The Assignment of a CSR Level of Action: Rule vs Discretion

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Abstract

Socially responsible behaviors represent a growing concern for consumers, employees, investors, firms. Beyond their economic impact, companies are made accountable and responsible for the social, the environmental incidence of their activities. Their governance, their processes, the security of their products and the working conditions they offer are more and more carefully examined. The question of the duty of vigilance concerning company activities seem of particular interest in this context. Public policies, especially through regulation, seek to limit (or even avoid) some of the negative impacts that can be related to firms' activity and choice. Yet, many drawbacks can prevent regulation to succeed : lack of information or of expertise, capture by interest groups... As a by-product it is worth examining whether some decisions must be taken by regulators or should rather be delegated to firms. This paper tries to tackle this issue. Through a mechanism without transfer approach in a setting involving information asymmetries, we will study under which conditions the decision is best assigned to the regulator. We show that for relatively low values of the private parameter, a bonding rule will be preferred, more strongly if asymmetry of information is introduced w.r.t. the knowledge the firm will get from the representative consumer. The divergence between the decision-maker and the firm strengthens and less communication takes place, which corresponds to a lower degree of delegation granted to companies. Thus, the optimal scheme is made of a combination of a rigid policy and a more flexible one over significant values of the private parameter.

Keywords : Corporate Social Responsibility, Mechanism without transfer, Informational asymmetry, Delegation, Risk, Expertise.

JEL Classification : D82, H20, H71, H77, Q54, Q58.

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1 Introduction

Vogel (2007) : " Civil and government regulation both have a legitimate role to play in improving public welfare. The former reflects the potential of the market for virtue ; the latter recognizes its limits", p. 173.

Corporate social responsibility relates (CSR) to the awareness that firms may not take into account all the impacts of their decisions upon their stakeholders' welfare. CSR choice is a commitment to behave ethically, to contribute to sustainable economic and social development, to improve quality of life in a way that is good for business and good for social welfare. This notion involves preferring actions which reduce the extent of externalized costs or which allow avoiding distributional conflicts.

Former literature highlighted the voluntary feature of such a process. However, Liang and Renneboog (2014) indicate that CSR not only refers to the voluntary steps taken by firms but also to the practices they adopt to comply with regulatory requirements.

Indeed, many motivations can lead companies to engage in CSR activities. As pointed by Baron (2010), moral considerations can trigger mechanisms of self-regulation. More strategic objectives lead companies to consider CSR as a way to provide them a competitive advantage, to guarantee future benefits and the protection of their license to operate (Porter and Kramer, 2002, Baron, 2001, Crifo and Forget, 2014). Strategic CSR is linked to the part played by the firm stakeholders, the requests and the pressure of whom are increasingly taken into account (particularly to avoid reputation risk), as confirmed by an impact study conducted by Oekom (2017).

The fields that are a matter for CSR are increasingly regulated, and we can observe a multiplication of rules ranging from soft law to hard law : numerous advocacies or recommendations related to codes of conducts, good practices... and, at the same time, injunctions with norms, rules compulsory to enforce. Rules are necessary to allow a "level playing field" and must be relevantly designed to bring firms incentives to take into account and seek to limit their side effects.

As underlined by the Worldbank (2003), CSR "covers a wide range of issues relating to business conduct". A main part of recent scandals and lawsuits involving corporate social irresponsibility deal with companies behavior towards market and thus the quality of their governance. Many examples illustrate this. Thus, despite their commitment, multinational enterprises belonging to the chocolate sector keep on deforesting West Africa, Sherpa lodged a new complaint against Vinci for constrained work in Qatar builder's yards for the 2022 World Cup, Bolloré will be brought to trial because of corruption as part of the process of harbour concessions obtaining in West Africa. Furthermore, many industrial sectors have been proved to exert lobbying against regulation on the one hand while displaying private initiatives and good practices announcements on the other hand.

The adoption of socially responsible actions thus constitutes an answer to both market and government failures as soon as stakeholders express extra-financial preferences (Bénabou

et Tirole, 2010). Stakeholders, more especially investors, are increasingly demanding increased transparency from companies on their political activities. Corporate Social Responsibility indeed reflects a renewed vision of individual reckoning, taking into account pro-social motivations arguments and involving cognitive and emotional dimensions. As a byproduct, they exert pressures both towards government (as shown by the recent withdrawal of titan dioxide by the French government under the constraint of associations) and towards firms (such as the climate resolution laid down by Amazon shareholders employees at the last general assembly).

How may companies and public decision-makers react when they cope with such pressures ?

Firms can simply comply with regulation, either on behalf of pure conviction that regulation is grounded or by lack of capacity to influence decision.

They can choose a proactive implementation of regulation, in order to avoid further costs and increase their market share, or by a genuine wish to improve their behaviour and impulse a real change in companies' responsibility.

They can also decide to dodge or weaken regulation through lobbying intended at influencing the decision-maker and weight upon his choice or through the proposal of an alternative measure that could act as a disincentive and prevent her from opting for a restrictive policy. Indeed, a growing number of works, such as Lutz et al. (2000), seek to analyze how companies can engage in behaviors that will deter public decision-makers from laying down too constraining rules. In some cases, it has been shown that firms could pre-empt regulation by engaging in CSR choices likely to bring them a competitive advantage or even likely to deter the regulator from enforcing the rule under preparation and make her soften it. In such a case, CSR activities can be considered as a substitute to regulation. Indeed, restrictive regulation can induce great costs form firms (costs of compliance, costs of revision of production processes. . .) which should induce a risk of market share loss for the firm. In such a respect, Lutz et al. (2000) show that the regulator will temperate the constraints she wishes to set if she observes that firms commit to a high quality standard and provide real efforts. Shanti and Finger (2013) confirm the dark side of auto-regulation mechanisms, demonstrating that firms belonging to a particular sector have used their participation to an industrial association initiative as a substitute to a real effort of greenhouse gas reduction. Maxwell and Decker (2006) put the stress on the over-investment scheme that may emerge in order to avoid future regulations. Firms in a dominant position can use their market power to weaken the envisaged regulation. In an oligopolistic framework, they can collude within an interest group that will exert his influence upon the relevant tier regulators. In such settings, companies benefit from both market and government failures. What's more, they rely on the knowledge and the expertise they detain about an issue (this can be illustrated by the way decisions are taken in the European game).

As far as they are concerned, decision-makers can either ignore these pressures (may be the case if they are captured by the industry or unable to lead a socio-economic analysis) and choose status quo, or they can unilaterally take a decision which satisfies the requests they are addressed (for fear of risks or for political reasons). Last, they may call for experts (despite the complexity of verifications). This may be more and more the case as we live in a *Risk*[1] *and Information Society* within which CSR currently cannot be dissociated from the notion of risk that arises in many fields of today life : environment, climate, health, technological or social risk.

[1] Beck (1992).

The growing lack of confidence expressed by civil society towards public decision makers and towards firms sincerity and skill to tackle new issues and challenges can also be related to the new nature of risk and to risk and uncertainty aversion. This can be related to Kahneman and Tversky (1979) Prospect Theory that explains how economic agents put a higher weight upon potentially damagable situations. Besides, Gromb and Martimort (2007) and Hiriart, Martimort and Pouyet (2011) respectively underline that "scientific and technological boundaries move constantly" and " risks spread over the whole spectrum of economic activities ", with a lot of uncertainty surrounding them, which is conducive to the conclusion that "decision-making has come to rely increasingly on expertise" (Gromb & Martimort, 2007). The need for expertise represents a great difficulty for governments. Indeed, expertise can be said to be costly to many extends as decision-makers neither have time enough nor abilities to collect and process complex information, they delegate this task to specialized agencies, to groups of scientists and sometimes to the regulated sector itself. The experts they have to rely on must be granted incentives to gather information, to lead genuine inquiries and to provide truthful reports. The kind of regulation best suited to risk issues is *ex ante* regulation (Hiriart and Martimort, 2012). But it appears that the evaluation of the costs and benefits by the public regulator is made difficult by the fact that the relevant information belongs to the regulated industry. In order to get this relevant information, the regulator has to adopt softer regulations, to lessen punishments... and, to put it in a nutshell, to give up a rent to the informed parties. The important question thus deals with the degree of delegation that will be conceded to the expert and with the nature and the strength of the link that relates her to the regulated sector. Letting some discretion to the agent allows the implementation of policies reflecting her expert information whereas imposing a stiff rule guarantees the alignment of the chosen policies with the preferences of the public decision-maker but at the expense of taking expert information into account.

As a result, it appears that room is available for corporate political responsibility. Many evidence show that, too often, large companies on the one hand bring public support to state commitments in favor of environment care and, on the other hand, engage in active lobbying groups exerting opposite pressures that trigger costs imposed on other economic groups. That's why, it is really crucial to focus upon firms' public policy behavior.

This raises the question of whether it is more relevant to assign the decision of the nature and the amount of socially responsible actions to the company on a voluntary basis or to make them compulsory through a regulation process.

This paper thus aims at investigating the economic rationale for the appropriate organization in such a context and examines whether such a policy can be delegated to the firm.

The theory of delegation is particularly helpful to tackle this issue. We analyse the endogenous allocation of responsibilities and thus consider that transfers among tiers are not allowed. To that end, we use a mechanism design framework without transfer, as initiated by Melumad and Shibano (1991). This approach was first sketched and built in opposition to Crawford and Sobel (1982) cheap talk model that initiated the literature on strategic communication. In these works, an agent, the sender, has private relevant information and transmits a message to the uninformed principal, the receiver, who then makes a decision according it but cannot commit to a policy rule before the agent reports his private information. This is no longer the case in

the delegation models initiated by Holmström (1977, 1984), that revert the timing of signaling games and include commitment. Hence, Melumad and Shibano (1991) allows the principal to *ex ante* commit to a decision rule that describes the policy choices as a function of the messages sent by the agent. Martimort and Semenov (2006a) explain that the mechanism design approach displays many advantages and can be very helpful in situations involving information asymmetry and strategic games between interdependant players[2].

In this paper, we consider a three-tier hierarchy model : the regulator, the firm and representative agents (of all possible direct stakeholders : employees, customers, investors, suppliers...). The organisation is made of two levels of potential decisionmakers as regards the level of one kind of CSR behaviour : the firm and a regulator. A CSR action can be implemented through the funds derived from the willingness to pay of the different stakeholders involved in the firm activity (customers, employees, investors...). But the preferences of the stakeholders are heterogenous and represent a private information of them. The regulator has to decide which amount of CSR good should be produced or he can delegate this task to the firm. If the former has a better macro point of view, the latter may benefit from a "local knows best" advantage or a technical expertise concerning a relevant private information of the base. The regulator cannot use message-contingent transfers to elicit information from the agents. The CSR decision competence is assigned to the regulator, but the company is assumed to have an informational advantage upon the former. Actually, the firm is more likely to learn a policy-relevant private feature of the agent. The principal (i.e. the regulator) can make his decision either on the basis of the report from the firm, or he can prefer implementing a communication-independent policy that will not depend on the hidden type of the agent but will be closer to his own preferred choice. The stakeholders' expectations about the amount of quality provision that the firm must be required to perform is the private information the knowledge of which should allow choosing the first-best decision.

This work examines the relationships between both layers of decision and the conditions for the emergence of a communication process among them. It shows that delegation of the choice to the firm is justified as soon as their interests are congruent and if the impact of the private parameter is significant.

[2]It takes into account the first-mover advantage of the principal, it solves the equilibrium indeterminacy arising in the former kind of games, it fully characterizes the set of incentive feasible allocations that can be achieved at any equilibrium of a communication game, and a more dynamic relationship is allowed.

2 A three-tier hierarchy model of CSR : Framework and main assumptions

2.1 Preferences and information

We consider a game where a firm commits herself to a CSR policy. The issue tackled can be regarded as an issue of duty of vigilance concerning companies' activities. Indeed, they have to pay attention to their working conditions, the manufacturing processes and inputs implemented by their suppliers, the objective being to ban damaging substances and processes. The issue tackled here concerns the choice of the degree of selection and on the nature and magnitude of the rules indirectly imposed upon these suppliers. This choice (or this binding rule) may induce a cost a part of which may be borne by customers[3] (this is the cost stakeholders are ready to bear for environmental and social goals). As a whole, we define the transfer from the latter, p, as a unique one (lump-sum), allowing the firm to provide a socially responsible product or service G produced at cost $G^2/2$ (which may include certification...).

Representative agents have heterogenous preference and these preferences constitute a private policy-relevant feature θ which belongs to the continuous set $\Theta = [\underline{\theta}; \underline{\theta} + 1]$, $\underline{\theta} > 1$, which refers to the willingness-to-pay for a more ethical product (stated otherwise to the benefit they derive from the CSR actions implemented).

θ is distributed according the log-concave continuous function $F(\theta)$, with strictly positive density function $f(\theta)$, that represents the common knowledge law describing the prior of the firm and satisfying the monotonicity condition of the hazard rate $\frac{d}{d\theta}\left(\frac{F(\theta)}{f(\theta)}\right) > 0$.[4]

We assume that the firm can be informed about θ or not and can use this information strategically *via* the signal sent to the uninformed regulator who chooses the level of socially responsible commitment provision. Indeed, the firm is likely to have a better knowledge of consumers preferences than the regulator thanks to satisfaction surveys, to the proximity with customers (and thus with an information advantage regarding their features), to the analyses led by different departments of the firm with respect to sales, customers' tastes...

A potential conflict of interests among both tiers can emerge. Beyond the personal prosocial preoccupation of some executives or trustees, some other motives may guide their want to foster the implementation of a CSR policy : responsible behaviors can be expected to generate positive externalities, to lessen the risks the firm could have to face, especially in terms of reputation, to preserve her license to operate... The regulator is expected to maximise social welfare and promote the interests of the whole society. As a result, their objective functions are highly likely to differ. The difficulty for the principal lies in the inferior knowledge she has about stakeholders' expectations and in the relevance to use the firm expertise so as to reach her goals. In order to capture this potential divergence between both layers and to make it possible

[3] We may imagine other groups of stakeholders such as investors, employees... Consumers may also comprise such economic agents.

[4] We could equivalently consider that there is a unique agent instead of a continuum, the preference of which is unknown and belongs to the set Θ.

for communication between them to emerge and be valuable, we use single-peaked quadratic preferences.

The functions of the agent θ, S, and of the firm F, V_F, respectively write

$$S = \theta G - p \tag{1}$$

$$V_F = p - \frac{G^2}{2} \ . \tag{2}$$

The objective function of the regulator R, V_R, writes

$$V_R(1) = \mu G + V_F + S \tag{3}$$

where $\mu > 0$ represents his bias.

2.2 The mechanisms

The regulator contracts with the firm who, in turn, sub-contracts with the agents.

Laffont and Martimort (1997, 1998), then Faure-Grimaud, Laffont and Martimort (2003) show that the Revelation Principle can be generalized, not only to the grand-mechanism but to the side-contract as well. Thus, the Revelation Principle can be implemented at the side-contracting stage, and there is no loss of generality in considering that the side-mechanism is a direct truthful mechanism. The Principle of Delegation[5] Proofness can be applied in this framework.

The usual timing of traidtional signalling games is reversed.

Through the grand-mechanism, the upper-tier authority *ex ante* commits himself to a decision rule that describes which policy to implement as a function of the report made by the firm executives on the agents' types. There is no transfer between both levels. The lack of transfer highlights the firm informational role.

Without loss of generality, the regulator offers a thruthful direct revelatory mechanism $\left\{G\left(\widehat{\phi}\right)\right\}_{\widehat{\phi}\in\Theta}$, where $\widehat{\phi}$ is the report of the firm.

Side-mechanisms also take place among the firm and the agent $\left\{p\left(\widehat{\theta}\right), \phi\left(\widehat{\theta}\right)\right\}_{\widehat{\theta}\in\Theta}$, where $\widehat{\theta}$ is the signal sent by the agent to the firm executives and $\phi(\cdot)$ maps the agent's report into the set of messages the firm thus sends to the regulator. The agent may agree on a side-contract that manipulates its report into the grand-mechanism.

[5] An extension of the Taxation Principle (Guesnerie, 1981, 1995, and Rochet, 1986) is the Delegation Principle, which can be used to characterize the set of equilibria from all message games. This principle suggests that "the set of equilibrium outcomes obtainable in an indirect communication game with arbitrary message spaces can be replicated as equilibrium outcomes in a game in which the principal payoff relevant menus from which the agent chooses" (Martimort and Stole, 2002, p.1664). This principle is of high interest in situations with a very rich underlying message space of the indirect game. Thus, when it appears difficult to characterize the set of all equilibria, the Delegation Principle guarantees that there is no loss of generality in considering the class of unrestricted menu games, provided that the restrictions imposed by the size of the underlying communication spaces are taken into account.

3 A three-tier hierarchy model of CSR : The informed firm case

If no asymmetry of information occurs among the agents and the firm executives and the latter truly report the type of the agents to the regulator, everything happens as if they behaved as a merged entity with respect to the regulator.

3.1 Programme of the firm

In such a context, the firm can extract the exact amount corresponding to the willingness to pay or to renounce to a part of wage or yield of the agents, which allows the revelation of the benefit they derive from the CSR action.

The firm optimization programme is

$$\max_{\phi(\cdot)} \int_{\underline{\theta}}^{\underline{\theta}+1} \left(\theta G\left(\phi\left(\theta\right)\right) - \frac{G^2\left(\phi\left(\theta\right)\right)}{2} \right) f\left(\theta\right) d\theta \ . \tag{4}$$

3.2 Incentive compatibility

Maximizing pointwise the objective above, with $\phi^*\left(\theta\right) = \theta$, and from the standard revealed preferences argument, at any point of differentiability of $G\left(\cdot\right) : \dot{G}\left(\theta\right)\left(\theta - G\left(\theta\right)\right) = 0$.Thus, $G\left(\cdot\right)$ is either constant along θ or corresponds to the true benefit of the agent.

Besides, from the incentive constraints we get $\left(\theta - \widehat{\theta}\right)\left(G\left(\theta\right) - G\left(\widehat{\theta}\right)\right) \geq 0$, which means that $G\left(\cdot\right)$ is weakly increasing and thus almost everywhere differentiable.

Last, if we consider that $G\left(\cdot\right)$ is discontinuous at point $\widetilde{\theta} \in \Theta$, $G\left(\widetilde{\theta}^{+}\right) \neq G\left(\widetilde{\theta}^{-}\right)$, but if an agent of type $\widetilde{\theta}$ must be indifferent between choosing the policies which are respectively proposed on the left and on the right of $\widetilde{\theta}$, then $G\left(\cdot\right)$ cannot be flat on these sides, and as a result : either $G\left(\widetilde{\theta}\right) = G\left(\widetilde{\theta}^{-}\right)$ or $G\left(\widetilde{\theta}\right) = G\left(\widetilde{\theta}^{+}\right)$.

The following lemma, derived from Melumad and Shibano (1991) can thus be written :

Lemma 1 : *An incentive compatible scheme $G\left(\cdot\right)$ must satisfy*
- *$G\left(\theta\right)$ weakly increasing and thus almost everywhere differentiable*
- *if $G\left(\theta\right)$ is strictly increasing, $G\left(\theta\right) = \theta$*
- *if $G\left(\theta\right)$ discontinuous at a point $\widetilde{\theta}$, then $G\left(\widetilde{\theta}^{-}\right) + G\left(\widetilde{\theta}^{+}\right) = 2\theta$, $G\left(\theta\right)$ flat on the right and on the left of $\widetilde{\theta}$, and $G\left(\theta\right) \in \left\{G\left(\widetilde{\theta}^{-}\right), G\left(\widetilde{\theta}^{+}\right)\right\}$.*

Two classes of schemes can be incentive compatible : pooling schemes, according to which $G(\theta) = G, \forall\theta \in \Theta$ and fulling separating schemes that correspond to the agent's characteristic, $G(\theta) = \theta, \forall\theta \in \Theta$. Benefits can exceed costs for low values with a pooling scheme, but polling would bring the issue further from the principal preferences on the upper tail. As a result, there is a combination between a rigid binding rule on the lower tail and more flexibility for values belonging to the upper tail.

The optimal mechanism is a compromise between both. Continuous mechanisms have at most one strictly increasing part. The minmax rule of Moulin (1980) can be applied.

Lemma 2 : *For any continuous mechanism $G(\theta)$, there exists two cut-offs θ^* and θ^{**} such that the unidimensional scheme has the following form*

$$G(\theta) = \min\{\theta^*,\ \max\{\theta, \theta^{**}\}\} \tag{5}$$

with θ^* and θ^{**} designing the boundaries of the segment where $G(\theta) = \theta$ i.e.

$$G(\theta) = \begin{cases} \theta^* \ if \quad \underline{\theta} \leq \theta \leq \theta^* \\ \theta \ if \quad \theta^* \leq \theta \leq \theta^{**} \\ \theta^{**} \ if \quad \theta^{**} \leq \theta \leq \underline{\theta} + 1 \end{cases}$$

the optimal mechanism is made of three segments.

In the quadratic case, Martimort and Semenov (2006a) provide a sufficient condition on the distribution of types to guarantee the continuity of the optimal mechanism[6].

3.3 Optimal mechanism

In accordance with the previous lemma, the regulator's expected payoff with a continuous scheme characterized by the cut-offs θ^* and θ^{**} is $V_S(\theta^*, \theta^{**})$:

$$\int_{\underline{\theta}}^{\theta^*} \left((\theta+\mu)\theta^* - \frac{\theta^{*2}}{2}\right) f(\theta)\, d\theta + \int_{\theta^*}^{\theta^{**}} \left((\theta+\mu)\theta - \frac{\theta^2}{2}\right) f(\theta)\, d\theta + \int_{\theta^{**}}^{\underline{\theta}+1} \left((\theta+\mu)\theta^{**} - \frac{\theta^{**2}}{2}\right) f(\theta)\, d\theta\,. \tag{6}$$

On the one hand, optimizing with respect to θ^{**} yields

$$\frac{\partial V_B(\theta^*, \theta^{**})}{\partial \theta^{**}} = \int_{\theta^{**}}^{\underline{\theta}+1} (\theta + \mu - \theta^{**}) f(\theta)\, d\theta > 0\,.$$

[6]The condition $f(\theta) - \delta f'(\theta) \geq 0, \forall\theta$ guarantees the continual of the optimal mechanism, and it is equivalent to

$$\delta[2F(x) - F(x-\Delta) - F(x+\Delta)] - \int_{x-\Delta}^{x} F(y)\, dy - \int_{x}^{x+\Delta} F(y)\, dy \geq 0$$

It is thus optimal to always set $\theta^{**} = \underline{\theta} + 1$ and to rewrite V_R as a function of θ^* only. Optimizing with respect to θ^* leads to

$$\frac{\partial V_B(\theta^*)}{\partial \theta^*} = \int_{\underline{\theta}}^{\theta^*} (\theta + \mu - \theta^*) f(\theta) d\theta = 0 \ .$$

As a by-product, the optimal mechanism is characterized by a unique cut-off satisfying the following condition :

$$\mu F(\theta^*) - \int_{\underline{\theta}}^{\theta^*} F(\theta) d\theta = 0$$

If we consider the uniform distribution case, the cut-off θ^* is :

$$\theta^* = 2\mu + \underline{\theta} \tag{7}$$

The optimality of the result is guaranteed by the second-order condition

$$\mu f(\theta^*) - F(\theta^*) \leq 0 \ . \tag{8}$$

Proof : see Annex.

Proposition 1 :
The optimal mechanism is $G(\theta) = max\{\theta, \theta^*\}$ *where the cut-off parameter* θ^* *is defined by*

$$\mu = \frac{1}{F(\theta^*)} \int_{\underline{\theta}}^{\theta^*} F(\theta) d\theta = \theta^* - \frac{1}{F(\theta^*)} \int_{\underline{\theta}}^{\theta^*} \theta f(\theta) d\theta \ .$$

Communication with the informed firm becomes relevant as soon as the value of the private parameter of the agent is high. For values of θ *lower than* θ^**, the regulator chooses to ignore the information and implement a rigid policy, whereas for higher values of* θ*, the decision is delegated to the firm and the policy corresponding to his preferred choice is adopted.*

Corollary 1 :
This condition sets a cap upon the value of μ*. In the uniform distribution case, the problem exists if and only if* $0 \leq \mu \leq 0,5$*. Otherwise, if* $\mu > 0,5$*, no communication occurs.*

For values of θ lower than θ^*, the regulator prefers not to take into account the information that the firm is likely to deliver her and to implement a uniform policy independent from consumers' preferences. For higher values of the private parameter, the public decision maker delegates the decision to the firm.

4 Introduction of informational asymmetries between the agent and the firm

The first step consists in finding the firm preferred policy (when the firm has to give up a rent to the consumer in order to bring her incentives to reveal her information). The second step is the application of the optimization process to the regulator programme.

4.1 Virtual ideal point of the firm

As the interests of the agents and those of the firm are not necessarily aligned, a rent must be left to the agents in order to induce them to reveal their private parameter :

$$S(\theta) = \max_{\{\widehat{\theta}\}} \int_{\underline{\theta}}^{\underline{\theta}+1} \left(\theta G\left(\phi\left(\widehat{\theta}\right)\right) - p\left(\widehat{\theta}\right)\right) f(\theta)\, d\theta.$$

The side-mechanism can be written as

$$\max_{\{S(\cdot),\phi(\cdot)\}} \int_{\underline{\theta}}^{\underline{\theta}+1} \left(\theta G(\phi(\theta)) - \frac{G^2(\phi(\theta))}{2} - S(\theta)\right) f(\theta)\, d\theta \text{ s.t. } \dot{S}(\theta) = G(\phi(\theta)) \ , \ S(\theta) \geq 0 \quad (9)$$

Which amounts to the following programme

$$\max_{\{\phi(\cdot)\}} \int_{\underline{\theta}}^{\underline{\theta}+1} \left(-\frac{G^2(\phi)}{2} + \theta G(\phi) - \frac{1-F(\theta)}{f(\theta)} G(\phi)\right) f(\theta)\, d\theta \ .$$

Pointwise optimization with respect to ϕ yields

$$G_F^{AI}(\theta) = \theta - \frac{1-F(\theta)}{f(\theta)}, \quad \text{for} \quad \phi^* = \theta \quad (10)$$

In the uniform case, the firm 's virtual ideal point is $G_F^{AI}(\theta) = 2\theta - \underline{\theta} - 1$ (whereas in the perfect information case, $G_F^{IP}(\theta) = \theta$).

Proposition 3 :

With a uniform distribution function, mechanisms are continuous : $\dot{G}(\theta)\left[2\theta - \underline{\theta} - 1 - G(\theta)\right] = 0$, *and the optimal mechanism can be written as* $G_F^{AI}(\theta) = \min\left\{\widehat{\theta},\ \max\left\{2\theta - \underline{\theta} - 1, \widehat{\widehat{\theta}}\right\}\right\}$, *with* $\widehat{\theta} < \widehat{\widehat{\theta}}$.

The preferred point of the firm is lower in the framework involving asymmetries of information than in the perfect information case : $G^{AI}(\theta) < G(\theta)$, which means that she's more sensitive to the type of the agents and praises it more relevant to take into account their information. The preferred point is lower because of the information rent left to the consumer to learn her parameter.

4.2 Which communication between the regulator and the firm ?

The programme of the regulator is

$$\max_{\{U(\cdot),G(\cdot)\}} \int_{\underline{\theta}}^{\underline{\theta}+1} \left((\theta+\mu) G(\theta) - \frac{G^2(\theta)}{2} \right) f(\theta)\, d\theta \text{ subject to } G(\theta) = \min\left\{ \widehat{\theta},\ \max\left\{ 2\theta - \underline{\theta} - 1, \widehat{\widehat{\theta}} \right\} \right\} \tag{11}$$

The cut-off is thus

$$\widehat{\theta} = \underline{\theta} + \frac{4}{3}\boldsymbol{\mu} + \frac{1}{3} \tag{12}$$

See Annex 3 for details.
In this case, the cut-off value is higher than in the perfect information setting : $\widehat{\theta} > \theta^*$.

Proposition 4 : *In a framework involving informational problems, there is less communication between the regulator and the firm. The regulator is less eager to delegate the choice of the appropriate CSR level to the firm. There is less bargaining and room of manoeuvre left to the firm, the conflict of interests may be steeper. As a result, the regulator extends the set within which he commits to a more rigid policy, communication-independent but closer to her preferred ideal point. Information asymmetry extends the regulation set.*

When the regulator maximizes an objective function made of consumers' preferences, firms' benefits and externalities, she more implements a uniform policy independent from information. The divergence in objectives is greater, which renders communication less attractive. Delegation looks optimal when the degree of congruence is strong. Besides, the regulator prefers developing the firm discretion if she wants decisions to be sensitive to consumers private parameter.

5 Introduction of a bias in the objective function of the regulator

The regulator can be biased towards the satisfaction of some agents, she can for instance be biased towards consumers.

$$V_R(\cdot) = \mu G + V_F + (1+\beta) S$$

with $\beta \geq 0$ designing the additional weight put on stakeholders.

The programme of the policymaker thus writes

$$\max_{\{S(\cdot),G(\cdot)\}} \int_{\underline{\theta}}^{\underline{\theta}+1} \left((\theta+\mu) G(\theta) - \frac{G^2(\theta)}{2} + \beta S(\theta) \right) f(\theta) \, d\theta \tag{13}$$

$$\text{ST } G(\theta) = \min \left\{ \overline{\theta}, \ \max \left\{ \theta - \frac{1-F(\theta)}{f(\theta)}, \underline{\overline{\theta}} \right\} \right\}$$

The optimal continuous mechanism characterized by the threshold $\overline{\theta}$ yields a cut-off value which is lower than the one corresponding to the informed firm case. There is more communication, a greater convergence in their interests and a huge sensitivity of both firm and regulator to the consumers' type. Their objectives are more aligned which justifies delegation.

Proposition 1 *When the regulator displays a bias in favour of the firm stakeholders, more communication takes place between between herself and the firm, with a greater room for manoeuvre left to the latter in terms of decision making. Indeed, the regulator needs to know the preferences of the agent, which implies to rely more heavily upon the firm.*

6 Conclusion

When private information of a social group is relevant for a decision that can be made by a public authority, if the firm providing the product consumed by her stakeholders knows this information, then the regulator will rely on this knowledge to take her decision. She will apply a rigid policy only for low values of this parameter. Yet, when the firm does not know this information but can learn it, the communication degree decreases as, on the one hand, she is likely to manipulate the information she has to report to the regulator and, on the other hand, she may not discover this information, which may deter the regulator to rely upon her expertise. As a result, the implementation of the firm preferred policy will substitute to regulation only over a restricted set. However, if the decisionmaker displays a bias, the communication scheme can be modified. If consumers' satisfaction is more heavily weighted, she will have to learn this information to define a relevant policy and she will more delegate the decision to the company.

The firm benefits all the more from discretion as her objectives are close to those of the policymaker.

This work could go further and tackle the permanence of virtuous behaviours and the consistence of actions undertaken, especially as regards CSR multi-dimension. Indeed, some actors simultaneously seem to lead responsible actions in some CSR dimensions and less virtuous actions especially in few exposed sectors. This would lead us to wonder whether the existence of counter-productive behaviours aiming at going beyond regulatory constraints or stakeholders' expectations in some CSR domains in order to be more free to behave irresponsibly in other fields should be feared. The moral compensation theory considers that performing a good deed could lessen this agent motivation to maintain this behaviour and excuse her for undertaking less virtuous actions after. This is a licensing effect, as highlighted by Monin and Miller (2001).

7 References

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8 Annexes

8.1 Annex 1 : Mechanism design without transfer

The seminal work of all this literature is Holmström (1984). Following Holmström (1984), the paper from Melumad and Shibano (1991) examines whether the introduction of communication in mechanisms design without transfer may be conducive to a Pareto optimal outcome.

A principal must implement a policy under uncertainty and can consult an agent, who possesses some relevant information concerning the decision to be made but who can have different preferences. Both players have non-monotonic preferences, which permits to capture potential conflict of interest. It is assumed that the principal takes into account the satisfaction of the whole society, which may trigger some divergence. A bias $\mu > 0$ is thus introduced.

In a one-dimensional space, the agent has private information with regard to a policy-relevant parameter : θ, drawn from a uniform distribution on Θ, but the principal is the only one that can make the decision : $x \in R$.

The quadratic payoffs of the agent and of the principal are respectively

$$\begin{aligned} U_A(x,\theta) &= -\frac{1}{2}(x-\theta)^2 \\ U_P(x,\theta) &= -\frac{1}{2}(x-\theta-\mu)^2 . \end{aligned}$$

An optimal decision rule can be determined.

Without loss of generality, it can be considered that the principal offers a truthful direct revelatory mechanism $x\left(\widehat{\theta}\right)_{\widehat{\theta}\in\Theta}$. He commits to a mapping $x\left(\widehat{\theta}\right)$, i.e. for each $\widehat{\theta}$ announced by the agent, the policy $x\left(\widehat{\theta}\right)$ must be implemented. As a result, the potential conflict of interests gives rise, for the principal, to a trade-off. On the one hand, the principal can choose to communicate with the agent in order to learn her private feature and implement a more appropriate policy, at the expense of some control loss. On the other hand, the decisionmaker can define a rigid policy unresponsive to the agent's preferences but closer to the principal's ideal point.

The optimal mechanism is a compromise between both strategies. The first one corresponds to a separating mechanism implementing the agent's preferred choice $x(\theta) = \theta, \forall\theta$, whereas the choice of a rigid policy corresponds to a pooling scheme where $x(\theta) = x, \forall\theta \in \Theta$. With θ_1 and θ_2 designing the boundaries of the segment where the policy adopted corresponds to the agent's ideal point, following the minmax rule of Moulin (1980)[7], the optimal continuous mechanism is weakly increasing and combines segments where the policy decided by the principal is independent from the agent's report and segments where the ideal choice of the latter is implemented.

$$x(\theta) = \min\{\theta_2, \max(\theta, \theta_1)\}, \theta_1 < \theta_2 .$$

[7]Moulin H. (1980) : "On Strategy-Proofness and Single-Peakedness", Public Choice, 35, pp.437-455.

The agent preferred alternative is chosen if $\theta_1 < \theta < \theta_2$, i.e. she is offered the range of decision $[\theta_1; \theta_2]$, whereas if $\theta < \theta_1 (\theta > \theta_2)$ the policy implemented is θ_1(resp. θ_2).

An incentive-compatible decision rule is showed to be weakly increasing and consisting of segments where the policy is independent from the sender's report and segments where the decision prescribed by the incentive rule is equal to the sender's first best. When both players' sensitivities to the environment are negatively related, communication is valuable (provided that a preference reversal takes place). When players' sensitivities are similar, the optimal decision rule is continuous. Martimort and Semenov (2006a) provide a sufficient condition on the distribution of the agent's type that guarantees the continuity of the optimal mechanism. In a quadratic preferences setting, they show that the principal always benefits from communication on the upper tail of the distribution whereas pooling is preferred on the lower tail. This property is ensured by log-concavity (the optimal mechanism is partial delegation).

Alonso and Matouschek (2005) also characterize the optimal decision rule for general single-peaked utility functions satisfying the single-crossing property. The commitment power is endogeneized. They show that interval delegation is optimal if both players' preferences are similar enough. Indeed, it can be beneficial for the principal to raise the discretion of the agent if their interests are relatively congruent.

In a model related to Aghion and Tirole (1997) where the principal can delegate formal authority to an agent and thus provide him with incentives to try to learn information[8], Dessein (2002) proves that the principal is better off when he can commit to complete delegation, especially if the agent's bias is small enough relative to her informational advantage.

Another kind of solution can emerge : a veto-based delegation mechanism. Likewise, Mylovanov (2004) shows that when a principal faces a trade-off between delegating a decision to the better informed agent and preventing her potential opportunistic behaviour, the optimal arrangement consists in the agent making a recommendation and the principal deciding whether to enforce it or to veto it. In such a case, the principal takes into account the information sent by the agent and updates his beliefs.

Martimort and Semenov (2006b) introduce the existence of many agents. The paper examines the informational role of lobbying in a model considering that many interest groups take part to a decision process concerning a one-dimensional policy choice. Each one possesses a privately known ideal point. The principal faces a trade-off between learning them through communication or implementing an information-independent policy closer to his ideal point. The mechanism design approach allows analyzing the communication patterns that may emerge from various kinds of organization among these agents. Two forms of cooperation can take place : a strong coalition within which interest groups perfectly share information and a weak coalition where incentive compatible collusive mechanisms must be designed. A screening effect appears when interest groups compete, pointing out that one of them can see her preferred policy be implemented. If they form a strong coalition, information communication is improved (this is an informativeness effect). This form is superior when the conflict of interest is weak, whereas competition turns optimal when lobbies have highly diverging preferences.

Also considering the existence of many agents, Glazer and Rubinstein (1998) analyze a

[8] A trade-off takes place between the loss of control triggered by such delegation and the incentives given to the agent in order to get him to make an effort to acquire information.

mechanism without transfer when a given target must be achieved and the different agents involved in the game are driven by diverging motives. A decision has to be made according the recommendations of experts, each of them holds some piece of information about the social desirability of the action to undertake. The social target cannot be met if all agents are driven only by a public motive (i.e. they are only interested in social objectives), whereas a combination of benevolence and private interests can bring the outcome closer to the implementation of the social target.

8.2 Annex 2 : proof of the optimality of the result in the benchmark case

Let's have

$$\begin{aligned}\mu(\theta) &= \frac{1}{F(\theta)}\int_{\underline{\theta}}^{\theta} F(x)\,dx \\ \dot{\mu}(\theta) &= 1-\frac{f(\theta)}{F^2(\theta)}\int_{\underline{\theta}}^{\theta} F(x)\,dx = 1-\frac{f(\theta)}{F(\theta)}\mu(\theta)\ .\end{aligned}$$

$F(\cdot)$ is log-concave, we can rewrite

$$\mu(\theta) = \frac{1}{F(\theta)}\int_{\underline{\theta}}^{\theta}\frac{F(x)}{f(x)}f(x)\,dx = \frac{F(\theta)}{f(\theta)} - \frac{1}{F(\theta)}\int_{\underline{\theta}}^{\theta}\frac{d}{dx}\left(\frac{F(x)}{f(x)}\right)F(x)\,dx < \frac{F(\theta)}{f(\theta)}\ .$$

Thus

$$\frac{f(\theta)}{F^2(\theta)}\int_{\underline{\theta}}^{\theta} F(x)\,dx = 1-\dot{\mu}(\theta) = \frac{f(\theta)}{F(\theta)}\left[\frac{F(\theta)}{f(\theta)} - \frac{1}{F(\theta)}\int_{\underline{\theta}}^{\theta}\frac{d}{dx}\left(\frac{F(x)}{f(x)}\right)F(x)\,dx\right]$$

$$\frac{f(\theta^*)}{F(\theta^*)}\int_{\underline{\theta}}^{\theta^*} F(\theta)\,d\theta = F(\theta^*) - \frac{f(\theta^*)}{F(\theta^*)}\int_{\underline{\theta}}^{\theta^*}\frac{d}{d\theta}\left(\frac{F(\theta)}{f(\theta)}\right)F(\theta)\,d\theta < F(\theta^*)\,,$$

as the second part of the RHS of the inequity is nonnegative. ■

8.3 Annex 3 : Which communication between the regulator and the firm ?

The programme of the regulator is

$$\max_{\{U(\cdot),G(\cdot)\}} \int_{\underline{\theta}}^{\underline{\theta}+1} \left((\theta+\mu) G(\theta) - \frac{G^2(\theta)}{2} \right) f(\theta)\, d\theta \text{ subject to } G(\theta) = \min\left\{ \widehat{\theta},\ \max\left\{ 2\theta - \underline{\theta} - 1, \widehat{\widehat{\theta}} \right\} \right\}$$

Considering the uniform distribution case, $V_R\left(\widehat{\theta}, \widehat{\widehat{\theta}}\right)$ can be written as

$$\int_{\underline{\theta}}^{\frac{1}{2}\left(\widehat{\theta}+\underline{\theta}+1\right)} \left((\theta+\mu)\widehat{\theta} - \frac{\widehat{\theta}^2}{2} \right) f(\theta)\, d\theta + \int_{\frac{1}{2}\left(\widehat{\theta}+\underline{\theta}+1\right)}^{\frac{1}{2}\left(\widehat{\widehat{\theta}}+\underline{\theta}+1\right)} \left((2\theta - \underline{\theta} - 1)\left(\theta + \mu - \frac{2\theta - \underline{\theta} - 1}{2} \right) \right) f(\theta)\, d\theta$$
$$+ \int_{\frac{1}{2}\left(\widehat{\widehat{\theta}}+\underline{\theta}+1\right)}^{\underline{\theta}+1} \left((\theta+\mu)\widehat{\widehat{\theta}} - \frac{\widehat{\widehat{\theta}}^2}{2} \right) f(\theta)\, d\theta \ .$$

$\widehat{\widehat{\theta}}$ must be set at the upper limit of the interval as $\dfrac{\partial V_R\left(\widehat{\widehat{\theta}}\right)}{\partial \widehat{\widehat{\theta}}} = \displaystyle\int_{\frac{1}{2}\left(\widehat{\widehat{\theta}}+\underline{\theta}+1\right)}^{\underline{\theta}+1} \left(\theta + \mu - \widehat{\widehat{\theta}} \right) f(\theta)\, d\theta >$ 0.

Optimizing with respect to $\widehat{\theta}$ gives the following result :

$$\frac{\partial V_R\left(\widehat{\theta}\right)}{\partial \widehat{\theta}} = \int_{\underline{\theta}}^{\frac{1}{2}\left(\widehat{\theta}+\underline{\theta}+1\right)} \left(\theta + \mu - \widehat{\theta} \right) f(\theta)\, d\theta = 0 \ .$$

The roots of the corresponding second-degree equation are

$$\begin{aligned} \widehat{\theta}_1 &= \underline{\theta} - 1 \notin \Theta \\ \widehat{\theta}_2 &= \underline{\theta} + \frac{4}{3}\mu + \frac{1}{3} \in \Theta. \end{aligned}$$

The cut-off is $\widehat{\theta}$=$\underline{\theta}$+$\dfrac{4}{3}\boldsymbol{\mu}$+$\dfrac{1}{3}$. In this case, the cut-off value is higher than in the perfect information setting : $\widehat{\theta} > \theta^*$.

8.4 Annex 4 : Which communication when the regulator is biased towards stakeholders (agents) ?

The objective of the principal can be written as follows :

$$\begin{aligned} V_R\left(\overline{\theta},\overline{\overline{\theta}}\right) &= \int_{\underline{\theta}}^{\frac{1}{2}\left(\overline{\theta}+\underline{\theta}+1\right)} \left(\left(\theta+\mu-\beta\frac{1-F(\theta)}{f(\theta)}\right)\overline{\theta}-\frac{\overline{\theta}^2}{2}\right) f(\theta)\,d\theta \\ &+ \int_{\frac{1}{2}\left(\overline{\theta}+\underline{\theta}+1\right)}^{\frac{1}{2}\left(\overline{\overline{\theta}}+\underline{\theta}+1\right)} \left(\left(\frac{\theta}{2}+\mu-\beta\frac{1-F(\theta)}{f(\theta)}\right)\left(\theta-\frac{1-F(\theta)}{f(\theta)}\right)-\frac{1}{2}\left(\theta-\frac{1-F(\theta)}{f(\theta)}\right)^2\right) f(\theta)\,d\theta \\ &+ \int_{\frac{1}{2}\left(\overline{\theta}+\underline{\theta}+1\right)}^{\underline{\theta}+1} \left(\left(\theta+\mu-\beta\frac{1-F(\theta)}{f(\theta)}\right)\overline{\overline{\theta}}-\frac{\overline{\overline{\theta}}^2}{2}\right) f(\theta)\,d\theta\ . \end{aligned}$$

The first-order condition indicates that it is optimal to always set $\overline{\overline{\theta}}=\underline{\theta}+1$.

As a by-product, the problem can be rewritten as a function of $\overline{\theta}$ only.

The optimal continuous mechanism characterized by the threshold $\overline{\theta}$ thus yields a cut-off value $\dfrac{-12+8\beta+2\mu-14\underline{\theta}+10\beta\underline{\theta}+\sqrt{\Delta}}{2+10\beta}$

with $\Delta=\underline{\theta}^2\left(192-320\beta\right)+\underline{\theta}\left(368-336\beta-64\mu\right)+132+4\beta^2+4\mu^2-72\mu-264\beta-88\beta\mu$