UPPSALA
UNIVERSITET

Uppsala Center for Fiscal Studies
Department of Economics

Working Paper 2014:10

The Signaling Role of Corporate Social Responsibility

Tomer Blumkin, Yoram Margalioth and Adi Sharoni

Uppsala Center for Fiscal Studies
Department of Economics
P.O. Box 513
SE-751 20 Uppsala
Sweden
Fax: +46 18 471 14 78

Working paper 2014:10
August 2014

The Signaling Role of Corporate Social Responsibility

Tomer Blumkin, Yoram Margalioth and Adi Sharoni

Papers in the Working Paper Series are published on internet in PDF formats.
Download from http://ucfs.nek.uu.se/

The Signaling Role of Corporate Social Responsibility

Tomer Blumkin[*] **Yoram Margalioth**[♥] **Adi Sharoni**[♦]

July, 2014

Abstract

We examine the role of CSR as a mechanism for private provision of public goods. We argue that corporations are using CSR to signal high product quality and demonstrate that signaling gives rise to an excessive level of contributions that offsets the positive externality, which causes the under-provision of public goods. We analyze the tax policy implications of such assertion. Accounting for this offset would call for a decrease in (and potentially elimination of) the subsidy offered to corporations engaged in CSR activities.

JEL Classification: H2, H4, K3

Key Words: Signaling, Corporate Social Responsibility, Public Goods, Pigouvian Taxation

[*] Department of Economics, Ben-Gurion University, Beer-Sheba 84105, Israel, CesIfo, IZA. E-mail: tomerblu@exchange.bgu.ac.il

[♥] The Buchmann Faculty of Law, Tel-Aviv University, Tel-Aviv 69978, Israel. E-mail: margalio@post.tau.ac.il

[♦] Department of Economics, Ben-Gurion University, Beer-Sheba 84105, Israel. E-mail: adi.sharoni.n@gmail.com

1. Introduction

There was a dramatic increase in recent years in reporting of corporate social responsibility (CSR) among companies listed on the S&P500 Index® and the Fortune 500® and in the sums of money involved.[1]

CSR embraces a wide range of activities in which the firm goes beyond its legal and contractual obligations to promote social goals, namely, to provide public goods. It includes activities such as: corporate donations to charitable (nonprofit) organizations; paying "fair trade" (above equilibrium) prices or wages; doing pro bono work; or being environment-friendly.

Efficient provision of a public good requires that its amount be set to the level that equates the marginal cost of provision and the sum of the marginal benefits derived by all consumers. The private market is unlikely to provide the optimal level of public goods due to the free-rider problem: public goods are non-excludible; hence, individuals are tempted to benefit from them without paying their fair share, or paying at all. This leads to under-provision of public goods, and calls for government intervention.

Some private provision of public good takes place (even in large communities where the 'free-riding' incentives are extreme) as people often derive utility, known as warm glow,[2] from the act of contribution itself; namely, from being generous towards worthy causes (the sheer joy-of-giving). Warm glow does not fully solve the under-provision problem,

[1] In 2011's analysis, 20% of the *Fortune 50*0 reported, in 2012, 57% companies reported (Governance and Accountability Institute, 2012). Microsoft was named the company with the best CSR reputation, for the second year in a row, spending around one billion dollars annually on CSR (Reputation Institute, 2014).
[2] The term was coined in Andreoni (1989).

however, as the donors account only for their utility from giving. The utility derived by the beneficiaries is not accounted for.[3]

In light of the above, under-provision of public goods is likely to emerge in equilibrium; hence, conventional wisdom (reflected also in common practice) suggests that the government should subsidize private provision of public goods, such as that associated with firms engaging in CSR initiatives.

In this paper, we suggest that CSR may give rise to an excessive level of contributions that offsets to some extent (and potentially eliminates) the positive externality discussed above. This suggests that CSR may serve as a relatively efficient mechanism for private provision of public goods and calls for re-evaluation of the preferential tax treatment given to corporate donations, with the possibility of decreasing (and potentially eliminating) the level of subsidization.

We argue that corporations may engage in CSR to signal high quality.[4] The intuition is that corporations that contribute to public goods are perceived to be ethical, hence, less likely to cheat their customers, say, by reneging on contracts or using materials of lower than promised quality, compared to corporations that do not engage in CSR.

We assume that CSR activities are relatively easier to monitor than product quality; if not in general, then at least in certain sectors or product categories. Corporations report their

[3] When people care about the wellbeing of others, in a way that is unrelated to their act of contribution (not warm glow) they are being altruistic. This may lead them to contribute to the funding of public goods or provide them themselves, but is unlikely to solve the under-provision problem either, because it is still subject to the problem of free riding as each altruist is aware that others' contribution would provide the beneficiary with the same utility as its own contribution. See Henderson and Malani (2009).

[4] See, for example, Brown and Dacin (1997) finding negative CSR associations can have a detrimental effect on overall product evaluations, whereas positive CSR associations can enhance product evaluations; Kennedy et al. (2001) Swaen and Chumpitaz (2008) and Pivato et al. (2008) finding empirically that CSR increases consumer trust in the company and its products, and that trust is translated into a consumer's intention to purchase.

CSR activities on their financial statements and there are various agencies and NGOs that monitor and rank corporations on the basis of their CSR activities.

Products can be categorized according to the ease of assessing their quality. Search goods and services, such as, clothing, footwear, and furniture, are readily evaluated prior to purchase. Consumers can easily find out their prices and find information about their quality. On the other hand, experience goods, such as vacations or education, must be used or consumed before their true value to the consumer can be determined. Siegel and Vitaliano (2007) found that experience goods are more likely to be associated with CSR. Firms invest more in CSR when they sell experience goods, that is, goods which quality is hard to evaluate prior to purchase, compared to firms that sell search goods. This supports the hypothesis that corporations think that consumers use CSR as a signal of product quality.

This induces firms to increase the level of public good provision above the level that maximizes the warm glow utility component. It goes up to the level that deters entry; namely, up to the point where firms that experience zero warm glow and use CSR only for strategic reasons, as a means to attract consumers, are discouraged from engaging in CSR.

We demonstrate that the signaling incentives result in an excessive level of contributions by firms that offsets the positive externality we have identified earlier.[5] We, therefore, suggest decreasing the subsidy given to CSR, assuming it was set at what was thought to be the optimal level not taking signaling into account. It may even call for eliminating the

[5] The idea bears resemblance to Konrad and Glazer (1996) and Morgan (2000). Konrad and Glazer (1996) demonstrate that status-driven individual charitable giving may lead to excessive private provision of public good due to the negative external effects associated with the status contest. Morgan (2000) suggests overcoming the under-provision market failure by using lotteries. Each participant in the lottery creates a negative externality on all other participants as it decreases their chances of winning.

subsidy or taxing CSR if the signaling effect is found to be greater than the 'free-rider' one (that is, CSR results in, all in all, an excessive provision of the public good).

The paper proceeds as follows. Section 2 provides a brief survey of the literature to which we contribute, that is, the literature explaining the corporate motivations for CSR and subsequent tax policy. Section 3 outlines the model and analyzes two benchmark cases: Separating equilibrium and Hybrid equilibrium. In Section 4 we analyze the tax treatment of CSR, first under an assumption of a separating equilibrium with no signaling, and then under the assumption of signaling. Section 5 concludes.

2. Brief Survey of the Literature

The literature offers several explanations as to why corporations engage in CSR. Initially it was assumed that CSR results in reduced corporate earnings. CSR was viewed as an outcome of a corporate governance agency problem. Friedman (1970) famously argued that "[t] here is one and only one social responsibility of business … to increase its profits," that is, management should not do charity with other people's money.[6]

More recent literature noticed that an agency problem takes place only to the extent CSR activity was not accurately reflected in share prices, namely, shareholders were surprised by the level of managers' CSR activity. According to Baron (2007) shareholders usually either do not bear the cost (that is, the entrepreneur bears it,) or choose to bear the CSR cost by purchasing shares at prices that do not account for the reduced profits due to CSR, thereby investing in the CSR corporation as a substitute for personal provision of public good, namely, donating to charity.

[6] And indeed, corporations often donate to charities on the boards of which their own board members sit (Jennings, 2006).

From a policy perspective, CSR may be found desirable, even when it is the result of a corporate agency problem, in cases in which corporations have some comparative advantages over the government in providing the public goods [see, inter alia, Besley and Ghatak (2007); Henderson and Malani (2009); Benabou and Tirole (2010)]. This may be the case when the government is captured by interest groups, or lack information that is required to identify the public good. As for comparing CSR to the supply of public goods by nonprofits, Glaeser and Shleifer (2001) argue that what matters is the comparative opportunity for opportunism between the two sectors. This would depend on what monitoring technologies are available.

In addition, corporations often have economies of scope in providing the public good, when the corporate line of business naturally bundles public and private goods in production. Starbucks, for example, deals directly with coffee bean suppliers in poor developing countries, thereby being in a unique position to increase social welfare at relatively low cost.

Hence, CSR, although possibly involving corporate agency problem, should not necessarily be discouraged, and could even be encouraged if found warranted in the overall design of government policy.

The second reason that corporations engage in CSR activity, is in cases CSR increases profits. The literature offers various channels through which CSR may contribute to firms' profitability. One such channel, which generally is not likely to be socially desirable, is the use of CSR for advertisement or public relations purposes [Baron (2007)], in order to deter public regulation [Maxwell et al. (2000); Lyon and Maxwell (2004),] or to deter activists [Baron (2001); Baron and Diermeier (2007); Baron (2009)].

The other main explanation for the existence of CSR is that its cost is shifted in its entirety to others. Corporations shift their CSR cost to consumers by selling their products at higher prices, allowing consumers to self-select according to their valuation of the public good. Similarly, employees may agree to accept lower wages when working for corporations that engage in CSR activity [Nyborg and Zhang (2013)]. In those cases, CSR and direct private giving by individuals are substitutes; and as shown by Besley and Ghatak (2007,) CSR results in the same level of provision of the public good as that obtained in a setting where each individual is voluntarily choosing her level of contribution.

Finally, the literature [e.g., Krueger and Mas (2004); Benabou and Tirole (2010)] suggests that there are forms by which CSR may increase corporate profits, but that are unlikely to take place without government intervention, due to corporate governance problems. These include cases in which being somewhat environment-friendly, employee-friendly and respecting commitments made to suppliers, are beneficial to corporations in the long-run as they save them large costs (e.g., fines, loss of reputation) that will only take place in the relatively far future. Managers may not follow these policies due to management's short-term-oriented-compensation. Hence, to the extent government policy encourages management to engage in the above-mentioned forms of CSR, it increases social welfare by offsetting the distortion.

To sum up, the literature offers various explanations as to why corporations engage in CSR. As in the case of individuals' altruistic behavior, the literature generally supports the provision of subsidies to increase the level of CSR as a means to overcome the under-provision market failure.

3. The Model

We present a simple setting with just the essential ingredients required to demonstrate our argument. Consider an economy with $M>0$ identical consumers who derive utility from two private goods (denoted x and y) and a single public good (denoted by G). For tractability we assume a quasi-linear specification for the utility function (shared by all consumers) taking the following form:

(1) $U(x, G, y, \theta) = v(x, \theta) + h(G) + y,$

where $x \in \{0,1\}$, θ denotes the quality associated with x, $v(0, \theta) = 0, v(1, \theta) = \theta$ and h is increasing, concave and satisfies standard INADA conditions.

Each consumer has, thus, an inelastic demand for one unit of x with an associated reservation price, depending on the quality of the provider, given by θ (measured in y terms, the price of which is normalized to unity, with no loss in generality).[7] We simplify by plausibly invoking a 'large economy assumption', letting the amount of public good provision, G, be a fixed parameter from the point of view of the individual consumer (not depending on his private contribution). This assumption introduces an extreme 'free-rider' problem associated with under-provision of the public good, implying zero private contributions of the consumers to the public good in equilibrium.[8] Finally, we assume that each consumer is endowed with $Y>0$ units of the *numeraire* good, y. Denoting the price of x (as a function of its associated quality θ) by $p(\theta)$, the typical consumer's budget constraint is given by:

[7] The assumption on inelastic demand is made for tractability and can be relaxed without changing the qualitative nature of our results.

[8] The 'large economy assumption' is fairly realistic in many contexts. Relaxing the assumption will not change the gist of our key argument.

(2) $y + p(\theta) \cdot x = Y.$

Turning next to the providers of *x* we assume that there are *N*<*M* providers in the market, each producing a single unit of *x* at zero costs, with no loss in generality. Providers differ in their quality, where we assume that a fraction $0 < 1 - \alpha < 1$ of the providers is of low quality [denoted $\theta = \theta^l > 0$], and a complementary fraction of $0 < \alpha < 1$ of the providers is of high quality [denoted $\theta = \theta^h > \theta^l$].[9] We assume that the quality of the provider is private information, unobserved by the consumers. Consumers are nonetheless assumed to be familiar with the distribution of providers' types. We further assume that providers may affect consumers' valuations (thereby, affecting their ultimate choices) via signaling. In particular, we assume that providers may engage in CSR activities, which in our context take the form of contributions to the provision of the public good. The provider's level of contribution to the public good is assumed to be observable by the consumers (say, via disclosure in financial statements or other publicly available reports) and may therefore serve as a signaling channel about the quality of the provider. Maintaining our 'large economy assumption', we assume that some of the providers are ethical, in the sense that they exhibit social preferences captured by a warm-glow utility associated with contributing to the public good [as in Andreoni (1989), (1990)]. Specifically, we assume that a fraction $0 < q^h < 1$ of the high-quality providers, and, correspondingly, a fraction $0 < q^l < q^h$ of the low-quality providers, are deriving utility from the 'joy of giving' associated with contributions to the provision of the public good. Our parametric assumptions imply, therefore, the existence of a positive correlation

[9] The quality attribute of a provider is associated with its business conduct towards consumers. A high-quality provider is, *inter-alia*, more likely to abide by contractual obligations (e.g., timely provision of services) and be more attentive to customers' special needs (e.g., available and efficient customer support services).

between the propensity of the provider to contribute to public good provision and its associated quality (as perceived by the consumers). The existence of this positive correlation implies that in the signaling equilibrium (*Bayesian*) consumers will (correctly) perceive providers exhibiting a higher extent of CSR to be of higher quality (on average). With slight abuse of notation, the parameter θ in the utility function given in (1) will be replaced by its expected value, conditional on the information available to the consumers (affected by signals conveyed by the providers). The utility of a typical provider is given by the following expression:

(3) $$R(g, G, y) = \beta \cdot w(g) + h(G) + y \,,$$

where g is the extent of CSR (the level of contribution to the public good), h, as in the consumers' utility specification, captures the utility from public good provision and $w(g)$ captures the 'warm glow' component, where $\beta = 1$ for ethical providers and $\beta = 0$ otherwise. Both h and w are assumed increasing, concave and to satisfy INADA conditions. We maintain our 'large economy assumption' and assume that all providers ignore the impact of their contribution on the aggregate level of public good, G.

Similar to consumers, providers are assumed to be endowed with $Y>0$ units of the *numeraire* good, y. The typical provider's budget constraint is given by:

(4) $$y + g = Y + p(g),$$

where $p(g)$ denotes the price of x charged by the provider, depending on his (observable) level of contribution, g. Notice that we normalize the marginal cost of public good provision to unity (measured in units of y), with no loss of generality.

Finally, assuming that the market for x is competitive, the assumption that $N<M$ combined with the fact that the aggregate demand for x is perfectly elastic (by virtue of the reservation property) imply that in equilibrium the price of x, for any level of g, will coincide with the (common) reservation price of the consumers; that is, consumers' surplus will be fully extracted by the providers. In equilibrium, this reservation price will be equal to the expected quality of the provider conditional on its level of contribution to the public good, g. Formally,

$$p(g) \equiv E(\theta|g), \tag{5}$$

with E denoting the (conditional) expectation operator.

Notice that our modeling assumptions capture the two different motives for providers to engage in CSR activities: an altruistic/social motive, reflected by the warm-glow component in the utility specification in (3); and, a strategic motive, captured by the term $p(g)$ in the budget constraint given in (4), where, in equilibrium, the price will be shown to be an increasing function of g.

We turn next to characterize the equilibrium. As is often the case with signaling games, there are multiple types of equilibrium to consider. We first begin with presenting a separating-equilibrium.

2.1 Separating Equilibrium

In a separating equilibrium all ethical providers contribute to the public good; whereas, all non-ethical providers refrain from contributing. Ethical providers thus distinguish themselves from the rest of the providers. Rational consumers fully anticipate this and update accordingly their perception about the quality of the provider (conditional on its observed contribution). Let the (common) level of contribution by a typical ethical provider be denoted by $\tilde{g}$. Notice that in a setting with symmetric information, in which no signaling takes place, due to our 'large economy assumption' only ethical providers will contribute to the public good. By virtue of the utility specification in (3), as the price of *x* [in the budget constraint given in (4)] will be independent of *g* in such a case, each ethical provider will choose the level of provision that solves the following first-order condition:

(6) $w'(g^*) = 1.$

Clearly, in a separating equilibrium (as well as in any other equilibrium configuration), the level of contribution has to satisfy $\tilde{g} \geq g^*$.

Let $\bar{\theta}$ denote the expected quality associated with a typical ethical provider (coinciding with the common price charged by all ethical providers in equilibrium). Employing *Bayes' Rule* it follows:

(7) $p(\tilde{g}) = \bar{\theta} = \frac{\alpha \cdot q^h \cdot \theta^h + (1-\alpha) \cdot q^l \cdot \theta^l}{[\alpha \cdot q^h + (1-\alpha) \cdot q^l]}.$

Similarly, denote by $\underline{\theta}$ the expected quality associated with a non-ethical provider

(coinciding with the common price charged by all non-ethical providers in equilibrium). Employing *Bayes' Rule* it follows:

$$(8) \qquad p(0) = \underline{\theta} = \frac{\alpha\cdot(1-q^h)\cdot\theta^h+(1-\alpha)\cdot(1-q^l)\cdot\theta^l}{[\alpha\cdot(1-q^h)+(1-\alpha)\cdot(1-q^l)]}.$$

It is straightforward to verify that $\bar{\theta} > \underline{\theta}$, by virtue of our assumption that $q^h > q^l$ and the fact that $\theta^h > \theta^l$.

There are two possible scenarios to consider. One possibility is that the following inequality condition is satisfied:

$$(9) \qquad \bar{\theta} - \underline{\theta} < g^*,$$

where g^*, given by the implicit solution to (6), denotes the level of public good provision chosen by a typical ethical provider in a setting with symmetric information.

In such a scenario no signaling will take place in equilibrium. The 'natural' level of provision, driven by 'warm-glow' preferences exhibited by ethical providers, suffices to deter the 'entry' of non-ethical providers that find it unprofitable to engage in CSR. Clearly, in such a scenario, the aggregate level of public good provision will be the same under symmetric and asymmetric information regimes. The only difference between the two regimes will be in the division of the consumers' surplus across providers. Under symmetric equilibrium high-quality providers (both ethical and non-ethical) will charge a price of θ^h, whereas low-quality providers (both ethical and non-ethical) will charge a price of θ^l. Under asymmetric information ethical providers (both high- and low-quality) will charge a price of $\bar{\theta}$; whereas, non-ethical providers (both high- and low-quality) will

charge a price of $\underline{\theta}$.

A second scenario is one where the inequality in (9) is reversed (the case of equality is knife-edge and is of no interest). In such a case a separating equilibrium will be characterized by the following condition:

(10) $\bar{\theta} - \underline{\theta} = \tilde{g} > g^*$.

Namely, a typical ethical provider will increase its level of provision above that level which maximizes the warm-glow component, g^*, up to the 'entry-deterrence' point, where un-ethical providers are just indifferent between whether or not to engage in CSR (that is, between mimicking ethical providers by contributing $\tilde{g}$ and refraining from contributing altogether).

Clearly, in such a scenario, aggregate level of public good provision strictly exceeds that obtained under symmetric information. This positive prediction is in line with Siegel and Vitaliano (2006), showing that higher levels of CSR are associated with markets for experience/credence goods relative to markets for search goods.

We turn next to characterize a hybrid-equilibrium.

2.2 Hybrid Equilibrium

In a hybrid-equilibrium all ethical providers as well as a fraction of the non-ethical providers will contribute to the public good, and will choose the same level of

contribution.[10] Let the (common) level of contribution be denoted by $\hat{g}$ and let the fraction of contributing non-ethical firms be denoted by $0 < \mu < 1$.[11] The complementary fraction of non-ethical firms will refrain from contributing, by virtue of our 'large economy assumption'. In equilibrium, each non-ethical provider has to be just indifferent between contributing $\hat{g}$ and not contributing at all.[12]

Let $\overline{\overline{\theta}}$ denote the expected quality associated with providers that engage in CSR (coinciding with the common price charged by these providers in equilibrium). Employing *Bayes' Rule* it follows:

$$(11) \quad p(\hat{g}) = \overline{\overline{\theta}} = \frac{\alpha \cdot q^h \cdot \theta^h + (1-\alpha) \cdot q^l \cdot \theta^l + \mu \cdot [\alpha \cdot (1-q^h) \cdot \theta^h + (1-\alpha) \cdot (1-q^l) \cdot \theta^l]}{\alpha \cdot q^h + (1-\alpha) \cdot q^l + \mu \cdot [\alpha \cdot (1-q^h) + (1-\alpha) \cdot (1-q^l)]}.$$

Similarly, denote by $\underline{\underline{\theta}}$ the expected quality associated with providers that do no engage in CSR (coinciding with the common price charged by these providers in equilibrium). Employing *Bayes' Rule* it follows:

$$(12) \quad p(0) = \underline{\underline{\theta}} = \frac{\alpha \cdot (1-q^h) \cdot \theta^h + (1-\alpha) \cdot (1-q^l) \cdot \theta^l}{[\alpha \cdot (1-q^h) + (1-\alpha) \cdot (1-q^l)]} = \underline{\theta},$$

where the last equality follows from (8).

Employing the condition in (7) one can show that:

[10] A pooling equilibrium in which all providers contribute to the provision of the public good (and choose the same level of contribution) is obtained as a limiting case of the hybrid equilibrium configuration.
[11] As, from a consumer's point of view, high- and low-quality providers choosing the same level of contribution are indistinguishable, we naturally assume that the same fraction of high- and low-quality non-ethical providers engages in CSR.
[12] In a pooling equilibrium each non-ethical provider will weakly prefer to contribute $\hat{g}$ to not contributing at all.

(13) $\overline{\overline{\theta}} = \frac{\bar{\delta}\cdot\bar{\theta}+\mu\cdot\underline{\delta}\cdot\underline{\underline{\theta}}}{\bar{\delta}+\mu\cdot\underline{\delta}} > \underline{\underline{\theta}}$,

with $\bar{\delta} = [\alpha \cdot q^h + (1-\alpha)\cdot q^l]$, $\underline{\delta} = [\alpha \cdot (1-q^h) + (1-\alpha)\cdot(1-q^l)]$, and where the inequality sign follows from (12) and the fact that $\bar{\theta} > \underline{\theta}$.

In a hybrid-equilibrium the common level of contribution of providers that engage in CSR, $\hat{g}$, has to satisfy:

(14) $\overline{\overline{\theta}} - \underline{\underline{\theta}} = \hat{g}$.

Namely, un-ethical providers are just indifferent between contributing $\hat{g}$ and not contributing at all.

Re-arranging (14), employing (12) and (13), yields, following some algebraic manipulations:

(15) $\mu = \frac{\bar{\delta}\cdot(\bar{\theta}-\underline{\underline{\theta}}-\hat{g})}{\underline{\delta}\cdot\hat{g}}$.

A hybrid-equilibrium exists if-and-only-if $0 < \mu < 1$. In addition, as in the case of separating equilibrium, $\hat{g} > g^*$; namely, the common level of contribution has to exceed that level which maximizes the utility from 'warm-glow'. Combining these two conditions, employing (15), implies that a hybrid-equilibrium exists if-and-only-if:

(14) $max\left[\frac{\bar{\delta}\cdot(\bar{\theta}-\underline{\theta})}{\bar{\delta}+\underline{\delta}}, g^*\right] < \hat{g} < \bar{\theta} - \underline{\theta}$.

It is straightforward to verify that a hybrid-equilibrium exists if-and-only-if a separating equilibrium with signaling exists; namely, $\bar{\theta} - \underline{\theta} > g^*$.

Clearly, as in the case with a separating equilibrium and in line with Siegel and Vitaliano (2006,) the aggregate level of public good provision strictly exceeds that obtained under symmetric information.

As in many other signaling games, multiple equilibria arise. However, by applying a standard refinement criterion, invoking the 'Intuitive Criterion' suggested by Cho and Kreps (1987), one can show that a hybrid-equilibrium is, in fact, unstable (see Appendix A for details). Thus, in the normative analysis that follows in the next subsection we will confine attention to the (unique) separating equilibrium.

3. The Tax Treatment of Contributions

In most OECD countries governments grant favorable tax treatment to charitable giving (by individuals and corporations). This common practice reflects conventional wisdom viewing the role of government in promoting philanthropy as socially desirable. From a public economics perspective, the rationale for subsidizing charitable contributions derives from a *Pigouvian* motive. Viewing private charity as a voluntary mechanism for the provision of public goods, individuals overlook the positive externality their contributions exert on the rest of the community, leading to under-provision of the public good. Rendering preferential tax treatment to contributions serves, therefore, to internalize these positive externalities.

In the preceding section we have demonstrated that providers may choose to engage in CSR activities and contribute to public good provision for strategic reasons, using charitable giving as a signal for unobserved quality. From a positive point of view, the

signaling incentives imply that the aggregate level of public good provision would be higher than under a setting with symmetric information. In what follows we turn to investigate the problem from a normative perspective; namely comparing the aggregate level of provision obtained in equilibrium with the level that would maximize a utilitarian social welfare function (chosen as our normative benchmark).[13] We will challenge the conventional wisdom by showing that, under certain parametric conditions, taxing (rather than subsidizing) charitable donations will be socially desirable reflecting the fact that the level of provision obtained in equilibrium exceeds (rather than falls short of) the socially desirable level. Our analysis thus calls into question the commonly observed practice of subsidizing charitable giving.

3.1 The Government Problem

The government is assumed to have three fiscal instruments at its disposal: (i) direct provision of the public good (G); (ii) a tax (t) on charitable contribution (negative, in the case of a subsidy); and (iii) a lump-sum tax (T) levied on both consumers and providers (negative, in case of a transfer).[14] We assume that the government is seeking to maximize

[13] Notice that by virtue of our quasi-linear utility specification we abstract from introducing re-distributive considerations and will set focus on the efficiency aspects of public good provision in the normative analysis that follows.

[14] The assumption that the government can levy a lump-sum tax implies that regardless of whether the government is choosing to address the under-provision market failure by direct provision or by subsidizing charity, both can be financed in a distortion-free manner, entailing no deadweight loss. This apparently suggests that the key policy issue at stake; namely, the desirability of rendering preferential tax treatment to charitable giving, is of little relevance; after all, the government can eliminate the market failure without resorting to subsidizing charity. Notice, however, that this conclusion is wrong. In our setting, the preferred way to address the under-provision market failure is by subsidizing charitable giving by ethical providers, as these providers derive warm-glow utility gains from contributing to the public good provision. Clearly, in the absence of distortion-free tax instruments, the government would refrain from implementing the first-best subsidy, which fully internalizes the positive externalities, and compromise on a second-best optimum. However, the tractable assumption of availability of a lump-sum tax does not change the qualitative nature of our results, suggesting that subsidizing charitable giving should be reduced in the backdrop of signaling.

a utilitarian social welfare function given by the sum of the utilities of both the consumers and the providers. We will separate between two different cases. In the first case the separating equilibrium entails no signaling and contribution of a typical ethical provider will be set at the level that maximizes the warm glow component in his utility function. In the second scenario signaling does take place and contribution of a typical ethical provider will be set at the level that renders non-ethical providers just indifferent between contributing or not.

3.1.1 A Separating Equilibrium with No Signaling

The government is maximizing a utilitarian social welfare function given by:

(15) $$W(G,t,T) =$$

$$(N+M)\cdot h(G) + N\cdot[\alpha\cdot q^h + (1-\alpha)\cdot q^l]\cdot[w[g(t)] - g(t)\cdot(1+t)] -$$

$$(N+M)\cdot T + (N+M)\cdot Y + N\cdot[\alpha\cdot\theta^h + (1-\alpha)\cdot\theta^l],$$[15]

where $g(t)$, the level of contribution chosen by a typical ethical provider, is given by the implicit solution to $w'(g) = 1+t$, and satisfies $g(t)\cdot(1+t) > \bar{\theta} - \underline{\theta}$.[16]

Naturally, the social welfare function is maximized subject to the government revenue constraint:

(16) $$N\cdot[\alpha\cdot q^h + (1-\alpha)\cdot q^l]\cdot[g(t)\cdot(1+t)] + (N+M)\cdot T - G \geq 0.$$

Notice further that allowing for lump-sum taxation raises no equity concerns, by virtue of our quasi-linear utility specification. Relaxing this latter assumption would significantly complicate our analytics but will not change the qualitative nature of our results.

[15] Notice that due to the assumptions on the excess demand for x ($N<M$) and the fact that aggregate demand for x is perfectly elastic, the aggregate (gross) consumers' surplus from x, $\alpha\cdot\theta^h + (1-\alpha)\cdot\theta^l$, is fully extracted by the providers, which is reflected in the last term of (15) that represents aggregate providers' surplus (recalling our assumption of zero production costs).

[16] That is, ethical providers choose their level of contribution so as to maximize the warm-glow component in their utility function, which suffices to deter non-ethical providers from engaging in CSR. We will later on verify that the inequality condition holds given the optimal tax set by the government when the returns on signaling are moderate.

There is another constraint, which requires that the government cannot confiscate the contributions and direct them to its general needs (rebating as a lump-sum transfer, in our case). Put differently, the level of public good provision should (weakly) exceed the total amount of contributions:

(17) $$G - N \cdot [\alpha \cdot q^h + (1-\alpha) \cdot q^l] \cdot g(t) \geq 0.$$

The *Lagrangean* of the government optimization problem is given by:

(18)

$$L = W(G,t,T) + \lambda_1 \cdot [N \cdot [\alpha \cdot q^h + (1-\alpha) \cdot q^l] \cdot [g(t) \cdot (1+t)] + (N+M) \cdot T - G]$$
$$+\lambda_2 \cdot [G - N \cdot [\alpha \cdot q^h + (1-\alpha) \cdot q^l] \cdot g(t)],$$

with $\lambda_i, i = 1,2$, denoting, respectively, the *Lagrange* multipliers associated with the revenue constraint in (16) and the public good provision constraint in (17).

Formulating the first-order conditions with respect to *G*, *t* and *T*, yields, correspondingly:

(19) $$\frac{\partial L}{\partial G} = (N+M) \cdot h'(G) - \lambda_1 + \lambda_2 = 0,$$

(20) $$\frac{\partial L}{\partial t} = N \cdot [\alpha \cdot q^h + (1-\alpha) \cdot q^l] \cdot [w'[g(t)] \cdot g'(t) - g'(t) \cdot (1+t) - g(t)]$$
$$+\lambda_1 \cdot N \cdot [\alpha \cdot q^h + (1-\alpha) \cdot q^l] \cdot [g'(t) \cdot (1+t) + g(t)]$$
$$-\lambda_2 \cdot N \cdot [\alpha \cdot q^h + (1-\alpha) \cdot q^l] \cdot g'(t) = 0,$$

(21) $$\frac{\partial L}{\partial T} = (N+M) \cdot (\lambda_1 - 1) = 0 \leftrightarrow \lambda_1 = 1.$$

Substituting for λ_1 and λ_2 from (21) and (19) and the individual first-order condition, $w'(g) = 1 + t$, into (20), yields upon re-arrangement:

(22) $$\frac{\partial L}{\partial t} = N \cdot [\alpha \cdot q^h + (1-\alpha) \cdot q^l] \cdot [(N+M) \cdot h'(G) + t] \cdot g'(t) = 0.$$

As $g'(t) < 0$,[17] it follows that:

(23) $\quad t = -(N + M) \cdot h'(G).$

The optimal tax on contributions is therefore negative (a subsidy) which is the standard result in the literature (and consistent with common practice of rendering preferential tax treatment to charitable giving). The subsidy *t* is essentially playing a *Pigouvian* role in fully internalizing the positive externalities associated with public good provision.[18] Notice that the issue of under-provision of the public good, due to the presence of positive externalities, is exclusively addressed by the tax incentives given to ethical providers, and not supplemented by direct provision of public good by the government itself. Formally, the constraint given in condition (17) is binding in the optimal solution. To see this, suppose by negation that the constraint in (17) is not binding; hence, $\lambda_2 = 0$. Substituting into the first order condition in (20), employing the individual first-order condition, yields upon re-arrangement:

(24) $\quad \frac{\partial L}{\partial t} = N \cdot [\alpha \cdot q^h + (1 - \alpha) \cdot q^l] \cdot [g'(t) \cdot (1 + t)] < 0,$

where the inequality sign follows as $g'(t) < 0$.

We thus obtain a contradiction to optimality [violating the first-order condition in (20)]. The reason for the result (as discussed in footnote 14) follows from the warm-glow component in the utility of ethical providers, which makes it more efficient to increase the level of public good provision by inducing ethical providers to increase their private contribution than to do so across the board, via taxation of the general population (to finance government provision of the public good).

[17] Full differentiation of the individual first-order condition, $w'(g) = 1 + t$, with respect to *t*, yields, $g'(t) = \frac{1}{w''[g(t)]} < 0$, where the inequality sign follows from the concavity of *w*.

[18] Full internalization is feasible due to the availability of a lump-sum tax. As pointed out in footnote 14, with distortionary taxes in place, the optimal subsidy would be reduced below the first-best level.

Our final step is to verify that our assumption that providers set their contribution at the level that maximizes the warm-glow component in their utility is consistent with the optimal solution for the government problem. Substituting for *G*, the aggregate level of public good provision, from condition (17) satisfied as an equality into condition (23), let t^* denote the optimal subsidy given by the implicit solution to (23). It follows that the solution is consistent when the following condition holds:

(25) $g(t^*) \cdot (1 + t^*) > \bar{\theta} - \underline{\theta}$,

where $g(t^*)$ is given by the implicit solution to $w'(g) = 1 + t^*$.

Thus, the optimal subsidy will fully internalize the positive externalities associated with the public good provision when the returns on signaling, as captured by the term $\bar{\theta} - \underline{\theta}$, are sufficiently small [notice that the expression on the left-hand side of (25) is independent of $\bar{\theta} - \underline{\theta}$].

We turn next to analyze the case where signaling takes place, namely, when the inequality in (25) is violated.

3.1.2 A Separating Equilibrium with Signaling

The government is maximizing a utilitarian social welfare function given by:

(15') $W(G, t, T) =$

$$(N + M) \cdot h(G) + N \cdot [\alpha \cdot q^h + (1 - \alpha) \cdot q^l] \cdot [w[g(t)] - g(t) \cdot (1 + t)] -$$

$$(N + M) \cdot T + (N + M) \cdot Y + N \cdot [\alpha \cdot \theta^h + (1 - \alpha) \cdot \theta^l],$$

where $g(t)$, the level of contribution chosen by a typical ethical provider, is given by the implicit solution to $g(t) \cdot (1+t) = \bar{\theta} - \underline{\theta}$;[19]

subject to a revenue constraint:

(16') $N \cdot [\alpha \cdot q^h + (1-\alpha) \cdot q^l] \cdot [g(t) \cdot (1+t)] + (N+M) \cdot T - G \geq 0,$

and a public good provision constraint:

(17') $G - N \cdot [\alpha \cdot q^h + (1-\alpha) \cdot q^l] \cdot g(t) \geq 0.$

The *Lagrangean* of the government optimization problem is given by:

(18')

$$L = W(G,t,T) + \lambda_1 \cdot [N \cdot [\alpha \cdot q^h + (1-\alpha) \cdot q^l] \cdot [g(t) \cdot (1+t)] + (N+M) \cdot T - G]$$
$$+\lambda_2 \cdot [G - N \cdot [\alpha \cdot q^h + (1-\alpha) \cdot q^l] \cdot g(t)],$$

with $\lambda_i, i = 1,2$, denoting, respectively, the *Lagrange* multipliers associated with the revenue constraint in (16') and the public good provision constraint in (17').

Formulating the first-order conditions with respect to *G*, *t* and *T* would yield identical expressions to (19)-(21), which are replicated for convenience:

(19') $\frac{\partial L}{\partial G} = (N+M) \cdot h'(G) - \lambda_1 + \lambda_2 = 0,$

(20') $\frac{\partial L}{\partial t} = N \cdot [\alpha \cdot q^h + (1-\alpha) \cdot q^l] \cdot [w'[g(t)] \cdot g'(t) - g'(t) \cdot (1+t) - g(t)]$

$$+\lambda_1 \cdot N \cdot [\alpha \cdot q^h + (1-\alpha) \cdot q^l] \cdot [g'(t) \cdot (1+t) + g(t)]$$
$$-\lambda_2 \cdot N \cdot [\alpha \cdot q^h + (1-\alpha) \cdot q^l] \cdot g'(t) = 0,$$

(21') $\frac{\partial L}{\partial T} = (N+M) \cdot (\lambda_1 - 1) = 0 \leftrightarrow \lambda_1 = 1.$

Substituting for λ_1 and λ_2 from (21') and (19') into (20') yields upon re-arrangement:

[19] Thus, signaling does take place in equilibrium and contributions are set to the level which renders the un-ethical providers just indifferent between contributing or not, $g(t) \cdot (1+t) = \bar{\theta} - \underline{\theta}$.

(26) $$\frac{\partial L}{\partial t} = \underbrace{\{N \cdot [\alpha \cdot q^h + (1-\alpha) \cdot q^l] \cdot [(N+M) \cdot h'(G)] \cdot g'(t)\}}_{Pigouvian\ Term}$$

$$+ \underbrace{\{N \cdot [\alpha \cdot q^h + (1-\alpha) \cdot q^l] \cdot [w'[g(t)] - 1] \cdot g'(t)\}}_{Signaling\ Correction\ Term} = 0.$$

Notice that as $g(t) \cdot (1+t) = \bar{\theta} - \underline{\theta}$, it follows that $g'(t)<0$; hence, condition (26) holds if-and-only-if:

(27) $$(N+M) \cdot h'(G) + [w'[g(t)] - 1] = 0.$$

Further notice that as $w'(g) > 0$, it follows from (27) that $(N+M) \cdot h'(G) - 1 < 0$. Thus, by virtue of conditions (19') and (21'), $\lambda_2 > 0$; hence, constraint (17') is binding. Namely, the optimal solution involves no direct provision of the public good by the government, similar to the case with no signaling discussed in the previous subsection.

The expression given in (26) captures two conflicting effects that determine the sign of the optimal tax on contribution. The first term is negative [recalling that $g'(t)<0$] and works in the direction of granting a subsidy to contributions. This term captures the standard *Pigouvian* motive for subsidizing contributions. The second term is positive [recalling that $w'[g(t)] - 1 < 0$, by virtue of (27)] and works in the direction of levying a tax on contributions. This term captures the corrective effect of taxing contributions on the wasteful pure-signaling donations. The latter result in an excessive level of contributions, reflected in the fact that ethical providers set their contributions above the level that would maximize the warm-glow component; namely, at a level where the marginal utility derived from an additional dollar contributed to the public good is lower than that associated with an additional dollar spent on the consumption of *y*, the *numeraire* good. By taxing contributions and rebating the tax-revenues as a lump sum transfer the government diverts resources from contributions to the public good towards

consumption of *y*, and thereby enhances welfare.[20] Clearly, the sign of the optimal tax on contributions depends on the magnitudes of the two aforementioned conflicting effects.

A different way to interpret the optimal first-order condition in (26) is to consider the following simple thought experiment. Suppose that signaling is carried out through 'burning money'; namely, that charitable giving is completely wasteful. In such a case, the first term in condition (26) would disappear, and the optimal solution would be to equalize the second term to zero. This implies that contribution would be set at the level that maximizes the warm-glow component in the utility function of providers, thus fully eliminating the excessive contribution. The fact that charitable giving does serve to provide the public good (thereby internalizing the positive externality) implies that the socially optimal charitable giving would exceed the warm-glow maximizing level.

Recalling that the public good provision constraint given in (17') is binding, and employing the fact that by construction of the equilibrium with signaling it follows that $g(t)\cdot(1+t)=\bar{\theta}-\underline{\theta}$, one can re-formulate the condition in (27) to obtain:

(28) $$K\left[\left(\bar{\theta}-\underline{\theta}\right),t\right]\equiv$$

$$(N+M)\cdot h'\left(N\cdot\left[\alpha\cdot q^{h}+(1-\alpha)\cdot q^{l}\right]\cdot\frac{\left(\bar{\theta}-\underline{\theta}\right)}{(1+t)}\right)+\left(w'\left[\frac{\bar{\theta}-\underline{\theta}}{(1+t)}\right]-1\right)=0.$$

[20] In a separating equilibrium the total (observable) expenditures associated with the signal (contributions to the public good) should be equal to the term $\bar{\theta}-\underline{\theta}$, which measures the difference between the values associated with a low- and a high-quality provider. By taxing contributions the government maintains the total level of expenditures made by a typical ethical provider but changes its composition between the contribution to the public good and the amount collected as tax revenues. The signaling provider is indifferent with respect to the composition. From a social welfare perspective, however, the amount collected as tax revenues can be diverted to consumption of y, from which the marginal utility derived exceeds that associated with an additional dollar spent on contributions. The excessive level of contributions and the resulting efficiency enhancing role of a tax on contributions bears resemblance to Ng (1987) argument in favor of taxing 'diamond goods'; namely, goods that consumers only care about the total expenditure associated with rather than about their intrinsic values (reflected by the quantity consumed).

Recalling our assumption that both *w* and *h* satisfy the INADA conditions, it follows that $\lim_{(\bar{\theta}-\underline{\theta})\to 0} K\left[\left(\bar{\theta}-\underline{\theta}\right),t\right] > 0$ and $\lim_{(\bar{\theta}-\underline{\theta})\to \infty} K\left[\left(\bar{\theta}-\underline{\theta}\right),t\right] < 0$. Thus by the continuity of *K*, it follows by the intermediate value theorem that for any value of *t* there exists a solution to (28). Furthermore, as $\frac{\partial K}{\partial(\bar{\theta}-\underline{\theta})} < 0$ and $\frac{\partial K}{\partial t} > 0$, by virtue of the concavity of *h* and *w*, the solution is unique. Let the (unique) solution for the condition in (28) be denoted by $k(t)$; namely, $K[k(t),t] = 0$. As $\frac{\partial K}{\partial(\bar{\theta}-\underline{\theta})} < 0$ and $\frac{\partial K}{\partial t} > 0$ it follows that $k'(t) > 0$. The following proposition then follows:

Proposition: In the optimal solution for the government problem for the case of separating equilibrium with signaling, the optimal tax (subsidy, if negative) on charitable giving, *t*, is increasing (decreasing) with respect to the term $\bar{\theta}-\underline{\theta}$. Furthermore, *t*>0 if-and-only-if $\bar{\theta}-\underline{\theta} > k(0)$.

The rationale underlying the proposition is straightforward. When the returns on signaling, captured by the term $\bar{\theta}-\underline{\theta}$, are sufficiently large, the signaling effect prevails over the 'free-riding' effect; hence, all in all, the level of public good provision attained in equilibrium exceeds the socially desirable level. As the government, by assumption, cannot directly confiscate the private contributions, the optimal response would be to levy a tax on contributions.[21] Clearly, when the returns on signaling are sufficiently small, the positive externality effect prevails, resulting in under provision of the public good; hence, warranting granting a subsidy to charitable donations. However, the larger

[21] The desirability of taxing charitable contributions is in contrast to conventional wisdom and common practice of rendering a favorable tax treatment to donations. The result is similar in spirit to Blumkin and Sadka (2007) that focus on individual donations and show that in the presence of status signaling concerns, the optimal tax on charitable contributions would be non-negative.

the magnitude of the 'signaling' effect turns out to be, the smaller is the optimal subsidy granted to charitable giving.

4. Conclusion

Based on marketing literature that shows a positive correlation between CSR and perceived product quality, and empirical evidence indicating that firms providing experience goods are more likely to engage in CSR than firms offering search goods, we have suggested that firms use CSR as a signaling device.

We have analyzed the signaling mechanism, demonstrating that it gives rise to an excessive level of contributions that offsets the under-provision of the public good due to the presence of positive externalities, the commonly invoked justification for rendering preferential tax treatment to CSR activities.

Accounting for the signaling effect calls for reconsideration and adjustment of the current policy of granting CSR subsidy. The fact that firms engage in CSR activities for signaling purposes suggests, that to the extent that the signaling effect has not been fully accounted for, subsidies offered to corporations may be too generous. In cases where the magnitude of the excessive contributions associated with quality signaling is sufficiently large, complete elimination of such subsidies (or even levying positive taxes) may be warranted. Moreover, corporations selling search goods should be offered higher CSR related subsidies compared to corporations selling experience goods. Ideally, such policy would be based on empirical research identifying the extent to which corporations use CSR as a signaling mechanism in different product and services categories and across sectors.

Appendix A: A Hybrid-Equilibrium is Unstable

In this appendix we turn to show that by invoking the 'Intuitive Criterion' [Cho and Kreps (1987)] any hybrid-equilibrium is unstable. In particular we will show that an ethical provider would gain by deviating from the common level of provision, $\hat{g}$, to a higher level of contribution. In contrast, un-ethical providers will find mimicking (adopting a similar deviation strategy) unprofitable.

Consider a deviation from the common level of provision, $\hat{g}$, to some higher level of contribution g', $\hat{g} < g' \leq \bar{\theta}$, recalling that $\bar{\theta}$ denotes the expected quality of an ethical provider in a separating equilibrium, given by condition (7). We will show that such a deviation exists where it will only be profitable for ethical providers to deviate. Consumers will then correctly perceive this to be the case; hence, the price charged by a deviating ethical provider will be given by $\bar{\theta}$.

A deviation, g', fulfilling the above conditions has to satisfy the following two inequalities:

(A1) $\quad \bar{\theta} - g' < \bar{\bar{\theta}} - \hat{g}$,

(A2) $\quad \bar{\theta} + w(g') - g' > \bar{\bar{\theta}} + w(\hat{g}) - \hat{g}$.

Condition (A1) states that an un-ethical provider finds it strictly unprofitable to deviate; whereas, condition (A2) states that an ethical provider finds it strictly profitable to deviate.

We need to show that there exists such g' that satisfies both (A1) and (A2). There are two scenarios to consider. Suppose, first, that the inequality condition given in (A2) holds for $g' = \bar{\theta}$. Substituting for g' into condition (A1) yields:

(A3) $\quad \bar{\bar{\theta}} - \hat{g} > 0,$

where the inequality sign in (A3) holds by virtue of condition (14), which implies that $\bar{\bar{\theta}} - \underline{\underline{\theta}} = \hat{g}$, and the fact that $\underline{\underline{\theta}} > 0$.

In such a scenario, $g' = \bar{\theta}$ satisfies both (A1) and (A2) as required.

Suppose, alternatively, that for $g' = \bar{\theta}$ the inequality condition in (A2) is reversed. Formally, substituting for g' into (A2), presuming the inequality sign is reversed, yields:

(A4) $\quad w(\bar{\theta}) \leq \bar{\bar{\theta}} + w(\hat{g}) - \hat{g}.$

There are two possibilities to consider. Suppose first that the condition in (A4) is satisfied as equality; namely,

(A5) $\quad w(\bar{\theta}) = \bar{\bar{\theta}} + w(\hat{g}) - \hat{g}.$

Clearly, by virtue of (A3), the inequality condition in (A1) holds for $g' = \bar{\theta}$. Then, by continuity considerations, one can set the level of contribution to be slightly lower than $\bar{\theta}$; namely, $g'' = \bar{\theta} - \varepsilon$, where $\varepsilon > 0$ and small, and still maintain the inequality condition in (A1). Furthermore, it follows that:

(A6) $\quad \bar{\theta} + w(g'') - g'' > w(\bar{\theta}) = \bar{\bar{\theta}} + w(\hat{g}) - \hat{g},$

where the inequality in (A6) follows as $g^* < g'' < \bar{\theta}$ and by virtue of the fact that the term [$w(g)$-g] is decreasing in g for $g > g^*$, recalling the concavity of w and the fact that $w'(g^*) = 1$. Thus, both conditions (A1) and (A2) are satisfied for g''.

Finally, suppose that the condition in (A4) is satisfied as a strictly inequality. Formally,

(A7) $\quad w(\bar{\theta}) < \bar{\bar{\theta}} + w(\hat{g}) - \hat{g}.$

Substituting for $g' = \hat{g}$ into condition (A2) yields:

(A8) $\quad \bar{\theta} > \bar{\bar{\theta}},$

which holds by virtue of (13) and the fact that $\bar{\theta} > \underline{\theta}$.

By the continuity of w, invoking the intermediate-value theorem, conditions (A7) and (A8) imply that there exist some level of contribution g', $\hat{g} < g' < \bar{\theta}$, for which:

(A9) $\quad \bar{\theta} + w(g') - g' = \bar{\bar{\theta}} + w(\hat{g}) - \hat{g}.$

As w is increasing and $\hat{g} < g'$, the condition in (A9) implies:

(A10) $\quad \bar{\theta} - g' < \bar{\bar{\theta}} - \hat{g}.$

Thus, the inequality condition in (A1) holds for g' given by the implicit solution to (A9). By continuity considerations, one can set the level of contribution to be slightly lower than g'; namely, $g'' = g' - \varepsilon$, where $\varepsilon > 0$ and small, and still maintain the inequality condition in (A1). Furthermore, it follows that:

(A11) $\quad \bar{\theta} + w(g'') - g'' > \bar{\theta} + w(g') - g' = \bar{\bar{\theta}} + w(\hat{g}) - \hat{g},$

where the inequality in (A11) follows as $g^* < g'' < g'$ and by virtue of the fact that the term [$w(g)$-g] is decreasing in g for $g > g^*$, recalling the concavity of w and the fact that $w'(g^*) = 1$. Thus, both conditions (A1) and (A2) are satisfied for g''. This concludes the proof.

References

Andreoni, James. 1989, "Giving with Impure Altruism: Applications to Charity and Ricardian Equivalence", Journal of Political Economy, volume 97(6), pp. 1447-1458.

------- 1990, "Impure Altruism and Donations to Public Goods: A Theory of Warm-Glow Giving", The Economic Journal, volume 100(401), pp. 464-477.

Baron, David. 2001, "Private politics, Corporate Social Responsibility and Integrated Strategy", Journal of Economics and management strategy, volume 10(1), pp.

------ 2007, "Corporate Social Responsibility and Social Entrepreneurship," Journal of Economics and Management Strategy 16, 683–717.

----- 2009, "A Positive Theory of Moral Management, Social Pressure, and Corporate Social Performance," Journal of Economics and Management Strategy 18(1): 7-43.

Baron, David and Diermeier, Daniel. 2007, "Strategic Activism and Non-Market Strategy," Journal of Economics and Management Strategy, 16(3), 599-634.

Roland Benabou and Tirole, Jean. 2010, "Individual and Corporate Social Responsibility," Economica, Vol. 77, pp. 1-19.

Besley, Timothy and Ghatak, Maitreesh. 2007, "Retailing Public Goods: The Economics of Corporate Social Responsibility", Journal of Public Economics, vol. 91, pp. 1645-1663.

Blumkin, Tomer and Sadka, Efraim. 2007, "A case for taxing charitable donations", Journal of Public Economics, volume 91, pp. 1555-1564.

Brown, Tom J. and Dacin, Peter A. 1997, "The Company and the Product: Corporate Associations and Consumer Product Responses," Journal of Marketing 61, 68-84.

Cho, In-Koo and Kreps, David M. 1987, "Signaling Games and Stable Equilibria," The Quarterly Journal of Economics, volume 102, pp.179-222.

Forbes Magazine. 2013, "The Top 10 Trends in CSR for 2012" http://www.forbes.com/sites/forbesleadershipforum/2012/01/18/the-top-10-trends-in-csr-for-2012.

Friedman, Milton. 1970, "The Social Responsibility of Business is to Increase Its Benefits", New York Times Magazine, September 13th, 1970.

Glaeser, Edward L. and Shleifer, Andrei. 2001, "Not-for-profit entrepreneurs," Journal of Public Economics, Elsevier, vol. 81(1), pages 99-115.

Glazer, Amihai and Konrad, Kai. 1996, "A signaling explanation for charity," American Economic Review, vol. 86(4), pages 1019-1028.

Governance and Accountability Institute. 2012, "2012 Corporate ESG/Sustainability/Responsibility Reporting - Does it Matter?" Available at: http://www.ga-institute.com/fileadmin/user_upload/Reports/SP500_-_Final_12-15-12.pdf.

Henderson, Todd and Anup, Malani. 2009, "Corporate Philanthropy and the Market for Altruism," 109 Columbia Law Review 571.

Jennings, Marianne. 2006. "The Seven Signs of Ethical Collapse: How to Spot Moral Meltdowns in Companies... Before It's Too Late," St. Martin's Griffin Press.

Kennedy Mary Susan, Linda Ferrell, and LeClair Debbie Thome. 2001, "Consumers' Trust of Salesperson and Manufacturer: an Empirical Study," Journal of Business Research, 51, 1, 73-86.

Krueger, Alan and Mas, A. 2004, "Strikes, scabs, and tread separations: labor strife and the production of defective Bridgestone/Firestone tires," Journal of Political Economy, 112(2), 253–89.

Lyon, Thomas P. and Maxwell, John W. 2004, Corporate Environmentalism and Public Policy, Cambridge: Cambridge University Press.

Maxwell, J. W., Lyon, T. P. and Hackett, S. C. 2000, "Self-regulation and social welfare: the political economy of corporate environmentalism," Journal of Law and Economics
43: 583–618.

McWilliams, Abagail and Siegel, Donald. 2001, "A Theory of the Firm Perspective", The Academy of Management Review, volume 26(1), pp. 117-127.

Ng, Yew-Kwang. 1987, "Diamonds Are a Government's Best Friend: Burden-Free Taxes on Goods Valued for Their Values," American Economic Review, vol. 77(1), pages 186-191.

Nyborg, Karine and Zhang, Tao. 2013, "Is Corporate Social Responsibility Associated with Lower Wages?," Environmental & Resource Economics, European Association of Environmental and Resource Economists, vol. 55(1), pages 107-117.

Reputation Institute. 2014, "2013 Global CSR RepTrak™ 100," http://www.reputationinstitute.com/thought-leadership/csr-reptrak-100.

Siegel, Donald S. and Vitaliano, Donald F. 2006, "An Empirical Analysis of the Strategic Use of Corporate Social Responsibility," Journal of Economics and Management Strategy, volume 16(3), pp. 773-792.

Swaen, Valérie and Chumpitaz, Ruben. 2008, "Impact of Corporate Social Responsibility on Consumer Trust," Recherche et Applications en Marketing (English Edition) December 2008 vol. 23 no. 4 7-34.

WORKING PAPERS
Uppsala Center for Fiscal Studies
Editor: Håkan Selin

2009:1 Sören Blomquist and Håkan Selin, Hourly Wage Rate and Taxable Labor Income Responsiveness to Changes in Marginal Tax Rates. 31 pp.

2009:2 Luca Micheletto, Optimal nonlinear redistributive taxation and public good provision in an economy with Veblen effects. 26 pp.

2009:3 Håkan Selin, The Rise in Female Employment and the Role of Tax Incentives. An Empirical Analysis of the Swedish Individual Tax Reform of 1971. 38 pp.

2009:4 Håkan Selin, Marginal tax rates and tax-favoured pension savings of the self-employed Evidence from Sweden. 32 pp.

2009:5 Tobias Lindhe and Jan Södersten, Dividend taxation, share repurchases and the equity trap. 27 pp.

2009:6 Che-Yan Liang, Nonparametric Structural Estimation of Labor Supply in the Presence of Censoring. 48 pp.

2009:7 Sören Blomquist, Vidar Christiansen and Luca Micheletto, Public Provision of Private Goods and Nondistortionary Marginal Tax Rates: Some further Results. 42 pp.

2009:8 Laurent Simula and Alain Trannoy, Optimal Income Tax under the Threat of Migration by Top-Income Earners. 26 pp.

2009:9 Laurent Simula and Alain Trannoy, Shall We Keep Highly Skilled at Home? The Optimal Income Tax Perspective. 26 pp.

2009:10 Michael Neugart and Henry Ohlsson, Economic incentives and the timing of births: Evidence from the German parental benefit reform 2007, 21 pp.

2009:11 Laurent Simula, Optimal Nonlinear Income Tax and Nonlinear Pricing: Optimality Conditions and Comparative Static Properties, 25 pp.

2009:12 Ali Sina Onder and Herwig Schlunk, Elderly Migration, State Taxes, and What They Reveal, 26 pp.

2009:13 Ohlsson, Henry, The legacy of the Swedish gift and inheritance tax, 1884-2004, 26 pp.

2009:14 Onder, Ali Sina, Capital Tax Competition When Monetary Competition is Present, 29 pp.

2010:1 Sören Blomquist and Laurent Simula, Marginal Deadweight Loss when the Income Tax is Nonlinear. 21 pp.

2010:2 Marcus Eliason and Henry Ohlsson, Timing of death and the repeal of the Swedish inheritance tax. 29 pp.

2010:3 Mikael Elinder, Oscar Erixson and Henry Ohlsson, The Effect of Inheritance Receipt on Labor and Capital Income: Evidence from Swedish Panel Data. 28 pp.

2010:4 Jan Södersten and Tobias Lindhe, The Norwegian Shareholder Tax Reconsidered. 21 pp.

2010:5 Anna Persson and Ulrika Vikman, Dynamic effects of mandatory activation of welfare participants. 37 pp.

2010:6 Ulrika Vikman, Does Providing Childcare to Unemployed Affect Unemployment Duration? 43 pp.

2010:7 Per Engström, Bling Bling Taxation and the Fiscal Virtues of Hip Hop. 12 pp.

2010:8 Niclas Berggren and Mikael Elinder, Is tolerance good or bad for growth? 34 pp.

2010:9 Heléne Lundqvist, Matz Dahlberg and Eva Mörk, Stimulating Local Public Employment: Do General Grants Work? 35pp.

2010:10 Marcus Jacob and Martin Jacob, Taxation, Dividends, and Share Repurchases: Taking Evidence Global. 42 pp.

2010:11 Thomas Aronsson and Sören Blomquist, The Standard Deviation of Life-Length, Retirement Incentives, and Optimal Pension Design. 24 pp.

2010:12 Spencer Bastani, Sören Blomquist and Luca Micheletto, The Welfare Gains of Age Related Optimal Income Taxation. 48 pp.

2010:13 Adrian Adermon and Che-Yuan Liang, Piracy, Music, and Movies: A Natural Experiment. 23 pp.

2010:14 Spencer Bastani, Sören Blomquist and Luca Micheletto, Public Provision of Private Goods, Tagging and Optimal Income Taxation with Heterogeneity in Needs. 47 pp.

2010:15 Mattias Nordin, Do voters vote in line with their policy preferences? The role of information. 33 pp.

2011:1 Matz Dahlberg, Karin Edmark and Heléne Lundqvist, Ethnic Diversity and Preferences for Redistribution. 43 pp.

2011:2 Tax Policy and Employment: How Does the Swedish System Fare? Jukka Pirttilä and Håkan Selin. 73 pp.

2011:3 Alessandra Casarico, Luca Micheletto and Alessandro Sommacal, Intergenerational transmission of skills during childhood and optimal public policy. 48 pp.

2011:4 Jesper Roine and Daniel Waldenström, On the Role of Capital Gains in Swedish Income Inequality. 32 pp.

2011:5 Matz Dahlberg, Eva Mörk and Pilar Sorribas-Navarro, Do Politicians' Preferences Matter for Voters' Voting Decisions?

2011:6 Sören Blomquist, Vidar Christiansen and Luca Micheletto, Public provision of private goods, self-selection and income tax avoidance. 27 pp.

2011:7 Bas Jacobs, The Marginal Cost of Public Funds is One. 36 pp.

2011:8 Håkan Selin, What happens to the husband's retirement decision when the wife's retirement incentives change? 37 pp.

2011:9 Martin Jacob, Tax Regimes and Capital Gains Realizations. 42 pp.

2011:10 Katarina Nordblom and Jovan Zamac, Endogenous Norm Formation Over the Life Cycle – The Case of Tax Evasion. 30 pp.

2011:11 Per Engström, Katarina Nordblom, Henry Ohlsson and Annika Persson, Loss evasion and tax aversion. 43 pp.

2011:12 Spencer Bastani and Håkan Selin, Bunching and Non-Bunching at Kink Points of the Swedish Tax Schedule. 39 pp.

2011:13 Svetlana Pashchenko and Ponpoje Porapakkarm, Welfare costs of reclassification risk in the health insurance market. 41 pp.

2011:14 Hans A Holter, Accounting for Cross-Country Differences in Intergenerational Earnings Persistence: The Impact of Taxation and Public Education Expenditure. 56 pp.

2012:1 Stefan Hochguertel and Henry Ohlsson, Who is at the top? Wealth mobility over the life cycle. 52 pp.

2012:2 Karin Edmark, Che-Yuan Liang, Eva Mörk and Håkan Selin, Evaluation of the Swedish earned income tax credit. 39 pp.

2012:3 Martin Jacob and Jan Södersten, Mitigating shareholder taxation in small open economies? 15 pp.

2012:6 Spencer Bastani, Gender-Based and Couple-Based Taxation. 55 pp.

2012:7 Indraneel Chakraborty, Hans A. Holter and Serhiy Stepanchuk, Marriage Stability, Taxation and Aggregate Labor Supply in the U.S. vs. Europe. 64 pp.

2012:8 Niklas Bengtsson, Bertil Holmlund and Daniel Waldenström, Lifetime versus Annual Tax Progressivity: Sweden, 1968–2009. 56 pp.

2012:9 Firouz Gahvari and Luca Micheletto, The Friedman rule in a model with nonlinear taxation and income misreporting. 36 pp.

2012:10 Che-Yuan Liang and Mattias Nordin, The Internet, News Consumption, and Political Attitudes. 29 pp.

2012:11 Gunnar Du Rietz, Magnus Henrekson and Daniel Waldenström, The Swedish Inheritance and Gift Taxation, 1885–2004. 50 pp.

2012:12 Thomas Aronsson, Luca Micheletto and Tomas Sjögren, Public Goods in a Voluntary Federal Union: Implications of a Participation Constraint. 7 pp.

2013:1 Markus Jäntti, Jukka Pirttilä and Håkan Selin, Estimating labour supply elasticities based on cross-country micro data: A bridge between micro and macro estimates? 35pp.

2013:2 Matz Dahlberg, Karin Edmark and Heléne Lundqvist, Ethnic Diversity and Preferences for Redistribution: Reply. 23 pp.

2013:3 Ali Sina Önder and Marko Terviö, Is Economics a House Divided? Analysis of Citation Networks. 20 pp.

2013:4 Che-Yuan Liang, Optimal Inequality behind the Veil of Ignorance. 26 pp.

2013:5 Spencer Bastani, Sören Blomquist and Jukka Pirttilä, How Should Commodities Be Taxed? A Counterargument to the Recommendation in the Mirrlees Review. 26 pp.

2013:6 Tobias Laun and Johanna Wallenius, Social Insurance and Retirement: A Cross-Country Perspective. 37 pp.

2013:7 Johannes Hagen, A History of the Swedish Pension System. 140 pp.

2013:8 Etienne Lehmann, Laurent Simula and Alain Trannoy, Tax Me If You Can! Optimal Nonlinear Income Tax between Competing Governments. 29 pp

2013:9 Tobias Lindhe and Jan Södersten, Distortive Effects of Dividend Taxation. 21 pp.

2013:10 Jonas Poulsen, After Apartheid: The Effects of ANC Power. 42 pp.

2013:11 Spencer Bastani, Using the Discrete Model to Derive Optimal Income Tax Rates. 14pp.

2013:12 Lovisa Persson, Consumption smoothing in a balanced budget regime. 39 pp.

2013:13 Karin Edmark och Roger Gordon, Taxes and the Choice of Organizational Form by Entrepreneurs in Sweden. 48 pp.

2013:14 Linuz Aggeborn, Voter Turnout and the Size of Government. 48pp.

2013:15 Michihito Ando, How Much Should We Trust Regression-Kink-Design Estimates? 69 pp.

2014:1 Sören Blomquist, Anil Kumar, Che-Yuan Liang and Whitney K. Newey, Individual Heterogeneity, Nonlinear Budget Sets, and Taxable Income. 37 pp.

2014:2 Oscar Erixson and Henry Ohlsson, Estate division: Equal sharing as choice, social norm, and legal requirement. 45 pp.

2014:3 Oscar Erixson, Health responses to a wealth shock: Evidence from a Swedish tax reform. 44 pp.

2014:4 Che-Yuan Liang, Distribution-Free Structural Estimation with Nonlinear Budget Sets. 31 pp.

2014:5 Jesper Roine and Daniel Waldenström, Long run trends in the distribution of income and wealth. 151 pp.

2014:6 Mikael Elinder and Lovisa Persson, Property taxation, bounded rationality and housing prices. 38 pp.

2014:7 Henry Ohlsson, Jesper Roine and Daniel Waldenström, Inherited wealth over the path of development: Sweden, 1810–2010.88 pp.

2014:8 Spencer Bastani, Tomer Blumkin and Luca Micheletto, OptimalWage Redistribution in the Presence of Adverse Selection in the Labor Market. 17 pp.

2014:9 Magnus Henrekson and Daniel Waldenström, Inheritance Taxation in Sweden, 1885–2004: The Role of Ideology, Family Firms and Tax Avoidance. 43pp.

2014:10 Tomer Blumkin, Yoram Margalioth and Adi Sharoni, The Signaling Role of Corporate Social Responsibility. 35 pp.