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# Making the World a Better Place: Cascade Effects in Consumer Boycotts under Social Group Identity

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# Making the World a Better Place: Cascade Effects in Consumer Boycotts under Social Group Identity\*

## Abstract

Consumer boycotts help in supporting established social norms. Their effectiveness as a disciplinary mechanism in guiding corporate ethics has, however, been questioned. The paper considers three unexplored mechanisms, pointing to a more optimistic view, i.e. a group identity effect, anticipatory effects, and a firm size effect in global markets. The first set of results is related to the need of people to belong to groups with a social mission. It is shown that powerful cascade effects arise on the industry structure in equilibrium when the group dependency dominates among consumers. Less dramatic cascades arise with more independent consumers in the formation of ethical values as opportunist free riding becomes an option. Second, the development of modern information technology facilitates efficient monitoring of corporate ethics of large global firms resulting in potentially efficient means of disciplining. By implication, the consumer boycotts can lead to the evolution of the industry structures in favour of large firms. Success of consumers' impact is, however, hard to test as firms can ex ante anticipate the risk of becoming the subject of a boycott if caught.

**JEL Classification:** L21, M14

**Keywords:** consumer boycotts, social identity, cascade effects, market opportunism

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# 1 Introduction

The emission test scandal of German Volkswagen diesel engines, which became public in September 2015, is just another piece of evidence that making the world a better place represents a challenging mission.<sup>1</sup> Soon, the French Renault was charged with a similar fraud.<sup>2</sup> The history of economic scandals is impressive indeed. The car industry, however, represents an atypical example of industries where firms have failed to commit to sound business ethics in the past. The American company Enron—known for its high-ranked business values—was caught cheating its investors, its workers, and the public in the 1990s. The company was one of the largest and most respected among those listed in the US stock exchange.<sup>3</sup> Enron's fraud created substantial mistrust in the US economy—and this company was not the only one. Other betrayers of US capitalism included Arthur Andersen in auditing, WorldCom in telecommunications, Merck in pharmaceuticals, and Time Warner in entertainment, among others. They all were accused of sabotaging social values. International business scandals from earlier decades include the multinationals Nestlé, Shell, and Nike in particular, which have all been the subject of long-lasting consumer boycotts.<sup>4</sup>

Trust, representing the most important capital in a market economy, can be supported by private individuals, consumers and firms. Corporate social responsibility in maintaining established values and norms can be supported by disciplinary mechanisms imposed by the markets and eventually by the law. Both of them create punishments against the opportunists. Baron (2001), Kochen (2006) and Besley and Chatal (2007) presumably were the first to formally set up the issue of socially responsible activities in the context of privately produced public goods. They advocated the view that it is not the

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<sup>1</sup> Volkswagen cars being sold in America had software in diesel engines that could detect when they were subject to testing, changing the performance accordingly to improve results. The engines emitted nitrogen oxide pollutants up to 40 times above what is allowed in the US. The company's strategy was apparently based on the acceptance of the risk of being caught.

<sup>2</sup> It is believed that Renault has cheated on pollution tests for more than 25 years for diesel and petrol engines with the knowledge of top management. Test levels of emissions performance of some of these cars and the on-road levels showed a difference of up to 377%. Moreover, the Japanese car producer Mitsubishi was caught in Spring 2016 for long-term frauds in testing the gasoline consumption of its cars.

<sup>3</sup> For details, cf. Healy and Palepu (2003).

<sup>4</sup> Nestlé's reputation suffered after selling an inappropriate breast milk substitute to pregnant mothers in developing countries. Shell Oil suffered damage to its image when the Nigerian government took military action against domestic protests aimed at protecting the delta of its river. Nike was criticised for abusive working conditions in overseas apparel. A much smaller but interesting case includes the Estonian company Tallink. Its ship was caught releasing waste into the Baltic Sea in 2005. After the passengers' initiative to organise a boycott against the company, and fearing the loss of its customers, it quickly announced a policy change, pledging to safely release waste into containers in the harbour.

government after all, but the private actors in the market, that create the fragile social capital. In his early influential writing, Friedman (1970) was concerned about the survival of firms that do not focus on profit-making. Shleifer (2004) argued, however, that the erosion of corporate ethics may be a result of intensified competition. Subsequently, Hörner (2002) suggested that the reputation effects help to maintain corporate ethics. Frank (2004) found several mechanisms whereby a firm that incurs additional costs beyond what is required by law is nonetheless able to prosper in competition with the more opportunist rivals. Porter and Kramer (2011) came up with a competing idea in their *Creating Shared Value* (CSV), in which they proposed a step toward developing corporate social responsibility into a new business concept. They suggested redefining the role of business in society from the perspective of the interdependence of a company's success and social progress; companies could redefine their aim as creating "shared value", i.e., not only creating economic value but also societal value at the same time.

In the markets, boycotts represent collective actions against the deviators. These actions have been raised against firms using the products of old growth forests, firms that bring products of genetically modified contents to the market, or those that use child labour, exploit the rainforest, pollute the environment, or resort to using animals in cosmetic testing, to mention some examples.<sup>5</sup>

The boycott movements indicate that there is a market for morality and that moral principles can be priced in the marketplace. There is indeed a substantial literature in the area of consumer boycotts in consumer and marketing research, cf. Friedman (1999) and Koku (2011). In the economic literature, Baron (2001) suggested, however, that the activists and the firm may bargain to settle the boycott, and that the boycotts are unlikely to arise in equilibrium as the target firms rationally agree. In Baron (2002), the duration of boycotts was affected by the intransigency of the players. Deirmeier and Van Mieghem (2005) suggested that multiple equilibria may arise as the selected equilibrium depends on the switching costs, the threshold for the success of the boycott, and the importance of the social dimension of the boycott. Innes (2006) considered the boycotts a game between a duopoly industry and an environmental organisation. Delacote (2009) suggested that boycotts are often ineffective because of coordination issues, free riding, and the high opportunity cost to those who boycott. Some earlier work has been more explicit in the motives of the consumers, integrating the economic and sociological approaches. Their self-respect was introduced in Kannianen and Pietarila (2006) while Glazer, Kannianen, and Poutvaara (2010) considered consumers who opportunistically chose to mis-signal their type to their fellow citizens mimicking responsible citizens. In Heijnen and van der Made (2012), a firm knows that consumers are concerned about its ethical standards, but it does not know how much they care.

The existing literature has, however, abstracted from a key mechanism in getting consumers active: a group identity effect. Many people want to do something important in their lives. They want to be part of a process that makes a difference. They appreciate the option of belonging to a group with a social mission. Such a motive is indeed the regularity identified by the large research in social psychology. The group identity theory developed by Tajfel and Turner (1979) defines a social group as people who interact with one another, share similar characteristics, and collectively have a sense of unity. The subsequent social psychological work on the group effect includes Simon (2004), Brown and Capozza (2006), and Reicher, Haslam, Spears, and Reynolds (2012). The group that people belong to is an important source of pride and self-esteem. Membership in a group with a social mission is apparently based on moral feelings inside human beings. Such feelings witness the existence of "conscience", what Adam Smith called *impartial spectator* in his *Theory of Moral*

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<sup>5</sup> Innes (2006) reports, for example, that between 1988 and 1995, over 200 firms and more than a thousand products were the subject of organised boycotts in the US.

*Sentiments*.<sup>6</sup> For a further discussion on the motives of a boycott, see also Braunsberger and Buckler (2011).

The current paper asks two questions. First, what difference does it make for the market's ability to impose corporate social responsibility in a world where group identity potentially enhances consumer power? The key idea is to model the incentive to join the group in terms of the utility derived from social group identity, i.e. being member of the boycotting group. This utility is assumed to increase with the size of the group resulting in a cascade effect: the more consumers join the group, the higher is the incentive of others to join it. Second, what difference does it make for the potential cascade effect in a world with large global firms in contrast to small local firms?

Earlier, group effects were studied in economics in terms of herd behavior in economic and social contexts (Banerjee, 1992, Bikhchandani, Hirshleifer and Welch, 1992). Subsequently, Kuran (1997) discussed preference falsification, the act of misrepresenting one's wants under perceived social pressures. He suggested that a common effect of preference falsification is the preservation of widely disliked structures. The conferment of an aura of stability on structures is, however, vulnerable to sudden collapse. When the support of a policy, tradition, or regime is largely contrived, a minor event may activate a bandwagon that generates massive yet unanticipated change.<sup>7</sup>

The paper considers the market actions by two types of people. The first type does not commit to moral actions in isolation from other people. These people participate in socially valuable actions only as group members. The second type of people have stronger personalities and an ability to commit to moral actions, even without group membership if they choose so. They can also adopt opportunist behavior. The first type of people are called "group-dependent consumers", and the second type can be called "independent consumers".

The paper reports some charming results. In the case of group dependent consumers, powerful cascade effects can indeed arise. Therefore, strong disciplinary mechanisms can be detected in the market. With group-dependent consumers, a responsible firm (to be called an *H*-firm) can manipulate its pricing policy to drive a non-responsible firm (an *L*-firm) out of the market. However, and in addition, the customers of the *H*-firm are able to discipline the *H*-firm itself by committing not to buy at the *H*-firm. An industry equilibrium emerges where – in anticipation of the *ex post* verdict of consumers – the type *L*-firms will not enter the market *in the first place*. No post-entry boycott needs to take place and is not observed. Though latent, i.e. not visible in the recorded statistics, the factual boycott size is large.

In the case of more independent consumers, opportunism among the competing firms limits but does not eliminate the prospects for the spreading of the meme of ethical principles. The paper establishes

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<sup>6</sup> Related social and economic studies on ethical behavior in terms of altruism and empathy are supported by the biological research, which has identified the role of oxytocine in controlling our moral feelings (Marsh et al. 2015). Group behaviour in the marketplace appears to provide a helpful joint research area for evolutionary studies, psychology, and social sciences, including economics in the spirit of Wilson's consilience, suggested by Wilson (1999). Apparently, economic behaviour cannot be understood without understanding what kind of human beings we are. Human beings cannot be understood unless we understand where we come from. We know today that cooperation within established norms has been a successful strategy, though the temptation of opportunism is always present.

<sup>7</sup> See also Sunstein (2017).

conditions for the mixed industry equilibrium with a less dramatic cascade effect, i.e. both ethical and unethical firms surviving in the market. In terms of the output distribution, there is a unique self-fulfilling rational expectations industry equilibrium determining the distribution of the ethical code of firms. Unlike in Baron (2001), boycotts arise in the equilibrium despite symmetric information. The intensity of the group identity determines the success of the boycott. This differs from Innes (2006), who suggests that in an equilibrium, boycotts are small and persistent against the small firms, and large and transitory against the large firms. When there is rivalry, the ethical firm will gain from the boycott while the unethical firm will lose. This is different from Heijnen and van der Made (2012), who study an industry with a single firm. The *ex ante* expectations of the size of the potential boycott shape the distribution of the ethical code of firms as the customers choose the firm whose door they will open. Such *ex ante* effects have an important implication: *the effectiveness of the consumer boycotts cannot be measured by data on realised boycotts!*

When it comes to analysing the effects of competition, the current paper challenges the concerns of both Friedman and Shleifer, suggesting that it is competition between firms that helps in imposing the ethical discipline. In the models developed in the paper, the adoption of the ethical code of conduct can be the superior strategy.

When it comes to comparing small local firms versus large global ones, differences in the costs of monitoring become relevant. The suggestion is that the transmission of knowledge has become more effective globally, resulting in intensified competition for market shares. The links of the small local firms to the rest of society are, instead, weaker and such firms are supposed to have more limited incentive to pay attention to their ethical code. The large firms in particular are the targets of the collective actions of consumers having built a group identity with a social mission.

Despite such good news, the paper suggests limits to optimism. People can behave as free riders and give up their group identity. Anticipating such opportunism, the firms may abstain from committing to a responsible strategy. Small firms cannot be monitored effectively and the deviators may therefore be concentrated among them rather than among the large firms. One of the key insights of the paper is that as a result, small firms are not the subject of the group identity effect like the large ones are. The effectiveness of boycotts is hard to test, however, when firms pay *ex ante* attention to them when choosing their ethical code of conduct. The small number of detected frauds may not be a signal of ineffectiveness, but rather of effectiveness.

## 2. The Model

### 2.1 Competition and firms' code of conduct

In the face of competition with their rivals, firms can fall into the temptation of opportunistic behaviour, as suggested by Shleifer (2004). Alternatively, they can try to beat their rival in the market by building up a corporate culture, representing a long-term commitment to an ethical standard, and abstaining from short-term profitable opportunism.

The real-world experience provides a justification to the interpretation that often, perhaps typically, the markets exhibit a mixture of both responsible and irresponsible firms. An economic model is needed to explain the distribution of firms' culture in an industry.

In the model economy of the current paper, competing firms produce identical products, are engaged in Bertrand price competition, and can choose different corporate ethics, differentiating their image among the consumers. It is assumed that there are two firms,  $A$  and  $B$ . Firms can adopt a non-ethical code of conduct as a pure strategy, say by polluting. Alternatively, a firm can adopt a code of ethical conduct. The key structural assumption is that "doing good" is costly. It requires an investment,  $k > 0$ . Another key mechanism is that the cost is firm-specific. When a firm undertakes the investment, it is called an  $H$ -firm; if it does not, it is called an  $L$ -firm. To make such an investment, a firm has to train its workers, make contracts, etc., and some firms are more effective than others in doing all of this. In our model, firm  $A$  is a low-cost firm and firm  $B$  is a high-cost firm,  $k_A < k_B$ .

There are three stages (0,1,2) in the model. In stage 0, firms undertake a cost-benefit analysis of their preferred corporate culture, choosing their ethical code, and they form their expectations about the size of the consumer alliance protesting against the firm, which chooses  $L$  as its ethical code of conduct. In stage 1, firms enter Bertrand price competition in the market and consumers observe the firms' ethical code perfectly (Section 2) or imperfectly (Section 3) and are relocated among firms. In stage 2, the firms adjust their output in light of the consumers' locations.

## 2.2 Social group identity among consumers

The mass of consumers is scaled to one. Each consumer buys at most one unit of the product. The consumers are indexed by  $x \in [0,1]$  in declining order in respect to their basic willingness to pay. Consumer  $x = 0$  is endowed with the highest willingness to pay,  $\beta_0 > 0$ ; consumer  $x = 1$  has zero willingness to pay. Willingness to pay by the rest of the consumers is uniformly distributed on  $(0, \beta_0)$ . If the highest willingness to pay is "high", the product can be viewed as a necessity for many consumers. Alternatively, some of them may attach a strong loyalty to the product arising from habit formation. In the current section, it is assumed that the consumers are able to monitor the firms and identify their type in stage 1.

The novel idea in the current analysis is that consumers are sensitive to social group effects as suggested by social psychology. Their moral stance reflects their preference for membership in a social group with a mission. In what follows, however, we will qualify the role of the social group. We call "group-dependent consumers" those who take the moral position only as a group member. We call "independent consumers" those who are able to commit to moral actions and to a normative position independently of the group.

There is a consumer with zero cost of organising such a boycotting group; other consumers may join. The expected size of the group is given by  $X$ . Those who join will enjoy  $\alpha X$  as a private benefit, where  $\alpha > 0$  is the intensity of the social identity. This utility is assumed to increase with the size of the group resulting: the more consumers join the group, the higher is the incentive of others to join it.

The private cost of joining the boycotts is assessed in terms of the higher price consumers must pay. However, even though they value membership in a group, they can be a potential subject of opportunism if the price distribution in the market justifies becoming a traitor. *Anything is on sale in people's world—even morality!*

In equilibrium, the market structure may have both firms engaging in ethical conduct ( $HH$ ), or only one firm ( $HL$ ) or neither firm engaging in it ( $LL$ ). Corner solutions may thus arise. The view advocated in the current section is that  $LL$  and  $HH$  are atypical market structures as they result in a price undercutting incentive for firms, hence zero profits. Much of the existing literature on industrial organisation has emphasised that to make positive profits, firms have an incentive to differentiate their products. Similarly, in the current model, firms tend to have an incentive to choose a different corporate culture—though secretly—as similarity, not to mention that mimicking implies zero profits.<sup>8</sup>

The effects of the social group identity on a firm's ethical code has not been studied so far. It is thus possible that firms' expectations of consumer group pressure are relevant, and that in today's world, large firms in particular can be expected to pay attention to it. Small firms may have a more limited risk of being caught and may be able to avoid the group pressure.

### 2.3 Social group effect: the case of group-dependent consumers

Each individual consumer and firm takes the expected boycott size  $X$  as exogenous while it is endogenous in market equilibrium. Expectations of the boycott size can, however, be decisive for a dependent individual's decision to join. If the cost of ethical code is high and equal across firms, both firms will be type  $L$  in equilibrium. If the costs are low, both firms will be type  $H$ . Under cost differences, a mixed equilibrium may arise where the low-cost firm is type  $H$  and the high-cost firm is type  $L$ . To see this, we introduce the following market analysis.

With group-dependence, the indirect utilities of consumers ( $x_i, x_j$ ) with  $x_i$  participating in the group action of not buying at the  $L$ -firm and  $x_j$  becoming an opportunist buying at the  $L$ -firm are

$$u^i = \beta_0(1 - x_i) + \alpha X - p_H; \quad u^j = \beta_0(1 - x_j) - p_L, \quad (1)$$

with the prices denoted by  $(p_H, p_L)$ . The idea is that a consumer subject to a group identity effect values the group membership, the greater the reference group will be.<sup>9</sup> It follows that the number of buyers at the  $H$ -firm and at the  $L$ -firm are  $(x_m, x_n)$ , respectively, with  $0 \leq x_m + x_n \leq 1$ ,  $0 \leq x_m \leq 1$ ,  $0 \leq x_n \leq 1$ .

It holds for the last buyer at the  $L$ -firm who is indifferent at buying and not buying that

$$\beta_0(1 - (x_m + x_n)) - p_L = 0. \quad (2)$$

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<sup>8</sup> Such a proposal implies that unlike the results in the Cournot-Nash competition (Kanniainen-Pietarila, Glazer-Kanniainen-Poutvaara), the prisoners' dilemma will not arise under the Bertrand competition.

<sup>9</sup> To simplify the technicalities, it is assumed that all agents in the model share the same expectations.



The buyer's index is thus  $x_m + x_n$ . Moreover, it holds for any customer of the  $H$ -firm, say  $x_b$ ,  $0 \leq x_b \leq x_m + x_n$ , that the utility from the product of firm  $H$  added with the utility of the group membership has to be equal to the utility from the product of the  $L$ -firm, both net of the prices,

$$\beta_0(1 - x_b) + \alpha X - p_H = \beta_0(1 - x_b) - p_L, \quad (3)$$

Therefore, the price difference is fully determined by the social group effect,

$$p_H - p_L = \alpha X. \quad (4)$$

Interestingly enough, under such a price structure, all non-marginal consumers at the  $H$ -firm are indifferent to buying at the  $H$ -firm and at the  $L$ -firm, even though the willingness to pay schedule is declining.

**Lemma 1.** *The group-dependent customers are all indifferent to buying at the  $H$ -firm and buying at the  $L$ -firm once the price difference satisfies (4).*

Therefore, given the expected size of the boycott,  $X$ , and the intensity of the social group identity,  $\alpha$ , one can solve from the model for the price differential and the total number of active buyers in the market,  $x_m + x_n$ .<sup>10</sup>

It is easy to show that the  $H$ -firm can fully dictate the pricing of the  $L$ -firm. Suppose that the  $L$ -firm plans to have  $p_L > 0$ . The condition (4) tells, however, that the  $H$ -firm can undo this by its own aggressive pricing. In particular, if the  $H$ -firm expects a large consumer boycott against the  $L$ -firm, it can choose a large price differential relative to the price of the rival  $L$ -firm. Even worse for the  $L$ -firm, the  $H$ -firm can choose a price low enough to make the rival leave the market,

$$p_L = p_H - \alpha X \leq 0. \quad (5)$$

This means that  $p_L = 0$ , and therefore  $x_n = 0$ . Under such a strategy, the price of the  $H$ -firm satisfies

$$p_H = \alpha X. \quad (6)$$

It follows moreover that the indirect utility of the customer of the  $H$ -firm with an index  $x_m$  is

$$\beta_0(1 - x_m) + \alpha X - p_H = \beta_0(1 - x_m).$$

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<sup>10</sup> In this case, there is only one demand function.

It follows that as long as  $\beta_0(1 - x_m) \geq 0$ , buying the product is utility-increasing for a consumer. This means, then, that  $x_m = 1$ , and that the  $H$ -firm obtains all the customers.

How do we know that it is optimal for the  $H$ -firm to impose  $p_L \leq 0$ ? Make the counter assumption: assume that the  $H$ -firm allows  $p_L > 0$ , making the  $L$ -firm enter the market. This then means that  $p_H > \alpha$ . Condition (2) then implies that  $x_m + x_n < 1$ , i.e., some potential customers do not buy. Even more dramatic for the  $H$ -firm, those who buy are fully indifferent to buying at the  $H$ -firm or at the  $L$ -firm. This is a risk to the  $H$ -firm; it is unable to tie the consumers into itself. Thus, though the  $H$ -firm is able to charge a high price for its remaining customers, it may lose all of them to the rival. It is legitimate to argue that even a risk-neutral (not to mention risk-averse) firm will not accept such a gamble and will settle at pricing its product cheap enough to impose  $p_L \leq 0$  with  $p_H = \alpha X$ , as suggested above.

## 2.4 Equilibrium under rational expectations

Above the *ex ante* expectations of the boycott size were denoted by  $X$ . In a rational expectations equilibrium, the expectations concerning the boycott size have to match with its true size. Thus, it must hold that

$$X = x_m = 1. \quad (7)$$

This implies that in the rational expectations equilibrium, the price of the  $H$ -firm must be equal to  $\alpha$ . This is a sharp result.

**Lemma 2.** *Under rational expectations concerning the boycott size, the price of the responsible firm equals the intensity of the boycotting social group,*

$$p_H = \alpha. \quad (8)$$

*The rational expectations equilibrium is unique.*

With  $p_H = \alpha$  and  $x_m = 1$ , the profit of the  $H$ -firm then is

$$\pi_H = \alpha - k_A. \quad (9)$$

Its survival condition is given by  $\alpha > k_A$ .

We have obtained some sharp conclusions pointing to strong disciplinary mechanisms in the market with group-dependent consumers. An  $H$ -firm indeed is able to drive an  $L$ -firm out of the market with its pricing policy. Moreover, the customers of the  $H$ -firm are able to discipline the  $H$ -firm by an

implicit threat of not to buy at the *H*-firm. Though latent and not visible in the recorded statistics, the potential boycott size is large.

We have proven a powerful cascade effect:

**Proposition 1.** (*Effective boycott*) *With group-dependent consumers, and with the given expected social identity effect, the L-firm is driven out of the market and all consumers who value the product will buy at the H-firm. A firm with an ethical code of conduct is able to discipline the firm that has not adopted the ethical code. Moreover, it holds that the consumers of the ethical firm are able to discipline the pricing of the firm that adopts the ethical code.*

This result contrasts with Shleifer's (2004) prediction, which suggested that competition leads to the deterioration of ethical values. The consumers can indeed steer the market. Notice moreover that even though the *expected* boycott size is small, its effect is strong enough to drive the *L*-firm is out of the market. Interestingly enough, even though the *expected* boycott size is small, every consumer with dependent preferences *hopes* to join it!

## 2.5 Social group effect: the case of independent consumers

Consider the case of second type of consumer, moral but independent ones. They reward the firms for adopting the code of ethical conduct. Their willingness to pay for an ethical firm's product is greater than it is for the product of a firm with no ethical conduct, and is assumed to be uniformly distributed on  $(0, \beta_1)$ ,  $\beta_1 - \beta_0 > 0$ . It is assumed that the ratio between the valuations is equal among consumers. In a sense, such heterogeneity among consumers can arise for a number of reasons. It is consistent with what sociologists have found when discussing the self-respect of people.<sup>11</sup> Denote the self-respect effect of moral behaviour as

$$\Delta\beta = \beta_1 - \beta_0. \quad (10)$$

Even when such consumers are independent on their personal judgements, they still appreciate the initiative of other consumers in organising a boycott but less enthusiastically. Let their valuation be denoted by  $\gamma \leq \alpha$ . Such consumers, too, derive utility of the social actions of others. Then, the indirect utility functions of the consumers  $(x_i, x_j)$  with  $x_i$  participating and  $x_j$  not participating are

$$u^i = \beta_1(1 - x_i) + \gamma X - p_H; \quad u^j = \beta_0(1 - x_j) - p_L. \quad (11)$$

The decision whether to buy and at what firm is based on a cost-benefit evaluation by each consumer. It will not be the case that all who appreciate the social group identity will buy at the *H*-firm. Some potential customers of the *H*-firm may opportunistically abstain from group membership.

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<sup>11</sup> The notion of self-esteem found an eminent place in social psychology long ago. Franks and Marolla (1976) conceptualised self-esteem in terms of an individual's own perceptions and appraisals of significant others in the form of social approval.

Unlike in Section 2.3, there are now two demand functions. Therefore, two marginal consumers can be identified:  $x_m$  is the one that is indifferent towards buying the product of an  $H$ -firm and of an  $L$ -firm, and  $x_n$  is the marginal consumer who is indifferent towards buying the product of an  $L$ -firm and nothing. We expect that in the industry equilibrium, there will be a segmentation of markets; namely, those consumers  $x_i$  with a high inframarginal utility (i.e.,  $0 < x_i < x_m$ ) will buy at firm  $H$ , and those consumers with a lower inframarginal utility (i.e.,  $x_m < x_j < x_n$ ) will buy at firm  $L$ .

The larger the boycotting group, the higher the cost of joining because the  $H$ -firm with a high ethical code of conduct can then have a higher price in the mixed equilibrium. An  $L$ -firm understands the opportunism of an  $H$ -firm and needs not to reduce its price accordingly.

It thus holds for the marginal consumers that

$$\beta_1(1 - x_m) + \gamma X - p_H = \beta_0(1 - x_m) - p_L, \quad (12)$$

$$\beta_0(1 - (x_m + x_n)) - p_L = 0. \quad (13)$$

It follows that the number of buyers at the  $H$ -firm and at the  $L$ -firm are  $(x_m, x_n)$ , respectively, with  $0 \leq x_m + x_n \leq 1$ ,  $0 \leq x_m \leq 1$ ,  $0 \leq x_n \leq 1$ .

When the consumers are independent, *the self-respect effect and the social group effect jointly make the price of the  $H$ -firm exceed the price of the  $L$ -firm*,

$$p_H - p_L = (\beta_1 - \beta_0)(1 - x_m) + \gamma X. \quad (14)$$

While the price competition tends to reduce the market price, the social identity effect creates a wedge between the price of the responsible and the non-responsible firm. Indeed, while in the traditional model price competition reduces the prices, this need not be so when morality is priced in the market. The responsible firm is able to charge a price exceeding the equilibrium price which would prevail in the absence of the social identity effect.

## 2.6 The industry structure under price competition

The demand functions can be obtained by solving for the marginal consumers,

$$x_m = 1 + \frac{\gamma X}{\Delta\beta} - \frac{p_H - p_L}{\Delta\beta} \quad (15)$$

$$x_n = \frac{p_H - p_L}{\Delta\beta} - \frac{p_L}{\beta_0} - \frac{\gamma X}{\Delta\beta}. \quad (16)$$

If one of the firms is of type  $H$  and the other is of type  $L$ , the profits of the firms are

$$\pi_A = p_A x_m - k_A \quad (17)$$

$$\pi_B = p_B x_n. \quad (18)$$

Eliminating the outputs, the profits are

$$\pi_H = p_H \left[ 1 + \frac{\gamma X}{\Delta\beta} - \frac{p_H - p_L}{\Delta\beta} \right] - k_A \quad (19)$$

$$\pi_L = p_L \left[ \frac{p_H - p_L}{\Delta\beta} - \frac{p_L}{\beta_0} - \frac{\gamma X}{\Delta\beta} \right]. \quad (20)$$

Under price competition, the price reaction functions are obtained from

$$\frac{\partial \pi_H}{\partial p_H} = \frac{\partial \pi_L}{\partial p_L} = 0$$

and they satisfy

$$p_H = \frac{2\beta_1}{\beta_0} p_L + \gamma X \quad (21)$$

$$p_H = -\Delta\beta + 2p_H - \gamma X, \quad (22)$$

yielding the Bertrand-Nash solution in terms of prices:

$$p_H = \frac{2\beta_1 \Delta\beta}{4\beta_1 - \beta_0} + \frac{2\beta_1 - \beta_0}{4\beta_1 - \beta_0} \gamma X \quad (23)$$

$$p_L = \frac{\beta_0 \Delta\beta}{4\beta_1 - \beta_0} (\Delta\beta - \gamma X). \quad (24)$$

The corresponding output structure  $(x_m, x_n)$  then is

$$x_H = x_m = \frac{2\beta_1}{4\beta_1 - \beta_0} + \frac{2\beta_1 - \beta_0}{(4\beta_1 - \beta_0)\Delta\beta} \gamma X \quad (25)$$

$$x_L = x_n = \frac{\beta_1}{4\beta_1 - \beta_0} - \frac{\beta_1}{(4\beta_1 - \beta_0)\Delta\beta} \gamma X. \quad (26)$$

From the result of the price of the non-ethical firm (24), it is found that the mere moral preferences are not sufficient to drive the non-ethical firm out of the market when consumers are independent. The conclusion is different when the consumers are group-dependent. We report

**Proposition 2.** (*Weak cascade effect*). *The mere moral preferences are not sufficient to drive the non-ethical firm out of the market. A sufficiently strong group effect expected by the firms,*

$$X \geq \frac{1}{\gamma} \Delta\beta \quad (27)$$

is necessary to make the production of the unethical firm non-profitable.

When (27) holds, the price of the non-ethical firm falls to zero and the firm finds it optimal to exit the market. Such a result has not been reported in the literature. There is more to it. It is sufficient that the firms *ex ante* expect a strong group effect without actually knowing whether it would materialise to have this result. *Thus, the ex ante expectations of firms can significantly influence the choice of the firms' ethical code.*<sup>12</sup>

Notice, moreover, that the *H*-firm is not able to raise the price above what is given in (23), as that would make the *L*-firm re-entry. Consumers' discipline does not only fall on the *L*-firm, but the pricing of the *H*-firm is disciplined, too!

## 2.7 Industry equilibrium under self-fulfilling rational expectations

The industry equilibrium under rational expectations is characterised by the condition

$$X = x_m. \quad (28)$$

Imposing (28) into (25) and (26), the output distribution between the ethical and non-ethical firm is found to be

$$x_m = \frac{2\beta_1 \Delta\beta}{\psi} \quad (29)$$

$$x_n = \frac{2\beta_1 (\Delta\beta - \gamma)}{\psi}, \quad (30)$$

where we have denoted  $\psi = (4\beta_1 - \beta_0)\Delta\beta - (2\beta_1 - \beta_0)\gamma$ . The solution with both firms surviving is acceptable when  $\psi > 0$ . From (30), we can see that the *L*-firm survives in the market if the intensity of the social group identity is restricted by the condition

$$\gamma < \Delta\beta. \quad (31)$$

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<sup>12</sup> Notice that in this model, the consumer surplus for the marginal consumer is zero, while all non-marginal consumers in the model of independent consumers enjoy a positive surplus. For all the non-marginal customers with a greater effective willingness to pay, the utility from visiting firm *H* is greater than from visiting firm *L*.

Once this is so, the required condition  $\psi > 0$  is not threatened. From (29) and (30), one can find out the following:

**Proposition 3.** *In the rational expectations equilibrium, a cascade effect even based on a weaker social group identity favours the  $H$ -firm, though the survival of the  $L$ -firm is not excluded.*

There is some difference between the results in Sections 2.4 and 2.7. Both have the message that consumers can discipline the firms. However, when consumers are group-dependent, an  $L$ -firm has no chance of surviving. With more independent consumers, the case is more optimistic for a deviant, as the consumers' power is more limited, even though the membership in a social group is valued also by the independent consumers.

## 2.8 Stability of the mixed market structure

The case of independent consumers has a dramatic implication when there are cost differences between firms adopting the ethical code. It is only the mixed equilibrium that is a stable market structure. Given the above candidate for the industry equilibrium, the  $L$ -firm has no incentive to switch its type to mimic the  $H$ -firm, as this would result in non-positive profits for both firms. The  $HL$  is a stable mixed equilibrium. There is more to it. Suppose both firms are of type  $H$ .  $HH$  cannot, however, be a stable equilibrium. Such a corner solution is ruled out. Both firms gain if one of them (but not both) switches to  $L$ . The firm with a greater ethical code cost has the greater incentive to switch—an obvious case for secret contracting!

**Proposition 4.** *In the case of independent consumers and differences in the cost of ethical code, the mixed industrial structure represents the only stable equilibrium.*

An equilibrium of type  $HL$  is thus stable, and the consumers are helpless in trying to persuade both firms to choose the high moral standard. A strong group identity effect is not enough. The scope for opportunism prevails.

## 3. Large firms and small firms: stochastic revelation

In Section 2, firms' size was different for *endogenous* reasons. Even when the  $L$ -firm survived in the market, firms had different market shares. The chances of  $L$ -firm's survival was conditional on consumers' moral preferences. The markets punished a non-ethical firm with a loss of customers.

The firm size (capacity) may, however, be different for *ex ante* reasons, too. Firms differ in their abilities to innovate and in their differential managerial and workers' skills. Some grow and become large. Others remain small. It follows that consumers' abilities to monitor firms in different size classes may be different. A firm that has extensive and repeated interactions with consumers or the surrounding society may be more easily detected when adopting shaky business ethics. A firm with less links to the rest of society may, however, be more seldom detected for fraud.

The analysis in the previous section abstracted from the consumers' imperfect ability to monitor the firms. Instead, perfect monitoring and cost-free observability of the firms' ethical code was assumed. The consumers, the activists in particular, and today's larger audience, however, can monitor large, say global firms more than they can monitor the small local ones.<sup>13</sup> The small local firms have much fewer customers, and also fewer workers. The activists tend to specialise in monitoring the large firms in particular.<sup>14</sup>

In this section, both the assumption of the firms' homogeneity and of perfect monitoring are relaxed. Therefore, differentiated detecting probabilities are introduced, say  $p > q$ , for both the large and the small firms. It will turn out that whether the product is a necessity or not has some role to play.

### 3.1 Large firms

In the model world of the paper, the inherited size difference in terms of capacity constraints are introduced. There is one large and one small firm as operative in the industry. The model is built on the view that the strategic interaction between the large (international) firm and the small (local) firm is limited in that the small firm is a price-taker with regard to the large firm's pricing. This means that although the firms compete in the marketplace for the customers by their image, *the small firm is unable to impact the strategy of the large firm*. Though the firms have a fixed capacity, they optimise in terms of how much to sell, potentially leaving some output unsold at zero cost. The question is how the two extensions of the model influence the market structure in industry equilibrium and the view on spreading the ethical meme in the market.

After (imperfect) monitoring the firms' ethical codes by their customers, the industry may have four different structures in equilibrium. First, consumers may assume that both firms have adopted the ethical code. This case arises from several possibilities. It is possible that both firms have indeed chosen the ethical code. It is also possible that only one of them has chosen it or that neither has chosen it, but that the consumers did not catch the deviator. This case is thus analysed as if both firms were ethical. Second, it is possible that either the small or the large firm has deviated and is revealed. Finally, it is possible that both firms have deviated and that both are revealed.

To gain an intuition, suppose for a moment, if only for the sake of illustration, that both firms were ethical and of equal size, but cannot adjust their capacity output. The mutual competition of the Bertrand type would result in zero equilibrium price, regardless of whether there are more or fewer buyers than products produced and available for the consumers. The standard undercutting argument

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<sup>13</sup> In the past, large firms in particular were often accused of unethical strategies and of misusing their economic power. This may have changed by now. Global communication techniques have developed through the internet, and the transmission of information has become highly efficient. In the end, even Volkswagen and Renault were caught.

<sup>14</sup> This can be motivated by the potential externalities caused by large firms, which can be much more harmful than those of the small firms. In Innes (2006), the gain of the Environmental Organizations from monitoring large firms is reported to be greater than from monitoring small firms.



applies. Thus, both firms would have a strong incentive to avoid the cost of ethical code of conduct adopting the unethical code in the first place. Imperfect observability might make this choice attractive. Under size differences, the large firm could consider itself to be a monopolist of sorts—the small one could not capture the consumer market, no matter what it does. The customers of the large firm—most of them—would have no possibility of switching to the small firm. For them, the choice would be either buying from the large firm at the personal cost of losing their favourable social identity, or abstaining from buying altogether. Both choices would reduce the market price, making the large firm consider its choice whether to be of type  $H$  or type  $L$  in the first place. Many customers stay with it if the product were a necessity, i.e., a high- $\beta$  product.

With the detection probability  $p$ , the expected profit of the large  $L$ -firm is given by the weighted average of an unrevealed and a revealed firm,

$$E[\pi^L] = (1 - p)\pi_H^L + p\pi_L^L, \quad (32)$$

where the super index  $L$  (= large) refers to the size of the firm, and the sub indices  $H$  and  $L$  to its ethical code perceived by its customers, like in Section 2.

Suppose that an unrevealed but unethical large firm prices its product as  $p_M$ . It obtains  $x_A$  customers, where  $x_A$  is solved from

$$\beta(1 - x_A) = p_M. \quad (33)$$

Here  $\beta$  stands for the valuation of the product under “veil of ignorance”. No group punishment is present as the firm is unrevealed from cheating. The number of its customers is then solved from (33) as

$$x_A = 1 - \frac{p_M}{\beta}. \quad (34)$$

The profit of the unrevealed large firm of type  $L$  (mis-classified as type  $H$ , call it  $h$ ) is then

$$\pi_h^L = \left(1 - \frac{p_M}{\beta}\right) p_M. \quad (35)$$

and its profit-maximising price is  $p_M = \frac{\beta}{2}$ . In summary, the price, the sales, and the realised profit are

$$p_M = \frac{\beta}{2}, x_A = \frac{1}{2}, \pi_h^L = \frac{\beta}{4}. \quad (36)$$

These conclusions hold, given that the firm has sufficient capacity to satisfy the demand. If the capacity is not sufficient, some customers are not served.

Assume now instead that the large firm that had not chosen the ethical code was captured. The customers (most of them) do not have the option of switching to buy at another firm. The only way to boycott is to abstain from buying. If none of them boycotts (say, because the product is a necessity), the number of customers is the same as above,  $x_A = \frac{1}{2}$ , and so is the profit,  $\pi_H^L = \frac{\beta}{4}$ .

However, if the product is not a necessity for all customers (small  $\beta$  case) and a boycott is organised against the firm with a marginal group member, say  $x_r$ , the indifference condition for the marginal participating customer is

$$\beta(1 - x_r) - \alpha X = p_M \quad (37)$$

In (37), the variable  $X$  is the number of boycotting customers. This time, there is a minus sign in front of it, as it measures the lost private benefit for a consumer from not joining the boycott.

How is the number of boycotting customers  $X$  determined? It is simply equal to the number of non-buying customers, i.e., it coincides with  $1 - x_r$ . Then, the solution for the number of buying customers is

$$x_r = 1 - p_M / (\beta - \alpha). \quad (38)$$

Maximising the profit  $\pi_L^L = x_r p_M$  gives the price, the sales, and the profit for the large deviating firm:

$$p_M = \frac{\beta - \alpha}{2}, x_r = \frac{1}{2}, \pi_L^L = \frac{\beta - \alpha}{4}. \quad (39)$$

Comparing the price, sales, and profits of a large uncaptured firm and a captured one, one discovers that the captured firm suffers in terms of reduced profit to the extent that the potential customers value the social group identity,  $\alpha$ .

**Proposition 5.** (*Powerful cascade effect*) *The large firm, having chosen the unethical code and having been captured, is subject to a rather substantial punishment from the moral consumers, or those consumers who are subject to the group identity effect and who do not find its product a necessity. Its price drops substantially, and it accumulates an unsold inventory.*

Even the large firm, however, is captured probabilistically. If it is of type  $H$ , it obtains the (gross) profit  $\pi_H^L$  with a probability of 1, but it obtains an even higher profit if it is of type  $L$  but is not caught (with probability  $1-p$ ), as it avoids the cost,  $k$ . Comparing the cases of a large  $H$ -firm and probabilistically revealed large  $L$ -firm, it pays for the large firm to choose the ethical code if

$$\pi_H^L \geq p\pi_L^L + (1 - p)\pi_h^L. \quad (40)$$

Carrying out the comparison, this condition can be developed as

$$p \geq p^* = 4k/\alpha. \quad (41)$$

Therefore,

**Proposition 6.** *If the catching probability of a large firm is large, it chooses to be of the ethical type unless the cost of the ethical choice is large or the lost group identity effect is limited.*

### 3.2 Small firms

The small firm is in a rather different situation when compared with its large competitor. When choosing its ethical code, it takes the strategy of the large firm as a given. It knows that the large firm is either of type  $H$  or type  $L$ , but that in the latter case it is caught only probabilistically. However, *it is only the price charged by the large firm that matters for the small firm*. The small firm maximises its profit subject to the constraint knowing that its price cannot exceed the price of the large firm. It cannot attract many customers of the large firm as its capacity is limited.

To formalise, assume that the large firm has chosen its price and it is  $p_M$ . The expected profit of a small non-ethical firm then is

$$E[\pi_L^S] = (1 - q)\pi_H^S + q\pi_L^S, \quad (42)$$

where  $q$  is the probability for the small firm of being caught. An ethical or unrevealed unethical small firm prices its product as  $p_N \leq p_M$ . An ethical small firm is able to sell its capacity output, say  $Q$ , as long as its price is marginally below the price of the large firm. Its profit is

$$\pi_H^S = p_M Q - k. \quad (43)$$

On the other hand, a small unethical firm is able to sell all of its output as long as there are a sufficient number of customers, say  $K \leq Q$ , who are not concerned about their group identity, and as long as its price satisfies  $p_N \leq p_M$ . In this case, the profit of the unethical small firm is

$$\pi_L^S = p_M K. \quad (44)$$

The condition for an incentive to adopt the ethical code for a small firm then is expressed as  $\pi_H^S \geq E[\pi_L^S]$ . Evaluating this condition, it turns out to be

$$K \leq Q - \frac{k}{p_M}. \quad (45)$$

Therefore, regardless of its catching probability and adjusting to the cost/price ratio, such a small firm has no incentive to adopt the ethical code if a sufficient number of customers do not value the group identity in the sense of abstaining from buying at the small firm.

The results of the current section can be summarised as rather dramatic conclusions:

**Proposition 7.** *Large firms adopt the ethical code if their catching probability is large enough. Regardless of its catching probability and adjusting to the cost/price ratio, a small firm has no incentive to adopt the ethical code if a sufficient number of customers do not value the group identity in terms of abstaining from buying at the small firm.*

As members of the society, consumers get the kind of world they deserve. The implication for the evolution of the market structure is somewhat surprising:

**Corollary 1.** *The consumer boycotts tend to lead to the evolution of the industry structures in favour of large firms.*

The group identity effect represents a great risk for a deviating large firm, possibly resulting in strong cascade effects in terms of a large boycott. Indeed, there is asymmetry as *the small firms are more seldom “victims” of the group identity effect.*

#### **4. Final remarks**

The question examined in this paper is whether a firm with a costly ethical conduct code can survive. According to the current analysis, the answer is *yes* if the group identity effect rewards the ethical code of conduct and creates cascade effects in consumers' behaviour. People value not only the products they consume, but the image of the producer is often equally important. Such preferences have been introduced in the models of the current paper: people may undertake organised punishment actions against those producers who deviate from the established norm. The idea of group identity and its role in shaping the power of consumer alliances against the firms was based on research in social psychology, suggesting that people value their membership in social groups that have a mission. A market mechanism based on such group formation was shown to support those values, which help to maintain social norms and social capital in the society. Consumer alliances and boycotts represent such a disciplinary function of the market mechanism. Reasons were suggested in terms of opportunism among consumers as to why the actions of such groups may not be effective. However, two reasons why they can make a difference were suggested. First, the expectations of firms concerning the power of the group identity effect will *ex ante* have an impact on the ethical choice of the firms. Second, and against the conventional vision, large firms may have a greater incentive than small firms in adopting a high ethical code. Also Volkswagen got caught. By implication, the social responsibility of large global firms could be extended to exporting a strong corporate culture to those developing countries where they operate, say through their sub-contractors.

A subtle point is in order concerning the option of bargaining between the firms and the consumer alliance as suggested by Baron (2001). Why do the partners not always resort to bargaining? There may be two reasons. First, the catching probability of a deviating firm may not be considered large enough by the firm. Second, the bargaining power of the firm may be great, especially if the product is a necessity. There is a third reason: the coordination costs within the consumer alliance may not be trivial despite modern social media, which has reduced those costs substantially when compared with the past.

The current paper has examined a number of mechanisms not typically discussed by economic papers. Many of its results could be the subject of empirical testing. The last point to be made, however, is a warning. The final judgement of the values expressed in the market place always remains an issue. People get easily brainwashed by treacherous memes, as forcefully demonstrated by Blackmore (1999). Do not be blind as to the power of the market mechanisms! The markets may also support norms and outcomes that are socially harmful. Consumers buy and consume drugs, some drink too much alcohol or smoke cigarettes. Some overspeed in traffic, many of us travel too much, causing environmental externalities. And people vote for politicians with populist ideologies. Therefore, one should be aware of the imperfect ability of the markets in expressing sustainable values. Mankind gets the kind of world it deserves!

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