price low wage				0.481**	
				(0.098)	
Lower price low wage					-3.318***
					(0.536)
Age	9.132**			-1.298	2.388
	(4.341)			(1.089)	(4.535)
Age²	-0.210**			0.024	-0.057
	(0.097)			(0.022)	(0.101)
Female	0.944*			0.513	-0.348
	(0.547)			(0.534)	(0.494)
Number of experiment	0.035*			-0.028	-0.071**
	(0.021)			(0.031)	(0.033)
Italian	0.744			0.758	0.139
	(1.011)			(0.676)	(0.663)
Economic or management course	-1.501***			-0.614	-0.586
	(0.578)			(0.499)	(0.463)
Risk aversion	0.214*			0.060	-0.246*
	(0.114)			(0.128)	(0.127)
Income	0.516**			-0.029	0.191
	(0.262)			(0.381)	(0.332)
Work experience	-0.385			1.128**	0.770*
	(0.453)			(0.500)	(0.465)
Selling Price		0.065***	-0.075***		
		(0.009)	(0.010)		
High wage		0.510	-0.417		
		(0.454)	(0.383)		
Information*High wage		-0.563	0.471		
		(0.538)	(0.485)		
Voice*High wage		-0.891	0.286		
		(0.583)	(0.547)		
Constant	-103.351**		3.111***	17.184	-22.540
	(48.958)		(0.304)	(13.548)	(50.486)
Cut 1		0.681			
		(0.234)			
Cut 2		1.325			
		(0.237)			
Cut 3		1.889			
		(0.240)			
Cut 4		2.536			
		(0.246)			
t-test equality of coeff. Info-Voice	-0.223	0.074	-0.138	0.148	-0.660
	(0.552)	(0.146)	(0.179)	(0.6589	(0.663)
Observations	810	670	810	174	174
Num. of Groups	54	54	54	44	44
Wald chi2	43.30	60.33	71.07	34.17	47.41
Prob > chi2	0.0000	0.0000	0.0000	0.0019	0.0000

Table 1. Seller and consumer across treatments

Random effect estimations. Column 4 and 5 consider only consumers who see in the markets both (at least) one product sold by a producer who paid a low wage and (at least) one product sold by a producer who paid a high wage *** p<.01, ** p<.05, * p<.1. See Appendix 1 for a description of variables.

6. Conclusion

A key feature of our experimental design relates to a strict connection between sellers and workers. Each worker performs a task that generates a good that can be offered on the market by the associated seller. When a worker's level of productivity is too low, a seller cannot enter the market. By contrast, when workers succeed at producing at least 15 products, for 15 periods the seller determines whether to pay the workers a high or low wage and fixes the price of her product.

Our data show that a positive number of sellers reciprocate workers' efforts. In fact, especially in the first periods of the experiment, some sellers opt to pay high wages to their workers. However, this behavior is not rewarded by consumers, whose purchasing decisions are almost exclusively driven by self-interest. Consumers tend to purchase products sold at lower prices while disregarding wages paid by the sellers from which they buy. This exposes sellers to a high level of price competition. Quite quickly, period after period, sellers initially acting in a social responsible manner quickly change their approach, creating market conditions in which workers receive the minimum wage while consumer surpluses are significantly higher than those of workers and sellers.

Moreover, we show that this result does not change when information provided to consumers confers a low payoff for workers or when workers are given voice by introducing the opportunity to send a message to consumers.

In our experiment, consumers did not feel responsible for workers, preventing the emergence of shared responsibility between sellers and consumers in guaranteeing good conditions of workers. Future research could shed light on the motivational drivers that may cause consumers to feel responsible for workers and may investigate whether this allows a socially responsible market equilibrium to develop.

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APPENDIX. 1 VARIABLE DESCRIPTION AND DESCRIPTIVE STATISTICS

Variable	Description	Obs.	Mean	Std. Deviation	Min	Max
	Sample of sellers					
High wage	Dummy equal to 1 if the seller pays a high wage	810	0.078	0.268	0	1
Choice order	Categorical variable ranging from 1 - the product offered by the seller is the first sold in that period - to 5 - the product is bought as the fifth choice.	670	2.993	1.415	1	5
Offer accepted	Dummy taken the value of 1 if the seller sells her product and 0 otherwise	810	0.827	0.378	0	1
Selling Price	Selling price	810	26.644	6.580	10	60
	Sample of consumers					
High wage product bought	Dummy equal to 1 if the consumer opts for purchasing a product sold by a seller who paid a high wage	675	0.059	0.236	0	1
Lowest price high wage	The lowest price at which is available in the market a product associated with a high wage	177	33.379	6.451	10	45
Lowest price low wage	The lowest price at which is available in the market a product associated with a low wage	659	25.458	5.848	10	60
Lower price low wage	Dummy equal to 1 if the consumer sees in the market at least a product associated to a low wage which is offered at a lower price than the products associated with high wages.	176	0.773	0.420	0	1
	Sample of sellers and consumers					
Period	The variable identifying the round in which the subject makes her choice	1485	8	4.322	1	15
Age	Subject's age (in years)	1485	22.283	2.483	19	35
Age^2	Subject's squared age (in year)	1485	502.687	124.798	361	1225
Female	Dummy equal to 1 if the subject is a female	1485	0.485	0.500	0	1
Number of experiment	Number of previous experiments the subjects has already been involved	1485	10.323	10.111	0	50
Italian	Dummy equal to 1 if the subject is Italian	1485	0.929	0.256	0	1
Economic or management course	Dummy equal to 1 if the subject is enrolled in courses of economics or management	1485	0.586	0.493	0	1
Risk aversion	Variable measuring the general willingness of the subject in taking risk. We used the measure of risk aversion based on the following question in the survey (which proved to provide a good measure of risk aversion - see Dohmen et al., 2011): Are you generally a person who is fully prepared to take risks or do you try to avoid taking risks? Please tick a box on the scale, where the value 0 means: 'unwilling to take risks' while a value of 10 denotes that you are 'fully prepared to take risks.'	1485	5.394	1.969	1	9
Income	Income level of the subject's household measured on a 5-point scale of 1 (less than 15,000€) to 5 (more than 75,000€).	1485	2.535	0.880	1	5
Work experience	Dummy of equal to 1 when the subject is currently working or has past work experience.	1485	0.424	0.494	0	1

APPENDIX 2: INSTRUCTIONS AND CONTROL QUESTIONS.

INSTRUCTIONS

You are taking part in an experiment on economic decisions. You will receive 3 euros, which will be paid at the end of the experiment, plus an amount that will depend on your choices and the choices of other participants. If you have any questions during the experiment, please contact a staff member by raising your hand.

During the experiment we will not talk about euros, but about tokens. At the end of the experiment each token will be converted at the following rate: 1 token=0.02€.

Remember that it is not allowed to communicate with other participants during the experiment.

The experiment consists of a first and a second part. As explained below, some subjects may not be admitted to the second part.

We will now read together the instructions concerning the exact course of the experiment.

ROLES

At the beginning of the experiment, each participant will be randomly assigned to one of three different roles that we will call A, B and C. Participants A are workers, participants B are sellers and participants C are consumers. In the room there will be a total of 6 workers, 6 sellers and 5 consumers, in total 17 subjects.

Each participant A will be randomly paired with a participant B.

A-Participants - Workers

Participants A have to perform a task which consists in encoding words by converting letters into numbers using the conversion table they find on their tables. In particular, participants A will see a series of words appear and will be asked to replace each letter with a number. For example, if the word appearing on their screen is "HELLO", then they will have to enter 13 for "C", 2 for "I", 6 for "A" and 21 for "O".

In order to continue the experiment and be admitted to the second part, each participant A must correctly encode 15 words in 7 minutes (420 seconds).

Each participant A who correctly encodes 15 words in 7 minutes will continue in the experiment and the same will happen to the participant B paired with him.

Each participant A who does not correctly encode 15 words will end the experiment and will receive only the 3 euros of participation and the same will happen to participant B paired with him.

During the performance of the task by participants A, participants B and C will have to wait without communicating with each other and, if they wish, they can play "Minefield".

Once the 7 minutes have elapsed, we will continue reading the instructions for the second part of the experiment.

[THE TASK IS PERFORMED]

[PARTICIPANTS A WHO HAVEN'T CODED THE 15 WORDS ARE BROUGHT OUT ALONG WITH THE PARTICIPANTS B PAIRED WITH THEM]

INSTRUCTIONS - SECOND PART

All participants A who remained in the room correctly encoded 15 words in the time available. All participants A and participants B paired with them are then admitted to the second part of the experiment.

Participants B - Sellers

Participants B will receive a single initial allocation of 100 tokens.

The 15 words coded by each participant A correspond to 15 identical goods. In each round, a good is transferred from participant A to the participant B that is paired with him.

In each of the 15 rounds, each participant B pays a wage to the participant A and offers a good generated by the participant A on the market. Goods offered on the market by participants B may be purchased by participants C.

At the beginning of each round, participants B must decide:

1) the wage to be paid to the participant A who is paired with them, choosing between two possible wage levels:

- wage equal to 10 tokens.

- wage equal to 20 tokens.

2) The selling price of the good offered on the market:

The selling price must be a whole number between 0 and 60.

Participants C - Consumers

Participants C will receive a single initial allocation of 100 tokens.

In each round, each C participant will decide whether to accept one of the offers from B participants and thus purchase one of the goods. In particular, participants C will see both the price offered by each participant B, and the wage paid by each participant B to the participant A with whom him is associated, [only in the INFO treatment] and the sum of the salaries received so far by participant A [only in the INFO treatment].

Participants C enter the market and decide one after the other in a random order. The order with which C participants enter the market changes in each round. Thus, the first participant C can choose one of the offers (by clicking on "SELECT"), or not to buy anything (by clicking on "NONE"), while the participants C who come later will be able to choose among the available offers, i.e. those not chosen by the participants C who preceded them. The already selected offers will be shown but they cannot be selected (the "SELECT" button will not be available). Below is an example of a screen with offers (Figure 1).

Offers appear in a random order that changes in each round.

Each participant C can decide to accept a maximum of one offer. This means that, in each round, a maximum of five of the six participants B can sell their product.

Participants C who accept an offer will get a payment of 60 tokens minus the price paid.

Participants C who do not purchase products will not get any payment for that round.

Once all participants C have made their choices, all participants will see which offers have been accepted and in what order they have been accepted. For participants B and participants A associated with them their offer will be highlighted in blue. Participants C will see their accepted offer in blue.

Participants A - Workers

[BASELINE and INFO treatments]

In each round, while participants C make their choices, participants A wait.

[BASELINE and INFO treatments]

[VOICE treatment]

In each round, while participants C will make their choices, each participant A may decide to display the message "DO NOT ACCEPT" next to the offer offered on the market by participant B paired with him. To make the message appear, the button "DO NOT ACCEPT" has to be clicked. This message will be displayed by the participants C before their decision to purchase (Figure 1)

[VOICE treatment]

Figure 1

Messaggio partecipante A	Salario A	Prezzo		
NON ACCETTARE			SELEZIONA	
			SELEZIONA	
			SELEZIONA	
			SELEZIONA	CONFERMA
			SELEZIONA	
			SELEZIONA	
NESSUNA				

PAYMENTS

Participants C - Consumers

In each round, the payment for each participant C will be:

if s/he accept one of the offers:

60 tokens – the price paid for the product

if s/he doesn't accept any of the available offers:

0

At the end of the experiment, the payment of each participant C will be equal to 3 euros of participation plus the 100 tokens of initial endowment plus the sum of the tokens obtained in each round.

Participants A - Workers

In each round the payment of each participant A will be equal to the tokens received by participant B and may therefore be equal to:

10 tokens

or

20 tokens

At the end of the experiment, the payment of each participant A will be equal to 3 euros of participation plus the sum of the tokens obtained in each round.

Participants B - Sellers

In each round the payment of each participant B will be:

if one of the participants C accepts his/her offer:

the price of the good – the wage paid

if none of the C participants accept his/her offer:

0 – the wage paid

At the end of the experiment, the payment of each participant B will be equal to 3 euros of participation plus the 100 tokens of initial endowment plus the sum of the tokens earned or lost in each round.

It is possible that the sum of the 100 initial endowment tokens and the tokens earned or lost in each round will result in a negative payment. Participants B who obtain a negative payment will only receive the 3 euro for the participation.

In the upper right corner of each participant's screen the total payment obtained by him/her up to the current round will be displayed.

Control questions

We now ask you to answer some control questions.

When everyone has answered all the questions correctly, we will proceed with the experiment.

CONTROL QUESTIONS

1. Suppose that participant B pays a wage of 10 tokens and offers a good for the price of 15 tokens that is purchased from a participant C.

What is the payment of these three participants in this round?

2. Suppose that participant B pays a wage of 20 tokens and offers a good for the price of 15 tokens that is purchased from a participant C.

What is the payment of these three participants in this round?

3. Suppose that participant B pays a wage of 20 tokens and offers a good for the price of 15 tokens that is purchased from a participant C.

What is the payment of these three participants in this round?

4. Suppose that participant B pays a wage of 10 tokens and offers a good for the price of 40 tokens that is purchased from a participant C.

What is the payment of these three participants in this round?

5. Suppose that, in a round, a participant C does not accept any offers. What is his payment in that round?

6. Suppose that a participant B pays a wage of 10 tokens and offers a good for the price of 30 tokens that is not purchased by any participant C.

What is the payment of participant B and participant A in this round?

7. Suppose that a participant B pays a wage of 20 tokens and offers a good for the price of 30 tkens that is not purchased by any participant C.

What is the payment of participant B and participant A in this round?