Department of Economics

Economic Perspectives on Corporate Social Responsibility

Markus Kitzmueller

Thesis submitted for assessment with a view to obtaining the degree of
Doctor of Economics of the European University Institute

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DEDICATION

To Graciela

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Introduction

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What is Corporate Social Responsibility (CSR) and how can we explain the phenomenon from an economic perspective? Is there a business case for CSR and was Milton Friedman right when writing in the New York Times in 1970 that "the social responsibility of business is to increase its profits"? Chapter 1 of this thesis will address all these questions and create a coherent conceptual framework for further analysis in the subsequent chapters. In this function it will serve as a natural introduction to the economics of CSR. One of the main issues emerging from the literature on CSR is the need to identify and explore a new kind of classical dichotomy, i.e. the trade off between market provision of public goods via CSR and its public counterpart via regulation. The two theoretical essays that follow will focus on novel and potentially unexpected interaction between firm strategy and classical regulation in light of CSR and imperfect information, thereby suggesting the need to revise and eventually adapt the traditional use of public policy or to think about completely new policy tools.

Chapter 2 refers to CSR as the corporate provision of public goods along with private goods. Firms are heterogenous in types and vary in terms of (1) how well CSR is integrated into a corporation's long term profit maximizing strategy, i.e. its mission or culture, and (2) corporate ability to influence CSR costs. While costs are time variant and likely to change, culture is assumed to be constant over time. Demand faced by a firm depends on the motivation underlying its CSR efforts in the sense that consumers prefer to buy from firms with a CSR culture due to sustainability of levels of CSR over time. However, firm type is private information, while CSR can be observed each period. It follows that CSR becomes a strategic signal that will determine *reputation* and, therefore, future demand. The introduction or marginal increase of a CSR stimulus in form of a firm subsidy might affect the signaling power of CSR with respect to corporate mission. In equilibrium, there exist positive levels (intervals) of subsidy that do not increase CSR significantly or even can crowd out strategic CSR.

Chapter 3 develops a simple baseline model to analyze the interaction between strategic CSR provision, international firm location and national regulation. An information based strategic CSR mechanism is proposed to shed light on recent firm behavior within different regulatory environments. The main insight derived is that in the presence of firms with geographic flexibility and market provision of an international public credence good, unilateral (i.e. non cooperative) regulatory scope depends upon (1) the absolute probabilities to verify firms' CSR levels within different geographic and institutional environments and (2) the differential between these probabilities. These relative information asymmetries determine not only the market levels of the public good produced under autarky, but also the relocation in-

centives of multinational firms facing national regulation that aims at improving CSR levels. Hence, a government's ability to regulate above CSR levels decreases with the absolute level of foreign information quality, while it increases in the relative (positive) difference between its home and the aforementioned foreign probability to observe firm conduct. This may explain mixed evidence of theoretic propositions such as the Pollution Heaven Hypothesis and Race to the Bottom dynamics.

Part II

Economic Perspectives on Corporate Social Responsibility

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CHAPTER 1

ECONOMICS AND CORPORATE SOCIAL RESPONSIBILITY

1.1   Introduction

The Corporation not only constitutes the driving gear of today's economic and financial clockwork, but also appears to be inseparably linked to the production of many social, environmental and ethical goods, bads or externalities. Economic development continuously increased scale and scope of markets and firms to the unprecedented benefit of society at large, however, at the cost of involving a similar rise in negative effects and public bads in the form of environmental degradation, exploitation of labour or recent excessive risk taking in the financial sector to name a few. Although governments are expected to correct such behavior and restore the welfare optimum, firms have invested ever more resources in business related public good provision or reduction of negative externalities beyond requirements by law and regulation. Such behavior has been termed *self regulation, Corporate Social Responsibility (CSR)*, or *beyond compliance,* and has puzzled many economists and observers. Surveys found that two out of three people want companies to go beyond profit maximization and contribute to broader society goals and almost 60 per cent mention factors related to a company's broader responsibilities - labor practices, business ethics, responsibility to society at large, or environmental impacts to be important determinants of their opinion about a firm[1]. In the UK, 70% of consumers state that they are willing to pay more for a product that they perceive as ethically superior[2], while half of American consumers say their perception of a company led them to consider rewarding or punishing a company by purchasing or not purchasing its products or services, or by speaking up for or against an organization[3]. Large pension funds allocate their investment based on CSR reports and ratings such as those provided by GMI[4] in the US or KLD[5], and organizations such as the Council of Institutional Investors (CII) or the Association of British Insurers (ABI), which control

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[1] The Millennium Poll on CSR is the largest global survey of public expectations of corporations and was conducted in 1999, interviewing over 25,000 individuals across 23 countries on six continents.

[2] IPSOS MORI (2003).

[3] Millenium Poll (1999)

[4] Governance Metrics International produces in depth ratings on CSR and governance on 2000 companies worldwide. Its client base includes Atate Street Bank, TIAA-CREF and ABP, the largest pension fund in Europe.

[5] Kinder, Lydenberg and Domini is a firm rating the social performance of firms . A social index based on the Russell 1000 Index, which covers more than 90% of US stock market capitalization, is constructed.

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approximately \$1.5 trillion and \$1 trillion respectively, have each issued statements that CSR is a key factor of long-term financial success. The US Social Investment Forum[6] reports 10.8% of total investment under professional management in 2007 to be socially responsible, featuring a growth rate of 324%[7] between 1995 and 2007 as opposed to total investment growth of "only" 258%[8]. In Europe, the European Sustainable and Responsible Investment Forum (EuroSIF) identifies €336 billion in assets to be SRI. Business Schools have started to integrate CSR and Sustainability into their core curricula and governments, international organizations and the media are fully engaged into public discussions about how CSR can and should be integrated into development policy and regulatory strategy. Based on this extraordinary increase in scale and scope of social and environmental corporate involvement, social scientists in general and economists in particular have started to investigate CSR with the result of insights and hypotheses lying around like scattered jigsaw pieces. Therefore, in order to gain a more complete picture, this paper aims to clarify *what* is known and *where* Economics has arrived in modeling CSR. To that end, various research efforts in theoretical economics (and to some extent empirical work) are reviewed and translated into one coherent framework and linked in novel ways to establish a consistent account of CSR research.

The well known incapacity of markets to assure efficient pricing of non-private goods or bads led those individuals with preferences for efficient provision of public goods to turn to governments and regulators. Clearly, some people attach value to a clean environment, fair trade or financial stability, but markets have a comparative advantage in dealing with private goods, lacking incentives to produce efficient amounts of public goods and externalities. Hence, firms could not be expected to act socially or environmentally responsible and even "market purists" such as Milton Friedman advocated government intervention based on public preferences and democratic empowerment. This division of labor became generally known as the *classical dichotomy*, a concept that immured the different notions of corporate and government responsibility vis-a-vis society. In recent decades, however, firms have started to breach this dichotomy by engaging into CSR. Immediate theoretical questions to be asked include what are the incentives underlying CSR, or what are the implications for welfare and the classical dichotomy? Empirical challenges involve measurement, magnitude and statistical significance of CSR as well as the creation of a sound framework for testing hypotheses derived from CSR theory. Although CSR naturally emerges as an interdiscipli-

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[6] The US Social Investment Forum is the national trading body for Socially Responsible Investment (SRI). The figures are taken from the Forum's *2005 SRI Trends in the US* report.
[7] from US\$ 0.639 to 2.71 trillion
[8] from US\$ 7 to 25.1 trillion

nary research field involving management[9] and political science, sociology or law, *Economics* appears to be uniquely placed to contribute to its structured and integrative analysis. Given the "public nature" of social or environmental performance, public economics may serve as a departing platform to understand the basic mechanism ruling private, here corporate, provision of public goods. Behavioral economics and game theory can enlighten strategic interactions between stakeholders, shareholders and firms, while information economics and contract theory are able to integrate information asymmetries into the analysis of CSR. Industrial organization can account for CSR effects on strategic interaction among firms and the resulting market structure, while econometrics and experimental economics may bridge theory and empirical CSR reality.

In 1970, Friedman put any discussion about corporate social responsibilities other than profit maximization to a temporary halt. Eventually, however, evidence began to surface that justified reconsideration and discussion of the neoclassical firm paradigm[10] and the classical dichotomy. Surveys confirm that a substantial share of consumers features preferences for social or environmental corporate performance independent of law and regulation. A recent US survey by Fleishman-Hillard and the National Consumers League finds that technology is changing the landscape in which consumers gather and communicate information about CSR. In detail, 52% of all respondents seek information about a company's CSR record all the time or sometimes, while internet access in general has created a *more informed, more empowered consumer...searching for an unfiltered view of news and information.* Managers now consider CSR to be an essential building block of firm strategy. If firms decide to engage in costly social or environmental behavior beyond regulatory levels, then why would they *voluntarily* incur these costs and how could such behavior be strategic? The rise of Socially Responsible Investment (SRI) and complementary indices[11] suggests that some investors base their investment decisions not only on financial, but also on other, social and environmental, performance criteria. Workers may consider non-financial corporate behavior or mission to be a decisive criterion in addition to classical pecuniary incentives when choosing between potential employers, thereby inducing firms such as IBM, General Motors or Microsoft to actively inform potential employees about their CSR efforts[12]. In addition, the public discussion about CSR as advertisement or *green washing* and the associated quest

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[9]For a comprehensive investigation of the status of CSR research within the management literature see Lockett, Moon and Visser (2006).

[10]The ultimate question here is whether CSR constitutes a sacrifice of "counterfactual" profits or not. Clearly CSR is a cost that always reduces profits, however, if in its absence profits had been smaller, CSR would have relatively increased profits.

[11]So called *ethical* (stock market) indices include KLD Domini 400 Social Index, Dow Jones Sustainability Index, or the FTSE4Good Index.

[12]See Turban and Greening (1997 and 2000)

for credibility via certification[13] and partnerships between firms and non-profits, auditors or governments[14] point towards an important role of information asymmetries and reputation in the market for CSR. This piecemeal of initial clues ultimately led observers to describe CSR as o*ne of the social pressures firms have absorbed*[15] and to *have become a mainstream activity of firms*[16]. If this interpretation is correct, then it will be crucial to determine how significant an economic phenomenon CSR really is, what welfare effects it entails, why and under which circumstances it occurs, and how it may interact with various institutional and legal frameworks governing economic exchange. Along these lines, the focus of ongoing research into CSR recently started to shift from *whether* CSR should exist to *how* it affects the economy, further stressing the need of analytical machinery to better understand the mechanisms underlying CSR.

The remainder is structured as follows: Sections *2* will be dealing with the development of theoretical analysis of CSR. *2.1* defines CSR and discusses the classical dichotomy between the public and private sectors in light of CSR. *2.2* identifies and structures the contribution of economic theory to the field so far. The main endeavor is to motivate and integrate the role of preferences in the emergence and economic justification of CSR[17], and to support the resulting categorization of CSR. A structured overview of distinctive theoretic explanations of strategic CSR follows in 2.3. Section 3 will shortly outline some of the empirical issues and give a preliminary idea of what has been addressed in the scarce empirical literature on CSR. Section 4 concludes.

1.2 Theoretical Inventory

> *"It is the theory that decides what can be observed"* Albert Einstein

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[13] The number of certifications in both OECD countries and emerging market economies has been increasing steadily as shown in OECD Working Paper on International Investment No 2005/3 (Baskin and Gordon 2005), while 25% of all Global Fortune 500 and nearly 10% of all S&P100 companies report in detail on their CSR activities.

[14] E.g. the UK, Japan, Australia, Canada, France, The Netherlands, South Africa and all Scandinavian countries, international organizations such as the Japanese Development Bank, OECD or the Worldbank among others. The joint effort to establish a common framework for corporate Social Auditing, Accounting and Reporting (SAAR) led to several big joint public-private ventures such as the Global Reporting Initiative (GRI) or Institute of Social and Ethical Accountability (ISEA).

[15] John Ruggy (Harvard University) in the Economist (January 17) 2008 special report on CSR.

[16] See The Economist (January 19, 2008): *Just good business - A special report on corporate social responsibility* and The Economist Intelligence Unit (2005) Global Survey asking 136 senior executives and 65 institutional investors to assess the importance of CSR.

[17] In a nutshell, actual as well as future shareholders (investors) can be profit (money) oriented or have social and environmental preferences. The same is true for consumers, while workers may be extrinsically and/or intrinsically motivated.

1.2.1 From Definition to Analysis

Before entering economic analysis, the stage has to be set by defining Corporate Social Responsibility. In practice, a variety of definitions of CSR exists. The *European Commission* (2002)[18] defines Corporate Social Responsibility as "a concept whereby companies integrate social and environmental concerns in their business operations and in their interaction with their stakeholders on a voluntary basis". The *Worldbank* states: "CSR is the commitment of businesses to behave ethically and to contribute to sustainable economic development by working with all relevant stakeholders to improve their lives in ways that are good for business, the sustainable development agenda, and society at large".[19] A notion similar to "voluntary behavior" can be found in definitions of CSR that refer to either "beyond compliance" such as those used by Vogel (2005) or McWilliams and Siegel (2001), who characterize CSR as "the fulfillment of responsibilities beyond those dictated by markets or laws", or to "self regulation" as suggested by Calveras et al. (2006) among others. These attempts to define CSR reveal two basic conceptual features: First, CSR manifests itself in some observable and measurable behavior or output. The literature frequently refers to this outcome dimension as Corporate Social or Environmental Performance (CSP or CEP). Second, the social or environmental performance or output of firms exceeds levels set by obligatory regulations or standards enforced by laws[20]. In essence, CSR is *corporate social or environmental behavior that goes beyond the legal (regulatory) requirements of the relevant market(s) and/or economy(s).*

Two important notions of this definition should be noted: First, it is independent of any conjecture about the motivations underlying CSR. While Baron (2001) takes the (normative) view that "both motivation and performance are required for actions to receive *the CSR label*", we propose that linking a particular motivation to the respective performance is required for the action to receive the *correct CSR label*[21]. Second, in order to capture its complete economic relevance, this view of CSR is in line with Baron (2001) in that CSR can be market driven or "strategic" as opposed to McWilliams and Siegel (2001), who equate

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[18]Commission of the European Communities: "Communication from the Commission concerning corporate social responsibility: A business contribution to sustainable development", July 2002, COM (2002) 347 Final, p.5.

[19]For yet another definition of CSR along these lines see the *OECD's* 182 codes of conduct.

[20]Earlier attempts to develop a clear concept and establish the boundaries between definition and analysis of CSR include Locke (2002) and Mc Williams, Siegel and Wright (2006) among others. Locke (2002) structures models of CSR along two dimensions: Motivation (instrumental versus ethical) and Beneficiaries (shareholders versus stakeholders). He finds that there is significant divergence of opinion over key issues such as the role of management (contractual versus beyond contractual obligations), the relation to profits (Is CSR profit enhancing?) or the scope of responsibility (direct versus indirect effects of conduct of business).

[21]Economic Theory then is well equipped to address incentives and mechanisms beneath CSR and allows for a clear cut categorization of CSR as discussed in detail below.

CSR only with social or environmental performance "beyond market forces". However, it is precisely within the classical market framework that CSR empowers Economics to address the most challenging questions.

1.2.2 Economic Theory and the Evolutionary Understanding of CSR

The quest to understand CSR as a novel economic phenomenon began by asking (1) whether it exists, (2) when and to which extent it can be efficient, and therefore, (3) whether and when it should exist. While the fundamental former proof of existence, (1), must be established empirically, the latter two issues, (2) and (3), fit the theory agenda well. In light of the neoclassical firm paradigm, economists immediately translated (2) and (3) into one question, namely whether firms do have any social responsibility other than employing people, producing goods or services and maximizing profits. Although a simple yes or no seems within easy reach, a thorough answer will have to build upon an understanding of the mechanisms and incentives underlying CSR. Generally, such incentives derive from shareholder and/or stakeholder preferences and their role in determining firm behavior. This allows us to categorize CSR as strategic (for-profit), non strategic (not-for-profit) or even the result of market failure (here moral hazard)[22]. Once this distinction is established, the different mechanisms underlying each form of CSR can be analyzed. The focus, however, will be on market driven, strategic CSR.

1.2.2.1 Whether CSR? A New Neoclassical Dichotomy

As CSR seems to invade the formerly undisputed government task of correcting market failures inherent in the provision of public goods or reduction of negative externalities, a reevaluation of the classical dichotomy[23] between state and market is in order. When looking at firms' social or environmental performance, the result can be characterized as non rival or non excludable to some, often varying extent[24]. Classical economic theory then suggests that firms, just as any private agent, do not have sufficient incentives to efficiently internalize the costs they cause, governments are well suited to correct such behavior through regulation or taxation, and ultimately, given perfect government and information, firms just comply. At first sight, CSR as defined above challenges this framework, but a growing literature attempts to integrate CSR into the classical public economics agenda and

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[22] A detailed discussion follows in Section 2.2.2.

[23] Milton Friedman

[24] The reduction of CO2 emmission arguably constitutes a global and pure public good. Recognition of human and worker rights in employment relationships, however, is non rival among workers within one firm, but clearly excludable, as it just benefits the subset of those agents employed by the respective corporation.

to characterize equilibrium attributes as well as relevant corollaries. First of all firms are organizations owned by shareholders, run by workers and managers and therefore conform to the broad group of private agents. Most importantly and similar to individuals, firms often produce a public good or an externality jointly with their main task to provide for private (consumption) goods or services. This may occur either in connection with the production process of private goods (e.g. less polluting technology or safe/healthy working conditions) or linked to the private good or service itself (e.g. less polluting cars or energy saving light bulbs). Therefore, parallels with earlier works suddenly shed new light on old insights. J.M. Buchanan (1999) referred to the joint provision of a public and private good as an "impure public good", and relevant insights such as those derived by Bergstrom, Blume and Varian (BBV 1986) in their seminal paper on the private provision of public goods can be readily translated into the CSR framework. BBV (1986) focused on the interaction between public and private, in their framework voluntary individual, provision of the public good and the effect on overall levels of provision, and concluded that public provision crowds out its private counterpart almost perfectly. The crucial condition driving this result is that private and public provision are perfect substitutes in consumption. Along these lines Kotchen (2006) compares joint corporate provision of private and pure public goods in "green markets"[25] and separate provision of either[26], leading him to the similar conclusion that the very same crowding out takes place between corporate provision and individual (what BBV called "private") provision and may even lead to an overall reduction in the level of the public good if the public good is a gross substitute for the private good characteristic. The effect of an introduction of a green market on demand for the public good is driven by a price effect that proves to be always positive if the private and public goods are complements in consumption, but may be negative if they are substitutes depending upon preferences, income distribution and the green technology. In this context, the occurrence of corporate public good provision in equilibrium can be interpreted as a welfare enhancing, neutral or reducing shift between competing supply channels. Remembering the strict division of labor between government and firm envisioned by the classical dichotomy, Rose-Ackerman (1996) phrases the problem as the *blurring of the analytically motivated division between for-profit, nonprofit and public sectors in reality*. Similarly, Besley and Ghatak (BG 2001) notice that public goods provision has dramatically shifted from public to mixed or complete private ownership in recent years. Their analysis then leads to the conclusion that in a world of

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[25]The definition of a "green" market is based on technologies with joint production of a private good and an environmental public good, i.e. a kind of "green" impure public good.

[26]This could be the consumption of the conventional version of the private good without any public component and the separate contribution to the associated environmental public good via a donation.

incomplete contracts[27] a public good (project) should be owned simply by the party that "values the benefits generated by the related investments relatively more", a result that is based on the seminal work by Hart[28] and true irrespective of relative importance of the investments or other aspects of the production technology. Other works that relate CSR exclusively with public good provision include Bagnoli and Watts (2003) and Besley and Ghatak (BG 2007), who explicitly define CSR as the *corporate provision of public goods or curtailment of public bads (negative externalities)*[29]. BG (2007) outline the above mentioned direct parallel with traditional models of private provision of public goods and conclude that CSR will exactly reproduce the second best equilibrium levels of public good provision envisioned by the standard literature. Only if governments fail to deliver optimal levels of public goods will CSR be potentially efficient. In reality, however, this is an important issue. When we think of potential relative cost advantages of firms vis-a-vis governments, it appears straightforward to conclude that if economies of scope on the corporate side are absent, i.e. firms produce public goods relatively more expensive, tasks should be segregated into specialized organizations (governments provide public goods and firms private ones), while otherwise CSR is an efficient way of delivering public goods. Of course governments can be opportunistic or corrupt, thereby creating obvious inefficiencies. This is related to government's distributional preferences, democracy and regulatory redistribution, where a non trivial but crucial trade off influences the relative efficiency of market, i.e. CSR, and government provision of public goods. A simple thought experiment shall help to grasp the issue at hand, BG (2007) call it the feasibility and desirability of CSR, and underline its immediate importance to those authorities involved in the mechanism design of public good provision.

At the core of this approach is the tension between heterogeneous preferences (of both firm stakeholders, here consumers, and non-stakeholders) and the redistributional implications of uniformly imposed regulation or taxation, i.e. there is the potential for (1) divergence between public good levels supplied by government and CSR, or, ceteris paribus, (2) differing allocation of costs of the public good. Assume for a moment that a firm only takes into account preferences of those groups that are relevant for their profits (e.g. consumer preferences). This will most likely be a subgroup of society at large. Then, if the public good is *intrinsically bundled* with the firm (BG 2007), i.e. direct public production of the public good is not feasible,the government can assure its provision only via uniform regulation and

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[27]Imcomplete her refers to the fact that investments related to public goods provision are often noncontractible.

[28]Grossmann and Hart (1986) and Hart and Moore (1990)

[29]Note however the absence of relativity to regulation or law.

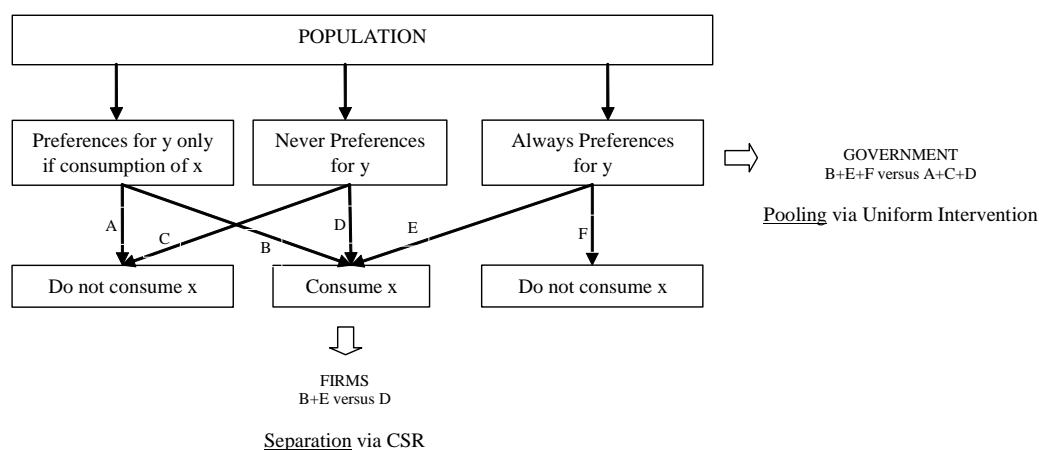various trade offs may arise. The following short analysis is summarized in Figure 1.

Figure 1: CSR and Welfare

Let there be three kinds of people: those with general preferences for the public good ("caring" groups E and F), those without such preferences ("neutral" groups C and D) and finally those with conditional preferences related to their consumption pattern ("caring if consuming" groups A and B)[30]. A firm only cares about consumers and in the absence of regulation markets would be able to reach a separating equilibrium as in BG (2007). Some firms would engage in CSR, charge higher prices and cater to "caring" consumers B and E, others would abstain from public goods production, charge lower prices and sell only to neutral consumers D. A democratic government running for re-election, however, faces a contorted trade off between augmented target groups $(B + E + F)$ and $(A + C + D)$. Depending on which group constitutes a majority, a government will pool and either impose a uniform regulatory standard on all firms or not intervene at all. If a majority of voters is neutral, CSR constitutes a Pareto improvement achieving second best levels of public good provision without harming neutral consumers. Should caring voters outnumber their neutral counterparts, a uniform regulation will be imposed upon all firms, i.e. markets will be forced into a pooling equilibrium. On one hand, first best levels of public good production can be achieved depending on benevolent and fully informed government. On the other hand, however, neutral consumers will be forced to either pay a higher price for the private good or to forego consumption if prices exceed reservation values. Redistribution takes place from neutral D to caring consumers B and E, who now pay lower prices than under CSR[31], and

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[30]More generally, besides consumers the same analysis holds for investors and employees.
[31]Note that the public good here must be aggregative in nature.

governments may overprovide the public good if it calculates compulsory public good levels based on any share of the population that exceeds $B + E + F$. Group F simply freerides on total consumer contributions. Clearly. similar to BG (2007), the bigger $\frac{F}{B+D+E}$, the stronger the free riding problem. Furthermore, the larger $\frac{D}{B+E(+F)}$, the stronger the redistribution effects and eventual distortions in consumption. A positive aspect of such a regulatory intervention as opposed to direct government provision via a head tax arises from the fact that non-consumers without preferences for y, i.e. groups A and C are not affected by higher prices of x. The welfare and surplus trade offs between CSR and regulation and how they depend on the relative size of or strength of preferences of various societal subgroups remains a hot topic for further investigation[32].

Although such analysis and comparative statics are an interesting way to gain general welfare and efficiency related insights regarding market and different forms of government provision of public goods, it does not go deeper into the various mechanics of what motivates firms to invest into voluntary environmental or social behavior and how preferences can translate into relevant firm behavior. To get a more complete and ordered picture, the next section discusses the role of preferences and develops a categorization of CSR along motivational lines and across theoretical frameworks.

1.2.2.2 Why CSR? Towards a Categorization

Should firms engage into CSR, and if so, why (not)? In this respect, Milton Friedman (1970) examined the *doctrine of the social responsibility of business* and concluded that *the only responsibility of business is to maximize profits,* i.e. shareholder value, while goods or curtailment of bads (externalities) based on public preferences or social objectives should be provided by governments endowed with democratic legitimation and the power to correct market inefficiencies[33]. This view suggested that CSR was a manifestation of moral hazard towards shareholders and not only inefficient, but also inconsistent with the neoclassical firm's profit orientation. However, this conclusion might be too simplistic in the sense that, as outlined above, governments might not always be able to correct market failures due to bias, information asymmetry or corruption. This would make CSR more attractive from a total welfare perspective, however, on the organizational level of the firm, the orthogonality to profit maximization remains. But, rather than putting the discussion about CSR to a halt, Friedman's thoughts provoked a natural search for an economic justification of CSR.

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[32]The ultimate question is what is a "good" definition of welfare and to what extent is the measurement related to nature/the environment as opposed to stakeholder preferences and willingness to pay.

[33]such as Free Riding or Collective Action Problems.

The breakthrough came with the idea that CSR may actually be a necessary part of strategy for a profit maximizing firm. In other words, profit maximization can be a motivation for CSR.

But how may CSR be integrated into the objective function of the profit maximizing firm? The answer to this question builds upon the existence of preferences that are beyond those of the classical homo oeconomicus. Stakeholders such as consumers or employees and/or shareholders or entrepreneurs are often socially or, in general, intrinsically motivated, a fact that profit maximizing firms cannot ignore as it directly affects demand in product and financial markets and/or supply in labor markets. These preferences might also potentially affect firms indirectly through governments or regulators translating voter preferences into market interventions. In sum, social and environmental stakeholder preferences translate into some sort of action or behavior relevant to corporate profits[34], therefore qualifying CSR as part of a profit maximizing strategy. CSR induced by demand side pressures or as a hedge against the risk of future regulation or activism has been termed "strategic CSR" by D. Baron (2001), while McWilliams and Siegel (2001) refer to the same underlying profit orientation of CSR as a "theory of the firm perspective". Then, based on varying preferences of share and stakeholders, we can expand the neoclassical framework of the profit maximizing firm by integrating and categorizing CSR without challenging the fundamental corporate goal of shareholder value maximization. Figure 2 outlines a first general typology of CSR in a 2x2 preference matrix.

		SHAREHOLDERS	
		Social (S) Preferences	Classical (C) Preferences
STAKEHOLDERS	S	*Not For Profit CSR* Mixed Effects on Profits	*Strategic CSR* Profit Maximization
	C	*Not For Profit CSR* Reduction of Profits	*No CSR* Profit Maximization

Figure 2: Taxonomy of CSR

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[34]Think of firms that expect consumers to buy preferably green or fair trade products, investors to prefer shares in low polluting companies or governments (responsible to voters) regulating in favor of environmentally friendly technologies and against breaches to human rights.

Regarding the organizational analysis of a firm, two relationships are of particular importance: (1) The one between owner and management, and (2) all relevant relations between the firm and its stakeholders. The main critique of CSR has involved the Principal-Agent relation between a firm's owner, often shareholders, and the executives and managers, who should run the firm in the interest of its owners. Milton Friedman saw the "socially responsible firm" as a classic profit maximizer and its social contribution in goods production, employment and innovation all driven by undisturbed competition and the ultimate incentive, profits. The assumption that shareholders only care about profits led to the conclusion that CSR must be inefficient as the only logical explanation involves the classical moral hazard problem between management and shareholders. However, this view is too narrow in two ways: First, even if shareholders only care about profits, stakeholders might not and there exists a variety of frameworks within which CSR may be optimal for the strategic profit maximizer. Second, also shareholders or entrepreneurs can have intrinsic, social or environmental, preferences in addition to classic, extrinsic ones, thereby finding it optimal to use the firm to maximize their own objective function at the expense of some monetary profits[35]. In other words, the ultimate objective of a firm is and always has been shareholder value maximization, however, shareholders' objectives may go well beyond pure profits, thereby constituting the fundament for Not For Profit CSR. The following typology of CSR results: If shareholders are only profit oriented, a firm will find it optimal to engage into strategic CSR when stakeholders demand it or not invest into CSR in absence of stakeholder preferences. This behavior is market driven, maximizes monetary profits and features a reactive notion as it is induced by outside parties. The relevant condition for CSR to qualify as strategic relies on the comparison with the counterfactual of no CSR, i.e. should consumers, investors, workers, activists or governments demand CSR from the purely profit maximizing firm, to refrain from CSR would lead to competitive disadvantage, legal punishment or other extra costs ultimately leading to relatively lower levels of profit. On the other hand, when shareholders are willing to trade monetary profits for CSR or even incur net losses due to their intrinsic, non pecuniary preferences, the final effect on profits depends upon the relative (strength of) preferences vis-a-vis the firm's stakeholders. For example, if owners care less about the environment than consumers, part of the total investment into CSR is strategic, while in the opposite case, CSR will be uniquely not for profit. Not for Profit CSR can be considered to be more "active" in spirit as the initiative to foster social good actively derives from intrinsic motivation inside the firm. However, any level of CSR that does not

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[35]Note that Reinhardt, Stavins and Vietor (2008) define CSR in this spirit as "sacrificing profits in the social interest".

correspond to either shareholder or stakeholder preferences most likely constitutes a form of moral hazard[36].

Any explanation of CSR (strategic or not) builds upon the recent advancement of new concepts of individual behavior in economics and the related departure of economic theory from the classical homo oeconomicus assumption. In fact, CSR and the related extension of the neoclassical firm paradigm is closely linked to the widening of traditional individual rational choice theory towards a broader set of attitudes, preferences and calculations. It was again Milton Friedman, who explicitly pointed out that to understand any form of social responsibility it is essential to notice that *society is a collection of individuals and of the various groups they voluntarily form.* This means that any attempt to investigate organizational (including firm) behavior needs to look at incentives, preferences and motivations of individual share- and stakeholders. Stiglitz (1993 and 2002) talks about new concepts to be taken into account when modeling individual behavior. Gary Becker (1993) proposes an *Economic Way of Looking at Behavior*, stressing the importance of a richer class of attitudes, preferences and calculations for individual choice theory. What both Friedman and Becker have in mind is a new class of psychological and sociological ideas that recently entered microeconomic theory in general and the individual agent's utility function in particular. More precisely, standard motivational assumptions have been expanded and a literature on intrinsic and non-pecuniary aspects of motivation has emerged. As the Behavioral Economics literature[37] is rather extensive and a comprehensive review lies beyond the scope of this paper, only a few selected contributions that are believed to improve the understanding of CSR will be analyzed.

While Akerlof and Kranton (AK 2000 and 2005) recognize the importance of the psychological concept of identity[38] in deriving utility, Benabou and Tirole (2003 and 2006) as well as Besley and Ghatak (2005) more generally assume that agents have preferences for money, social and public good(s) and reputation. A first important insight deriving from this assumption is that intrinsic motivation can act as a substitute for extrinsic monetary incentives. This has interesting and novel implications for pricing through the potential increase in consumers' willingness to pay, and for determining incentives in employment contracts given the classical information asymmetry between principal and agent. Relevant theoretic

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[36]Obviously, if ownership and management are fused into one and the same person, as is the case for "social entrepreneurs" (Baron 2005), moral hazard should not occur assuming simple and coherent individual utility maximization.

[37]For an overview of the key ideas and contributions underlying Behavioural Economics see *Behavioural Economics: Past, Present and Future* (Camerer and Loewenstein (2002)).

[38]Here, identity is associated with different social categories and how people in these categories should behave (AK 2000). Such considerations may alter classical game theoretic equilibrium strategies.

findings include Benabou and Tirole (2006), who find that extrinsic incentives can crowd out prosocial behavior via a feed back loop to reputational signaling concerns. The reputational concern resembles AK's identity considerations and reflects the possibility that increased monetary incentives might negatively affect the agent's utility as observers are tempted to conclude greediness rather than social responsibility when observing prosocial actions. This signal extraction problem arises because agents are heterogenous in their valuation of social good and reputation and this information is strictly private. Within the firm framework, such calculations could influence not only employees, consumers or private donors, but also social entrepreneurs. Baron (2005) defines a social entrepreneur as "one who is willing to create a CSR firm at a financial loss". (The opposite would be the private entrepreneur, "who creates a firm if and only if its market value exceeds the capital required to create it" (= a monetary participation constraint)). The key conclusion here is that CSR expands the "social" individual's opportunity set to do good by the option to engage with or create a CSR firm. A non-trivial implication proposed by Baron builds upon reputational concerns in the sense that if citizens reward social behavior not only in the market place but also in a more societal environment, then managers working in large companies will carry CSR beyond its strategic level. Although this behavior might be optimal from the managers' point of view, in our framework it constitutes moral hazard if shareholders are purely profit oriented. From the perspective of a firm's external stakeholders, using market mechanisms to demand CSR offers an alternative way to do social good in line with their intrinsic motivation. Given the existence of well studied, classical non market channels of private provision of public goods such as direct contribution or donations to Non-Profits, the key question that emerges asks why this "corporate channel" of fulfilling ones need to do public good is preferred to available alternatives. The answer is that there should be some comparative advantage of CSR, something that makes it more efficient than individual supply. As we have established above, the same holds true for the comparison between private and public provision of public goods, where government failure and economies of scope seem to be decisive factors.

In an important paper, Andreoni (1989) compares different ways to contribute to a social good and asks whether they constitute perfect or rather imperfect substitutes. Although the initial version compares public and private (direct) provision of public goods, the same analysis can be extended to compare various ways of private provision such as corporate and individual social responsibility. The fuel of this analysis is the identification of "warm glow" preferences, i.e. utility derived from the mere fact of doing good yourself or being more directly involved rather than outsourcing it to governments or NGOs. Then, if "warm glow" exists, investment into a CSR firm, government provision of a public good and direct

donations are imperfect substitutes that imperfectly crowd out each other. In other words, a socially responsible consumer might not derive the same utility from buying a "social product" and from donating money to charitable organizations directly. For a more detailed investigation of motives for charitable donations see Andreoni (1990), Buraschi and Cornelli (2003) or Croson and Shang (2005). An interesting analysis of how government incentives affect individual donations is performed by Pittel and Rübbelke (2004). Special attention is paid to the effects of granting tax deductibles on private public good provision when income tax schemes are progressive. Potential outcomes in terms of welfare and level of donations first crucially depend upon deductible ceilings, progressiveness of tax rates as well as preferences of agents, and while Pareto-improvements and even Pareto-efficiency can result from the implementation of such a scheme, it is also conceivable that at least some agents perceive a utility reduction. Kitzmueller (2008) conducts a theoretic analysis of the potential effects of a subsidy for corporate provision of public goods. He finds that if firms vary in their capacity to reap benefits of CSR[39] and consumers have preferences for "sustainable" CSR independent of one shot government incentives, then a subsidy might crowd out CSR and even lead to lower total levels of public goods provision depending on the distribution of firm types. Summing up, agents are motivated by a mixture of extrinsic and intrinsic factors, therefore potential non-intended (counterintuitive) effects should be taken into account when designing optimal incentives. Still, these analyses are unable to explain why individuals allocate a share of their "endowment to do social good" to CSR and a lot of work on this question remains to be done. A reasonable conjecture might be that people must or want to consume certain private goods, but derive disutility from being connected to any socially stigmatized behavior or direct negative externality related to their purchase and/or use of the good or service (e.g. firms using child labor or acting environmentally hazardous during the production process)[40]. Such motivation might appeal to both consumers endowed with social preferences independent of their consumption pattern and those consumers, who only have social conscience considerations in relation with their consumption of relevant private goods[41]. In both cases, but especially in the second one, CSR might be the preferred/optimal way of maximizing individual utility subject to social/environmental concerns[42]. However,

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[39]More precisely this refers to a firm's mission and CSR cost.

[40]Note that these social or environmental goods do not always directly/physically affect consumers, but rather are feeding through to individual utility indirectly via intrinsic, reputational concerns.

[41]Recall the distinction between conditional and unconditional consumer preferences for y in Graph 1. We would like to thank Mathew Gentzkow for a clarifying discussion of this point. For an overview see again Graph 1.

[42]On the one hand, a person having a strong preference for social or environmental good and donating a lot of money to charity might not want to send a contradictive signal via her consumption behavior and therefore demand CSR products. On the other hand, somebody that does not per se care about social or

this conjecture has yet to be tested empirically.

A related issue is that CSR often has been connected with advertisement or public relations of firms, thereby suggesting that CSR eventually could change preferences and ultimately individual behavior over time. While the management literature has approached these issues via the concept of Corporate Social Marketing (Kotler and Lee 2004), economists have been more cautious when it comes to endogenous preferences. Regarding preference formation, Becker (1993) concluded that "attitudes and values of adults are ... influenced by their childhood experiences". Bowles (1998) builds the bridge from Becker's "family environment" to markets and other economic institutions influencing the evolution of values, preferences and motivations. Along these lines, surveys such as Fleishman Hiller and the National Consumer League (2005) posit that the strength and active role of social or environmental preferences in a society strongly depend on demographic characteristics such as education or technological development. This points towards developed countries as the cradle and current centre of CSR preferences among stakeholders. Not only do living standards in the developed world endow people with the lion's share of purchasing power, but also provide them with information through education and connection to modern communication technologies. From another perspective, this argument reflects the Maslow pyramid in the sense that only when basic needs (such as survival, food or security) are fulfilled, do people start worrying about more indirect needs such as the environment, global warming, ethical firm behavior in developing countries and alike. Another concept lending support to such a view is the Environmental Kuznets Curve as outlined originally by Grossman and Krueger (1993) and revisited later by Dasgupta et al. (2002). The curve posits an inverted-U relationship between economic development, i.e. income per capita, and environmental pollution. In the initial process of industrialization, people only care about jobs and income and public environmental spending and regulations are weak and unpopular. Lateron income rises, technology improves pollution, and preferences as well as regulations begin to favor environmental protection. Arora and Ganopadhay (1995) have built a theoretic model of overcompliance around this conjecture and showed that if the valuation of money and therefore the importance of prices decreases in income, heterogeneous preferences imply variation in the willingness to pay for CSR. Then firms separate along the preference distribution, and in a 2 firm model the introduction of a minimum regulatory standard always leads the firm serving the high income - high public preference segment to overcomply.

Although many questions remain to be answered when it comes to the mechanics of

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environmental good but about reputation in general (given that the public or a relevant societal subgroup has social preferences) might deem social or environmental performance by producers of her consumption goods as very important for her own utility (pure signaling).

intrinsic motivation and social preferences within the human mind, the discussion of CSR has moved on and addressed the economics of the firm's interaction with various stakeholders while treating the existence of intrinsic preferences as exogenously given.

1.2.3 A Framework for *strategic* CSR

This section identifies three broad theoretic channels - (1) Markets, (2) Politics, and (3) Isomorphism - through which strategic CSR can arise and discusses various subgroups therein. The definition of strategic CSR implicitly assumes that the production of public alongside private goods is costly. This established the above discussed trade off between social benefit and private cost. However, it has been argued that the resulting negative correlation between public good provision (or environmental regulation)- and firm or industry competitiveness might be ill conceived. Porter and van der Linde (1995) argue that environmental regulation increases costs and decreases competitiveness only in a static environment, where firms know everything and have already minimized costs. Innovation, on the other hand, is a dynamic concept and economic and technological systems are repeatedly "shocked" out of their steady state. Therefore, a dynamic approach is able to frequently put a new free 10$ bill on the table, ready to being picked up by the next firm coming along. In other words, if market economies are dynamic places with changing technologies, limited knowledge of the world or imperfect information, environmental innovation may offer opportunities to reap benefits that outweigh its costs. Such innovation offsets are defined as investments and actions that address environmental or social impact - thereby producing public goods or reducing negative externalities - while at the same time improving the quality of the offered private products, the productivity of related processes and ultimately a firm's or industry's competitiveness. Theoretically, this argument relies on both the existence of dynamic inefficiencies that open up the opportunity for innovation to get more cost efficient again, and the ability to identify opportunities and overcome inertia or detrimental short term incentives. In general, the questions of whether regulation actually can stimulate such innovation without creating competitive disadvantages, whether benefits offset initial costs in the short, middle or long run, and whether such channeling of resources is a way of selecting the most efficient focus and direction of innovation must be resolved empirically. The contributions outlined in the remainder of this section, however, uniquely assume a classical static environment.

1.2.3.1 Markets

There are three "classical" markets - the Labor, Product and Financial Market[43] - that are all relevant to the discussion of CSR. First, CSR might affect interaction between employers and employees and alter classical labor market outcomes. This interaction is usually analyzed in a contract theoretic framework, where the key issues of interest arise from information asymmetry with respect to the employee's type (screening or signaling) or actions (moral hazard). Simon (1991) was among the first to argue that agency problems may be best overcome by attempting to change and ideally align preferences of workers and principals. At the same time, empirical evidence from the General Social Survey (1991)[44] suggests that workers strongly identify with their organization (i.e. employer's preferences). In theory, this finding can be a result of matching (selection), reducing cognitive dissonance (psychology) or induced convergence of preferences (endogenous preferences). Given these alternatives, CSR could be either interpreted as a signal leading to matching or alternatively used to "streamline" agents' preferences over time. While the latter suggestion lacks theoretic or empirical treatment[45], the former potential matching (selection) role of CSR has been analyzed in more detail. Preston (1989) was able to derive an equilibrium wage differential between non profit and for profit firms. The explanation is based on workers preferences for social good and their resulting willingness to trade off wages for these preferences in the form of "labor donations" (p.442). The higher the social benefits a non profit firm promises to provide, the higher the wage differential for any constant preference distribution. This supply side effect may be mitigated by non profit managers' discretion to pay above "cost minimizing" wage levels.

Similarly, Bowles, Gintis and Osborne (2001) address the role of preferences in an employer-employee (Principal-Agent) relationship, where employees might have general preferences such as sense of personal efficacy or rate of time preference that are able to compensate for monetary incentives and therefore allow the employer to induce effort *at lower cost incentive enhancing.* The conclusions suggest an important role of preferences in determining the cost of labor services and affecting earnings of employees and employers alike. In this spirit, Besley and Ghatak (2005) establish a theoretic framework to analyze the role and interaction of monetary and non monetary incentives in labor contracts within the non-profit sector. They refer to not for profit organizations as being *mission oriented* and conjecture

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[43]The market for information is not "classical" in the sense that its relevance spans all other markets and is of a more general nature.

[44]The General Social Survey is a national US survey of demographic and attitudinal variables with a sample size of about 3000. It asks employees about their job satisfaction and work organization in general.

[45]to the best of our knowledge.

that such organizations, (e.g. hospitals or universities) frequently are staffed by intrinsically motivated agents[46]. The main conclusion from their moral hazard model with heterogenous principals and agents is that pecuniary, extrinsic incentives such as bonus payments and the agents' intrinsic motivation can act as substitutes. In other words, a match between a mission oriented principal and an intrinsically motivated agent allows for reduced contractual bonus payments and still induces the standard second best effort level. In case of more than two types,a better match implies a higher substitution effect between money and motivation. Brekke and Nyborg (2004) based on Brekke et al. (2003) explicitly show that CSR can actually reduce moral hazard in the labor market context. More precisely, CSR serves as a screening device for firms that want to attract morally motivated agents and the offset of the agency problem is again driven by the same substitutability of motivation and high powered incentives. In sum, the major result of this research is the notion of reduced agency cost due to matching motivated agents and principals as well as the related substitution between extrinsic and intrinsic incentives.

An alternative explanation of lower incentive pay in the non profit sector also relies on matching, however, the more traditional match of skill/productivity and pay. It is simply assumed that workers only care about money but vary in their skills, i.e. quality, hence, employees sort along this dimension. Stigler (1962) aimed at entangling the quality and price variation in labor markets with imperfect information. He illustrates the existence of dispersion in wage rates for homogenous labor and how more search by workers[47] should decrease this "pure" form of dispersion. If employers search for high quality labor "the problem of information on quality has been replacing that of information on price, and heterogeneity of quality has replaced homogeneity" (p.103). Information in this labor market is a two sided sword in the sense that more search equals better information and closer matches between workers' maximum productivity and incentives on one hand, while worsening employers' opportunity to pay less for superior labor quality. In sum wage rates and the search for quality are substitutes, and it follows that higher paying attract better applicants. Finally, Stigler points towards the potential role of non-monetary conditions of employment that could enable firms to trade off wages and for example CSR without attracting lower quality workers. Also related to employee quality, a labor market context that connects CSR to corporate governance is explored by Cespa and Cestone (2007). They conjecture that inefficient managers can and will use CSR, i.e. the execution of stakeholder protection and

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[46]Think of a doctor or professor, who has a non-pecuniary interest in the hospital's or university's success, i.e. saving lives or educating students.

[47]Employees search for employers until marginal costs of search equal expected marginal return. E.g. a positive correlation of wages over time provides a strong incentive for more search by increasing the expected utility of finding a good first wage offer.

relations, as an effective entrenchment strategy to protect their jobs. Their discussion of the effect of corporate governance institutions on firm value leads to the conclusion that institutionalized stakeholder relations close this "insurance" channel for inefficient managers and increase managerial turnover and firm value. This finding also provides a rationale for the existence of special institutions such as ethical indices or social auditors and increased interaction between social activists and institutional shareholders in general.

Social consumer preferences can shape demand for a product or service and lead to *Socially Responsible Consumption.* Qualitative evidence in the form of consumer surveys reveals that consumers' assessment of firms and products as well as their final consumption decisions and willingness to pay depend on firms' CSR records. Baron (2006b) links managerial incentives with socially responsible consumers. He addresses the interaction of consumer preferences, the ability of managers, managerial incentive design and social expenditures. The main focus is on joint determination of social expenditure and financial performance of firms. Causality can go either way and the decisive variable is whether consumers are ready to reward CSR or not. After introducing managers' ability it is concluded that higher demand for social goods empowers the profit incentives of managers and their compensation will be positively correlated with social expenditure, i.e. managers are encouraged to spend socially as demand, profits and their salary will then be maximized. If times are economically favorable and consumers value CSR, a positive correlation emerges between financial performance and CSR, and the level of both, CSR and profits, is increasing in managers' ability. In absence of consumer preferences, CSR is determined by shareholder preferences and economic circumstances determining profits. If times get bad, e.g. due to a recession, both consumers and shareholders may not find marginal utility of social expenditure outweighing its marginal costs anymore, and the correlation eventually becomes negative in presence of able managers[48]. A similar analysis by Manasakis et al. (2007) uses a Cournot oligopoly setting and suggests that all firms hire socially responsible managers due to Stackelberg leadership motives. This increases equilibrium output of CSR and, dependent on consumers preferences, managers' decisions in favor of CSR increase or decrease profits. This last set up points already towards another comparative static that may interact with optimal CSR levels is the degree of competition in the market. Bagnoli and Watts (2003) model competitive product markets with homogeneous, socially responsible consumers. They conclude that competition for these consumers, who are willing to pay a premium for CSR, leads to private provision of public goods as a by-product and at levels that vary inversely with the

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[48] as they will redirect less funds out of the smaller pot to CSR.

degree of competitiveness in the private goods market[49]. Furthermore, a more competitive environment in terms of prices, i.e. Bertrand as compared to Cournot competition, reduces profitability and a firm's ability to use the mark up to increase CSR. The result is less differentiation through CSR, less competitiveness and ultimately less CSR. In sum, there exists a trade off between efficient provision of the private good and efficient provision of the public good, i.e. the more competitive Bertrand environment leads to lower incentives for CSR.

If firms (Bertrand) compete in markets populated by heterogenous consumers, i.e. consumers with and without preferences for CSR, Besley and Ghatak (2007) find that there exists a unique separating equilibrium, where firms either serve social or neutral consumers but always make make zero profits. Following up on our discussion in section 2.2.1 a few more standard results from the screening and public goods literature can be validated. The maximum sustainable level of CSR over time is achieved when the incentive compatibility constraint of caring consumers binds, while an exogenous increase of public good supply (e.g. by a government) perfectly crowds out competitive provision of CSR. Perfect governments are able to implement a Lindahl Samuelson equilibrium, however, if they fail, CSR and non-profit provision may compete for Pareto improvement. It is also found that a small uniform regulation would leave the level of corporate public good production unchanged and redistribute contributions from social to neutral consumers, while large regulatory intervention can raise supply of the public good above second best, limited only by neutral consumers' maximum willingness to pay for the private good. In sum, CSR can be justified as an economically optimal, sustainable way of providing public goods. Another paper already discussed, Arora and Gangopadhyay (1995), must be mentioned here due to its use of socially responsible consumption. They model CSR as voluntary overcompliance with environmental regulation and assume that although consumers all value environmental quality, they vary in their willingness to pay a price premium for CSR depending on their income levels. Firms play a two stage duopoly game and first decide about CSR (clean technology), and then compete a la Bertrand. Not surprisingly, the subgame perfect equilibrium entails firms differentiating themselves via catering to different sets of consumers. Choosing technology acts as product positioning similar to the choice of product quality, and CSR is positively correlated with the income levels of either all consumer segments or of the lowest income segment. Similar to BG (2007), comparative statics allow for the analysis of government policy. The main finding is that if a minimum standard is imposed, it will bind on the "worse" firm (lower CSR) while the better firm will overmeet the standard. CSR subsidies can have the same effect as standards, while taxes always reduce output (here: number of consumers served)

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[49]Competitiveness is reflected through both number of firms and firm entry.

and CSR efforts by all firms. The commonly used notion of CSR as a means of product differentiation also emerged within the advertising and marketing literature. Firms use CSR to differentiate and advertise their product or to build brand loyalty. An interesting and relevant conjecture is that the advertising dimension of CSR may be especially strong when social efforts are unrelated to business conduct. In Navarro (1988) corporate donations to charity are identified as advertisement and CSR is meant to transmit a positive signal about firm quality and type. However, according to Becker-Olsen and Hill (2005) the mere signal might not necessarily be positive as consumers are able to identify *low fit* CSR as advertisement and tend to negatively perceive such CSR efforts as greediness of firms or green wash rather than genuine interest into social or environmental concerns.

Ultimately the focus shifts to financial markets, *Socially Responsible Investment* (SRI) and competition for equity investment in stock markets. Investors either have or don't have social preferences. The willingness to forego or redirect profits in favor of CSR, however, can be motivated either by direct green or social preferences, or by "negative" preferences regarding profit distribution. This means that shareholders may prefer spending money on CSR rather than increasing bonus payments for top management to stellar amounts, a potentially very relevant issue in current times of financial turmoil and related discussions of management compensation. Neutral investors just have their monetary return on investment in mind and, hence, just care about firm profits. The main proposition then states that such investors will use SRI as an investment strategy only if investment in respective firms qualifying as SRI actually translates into higher returns on investment. In terms of Corporate Financial Performance (CFP) this would imply that firms doing CSR are actually performing better financially. To clarify whether neutral investors should put their money into SRI and the underlying CSR effort qualifies as strategic, this question must be settled empirically. According to the typology in Figure 2, the alternative is that SRI allows social investors to enforce their preferences through a demand channel similar to the one consumers use, however as soon as they buy shares in the firm, CSR becomes not for profit. The group of social investors can be heterogenous in the sense that there might be *those for whom corporate giving is a close substitute for personal giving and those, for whom it is a poor substitute* (Baron 2005). It seems logic that the former subgroup is more likely holding shares in CSR firms. Small and Zivin (2005) confirm this conjecture by focusing on the relationship between CSR, investment behavior and firm valuation. They derive a "Modigliani Miller (MM) theory of CSR", where the fraction of investors that prefers corporate philanthropy over private charitable giving drives CSR by firms attempting to maximize their valuation (share prices). Hence, a share constitutes a charity-investment bundle matching social and

monetary preferences of investors with those of the firm's management. The main conclusion follows MM in spirit and states that if all investors consider CSR and private charity as perfect substitutes, share prices and the aggregate level of philanthropy are unaffected by CSR. If they are imperfect substitutes, a strictly positive level of CSR maximizes share prices and hence the value of a corporation.

1.2.3.2 Politics

Politics constitutes an alternative option for stakeholders to create a pass-through from social preferences to business outside the framework of classical market interaction[50] with firms. There are two main subgroups, private and public politics. Private politics refers to *social activism* by NGOs or Civil Society, while public politics stands for actual or potential government engagement with firms via law and regulation. The crucial common feature of all politics is that the influence and power of the "politician", i.e. the activist or the government, derives from some sort of support by the Public (or a subgroup thereof), e.g. financial support, active support through boycotts or democratic support through election. The corporate incentive to respond to politics and change behavior even before any activist or legal action is taken stems from the threat posed by high costs, low demand and competitive disadvantage. The logic is comparable to the one of "hedging" against future risk in financial markets, just here the firm insures itself against a potential campaign by an activist or regulatory action taken by a government.

Let us focus on private politics first. The existence and success of social or environmental activists is intimately related with information asymmetries between companies and the outside world. At a basic level, social activism poses the threat of negative publicity or revelation of negative information through an unsatisfied activist, ultimately leading to some action that directly harms the firm. As soon as the activist is credible and has the ability to damage a firm's reputation or cause substantial costs to the firm, the mere possibility of being targeted is sufficient to integrate CSR as part of corporate strategy[51]. Baron (2001) refers to CSR as corporate redistribution to social causes motivated by either profit maximization (1), altruism (2) or threats by an activist (3). However, it can be argued that the existence of activism qualifies CSR as an integral part of profit maximization, i.e. motivation 3 fuses in 1. The game theoretic analysis can be summarized as follows: CSR induced by private politics has two qualitatively different effects on firms. The first one is a direct cost effect for those firms that are targeted by an activist, i.e. costs are increasing due

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[50]as discussed in the previous section.
[51]D. Baron refers to this as *integrated strategy.*

to CSR. Activists also act strategically and choose firms that are more likely to respond to their demands. In equilibrium only realistic demands are posed, hence ex ante agreements regarding redistribution are reached and boycotts just serve as sufficient threats. It is not surprising that the success of activism (both scale of demand and probability of corporate compliance) positively depends on the stakes of the firm and the activist as well as activist efficiency, and negatively on pre-existing levels and cost efficiency of CSR. The second effect relates to a firm's or industry's competitive environment. The strategic effect of CSR can be enhanced if staying competitive adds to the benefits from reducing the activist's threat. Product differentiation acts as the measure of competition. For low levels of product differentiation, i.e. low competition, a marginal decrease in differentiation increases the threat and success rate of the activist, and CSR will be high due to its relatively strong benefits. When approaching a competitive environment, here Cournot competition, this positive correlation between competition and power of activism may be reversed as firms have lower rents at stake and might be much more cost constrained in their use of CSR. Finally, it is found that the existence of spill over effects from one firm to another or even the whole industry can act as an amplifier for activist power on the one hand, and motivation for (often observed) concerted non market action by firms in the same industry on the other (e.g. voluntary industry standards). In a more comprehensive setting, Baron (2006a) predicts market values of firms, prices, profits, contributions to activists and the level of corporate social performance in a model of product and capital markets with strategic consumers, investors and activists. Social pressure refers to the outcome of the interaction between the activist and the firm and is arising endogenously in what resembles a general equilibrium. The new feature is that there are two types of corporation, the morally managed[52] and the self interested one, and citizens can distinguish between strategic CSR induced by social pressure and independent, not for profit CSR. CSR itself here acts a s product differentiation. Equilibrium levels of CSR will vary across types and depend on the degree of substitutability between the various social contribution channels, i.e. invest, consume, donate or support an activist. Similar to Besley and Ghatak (2007), a separating equilibrium arises where the morally motivated firm charges high prices, produces high levels of CSR and serves consumers with strong preferences for CSR[53]. The self interested firm will find it optimal to maximize differentiation and do the exact opposite. As far as private politics are concerned, the key insight is that target selection depends on the extent to which people distinguish between strategic and not for

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[52]defined as "a corporate pattern of conduct that goes beyond normal business managment and compliance with law" (p.1).

[53]Prices signal type and lead to consumer selection and the distribution of shareholders' social preferences determines the value of firms because it determines the ability to attract equity investment. The contributions to the activists are similarly dependent on people's social preferences and the quality of the activist.

profit CSR. In general, the activist selects the target that will agree to the more favorable demand. Then, with decreasing distinction between motivation for CSR, morally motivated firms appear to be a softer target and will be chosen by the activist unless the reputation of the self interested firm is relatively very weak[54]. If people do distinguish and the reputation of the morally managed firm is not too weak, social pressure will be directed towards self interested firms. In general, less funded, low quality activists turn out to more likely target morally motivated firms and vice versa. We note that the crucial distinction between strategic and not-for-profit CSR can be extremely difficult, subtle and based on perception rather than facts. Relevant work done by Marketing scholars lends support to this proposition[55]. In general, the impact of public interest advocacy and action either through activist groups or concerted consumer boycotts has also been analyzed from a marketing perspective (see Smith (2000) or Klein, Smith and John (2002)). This literature is very similar and its contributions equally root in the existence of information asymmetries, making CSR an experience and often even a credence good for stakeholders. Marketing can be used to build reputation and avoid any form of activism that could harm business conduct. Recent innovations in Marketing techniques take consumer perceptions with respect to CSR into account and led to a stepwise development from Cause-Related to Social-Cause Marketing (Bloom et al. (2006)) to Corporate Social Marketing (Kotler and Lee (2004)). As negative reputation can harm a firm across all its activity areas through so called "halo effects", CSR can again act as a reputation insurance, an attribute shared with classical Marketing. In sum, economic and marketing research equally suggests that consumer perceptions translate into views and beliefs that form the basis for action. Then, CSR can differentiate a product, help build reputation and insure the firm against boycotts or private activism. Two very distinct spin off strategies to translate varying degrees of information asymmetry into a competitive advantage are "greenwash" and/or voluntary corporate alliances with NGOs. Lyon and Maxwell (2009) define greenwash as "the selective disclosure of positive information about a company's environmental performance, without full disclosure of negative information on these dimensions" (p.31), and use a Bayesian game to explore how NGOs may succeed when the relationship between expected CSR and disclosure is non-monotonic. Partial disclosure of information results from potential gains of not disclosing failure while disclosing success. The decisive determinant of equilibrium disclosure is firm variation in probability to produce a successful CSR project. This can be interpreted as the type of the firm. A firm with a low "success" probability is not expected (by the market) to do well and therefore will find it

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[54]reputation is a measure of how strongly citizens would react to or protect a target.

[55]Becker-Olsen and Hill (2005) find that consumers form their beliefs about CSR based on perceived fit and timing of related efforts

optimal to fully disclose as there is a lot to win from a "public" success and nothing to loose from a failure. The opposite holds true for firms with high success rates, which leaves intermediate firms to eventually benefit from partial disclosure strategies. Furthermore, firms that are operating in an industry biased towards negative rather than positive social impact as well as firms with a lot of information about their own impact are more responsive to incentives such as NGO audits. Interestingly, if a "clean" firm with high probability to success has little information about its own impact, such incentives may backfire and lead to less disclosure, while "dirty" firms knowing about their impact, e.g. through the presence of an Environmental Management System (EMS), appear as optimal, i.e. responsive, targets for a strategic NGO.

Now let the incentive to do CSR derive from the threat of public rather than private politics. Potential regulation and related adjustment costs may lead firms to hedge against such an event and build a strategic "buffer zone" via overcompliance, i.e. CSR. Again, the two strategic effects are preservation of competitive position in the event of new regulation as well as discouraging future intervention by signaling that markets provide sufficient incentives. The main trade offs regarding substitutability and optimality of CSR and regulation that have been analyzed in Section 2.2 have already established the fact that CSR might Pareto improve welfare only if governments fail in some way. Maxwell, Lyon and Hackett (2000) introduce such inefficiencies on the public side by assuming that consumers can influence policy, i.e. lobby, at a positive cost. As a result, firms can use CSR to preempt entry of consumers into lobbying activities as their marginal utility from CSR rises beyond the benefits from "investing" into regulation (through lobbying). For this relationship to hold, lower costs of lobbying imply more stringent levels of self regulation. Self regulation in an oligopolistic industry is facilitated through coordination. However, and this is interesting from an Antitrust perspective, consumers and firms equally are better off without regulation only as long as strategic coordination on CSR does not undermine consumers' lobbying effect on regulation too much. The most comprehensive outline and general analysis of such interaction between CSR and public policy as well as the political life cycle is provided by Maxwell and Lyon (2004). Calveras et al. (2006) study the interplay between activism, regulation and CSR and find that private (activism) and public politics (regulation) are imperfect substitutes. It follows that increased self regulation (i.e. CSR) can crowd out formal government regulation. It is emphasized that when society free rides on a small group of activist consumers, loose formal regulation (voted for by the majority of non activists) might lead to an inefficiently high externality level where activist consumers bear the related cost via high prices for socially responsible goods. These conclusion draws attention to another

relevant correlation, namely between regulation and political orientation. The underlying assumption is that the agents' consumption strategy not only depends on the distribution of social preferences over the whole population, but also influences decision making as a voter. Consumers are also voters, and not only firms, but also governments will want to signal their type. As governments signal through legislation or regulation and firms through CSR, the interaction between regulation and CSR is an important subject for further research.

Lastly and with a view to potential future research areas, the environmental law literature as well as some empirical economic projects have recently started to investigate how to optimally enforce environmental regulatory regimes. Legal scholars such as Uhlmann (2009) focus on the design and application of laws - Uhlmann argues that criminal law and the incentives it entails for the individual manager might induce or increase compliance with laws that otherwise, i.e. under a civil law umbrella, would lead only to minor monetary penalties and small incentives for individual decision makers. Economists, on the other hand, have been more concerned with how to spend limited resources optimally, i.e. which firms to target (first). Along these lines, Shimshack (2009) suggests that due to larger marginal deterrence effects from targeting first time offenders, the commonly assumed benefits from targeting repeat offenders (i.e. the worst of the worst) first might be ill conceived and inefficient.

1.2.3.3   Isomorphism

While the relevant "pressure groups" in the five previous cases were employees, consumers, investors, activists or governments, the incentive to do CSR here roots in isomorphic pressures within geographic communities or functional entities such as industries. It is the institutional environment and commonly (locally) accepted norms, views and values that might discipline firms into certain social behavior. Institutional factors that are potentially shaping the nature and level of CSR in a community include cultural-cognitive forces, social-normative factors as well as regulative factors. The inclusion of regulative community factors complements the analysis of public politics by testing whether differences in regulation on a community level imply different levels and nature of CSR by firms located in these communities. In other words, subsidiarity in regulation implies variation across regions (local entities), and therefore, comparing similar firms located in different regulatory environments can give hints about its correlation with CSR. Marquis, Glynn and Davis (2007) identify, in an institutional theoretic setting, community isomorphism, i.e. the degree of conformity of corporate social performance in focus, form and level within a community, as a potential explanatory variable for empirical observations concerning CSR. Isomorphic pressures may also arise within industries, and may lead to industry wide self regulatory activities. Espe-

cially industries that are well organized and represented by a centralized lobby might be able to exert pressure on firm behavior.

1.2.4 The Geographic Dimension of CSR

Scherer and Palazzo (2008) note that in a world of multinational corporations and international public goods or externalities, [*p*]*aradoxically, today, business firms are not just considered the bad guys, causing environmental disasters, financial scandals, and social ills. They are at the same time considered the solution of global regulation and public goods problems,* thereby underlining that, through its intrinsic association with the modern corporation and public goods, CSR constitutes an international phenomenon asking for analysis within the respective economic framework. The increased geographic scope of firms is evidenced by the emergence of giant multinational corporations as well as an increase in intra firm trade, offshoring along the supply chain, as well as foreign direct investment (FDI). Then if public goods related to firm conduct are international in nature, prevailing coordination failure among governments severely constrains effective internalization of corporate externalities via classical correction mechanisms such as regulation. A first discussion and analysis of the potential trade off between CSR and firm location and the implications for regulation and welfare is provided by Kitzmueller (2009). It is shown that if CSR is treated as an international public credence good and firms choose the level of CSR, prices and the location of production, then the scope for regulation to improve upon CSR levels is constrained by potential relocation to another country. The crucial trade off arises through cross country differences in transparency (e.g. institutions or monitoring capacity). In a two country world, where A features a higher probability of catching a cheater than B, *i.e.* $p_A > p_B$, autarky levels of CSR in A will exceed those in B. In order to guarantee that firms truthfully produce the level of public good they charge for, the price premium to be paid for a given level of CSR is increasing when transparency decreases[56]. In short, better information about the activity of firms increases the efficiency of price competition, i.e. lowers prices for a given level of CSR, and, for a given price level, increases the production of CSR in equilibrium. If the government in A wanted to improve corporate public goods production beyond market levels, it would have to make sure that firms do not decide to relocate production to B to escape regulation and even produce lower levels of CSR than before. This crucial incentive to relocate in response to regulation in A depends on p_B and the distance between p_A and

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[56]Lower probability of detection implies a stronger incentive to cheat and therefore, if consumers are rational Bayesian Updaters and firms compete in prices, there exists a unique price premium for each level of CSR that is truthfully produced by the firm and consistent with consumers' expectations.

p_B. Hence, feasibility of national, uncoordinated regulation depends on CSR levels (lower bound) and the relative quality of information between countries (upperbound). The bigger the gap between p_A and p_B as well as the lower p_B in absolute terms, the more feasible becomes regulation in A. If we think of A as a developed and of B as a developing country, such dynamics may explain (weak or mixed) empirical evidence related to the Pollution Heaven Hypothesis and regulatory race to the bottom type arguments put forward by a substantial theoretic literature, e.g. Copeland and Taylor (1994), who argued that developing countries are more likely to become pollution havens while developed countries will choose stringent environmental protection and specialize into relatively clean production.

Two important dimensions of the analysis of international CSR shall be shortly discussed here. First, multinational corporations (MNCs) are complex organizational structures that often adhere to a myriad of different standards depending on the respective legal and political environment. However, modern information technology and ever more integrated markets reduce intra firm variance of standards for various reasons that go beyond classical cost efficiency. Independent of ownership structure or contractual relation, all producing entities of intermediate and final consumption goods, services or brands subsumed under a common organizational roof tend to feed into *one unique reputation and perception*. Then, if a firm does not own all entities along the relevant supply chain(s), it will be nonetheless held accountable for actions of contractors or upstream suppliers, as was the case for *Nike* and child labor in some of its contractors' sweat shops. Today international corporations are even held responsible for actions of governments of states they operate in, e.g. Shell in Nigeria. Furthermore, multiple standards may convey an incoherent or not credible image or mission to stakeholders. Evidence has been found in a recent study by Dowell, Hart and Yeung (2000), who state that nearly 60% out of 89 US based manufacturing and mining multinationals with operations in developing countries apply one stringent internal standard that *reflects OECD norms*[57]. Furthermore, firms with one internal standard featured a 10.4 billion US\$ premium in market value (measured by Tobin's q) as compared to their competitors. This trend is an essential driver of international CSR dynamics. Second, inevitable questions arising in this context are (1) *why* are public goods international/global or (2) *can/how do* public goods and preferences overcome geographic distance or national borders between source and effect? We suggest two basic explanations: extrinsic and intrinsic international effects of public goods. Either distant public goods reach far away stakeholders physically (e.g. global warming, pollution) or available information allows stakeholders to

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[57]A word of caution: Of course purely strategic incentives also play a role, as for example investors and finacial markets may interpret heavy emmissions as a signal of inefficient production techniques, as witnessed by stock market reactions to environmental news.

care about distant local public goods in the same way as if they were affected physically at home. This channel resembles a mental affection or compassion channel. In other words, national preferences are "enough" to make a local public good international[58]. In both cases utility and willingness to pay, i.e. determinants of corporate strategy, crucially depend on international information flows.

In sum, in absence of coordination between governments, novel interactions between strategic CSR, location and regulation pose an additional and significant constraint to classical regulation and further underline the important role CSR could play in today's international markets.

1.3   A Short Empirical Outlook

Empirical and experimental investigations related to the phenomenon CSR can be divided into two broad categories. First, there is the fundamental and *necessary* task of actually proving existence of CSR and quantify the phenomenon. This task addresses questions of whether firms actually incur higher costs of doing CSR, and if so, who pays for it? Evidence may include (but not be restricted to) positive price premiums or negative wage deductions imposed by firms and paid/accepted by consumers/workers, experiments testing various stakeholder preferences as well as their actual behavior (which not necessarily needs to comply with their stated preferences) as for example Trudel and Cotte (2009), or lower rates of return accepted by certain shareholders. Second, if the basic assumptions underlying economic theory of CSR are correct and hence do exist in reality, empirical analysis then will be *sufficiently* endowed to test various further predictions and interactions derived within the theoretic framework. Some examples here include the information economic account as tested by Siegel and Vitaliano (2006), or the role of CSR in refining the Pollution Haven Hypothesis as shown by Dam and Scholtens (2008) among others.

The first and foremost challenge to empirical analysis is to measure CSR in a commonly agreed, scientifically correct and homogenous way. Homogeneity is crucial in developing a level playing field that allows to assess whether competing results are truly competing and general conclusions are truly general. Codes of conduct, standards and monitoring systems that have arisen recently include SA8000 (1998) and ISO14000/1, both issued by the International Standards Organization, or the UN Global Compact initiative[59] (2000). These estimations of CSR share the common goal to give a picture of a particular firm's CSR

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[58]We would like to thank Luigi Guiso for a clarifying discussion on these issues.

[59]The UN Global Compact initiative attracted over 1500 companies worldwide since the year 2000 and commits them to uphold principles of human rights, environment and clean business practices.

efforts, but they vary in the underlying criteria, certification requirements (verification) and focus (even definition of CSR). However, as stakeholders use these measures and indices as baseline information about CSR practices, firms actually react to disclosure of information via such measures. Chatterji, Levine and Toffel (2007) examine the predictive validity of environmental ratings using the KLD rating that has been used by many others as a proxy for CSR. It is a first attempt to address the question of which metric is a good predictor of a firm's actual performance. This is of special interest to those (investors or consumers), who base their decisions upon such measurements of CSR. Similarly, Chatterji and Levine (2005) evaluate the role of non financial performance measures and stress not only the importance of reliable, valid and comparable metrics, but also the unique role managers should play in their development. The strategic perspective again stems from the fact that it is third parties that measure CSR and publish this information, which ultimately serves various key stakeholders as a basis for decision making. Hence, in order to manage risk, portfolio theory addresses direct financial risks, while a general CSR measurement framework is crucial for predicting perceived non-financial performance. Banker et al. (2000) empirically underline the long term correlation between non-financial performance measurement (such as product quality or customer satisfaction) and financial performance, which they translate into an important factor for designing managerial incentives.

Assuming validity of certain measures of CSR solves the dependent variable question. The natural next step is the identification of statistically significant independent variables explaining, determining or predicting CSR levels. The following partial results have been achieved: A study by Siegel and Vitaliano (2006) shows that CSR acts as a signal for product quality of experience or credence goods, however, *no positive correlation between firm size and CSR* on the single cross section of data available was found. Both tested hypotheses (i.e. CSR and credence goods and CSR and firm scale effects) have been advanced by McWilliams and Siegel (2001 - hypothesis 2 and 10, p.120 and 124), who do a cost benefit analysis to determine the optimal, i.e. profit maximizing, level of CSR. Note that the explanatory variables in this supply and demand model include firm size, level of diversification, R&D, advertising, consumer income, labor market conditions or stage in the industry life cycle. All hypotheses related to these variables still remain to be tested. Videras and Alberini (2000) test potential reasons why US firms participate in voluntary environmental programs. The empirical analysis finds potential publicity and firm size to increase, and the previous environmental track record to decrease participation. More precisely, all firms participate more likely if possible publicity is positive - this is especially true for firms with high exposure to the public such as large corporations - and firms already involved into

active communication with consumers use EPA programs to add credibility to their CSR efforts. Bad environmental performers are more likely to join if the program is directly related to the firms' pollution reductions, i.e. this suggests again the quest for credibility and publicity, while corporations with lower R&D expenditure are more likely to participate as they expect positive technology spill overs. Another attempt to empirically investigate the determinants of CSR adds three new factors to the above mentioned variables. Focusing on S&P[60] 500 firms, Ceton and Liston- Heyes (2005) include the *political context in which the firm operates*, its *involvement with secondary stakeholders and a firm's ISO 9000 status* in the multiple regression analysis. They find that firms (HQs) located in more conservative political communities (states) exhibit lower levels of CSP, while corporations that also fulfill weaker claims of less important stakeholder groups as well as ISO 9000 certified firms are more likely to get involved with CSP. While the first and potentially the third variable fit with the notion of strategic CSR (especially isomorphism and hedge against local regulation), targeting of secondary stakeholders does not directly reveal the demand side pressures as the strategic incentive at work.

Furthermore, some scattered contributions can be attributed to one of the above outlined categories of (strategic) CSR and will be shortly discussed here. Empirical evidence on CSR and wages is inconclusive. Reinhardt et al. (2008) state that the often found non-profit wage penalty disappears when controlling for worker and firm-specific characteristics. Furthermore, it was established that CEO compensation at firms listed in the Domini Social Index (DS 400) is not significantly different from CEO compensation at other firms in similar industries (Frye, Nelling, and Webb 2006). Regarding consumers, surveys such as MORI or the Millennium Poll on CSR suggest that preferences for CSR are strong and there seems to exist some translation into action. One third of interviewees in the latter survey said that they form impressions of a company based on business fundamentals such as financial factors, company size, business strategy or management, while 40 per cent mention brand quality or corporate image or reputation. This perception may translate into action as nearly 40% of the 25,000 respondents have thought in the past year about punishing a specific company perceived as not socially responsible. Cotte and Trudel (2008) find that consumers are willing to pay a premium for ethical products but buy unethical goods at a comparatively steeper discount. Siegel and Vitaliano (2006) test and confirm the hypothesis that *firms selling experience or credence goods* are more likely to be socially responsible than firms selling search goods. This lends support to the conjecture that consumers consider CSR as a

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[60]Standard&Poors

signal about attributes and general quality[61] of the private good. Theory points out that SRI involves many empirical questions. Geczy, Stambaugh and Levin (2005) among others, put forward strong evidence of the increasing importance of CSR on financial markets. In the US over 50% of investors take investment decisions based on social criteria[62]. The question of correlation and causality between CSR and Corporate Financial Performance has attracted a lot of attention in the scarce empirical literature on CSR. A comprehensive survey is provided by Margolis and Walsh (2003). Taking into account 127 published empirical studies between 1972 and 2002 they conclude that a majority of these studies find a statistically significant and positive correlation between CSP and CFP in both directions (i.e. causality is running from CFP to CSP and vice versa). Some regressions yield statistically non significant coefficients, and a negligible number of results suggests a negative relationship. However, it is emphasized that there exist sampling problems, concerns about the validity of CSP and CFP measures and instruments, omitted variable bias and the ultimate (and still unanswered) question of causality between CSP and CFP. A first attempt to address inconsistency and misspecification is the work by McWilliams and Siegel (2000). They regress firm financial performance on CSR and control for R&D investment. It follows that the upwards bias of the financial impact of CSR disappears and a neutral correlation emerges. This result is not particularly surprising as CSR very often entails the use of advanced technologies, therefore CSR and R&D might be strongly correlated (endogenous). In any case, further studies will have to clarify whether profit oriented investors should put their money into SRI and the underlying CSR effort qualifies as "strategic" or as "not for profit".Regarding public politics, empirical work has been done by Kagan, Gunningham and Thornton (2003), who address the effect of regulation on corporate environmental behavior. Studying 14 pulp and paper producing mills across the US, Australia, Canada and New Zealand, they find that regulation cannot explain differences in environmental performance across firms. This conclusion stems from the fact that variation in behavior is not found across different regulatory districts, but across firms in one district. They attribute this variance to "social license" pressures (induced by local communities and activists in the spirit of private politics) as well as to different corporate environmental management styles. In sum, regulation matters to a large extent, but variation in "beyond compliance" is subject to the antagonism between social pressure and economic feasibility.

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[61] in line with Milgrom and Roberts (1986)

[62] See the 2001 Opinion Research Corporation Poll (sponsored by MMA-Praxis).

1.4 Concluding Remarks

The main contribution of this paper is to provide a coherent framework for the economic analysis of CSR. Economic discussion initially focussed on whether CSR should exist from a welfare perspective and how it relates to alternative channels of public good provision. The main question driving more recent research on CSR, however, is why and how markets incentivize firms to invest money into CSR. Stakeholder and shareholder preferences may provide very distinct motivations for CSR including standard profit maximization. In this case shareholders may be purely profit oriented and CSR becomes a strategic action in the sense that it is used to respond to stakeholder preferences that determine profits. The main frameworks outlined include markets, politics and isomorphism, as well as combinations between them. Special attention has been paid to the emerging topic of international CSR, identifying an initial framework around two main dimensions, international firms and international public goods and their potential effects on firm strategy and regulation. The conclusion from this review and analysis is that CSR emerges as a coherent economic research area that spans many theoretical areas. The scarce but growing empirical literature sheds more and more light on the validity of assumptions underlying, and hypotheses derived by theory. This paper is thought of as a hub connecting all spokes of economic CSR research, integrating them in a coherent conceptual framework of CSR, thereby serving as point of departure for future research.

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CHAPTER 2

INCENTIVES AND CORPORATE PROVISION OF PUBLIC GOODS

2.1 Introduction

Today a large fraction of public goods is provided by private agents. The private provision of public goods includes direct contributions or donations by individual agents (see Bergstrom, Blume and Varian (1986), Andreoni (1989 and 1990), Cornelli (2003), Pittel and Rübbelke (2004) or Croson and Shang (2005)), not for profit provision by mission-oriented organizations such as schools or hospitals (see Besley and Ghatak (2005)), and increasingly corporate efforts referred to as Corporate Social Responsibility (CSR) (see Kotchen (2006), Besley and Ghatak (2007), or Bagnoli, Watts (2003)). However, due to the special nature of public goods[1], their private (market) provision often is inefficient because of free riding or collective action problems. This led Adam Smith to the conclusion that *although free markets are beneficial to society due to the invisible hand, there is the need for public policy when it comes to the provision of goods of general benefit to society*[2]. Milton Friedman argued for a strict separation of responsibilities between the public and private sectors, i.e. governments should supply public goods or deal with *neighborhood effects*[3], while the only task of business is to maximize profits and shareholder value[4]. In sum, economic analysis proposed a separated portfolio for the for-profit, nonprofit and public sectors in theory, which recently *has been blurred in reality* (Rose-Ackerman 1996, Besley and Ghatak (2001)). Then what motivates private entities such as individuals or firms to engage into the costly provision of public goods in the absence of coercion?

The fundamental answer is social preferences. While utility maximizing individuals may donate money to good causes because they derive intrinsic utility[5] from doing so, profit

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[1] non-rivalry and non excludability

[2] Wealth of Nations

[3] Friedman (1955) *The role of government in education.* Neighbourhood effects refer to externalities that are insufficiently or not at all internalized by markets in general or private agents in particular.

[4] Milton Friedman (1970): There is one and only one social responsibility of business - to use its resources and engage in activities designed to increase its profits so long as it stays within the rules of the game, which is to say, engages in open and free competition without deception or fraud.

[5] Pro-social preferences may take the form of direct utility from good deeds or indirect utility from reputation earned in the eyes of society.

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maximizing firms might be socially responsible for strategic reasons such as selling to socially responsible consumers, attracting Socially Responsible Investment (SRI) or hedging against the risk of future regulation and social activism[6]. A common form of CSR is the provision of impure public or collective goods (Buchanan (1999))[7], i.e. the public good is (in)directly related to the private good and/or its production. This link immediately places the firm at the receiving end of two strategic forces, individuals (consumers, investors or employees) direct demand for impure public goods and their willingness to pay a premium on one hand, and public policy (regulation) on the other. Therefore, an important task for policy makers will be to understand and take into account potential interactions between these two means to the same end. In particular, governments should be aware that classical incentives designed to increase CSR might induce unexpected reactions by firms. The key questions are whether market forces underlying strategic CSR are sufficient for reaching optimal (target) levels of public good provision, whether classical incentives such as taxes or subsidies would enforce or counteract these market forces, and in case of incompatibilities, what policies would be viable alternatives.

With respect to the first question, Besley and Ghatak (2007) show that levels of public good provided under CSR equal those of the standard private provision equilibrium and therefore are second best. If government works efficiently, public provision (regulation or incentives) may reach the first best Samuelson - Lindahl equilibrium and CSR will be 100% crowded out (as in Bergstrom, Blume and Varian (1986)). If government works imperfectly, CSR can be an efficient supply channel for public goods. The conclusion here must be that Friedman's classical dichotomy between government and market rests on government efficiency. However, it is possible that markets have better information about optimal levels of public goods or even cost advantages (especially when public goods are directly related to business conduct or production technology)[8]. Independent of these considerations, good and bad governments are likely to intervene in the market, and various policy tools are at disposal. This paper will contribute to the evaluation of standard policy tools such as taxes/subsidies in the presence of CSR. It will be shown that the mechanics of a reputational channel between consumers and firms are able to reverse the intended effect of a public good subsidy to firms and may actually crowd out corporate provision of public goods and

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[6]For a more complete overview of strategic CSR see section three of Kitzmueller (2008).

[7]Corporate provision of collective goods implies the public good to be "privatized" by enforcing excludability. Examples include private health care, private hospitals, private schools or universities and quality of working conditions for corporate employees.

[8]Of course governments might also be subject to opportunism, lobbying and political rationale (weights a government attaches to the welfare of different consumer types) and therefore unable or unwilling to supply socially optimal levels of public goods.

have negative net effects. The basic rationale is based on game theoretic considerations (Nash), which suggest that firms base their own strategy upon the expected best response actions chosen by consumers, who often make choices based on expectations formed by noisy signals. In this set up, firms engage into strategic, profit maximizing CSR (see Baron (2001) or Mc Williams and Siegel (2001)) due to consumers' social preferences and their decisive role in the buying decision[9]. In short, a monetary incentive (subsidy) might make it more difficult for consumers to identify the degree of individual corporate commitment to social and environmental good and therefore CSR becomes a less informative and less profitable signaling device for firms. This reduces the competitive advantage of firms with an integrated CSR strategy, i.e. "long term" commitment to CSR independent of subsidies, and expected gains from differentiation via CSR decrease as it becomes more difficult to build reputation and attract social consumers. Before describing in more detail the link between reputation and demand via signaling, I will briefly review the crowding out literature in the context of adverse incentive effects. Section 3 will present the model and derive the main results, while section 4 is devoted to discussion and implications of the latter. Section 5 concludes.

2.2 Crowding Out

While *Crowding Out* in its traditional context refers to a situation where expansionary public borrowing reduces private investment via increased interest rates, it also is frequently used in connection with public good provision. According to Bergstrom, Blume and Varian (1986), private provision of public goods (i.e. voluntary individual contributions) is perfectly crowded out by government provision of the public good. The crucial condition driving this result is that private and public provision are perfect substitutes in consumption. The degree of crowding out decreases when this substitutability gets weaker, which for example may be the case in the presence of *warm glow* utility (Andreoni 1990). However, in more general terms, any form of economic crowding involves at least two parties, one of which will take an action that, through some economic mechanism, will affect the probability of action of the other either positively (crowding in) or negatively (crowding out). In the case of perfect crowding, the correlation between actions is equal to (minus) one. This general view on crowding does not take into account strategic considerations by any of the two parties, however, in the case of one party taking action in order to get a particular (re)action (or quantity of (re)action) from the other, potential crowding effects gain particular

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[9]Social preferences not only can determine whether to buy a product at all, but also may determine where to buy the particular good. Consumer surveys (see The Millenium Poll on CSR (1999) or MORI (2003)) as well as empirical work (see Becker-Olsen and Hill (2005)) provide strong evidence in favor of this assumption.

importance. Especially when incentives are designed to induce a certain behavior, crowding may explain unexpected and often paradox outcomes. Empirical work provides evidence of adverse incentive effects[10] due to crowding out, an observation that is frequently called the *incentive intensity puzzle*. Gneezy and Rustichini (2000) show that day care centers introducing a fine for parents picking up their children late did not achieve the intended outcome of assuring punctual closure, but even had to cope with more parents than before picking up their children late. The authors suggest that the monetary incentive backfired because it helped parents justify their incorrect behavior, i.e. they perceived late pick up as a good with a price rather than bad behavior leading to intrinsic disutility, i.e. guilt. A similar situation arises in relation to the so called NIMBY ("Not In My Backyard") problem, where offering subsidies for locally unwanted projects such as nuclear waste deponies reduce the level of acceptance significantly as compared to abstention from monetary incentives (Frey and Oberholzer-Gee 1997). Other recent (partly) empirical works includes Falk and Kosfeld (2006)) and Prendergast (2003), who look at adverse effects of control and the introduction of complaint mechanisms respectively. The implication for economic theory seems to be that extrinsic, mostly monetary, incentives can be at odds with intrinsic motivations and even may encourage adverse behavior.

Contract theoretic attempts to explain incentive crowding all share one feature, they build upon intrinsic utility components and visceral factors (Loewenstein 2000) that motivate personal behavior (hence Behavioral Contract Theory). Intrinsic utility and emotions motivate action on one hand, and interact with classical extrinsic incentives in ways that can reduce the ultimate, total incentive to take the targeted action (Fehr and Falk 2002). It follows that designers of contracts should consider eventual crowding effects when choosing incentives. Intrinsic motivation can take many forms from fairness and reciprocity to identity, altruism, esteem, pride, or more generally moral motivation and social preferences (for a contract theoretic view see McLeod 2007). As incentives target motivation underlying behavior, the literature often talks about motivation crowding (Frey and Jegen 2001, Frey and Stutzer 2006). At a most basic level, before crowding takes place, there is some degree of substitutability between intrinsic and extrinsic motivation in individual utility. Besley and Ghatak (2005) show along these lines that principals can reduce extrinsic incentives (bonus payments) while intrinsically motivated agents still choose the second best effort level in the standard moral hazard set up. If principals and agents are heterogenous in the level of intrinsic motivation and have preferences to match with similar types (e.g. employer-employee

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[10]Adverse incentive effects refer to the case when incentives reduce rather than stimulate the designer's desired behaviour (outcome).

relation), lower than standard monetary incentives signal type and lead to matching in equilibrium (see also Brekke et.al. (2004)) for a labor market screening application to CSR). Both Brekke, Kverndokk and Nyborg (2003) and Benabou and Tirole[11] (2003) go one step further and theoretically derive adverse incentive effects due to intrinsic motivation[12]. The set up chosen in BT(2003) and similarly in BT (2006) is expanding the number of utility subgroups from two (extrinsic and intrinsic) to three (extrinsic, direct intrinsic, indirect intrinsic) by including indirect intrinsic concerns about others' perception of own action (see also Johanesson and Ellingson 2008). It is the mechanism underlying this third subgroup of motivation, that allows to build the bridge from the individual utility maximization problem and intrinsic utility to the firm's profit maximization problem and strategic benefits. In short, the firm as an organization cannot directly derive intrinsic utility (unless it is a one man social entrepreneur), however, indirect considerations such as reputation are of crucial importance for the strategic firm and the achievement of its main goal: shareholder value maximization[13]. The essential links between CSR and firm reputation on the one hand, and public image (firm perception) and consumption or investment behavior on the other are well documented by consumer, investment and management surveys[14]. Consumers consider CSR as a signal of product quality (if information asymmetries about product attributes exist as is the case for credence or experience goods) and thereby offer firms the opportunity for strategic use of social or environmental performance as empirically confirmed by Siegel and Vitaliano (2006)[15]. In this case, CSR can serve as product differentiation and advertising and build brand loyalty or reputation. As will be shown in more detail in section 3.2, it is a small step to conjecture that CSR might have a similar signaling effect with respect to firm type and motivation underlying social and or environmental initiatives. Then if motivation underlying CSR determines not only current levels of public good provision but also variance over time (i.e. probability of future provision), consumers will be interested in finding out firm type and may take informative signals into account. Due to firms' strategic consid-

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[11]henceforth BT

[12]Brekke et al (2003) use a as set up where consumers with moral motivation derive utility from a private good and the provision of a public good. Although similar to warm glow, here utility derives from consumers' perception of themselves as moral individuals (self image). If the government introduces explicit incentives such as a subsidy, in the resulting Nash equilibrium consumers might reduce public good provision as the perceived responsibility of public goods provision shifts from individuals to governments and a moral self image becomes more costly. Benabou and Tirole (2003) state that ...*performance incentives offered by an informed principal (manager, teacher, parent) can adversely impact an agent's (worker, child) perception of the task, or of his own abilities. Incentives are then only weak reinforcers in the short run, and negative reinforcers in the long run.*

[13]Shareholder value depends on the type of shareholder, i.e. her preferences, and may be pure profits and/or mission achievements in line with social shareholder preferences.

[14]See section 3.2 on Demand for details.

[15]They test and confirm the hypothesis that firms selling experience or credence goods are more likely to be socially responsible than firms selling search goods.

erations regarding reputation and demand, incentives would backfire if they decreased the signaling quality of CSR with respect to firm type.

In sum, in the following analysis I will investigate the potential effects of incentives in the form of a subsidy on CSR when reputational concerns are important for firm strategy. A relevant framework for the application of such analysis arises within the automobile industry. Being a durable experience good industry it is a major economic factor in most advanced economies (in terms of employment and output) and subject to both considerable CSR and regulatory concerns (mainly environmental) as well as strong reputational exposure. CSR and reputation are linked by the fact that consumers increasingly care about fuel efficiency and pollution levels of cars. The immense media attention given to global warming and related environmental concerns is increasing public awareness and demand for sustainable solutions. This new preference for CSR with respect to environmental performance is additionally increased by extremely high and volatile oil prices[16]. Furthermore, the relationship between major international car manufacturers and governments is characterized by varying degree of interaction (lobbying). While US companies such as Ford or General Motors usually pursue non-market strategies and are able to lobby selective subsidies for green technology[17], Japanese carmakers such as Toyota or Honda lead the race to fuel efficiency and environmental performance in the complete absence of such government incentives[18] and dominate the growing market for hybrid cars in terms of sales[19]. The following questions arise: Are Japanese firms more "truly committed" towards greener cars than their US and European counterparts? Are subsidies a good choice for firms, consumers or society at large? In the face of pressure from consumers as well as corporations, governments in the US, Europe, Japan, and China must analyze their policies and eventual interactions between incentives and CSR[20].

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[16] A CNN poll in early May 2006 found that 60% of adults in the US consider seriously to purchase a fuel efficient vehicle next time they buy a car as a result of rising gas prices (CNN Poll conducted by Opinion Research Corporation. May 5-7, 2006. N=1,021 adults nationwide).

[17] Two cooperative US research and development partnerships between the Clinton Admisitration(1993-2004: Partnership for a New Generation of Vehicles), followed by the Bush Administration (the "Freedom Car" proposal), and the Big Three Automakers (DaimlerChrysler, Ford, and General Motors) aimed at creating a prototype "fuel-efficient" car and allocated over 2 billion US$ in subsidies to the latter companies. In 2005, Bill Ford (CEO of FordMotors Co.), among others, has initiated a new major lobbying campaign urging the US Congress to provide tax credits and other federal incentives to carmakers in order to encourage them to invest into more fuel-efficient vehicles.

[18] See NY Times (January 1, 2000) " Detroit Plays Catch-Up In Race for Hybrid Car; With Fewer Subsidies, Japan Is Ahead" or The Economist (November 8th 2007 edition) "A Wobble to the Top";

[19] This fact is based on numbers of 2006. Further, it is assumed that Japanese firms still incur losses in this segment due to competitive pricing.

[20] I will assume that the government targets fuel efficiency, i.e. environmental concerns, with its subsidy and is not aiming at making "its" national car industry more competitive on international markets (i.e. all car companies have access to the same technology).

The following theoretic model aims at linking the above observations in order to develop a structured tool able to analyze the potential impact of CSR subsidies on firms that operate in markets where information asymmetries exist and reputation is crucial for business conduct.

2.3 The Model

The theoretic set up is adapted from Benabou and Tirole (2006) and translated into a firm-consumer relationship.

2.3.1 Firms

There is a population of firms characterized by their corporate culture m and lobbying efficiency k. Both m and k are privately observed by the firm and distributed normally across firms. Firms operate over two periods of time ($t = 1, 2$). While k is randomly drawn each period (iid), m is constant over time.

$$\begin{pmatrix} m \\ k_1 \\ k_2 \end{pmatrix} \sim N \begin{pmatrix} \overline{m} & \begin{bmatrix} \sigma_m^2 & \sigma_{mk1} & \sigma_{mk2} \\ \sigma_{k1m} & \sigma_{k1}^2 & 0 \\ \sigma_{k2m} & 0 & \sigma_{k2}^2 \end{bmatrix} \end{pmatrix}$$
$$\overline{k}_{1,2} > 0, \overline{m} \geq 0 \tag{2.1}$$

2.3.1.1 Costs

k represents a firm's ability to apply non-market strategies in a profitable way, i.e. to both attract and exploit selective government subsidies. According to Berggren and Bergstroem (1999) *a firm's expected profit is not only a function of its expected, internally generated revenues and costs; it is also a function of expected subsidies and taxes ascribed to it. So, whether an interest group (or firm) invests in rent seeking or not depends on the costs and the expected payoff of lobbying.* In short, there are costs and benefits related to lobbying, and k denotes the fraction of total benefits received that remains after deducting all relevant costs of effort (lobbying). Firms spend more or less financial or human resources on lobbying for subsidies and are more or less efficient/successful with regard to the outcome. Determinants of k include the quantity or quality of a firm's political network, accounting skills and the actual system of regulation in the firm's home base economy, i.e. discretion versus rule[21]. These determinants vary across firms, so does k. Intertemporally, there is uncertainty about

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[21]Firms operate on global (or at least international) markets and are likely to deal with different regulative authorities. A firm dealing with a discretionary regulator might have better chances to lobby favorable regulations than one that is subject to fixed rules that require legislation to be adapted.

the rate of return on lobbying. Reasons include first, political change, e.g. a newly elected government might be more or less open to capture vis-a-vis the old one and hence, more or less effort is needed to attract the same amount of subsidy, second, systematic change (of regulation), e.g. the authority to grant subsidies might be transferred between institutions[22], or third, firm specific "shocks" such as unexpected (exogenous) changes in resources or lobbying power[23]. Let y denote the per unit subsidy proposed by the government. Then it is each firm's k that determines the final net benefit to the firm. The term ky represents the resulting cost reduction per unit of social or environmental good (public good) s, and production costs in period t can be written as

$$C(s_t) = \frac{1}{2}(s_t^2) - k_t y_t s_t \qquad (2.2)$$

Alternatively, k could be seen as the share of total budget y the government reserves for use as a subsidy. Then $k \in [0, 1]$ for all firms and $\sum k_i$ for i firms must equal 1 if the government commits to y.

2.3.1.2 Integrated Strategy

Integrated Strategy in this context refers to the depth of CSR commitment, i.e. how deeply integrated CSR is in the firm's long term strategy. Long term strategy is intimately related with corporate culture, which is understood as a firm specific and stable pattern of behavior over time. Culture is a complex set of beliefs, values and norms that are unobservable by outsiders but determine the behavior of the firm. Schein (1989) defines organizational culture as a multilevel firm attribute that is difficult to grasp even as an insider and even harder to change. In line with this definition, visible attributes and professed culture (such as mission statements) of a firm are not necessarily coinciding with the deepest level of culture and hence are no reliable signal to outsiders in predicting firm behavior. In this setting m refers to the degree to which the provision of the public good is an integrated objective (similar to Besley and Ghatak's (2005) definition of *m*ission) of the corporation. In terms of firm pay off, m enables the firm to reap two types of *mission related benefits*:

First, if shareholders have social preferences, m reflects direct utility gains from providing the public good and acts as a substitute for monetary gains. Second, if shareholders are

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[22]When investigating the influence of firms on government, Majo and Schiffer (2007) distinguish several different target areas of government: the executive branch, the legislative branch, ministerial agencies and regulatory agencies. All of these public bodies might be potential sources of government incentives and hence lobbying partners that are more or less favorable towards individual firms.

[23]Think of a a TNC that is subject to bad press, has to change its CEO, or is in loosing its importance in the political economy via split ups or financial restructuring. If we assume that subsidies are limited and there is a sort of competition for resources, market power might also translate into lobbying power and be subject to unexpected change.

classical profit oriented agents, the firm can have strategic monetary benefits from public good provision arising internally and separately of the strategic role of CSR in the determination of demand for the firm's good(s). For example, m could allow intrinsically motivated workers and managers to derive intrinsic benefits from the provision of a public good similar to Besley and Ghatak (2005). In other words, when these social managers or workers match with "culture m firms", they implicitly substitute parts of their bonus payments for the firm's ability to produce the public good. Assuming that motivated employees also work more efficiently (put more effort)[24] strenghtens the case for adding the mission related benefit component m to the corporate objective function. Empirical evidence points towards a positive relationship between CSR and employee performance. Lloyds TSB[25] is sponsoring research in the UK by the Institute of Business Ethics to explore the relationship between a broadly defined commitment to CSR and business success. This research indicates a strong correlation between employee satisfaction and sales performance. Two of the six main indicators of employee satisfaction were stated as 'pride in the organization' and 'a positive external organization profile' – both, they contend, are symptomatic of a positive commitment to CSR. Importantly, both channels translating public goods provision into mission related benefits (intrinsic and extrinsic) are not constituting any form of moral hazard towards shareholders. It is again reasonable to assume that presence and strength of these channels varies across firms due to heterogeneity in shareholder and employee preferences across firms as well as within firms.

More generally, in his work on the economics of corporate culture, Hermalin (2000) suggests two interpretations of Kreps's (1990) theory of culture: First corporate culture may ensure coordination in games with multiple equilibria by acting as a convention telling players (how) to coordinate. Second, culture can be seen as a way of categorizing future contingencies for the purposes of sustaining cooperative play. In other words, in a world where unforeseen contingencies (k "shocks") arise, stable corporate culture may substitute for infeasible complete (formal) contracting. Hence, culture can act as a commitment device between firms and consumers when contracts are incomplete and interaction is repeated over time.

Finally, interfirm variation in culture as described above (heterogeneity and sorting of shareholders and stakeholders) may be aggravated and partly explained by variation in cultural determinants such as different company histories (experiences), different business, po-

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[24]Both, Besley and Ghatak (2005) as well as Siegel and Vitaliano (2006) point towards benefits related to CSR (mission orientation in nonprofits) that are indirectly monetary and related to recruiting and retaining high quality workers. I will call these kind of benefits mission related.

[25]Lloyds TSb, a major UK based banking and insurance group, had 66800 employees in 2005, a 2006 revenue of GBP 19.6 billion and net income of GBP 2.9 billion.

litical and sociological environments[26] and unobservable preferences of leaders or owners in privately owned but similar firms etc. In an empirical study, Kagan, Gunningham and Thornton (2005) point towards varying corporate environmental management styles when investigating manufacturing firms and compliance with regulations.

The firm decision about how much of a public good[27] s to produce will depend on three factors: The strategic demand factor, the government incentive factor, and the interaction between those two via reputational concerns. The level of the public good is an "experience good" in nature, i.e. it can only be observed after the consumption decision regarding the private good has been taken (i.e. at the end of each period). The potential subsidy y is fixed at the beginning of each period and known to firms as well as consumers. For simplicity I assume that $y_1 = y_2 = y$.

The corporate objective is to maximize profits by choosing s (s is chosen from a continuous choice set $S \subset \mathbb{R}$) in each period and builds upon two major pillars:

1. Mission Related Benefits such as flattened reward schedules due to motivated workers, and

2. Net Financial Profits referring to revenues minus costs.

Profits in period 1 and 2 are

$$\Pi_1 = \underbrace{ms_1}_{mission\ related\ benefits} + \underbrace{p_1 DEMAND_1 - C(s_1)}_{net\ financial\ profits} \tag{2.3}$$

and

$$\Pi_2 = ms_2 + p_2 DEMAND_2 - C(s_2)$$

respectively. $p_{1,2}$ are the exogenous market prices of the public good (or price premium on the price of the private good) in each period[28]. Demand in period 1 is approximated by the representative consumer's (he) prior $E(s_1)$, which is a constant. Demand in period 2 is represented by the consumer's expectation of s_2 conditional on the observed signal s_1. Intuitively, s_1 is the outcome of the two motivations of the firm, culture and cost, and, depending on y and k, provides for a noisy measure of a firm's culture m. In the following section I will motivate and explain this particular representation of demand.

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[26]Hermalin (2000) emphasizes that even within the same industry different firms behave differently and points towards relevant empirical evidence (e.g. comparative studies of Japanese and US firms operating in the same industries). He then concludes that national, regional and professional cultures do influence corporate culture.

[27]In many cases the public good is related to a private consumption good.. Equivalently s could be interpreted as the reduction of a negative externality linked to the production of a private good.

[28]p reflects consumers' willingness to pay for s. Here the price cannot be used by the firm as a signal of quality s, but is a signal for importance consumers attach to the public good.

2.3.2 Demand

The first basic assumption is that the representative consumer prefers the impure public good, i.e. a private-public goods bundle, to the pure private good of the same kind. So the consumer has preferences for the public good (see also Bagnoli and Watts 2003). Usually the consumer has various ways to satisfy her social or environmental preferences including donations or personal behavior (private provision) on one hand, and consumption of private public good bundles on the other (Kotchen 2006 compares efficiency of separate and joint provision of private and public goods). If the public good or externality is directly related to the firm, the production process or the private product, the choice set of "doing public good" becomes restricted to enforce CSR either directly in the market (demand) or vote for governments willing to regulate firms. Consumer surveys provide abundant evidence for the existence of such social or environmental consumer preferences related to business conduct.

The second assumption is more subtle and concerns consumer preferences with respect to the quality of corporate public goods provision. I assume that the consumer prefers to buy from a firm that is a committed producer of the public good rather than a "flag in the wind" supplier. In this set up, a sustainable and largely unconditional supplier of the public good is represented as a firm that has a strong and mission oriented CSR culture m, and will supply the public good less conditional on stochastic cost factor k as opposed to a low m firm. Empirical evidence strenghtening this assumption is provided by Becker-Olsen and Hill (2005), who show that consumers prefer a (1) *high fit* between CSR (the public good) and the firm's main activity area (the private good and its production) - this could be interpreted as a preference for CSR being integrated into firm strategy and mission - and (2) a *pro-active* stance of CSR, which seems to depend on a permanent CSR (environmental) management system or planning framework rather than something that can be achieved ad hoc (this would always evoke a reactive impression). A similar idea also underlies the theoretic analysis of Ellingsen and Johannesson (2008), who build upon psychological evidence that many agents not only care about the principal's payoff as well as their own, but are also influenced by the principal's likely intentions. Translated into the present set up it is feasible to conclude that consumers care about motivation underlying CSR (m versus k).

In order to approximate demand with the conditional expectation of $E(s_2 | s_1)$, two conditions must be fulfilled: First, the expectation of quality, here the public good attached to private production, should be a good proxy for reputation. Modeling a dynamic consumer-firm relationship, Shapiro (1982) directly views *reputation as an expectation of quality* and assumes that reputation then directly affects inverse demand over time. This is the second condition underlying the approximation of demand in this set up, i.e. that reputation

determines demand when quality cannot be observed directly. More precisely, here the consumer faces a signal extraction problem as s_1, the signal for unobservable m and basis for expectations of s_2, is potentially noisy depending on y. Furthermore, this representation of demand reflects insights derived from research into the formation and effects of reputation on economic behavior. Freeman (1984) noted that *reputation reflects firms' relative success in fulfilling the expectations of multiple stakeholders.* More generally, Wilson (1985) stated that *differences in the information available to participants make their strategies acutely sensitive to their beliefs and expectations. This in turn affects the behavior not only of the uninformed person, but also of the informed one, who realizes that his current actions affect others' later beliefs, their expectations about his subsequent behavior, and ultimately their choice of actions.* This quote translates into this set up such that: The information asymmetry concerns the motivation underlying the supply of public good level s_1 and hence, tomorrow's s_2. The consumption strategy of the uninformed consumer, i.e. $E(s_2 | s_1)$, is depending on s_1 and its signaling power (represented via the noise to signal ratio). At the same time the informed firm realizes that its choice of s_1 affects the consumer's later beliefs about and hence demand of s_2. In a way, $E(s_2 | s_1)$ can be interpreted as a firm's reputation directly determining demand and firm profits.

Empirical findings also support the existence of a channel linking CSR, firm reputation and consumer demand. There is strong evidence that corporate reputation is a key determinant in the decision by consumers to purchase its goods and services. In the recent MORI[29] survey on CSR in the UK, 46% of respondents said that *a firm's reputation was a very important influence on their attitude towards a product or service.* Similarly, the Millennium Poll on Corporate Social Responsibility[30], the world's largest global survey of public expectations of corporations conducted in 1999, documented that over 25,000 individuals across 23 countries on six continents revealed that their *assessment of firms depends on its CSR record.* Two out of three people want companies to go beyond profit maximization and contribute to broader society goals. Worldwide, one third of interviewees said they form impressions of a company based on business fundamentals such as financial factors, company size, business strategy or management; 40 per cent mention brand quality or corporate image or reputation. A majority (almost 60 per cent) mentions factors related to a company's broader responsibilities - labor practices, business ethics, responsibility to society at large, or environmental impacts to be important determinants of their opinion about a

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[29]IPSOS MORI has been merged in 2005 and is now the second largest research company in the UK. Further information can be found under *http://www.ipsos-mori.com/about/index.shtml.*

[30]Environics International, Ltd., The Prince of Wales Business Leaders and The Conference Board. (1999). "Millennium Poll on Corporate Social Responsibility: Executive briefing". Toronto, Canada.

firm. This perception also translates into action as nearly half of American consumers say their *perception of a company led them to consider rewarding or punishing a company by purchasing or not purchasing its products or services, or by speaking up for or against an organization.* Around the world, 40% of the 25,000 respondents have thought in the past year about punishing a specific company perceived as not socially responsible.

2.3.3 Summing Up and Timing

The firm's combined objective then is to choose optimal levels of public good s in both periods:

$$\max_{s_1, s_2} \Pi = [m(s_1 + s_2) + p_1 E(s_1) + p_2 E(s_2 \,|\, s_1)] - [C(s_1) + C(s_2)] \qquad (2.4)$$

Neither the consumer nor the government know the exact firm type (m, k_t) at any stage of the game $(t = 1, 2)$. Subsidy proposal y is common knowledge.

- At the beginning of period 1 the consumer decides to purchase the impure public good based on her constant prior $E(s_1)$. Firms maximize total two period profits taking the signaling effect of s_1 with regard to period 2 demand $E(s_2 \,|\, s_1)$ into account.

- At the end of period 1, the consumer as well as the government learn each firm's production of s_1 and the government pays selective subsidy kys_1 accordingly.

- In period 2 the consumer conditions his purchase on observed signal $s_1(ky, m)$, giving him a noisy (if $y > 0$) measure of unobserved culture m.

- At the end of period 2 the government pays ys_2 after observing s_2. However, s_2 does not have any reputational implications (i.e. demand relevance) for a firm's financial profits anymore as the game ends at this stage.

It shall be noted that the crucial choice variable of the firm is s_1 as it establishes a kind of firm reputation which then determines future demand. The focus of the analysis will be on the choice of s_1.

2.3.4 Analysis

The FOCs are

$$C'(s_1) \;=\; s_1 - yk_1 = m + \underbrace{p_1\frac{\partial E(s_1)}{\partial s_1} + p_2\frac{\partial E(s_2\,|s_1)}{\partial s_1}}_{r(s_1)} \qquad (2.5)$$

$$C'(s_2) \;=\; s_2 - yk_2 = m \qquad\qquad\qquad\qquad\qquad (2.6)$$

The marginal reputational return (MRR) is

$$r(s_1) = p_1\frac{\partial E(s_1)}{\partial s_1} + p_2\frac{\partial E(s_2\,|s_1)}{\partial s_1} \qquad (2.7)$$

and just depends on s_1. The firm's choice of s_1 reveals $[m + yk_1]$ equal to $[s_1 - r(s_1)]$. Period 2 output s_2 is free of any reputational concerns and reflects each firm's $[m + yk_2]$ directly.

Using the FOC from above and standard results for normal random variables (see Appendix 1.1) demand in period 2 can be written as

$$E(s_2\,|s_1, y) = [\overline{m} + y\overline{k_2}] + \frac{\sigma_m^2 + y[\sigma_{mk1} + \sigma_{mk2}]}{\sigma_m^2 + 2y\sigma_{mk1} + y^2\sigma_k^2}\left[s_1 - r(s_1) - \overline{m} - y\overline{k_1}\right]$$

This assessment of the firm's future social behavior s_2 is a weighted average of the prior $[\overline{m} + y\overline{k_2}]$ and the marginal cost of the firm's contribution in period 1, s_1, net of constant reputational concerns and average subsidy related motivation $y\overline{k_1}$. An equilibrium corresponds to a pair of public good levels $\{s_1(y, k_1, m), s_2(y, k_2, m\}$ such that the conditional expectation $E(s_2\,|s_1, y)$ solves the linear differential equation

$$\frac{\partial E(s_2\,|s_1, y)}{\partial s_1} = \rho(y)[1 - \frac{\partial r(s_1, y)}{\partial s_1}]$$

where

$$\rho(y) \equiv \frac{\sigma_m^2 + y[\sigma_{mk1} + \sigma_{mk2}]}{\sigma_m^2 + 2y\sigma_{mk1} + y^2\sigma_k^2} \qquad (2.8)$$

is the weight determining the signaling power of s_1 with regard to underlying culture m. Intuitively, the higher $\rho(y)$, the more likely the consumer will link a firm's s_1 with m and hence buy from the firm in period 2.

Proposition 2.1 *There is a unique separating equilibrium where a firm of type (m, k) provides public good s_1 at the level*

$$s_1(y) = yk_1 + m + p_2\rho(y) \tag{2.9}$$

Period 2 output s_2 is free of reputational concerns and equals

$$s_2 = m + yk_2$$

Proof. The first order differential equation to solve is

$$\frac{\partial E(s_2 \,|s_1, y)}{\partial s_1} = r(s, y) = \rho(y)[1 - \frac{\partial r(s, y)}{\partial s_1}] \tag{2.10}$$

or rewritten

$$r'(s, y) = ar(s, y) + b \tag{2.11}$$

where

$$a = -\frac{1}{\rho(y)} \tag{2.12}$$

$$b = 1 \tag{2.13}$$

The general solution is

$$r(s, y) = -\frac{b}{a} + ce^{as} = \rho(y) + ce^{-\frac{s_1}{\rho(y)}} \tag{2.14}$$

where c is a constant of integration. From here we see that $r(s, y) = \rho(y)$ is a steady state solution corresponding to $c = 0$ in the general solution. This is the only well defined equilibrium as for $c \neq 0$ the firms objective function is not globally concave and maximized at $s_1 = \pm\infty$ (Take the derivative w.r.t. s_1 and isolate s, which yields $[-(\ln 0) * \rho(y)]$ on the RHS.) ∎

For further analysis we recall that k is randomly drawn each period ($\sigma_{k1k2} = 0$) and we assume that m and k are independent each period ($\sigma_{mk1} = \sigma_{mk2} = 0$). It follows that

$$\rho(y) = \frac{1}{1 + y^2\sigma_k^2/\sigma_m^2} \tag{2.15}$$

This benchmark case highlights the fundamental dynamics in a simple way. A higher subsidy y increases the noise to signal ratio $\frac{\sigma_k}{\sigma_m}$ and decreases $\rho(y)$, while at the same time increasing period 1 profits directly via yk_1. The result is an ambiguous effect of y on s_1. The condition for a negative (adverse) effect on public good provision s_1 is stated in the following Proposition.

Proposition 2.2 *Assume* $\sigma_{mk1} = \sigma_{mk2} = 0$. *Denote* $\theta = \frac{\sigma_k}{\sigma_m}$. *Incentives* y *lead to a reduction in public good provision* s_1, *i.e. have a counterproductive effect*

$$\frac{\partial s_1(y)}{\partial y} < 0 \tag{2.16}$$

if

$$k < p_2 \frac{2y\theta^2}{[1 + y^2\theta^2]^2} \tag{2.17}$$

For any $\theta, y, p > 0$ $\exists$ *an interval* $[y_0, y_1]$ *s.t.* $\frac{\partial s_1(y)}{\partial y} < 0$ *on this interval and* > 0 *elsewhere on* $\mathbb{R}$.

Proof. Using the general expression of $\rho(y)$ we get

$$\frac{\partial s_1(y)}{\partial y} = k + p_2 \left[\underbrace{\frac{\sigma_m^2(\sigma_{mk2} - \sigma_{mk1}) - \sigma_k^2[y^2(\sigma_{mk2} + \sigma_{mk1}) + 2y\sigma_m^2)]}{(\sigma_m^2 + 2y\sigma_{mk1} + y^2\sigma_k^2)^2}}_{\rho'(y)} \right] = 0$$

By setting $\sigma_{mk1} = \sigma_{mk2} = 0$ the inequality of Proposition 2 follows straight.

We can rewrite as

$$LHS(y) = k(1 + y^2\theta^2)^2 < 2yp_2\theta^2 = RHS(y)$$

$LHS(y)$ is a second order polynomial that is convex and symmetric over $\mathbb{R}$. $RHS(y)$ is a simple linear and increasing function in y.

At $y = 0$ the following contradiction arises for $k \geq 0$:

$$LHS(0) = k \geq 0 = RHS(0)$$

Then $\exists$ a unique $p_2^* > 0$ where $y^* > 0$ is a single tangency point s.t. $LHS(y^*) = RHS(y^*)$.

- For all $p_2 < p_2^* \implies LHS > RHS$ and following the above condition we see that $\frac{\partial s_1(y)}{\partial y} > 0$ on all of $\mathbb{R}^*$. [No adverse incentive effects.]

- For all $p_2 > p_2^*$, LHS intersects RHS twice, i.e. there is an interval between these two intersection points $[y_1, y_2]$ where $\frac{\partial s_1(y)}{\partial y} < 0$ and $y \in [y_1, y_2]$.

■

2.4   Discussion

Basically two variables play a crucial role in determining whether a subsidy might backfire or not: A firm's ability to benefit from a subsidy, k, and exogenous market price p_2. A firm that is more cost efficient (in lobbying) is less likely to reduce its production of s as a reaction to an increase in y. This is simply the case because the firm is able to reap large parts of the direct benefit sy, giving less importance to the reputational effects that underlie adverse incentive effects (see Figure 1A). Figure 1B shows the same effect but for the alternative interpretation of $k \leq 1$ as a share of total y attracted by the firm. As k is small, the crowding effect is pretty strong for all firms with $k > 0$.
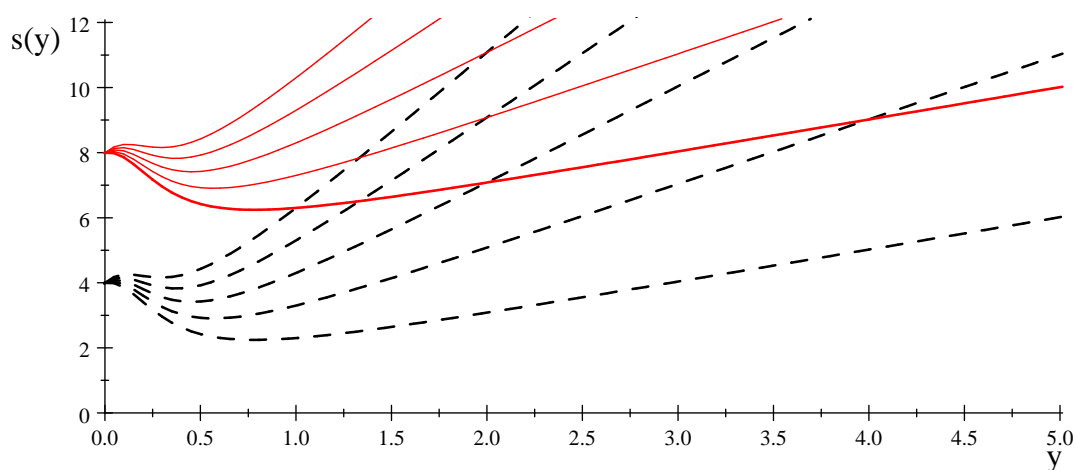

Figure 2.1A: Crowding as a function of cost efficiency: $[\theta = p = 3;]$ and $[k = 1, 2, 3, 4, 5]$ for $m = 1$ (dashed); $m = 5$ (solid)
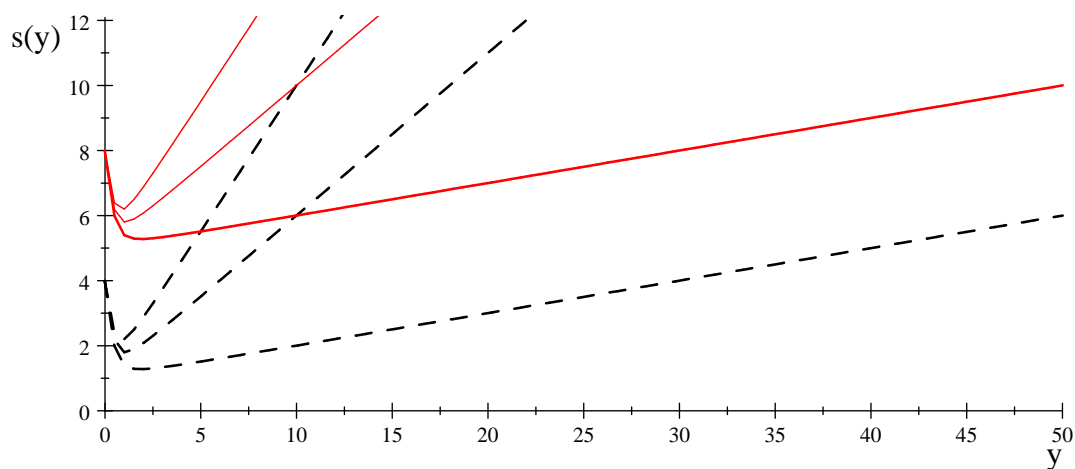
Figure 2.1B: Crowding as a function of cost efficiency: $[\theta = p = 3;]$ and $[k = 0.1, 0.5, 0.9]$
for $m = 1$ (dashed); $m = 5$ (solid)

On the other hand, a high exogenous market price of the public good increases the probability of an adverse effect on supply of s. One potential rationale would be that high market prices reflect consumers' high willingness to pay and hence their preoccupation with corporate public good provision. This could be a sign that the reputational channel is increasingly important when selling to these consumers.
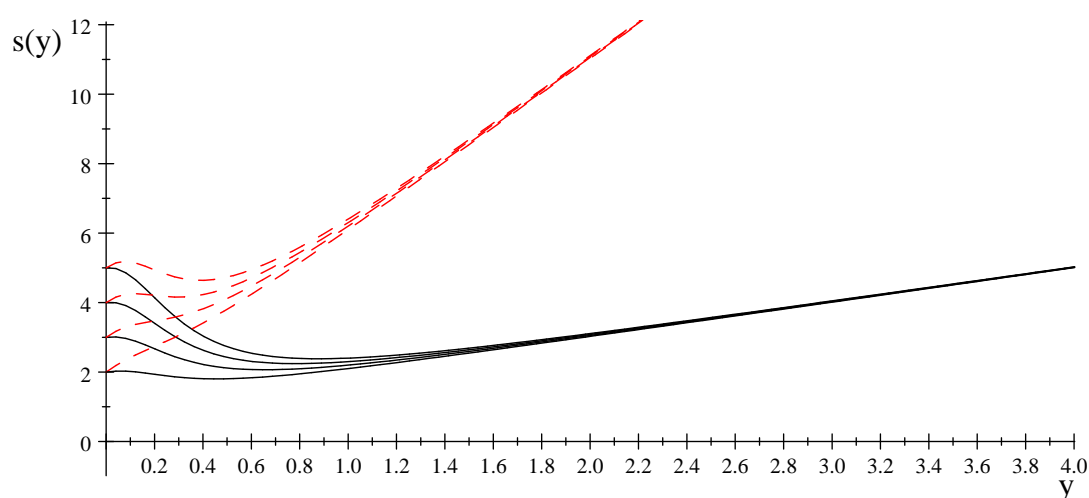

Figure 2.2: Crowding dependent on p: $[k = 1$ (solid); $k = 5$ (dashed)]

The underlying intuition can be summarized as follows: When there are no incentives provided $[y = 0]$, then the choice of s_1 does not help the consumer to infer anything about k, but will be very informative about the firm's culture m (something the consumer appreciates as he wants to find out about a firm's m). In the absence of incentives y the only corporate motivation to provide the public good comes from m. Culture can be identified by netting out reputational concerns in the form of the observable market price.

$$m = s_1 - p_2 \qquad (2.18)$$

In Figure 3 below the general mechanics underlying the above findings will be summarized. The vertical line in the $m - k$ (type) space[31] represents the separating locus for any $s > 0$ when no subsidy is available $(y = 0)$. All firms located on the locus or to its right produce

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[31] Every firm can be located as a dot in the $m - k$ space.

at least a given s in equilibrium. When a subsidy is introduced, i.e. $y > 0$, the slope of the separating locus becomes

$$-\frac{1}{y} < 0 \tag{2.19}$$

and

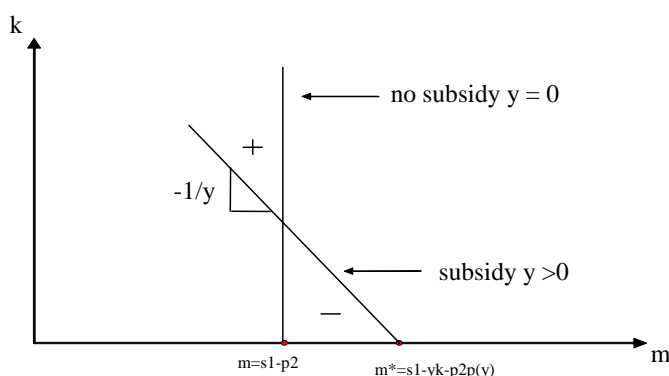$$m = s_1 - yk - p_2\rho(y) \tag{2.20}$$

Figure 2.3: The Potential Effects of a Subsidy on Firms' Decision to produce any given s

As y increases, consumers can infer less information about m but learn more about k drawn in the actual period. Firms are subject to two considerations: First there is the classical incentive effect where $y > 0$ induces increased production of the public good s. As shown above, this is especially true for firms with high k. Firms that have a sufficiently high m and low k instead may feel that it is now less worthy to increase s as consumers will not be able to read the signal correctly anymore, i.e. the reputational incentive (MRR) for firms to increase s decreases. In sum it can be readily observed that a firm with given culture m will more likely react negatively to a subsidy when drawing a low k, i.e. it will be located more likely in the lower right "crowding out" triangle.

As the incentive enfolds its adverse effect only via the noise to signal ratio, the following comparative static result will outline the multiplier effect of y through θ. Figure 4 exhibits the range of incentives y that potentially lead to crowding out (negative sloping area in the $s(y)/y$ dimension) dependent on the noise-to-signal ratio θ. Ceteris paribus, with the noise-to-signal ratio θ increasing from 0 (positive and linear correlation between y and $s(y)$, and no crowding out) to 5 we find that the size of the crowding out effect of incentives is increasing significantly. More precisely the range of incentives that would lead to crowding out increases in θ. Intuitively, a higher θ decreases consumer's ability to interpret the signal

in favour of the firm (lower weight on signal s_1 and underlying social motivation m). This in turn reduces firms' reliance on s_1 as a signal for m and hence amplifies the adverse incentive effect.
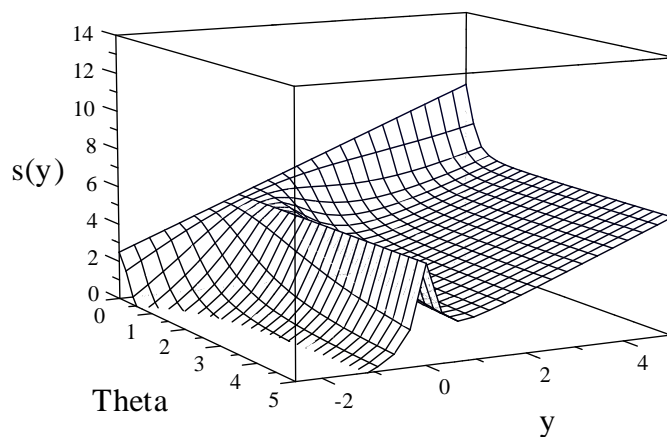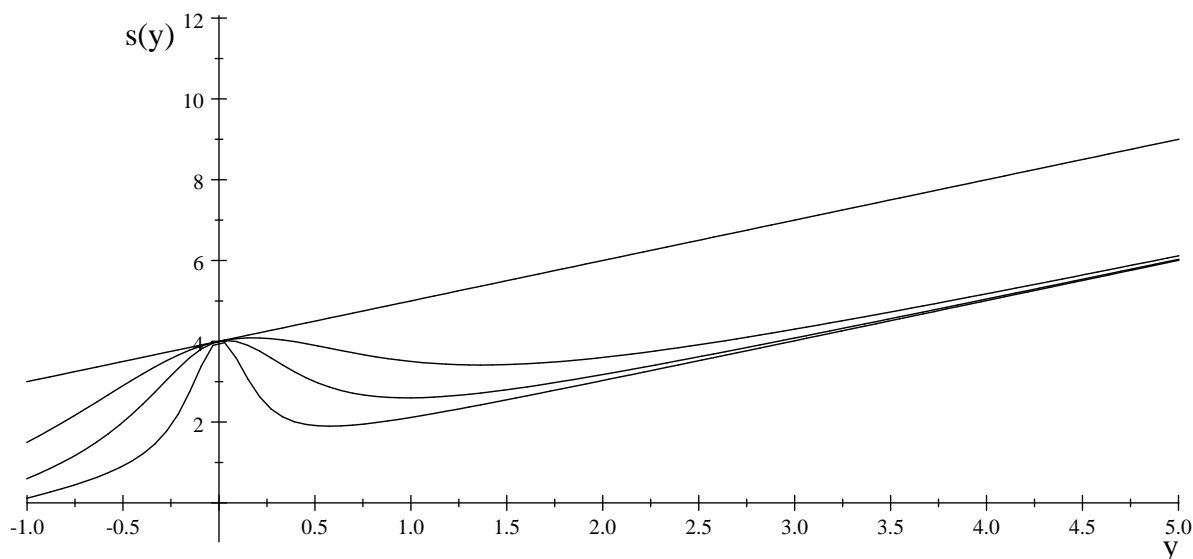

Figure 2.4A: Equilibrium *Crowding Out* with varying noise-to-signal ratio θ (3D)
$[k = m = 1; p = 4]$

2.4B: Crowding Out and the Noise-to-Signal Ratio (2D) $[m = k = 1; p = 3; \theta = 0, 1, 2, 5]$

Two interesting additional observations can be made: First, the sensitivity of output $s(y)$ is high around $y = 0$, and second, crowding out is bound to happen more likely at lower

(positive) levels of incentives y. The RHS of equation (24) reveals that the inequality is more likely to hold for small values of y. This signal reversal effect that operates specifically around 0 (Benabou, Tirole 2006) adds to the reduced $\rho(y)$ as a source of crowding out. In other words the monetary benefit to reputational loss ratio is smaller than 1 for small values of subsidies, and, as subsidies increase, they will at some stage outweigh the reputational effects and again act as an incentive to increase supply of s.

2.5 Conclusions

This paper constitutes an attempt to understand better how a firm's motivation for CSR and potential government incentives interact. The existence of a reputational channel between CSR and consumer demand makes CSR a strategic behavior. Then, the signaling power of CSR becomes the crucial determinant of the level of CSR contribution by firms and depends negatively on monetary incentives attached to corporate public goods. The fact that a subsidy not only reduces marginal costs, but also decreases marginal demand for the private public good bundle, causes an ambiguous effect on firm profits and hence supply of CSR. It is shown that there exists the possibility that the effect of a marginal increase in the subsidy on supply of the public good on the individual firm as well as overall level might be negative. This would constitute an inefficient use of incentives, which governments would want to avoid. The result also sheds light on the power of market forces such as consumer preferences in influencing firm behavior and its dependence on information. Here, demand side pressure determines the objective function of profit maximizing firms, and an increase in people's sensitivity towards CSR issues (or a higher exogenous price premium) enforces the working of the reputational channel and makes government intervention more vulnerable towards crowding out effects. However, if the government was spending resources (1) on information to increase public awareness of environmental or social problems (or to reduce the information asymmetry between consumers and firms regarding their type) or (2) on decreasing cost variance, it could strengthen the functioning of the market via the reputation-demand channel.

On the other hand, when firms do have significant lobbying efficiency, then a well targeted and well conditioned subsidy can act as an incentive to increase CSR efforts as expected benefits outweigh reputational costs. However, it must be noted that in any case subsidies cannot be "weak" in the sense that they are unconditional, linked to unverifiable outcomes, or take any other form of corporate welfare. Furthermore, firms that seem to have incorporated CSR into their corporate culture and long term strategy, in the example this could be Japanese car manufacturers, will face the same disincentive via a CSR subsidy, which is

paradoxical in the sense that they should be relatively less affected by "cost related" shocks than other firms. Then, only substantial lobbying efficiency jointly with sufficiently high subsidies could soften the disincentive via significant cost reductions. But it is exactly in this segment of firms, where the subsidy would have the strongest relative adverse effect, as it is those firms that least need it to do CSR. Overall, this result suggests the need to look for alternative public policy tools (e.g. strengthening the information channel between firm and demand) and even the possibility of letting markets provide the public good alone via CSR.

2.6 Appendix

2.6.1 Conditional Expectation of Normal Random Variables

To get the conditional expectation for normal random variables Theorem B7 (Greene p.872) is applied:

$$E(s_2 \,|\, s_1) = \mu_{21} = \mu_2 + \Sigma_{21}\Sigma_{11}^{-1}(s_1 - \mu_1) \tag{2.21}$$

where $s_2 = m + yk_2$ and $s_1 = m + yk_1$ are two normally distributed random variables. It follows that

$$\mu_2 = \overline{m} + y\overline{k_2} \tag{2.22}$$

$$
\begin{aligned}
\Sigma_{11} &= Var(s_1) = \tag{2.23}\\
&= E\left[(m - \overline{m} + y(k_1 - \overline{k_1}))^2\right] = \\
&= \sigma_m^2 + 2y\sigma_{mk1} + y^2\sigma_{k1}^2 \tag{2.24}
\end{aligned}
$$

$$
\begin{aligned}
\Sigma_{21} &= Cov(s_2, s_1) = \tag{2.25}\\
&= E\left[(m - \overline{m} + y(k_2 - \overline{k_2}))(m - \overline{m} + y(k_1 - \overline{k_1}))\right] = \\
&= \sigma_m^2 + y(\sigma_{mk1} + \sigma_{mk2}) \tag{2.26}
\end{aligned}
$$

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CHAPTER 3

INTERNATIONAL CORPORATE SOCIAL RESPONSIBILITY AND PUBLIC POLICY

3.1   Introduction

Today many social, environmental and ethical externalities such as global warming and unethical labour or financial practices are inseparably linked to corporate conduct and affect large parts of society through a mix of extrinsic, physical impact or intrinsic, reputational perception[1]. Given that such externalities arise in conjunction with production of goods and services, standard competitive market mechanisms will inevitably lead to underproduction of efficient levels of the respective public good due to demand side driven collective action problems. For example, in the case of an environmental production externality this implies that even if consumers derive negative utility from pollution, they individually are not willing to pay the respective price premium to incentivize firms to go green. Then competitive markets force profit maximizing firms to pollute above socially optimal levels. Furthermore, both firms and the public goods and bads they produce have increasingly overcome nation based, geographic limits and need to be analyzed within an adequate international economic framework. On the one hand, globalized market attributes such as trade liberalization, political and economic integration or modern technologies require firms to decide not only what and how to produce, but also where to locate, whether to outsource or tap distant markets. Advances such as the internet or the end of the East West Divide in 1990 reduced transport and communication costs and certainly increased the geographic scope of many firms, a fact evidenced by the emergence of giant multinational corporations as well as an increase in intra firm trade, offshoring along the supply chain, as well as foreign direct investment (FDI). On the other hand, prevailing coordination failure among governments severely constrains effective internalization of corporate externalities via classical correction mechanisms such as regulation.

At the same time, firms have increasingly started to privately produce levels of public goods or reduce negative externalities beyond those required by law or regulation. This

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[1]See Section 2 for a more detailed discussion of the extrinsic and intrinsic channels defining international public goods and therefore allowing economic mechanisms underlying CSR to work internationally.

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behavior has been termed self regulation or Corporate Social Responsibility (CSR) and economists such as Besley and Ghatak (2007), Bagnoli and Watts (2003), Kotchen (2006) or Arora and Gangopadhay (1995) among others have started to investigate the economic motivation beneath CSR as well as related welfare implications. Few authors such as Lyon and Maxwell (2004) have begun to investigate the interaction between public policy, CSR and other strategic considerations by firms, however, no explicit attention has been paid to the potential trade off between CSR and firm location and the implications for regulation and welfare. In this spirit, this work aims at embedding strategic CSR in an international environment and merging the analysis of two distinct economic policy discussions, namely Firm Location/Offshoring and CSR, into a simple theoretic framework. It is shown that if CSR is treated as an international public credence good and firms choose both the level of CSR and the location of production, then the scope for regulation to improve upon CSR levels of the public good depends on the gap between monitoring technologies between states as well as its absolute level within the potential relocation option. In other words, the reputational cost (price premium) to be paid/charged by firms when moving production between different informational (institutional) environments is parallelly determining strategic levels of CSR and firm location as well as regulatory scope. The proposed standard economic mechanics driven by simple differences in information asymmetry between firms and stakeholders are able to explain (weak or mixed) empirical evidence related to the Pollution Heaven Hypothesis and regulatory race to the bottom type arguments put forward by a substantial theoretic literature (see discussion below). Furthermore, the baseline model outlined here may serve as a hub for further analysis of related research spokes such as regulatory interaction between asymmetric states (e.g. developed vs developing countries) or alternative (environmental or social corporate) public policy approaches related to information supply requirements.

Multinational Firms interact with different stakeholders who often critically define corporate success or failure. The two strategic relationships of interest in this paper are the one between firms and the demand side they serve (consumers or downstream firms) as well as between firms and the regulatory environment (governments or regulatory authorities). Then, profit maximizing firms will take both differences between national regulations as well as preferences[2] of their customers into account. This leads to strategic choice of levels of CSR and firm location and opens up the question of how these considerations simultane-

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[2]Preferences can be fairly heterogenous in the sense that consumers may value a product or service dependent on a mix between its extrinsic and intrinsic value. Kotchen (2006) models such demand within the framework of the product characteristics model, where customers value a private and public good characteristic of the consumption good. This determines the willingness to pay and therefore constitutes an important parameter for any firm strategy. Following the same logic, a downstream firm may have "intrinsic" preferences for e.g. a green intermediate product, for it then serves its own customers, who may care about such product characteristics.

ously affect each other and the ultimate profit maximizing firm strategy. Given that firms are to some extent geographically flexible, it appears to be this interaction in the light of economic mechanisms underlying CSR and firm location that will determine scale and scope for regulation and market driven provision of public goods.

The fact that CSR can be used in a strategic fashion while being perfectly coherent with profit maximization led to the term "strategic CSR" coined by Baron (2001). Along these lines, Kitzmueller (2008) identifies *six strategies behind strategic CSR*[3], ranging from attracting a motivated workforce (e.g. Besley and Ghatak 2005) to selling to socially responsible consumers (e.g. Bagnoli and Watts 2003) to hedging against private (e.g. Baron 2001) or public policy interventions (e.g. Lyon and Maxwell 2004), among others[4]. The bottom line is that optimal firm strategy is a function of both share and stakeholder preferences and that CSR might often be an equilibrium outcome, even without social or environmental shareholders and/or managers or moral hazard dynamics between the two. It follows that governments wishing to enforce or incentivize the production of welfare enhancing levels of public goods should take such pure market mechanisms and their interaction with corrective regulatory tools into account as unexpected and counterintuitive effects may arise. For example, Kitzmueller (2007) provides for a theoretical rationale of how a government subsidy intended to increase CSR might actually crowd out the provision of public goods for some firms as reputational marginal benefits from CSR can decrease, given certain consumer preferences, and thereby outweigh the financial benefits from a subsidy. Another context in which the interplay between regulation and firm strategy plays an important role is provided by the literature on Pollution Haven Effects (PHE), the Pollution Haven Hypothesis (PHH) and Environmental Dumping (ED). In a nutshell, the PHH states that a country's comparative advantage in hosting pollution intensive industries is decreasing in stringency of its respective regulatory framework. Assuming that an increase in environmental regulation makes a state's pollution intensive production more expensive, the PHE will increase imports of such "dirty" goods while decreasing their home production. Then, the lower are trade barriers between states, the more clean and dirty industries will sort across different (stringent and lax) regulatory environments (see Taylor 2004 for a detailed discussion). However, empirical evidence of the PHH is not at all conclusive and therefore does not allow to discriminate between competing theories. On the one hand, according to empirical work by Dasgupta et al. (1995) there exists a high and positive income elasticity of environmental policy perfor-

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[3]These strategies are by no means mutually exclusive and can therefore theoretically all form part of one and the same comprehensive firm strategy.

[4]The two missing incentives for CSR stem from firms' wanting to attract equity from socially responsible investors (SRI) and isomorphic pressures.

mance, i.e. a positive correlation between development indicators such as income per capita, security of property rights, or general development of the legal or regulatory system, and performance of environmental regulation. This implies, in line with the theoretical predictions of Copeland and Taylor (1994), that developing countries are more likely to become pollution havens while developed countries will choose stringent environmental protection and specialize into relatively clean production. On the other hand, it has been shown that a sector's capital and pollution intensities are positively correlated, therefore allowing trade liberalization to induce specialization of capital abundant, developed countries into pollution intensive production. Furthermore, if states start to interact strategically by competing for production or firm location, equilibrium levels of environmental regulation may end up well below optimal levels and give rise to ED or, in the extreme case, to a "race to the bottom". As is the case for the PHH, also for the game theoretic "race to the bottom" prediction, empirical evidence is mixed at best. One way to realign theory and evidence may be to assume that firm strategy is subject to considerations beyond the classical relationship between globalization, trade and regulatory costs. Can the integration of CSR considerations do the trick?

Recently, an empirical link between the two above outlined theoretic research areas has been established. CSR has been identified to have significant impact on firm location when public goods or externalities are associated with production. Dam and Scholtens (2008) investigate a cross sectional firm level dataset (EIRIS, AMADEUS, WBES and WDI) covering 44,149 subsidiaries of 540 European Multinational Enterprises (MNEs) in 188 countries and find that increased CSR[5] activity within a firm reduces its likelihood to locate in regulatory pollution heavens. Based on the assumption that firms apply one uniform internal environmental standard across various locations[6] (here the "home standards" are high European standards) they show that the higher this internal standard the less likely the respective firm tends to locate in states with weak environmental regulation, while for firms with lower corporate environmental standards the PHH seems to hold true. This empirical result points towards an economic mechanism underlying CSR that alters the classical role regulatory cross country variation plays in firms' strategic decision making.

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[5]The authors use a variable called *Environmental Responsibility* as a proxy for CSR. Environmental Responsibility contains factor scores based on a factor analysis of four indicators from the EIRIS (Ethical Investment Research Service) database ranking all firms on a scale between -1 and 3. The four indicators are *Environmental Performance, Impact Improvement, Environmental Reporting and Environmental Managment.*

[6]Potential mechanisms for why firms may have to apply uniform internal standards across countries that are heterogenous in their regulatory standards are discussed in Section 1.2.

3.1.1 The Role of Information in Different Settings

The argument that social pressures and cost advantages may incentivize firms to adopt one company wide social and/or environmental standard not only allows Dam and Scholtens to integrate CSR into their empirical test of the PHH and the often proclaimed race to the bottom, but also led others to venture further and conclude that regulation can increase CSR efforts of firms producing outside the legal boundaries of the regulator. This conjecture relies on two major assumptions: 1) It is optimal for firms to adopt one firm wide standard (something we can think of as one *mission* as in Besley and Ghatak (2005) or one reputation/brand), and 2) the market overseen by the regulating authority encompasses a critical share of total demand[7], i.e. it acts as a pull factor reducing firms' elasticity to switch sales to other markets. Then, regulation and standardization gain momentum through the economic gravitation of the markets they control, because firms will want or even need to serve these sales markets independent of their location. In the words of Davis, von Neumann Whitman, Zald (2006) [*t*]*he overall proposition that emerges ... is that social and regulatory pressures are drivers of Global CSR, but that cost driven processes of standardization within companies will tend to lead the tightest standards to prevail ... Many have deduced a race to the bottom in labor and environmental standards, in which producers chase the lowest cost labor housed in the most lax regulatory environment, thus inducing states to compete to provide a docile and union free labor force and an anything goes approach to pollution...Regulation is the most consistent and effective force favoring CSR. The companies with the best records in particular domains of CSR have tended to be those that are most heavily regulated ... Ironically then globalization is accompanied both by a race for lowest production costs and increasing demand for CSR.* In such a world, developed countries could theoretically *export* their standards and regulations to developing countries via raising CSR levels produced in the developing world by MNEs serving demand in the developed world. Assume that purchasing power as well as social and environmental consciousness are concentrated within the EU and US, then globalization will be accompanied by high levels of CSR even in lax regulatory environments[8]. The essence often overlooked but crucial in driving all these conjectures, however, is the role of information.

In most economic settings, market driven corporate provision of public goods strictly depends upon the availability, quality and cost of information about CSR[9]. Such informa-

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[7]Think of the EU or the US.

[8]The arguments underlying such assumptions will be discussed in detail in section 1.2.

[9]See Kitzmueller (2008) for a detailed account of how the level of strategic CSR in all 6 outlined frameworks depends upon its valuation by stakeholders, which in turn depends upon transparency and information about actual social or environmental performance.

tion parameters are necessary variables to determine how well any incentive to do CSR will work, i.e. it is information that allows markets to reward or punish certain behavior. If strategic firms invest money into social or environmental goods or conduct, they expect to gain through such behavior, which can only be achieved if stakeholders are willing to act accordingly (e.g. pay price premiums in case of consumers or refrain from campaigning against companies in case of NGOs or activists). Siegel and Vitaliano (2006) test and confirm the hypothesis that firms selling experience or credence goods are more likely to be socially responsible than firms selling search goods, a finding that suggests that consumers believe CSR to be positively correlated with the good's quality - the very same way location and transparency will be assumed to be correlated to credible CSR effort in the theoretic setting of Section 2. For emerging empirical evidence underlining the importance of information in incentivizing firms to perform socially responsible see Chatterji and Toffel (2007), who find that more efficient firms are more responsive to rankings and "shaming" by third party information providers. A legal perspective on the importance of market information legal rules, i.e. those rules that govern voluntary and mandatory disclosure of information and liability in case of misreporting, is provided by Johnston (2005), who foresees a more limited role for legal tools and justifies this by the emergence of an industry of NGOs, private accounting firms and certification organizations that will provide the third party information firms seek to credibly compete in the market for CSR. For the *exporting regulation* story outlined above to work, a government must be able to observe CSR levels produced abroad. This might be the case when the CSR characteristic is inherent in the product or service imported (e.g. a low emissions/fuel efficient car, green technology in general or toxic contents in toys), i.e. there is scope for import or home market controls due to direct measurement and observability either before or at least after consumption. However, in many cases such as environmental pollution (e.g. oil drilling or manufacturing) or labor rights (e.g. sweat shops or fair trade coffee), CSR is an attribute related to production or firm conduct itself rather than the product or service produced. Then, socially responsible performance becomes a credence good, as outsiders such as customers or NGOs and even governments cannot observe it directly even after having purchased the good or service. The size of this information asymmetry will depend on the location of the firm, governance and monitoring quality at the production site, or communication channels to disseminate information. Given that information about and monitoring of actual CSR efforts most likely is imperfect, costly and limited even for governments, expectations and beliefs will guide the actions of consumers, NGOs, investors and states. The globalized and international nature of firms, supply chains and public goods aggravates this problem and increases the likelihood of government (coordination) failure

(ED and PHE) as well as market failure (too low demand for CSR as monitoring is very costly). In sum, information asymmetries between stakeholders and firms determine 1) the market levels of CSR, which are subject to the standard market failure inherent in public goods provision, as well as 2) the scope for regulation of geographically flexible MNEs in the absence of international policy coordination between governments. It is therefore in this context and with great care that one should read the potential of CSR as a substitute for regulation as proclaimed in Scherer and Palazzo's (2008) statement that *business firms are not just considered the bad guys, causing environmental disasters, financial scandals, and social ills. They are at the same time considered the solution of global regulation and public goods problems.* Note here that often economic theory treats governments' access to information different than that of non state stakeholders. However, although governments do possess a monopoly of coercive power or in the words of Stigler (1971) *...the state has one basic resource which in pure principle is not shared with even the mightiest of its citizens: the power to coerce...*[10] , this by no means translates into better or more information available to states and regulators (due to resource constraints to gain, process and execute based upon information or capture or lack of knowledge etc.). In today's complex global markets characterized by MNEs, the internet, international NGOs, blogging and real time TV channels such as CNN, the legal mandate and ability of public authorities to collect information tends to loose its glory (see a discussion of the role of information within the Coasian framework by Farrell 1987). Then, this view of government as an equal and regular stakeholder as far as information about firm conduct is concerned, will expose it to dynamics and constraints similar but not equal to those of private agents.

In such a world of imperfect information and monitoring, reputation or signaling concerns gain importance in determining firm strategy in general and CSR levels as well as firm location in particular. More precisely, location and CSR production might interact via differences in regulation and transparency across states. Therefore, it will be crucial for governments to understand these interactions to determine necessity, scope and scale of public policy, and to know when regulation actually can improve upon market driven CSR levels and when it might entail adverse effects in the form of (re)location of business activity abroad and even lower, then foreign production of international public goods[11].

According to the United Nations, the number of transnational corporations increased from 37,000 in 1990 to over 60,000 in 2001, with foreign affiliates growing from 170,000 to over 800,000.

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[10]This quote then leads Stigler to conclude that this power is subject to (industry) capture and most often used in selective and less/in-efficient way.

[11]Note that if public goods are international, then, even if they are produced abroad, they directly affect welfare at the home country. The next subsection will discuss how public goods may be international in nature.

From a perspective of economic analysis of CSR, international CSR and the MNE as an organizational construct are of particular interest as MNEs usually are large(r) corporations with big societal impact and prominent presence in public (stakeholder) discussion, awareness and scrutiny. These correlations are witnessed empirically by Edwards et al. (2007) among others. This is especially true for leading market economies such as the European Union or the USA, where arguably many MNEs sell their products and services and NGOs are active in monitoring corporate behavior. By definition it is also multinational firms that exhibit transborder intra-firm trade, possess international flexibility concerning production and sales, and contribute a lion's share to international public goods of environmental or social character.

3.1.2 The Geography of Firms, Preferences, and Public Goods

In order to focus attention on the strategic considerations of interest in this work (namely CSR and location), the broad definition of a MNE will encompass all forms of international location and production, i.e. vertical and horizontal integration as well as arm's length outsourcing, given that they are sufficiently related to the brand or firm. Independent of ownership structure or contractual relation, all producing entities of intermediate and final consumption goods, services or brands subsumed under a common organizational roof, i.e. the respective MNE, feed into *one unique reputation and perception*[12] per MNE. (1) This corresponds to the view that if a MNE does not own all entities along the relevant supply chain(s), it will be nonetheless held accountable for actions of contractors or upstream suppliers, as was the case for *Nike* and child labor in some of its contractors' sweat shops. Today international corporations are even held responsible for actions of governments of states they operate in (e.g. Royal Dutch Shell in Nigeria in the 1990s[13]). (2) Another implication of this view of the firm is that MNEs may benefit from applying one and the same standard of production and general conduct across different geographic and product markets (in addition to technological/standard cost advantages) through the benefits associated with reputation, i.e. multiple standards may convey an incoherent or not credible image or mission to consumers (or stakeholders). Evidence has been found in a recent study by Dowell, Hart and Yeung (2000), who state that nearly 60% out of 89 US based manufacturing and mining multinationals with operations in developing countries apply one stringent internal standard

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[12]or mission
[13]See http://en.wikipedia.org/wiki/Shell_Nigeria

that *reflects OECD norms*[14]. Furthermore, firms with one internal standard featured a 10.4 billion US$ premium in market value (measured by Tobin's q) as compared to their competitors. (3) Then firms will tend to treat ownership and outsourcing as equivalents and both options can be modeled via the same and here crucial geographic choice dimension.

Related to this comprehensive view of firms each "producing" one reputation or trade mark only is an empirical observation originating in the literature on Corporate Social Marketing (e.g. Kotler and Lee 2004). The major insight here is that the successful strategic use of CSR depends on credibility, which in turn is a result of how aligned CSR and core activities of the firm are. Becker-Olsen and Hill (2005) find that consumers are able to identify low fit CSR as advertisement and tend to negatively perceive such CSR efforts as greediness of firms rather than genuine interest into social or environmental concerns. Hence, it is just one step to conjecture that firms that perform CSR in some places and don't in others won't appear as credible or coherent at all. However, it should be mentioned that this global integrative process is limited by the often complex nature of ownership and organizational transparency.

On the other hand, technology has improved and barriers to the flow of information have vanished over the last 20 years. In a recent (2005) US consumer survey conducted by Fleishman Hiller and the National Consumer League it is found and concluded that *[t]echnology is changing the landscape in which consumers gather and communicate information about how well companies are being socially responsible. The majority of consumers seek out information about social issues (77 percent) or the social responsibility record of companies (52 percent) "some" or "all of the time."* Furthermore, *[t]he respondents' demographic characteristics appear to influence their level of interest in seeking out CSR information. For example, those who tend to seek out this information tend to have Internet access and/or have at least some college education.* This points towards developed countries as the cradle and current centre of CSR preferences among stakeholders. Not only do living standards in the developed world endow people with the lion's share of purchasing power, but also provide them with information through education and access to technology. From another perspective, this argument reflects the Maslow pyramid in the sense that only when basic needs (such as survival, food or security) are fulfilled, do people start worrying about more indirect needs such as the environment, global warming, ethical firm behavior in developing countries and alike. Another concept lending support to such a view is the Environmental Kuznets Curve as outlined originally by Grossman and Krueger (1993) and revisited later

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[14]A word of caution: Of course purely strategic incentives also play a role, as for example investors and finacial markets may interpret heavy emmissions as a signal of inefficient production techniques, as witnessed by stock market reactions to environmental news.

by Dasgupta et al. (2002). The curve posits an inverted-U relationship between economic development (income per capita) and environmental pollution. In the initial process of industrialization, people only care about jobs and income and public environmental spending and regulations are weak and unpopular. Lateron income rises, technology improves pollution, and preferences as well as regulation begin to favor environmental protection.

Hence, the economic development and growth of states such as the US or EU countries enabled the development and demand of more elevated needs and preferences including those driving large parts of strategic CSR today through various channels. Given that stakeholder preferences are the ultimate drivers of corporate provision of public goods, the next inevitable questions arising in this context are (1) *why* are public goods international/global or (2) *can/how do* public goods and preferences overcome geographic distance or national borders between source and effect?

There are two basic explanations: Extrinsic or intrinsic international effects of public goods. Either distant public goods reach far away consumers physically (e.g. global warming, pollution) or life quality/development status (a la Maslow as outlined above) conditional on available information allows consumers or in general stakeholders to *care* about distant local public goods in the same way as if they were affected physically at home. This channel resembles a mental affection or compassion channel. In other words, the strategic CSR mechanism (i.e. demand driven conditional on information/credibility) still works across borders and even in absence of direct physical effects if stakeholders have certain intrinsic preferences or morale and will affect firms that (mainly) serve this kind of consumers. In short: National preferences are "enough" to make a public good international[15]. In both cases utility and willingness to pay, i.e crucial determinants of corporate strategy, are affected.

Hence, the model presented in this paper captures exactly the most interesting and important cases of CSR, i.e. when government is really constrained (i.e. cannot unilaterally regulate e.g. via import standards because of CSR being a credence good) and market driven CSR and firm location dynamics interact in a most significant way, i.e. physical and intrinsic demand forces affect firm strategy. It is in this scenario when cross country variation in information asymmetry (i.e. availability, accessibility or quality) gains momentum and allows for an interesting and fresh view on policy making.

3.2 The Model

The general set up broadly refers to a three stage game with three players (see Figure 1): Consumers, firms and (one or more) governments. In the first stage governments decide

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[15]I would like to thank Luigi Guiso for a clarifying discussion on these issues.

about regulation (public policy)[16], in stage two firms will decide to locate production in either one of at least two countries, and in stage three firms will produce and sell the private public good bundle subject to their prior location decision, international Bertrand competition and heterogenous consumer preferences.
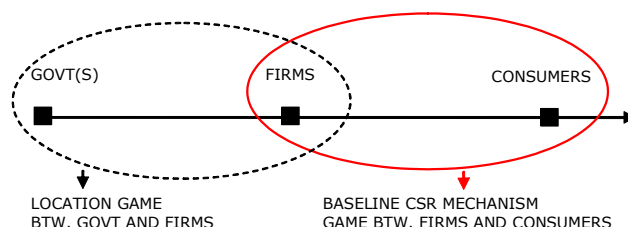

Figure 3.1: Overview

The game will be solved backwards. Therefore, the point of departure is the subgame played by firms and consumers in the final stage, i.e. after governments have decided about public policy and firms about where to locate production.

Let $J = \{0, 1, .., J\}$ be the set of firms. There are $J > 3$ firms, which are identical and capacity unconstrained in the production of good g. Good g has two characteristics, a private good and a public good one. The unit production cost of g for firm $j \in J$ is

$$c + \alpha\theta_j$$

where c denotes the constant marginal cost of the private characteristic and α its equivalent for the public good characteristic θ_j (per unit of g). Firms can choose θ_j and the respective price p_j that will be charged for good g. Any consumer $i \in I = \{1, ..., I\}$ purchases one unit of g. Consumers derive a constant amount of utility, $b > 0$, from the private good characteristic as well as

$$\gamma_i [f(\Theta)]$$

from the public good/externality resulting from total production of g in the economy, i.e. $\Theta = \sum_{}^{J} \theta_j$. Let the Inada conditions be satisfied, i.e. $f' > 0$ and $f'' < 0$. Parameter $\gamma_i \in \{0, 1\}$ determines consumer type according to preferences for the public good. There are n "caring" consumers with $\gamma_i = 1$ and m "neutral" ones with $\gamma_i = 0$.

The consumer problem is to choose the one firm to buy g from. Note that there exists a firm $0 \in J$ which denotes the option not to buy the good at all. Denote the buying decision

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[16]This stage is reduced form and in this work just a preliminary analysis of the government problem is conducted.

of consumer i concerning firm j by $a_{ij} \in \{0, 1\}$ where $a_{ij} = 1$ if she buys at firm j and 0 if not. A complete decision profile therefore features $a_{ij} = 1$ and $\sum_{k \neq j} a_{ik} = 0$, i.e. a vector a_i with one 1 and all 0s. The strategy behind this decision is guided by utility maximization such that

$$a_{ij} = 1 \text{ iff } (p_j, \theta_j) = \arg\max U_i(p_j, \theta_j + \sum_{z \neq i} \sum_J \theta_{zj} a_{zj}) \tag{3.1}$$

where quasilinear utility reads $U_i = b + \gamma_i f(\theta_j + \sum_{z \neq i} \sum_J \theta_{zj}) - p_j$. If a consumer decides not to buy g at all, i.e. $a_{i0} = 1$, then $U_i = \gamma_i f(\sum_{z \neq i} \sum_J \theta_{zj} a_{zj})$. In sum, a strategy a_i is a mapping from (p_j, θ_j) to action (buy or no buy) $\forall j$.

Firms maximize profits by setting (p_j, θ_j). Assume that consumers randomize their buying decision between firms that satisfy (1) with equal offers (p, θ). Then the ex ante market share of firm j in equilibrium depends upon its own strategy $A_j = (p_j, \theta_j)$, all the other firms' $A_k = \{(p_k, \theta_k)\}_{k=1}^{J}$ and consumers' strategies a_i as outlined above. Denote this demand share by d_j. So firms

$$\max_{(p_j, \theta_j)} \Pi_j(d_j)$$

where $\Pi_j = (p_j - c - \alpha\theta_j)d_j$. Finally, imperfect information is added to this set up by assuming that consumers observe θ_j only with some probability s, thereby adding an incentive for firms to charge prices that suggest levels of public good $\widehat{\theta}_j$ above the actually produced level θ_j (i.e. "cheating") due to potential profits even in a Bertrand equilibrium.

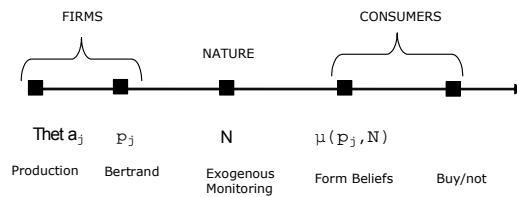The timing of the game is summarized by the Figure (2):

Figure 3.2: Timing

There are 5 substages:

1. First, firms choose $\theta_j \geq 0$, i.e. either to produce just the private good characteristic or to engage into CSR and provide any positive public good level θ_j per unit of g. This actual production decision of θ_j is private information to each firm. g is produced/infrastructure for production is built subject to chosen level θ_j. At this point all firms have made some investment related to the production of g.

2. Second, firms set prices p_j and thereby suggest a level of $\widehat{\theta}_j$ attached to this price, i.e. consumers know price but not the true level of θ_j. However, they can deduct the level of CSR charged for by the respective firm, i.e. $\widehat{\theta}_j$. Firms compete a la Bertrand.

3. Third, nature reveals θ_j to consumers with probability $s \in [0,1] \sim i.i.d.$ across firms (and nothing with probability $(1-s)$). Denote this message $N_j = \{\varnothing, A_j\}$. Consumers observe $N_j \; \forall j$, and they know exactly the respective information content, i.e. they can distinguish between $\theta_j = 0$ and $\varnothing$. For the moment, s can be interpreted as an exogenous monitoring technology that exposes all firms with equal likelihood.

4. Fourth, based on the information available, consumers form their beliefs, $\mu_i(p_j, N_j)$, subject to Bayes' rule, regarding the relationship between $\widehat{\theta}_j$ and θ_j for each firm and

5. finally decide to buy g or not and which firm to purchase from.

3.2.1 Price Setting under Incentive Compatibility

When moving towards the equilibrium in focus, it becomes clear that the crucial role is played by the price setting mechanism. It is two forces that determine equilibrium price $p_j^*(\theta_j^*)$, Bertrand competition and consumer belief formation. The respective constraint that must hold to assure at least the actual production of any $\widehat{\theta}_j$ (i.e. $\widehat{\theta}_j \le \theta_j$) charged for reads

$$p_j - c - \alpha\theta_j \ge (1-s)(p_j - c)$$

$$\rightarrow p_j \ge c + \frac{1}{s}\alpha\theta_j \tag{3.2}$$

In other words, firms, in order to be credible vis-a-vis consumers, have to charge a price above marginal costs in case of imperfect information, i.e. $s < 1$. This result is similar in spirit to Shapiro's (1983) *incentive payment to induce quality maintenance* or Leffler and Klein's (1981) *protection money to induce contract performance*. Clearly a firm would never produce a $\theta_j > \widehat{\theta}_j$ for it could not cover its costs and would incur losses, i.e. $\theta_j \le \widehat{\theta}_j$. Then, as outlined above, the constraint determines the exact relationship between price and public good level θ_j that rational consumers expect to hold if a firm truly were to produce a given $\widehat{\theta}_j$. At that point it is established that $\theta_j = \widehat{\theta}_j$. Furthermore, p_j cannot exceed $c + \frac{1}{s}\alpha\theta_j$ due to Bertrand competition. As any firm announces a price after it at least has already incurred some cost (between c and $c + \alpha\theta_j$) per unit of g, Bertrand competition clearly entails the risk to incur losses as firms could undercut such a high price and still credibly offer the same quality θ. Therefore,

$$p_j = c + \frac{1}{s}\alpha\theta_j$$

and

$$\theta_j = \widehat{\theta}_j$$

must hold. Given this mechanism, firms actually just need to announce a price p_j and consumers automatically know the corresponding CSR level θ_j. Then, there exists one level of public good, θ^*, that maximizes consumer utility and will be produced by all firms in equilibrium (see Lemma 1 for detailed proof). In sum, it is optimal for firms to charge p_j reflecting the actually/truthfully produced CSR level θ_j in line with rational consumer beliefs including out of equilibrium beliefs $\mu_i(p_j^o, N_j) = 0$ for $p_j^o \neq p_j$.

3.2.2 The Subgame Equilibrium

The equilibrium of interest is a Bayesian Nash Equilibrium where firms are charging price $p_j^*(\theta_j^*)$ and actually produce θ_j^* due to the ICC. No firm has an incentive to deviate from θ_j^* given Bertrand competition and rational consumer expectations, and all consumers buy one unit of g at some firm j.

If firms could deviate to production of any fraction of θ communicated via prices, the above constraint will be written as

$$p - c - \alpha\theta \geq (1 - s)(p - c - \lambda\alpha\theta)$$

$$\rightarrow p \geq c + \frac{1 - \lambda(1 - s)}{s}\alpha\theta \qquad (3.3)$$

where $\lambda < 1$ denotes the fraction of θ charged that is actually produced (complete default, $\lambda = 0$, is outlined above). Due to loss making, the opposite case ($\lambda > 1$) is never feasible.

Lemma 1 sums up.

Lemma 3.1 *Denote $w = \frac{1}{s}$. The truthfully produced (what Besley and Ghatak 2007 call "sustainable") equilibrium level of public good produced per unit of g by each firm is endogenously determined by*

$$f'(n\theta^*) = w\alpha \qquad (3.4)$$

The equilibrium price charged will be

$$p^* = c + w\alpha\theta^* \qquad (3.5)$$

Note that this equilibrium is symmetric, i.e. all firms serving caring consumers set the same (θ^*, p^*) in this equilibrium.

Proof. There are three important steps in this proof: First, the ICC will bind and determine prices. Second, it will be shown that all firms will offer the same θ. Third, it will be proven that the optimal level must correspond to θ^*.

1) p^*: p^* is determined by the ICC (credibility) constraint which is binding in equilibrium due to Bertrand competition and rational consumer expectations. Firms set prices under a (quasi) 0-profit condition. So for any θ_j, a price $p > p^*$ could and would be undercut by another firm $-j$ offering the same quality at a lower price thereby capturing the whole market. On the other hand, for any θ_j a price $p < p^*$ will invoke consumer beliefs such that the θ suggested by the firm via p is incredible and consumers refrain from buying g at firm j.

2) $\theta_j^* = \theta^* \ \forall \ j$: Suppose not, then $\exists \ (p^o, \theta^o) \neq (p^*, \theta^*)$, where the only chance of price differential exists via $\theta^o \neq \theta^*$. Consumers, however, have to be indifferent between the two packages, i.e. $U' = U^*$, which reduces to $\theta^o = \theta^*$. Contradiction.

3) θ^*: As price setting is determined by 1), i.e. $p^*(\theta^*)$, the equilibrium level of θ will be determined by consumer preferences. Let j be the firm consumer i buys g from in equilibrium. Then it must be true for all i that $j = \arg\max_j \left[b + f(\theta_j + \sum_{-i}\sum_J \theta_j) - p_j^* \right]$. Note that there is a fictitious firm $j = 0$ which represents a consumers' outside option of not buying g at all. When solving the consumer problem, i.e. $\max_{\theta_j} U(f(\theta), p(\theta)) \to f'(\theta) = p'(\theta)$ taking into account that $p'(\theta) = w\alpha$ from p^*, we get one optimal level θ^* that determines p^* and the resulting package is always preferred to any other $(\theta, p) \neq (\theta^*, p^*)$ by consumers. ∎

Those firms serving the m neutral consumers without preferences for θ, i.e. the *non-CSR sector* of the economy, set $\theta = 0$ and charge $p = c$ in the Bertrand equilibrium. It is also assured that no caring consumer has an incentive to buy the "neutral" version of $g(\theta = 0)$ as due to concavity of f the following inequality holds:

$$
\begin{aligned}
b - c - w\alpha\theta^* + f(n\theta^*) \ &> \ b - c + f((n-1)\theta^*) \\
&\to \ \frac{f(n\theta^*) - f((n-1)\theta^*)}{\theta^*} > f'(n\theta^*)
\end{aligned}
$$

In the *CSR sector* (firms serving n caring consumers), θ^* is second best and identical with the private provision equilibrium level as derived by Bergstroem, Blume and Varian (1986)) if $s = 1$, or even lower if $s < 1$. Note that Besley and Ghatak (2007) arrive at the same conclusion in a distinct multi period repeated game setting. Having established the CSR market mechanism in stage 3, we move on to stage 2 and firm location.

3.2.3 CSR and Firm Location

Assume the world consists of two countries, *Home* and *Foreign*, i.e. $l = \{H, F\}$. For the moment, all consumers $(n + m)$ are located in H (let us assume that H corresponds to a developed country, e.g. the US or EU economies), while F only serves as a potential offshore location (e.g. a developing country or an emerging market economy). Firms are free to produce in either country at identical costs, i.e. $c^H = c^F$ and $\alpha^H = \alpha^F$. Although one might be inclined to argue that production costs differ across countries (especially in this example), this assumption allows for a focus on pure information effects, along these lines there are also no transportation costs and no fixed costs of production. Hence, firms within each sector will produce all g in one production site and country. However, it will be assumed that $s_H \neq s_F$. As all results are perfectly symmetric for $s_H > and < s_F$, it suffices to look at either case for further analysis. Therefore, let θ_j of a firm producing in F be harder to verify (less likely to be revealed) than its equivalent in H, i.e. $s_F < s_H$. This assumption could easily be motivated by geographic distance between H and F, as well as less developed infrastructure, communication channels, reliable media and information standards or little local awareness in F, in short it is more difficult for stakeholders to gain information about firm conduct there.

The baseline will be a two stage game that is solved backwards:

1. Nature reveals s_l for $l = H, F$. Firms decide whether to produce g (i.e. locate production) in *Home* or *Foreign*. Note again that in this simple set up, firms will locate sector wide.

2. Firms choose (θ_j^l, p_j^l) subject to the above outlined Bayesian game.

From Lemma 1 establishing the final stage levels of public good production and prices it follows immediately that if $s_F < s_H$ then

$$\frac{1}{s_H} = w_H < w_F = \frac{1}{s_F}$$

and

$$\theta_H^* > \theta_F^*$$

while the effects on p^* are of opposing signs and therefore the overall effect on U will depend on $\Delta s = s_H - s_F$.

Then the crucial condition determining location in the CSR sector is given by the following inequality:

All CSR firms will produce g in H if

$$U(\theta_H^*, p_H^*) \geq U(\theta_F^*, p_F^*)$$

i.e. if

$$f(n\theta_H^*) - f(n\theta_F^*) \geq \alpha(w_H \theta_H^* - w_F \theta_F^*) = f'(n\theta_H^*)\theta_H^* - f'(n\theta_F^*)\theta_F^*$$

and vice versa.

This is simple and intuitive in the sense that consumers maximize utility, which is determined by concave valuation of the public good level minus the price charged for the good, both of which depend critically on the location of production and s_l. For the moment, the non CSR sector is of less interest. The absence of any non CSR related cost asymmetries (here c_l s.t. $c_H = c_F$) implies that non CSR firms will be indifferent, but as relocation is at least marginally costly/risky, the tie breaking is assumed to play in favor of H (absent any regulation regarding θ). However, for a government deciding about imposing nationwide regulation, the offshoring dynamics of the non CSR sector will be of significant importance.

Lemma 3.2 *Lemma 1 determines prices and levels of public good given any geographic choice. Location of economic/corporate activity in the CSR sector is determined by cross country differences in monitoring quality/transparency $|(s_H - s_F)|$.*

3.2.4   Implications for Regulation

This subsection constitutes a preliminary analysis and short discussion of how the difference in transparency between states may translate into severe constraints for regulation. The question is simple: When can a government successfully *force* firms with a powerful outside relocation option to produce above strategically optimal levels of CSR? This scope of national and uncoordinated regulation depends on 1) the maximum level of public good θ to be produced while sustaining CSR firms' location in H - denote this level by x - where

$$x \rightarrow f(nx) - f(n\theta_F^*) = \alpha(w_H x - w_F \theta_F^*)$$

and 2) its relationship to strategic CSR level θ_H^*. If $x \leq \theta_H^*$ there is no scope for regulation whatsoever, while if $x > \theta_H^*$ a government actually can correct market inefficiencies exploiting the advantage of relatively transparent markets/efficient institutions/monitoring (information advantage). The following proposition summarizes.

Proposition 3.1 *Let $s_H \geq s_F$ (Results are perfectly symmetric for $s_F \geq s_H$). The regulatory upper bound x faced by a regulator in H is implicitly defined by*

$$f(nx) - f(n\theta_F^*) = \alpha(w_H x - w_F \theta_F^*) \tag{3.6}$$

and depends on both s_H and s_F in a way that

$$\frac{\partial x}{\partial s_H} > 0$$

and

$$\frac{\partial x}{\partial s_F} < 0$$

In the case of $s_H = s_F$, a regulator will never be able to improve upon the market level of CSR in F, H, i.e. $x = \theta_H^* = \theta_F^*$ (This follows directly from equation 6).

Proof. Take $f(nx) - f(n\theta_F^*) = \alpha(w_H x - w_F \theta_F^*)$ and $s_H > s_F$. We assume n and α to be strictly positive parameters.

1) As a first step we are interested in getting

$$\frac{\partial x}{\partial s_H} > 0$$

holding s_F constant. Hence, denote $F = f(n\theta_F^*) - \frac{1}{s_F}\alpha\theta_F^*$ and note that given any s_F implicitly determines also $\theta_F^*(s_F)$ via equation 4 ($f'(n\theta^*) = \frac{1}{s}\alpha$). Then rewrite as

$$[f(nx) - F]\,\alpha^{-1} s_H = x$$

and implicitly differentiate to get

$$\frac{\partial x}{\partial s_H} = f(nx)\alpha^{-1} + f'(nx)n\alpha^{-1}s_H\frac{\partial x}{\partial s_H} - F\alpha^{-1}$$

Rearranging and simplifying yields

$$\frac{\partial x}{\partial s_H} = \frac{f(nx) - F}{\alpha - nf'(nx)s_H}$$

For x to be increasing in s_H we need to show that both nominator and denominator feature an equal sign (in this case they are both >0). First $f(nx) > F$ as long as $x > 0$ and $s_F > 0$ from equation 6. The denominator is positive if $\alpha\frac{1}{s_H} > nf'(nx)$ which is true for all levels of x of interest, i.e. above second best θ_H^* determined by $f'(n\theta_H^*) = \frac{1}{s_H}\alpha$ but below "first best" (given imperfect information s_H) level x^* s.t. $\alpha\frac{1}{s_H} = nf'(nx^*)$.

2) We repeat this sequence to show

$$\frac{\partial x}{\partial s_F} < 0$$

holding s_H constant. First implicit differentiation yields

$$\frac{\partial x}{\partial s_F} = \left[nf'(nx)\frac{\partial x}{\partial s_F} - \frac{\partial F}{\partial s_F} \right] \alpha^{-1} s_H$$

where

$$\frac{\partial F}{\partial s_F} = nf'(n\theta_F^*)\frac{\partial \theta_F^*}{\partial s_F} - \frac{1}{s_F^2}\alpha\theta_F^* - \frac{1}{s_F}\alpha\frac{\partial \theta_F^*}{\partial s_F}$$

After rearranging and simplifying we get

$$\frac{\partial x}{\partial s_F} = \frac{\frac{\partial \theta_F^*}{\partial s_F}\left[\frac{\alpha}{s_F} - nf'(n\theta_F^*)\right] + \frac{\alpha}{s_F^2}\theta_F^*}{\alpha - nf'(nx)s_H}$$

Knowing that the denominator is positive from 1), we are left to show if and when the nominator is negative. It can be shown that $\frac{\partial \theta_l^*}{\partial s_l} > 0$ for $l = H, F$ (See Appendix Section 4.1). Then for $s_F > 0$ and $n > 1$, $\frac{\partial \theta_F^*}{\partial s_F}\left[\frac{\alpha}{s_F} - nf'(n\theta_F^*)\right] + \frac{\alpha}{s_F^2}\theta_F^* < 0$ if

$$nf'(n\theta_F^*) > \frac{\alpha}{s_F}$$

which is true from equation 4 establishing that $f'(n\theta_F^*) = \frac{\alpha}{s_F}$. ∎

3.2.5 Some Analysis and Discussion

In sum, if a potential regulator has geographically limited powers (confined to national borders) and firms have an outside location option, the informational environment at home and abroad (i.e. at the potential offshore location) *both* determine the strength of the regulatory constraint and whether unilateral regulation at all is a feasible tool to increase public goods provision. Here a short note on the assumption that governments are equally subject to imperfect information s_l is in order: Here regulation can be seen as a public (and credible) announcement of a firm's/industry's minimum price for good g. In the equilibrium in focus this plays out as either relocation or truthful production of the regulatory level.

Figure 3 graphically outlines this result for the above chosen case of $s_H > s_F$. Dependent on 1) where the absolute level of s_F is located (low or high) as well as 2) how much larger s_H is relative to the respective s_F ($>$ or $>>$), it can be seen that scope for setting $x > \theta_H^*$ is decreasing in s_F for a given s_H - (A and B) versus (C and D) - as well as increasing in $(s_H - s_F)$ for a given s_F. The horizontal lines denoted $U_F = U_H$ constitute the policy upperbound. Regulator H then can reduce U_H by increasing x beyond $\theta_H^*(s_H)$ until tie breaking level U_F is matched. It should be noted that the strength of these effects depends on the concavity of $U_l = f(n\theta_l^*) - p_l$, i.e. the reduction of U_H by increasing x for given

s_H, s_F is trading off a concave (and hence decreasing) increase in $f(.)$ and a constant linear, weighted by $\frac{\alpha}{s_H}$ increase in price p_H.
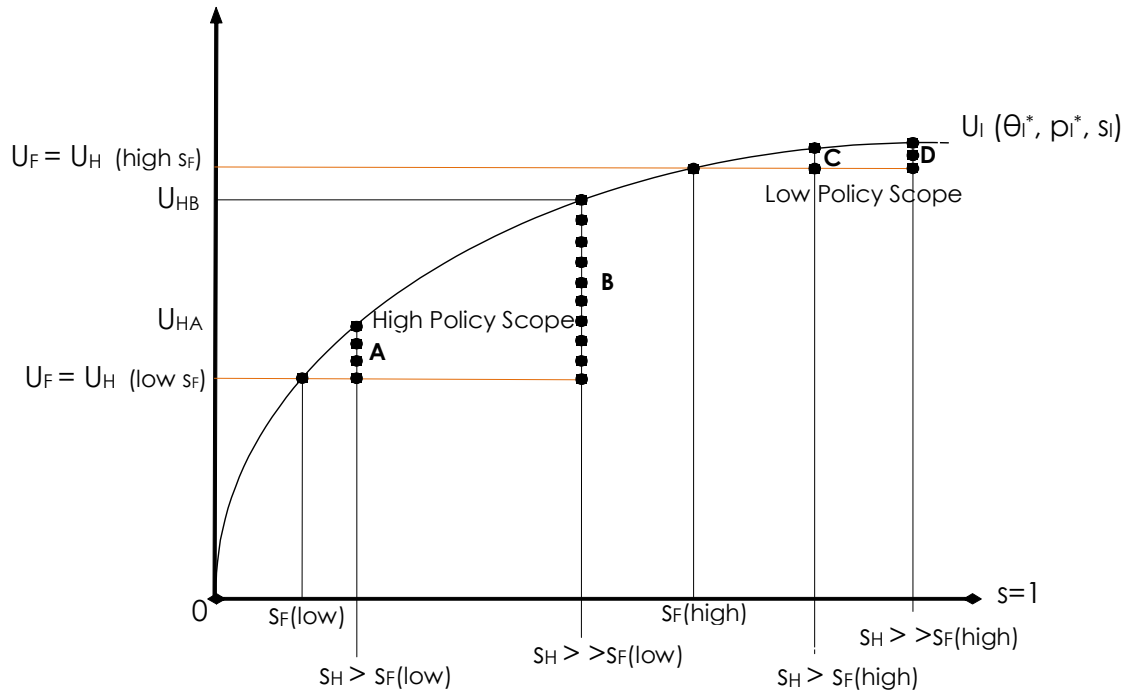

Figure 3.3: Regulatory Scope

The following short example and graph will further clarify the mechanics of $(s_H - s_F) = d$ in determining x. Assume we want to determine the distance between s_H and s_F that is necessary to impose a level $x = 2\theta_F^*$ while keeping the CSR sector producing in H. The graph below (Figure 3) plots the two crucial ingredients of equation 6, i.e. $U(x, s_H, p_H)$ and $U(\theta_F^*, s_F, p_F^*)$, where the equality of equ. 6 is represented as a horizontal line cutting the two utility functions. Then, the horizontal distance between the two functions measures the exact difference between $s_H > s_F$ needed to sustain $x = 2\theta_F^*$. Note that $d(x = 2\theta_F^*)$ increases in the absolute level of s_F, i.e. the better monitoring/information availability in F, the less regulatory scope for H for equal distance between s_H and s_F. In terms of policy this means that the more developing countries invest into institutions, monitoring and transparency, the

more important becomes policy coordination between developed and developing countries. In short, if interest and preferences regarding public goods are different, then the bargaining power of emerging market economy governments vis-a-vis leaders such as the EU or the US increases significantly.
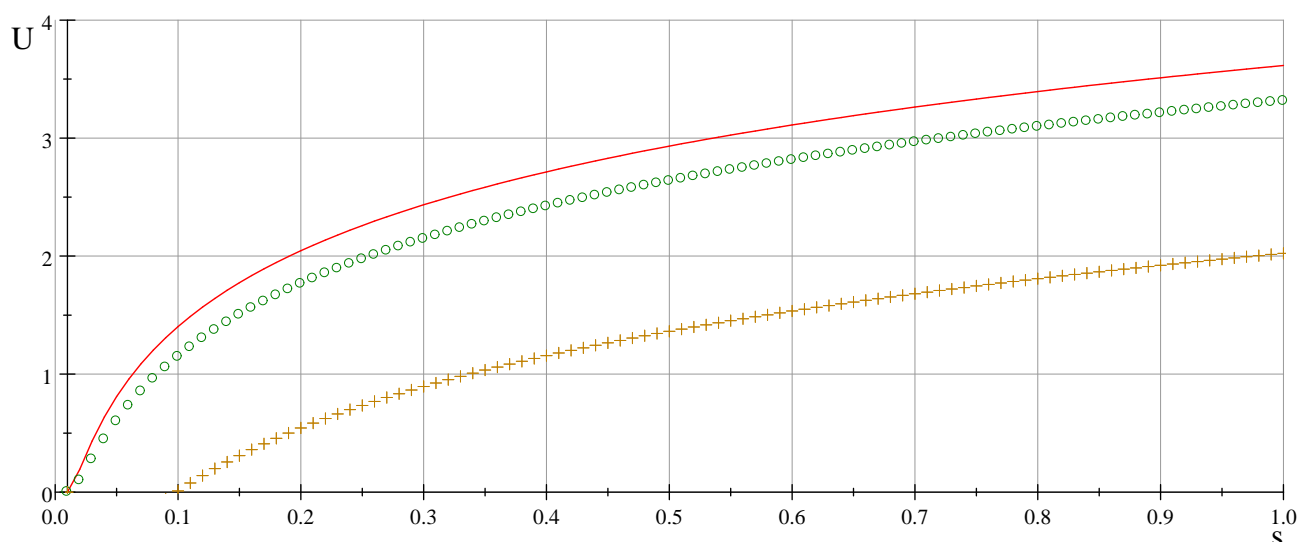

Figure 3.4: Assume $f = \ln(1 + n\theta)$; $n = 100$; $\alpha = 1$, line = F (θ_F^*); dots = H $(x = 2\theta_F^*)$; cross = $(x = 4\theta_F^*)$

Furthermore, the case of unconstrained *export of regulation* (i.e. the theoretic possibility to impose the first best public good level) as proposed by Davis et al. (2008) constitutes a special case of this model and holds true only if $s_H = s_F = 1$. In this case the market (CSR) would fail in the classic sense although achieving the market optimal second best, and a government controlling an important sales market could theoretically force firms to fully internalize their externalities as regulation can be enforced independent of geographic production due to perfect global information (i.e. Importing a good that has been produced with a negative externality abroad could be treated as if a search good was sold at the border). For all $s_H = s_F < 1$, one sided, i.e. uncoordinated, regulation above x will not succeed as firms simply relocate and produce only market levels of the public good. Note also that, from a total welfare perspective, there exists an upward bias of x as any positive level of regulation immediately drives the non CSR sector abroad. This feature is also reflecting the empirical finding that the PHH holds for firms performing low or no CSR. This offshoring of non-CSR production not only does not change the global level of externality, it also may have adverse effects on the home economy in terms of lower employment, lower tax revenue

or other foregone efficiencies and spill overs from MNE location. In total, a government like H will never find any incentive to regulate at all if $x \leq \theta_H^*$, and if there is scope for regulation, it will have to take into account effects related to the non CSR sector and welfare in general. Remember that firms in stage 3 maximize $f(n\theta)$ subject to the Bertrand competition constraints and stakeholder expectations, so by imposing regulation above θ_H^* one takes a quite striking redistributive measure as "caring" consumers will have to pay for the optimal provision of θ by firms via higher prices and reduced U_H possibly going down until U_F. "Neutral" consumers still get served by the non CSR sector from abroad charging the standard competitive price as before.

Some more broad observations follow from this model[17]. First, *the importance of international policy coordination increases with s_F as unilateral regulatory scope decreases*. This dynamic may dampen the effect of development and catch up growth implying a level playing field between developing and developed economies in terms of production costs (a factor that would suggest increasing efficiency of unilateral regulation). Second, *the size and relative importance of the CSR sector* (here n) *will play a crucial role in a government's efforts to balance welfare losses due to relocation against valuation of international public goods*. This in turn may influence its strategy in an international policy coordination game and may yield interesting outcomes dependent on the distribution of n across players/states. Third, *s constitutes an alternative policy instrument* and may be complementary to regulatory standards for θ. In sum, to target s as a strategic policy variable may improve CSR levels in total absence of regulation (but with the second best upper bound in place) and /or increase regulatory scope and hence the chance to improve upon CSR levels. Fourth, firms (MNEs, SMEs and exporting firms in general) in F may have an interest in increasing s_F in order to be more competitive in the CSR market of H. Given Bertrand competition, such strategic considerations trade off the effects of Δs within the profit function of firms denoted by

$$\Pi_j = z\left[p_l^*(s_l) - c - \alpha\theta_l^*(s_l)\right] = m\left[\alpha\theta_l^*(s_l)(\frac{1}{s_l} - 1)\right]$$

where $z_j = z = \frac{n}{J}$ is the market share of firm j$\in J$ and $\theta_l^*(s_l)$ increases in s_l while $(\frac{1}{s_l} - 1) > 0$ decreases. Industry interest in raising s_l then will depend on the absolute level of s_l (profit consideration) as well as the distance between s in H, L (competition driven location consideration). Δs can be interpreted as increased collaboration with rating agencies (Chatterji and Toffel 2007), NGOs (Locke et al. 2006), international organizations (e.g. the Global Reporting Initiative, the UN, the Worldbank or the OECD) or even government

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[17] and merit more detailed attention in ongoing research).

agencies or regulators in absence of legal standards. Any increased coordination or cooperation between such private and public actors and MNEs can be explained by the above dynamics.

The next steps of this research project[18] will involve investigation of how this mechanism relates to and may alter insights derived by theoretic literature on environmental policy towards MNEs, e.g. Bond and Gresik (1996) or Hoel (1997)[19]. Furthermore, a location game between governments and firms will be modeled, where various welfare functions can be compared. Then, a regulatory game between two governments may serve as a starting point to explore regulatory choices by governments controlling asymmetric markets (developed versus developing countries, two potential sales markets with differing stakeholder preferences/shares of n, or different cost levels c, α). Finally, welfare effects could be compared and policy conclusions derived.

3.3 Conclusions

This paper has developed a simple baseline model to analyze the interaction between strategic CSR provision, international firm location and national regulation. Given the mismatch between theory and empirical evidence within the firm location and regulation literature, an information based strategic CSR mechanism is proposed to shed light on recent firm behavior within different regulatory environments. CSR is modeled as an international public credence good, which constitutes the most interesting case of CSR as otherwise, i.e. in the case of CSR as a search or experience good, the information asymmetry decreases to levels a creative regulator could tackle via classical policy tools. The main insight derived is that in the presence of MNEs with geographic flexibility and market provision of an international public good, unilateral (i.e. non cooperative) regulatory scope depends on the absolute probabilities to verify firms' CSR levels within different geographic and institutional environments as well as the differential between these probabilities. In other words, these probabilities can be interpreted as firm accountability or quality of information or monitoring available to markets and governments across nation states and/or jurisdictions. They determine not only the market levels of the public good produced under autarky, but also the relocation incentives of multinational firms facing national regulation that aims at improving CSR levels of the respective good. Hence, a government's ability to regulate above

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[18]This is work in progress.

[19]Bond and Gresik (1996) find the existence of conditions under which a MNE prefers to face a unified international regulatory authority as opposed to national competing ones. Hoel (1997) finds that non cooperation between governments leads to stricter environmental policy than cooperation due to a trade off between attracting firms with low regulation and avoiding too high pollution levels through high regulation.

CSR levels decreases with the absolute level of foreign information quality, while it increases in the relative (positive) difference between its home and the aforementioned foreign probability to observe firm conduct. This may explain why firms serving caring stakeholders (e.g. consumers with social or environmental preferences) are less likely to relocate in pollution heavens or other low information environments such as developing countries, while other firms (those serving the neutral demand segment) follow this proposed location logic based on production costs and regulatory differences. The bigger the CSR sector in a country, the more relevant becomes this mechanism based on relative strength of information asymmetries. Furthermore, the more developing countries develop and technology and media reduce international monitoring costs, the more constrained developed country regulators will be, putting more emphasis on necessary policy coordination, thereby strengthening emerging markets' bargaining power.

3.4 Appendix

3.4.1 The implicit determination of θ^* given $f'(n\theta^*) = \frac{\alpha}{s}$

It can be shown that $\frac{\partial \theta^*}{\partial s} > 0$:
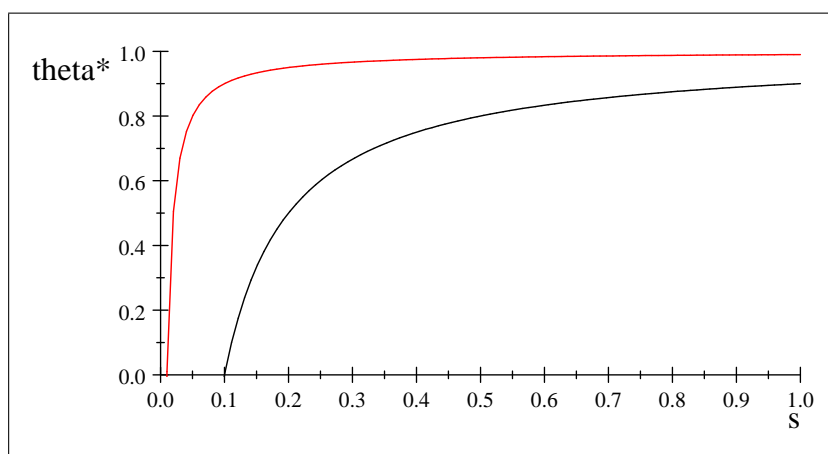
Assume $f = \ln(1 + n\theta)$ and $\alpha = 1$. Black $n = 10$; Red $n = 100$.

We see that $\theta^*(s)$ is concave as well and depends on n in a way that the higher is n, the smaller levels of s already get markets to produce high(er) levels of θ. Then, let $g \equiv (f')^{-1}$ be the inverse of the first derivative of f (f concave). So it is true that

$$g(f'(n\theta^*)) = f'(g(n\theta^*)) = n\theta^*$$

By differentiating w.r.t. θ we get

$$f''(g(n\theta))g'(n\theta) = 1 \rightarrow g'(.) = \frac{1}{f''(g(.))} < 0$$

Now it can be stated that

$$\theta^* = \frac{g(\frac{\alpha}{s})}{n} \rightarrow \frac{\partial \theta^*}{\partial s} = -\frac{1}{n}g'(.)\alpha s^{-2} > 0$$

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