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Consumer Social Responsibility

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Consumer Social Responsibility

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We investigate the emergence of socially responsible (SR) production through consumer decisions. Our experimental treatments vary market competitiveness and consumers' information on social responsibility in production. We show that – irrespective of consumers' information – SR production reduces monopolistic supplier's profit and is therefore unlikely to emerge. With supplier competition, SR production positively influences consumers' buying decisions and suppliers offering SR products achieve significantly higher profits, as long their price is not too high. Our results yield valuable insights into the possibilities and limitations of promoting SR production through consumer behavior, and provide evidence for positive effects of competition on moral behavior.

Keywords: Social responsibility, market, experiment, consumer choices

JEL classification: M14, C91, A13, J81,

1 Introduction

Socially responsible (SR[1]) production is not a new topic. Poor working conditions and insufficient wages were already debated during times of industrial revolution more than a century ago. The new facet in today's discussion is that increased globalization and highly decentralized production processes have added more complexity to the problem. Recently, insufficient SR in production was prominently discussed when Apple Inc. was accused of the poor working conditions in the factories of Foxconn leading to workers' suicides[2], or when fires in garment factories in Pakistan and Bangladesh which produced for western companies killed hundreds of workers[3]. "Fair" prices for coffee, cocoa and bananas or the usage of child-labor in production (e.g. rugs, soccer balls or cocoa, see Burke, 2012) are recurrent discussions in recent decades. In reaction, the public as well as politicians call for stronger regulations on the producer side. But what about the other market side? Do consumers care about SR production and if so do they try to influence the social dimension of production through their consumption decisions?

Although stated preferences in questionnaires and hypothetical consumption decisions indicate that a substantial fraction of consumers would honor socially responsible or environmental friendly production, even by paying higher prices (Carrigan and Attalla, 2001; Devinney, Auger, and Eckhardt, 2010; Öberseder, Schlegelmilch, and Gruber, 2011), the market for those goods is relatively small. Is this a market failure or do consumers not put their money where their mouth is? Understanding the causes of this discrepancy is essential for efficiently using consumers' social responsibility in production.

The literature offers four predominant explanations for the differences between stated preferences and actual consumption decisions. One explanation lies in the *opaqueness of the production process*: Consumers do not know whether the mark-up for SR products actually reaches the intended addressees or whether the money dissipates on the way (Balineau and Dufeu, 2010; Enste, Knelsen, and Neumann, 2012). Eckhardt, Belk, and Devinney (2010) conduct in-depth interviews across eight countries and offer three other (not mutually exclusive) explanations: *Economic rationalization* (consumers want to get the most value for their money, regardless of

[1] Depending on context, we use SR both for "socially responsible" and "social responsibility".
[2] Light and death. A series of deaths expose a big computer-maker to unaccustomed scrutiny, The Economist 2010
[3] A "distinctly South Asian" tragedy, The Economist 2012

their ethical beliefs), *Institutional dependency* (consumers believe that institutions such as the government are responsible to ethically regulate what products can be sold), and finally *Developmental realism* (consumers believe that some unethical behaviors on the part of corporations must exist in order for macro level economic development to occur).

Although this already helps shedding light on the discrepancy between stated preferences and actual consumption behavior, the impact of each explanation and their possible interactions remain unclear. Consequently, Eckhardt, Belk, and Devinney (2010) state that their study "reinforces the need for non-survey-based research to understand nuanced consumer reactions and behaviors in ethical consumerism" (p. 427). Our study aims at filling this gap by examining small economies with both production and consumption decisions involving real monetary consequences under controlled conditions. Our setup allows for investigating the effects of various market characteristics on SR consumption decisions and thus for disentangling the proposed causes and their interactions. The novelty of our approach lies in analyzing SR consumption in a variety of relevant market settings by focusing on consumers as well as producers.

In our laboratory experiment, consumers and firms interact in a market. Firms offer a good with a fixed induced monetary value to the consumers. Next to the good's price, the only other attribute is the wage, which is paid to the firm's worker for producing the good. The wage is our proxy for SR. The experimental treatments vary this basic design in two (orthogonal) dimensions. One dimension varies the opaqueness of the SR in the production process, i.e., the availability and precision of the wage information to the consumer. In this dimension we have five different treatment variations. In the *Baseline* treatment consumers have no information on the worker's wage and are not able to acquire this info. In the *Full Info* treatment the wage is fully transparent. Moreover, we conduct three treatments with an endogenous information transmission. In treatment *Choice* consumers choose whether or not to acquire information on the wage. This condition mirrors the situation of uninformed consumers that may surf the web for detailed information about the firms' SR policies or may decide to remain ignorant. In treatment *Label* firms have the possibility to acquire a label which assures that the firm follows minimal standards in SR production, i.e., a minimum wage. Hence, in this treatment imperfect wage information can be transmitted by the firms. Finally, in treatment *Face*, workers can signal wage information to the consumers by showing their satisfaction with the wage to the consumers. This condition mirrors

cases in which workers use mass media to call attention to their poor working conditions, as happened at Amazon or Foxconn, or stich SOS notes in clothes, as reported to has happened at Primark. Our second treatment dimension studies how the competitiveness of the market influences consumers' SR behavior. We compare all five information treatments described above for a monopolistic supplier (*No Competition*) and for suppliers in Bertrand duopoly (*Competition*). By studying SR consumption decisions in the 10 treatment conditions (5 information x 2 competitiveness conditions), we are able to draw an elaborate picture on the determinants of consumer social responsibility. In the laboratory experiment we cannot tackle the explanation of *developmental realism*. But we ask whether consumers indeed always go for the lowest price or whether they – and if so under which conditions – take the SR in the production into account (*economic realization*). Additionally we ask whether consumers take responsibility for the kind of products on the market by banning products not produced in a socially responsible way, thus tackling the question of *institutional dependency*. Moreover, we can determine how the *opaqueness* of the information on SR and the way in which this information is transmitted influences consumption decisions and in which way these factors interact with the competitiveness of the market. By doing so, we provide the first study systematically varying conditions for consumer social responsibility.

Our findings are striking. In the absence of competition consumers are predominantly interested in buying cheap and do not care for SR production, irrespective of the information on SR. Consequently, SR production significantly reduces the profit of monopolistic suppliers. This seems to indicate that with a monopolistic supplier the chances of consumer induced SR production are rather low. When suppliers compete, however, we find that consumers take SR in production as a decision criterion and go for the SR-produced good whenever the price premium for SR is not too high. Interestingly, not only full wage information, but also imperfect wage information (in treatment *Face*) or the possibility of acquiring wage information (in treatment *Choice*) suffices to achieve significantly higher wages than without any wage information. Accordingly, in competitive settings suppliers with higher levels of SR even achieve significantly higher profits, as long their price is not higher. Our results show a positive effect of competition on SR, but at the same time demonstrate that a regulatory focus on the producers is necessary to increase the overall level of SR in production.

2 Related literature

To overcome the problem of non-incentivized questionnaire studies, several field experiments on consumption decisions study consumers' preferences for labeled products manipulating the supply side. Arnot, Boxall and Cash (2006), for example, manipulate the prices of fair-trade and conventional coffee in a university campus cafeteria and study the consumption behavior. Fair-trade-coffee demand in a U.S. grocery store is analyzed by Hainmueller, Hiscox, and Sequeira (2011). Hiscox, Broukhim, Litwin, and Woloski (2011) and Hiscox and Smyth (2011) analyze the effects of labels certifying fair working conditions on the sales of polo shirts on eBay, respectively on candles, towels, and dolls in a store in New York. These studies conclude that there is a fraction of consumers with rather low price sensitivity which is willing to pay for SR produced goods, while another fraction of consumers is very price sensitive. Auger, Devinney, Louviere, and Burke (2008, 2010) experimentally examine how consumers value specific social attributes on different products. The former study measures the price premium consumers are willing to pay for ethical features on products (shoes and soap). The willingness to pay such a premium is much higher when there is no dilemma between the ethical and a "normal" product feature. The latter, a multi-country comparative study, shows that social attributes are more important in developed countries than in emerging ones. Tagbata and Lucie (2008) measure consumers' willingness to pay for organic and fair trade products using the Becker-DeGroot- Marschak mechanism (1964) with real consumption consequences. They show that for a specific cluster of consumers labels increase consumers' willingness to pay. The advantage of these studies is that decisions with real monetary consequences close the attitude-behavior gap between questionnaires and real markets, but they only analyze one market side.

Laboratory experiments studying SR production in competitive markets address this issue. Rode, Hogarth, and Le Menestrel (2008) experimentally analyze tripolistic markets with ethical differentiation. While two firms set prices for a homogeneous good, the third producer bears an extra cost. For every unit sold the cost difference is donated to an NGO fighting child labor. They find that many consumers are willing to pay higher prices to buy the product with the extra cost. Remarkably, the price premium is higher than the extra cost. Though the experiment has the advantage of modeling both market sides, producers cannot compete in social responsibility. Its

degree is experimenter imposed and randomly attached to one of the three producers. This problem is partially solved by Etilé and Teyssier (2012) as well as Feicht, Grimm, and Seebauer (2014) by endogenizing the level of the donation to an NGO. The treatments vary the credibility of signals on donations. Results show that SR behavior demands credible signals and offering SR products does not increase firms' profits. Also in these two experiments, however, SR is only indirectly attached to the production process by donations to a third party, not involved in production.

In the experiments mentioned so far, donations are made per unit sold. When consumers "punish" socially less-responsible producers by refusing to buy their products, they automatically reduce the social benefits. This may induce consumers to refuse from punishing non-SR producers. Similar effects are reported in Danz, Engelmann, and Kübler (2012). They study the effect of minimal wage standards on consumers' SR. In their experimental duopoly market, a consumer buys up to ten units of a good. The two producers pay a piece wage to their assigned worker for producing an otherwise identical good. Consumers often just split their demand equally between both firms in order to support both workers even when prices and wages differ.

Bartling and Weber (2013) analyze SR in competitive markets where each producer can offer one unit of two possible products: a "normal" one and one with lower production cost that reduces the payoff of a third person. The visibility of the goods' impact on the third party is varied between treatments. SR is measured as the share of products without negative impact. In their experiment producers offer the costly normal goods and consumers accept a price premium for these goods. Although increased firm competition (8 instead of 6 firms) lowers prices, SR behavior is not affected. Also in this experiment the negative externality towards the third party only occurs when the good is traded. Bartling and Weber interpret this as a negative externality that arises by consumption or as "production on demand". It is very likely, however, that consumers of soccer balls or shirts do not consider the situation in this way. The good is already produced and by refusing to buy the offered good, a consumer may at best affect future working conditions.

With our design, we aim at closing important gaps in the literature on SR production by combining the following characteristics: First, we study both market sides (consumers and producers) in an experimental market with real monetary consequences. Second, the production process is transparent and there is no uncertainty as to who is affected by SR production. Third, by affecting another participant the SR is directly connected to the production process, independent

of whether or not the good is actually traded. This implies that workers cannot be used as a "hostage", as they receive their wage irrespective of the good being sold. Consumers can only honor or punish the managers with their purchase decisions.

3 The market model

In our experiment we study a simple market environment. Firms offer a good on the market, and consumers may purchase at most one unit of the good. Each firm has one manager and one worker. Each manager determines the wage $w \in [0,1,\dots,30]$ of her worker and the price $p \in [0,1,\dots,30]$ of the good. Managers can neither condition the wage on sales nor can they price-discriminate between consumers. The worker receives the wage and produces the units of the good at zero costs. Consumers' valuation of the good is 30. Thus, trade generates a surplus of 30 and payoffs are:

$$\Pi_{Manager} = -w + p \cdot number\ \ of\ units\ sold \tag{1}$$

$$\Pi_{Worker} = +w \tag{2}$$

$$\Pi_{Consumer} = \begin{cases} 30 - p & \text{if consumer buys one unit of the good} \\ 0 & \text{if consumer does not buy one unit of the good} \end{cases} \tag{3}$$

The wage paid to the worker will be our proxy for SR in production. To serve our research focus we vary the competition environment as well as the information on the SR of production.

3.1 The competition environments

We study two competition environments. The **non-competitive market** is a bilateral monopoly, consisting of one firm and one consumer. The **competitive market** is a Bertrand duopoly with two firms and two consumers, where each firm may serve both consumers. First, both firms decide simultaneously (on wage and price) and then consumers decide simultaneously on whether, and if so at which firm to buy. Focusing on these two conditions seems appealing both from a theoretical and an applied perspective. Under standard preferences these two environments yield extreme predictions: While in monopoly the firms receive the entire gains from trade, the consumers have the market power in duopoly. In practice, some of the goods in the focus of SR production (like trendy smart phones or fashionable sneakers) seem to be produced in monopoly-like situations while other products (like coffee or basic shirts) seem to be produced in Bertrand-like markets.

Moreover, the consequences resulting from "punishing" a non SR-producer are different for the consumer. While in monopoly the consumer can only punish buy not buying at all resulting in zero payoff, in duopoly the consumer may just buy at the other firm.

3.2 The information on the SR of production

In addition to varying the competitiveness of the market environment, we vary the observability of the social responsibility of production (i.e., the worker's wage) in the following way:

Baseline (No Info): The worker's wage is private information of the manager and the worker of the firm. Neither the consumer nor the other firm (in duopoly) are or can be informed on the wage.

Full Info: The consumers are fully informed about the wage(s) when making the buying decision.

In the other conditions information is subject to choice and in two conditions it is even imperfect.

Choice: The consumer is a priori not informed about the wage(s), but may acquire this information at no cost. This condition mirrors the situation of uninformed consumers who may surf the web for details about the firms' SR policies or may decide to remain ignorant. Firms are not informed whether or not consumers acquire information.

Label: Prior to setting the wage, the firm decides whether or not to acquire a label (in duopoly both firms decide simultaneously). A firm acquiring a label agrees to pay an exogenously defined minimum wage of w_{min} to the worker. The consumers receive the information whether or not a firm has a label together with the firm's price for the good. Thus the label signals that the firm is following a minimum requirement, but does not reveal the exact wage of the worker. This condition mirrors the case of SR labels. To reflect the costs of certification, acquiring a label incurs costs of c_{label} for the firm.[4]

Face: Each worker communicates her satisfaction with her wage on a five-point scale by sending a face to the consumer(s) (see figure 1). The consumers receive this information together with the price for the good. This condition mirrors cases in which workers may send imperfect signals, for example, on their poor working conditions. Firms are also informed about the workers' signals.

[4] In the experiment the minimum wage was set to 4 and the cost for acquiring a label was set to 1. It was determined such that the total cost of 5 for a label firm was (slightly) higher than the average voluntary wage payment observed in the no competition baseline treatment (which is 4.7).

Figure 1: Scale of worker satisfaction

4 Experimental implementation

The orthogonal variation of the two competition and the five information conditions establishes our ten experimental treatments. To account for learning effects, the stage-game market is repeated for 30 periods. Every market consists of fixed groups of three (no competition) or six (competition) subjects. Roles and firm composition remain identical throughout the entire experiment. In the duopoly market, firms are distinguished by assigned letters A and B and consumers by assigned letters X and Y. Table 1 provides an overview over the number of independent observations and the number of subjects in each treatment. We strived for ten independent observations in each treatment. Due to no-shows we collected only nine in some treatments. For manager competition in *Label*, we decided two double the number of independent observations to allow for a sufficient number of observations for the endogenously occurring choices for having or not having a label. In total 492 subjects took part in the experiment.

Table 1: Number of independent observations (and subjects) in each of the treatments

	Baseline	**Full Info**	**Label**	**Choice**	**Face**
No Competition	9 (27)	9 (27)	10 (30)	10 (30)	10 (30)
Competition	9 (54)	9 (54)	20 (120)	10 (60)	10 (60)

At the end of the experiment subjects answered a questionnaire concerning their attitude towards SR.[5] The main body of the questionnaire uses questions of the Eurobarometer 47.0 (Melich, 2000). We complemented those questions with specific questions concerning our experimental setup. The different sessions of the experiment were conducted between November 2012 and February 2014 at the Cologne Laboratory for Economic Research (CLER). Interaction was computerized using the software z-Tree (Fischbacher, 2007). Participants were recruited with ORSEE (Greiner, 2004). At the beginning of the experiment written instructions[6] were distributed and read aloud. Sessions lasted between 75 and 105 minutes. Subjects received an initial

[5] See appendix A3 for the questions asked and the statistical analysis of the answers.
[6] English translations can be found in appendix A4.

endowment of 40 points and additional 5 points at the beginning of every round.[7] After the experiment all points were converted into Euro and paid in cash with an exchange rate of 40 points for 1 Euro and an additional show-up fee of 2.50 Euro. Average total earnings are 13.29€ in the monopoly (with a minimum of 6.03€ and a maximum of 22.23€) and 14.61€ in the duopoly sessions (with a minimum of 3.53€ and a maximum of 28.25€).

5 Theoretical considerations on CSR in our experimental game

5.1 Stage game equilibria under selfish preferences

Without competition, the stage game is strategically equivalent to an ultimatum game with a bystander. By setting wage and price, the manger makes a proposal (w, p) how to divide the gains of trade (i.e., 30) between the three players. When the consumer accepts (buys), the 30 are divided as follows: the manager gets $p - w$, the worker gets w and the consumer gets $30 - p$. When the consumer rejects, the manager receives $-w$, the worker w and the consumer receives 0. Under common knowledge of selfish preferences, a profit maximizing consumer just considers p, since the wage w does not influence her profit. The consumer accepts any (w, p) with $p < 30$ and is indifferent between accepting and rejecting $p = 30$. The manager's best response to the consumer's behavior is to charge the highest price that is accepted by the consumer and to pay a wage of zero. Thus, we derive two subgame perfect Nash equilibria in pure strategies: 1. the manager proposes $(w = 0, p = 30)$ and the consumer accepts all manager proposals; 2. the manager proposes $(w = 0, p = 30 - \varepsilon)$ and the consumer accepts all offers with $p \leq 30 - \varepsilon$, where $\varepsilon > 0$ is the smallest money unit (which is 1 in our experimental setting). Hence, the manager has the market power to receive (almost) the entire rent.

Under competition each firm may serve both consumers. When prices differ, selfish consumers buy the cheaper good. If both firms set the same price, assume that consumers randomly choose where to buy. Again, selfish consumers do not care for wages, so that selfish managers pay zero wages. Then there is a subgame perfect Nash equilibrium with $p = w = 0$ for both firms and consumers that always buy. This results in zero profits for managers and workers and the entire

[7] The initial endowment and the roundly endowment could cover potential losses which are possible for subjects in the roles of managers (from not trading or trading at prices lower than costs). It never happened that a subject had a negative account in one point of time.

market surplus going to consumers. Since our design only allows for integer prices, there are two additional subgame perfect equilibria, one where both firms set $(w = 0, p = 1)$ and another where both firms set $(w = 0, p = 2)$.[8]

Hypothesis 1: Selfish preferences

No competition: With selfish preferences the manager pays zero wage, sets the maximal price and the consumer buys. The manager earns the entire market rent while the worker and the consumer make zero profits.

Competition: Under selfish preferences managers pay zero wages, set the minimal price and the consumers buy the cheaper good. The consumers earn all the market rent while managers and workers make zero profits.

In the experiment we repeat the stage game for 30 periods. Under common knowledge of selfish preferences this does not change the results. Backward induction predicts equilibrium behavior in every period.

Related experiments that also use a market framing (Bartling and Weber, 2013; Rode et al., 2008; Etilé and Teyssier, 2012; Feicht et al., 2014) have shown that subjects' allocation behavior is not as extreme as expected under common knowledge of selfish preferences and that deviations may be explained by social preferences. The next section will discuss the predictions of prominent social preference theories for our setups.

5.2 Stage game equilibria under non-selfish preferences

Devinney et al. (2006) understand consumer social responsibility as "one component of the complex consumer decision-making process" and define it as "*the conscious and deliberate choice to make certain consumption choices based on personal and moral beliefs*" (p. 32). According to their definition, it may show up as the "expressed activity in terms of purchasing or non-purchasing behavior" (p. 32). In our simple experimental model, we strongly reduced the complexity of the consumer decision-making process. In case of monopoly, the consumer's purchasing decision determines the payoff allocation between the three players. For manager determined (w, p), the

[8] $p = 1$ occurs in an equilibrium, since any deviation (decreasing the price to zero or increasing the price) would reduce he manager's profit from one to zero. If both managers charge a price of $p = 2$ they receive expected profits of 2. A price increase would lead to zero profits and a decrease to $p = 1$ would keep the deviating manager a profit of two.

consumer decides between $(w, p-w, 30-p)$ (in case of buying) and $(w, -w, 0)$ (in case of not buying) as payoffs to the worker, the manager, and the consumer, respectively.[9] This decision situation is close to Güth and van Damme's (1998) ultimatum game with a bystander, however, with the difference that in their game a rejection leads to zero payoffs for all three players. Güth and van Damme observe very low bystander payoffs, low rejection rates and no single rejection that can be attributed to a low bystander share.

Bolton and Ockenfels (1998) show that the low bystander payoffs in Güth and van Damme are in line with the inequality aversion model ERC, introduced in Bolton and Ockenfels (2000). This model assumes that individuals are motivated by their absolute and their relative monetary payoff within the group. Applied to our situation, the ERC model would predict the worker's wage not to be relevant for the consumer's purchasing decision, since solely the price determines the consumer's absolute as well as relative payoff. The wage just distributes payoff between manager and worker, but changes neither the absolute nor the relative payoff of the consumer.

Another prominent model of allocative preferences is the inequity aversion model by Fehr and Schmidt (1999). In this model, a player receives utility from her monetary payoff and disutility from advantageous as well as disadvantageous payoff differences to each of the other players. In particular, this means that the consumer compares her payoff also to the worker and may gain disutility from too large deviations between the two payoffs. In appendix A2, we calculate the stage game equilibria depending on different levels of inequity aversion. We show, that for low inequity averse consumers, Fehr-Schmidt equilibria still specify a wage of zero. However, if consumers are highly inequity averse, positive wages occur in equilibrium, even when the manger is selfish.

Consumer social responsibility may not only come as distributional preferences between the participants. The consumer's "*personal and moral beliefs*" may also address more general aspects, like an aversion to having certain members of society with very low payoffs or a concern for the overall payoff of all participants. Charness and Rabin (2002) include these concerns in their model of quasi-maximin preferences, which describes that a participant is motivated by the own monetary payoff, but also by the lowest payoff in the group and the sum of all payoffs. When facing a given proposal (w, p), a consumer would never reject, since this would result in a personal payoff

[9] Notice, that the worker's wage is not influenced by the purchasing decision. This is meant to reflect the fact that the good is already produced and an immediate benefit to the worker cannot be the reason for acceptance or rejection (as for example in Bartling and Weber, 2013).

of zero, a minimum payoff of $-w$ and a joint payoff of zero. Thus, rejecting would yield an overall negative value, while accepting a given proposal would lead to a positive utility. Hence, a consumer with quasi-maximin preferences would never reject an offer, irrespective of the wage.

With competition, the strategic situation gains complexity. Nonetheless, consumers with inequality aversion as modelled in ERC (Bolton and Ockenfels 2000) would only be concerned about the price and not the workers' wage, as the wage does not influence the consumer's relative payoff standing. Consumers with Fehr Schmidt preferences in contrast take the wage into account. They are concerned about inequity not only to the workers, but to all market participants, including the managers and the other consumer. In duopoly, inequity averse consumers predominantly buy at the cheaper firm, but it may also occur that they buy at the more expensive firm (see appendix A2 for a more detailed discussion). However, in that case the motivation is not only the worker's wage, but also inequity concerning the manager of the more expensive firm, who would make a loss of $-w$ if both consumers buy at the cheaper firm. Similarly, consumers with quasi-maximin preferences (Charness and Rabin 2002) may accept the more expensive offer, driven by a concern for the manager of the more expensive firm and not by a concern for the worker. A manager's loss of $-w$, which is the minimal payoff among all participants in case both consumers buy at the other firm, strongly reduces the consumer's utility.

Hypothesis 2: Non-selfish preferences

No competition: Without competition, models of other-regarding preferences leave only little room for consumers rejecting offers due to too low wages. While the models of Bolton and Ockenfels (2000) and Charness and Rabin (2002) exclude refusals to buy due to too low wages, consumers with Fehr and Schmidt (1999) preferences may forego "extreme" allocations, in particular those with a too high price that do not come with a high wage, only if they are highly inequity averse.

Competition: With competition, the situation changes in the Fehr and Schmidt (1999) and Charness and Rabin (2002) models. Consumers may indeed buy the more expensive good, however, they are not only motivated by concerns for the workers, but also for the managers.

The considerations leading to hypotheses 1 and 2 have shown that in our stage game we cannot expect consumer social responsibility in the sense of banning products with low wages on

large grounds. In the experiment, we repeat the stage game for 30 periods. SR consumers, who aim at positively influencing the wage in the longer run, may accept instantaneous losses in payoff or utility to achieve their long-term goal. In the repeated setting, managers may learn the demanded level of SR and consumers may signal their preferences through their consumption behavior. Obviously, this signaling and learning process may depend on the precision of the provided wage information, discussed in the next section.

5.3 Information treatment effects

In the analyses so far, we have focused on full wage information. An important aspect of our study is that the treatments vary the wage information, inspired by market settings in which CSR is an issue. In this section, we discuss how these variations in information may influence behavior.

In the *Baseline* treatment the price of the good is the only available characteristic. Managers know that consumers cannot condition their purchase on wages and thus do not condition their wage decision on potential consumer preferences. Consequently, we expect wages to be rather low. Hence, any observed positive wages in *Baseline* should be attributed to inequity aversion, altruism or warm glow (Andreoni, 1989) of managers rather than SR concerns of consumers.

In all other treatments, more (potentially implicit) information is available. Consumers intending to include SR information in their consumption decision should value any piece of information they can achieve about the worker's wage. In *Full Information,* SR consumers may not only base their consumption decision on the price but also on the worker's wage. Anticipating this, managers will pay higher wages to workers than in *Baseline*. In the *Choice* condition, a consumer may acquire the wage information at no cost. A consumer who includes workers' wage info into her consumption decision acquires this information. However, it has to be expected that not all consumers choose to acquire information. Recent experimental findings show that deliberate ignorance occurs in different environments (e.g., Conrads and Irlenbusch, 2013; Dana, Weber, and Kuang, 2007; Grossman and van der Weele, 2013) and suggests that consumers might prefer to not learn the wages. Managers anticipating this pay higher wages than in *Baseline*, however, consumers' possibility of remaining ignorant may lead to lower wages than in *Full Information*. In *Label* a manager who is intrinsically motivated to pay a wage of at least 4 may do so without acquiring a label. However, the label provides the opportunity of credibly signaling SR production.

The signal is particularly strong, as the exogenously determined level "certifies" a sufficient SR level and thus removes any uncertainty of what is an appropriate wage level, which may be present in *Full Info*. If managers expect SR consumers to include the fact whether or not the firm has a label into the consumption decision, they will acquire a label to increase their expected revenue if the fraction of SR consumers is sufficiently high. Thus in *Label* we expect wages to be higher than in *Baseline*, not lower than in *Full Information*. In *Face* workers send signals about their satisfaction with the wage. Consumers know that these signals do not have to correlate with the actual wage and it may be that workers (mis-)use the signal to achieve an "excessive" wage. Experimental findings show however, that subjects can be quite trustworthy even in situations where they can manipulate such information (e.g. Gneezy, 2005; Cai and Wang, 2006). Yet, since there is no objective scale to convert wage into satisfaction level and vice versa, the satisfaction level might be a weaker SR indicator than the wage in *Full Info*. Managers anticipate this and pay wages lower than *Full Information*.

Hypothesis 3: Information treatment effects

Wages are highest in *Full Information* and lowest in *Baseline*. Wages in *Choice* and *Label* are higher than in *Baseline,* not lower than in *Full Information.* Wages in *Face* are lower than in *Full Information*.

6 Results

This section presents the results of our experiment. In Section 6.1 we analyze the treatment effects on wages, our proxy for SR production. We study consumers' buying decisions in Section 6.2 to ask whether consumer behavior makes SR production profitable for firms in Section 6.3. In Section 6.4, we connect subjects' behavior in the experiment to their willingness to pay for SR products stated in the questionnaire. In what follows all comparisons between treatments use the Mann-Whitney u-test (MWT) and all comparisons within treatments use the Wilcoxon signed-rank test (WSR) on the basis of the independent observations (see table 1), both two-sided. Table 2 provides an overview over the aggregated market outcomes.

Table 2: Aggregated market outcomes

No Competition	**No Info**	**Full Info**	**Choice**	**Label**	**Face**
Wage paid	4.70 (1.02)	7.39 (1.49)	5.55 (0.60)	2.39 (0.66)	6.96 (1.05)
Wage in accepted offers	4.69 (1.11)	7.25 (1.47)	5.52 (0.65)	2.38 (0.68)	6.70 (1.10)
Wage in rejected offers	6.59 (1.66)	8.94 (2.07)	5.95 (0.67)	2.34 (0.62)	8.03 (0.92)
Price offered	19.21 (0.61)	19.27 (1.36)	19.29 (1.03)	18.37 (0.82)	19.39 (0.78)
Price in accepted offers	18.71 (0.69)	18.88 (1.40)	18.62 (1.12)	17.86 (0.88)	18.89 (0.79)
Price in rejected offers	23.46 (1.07)	22.02 (1.09)	20.92 (0.77)	20.49 (0.99)	21.73 (0.81)
Units sold per firm	0.89 (0.02)	0.82 (0.05)	0.74 (0.04)	0.79 (0.03)	0.81 (0.04)
Payoff Manager	11.96 (1.58)	7.96 (1.41)	8.38 (1.44)	11.37 (1.33)	8.31 (1.03)
Payoff Consumer	10.00 (0.61)	9.31 (1.43)	8.37 (0.88)	9.42 (0.60)	9.03 (0.78)
Competition	**No Info**	**Full Info**	**Choice**	**Label**	**Face**
Wage paid	2.86 (0.38)	5.34 (0.92)	5.46 (0.59)	3.29 (0.46)	6.06 (0.71)
Wage in accepted offers	2.71 (0.43)	5.48 (0.99)	5.65 (0.62)	3.41 (0.50)	6.13 (0.71)
Wage in rejected offers	3.06 (0.40)	5.18 (0.83)	5.16 (0.60)	3.12 (0.43)	5.94 (0.71)
Price offered	11.12 (1.20)	12.41 (1.32)	9.89 (1.37)	11.04 (0.74)	8.08 (0.99)
Price in accepted offers	9.45 (1.23)	11.12 (1.63)	9.28 (1.37)	9.95 (0.71)	7.27 (0.94)
Price in rejected offers	13.02 (1.19)	14.49 (0.93)	11.04 (1.47)	12.72 (0.86)	9.36 (1.02)
Units sold per firm	0.97 (0.02)	0.99 (0.01)	0.99 (0.01)	0.99 (0.01)	1.00 (0.00)
Payoff Manager	6.13 (1.27)	5.56 (1.27)	3.66 (1.22)	5.79 (0.54)	1.27 (0.82)
Payoff Consumer	20.02 (1.31)	18.82 (1.61)	20.68 (1.36)	19.95 (0.74)	22.62 (0.94)

Notes: The table reports averages and standard errors (in parentheses) based on independent observations (see table 1). Rejected offers are offers where no consumer buys and accepted offers are those where at least one consumer buys. A more detailed overview over prices and payoffs is provided in figure 5 and the tables 9 and 11-13 in appendix A1.

6.1 The influence of information and competition on SR production

On average managers pay positive wages in each information treatment of both competition conditions. Although in the no-competition treatments the average wage in *Baseline* (4.70) is lower than the average wages in *Full Info* (7.39), *Choice* (5.55) and *Face* (6.96), they are not statistically different in non-parametric tests (see table 10 in the appendix A1). Only in *Label* (2.39) the average wage is significantly lower than in *Baseline* and any other treatment.[10] How can we explain this difference in the *Label* treatment? Mangers choose the label in 42.0% of the cases. The possibility of acquiring a label seems to strongly separate managers into two groups: Managers who acquire a label pay a wage of exactly 4 in 68.3% of the cases (average wage of 4.57), while managers without a label pay a wage of 0 in 78.7% of the cases (average wage of 0.81) (see figure 3 in the appendix A1). These wages are significantly different (p=0.0357). Thus, the label seems to provide

[10] In *Label*, there is an extra cost whenever the manager buys the label, which makes *Label* different to all other treatments. Including the cost of buying the label, does not change results. The average wage cost (i.e., wage plus label acquisition cost) of 2.81 in *Label* is still significantly lower than the average wages of the other treatments.

an anchor, signaling the "appropriate" wage and seems to crowd out any voluntary payment exceeding this benchmark. Managers not acquiring a label seem to feel "licensed" to pay nothing at all. The observed effect demonstrates a potential detrimental effect of minimum wages.

Figure 2 shows the development of the average wages over time and demonstrates that the wages in the no competition treatments (except for *Choice*) slightly decrease over time (left panel).[11] We also find a negative time trend in average wages under competition (right panel).[12] To account for these time trends, we will control for "period" in the later analyses.

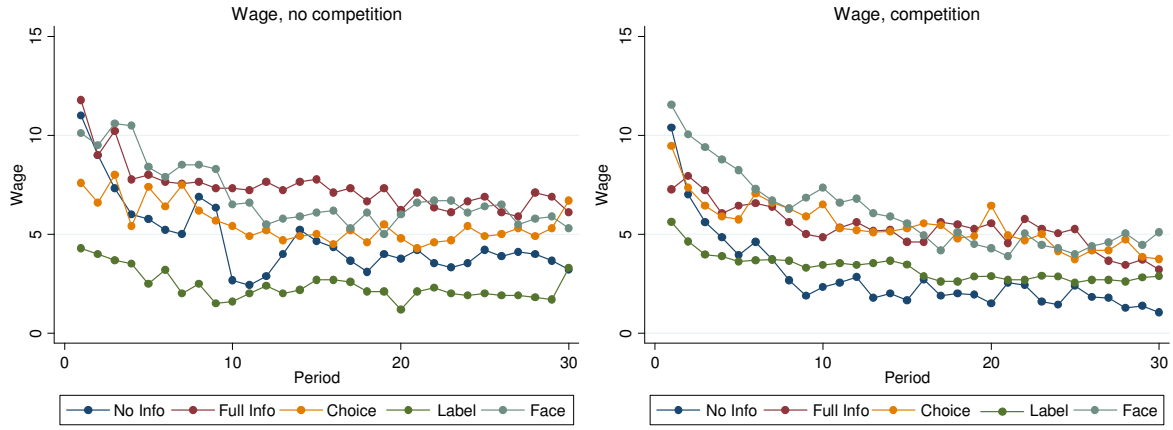

Figure 2: Average wages per treatment

With competition wages vary across treatments: The average wages are highest in *Face* (6.06), *Choice* (5.46) and *Full Info* (5.34), significantly higher than in *Baseline* (2.86) and *Label* (3.29) (see table 10 in the appendix A1).[13] In *Label* we observe the same effect as in the no-competition setting. Managers choose a label in 57.6% of the cases. After acquiring the label, managers pay a wage of 4 in 82.8% of the cases (average wage of 4.56) and without a label managers pay a wage of 0 in 62.7% of the cases (average wage of 1.55, see figure 4 in the appendix A1). Wages without a label are significantly lower than with a label ($p = 0.001$).

The positive wage effect observed in *Face* is remarkable (c.f. hypothesis 3). Although vulnerable for manipulations, the stated satisfaction level highly correlates to the wage (no

[11] Random-effects GLS regression of wage on period with robust standard errors clustered by manager id, including a coefficient for period: *Baseline*: -0.143 (p= 0.008), *Full Info*: -0.104 (p= 0.012), *Choice*: -0.067 (p= 0.260), *Label*: -0.047 (p= 0.036), *Face:* -0.142 (p= 0.054).
[12] Random-effects GLS regression of wage on period with robust standard errors clustered by manager id, coefficient for period: *Baseline*: -0.166 (p= 0.000), *Full Info*: -0.105 (p= 0.021), *Choice*: -0.116 (p= 0.000), *Label*: -0.065 (p= 0.001), *Face*: -0.192 (p= 0.000).
[13] Again, adding the costs of acquiring a label does not change the results. The average wage costs of 3.86 in *Label* is also not significantly different from the average wage in *Baseline*, but significantly lower than the average wages of the other treatments.

competition: Spearman's rho = 0.642, p<0.001; competition: Spearman's rho = 0.673, p<0.001). It seems that the direct communication between workers and consumers reduces the social distance (Hoffman, McCabe, and Smith, 1996; Bohnet and Frey, 1999; Rankin, 2006; Charness and Gneezy, 2008) and triggers social concerns of the consumers for the workers (Dijk and van Winden, 1997; Malmendier and Schmidt, 2012), which results in high wages for the workers. Moreover, explicitly showing the satisfaction may reduce the uncertainty of whether or not the wage is acceptable for the worker and thus reduces consumers' "moral wiggle room" (Dana et al., 2007).

Table 3: Treatment effects on wage

Competition	−1.848*
	(1.048)
Full Info	2.689
	(1.709)
Choice	0.850
	(1.124)
Label	-2.314**
	(1.150)
Face	2.256
	(1.388)
Competition × Full Info	-0.209
	(1.871)
Competition × Choice	1.753
	(1.283)
Competition × Label	2.745**
	(1.296)
Competition × Face	0.948
	(1.590)
Period	-0.112***
	(0.013)
Constant	6.445***
	(0.991)
n	4920
Wald chi^2	60.06
R-squared	0.1294

Notes: Random-effects GLS regression. Robust standard errors in parentheses, clustered by manager id: * p < 0.1, ** p < 0.05, *** p < 0.01. Dependent variable: Wage.

Wages in the competition settings are not significantly different from the respective no-competition setting (see table 10 in the appendix A1). In table 3, we present a random-effects GLS regression using factorial interactions between the competition and information conditions. The coefficient "Competition" shows that competition has a

weakly significant negative effect on wages in *Baseline* (not identified in the non-parametric tests in table 10 in the appendix A1). The next four coefficients capture the effects of the four information treatments in no competition. Here, we find a significantly lower wage in *Label*. The interaction terms capture the competition effect in the different treatments compared to *Baseline*.[14] While there is no significant effect in *Full Info*, *Choice* and *Face*, there is a significantly positive effect for *Label*. The wage in *Label* is higher under competition than under no competition.

> **Result 1** Without competition there are no information treatment effects on wages. However, with competition information significantly increases wages: In *Full Info, Choice,* and *Face* wages are significantly higher wages than in *Baseline.*

6.2 Consumers' decision to buy

6.2.1 The no-competition condition

Without competition, consumers have only two choices: accept the monopolist's offer (buy) and reject (do not buy). Consumers buy in roughly 80% of the cases (see *Units sold per firm* in table 2). When do consumers refuse to buy? In each of the information treatments, the prices of the accepted offers are significantly lower than the prices of the rejected offers (see Table 2)[15]. Except for *Baseline,* consumers may base their consumption decision not only on the price but also on the wage information they have. The regression presented in table 4 tests how the different attributes of a good affect the consumers' propensity to buy. We use a conditional fixed-effects logistic regression to meet the panel structure of the data. The dependent variable is *Buy*, which equals 1 when the consumer accepts a monopolist's offer and 0 otherwise. Consumers may reject an offer to signal their dissatisfaction, e.g. with the price being too high. Since the value of such a signal might be lower in later periods, we add the variable period to control for time effects.

[14] That means the average absolute wage decrease between competition and no-competition in the information treatments is compared to the average absolute wage decrease between competition and no-competition in *Baseline*.

[15] WSR test on the difference between prices of accepted and rejected offers: *Baseline* p=0.012, *Full Info* p=0.018, *Choice* p=0.017, *Label* p=0.005, *Face* p=0.005.

Table 4: Consumers' propensity to buy, no competition

	Baseline	**Full Info**	**Choice**	**Label**	**Face**
Price	−0.640*	−0.553***	−0.414***	−0.270***	−1.390***
	(0.348)	(0.135)	(0.159)	(0.062)	(0.348)
Wage		0.208	0.141		
		(0.139)	(0.227)		
Label				1.303	
				(0.827)	
Satisfaction					0.354**
					(0.178)
Period	0.022	0.040	-0.003	0.030	0.017
	(0.033)	(0.044)	(0.057)	(0.039)	(0.043)
n	240	210	300	300	300
log pseudol	-47.60	-69.71	4.77	-109.46	-64.94
Wald chi^2	4.35	91.92	0.0961	22.82	38.22

Notes: Conditional fixed-effects logistic regression. Robust standard errors in parentheses, clustered by consumer id; * p < 0.1, ** p < 0.05, *** p < 0.01. Dependent variable: Buy. In *Choice,* we include all cases, independent of whether or not the consumer revealed the wage to keep it comparable to *Full Info* where we cannot control whether or not the consumer actually looked at the wage.

The regression shows the strong negative effect of the price on the consumers' propensity to buy. Strikingly, in *Full Info*, when consumers are perfectly informed about the worker's wage, the paid wage does not influence their purchasing decision. Also in *Choice* the paid wage does not influence the consumers' buying decision. The lacking influence of the label choice in *Label* is also reflected in the non-parametric analyses. In the *Label* treatment there is no difference in the label choices for accepted and rejected offers (44.3% accepted vs. 38.2% rejected, WSR: p=0.797) and no difference in the average acceptance rate between offers with label and offers without label (69.9% with label vs. 61.5% without label, WSR: p=0.779). Only in treatment *Face* the stated satisfaction does influence consumers, although there is no significant difference in satisfaction between accepted and rejected offers (satisfaction in accepted offers = 2.89, satisfaction in rejected offers = 2.53, WSR: p=0.285).

> **Result 2** Without competition, we observe positive wages, in contrast to the predictions by purely selfish preferences (cf. hypothesis 1). However, the positive wages cannot be attributed to consumer behavior. As suggested by ERC (cf. hypothesis 2), consumers predominantly care for the price. There are no indications, except for treatment *Face*, that SR (wage or wage indicators) affects consumers' decisions. Rejected offers are due to high prices and not due to low wages.

6.2.2 The competition condition

In duopoly consumers may or may not buy, and when they buy, they can choose between two potentially different offers. In contrast to the monopoly, it almost never happens that consumers do not buy at all: they buy in about 99% of the cases (see table 2). As in the cases of no competition, in each of the information treatments the prices of the accepted offers are considerably and significantly lower than the prices of the rejected offers (see table 2)[16]. To investigate whether and if so how consumers trade off their own payoff against the worker's wage in their purchasing decisions we report an alternative-specific conditional logit model (McFadden, 1974) for the cases in which consumers buy (see table 5). The choice model reflects the specific situation that consumers accept one of two potentially different offers. We specify a case as a single decision of a single consumer in a period. Each case consists of two single observations (alternatives) which are the two firms' offers. Alternative-specific variables are the attributes of an offer, i.e., price and SR information. The dependent variable is *Buy*, which equals one for the accepted offer. As a case-specific variable, we include *Period*, which is not significant.[17]

Table 5: Consumers' buying decision, competition

	Baseline	**Full Info**	**Choice**	**Label**	**Face**
Price	-1.707***	- 0.751***	- 0.605***	- 0.488**	- 0.541***
	(0.529)	(0.229)	(0.129)	(0.200)	(0.129)
Wage		0.298***	0.395***		
		(0.093)	(0.066)		
Label				1.376***	
				(0.524)	
Satisfaction					0.584***
					(0.129)
n	1044	1070	1132	2368	1198
cases	522	535	566	1184	599
log pseudol	-139.50	-261.92	-298.13	10.85	38.64
Wald chi^2	15.96	13.57	59.63	-589.91	-302.13

Notes: Alternative-specific conditional logit model (McFadden's choice model) for the cases in which consumers buy. Robust standard errors in parentheses, clustered by consumer id: *p < 0.1, **p < 0.05, *** p < 0.01. Dependent variable: *Buy*. Case-specific variables (not reported): *Period*. In *Choice* only cases where consumer is fully informed, because only in these cases the consumer can compare both offers.

The regressions in table 5 show that in *Baseline* as well as in all information conditions the price has a highly significant negative influence. In all information treatments the paid wage (in

[16] WSR test on the difference between prices of accepted and rejected offers: *Baseline* p=0.008, *Full Info* p=0.021, *Choice* p=0.0005, *Label* p<0.001, *Face* p=0.005.

[17] *Period* and the constant term are insignificant in all treatments. This means that there is no propensity to prefer the first alternative (firm A) to the second (firm B) in general or over time.

Full Info and *Choice*[18]) or the imperfect information on the wage (in *Label* and *Face*) has a significant positive influence on consumer choices. However, in *Full Info* and *Choice* the negative effect of the price is by far stronger than the positive effect of the wage. In *Label*, having a label has a highly significant positive effect on consumers' propensity to accept an offer. In *Face* workers' satisfaction influences consumers' choice positively. Since price, label and satisfaction are on different scales, they are not directly comparable.

Table 6 indicates how subjects trade off the price against worker's wage when the prices of the two firms differ. In all treatments consumers predominantly buy at the firm with the lower price. These firms pay (an about 4) lower wage. Consumers rarely buy at the firm with the higher price. But if they do, they predominantly buy at the firm that pays the higher wage, and the wage difference is about 2.5. If both firms set the same price, the majority of consumers buy at the firm with the higher wage. Thus, it seems that consumers follow a lexicographic decision rule: The first priority is to buy cheap, but if prices do not differ too much, the worker's wage guides the decision.

Table 6: Consumer choices on competition markets with different prices

	Consumer buys at low price firm (LF)			**Consumer buys at high price firm (HF)**		
		LF higher SR	**Avg. price diff**		**HF higher SR**	**Avg. price diff**
Baseline	96.8%		4.06	3.2%		2.07
Full Info	82.8%	28.6%	4.82	17.2%	94.2%	2.43
Choice	77.0%	31.6%	3.40	23.0%	92.9%	2.89
Label	82.7%	16.0%	4.38	17.3%	70.5%	3.04
Face	72.2%	30.6%	3.39	27.8%	78.7%	1.99

Notes: Table shows consumer choices on markets with different prices: how often do they buy at the cheap or expensive firm, how often is this firm better in terms of social responsibility and the price difference to the other firm.

Result 3 With competition, wages are positive (in contrast to hypothesis 1). The price has a significant negative influence and the wage information has a significant positive influence on consumers' buying decisions. Consumers buy the more expensive good if it has a higher level of SR and the mark-up is not too high. This behavior is in contrast to the predictions by ERC, but not with the predictions by Fehr and Schmidt (1999) and Charness and Rabin (2002) (cf. hypothesis 2).

[18] In *Choice* consumers disclose at least one wage in 95.8% of the cases and disclose both wages in 95.0% of the cases.

6.3 Is socially responsible production profitable?

The study of both market sides, consumers and producers, allows for explicitly focusing on the drawbacks of consumer decisions on producers and analyzing whether consumer behavior makes SR production profitable. First, consider the monopoly case. The manager's profit is $\Pi_{Manager} = -w + p \cdot sales$. The regression presented in table 4 already showed that consumers' purchasing decisions (*sales*) are – except for treatment *Face* – not influenced by the wage paid. Thus, the results presented in table 7 come as no surprise. The regression's dependent variable is manager's sales with the manager's strategic parameters price, wage, and label acquisition as independent variables. Since increasing the wage does not increase the probability of selling the good, the wage is just a production cost for the manager and therefore decreases profits, except for *Face*. Although, in *Face*, the stated satisfaction has a positive effect on consumers' propensity to buy, it does not increase manager's profit. A regression shows that the higher wage costs to increase satisfaction are not covered by the increased propensity to sell.[19]

Table 7: Manager's sales, no competition

	Full Info	**Choice**	**Label**	**Face**
Price	-0.553***	-0.414***	-0.280***	-1.367***
	(0.135)	(0.159)	(0.085)	(0.340)
Wage	0.208	0.141		0.061**
	(0.139)	(0.227)		(0.026)
Label			1.201	
			(2.380)	
Wage without Label			0.106	
			(0.178)	
Wage with Label			0.073	
			(0.357)	
Period	0.040	-0.003	0.033	0.034
	(0.044)	(0.057)	(0.042)	0.041
n	270	300	300	300
F Ratio	14.88	4.77	0.55	18.03
R-squared	0.0543	0.0961	0.0079	0.1855

Notes: Conditional (fixed-effects) logistic regression. Robust standard errors in parentheses, clustered by manager id: * p < 0.1, ** p < 0.05, *** p < 0.01. Dependent variable: manager's sales.

For duopoly, table 5 has shown that SR positively influences consumers' purchase decisions

[19] Fixed-effects (within) regression of manager profit with price, wage and period as independent variables: price (-1.674***), wage (-.1744**), period (0.369***) and constant (40.064***).

in all information conditions. The question is whether this suffices to make SR production profitable for managers. Since the consumers in the competition condition almost always buy and select one of the two offers, not the absolute level of prices and SR but the differences between the two firms do determine consumers' choices. Nine possible constellations of product differentiation on the duopoly market are possible: A firm may be lower, equal or higher in price than the competitor and a firm may be lower, equal or higher in SR than the competitor.[20] Table 14 in the appendix A1 shows the average sales and the resulting payoff for the information treatments in duopoly.

Table 8: Manager profit for different cases of price and SR differences, competition

	Full Info	**Choice**	**Label**	**Face**
Equal SR × Lower Price	10.507***	7.258*	7.445***	4.687***
	(2.201)	(3.638)	(1.005)	(1.432)
Equal SR × Higher Price	-9.747***	-8.156**	-8.860***	-4.527**
	(1.977)	(3.384)	(1.100)	(1.695)
Lower SR × Equal Price	-6.841***	-3.761	-3.738***	-2.738**
	(2.112)	(2.867)	(1.285)	(1.163)
Lower SR × Lower Price	4.614**	4.085	5.039***	3.377*
	(1.837)	(3.042)	(1.440)	(1.649)
Lower SR × Higher Price	-7.742**	-5.415*	-8.711***	-8.242***
	(2.973)	(3.082)	(1.194)	(1.436)
Higher SR × Equal Price	7.712***	5.401*	6.889***	4.434***
	2.453	(2.821)	(1.479)	(1.481)
Higher SR × Lower Price	8.211***	6.948**	9.828***	8.560***
	2.215	(3.300)	(1.663)	(2.153)
Higher SR × Higher Price	-5.968***	-4.124	-2.300	-1.387
	(2.032)	(3.008)	(1.570)	(1.745)
Period	-0.157*	-0.071	-0.097**	-0.035
	(0.084)	(0.055)	(0.047)	(0.055)
Constant	8.132***	4.530	7.172***	1.280
	(1.653)	(2.660)	(1.102)	(1.247)
N	540	600	1200	600
F Ratio	10.02	13.30	25.81	12.66
R-squared	0.3391	0.2577	0.3654	0.2509

Notes: Fixed-effects (within) regression. Robust standard errors in parentheses, clustered by manager id: * p < 0.1, ** p < 0.05, *** p < 0.01. Dependent variable: manager payoff. The regression uses two categorical variables indicating Price and SR differences: SR is lower (equal, higher) if a manager pays a lower (equal, higher) wage than the competitor in *Full Info* and *Choice*. SR is lower (equal, higher) if a manager has lower (equal, higher) satisfied worker than the competitor in *Face*. In *Label*, the SR is higher (lower) if a manager has (no) Label but the competitor does not (does) have one. The SR is equal if both firms have or do not have a label

[20] SR is lower (equal, higher) if a manager pays a lower (equal, higher) wage than the competitor in *Full Info* and *Choice*. SR is lower (equal, higher) if a manager has lower (equal, higher) satisfied worker than the competitor in *Face*. In *Label*, the SR is higher (lower) if a manager has (no) label but the competitor does not (does) have one. The SR is equal if both firms have or do not have a label.

In table 8, we estimate the effects on the manager's payoff using a linear panel regression where the categories of price and SR differentiation are interacted as independent variables. The base category is the case of two homogeneous goods: both mangers offer the same price and the same level of SR. All other categories represent a deviation from that case. The first line shows that offering a product with the same level of SR than the competitor, but at a lower price significantly increases the manager's profit in all treatments. Not surprisingly, a higher price at the same level of SR as the competitor decreases the manager's profit (second line). The last three categories represent a positive product differentiation in SR. A manager can significantly increase her payoff by offering goods with a higher level of SR at a lower or equal price (compared to two identical goods). Under *Full Info*, a higher level of SR offered at a higher price significantly reduces profits. In the other treatments, when SR information is more indirect, the effect on manager profit is insignificant. Thus, consumer behavior not only results in higher sales for the firm with the higher level of SR, it may also result in higher profits.

> **Result 4** Monopolists lose profit by offering goods with increased SR, while this is not true under supplier competition. In all treatments, duopolists with the higher level of SR have significantly higher profits as long the price is not higher. If the price is higher, a higher level of SR is only detrimental under *Full Info*.

6.4 Stated preference and actual behavior

After the experiment, subjects answered a questionnaire with various questions on SR behavior. The questionnaire and the statistical analyses of the answers are provided in detail in appendix A2. The questionnaire allows us to map the stated preferences with the actual actions in the experiment on an individual level. Specifically, we may ask whether those who state that they value SR in the questionnaire actually act in such a way in the experiment. The questionnaire contains the two questions "*Would you be willing to pay an additional price for convenience goods that have been produced demonstrably under better social conditions than competing products?*" and "*Would you be willing to pay an additional price for convenience goods that are demonstrable more climate-friendly/ more ecologically than competing products?*". Subjects answer each question on the following 5-point scale: 0 (I would not accept a premium.), 1 (I would accept a premium of up to 10%), 2 (… up to 20%), 3 (… up to 30%), 4 (… more than 30%). The answers to the two questions

are highly correlated (Spearman's rho = 0.6742, p<0.001, *n*=492). We take the sum of both answers as a subject's overall willingness to pay for SR (variable WTP with 0≤WTP≤8).

The regression presented in table 9 considers all instances in the experiment in which a consumer may choose between two products that differ in the SR level in the duopoly markets. In *Full Info* this means that they were produced under different wages, in *Label* it means that one product is produced by a labeled firm, while the other is not, etc. The dependent variable is the share of SR-products bought, i.e. the number of cases where a consumer buys the product with the higher level of SR divided by the number of cases where the two offers differ in the SR level.

Table 9: Purchase of and willingness to pay for SR products

Rate of buying the product with the higher level of SR	
WTP	0.034*
	(0.019)
Constant	0.500***
	(0.067)
n	98
R^2	0.041

Notes: OLS regression. Robust standard errors in parentheses: *p < 0.1, **p < 0.05, ***p < 0.01. Dependent variable: The rate of buying the product with the higher level of SR (if products differ). All consumers of *Full Info*, *Choice*, *Label* and *Face* in competition.

The regression shows a weakly significant positive effect of the subject's stated WTP on subject's likelihood to buy the product that was produced more socially responsible. This means that subjects' questionnaire responses are consistent with their experimental behavior: subjects who state to value SR in the questionnaire are actually more likely to act in an SR way as a participant in the experiment.

7 Conclusion

In this paper we analyze the emergence of social responsibility (SR) in production through consumer behavior. In small laboratory economies, our experimental treatments vary the availability and opaqueness of the information on SR in the production process and the competitiveness on the supplier side of the market. We find that absent competition consumers are predominantly interested in buying cheap and do not care for the SR in production, irrespective of the information on SR. Consequently, socially responsible production significantly reduces the

profit of monopolistic supplier. However, when suppliers compete, consumers take SR in production as a decision criterion, whenever the price premium for SR is not too high. Accordingly, in competitive settings SR production is no longer detrimental for the producer.

Two aspects are particularly noteworthy. The first being the strong effect of the treatment *Face.* Here workers directly communicate with the consumers by showing their satisfaction with their wage. Although this is an imperfect information transmission that is highly vulnerable to strategic manipulations it turns out that this direct communication is highly effective by directly addressing consumers' responsibility (c.f. Dijk and van Winden 1997 and Schmidt and Malmendier 2012). Our second noteworthy finding is the profit enhancing effect of SR production under competition. When consumers face a monopolistic supplier, the costs of banning goods with low SR in production is very high. By refusing to buy, they forego the gains from trade and consumers as well as managers are left with zero or negative payoffs. If however an alternative product exists, consumers can ban non-SR products at lower personal costs. By purchasing the SR product, they may lose some fraction, but not their entire profit. In the experiment, consumers use this power. With competition, SR production significantly increases consumers' propensity to buy. In our experiment, this not only results in an increase in sales. A firm can significantly increase its profit if it offers a product with a higher level of SR than the competitor, as long the price is not too high. Thus, SR can be used as a profit enhancing means in product differentiation. In this aspect, our results demonstrate a positive aspect of competition on fostering consumer social responsibility. This is in line with Bartling and Weber (2013) and demonstrates that market interaction does not lead to more immoral behavior per se (Falk and Szech, 2013). Yet, at the same time it becomes clear that a regulatory focus on the producers seems necessary to increase the overall level of SR in production.

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Appendix

A1 Figures and Tables

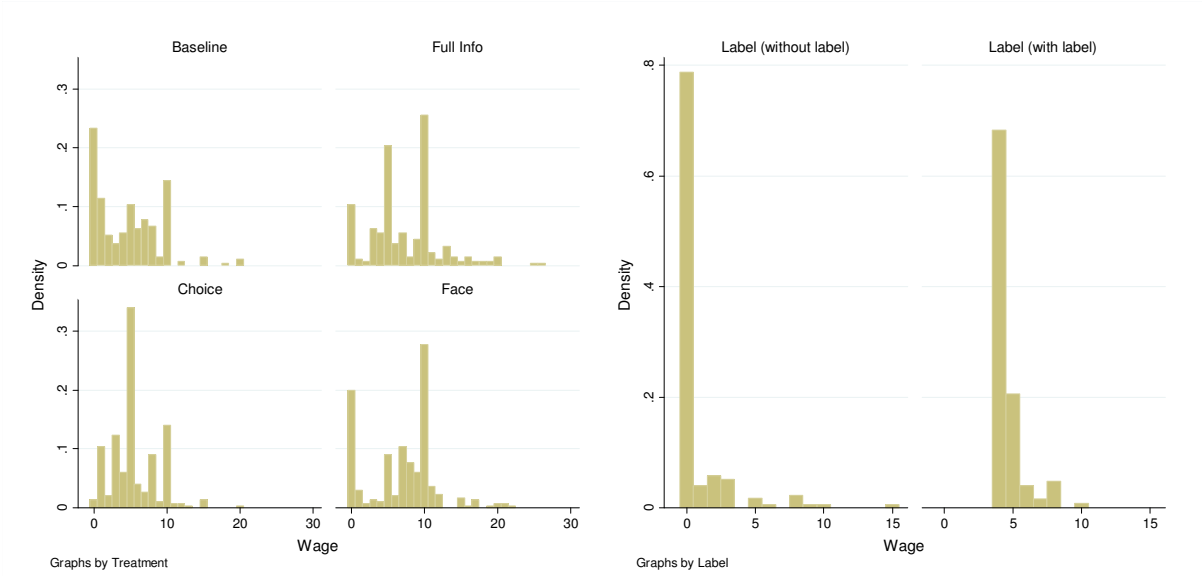

Figure 3: Histogram of wages, No competition

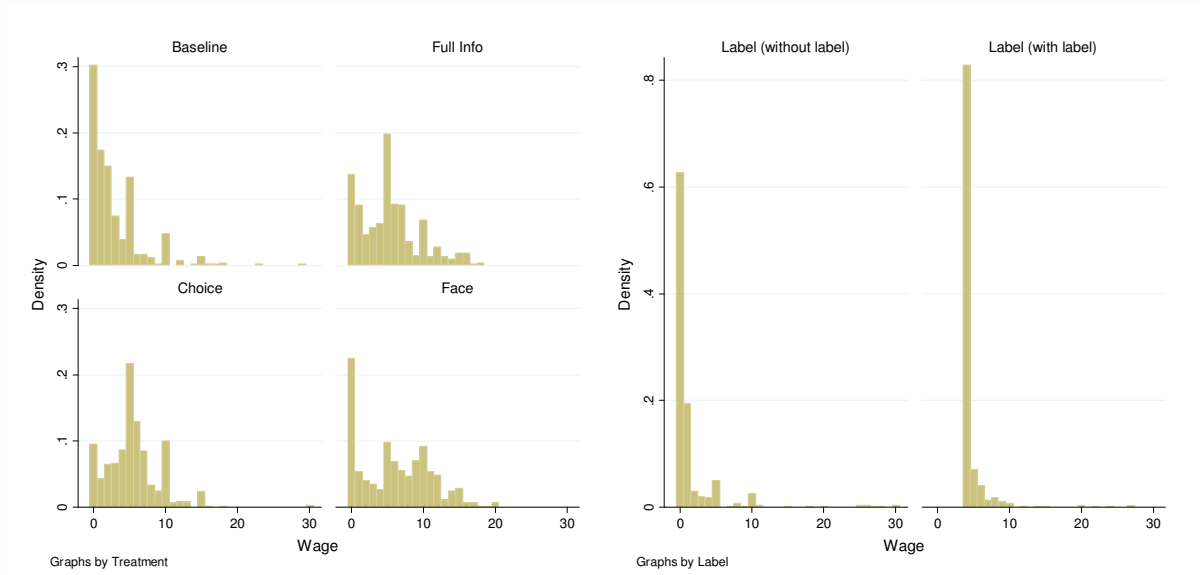

Figure 4: Histogram of wages, Competition

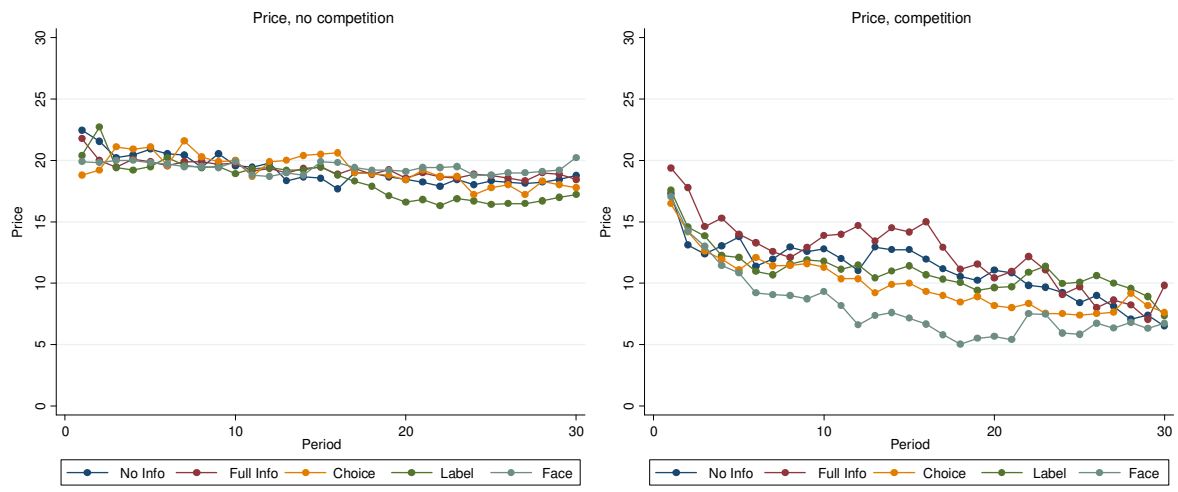

Figure 5: Prices per treatment

Figure 5 shows the development of average prices over time. In each of the five no-competition treatments the average price is slightly below 20, with no statistical difference between the treatments (see table 9 below). Prices start above 20 and slightly decrease below 20 in period 30. A regression of prices on period finds a negative time trend for *Baseline*, *Choice* and *Label*.[21] In each of the five competition treatments the average prices are around 10 and significantly lower than in the corresponding no-competition treatment (see table 9). With competition the average charged price in *Face* is significantly lower than in *Full Info* and *Label*. There is no statistical difference between the treatments in any other pairwise comparison (see table 9). Prices under competition start slightly below 20, quickly decrease and end up below 10 in all treatments. Using a regression confirms the time trend.[22]

[21] Random-effects GLS regression of price on period with robust standard errors clustered by manager id, coefficient for period: Baseline: -0.114 (p= 0.055), Full Info: -0.064 (p= 0.298), Choice: -0.102 (p= 0.088), Label: -0.159 (p= 0.000), Face: -0.021 (p= 0.385).

[22] Random-effects GLS regression of price on period with robust standard errors clustered by manager id, coefficient for period: Baseline: -0.235 (p= 0.000), Full Info: -0.280 (p= 0.000), Choice: -0.225 (p= 0.000), Label: -0.165 (p= 0.000), Face: -0.248 (p= 0.000).

Table 9: Average prices

	No Competition	Competition	No Competition vs. Competition
Baseline	19.211 (0.612)	11.119 (1.195)	0.0005
Full info	19.274 (1.363)	12.407 (1.320)	0.0031
Choice	18.370 (0.825)	11.041 (0.744)	0.0009
Label	19.287 (1.027)	9.887 (1.372)	0.0000
Face	19.393 (0.783)	8.083 (0.986)	0.0002
Treatment comparison	**No competition**	**Competition**	
Base vs. Full	0.8251	0.6272	
Base vs. Choice	1.0000	0.4624	
Base vs. Label	0.3272	0.9249	
Base vs. Face	0.7440	0.1025	
Full vs. Choice	0.7439	0.1651	
Full vs. Label	0.2207	0.3222	
Full vs. Face	0.8065	0.0222	
Choice vs. Label	0.4270	0.2810	
Choice vs. Face	0.7054	0.4963	
Label vs. Face	0.3073	0.0387	

Notes: Averages on group means, standard errors on group means in parentheses. Equality-tests using MWU.

Table 10: Average wages

	No Competition	Competition	No Competition vs. Competition
Baseline	4.704 (1.020)	2.856 (0.384)	0.1711
Full info	7.393(1.489)	5.335 (0.915)	0.1999
Choice	5.553 (0.604)	5.458 (0.588)	0.9097
Label	2.390 (0.655)	3.287 (0.458)	0.5093
Face	6.960 (1.047)	6.060 (0.705)	0.4497
Treatment comparison	**No competition**	**Competition**	
Base vs. Full	0.2692	0.0092	
Base vs. Choice	0.8065	0.0043	
Base vs. Label	0.0411	0.5555	
Base vs. Face	0.2055	0.0033	
Full vs. Choice	0.2203	0.5954	
Full vs. Label	0.0025	0.0083	
Full vs. Face	0.9673	0.2530	
Choice vs. Label	0.0113	0.0056	
Choice vs. Face	0.2568	0.4272	
Label vs. Face	0.0025	0.0024	

Notes: Averages on group means, standard errors on group means in parentheses. Equality-tests using MWU.

Table 11: Average manager payoff

	No competition	Competition	No Competition vs. Competition
Baseline	11.963 (1.577)	6.126 (1.266)	0.0092
Full info	7.963 (1.412)	5.565 (1.266)	0.1223
Choice	11.373 (1.330)	5.787 (0.545)	0.0191
Label	8.380 (1.444)	3.663 (1.220)	0.0008
Face	8.307 (1.033)	1.272 (0.823)	0.0009
Treatment comparison	**No competition**	**Competition**	
Base vs. Full	0.1023	0.8253	
Base vs. Choice	0.1207	0.1025	
Base vs. Label	0.8703	0.6886	
Base vs. Face	0.2207	0.0055	
Full vs. Choice	0.7439	0.2885	
Full vs. Label	0.0864	0.7061	
Full vs. Face	0.8703	0.0143	
Choice vs. Label	0.1123	0.0822	
Choice vs. Face	0.7054	0.1509	
Label vs. Face	0.1736	0.0005	

Notes: Averages on group means, standard errors on group means in parentheses. Equality-tests using MWU.

Table 12: Average consumer payoff

	No competition	Competition	No competition vs. Competition
Baseline	10.000 (0.609)	20.019 (1.310)	0.0003
Full info	9.311 (1.434)	18.822 (1.608)	0.0009
Choice	9.417 (0.598)	19.950 (0.741)	0.0002
Label	8.367 (0.884)	20.678 (1.355)	0.0000
Face	9.033 (0.775)	22.618 (0.941)	0.0002
Treatment comparison	**No competition**	**Competition**	
Base vs. Full	0.6587	0.6587	
Base vs. Choice	0.1651	0.6831	
Base vs. Label	0.7750	0.9249	
Base vs. Face	0.4142	0.1651	
Full vs. Choice	0.7440	0.3475	
Full vs. Label	0.6532	0.3704	
Full vs. Face	0.9025	0.1208	
Choice vs. Label	0.3643	0.4032	
Choice vs. Face	0.6775	0.4497	
Label vs. Face	0.6775	0.0430	

Notes: Averages on group means, standard errors on group means in parentheses. Equality-tests using MWU.

Table 13: Payoff comparisons

No competition	**Manager vs. Worker**	**Manager vs. Consumer**	**Worker vs. Consumer**
Baseline	0.0176	0.3424	0.0090
Full Info	0.1229	0.6350	0.4764
Choice	0.1141	0.5751	0.0218
Label	0.0051	0.2839	0.0051
Face	0.2411	0.3074	0.1688
Competition	**Manager vs. Worker**	**Manager vs. Consumer**	**Worker vs. Consumer**
Baseline	0.0382	0.0109	0.0077
Full Info	0.6784	0.0077	0.0077
Choice	0.2026	0.0069	0.0051
Label	0.0017	0.0001	0.0001
Face	0.0166	0.0051	0.0051

Notes: Equality-tests of payoffs between types in all treatments and conditions using WSR.

Table 14: Duopoly, manager sales and payoff

		Full Info		
		Lower Price	**Equal Price**	**Higher Price**
Lower SR	**Sales**	1.52 (0.12)	0.39 (0.13)	0.00 (0.00)
	Payoff	11.30 (2.33)	0.13 (1.47)	-3.76 (1.29)
Equal SR	**Sales**	1.86 (0.08)	0.97 (0.03)	0.12 (0.08)
	Payoff	16.23 (4.10)	5.60 (2.09)	-4.27 (1.25)
Higher SR	**Sales**	1.98 (0.02)	1.59 (0.13)	0.47 (0.13)
	Payoff	15.23 (3.81)	12.01 (3.43)	-1.19 (1.26)
		Choice		
		Lower Price	**Equal Price**	**Higher Price**
Lower SR	**Sales**	1.38 (0.09)	0.22 (0.08)	0.09 (0.07)
	Payoff	7.71 (2.10)	-1.80 (0.80)	-3.16 (0.93)
Equal SR	**Sales**	1.93 (0.07)	0.92 (0.08)	0.07 (0.07)
	Payoff	11.19 (2.72)	3.03 (2.00)	-6.00 (0.76)
Higher SR	**Sales**	1.91 (0.07)	1.78 (0.08)	0.62 (0.09)
	Payoff	12.40 (2.76)	10.41 (2.90)	-0.96 (0.90)
		Label		
		Lower Price	**Equal Price**	**Higher Price**
Lower SR	**Sales**	1.31 (0.13)	0.19 (0.10)	0.00 (0.00)
	Payoff	11.20 (1.41)	2.37 (1.65)	-1.90 (0.73)
Equal SR	**Sales**	1.82 (0.06)	0.98 (0.02)	0.13 (0.06)
	Payoff	13.08 (1.08)	5.47 (0.69)	-2.91 (0.87)
Higher SR	**Sales**	2.00 (0.00)	1.79 (0.10)	0.69 (0.13)
	Payoff	12.76 (2.44)	13.58 (2.87)	2.34 (1.80)
		Face		
		Lower Price	**Equal Price**	**Higher Price**
Lower SR	**Sales**	1.11 (0.19)	0.23 (0.11)	0.02 (0.02)
	Payoff	4.83 (1.74)	-2.49 (1.19)	-6.65 (0.84)
Equal SR	**Sales**	1.77 (0.12)	1.00 (0.00)	0.23 (0.12)
	Payoff	5.61 (1.36)	0.34 (0.97)	-3.40 (1.22)
Higher SR	**Sales**	1.98 (0.02)	1.77 (0.11)	0.89 (0.19)
	Payoff	7.86 (2.06)	4.61 (2.07)	-1.77 (2.28)

Notes: Averages on group means, standard errors on group means in parentheses. Managers' sales and payoff depending on offering a lower, equal or higher price and on SR. SR is lower (equal, higher) if a manager pays a lower (equal, higher) wage than the competitor in *Full Info* and *Choice*. SR is lower (equal, higher) if a manager's worker has lower (equal, higher) satisfaction level than the competitor's worker in *Face*. In *Label*, the SR is higher if a manager has a label but the competitor does not and vice versa. The SR is equal if both firms have or do not have a label.

A2 Predictions assuming inequity aversion

Consider individuals with Fehr Schmidt (1999) preferences and an information condition as in *Full Info*. A consumer in the no competition condition has the following utility from buying (accept) or not buying (reject) a given offer (w, p):

$$\begin{aligned}\Pi^{buy}_{Consumer} = \quad & (30 - p) \\ & -\tfrac{1}{2}\alpha[\max\{0, 2p - \mathrm{w} - 30\} + \ max\{0, \mathrm{w} + \mathrm{p} - 30\}] \\ & -\tfrac{1}{2}\beta[max\{0, 30 - 2p + w\} + \ max\{0, 30 - p - w\}] \\ \Pi^{not\ buy}_{Consumer} = \quad & 0 - \tfrac{1}{2}w\alpha - \tfrac{1}{2}w\beta\end{aligned}$$

In both equations the first term corresponds to the monetary payoff, while the other two terms resemble the disutility from inequity. The α-term captures the disutility from disadvantageous payoff comparisons, i.e. the cases where other player(s) have a higher payoff. The β-term captures the disutility from advantageous payoff comparisons, i.e. the cases where other player(s) have a lower payoff. The assumption $\alpha \geq \beta$ expresses that disadvantageous inequity looms larger than advantageous inequity. For a given allocation, a consumer chooses to buy or not to buy (accept or reject), which provides the highest utility. For simplicity we assume that the consumer accepts if and only if $\Pi^{buy}_{Consumer} \geq \Pi^{not\ buy}_{Consumer}$. Using the argument of backward induction the manager will propose the allocation that provides her with the highest utility, where

$$\Pi_{Manager}(p, w) = \begin{cases} (p - w) - \tfrac{1}{2}\alpha[\max\{0, 2w - \mathrm{p}\} + \ max\{0{,}30 + \mathrm{w} - 2\mathrm{p}\}] & \\ -\tfrac{1}{2}\beta[max\{0, p - 2w\} + \ max\{0, 2\mathrm{p} - 30 - w\}] & \text{if consumer buys} \\ -\tfrac{3\alpha}{2}w & \text{if consumer does not buy} \end{cases}$$

In order to calculate the subgame perfect Nash equilibria (SPNE) for individuals with Fehr-Schmidt preferences in the stage game of no competition in *Full Info*, we have to specify assumptions on the parameters α and β. We consider the case of selfish individuals ($\alpha = 0, \beta = 0$), which only care for their monetary payoff and three different levels of inequity aversion[23]: low ($\alpha = 1, \beta = 0.25$), medium ($\alpha = 4, \beta = 0.6$), and high ($\alpha = 4, \beta = 1$). By varying these four "types" for the consumer and the manager, we receive 16 different cases. Table 15 displays the Fehr-Schmidt equilibria of these cases and figure 6 graphically shows the outcomes for two of those cases. These examples show that inequity avers consumers may refuse to buy when a high price does not come with a positive wage (red areas in the lower right corners of figure 6). In equilibrium, this induces even selfish managers to pay positive wages if consumers are highly inequity avers (see right panel of figure 6).

[23] Comparable parameters have been assumed by Fehr Schmidt (1999). The "high"-type represents an extreme kind of inequity aversion. For experimental results on the distribution of α and β see e.g. Blanco, Engelmann and Norman (2011).

Table 15: Subgame Perfect Nash Equilibrium outcomes for (price,wage) with different levels of inequity aversion (IA), no competition

	Selfish Consumer $\alpha = 0, \beta = 0$	Low IA Consumer $\alpha = 1, \beta = 0.25$	Medium IA Consumer $\alpha = 4, \beta = 0.6$	High IA Consumer $\alpha = 4, \beta = 1$
Selfish Manager $\alpha = 0, \beta = 0$	(30, 0)	(22, 0)	(17, 0), (18, 1), (19, 2), (20, 3), (21, 4), (22, 5), (23, 6)	(20, 3), (21, 4), (22, 5), (23, 6)
Low IA Manager $\alpha = 1, \beta = 0.25$	(30, 0)	(22, 0)	(17, 0), (18, 1), (19, 2), (20, 3), (21, 4), (22, 5), (23, 6)	(20, 3), (21, 4), (22, 5), (23, 6)
Medium IA Manager $\alpha = 4, \beta = 0.6$	(30, 0)	(22, 0)	(17, 0), (18, 1), (19, 2), (20, 3), (21, 4), (22, 5), (23, 6)	(20, 3), (21, 4), (22, 5), (23, 6)
High IA Manager $\alpha = 4, \beta = 1$	(20, 10)	(20, 10)	(20, 10)	(20, 10)

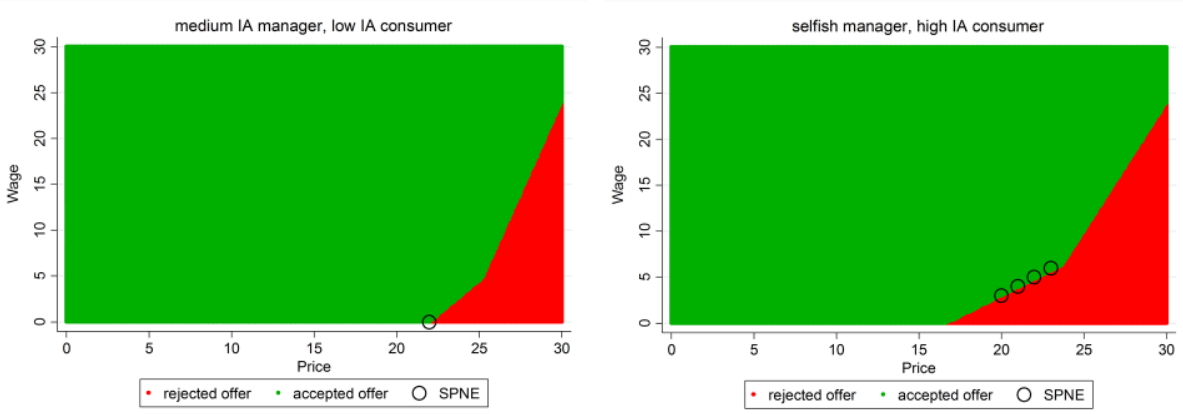

Figure 6: Subgame Perfect Nash Equilibrium (SPNE) outcomes for different levels of inequity aversion, no competition

The competition analysis is far too complex to provide a closed form solution. To get an intuition about how inequity aversion affects consumer choices in duopoly, we calculate the best responses of a consumer facing the two offers (w_A, p_A) and (w_B, p_B). Note, that the best response of a consumer depends also the choice of the other consumer. To simplify matters we make the following assumptions: the other consumer has selfish preferences and always buys at the cheaper firm. In case of identical prices, she buys at firm B. The inequity averse consumer prefers to buy at firm A over firm B over not to buy in case of indifference. Table 16 provides the average choices of the inequity averse consumer depending on the differences in price and wages between the two

firms. The table shows that an inequity avers consumer mostly buys at the firm with the lower price (about 90 percent in all cases) and that the likelihood to buy at the lower price firm increase with the firm's wage. It is however possible that the inequity avers consumer buys at the firm with the higher price to reduce inequity.

Table 16: Duopoly, Likelihood to buy for an inequity averse consumer

		Low IA Consumer $\alpha_{Consumer} = 1, \beta_{Consumer} = 0.25$		
		Lower Price A	**Equal Price**	**Higher Price A**
Lower Wage A	**Buy A**	0.932	0.900	0.019
	Buy B	0.063	0.028	0.971
	Buy Not	0.005	0.072	0.010
Equal Wage	**Buy A**	0.952	0.949	0.040
	Buy B	0.040	0.000	0.952
	Buy Not	0.008	0.051	0.008
Higher Wage A	**Buy A**	0.971	0.971	0.063
	Buy B	0.019	0.000	0.932
	Buy Not	0.010	0.029	0.005
		medium IA Consumer $\alpha_{Consumer} = 1, \beta_{Consumer} = 0.6$		
		Lower Price A	**Equal Price**	**Higher Price A**
Lower Wage A	**Buy A**	0.887	0.865	0.030
	Buy B	0.101	0.027	0.948
	Buy Not	0.012	0.108	0.022
Equal Wage	**Buy A**	0.918	0.922	0.064
	Buy B	0.064	0.000	0.918
	Buy Not	0.018	0.078	0.018
Higher Wage A	**Buy A**	0.948	0.953	0.101
	Buy B	0.030	0.000	0.887
	Buy Not	0.022	0.047	0.012
		high IA Consumer $\alpha_{Consumer} = 4, \beta_{Consumer} = 1$		
		Lower Price A	**Equal Price**	**Higher Price A**
Lower Wage A	**Buy A**	0.873	0.870	0.035
	Buy B	0.117	0.027	0.943
	Buy Not	0.010	0.104	0.022
Equal Wage	**Buy A**	0.909	0.928	0.075
	Buy B	0.073	0.000	0.908
	Buy Not	0.018	0.072	0.018
Higher Wage A	**Buy A**	0.943	0.961	0.119
	Buy B	0.035	0.000	0.871
	Buy Not	0.022	0.039	0.010

Notes: Averages choices of an inequity averse consumer.

A3 Questionnaire Results

The following demographic variables were retrieved: age, sex, semester, experience in experiments (dummy) and experience in market experiments (dummy), experience (number of participations in experiments). The following questions were asked:

What role did the wage of a worker play in the purchase decision?
1: no … 7: a very big

	Baseline	Full Info	Label	Choice	Face
No competition	2.000	3.333	2.567	3.333	2.567
Competition	1.741	3.333	3.342	4.500	3.833

The role of the wage is significantly lower in Baseline in than in the other treatments in *No Competition* (MWT: *Baseline* vs. *Full* (p=0.004), vs. *Choice* (p=0.003), vs. *Label* (p=0.044), vs. *Face* (p=0.012)). There are no significant differences in other pairwise comparisons. In *Competition*, *Baseline* values are also significantly lower (MWT on subject level: *Baseline* vs. *Full* (p=0.000), vs. *Choice* (p=0.000), vs. *Label* (p=0.000), vs. *Face* (p=0.000)) and *Choice* values significantly higher (MWT on subject level: *Choice* vs. *Full* (p=0.001), vs. *Label* (p=0.000), vs. *Face* (p=0.042)). There are no significant differences in other pairwise comparisons. Between competitions conditions we find significant differences for *Choice* (MWT on subject level: p=0.007), *Label* (MWT on subject level: p=0.029) and *Face* (MWT on subject level: p=0.027).

What do you think? Which role (manager or consumer) in this experiment had more "market power"? The market power lay with...
1: the manager only … 7: the consumer only

	Baseline	Full Info	Choice	Label	Face
No competition	4.074	4.556	4.533	4.133	4.733
Competition	5.185	5.444	5.200	5.392	5.650

There is no statistical difference between the treatments within competition conditions (Chi-squared test, no competition: p= 0.690, competition: p=0.461), but between competition conditions (Chi-squared test, treatments pooled, p= 0.000).

By manufacture, transport, use and disposal of a product greenhouse gases are released. Would it affect your purchase decision when products were labeled with a corresponding value of the amount of greenhouse gases?
1: Yes, a labeling of the climate impact would affect my purchasing behavior.
0: No, a labeling of the climate impact would not affect my purchasing behavior.
-1: I do not know

There is no statistical difference between the treatments and competition conditions (Chi-squared test, no competition: p= 0.146, competition: p=0.202, between competition conditions: p= 0.674), so results are pooled:

Do not know	Yes, a labeling of the climate impact would affect my purchasing behavior.	No, a labeling of the climate impact would not affect my purchasing behavior.
20%	11%	70%

The following questions are modified versions from the Eurobarometer 47.0 (Melich 2000) about fair trade consumption (Question Q66 etc., pp. 419).

Some products from developing countries have a label (e.g., Fair trade, Organic certification, GOTS, RugMark). Such labeled products guarantee that during their manufacture certain social and sometimes environmental criteria are met. Do you know these or similar labels? If so, have you already purchased products that were labeled?

0: No, not known.
1: Yes, known, but not purchased.
2: Yes, known and already purchased.
3: Yes, known and regularly purchased.

There is no statistical difference between the treatments and competition conditions (Chi-squared test, no competition: p= 0.688, competition: p=0.623, between competition conditions: p= 0.960), so results are pooled:

No, not known	Yes, known, but not purchased	Yes, known and already purchased	Yes, known and regularly purchased
6%	18%	62%	15%

Do you, in general, feel sufficiently informed about the production conditions when making a purchasing decision?

0: No 1: Yes

There is no statistical difference between the treatments and competition conditions (Chi-squared test, no competition: p= 0.498, competition: p=0.386, between competition conditions: p=0.433), so results are pooled:

No	Yes
86%	14%

Would you be willing to pay a premium for convenience goods that have a comparable performance but have been demonstrably produced under better social conditions than competing products?

0: I would not accept a premium.
1: I would accept a premium of up to 10%
2: I would accept a premium of up to 20%
3: I would accept a premium of up to 30%
4: I would accept a premium of more than 30%

There is no statistical difference between the treatments (Chi-squared test, no competition p= 0.692, competition: p=0.422, between competition conditions: p=0.883), so results are pooled:

I would not accept a premium	I would accept a premium of up to 10%	I would accept a premium of up to 20%	I would accept a premium of up to 30%	I would accept a premium of more than 30%
8%	42%	35%	11%	4%

Would you be willing to pay premium for convenience goods that have a comparable performance but that are demonstrably produced more climate-friendly/ more ecologically than competing products?

0: I would not accept a premium.
1: I would accept a premium of up to 10%
2: I would accept a premium of up to 20%
3: I would accept a premium of up to 30%
4: I would accept a premium of more than 30%

There is no statistical difference between the treatments (Chi-squared test, no competition p= 0.504, competition: p=0.314, between competition conditions: p=0.384), so results are pooled:

I would not accept a premium	I would accept a premium of up to 10%	I would accept a premium of up to 20%	I would accept a premium of up to 30%	I would accept a premium of more than 30%
12%	49%	29%	7%	3%

A4 Instructions

In this section we present the instructions for the treatments *No competition - Choice* and *Competition - Label*. They serve as examples as all instructions are formulated in a similar way. The instructions of the other treatments may be obtained from the authors upon request. The original instructions were in German and the ones listed below are translations into English.

A4.1 Instructions for treatment *No competition Choice*

Instructions for the experiment

General information

We welcome you to this economic experiment. It is very important that you read the following explanations carefully. If you have any questions, please direct them to us.

In this experiment, you can earn money depending on your own decisions and the decisions of the other participants.

During the experiment, you are not allowed to talk with other participants of the experiment. Non-compliance with this rule results in exclusion from the experiment and all payments. All decisions are taken anonymously, i.e., none of the other participants learns the identity of the participant who has taken a specific decision. Payment is anonymous as well, i.e., no participant learns the payments of the other participants.

During the experiment, your entire income is calculated in points. In the end of the experiment, the total number of points that you earned during the experiment is converted into Euro, where

40 points = 1 Euro.

At the end of today's experiment, you receive the number of points earned during the experiment plus 2.50 € show-up fee. In addition, at the beginning of the experiment, you receive an initial endowment of 40 points. On the following pages, we will explain to you the detailed procedure of the experiment.

Information about the experiment

Course of the experiment

- The experiment consists of **30 rounds**, and each round has the same structure.
- You are part of a group with **3 members**. During the entire experiment, you exclusively interact with the members of your group. The composition of the group remains the same across all rounds.

Company, manager, worker, and consumer

- There is a **company** and a **consumer**.
- The company consists of a **manager** and a **worker**.
- Which role you are assigned to is randomly determined at the beginning of the experiment, and remains unchanged during the entire course of the experiment. Please note that your role allows for no conclusions about your identity.

Good, price, value, and trade

- In the company, the worker produces a units of a **good**.
- The manager of a company sets:
    - the **wage** of the workers of the company (integer **between 0 and 30 points**), and

- the **price** at which the company offers the good (integer **between 0 and 30 points**).

- The consumer can buy **up to one unit** of the good, and decides whether he buys the good or not. The good has a **value of 30 points** for the consumer.
- If the consumer buys the good, he pays the price set by the manager of the company. By a purchase, the consumer receives 30 points minus the price paid. A consumer who does not buy receives 0 points.
- Whether the company sells a unit of the good depends on the purchasing decision of the consumer. Therefore, the company can sell none or one unit.

Income in a round

Each participant receives an **endowment** of **5 points per round**. The remaining income depends on decisions in the following way:

Income of participants in one round

Manager:	endowment – wage of the worker + price × number of units sold
Worker:	endowment + wage
Consumer:	endowment + number of units purchased × (30 - price of the good)

Course of the experiment

Before the start of the first round, you are informed about your role. All rounds take place according to the following scheme:

Step 1: Actions of the worker and the manager

- The worker produces the unit of the good.
- The manager sets the wage of the worker, and the price of the good.

Step 2: Actions of the consumer

- The consumer gets informed about the price of the good.
- The consumer decides whether he wants to get informed about the wage of the worker.
- The consumer decides whether to buy a unit of the good.

Step 3: Information

- The worker gets informed about his wage, and the price of the good.
- The manager and the worker get informed about the purchasing decision of the consumer.
- Each participant learns his round income.

Total income

Your total income is the sum of the incomes of all rounds plus the initial endowment of 40 points.

A4.2 Instructions for treatment *Competition Label*

Instructions for the experiment

General information

We welcome you to this economic experiment. It is very important that you read the following explanations carefully. If you have any questions, please direct them to us.

In this experiment, you can earn money depending on your own decisions and the decisions of the other participants.

During the experiment, you are not allowed to talk with other participants of the experiment. Non-compliance with this rule results in exclusion from the experiment and all payments. All decisions are taken anonymously, i.e., none of the other participants learns the identity of the participant who has taken a specific decision. Payment is anonymous as well, i.e., no participant learns the payments of the other participants.

During the experiment, your entire income is calculated in points. In the end of the experiment, the total number of points that you earned during the experiment is converted into Euro, where

40 points = 1 Euro.

At the end of today's experiment, you receive the number of points earned during the experiment plus 2.50 € show-up fee. In addition, at the beginning of the experiment, you receive an initial endowment of 40 points. On the following pages, we will explain to you the detailed procedure of the experiment.

Information about the experiment

Course of the experiment

- The experiment consists of **30 rounds**, and each round has the same structure.
- You are part of a group with **6 members**. During the entire experiment, you exclusively interact with the members of your group. The composition of the group remains the same across all rounds.

Companies, managers, workers, and consumers

- There are two **companies** (**A** and **B**) and two **consumers** (**X** and **Y**).
- Each of the two companies consists of a **manager** and a **worker**. At the beginning of the experiment, it is randomly determined which manager and which worker form company A, and which manager and which worker form company B. This assignment remains unchanged over the entire course of the experiment.
- Which role you are assigned to is randomly determined at the beginning of the experiment, and remains unchanged during the entire course of the experiment. Please note that your role allows for no conclusions about your identity.

Good, price, value, and trade

- In both companies, the worker produces several units of an identical **good**.
- The manager of a company sets:
    - the **wage** of the workers of the company (integer **between 0 and 30 points**), and
    - the **price** at which the company offers the good (integer **between 0 and 30 points**).
- Every consumer can buy **up to one unit** of the good, and decides whether he buys the good from company A, from company B, or whether he does not buy the good at all. The good has a **value of 30 points** for each of the two consumers.

- If a consumer buys the good from company A, he pays the price set by the manager of company A. If a consumer buys from company B, he pays the price set by the manager of company B. By a purchase, a consumer receives 30 points minus the price paid. A consumer who does not buy receives 0 points.
- How many units a company sells depends on the purchasing decisions of the consumers. Therefore, a company can sell none, one or two units.

Certificate

- The managers can buy a **certificate** for their company. A company with a certificate must pay its worker a **wage of at least 4 points**. If the company has acquired a certificate, both the consumers and the other company receive the information: "A wage of at least 4 points is paid ". The **costs** for the certificate are **1 point**.
- If the company does not buy a certificate, the manager can set the wage for the worker of his company freely between 0 and 30 points. In both cases, neither the consumers nor the other company receive information about the actual wage.

Income in a round

Each participant receives an **endowment** of **5 points per round**. The remaining income depends on decisions in the following way:

Income of participants in one round

Manager: endowment – wage of the worker + price × number of units sold

-1 (if certificate was purchased)

Worker: endowment + wage

Consumer: endowment + number of units purchased × (30 - price of the good)

Course of the experiment

Before the start of the first round, you are informed about your role (manager A, worker A, manager B, worker B, consumer X or consumer Y). All rounds take place according to the following scheme:

Step 1: Actions of the workers and managers

- The workers produce the units of the good.
- The managers decide whether to buy a certificate.
- The managers set the wage of the worker of their company, and the price of the good.

Step 2: Actions of the consumers

- The consumers get informed about the price of the good of company A, and the price of the good of company B.
- They receive the information: " A wage of at least 4 points is paid " if the respective manager has bought the certificate, and they receive no information about the wage otherwise.
- The consumers decide whether and from which company to buy a unit of the good.

Step 3: Information

- Every worker gets informed about his own wage and the prices set by the two managers.

- Both managers get informed about the price of the other company.
- Both workers and both managers receive the information about the wage of the other company: A wage of at least 4 points is paid " if the manager of the other company has bought the certificate, and they receive no information about the wage of the other company otherwise.
- Both managers, both workers and both consumers get informed about the purchasing decisions of both consumers.
- Each participant learns his round income.

Total income

Your total income is the sum of the incomes of all rounds plus the initial endowment of 40 points.

Good luck!