



Public goods provision and redistributive taxation [☆]

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ABSTRACT

This paper studies the relationship between redistributive taxation and tax-deductible charitable contributions. Redistribution has two opposite effects on voluntary giving. The price of charitable giving decreases with the degree of redistribution, and this has a positive effect on the total amount of giving (substitution effect). However, redistribution leads to lower consumption for the contributors and therefore has a negative effect on contributions to the charity (income effect). The theoretical model developed in this paper demonstrates that, under a general class of utility functions, the substitution effect dominates the income effect. Hence, charitable giving increases with the tax rate. In purely egalitarian societies, the public good is provided efficiently and the total welfare is maximized independent of the ex-ante income inequality. However, the positive impact of taxation on charitable giving and welfare may disappear if individuals generate their income levels in anticipation of taxation and redistribution does not take into account the cost of effort.

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1. Introduction

In the United States, starting from 1917, donations to many charities have become tax-deductible. This feature of the tax code implies that, for agents who can itemize their deductions, the cost of charitable contributions is inversely related to the tax rate. For example, if the taxpayer faces a tax rate of γ , then the price/cost of giving will be $1-\gamma$ for a dollar worth of contribution.¹ Therefore, tax affects charitable giving through two channels: through its effect on the after-tax net income and through its effect on the price of giving. The main questions this paper asks are: how are the voluntary contributions of individuals affected by redistributive taxation? Is there a trade-off between redistribution and welfare?

Although there is a large empirical literature on taxation and charitable giving (i.e., [Reece, 1979](#); [Clotfelter, 1985](#); [Auten et al., 1992, 2002](#); [Randolph, 1995](#)), how redistributive policies affect charitable contributions remains an open question. In the early empirical studies, typical estimates for price elasticity are greater than one in absolute value and typical estimates for income elasticity are less than one, i.e., a tax cut implies a decrease in charitable giving ([Clotfelter, 1990](#)). However, [Randolph \(1995\)](#) finds evidence that charitable giving may be relatively insensitive to changes in the price of giving. He finds that permanent price changes have a small effect on voluntary contributions. In contrast, [Auten et al. \(2002\)](#) find a substantial permanent price elasticity. However, the *net effect* of a tax change on contributions is still not entirely understood in the

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¹ The price of giving is defined as the dollar amount forgone per dollar of contribution.

absence of a theory, since it is difficult to make strong inferences using the naturally occurring data (Auten et al., 2002; Pelozo and Steel, 2005; Vesterlund, 2006).

The aim of this paper is to provide a theoretical foundation for analyzing the effects of taxation on charitable giving. The theory builds on the standard public goods model of Bergstrom, Blume and Varian (1986). Consider a group of agents with known wealth levels that is making observable voluntary contributions in order to provide a public good. In this paper, I incorporate redistributive taxation that depends on income net of contributions to the public good: the government collects a flat-rate tax (γ) on income net of contributions, and then redistributes the tax revenue equally.

The model can clearly distinguish the impact of taxation and pre-tax income inequality on charitable giving. In a one-shot game, the theoretical model demonstrates that while pre-tax equality has a negative impact on charitable contributions,² taxation has two opposite effects on voluntary giving. The marginal cost of providing one more unit to the charity is lower with tax, and this has a positive effect on the total amount of giving (substitution effect). However, taxation leads to lower consumption for the contributors and therefore has a negative effect on contributions to the charity (income effect). The paper shows that if the relative risk aversion coefficient is low enough, then the substitution effect dominates the income effect. Hence, voluntary giving strictly increases in the degree of redistribution. This paper also contributes to the literature on the trade-off between equality and efficiency. In a joint production context, Ray and Ueda (1996) show that production increases with the degree of egalitarianism embodied in the social welfare function. In addition, Cornes and Sandler (1996), Bardhan et al. (2002) and Ray et al. (2007) argue that the trade-off between equality and efficiency disappears when individuals' contributions are partially complementary or when there are complementarities between voluntary contributions and private inputs. In this paper, I show that purely egalitarian societies ($\gamma=1$) have efficient levels of charitable giving and the highest possible total welfare independent of the initial income distribution.

The findings of the paper are theoretically robust in that they hold for a large class of utility functions (including the standard Cobb–Douglas utility function). Section 3 discusses three important extensions.³ First, I argue that public goods provision may not be higher in societies with high tax rates if pre-tax income inequality and tax rate are correlated. Second, the model is extended in order to incorporate the impact of taxation on effort choice. I show that welfare may decrease with redistribution, if redistribution does not take into account the cost of effort. Finally, I explore whether societies can decide on the efficient levels of taxes through political processes. In particular, the trade-offs of majority voting on redistribution and total welfare are considered. For simplicity, throughout the paper we assume that agents do not have utility from own contributions. Although, as Andreoni (1989, 1990) demonstrates, this may play a role in individuals' contribution decisions, we disregard that here in order to focus on the effects of redistribution.

A paper that is closely related to this one is Falkinger (1996). The aim of Falkinger (1996) is to introduce a mechanism to efficiently provide public goods. The following incentive scheme is proposed: each individual receives a subsidy if her contribution is greater than the mean contribution and pays a tax if her contribution is lower than the mean contribution.⁴ The mean contribution is defined as either the average contribution of the whole population or the average contribution of the income class to which the individual belongs. However, this mechanism uses a non-standard taxation scheme; it either does not generate transfers between different income classes (if the tax-subsidy is within the income class to which the individual belongs), or if it does then the transfers are generally from poorer income classes to higher income classes. In this paper, redistribution depends on the net income⁵ of individuals relative to the average net income instead of the difference between own contribution and the average contribution.

The rest of the paper is organized as follows. The theoretical framework and main results are presented in Section 2. Section 3 demonstrates the main findings under Cobb–Douglas preferences and extends the model in several dimensions. Section 4 discusses to what extent the results of this paper can explain the impact of informal sharing, observed in developing societies, on voluntary public goods provision. Section 5 concludes.

2. The model

There is one private good, one pure public good and $n > 1$ agent. The public good is provided through charitable contributions. Each agent i has an exogenous endowment, w_i , and decides how much to contribute to the public good, g_i , in a static one-shot game. The level of public good provision is equal to the total giving, $G = \sum_{i=1}^n g_i$. Let $g_{-i} = (g_1, \dots, g_{i-1}, g_{i+1}, \dots, g_n)$ denotes the vector of contributions by all individuals except i .

Suppose the government collects a flat-rate tax on income net of contributions, and then redistributes the tax revenue equally. Hence consumption of each individual i , y_i , is equal to

$$y_i = (1 - \gamma)(w_i - g_i) + \frac{\gamma \sum_{j=1}^n (w_j - g_j)}{n}.$$

² The main result of Bergstrom, Blume and Varian (1986) continues to hold. This finding is also consistent with the Olson's argument that higher levels of (pure) public goods will be achieved with higher levels of inequality (Olson, 1965). However, the effect of income inequality on the level of provision may become ambiguous when more general collective goods are considered (i.e., Bardhan et al. (2002, 2007), Baland and Platteau (1997, 1998, 1999, 2007)).

³ I thank an anonymous referee for suggesting these extensions.

⁴ It has been shown that this mechanism is indeed very successful at increasing the levels of public good provision (Falkinger et al. (2000)).

⁵ I consider net income, income net of contributions, since charitable giving is tax-deductible.

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