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RESEARCH PAPER

Social Innovation as the Community Provision of Public Goods

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Abstract
Social innovation is a topic of growing interest for research and a policy-relevant theme. This paper aims to develop an economic model to analyse social innovation as the *community* provision of a public good. In our model, social innovation is produced by social innovators in favour of the members of a target group. On the one hand, we assume social innovation to be an imperfect substitute for a "traditional" group-specific public good, produced by the local government and financed by taxes. On the other hand, social innovators are motivated to act by social preferences. Our results focus on public policy towards social innovation. We show that, from a welfare point of view, the traditional public good and social innovation should coexist, with governments also playing an active role in supporting social innovation through subsidies. We also show that each community member can be better off with social innovation, as relying on social innovators' motivations can lower taxes used to finance traditional public goods and social innovation subsidies.

Keywords Social innovation · Community · Public goods

JEL Classification O35 · H41 · D64

1 Introduction

Social innovation is a topic of growing interest for research in social sciences, often with a multidisciplinary approach (Cuntz et al 2020; Godin 2012; Moulaert et al. 2013;

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Moulaert and MacCallum 2019; Mulgan 2019). Although a fully shared definition of the concept is still missing, social innovation is usually associated with the development and implementation of new ideas, strategies, or solutions that address social challenges in effective and sustainable ways. The process of social innovation also involves collaboration between actors and aims to improve well-being, create positive systemic change and foster social progress in many areas such as healthcare, education, environmental issues, urban regeneration and social cohesion. This is closely related to a definition proposed by BEPA (European Commission, Bureau of European Policy Advisers 2011) and adopted in many contexts by the European Commission: "Social innovations are innovations that are social in both their ends and their means. (…) Specifically, we define social innovations as new ideas (products, services and models) that simultaneously meet social needs (more effectively than alternatives) and create new social relationships or collaborations. In other words, they are innovations that are not only good for society but also enhance society's capacity to act". Thus, social innovation is also a policy-relevant theme (European Commission 2013; Nicholls and Edmiston 2018), it is not surprising that the European Commission has funded many research projects in FP7 and H2020 on the relevance of social innovation for European policies (see Moulaert et al. (2017) for a discussion).

The contributions of economists regarding social innovation can be grouped into two main streams of literature. First, the social innovation logic relates to the importance of the capability approach (Sen 1980, 1985; Nussbaum 2011) for economic development. Since social innovation deals with innovative ways to tackle social problems with the direct participation of beneficiaries, this framework allows for an important role of marginalized individuals in the actual design and implementation of the process of social innovation. This bottom-up logic enables people to develop beyond the simple role of beneficiaries of services provided by public institutions and marks the transformative element of social innovation for human development and social change [for a more detailed discussion of the relation between social innovation and the capability approach, see the papers in Chiappero-Martinetti et al. (2017)]. Second, social innovation is often a relevant topic in the literature on social entrepreneurship and social enterprises [see Nicholls and Murdock (2012)]. Social enterprises are economic organisations that aim to address societal problems in an economically sustainable way. In other terms, they combine a social and economic objective. Clearly, not all social enterprises are necessarily innovative, but the pursuit of this dual (hybrid) objective makes social innovation a very important way for improving the effectiveness of tackling evolving societal needs. This is also reinforced by the role played by stakeholders in the process of social innovation [see, for instance, the contributions in Vaccaro and Ramus (2022)].

Against this background, this paper aims to develop a model to analyse social innovation as the *community* provision of a group-specific, local public good. While the literature on the private provision of public goods is extremely rich (e.g. Bergstrom et al. 1986; Heal 2021, 2022), our focus on communities and interaction between providers and users of the public good puts the social dimension at the core of the analysis, in line with insights put forth by the literature on open innovation (Giordani et al 2018). In this perspective, we can evaluate the contribution of civil society to social innovation and social welfare, going beyond the state/market dichotomy (Acemoglu and Robinson 2019; Rajan 2019; Bowles et al. 2025), and discuss the impact on public expenditure of social innovation as a partial alternative to public provision of public goods.

In our model, social innovation is produced by "suppliers" (social innovators) in favour of "consumers" (the members of a target group). The social dimension of social innovation appears both on the demand and supply sides. On the demand side, we assume social innovation to be an *imperfect* substitute for a "traditional" group-specific public good, produced by the local government and financed by taxes. Differentiation may arise because social innovation, unlike the traditional public good, may have features of a relational good (Uhlaner 1989; Gui 1996), so that the interpersonal relationship occurring between suppliers and consumers also entails non-instrumental benefits. On the supply side, the social dimension appears in the motivation behind the action of social innovators. In addition to the relational good considerations, social innovators are motivated by social preferences, in the form of altruism (or empathy à la Heal 2021), consistently with the extant literature (Ashraf and Bandiera 2017; Bisin and Verdier 2011; Andreoni 2006; Besley and Ghatak 2005, 2017).

Our results focus on public policy towards social innovation. We show that, from a welfare point of view, the traditional public good and social innovation should coexist, with governments also playing an active role in supporting social innovation through subsidies. We also show that each community member can be better off with social innovation, as relying on social innovators' motivations can lower taxes used to finance traditional public goods and social innovation subsidies.

The rest of the paper is organized as follows. The model is presented in Sect. 2. In Sect. 3, we derive the main results of our analysis: we compare the social optimum and the Nash equilibrium of the policy game between the local government and social innovators and we characterize the optimal social innovation policy. Section 4 adopts a political economy perspective, providing additional results. Finally, Sect. 5 concludes.

2 The Model

2.1 Relation to the Existing Literature

Our model builds on and contributes to three main strands of research in public finance and public economics. The first concerns the provision of multiple, differentiated public goods. In their seminal work, Bergstrom et al. (1986) also identify the conditions for equilibrium to exist when donors can contribute to several public goods. Similarly, Cornes and Itaya (2010) show that with many public goods, voluntary contributions typically yield not only under-provision but also an inefficient mix of goods. Kung (2008) demonstrates equilibrium existence in a production economy where multiple public goods are provided both by private firms and by the government. More recently, Chung (2024) shows that, in the presence of multiple public goods, societies contribute a positive share of total wealth to public goods even in large economies. Relative to this literature, our model is novel in assuming that differentiation stems from the identity of the provider and that both social innovation and the traditional public good are consumed by agents distinct from those who produce them.

A second strand lies at the intersection of public finance and political economy, examining how preference heterogeneity shapes public good provision (Tiebout 1956; Bewley 1981; Rubinfeld 1987). Alesina et al. (1999) develop a model where community members decide, by majority rule, both the type and level of a public good and test it using U.S. data. They find that spending on public goods declines with ethnic fragmentation, a proxy for preference heterogeneity. Bhattacharya et al. (2024) study multiple public goods in a probabilistic voting framework with group-specific identity payoffs—own-group public goods yield utility, others yield disutility. Equilibrium provision depends on group size and cohesiveness, while greater identity fractionalization reduces all groups' identity-good provision. Our model similarly features heterogeneous groups with distinct preferences over multiple public goods, showing that group size affects both traditional public good provision and social innovation. However, our setting distinguishes among agents by role, i.e., recipients of public goods, providers of community-based public goods and other citizens.

Finally, our analysis also relates to the mixed oligopoly literature (Poyago-Theotoky 2024), where welfare-maximizing public firms compete with private ones. Recent studies (Kim et al. 2019; Han 2019) examine competition between public firms and socially responsible enterprises, echoing our policy interaction between local government and community actors. Unlike that literature, however, our model does not consider explicit market competition but focuses on determining the optimal public policy, balancing traditional public good provision and financial support for social innovation.

2.2 Set-Up

In our model, we consider a community in a political jurisdiction composed of three different groups.

The first group, denoted with T, is the target group, whose size is N_T. The members of this group are the actual recipients of a group-specific, local public good g.[1] g can be produced in two ways. The first one is a "traditional" way, in which the local government produces g_P by collecting taxes. The second technology to produce g is through a process of social innovation, in which a public good g_I is produced through the direct contribution of social innovators as described below. Preferences of T members are given by:

$$U_T(g_P, g_I, x_T) = u_T(g_P, g_I) + x_T \quad (1)$$

where $u_T(g_P, g_I)$ represents the preferences of T members over the two variants of the public good and x_T is the amount of the numeraire good consumed. Defining $u'_{TP} \equiv \frac{\partial u_T(g_P, g_I)}{\partial g_P}$, $u'_{TI} \equiv \frac{\partial u_T(g_P, g_I)}{\partial g_I}$, $u''_{TP} \equiv \frac{\partial^2 u_T(g_P, g_I)}{(\partial g_P)^2}$, $u''_{TI} \equiv \frac{\partial^2 u_T(g_P, g_I)}{(\partial g_I)^2}$ and

[1] As the recipients of the good are different from those who contribute to it, assuming g to be a private or an impure public good would be largely inconsequential, since the only effect would be to reduce the return to the investment by the S group. For instance, g being a private good would be equivalent to have $\frac{g}{N_T}$ as argument in the utility function.

$u''_{TPI} \equiv \frac{\partial^2 u_T(g_P, g_I)}{\partial g_P \partial g_I}$, we shall assume that $u'_{TP} \geq 0$, $u'_{TI} \geq 0$, $u''_{TP} \leq 0$ and $u''_{TI} \leq 0$ (i.e. $u_T(\bullet)$ is an increasing and concave function in its arguments), and that $u''_{TPI} \leq 0$, i.e. the two types of public good are substitutes. T members are endowed with an exogenous income Y_T, so that their individual budget constraint is given by:

$$Y_T = x_T \tag{2}$$

It follows that income must be fully allocated to the consumption of the numeraire good for utility maximization.

The second group, denoted with *S,* is the group of *social innovators*. Its size is N_S. *S* members are those who can contribute to the production of social innovation. g_I is the total contribution by group *S*, which is equally shared among its members, so that $\frac{g_S}{N_S}$ is the individual contribution. Although they do not directly consume g_P and g_I, also social innovators may benefit from them for two reasons. First, they may be motivated by altruism in favour of the members of the target group (Warr 1982; Roberts 1984). Second, as far as social innovation is concerned, they may be motivated by the dimension of social innovation as a "relational good" (Becchetti et al. 2008; Gui 2013).[2] Preferences of *S* members are thus given by:

$$U_S(g_P, g_I, x_S) = u_S(g_P, g_I) + x_S \tag{3}$$

where $u_S(g_P, g_I)$ represents the preferences of *S* members over the two variants of the public good and x_S is the amount of the numeraire good consumed by *S* members. Defining $u'_{SP} \equiv \frac{\partial u_S(g_P, g_I)}{\partial g_P}$, $u'_{SI} \equiv \frac{\partial u_S(g_P, g_I)}{\partial g_I}$, $u''_{SP} \equiv \frac{\partial^2 u_S(g_P, g_I)}{(\partial g_P)^2}$, $u''_{SI} \equiv \frac{\partial^2 u_S(g_P, g_I)}{(\partial g_I)^2}$ and $u''_{SPI} \equiv \frac{\partial^2 u_S(g_P, g_I)}{\partial g_P \partial g_I}$, we shall assume that $u'_{SP} \geq 0$, $u'_{SI} \geq 0$, $u''_{SP} \leq 0$ and $u''_{SI} \leq 0$ (i.e. $u_S(\bullet)$ is an increasing and concave function in its arguments) and that $u''_{SPI} \leq 0$, i.e. the two types of public good are substitutes also for this group. Social innovators have an exogenous income Y_S, and they finance the traditional public good through a lump sum tax τ collected by the local government. At the same time, λ is a unit subsidy to the contribution to social innovation by *S*, transferred by the local government. It follows that the individual budget constraint is given by:

$$Y_S - \tau = x_S + \frac{g_I}{N_S}(1 - \lambda) \tag{4}$$

Finally, the third group, denoted with *C*, is the group of *citizens*. Its size is N_C. Members of this group do not have social preferences in favour of the *T* group and do not (directly) contribute to social innovation. However, they finance the traditional public good by paying the lump sum tax τ from their income Y_C. Therefore, their preferences are represented by:

$$U_C(g_P, g_I, x_C) = x_C \tag{5}$$

[2] Alternatively, we can capture warm glow preferences (Andreoni 1990), resulting for group *S* from the pleasure of "donating" g_S in favour of *T* members.

where x_C is the amount of the numeraire good consumed, while the individual budget constraint is given by:

$$Y_C - \tau = x_C \tag{6}$$

It follows that the utility of C members is maximized by allocating all their *disposable* income to the consumption of the numeraire good.

In the paper, we derive some results for the special case of quadratic utility functions[3]:

$$u_T(g_P, g_I) = \alpha_P^T g_P - \frac{1}{2} g_P^2 + \alpha_I^T g_I - \frac{1}{2} g_I^2 - \gamma^T g_P g_I \tag{7}$$

$$u_S(g_P, g_I) = \alpha_P^S g_P - \frac{1}{2} g_P^2 + \alpha_I^S g_I - \frac{1}{2} g_I^2 - \gamma^S g_P g_I \tag{8}$$

with $\alpha_P^T, \alpha_I^T, \alpha_P^S, \alpha_I^S > 0$ and $0 \leq \gamma^T, \gamma^S < 1$. In particular, γ^T and γ^S are associated to the degree of substitutability between g_P and g_I in T and S group preferences, ranging from no substitutability (if $\gamma^T = 0$ and $\gamma^S = 0$) to (almost) perfect substitutability (if $\gamma^T \to 1$ and $\gamma^S \to 1$).

3 Results

3.1 The Public Good Social Optimum

We first determine the levels of g_P and g_I that maximize social welfare, defined as[4]:

$$W(g_P, g_S, g_T) = N_T[u_T(g_P, g_I) + x_T] + N_S[u_S(g_P, g_I) + x_S] + N_C x_C \tag{9}$$

i.e., the unweighted sum of all individuals' utility in the community. The constraints are given by the individual budget constraints (Eqs. 2, 4 and 6), and by the government balanced budget constraint:

$$g_P = \tau(N_S + N_C) - \lambda g_I \tag{10}$$

Plugging all the constraints into (9), and deriving with respect to g_P and g_I, yields:

$$N_T u'_{TP}(g_P^*, g_I^*) + N_S u'_{SP}(g_P^*, g_I^*) = 1 \tag{11}$$

$$N_T u'_{TI}(g_P^*, g_I^*) + N_S u'_{SI}(g_P^*, g_I^*) = 1 \tag{12}$$

[3] For their tractability, quadratic utility functions are commonly used in fields such as industrial organisation (Singh and Vives 1984) and network games (Ballester et al. 2006).

[4] This is consistent with Kaplow (1995).

where superscript * denotes the social welfare-maximizing levels. We observe that the social marginal benefit of the two public good variants (given by the left term in Eqs. (11) and (12)) must be equal at the social optimum, since the marginal social cost is the same (and equal to 1).

3.2 A Policy Game Between the Government and the Social Innovators

We now assume that public goods provision is the result of a simultaneous game played by the local government and group S in which the local government chooses g_p in order to maximize social welfare under the balanced budget constraint and group S chooses g_I in order to maximize the individual utility of each group member under her budget constraint.[5] We observe that groups T and C are not players in the game, but they influence behaviours because they enter the maximization problem of the local government.

The first order conditions which determine the Nash equilibrium of the game are:

$$N_T u'_{TP}(g_P^E, g_I^E) + N_S u'_{SP}(g_P^E, g_I^E) = 1 \tag{13}$$

$$N_S u'_{SI}\left(g_P^E, g_I^E\right) = 1 - \lambda \tag{14}$$

where superscript E denotes the Nash equilibrium levels. Equations (13) and (14) also identify the two best response functions. By means of the implicit function theorem, we obtain their slopes as follows:

$$\frac{\partial g_P}{\partial g_I} = -\frac{N_T u''_{TPI} + N_S u''_{SPI}}{N_T u''_{TP} + N_S u''_{SP}} < 0 \tag{15}$$

$$\frac{\partial g_I}{\partial g_P} = -\frac{N_S u''_{SPI}}{N_S u''_{SI}} < 0 \tag{16}$$

whose signs are the direct consequence of the assumption we made on the utility function of T and S members. It follows that the two variants of the public good are strategic substitutes (Bulow et al. 1985).

In the special case of quadratic utility functions, best responses are linear and given by:

$$g_P^E = \frac{N_T \alpha_P^T + N_T \alpha_P^S - 1}{N_T + N_S} - \frac{N_T \gamma^T + N_T \gamma^S}{N_T + N_S} g_I \tag{17}$$

$$g_I^E = \frac{N_S \alpha_I^S - 1 + \lambda}{N_T + N_S} - \gamma_S g_P \tag{18}$$

[5] By treating group S as a single actor, we ignore within-group free-riding behaviour, an aspect that the literature has already extensively investigated. Including this aspect would just reduce the benefit of a large value of N_S that results from the possibility of sharing the contribution cost across the group members.

while the Nash equilibrium is obtained solving the (17)-(18) system and corresponds to:

$$g_P^E = \frac{N_S\left[\gamma^S(1-\lambda)-1\right] + N_S^2\left(\alpha_P^S - \alpha_S^S\gamma_S\right) + N_T(1-\lambda)\gamma^T + N_S N_T(\alpha_P^T - \alpha_I^S\gamma_T)}{N_S\left[N_S\left(1-\gamma^{S2}\right) + N_T(1-\gamma^T\gamma^S)\right]} \tag{19}$$

$$g_I^E = \frac{N_S\left[\gamma^S+\lambda-1\right] + N_S^2\left(\alpha_I^S - \alpha_I^S\gamma_S\right) - N_T(1-\lambda) + N_S N_T(\alpha_I^S - \alpha_P^T\gamma_S)}{N_S\left[N_S\left(1-\gamma^{S2}\right) + N_T(1-\gamma^T\gamma^S)\right]} \tag{20}$$

3.3 Comparative Statics

The comparative statics properties of our model are summarized in the following Proposition, whose proof is in the Appendix.

Proposition 1 (i) The equilibrium value of the traditional public good, g_P^E, is increasing in N_T, decreasing in λ, while the impact of N_S is ambiguous.

(ii) The equilibrium value of social innovation, g_I^E, is decreasing in N_T, increasing in λ, while the impact of N_S is ambiguous.

The intuition behind Proposition 1 can be grasped by looking at the direct and the strategic effects that result from a variation of one of the three parameters under consideration.

As for the size of the target group, N_T, its increase has the direct effect of increasing the return on investment in the traditional public good. Consequently, social innovators respond by reducing their contribution. This implies that we should expect the role of social innovation in the overall effort toward the target group to be larger when the target group is small.

As for the subsidy toward social innovation, λ, it has the direct effect of increasing g_I^E by reducing the marginal cost of contribution by S members, to which the local government responds by reducing its investment in the traditional public good. Therefore, the financial intervention of the local government in tackling the needs of the target group implies a trade-off between a direct investment in the traditional public good and an indirect investment in social innovation via the provided subsidy.

Finally, the impact of the number of social innovators, N_S, is ambiguous because this parameter generates two direct effects, which tend to increase both g_P^E and g_I^E. The first is a positive effect on the return of the traditional public good, as an increase in N_S increases the marginal benefit of g_P due to social preferences of social innovators. The second is a negative effect on the contribution cost of social innovation, as social innovators can spread the investment in g_I across more members of their group. However, as the proof of the Proposition shows, g_P^E and g_I^E cannot be simultaneously increasing or decreasing in N_S.

3.4 Comparing the Social Optimum and the Nash Equilibrium in the Policy Game: The Optimal Social Innovation Policy

In this section, we first compare the social optimum and the Nash equilibrium when $\lambda = 0$, i.e., when the government does not financially intervene in the provision of social innovation. The proof is in the Appendix.

Proposition 2 If $\lambda = 0$, $g_P^E \geq g_P^*$ and $g_I^E \leq g_I^*$.

Proposition 2 shows that, absent financial government intervention subsidizing social innovation, the outcome of the policy game entails a level of the traditional public good that is not lower than the social optimum and a level of social innovation that is not higher. This does not necessarily mean that it is not possible to guarantee T members the same level of utility they would get at the social optimum.[6] However, the *composition* of the public good, in terms of traditional public good and social innovation, differs between the Nash equilibrium and the social optimum, and so it is socially inefficient.[7] The intuition lies in the existence of the positive externality created by g_I in favour of the group T, which leads to a sub-optimal level when g_I is chosen to maximize S members' utility. Although the government may overinvest in the traditional public good to compensate, it will do so by collecting taxes. Taxation and private contributions by S members are not equivalent forms of financing a public good, since only the former has a negative impact on C group members.

An easy corollary of Proposition 2 is that subsidizing social innovation is a welfare-improving policy. Therefore, the local government can design an optimal social innovation policy in the form of subsidy $\lambda^* > 0$, chosen to maximize social welfare before the policy game is played and correctly predicting its impact on the Nash equilibrium.

The exact value of λ^* can be identified in two special cases, which add structure to the relation between T and S preferences. The first case is one in which social innovators are exclusively motivated by altruism, so that their preferences are represented by $u_S(g_P, g_I) \equiv \beta u_T(g_P, g_I)$, with $0 < \beta \leq 1$ measuring their degree of altruism. The second case is one in which social innovation takes exclusively the form of a relational good. In this case, we have separable utility functions $u_T(g_P, g_I) \equiv r(g_I) + \widehat{u}_T(g_P)$ and $u_S(g_P, g_I) \equiv r(g_I)$, where $r(\bullet)$ and $\widehat{u}_T(\bullet)$ are increasing and concave functions. Proposition 3 is proved in the Appendix.

Proposition 3 (i) If social innovators are exclusively motivated by altruism, the optimal subsidy level is $\lambda^* = \frac{N_T}{N_T + \beta N_S}$.

(ii) If social innovation takes exclusively the form of a relational good, the optimal subsidy level is $\lambda^* = \frac{N_T}{N_T + N_S}$.

Proposition 3 shows the optimal level of the social innovation subsidy is crucially affected by the size of the target and social innovators groups. This happens because

6 In particular, that would be the case if $u_T(g_P, g_I) \equiv u_T(g_P + g_I)$, i.e. g_P and g_I are perfect substitutes.

7 In Cornes and Itaya (2010) the inefficiency in composition emerges in a setting where all contributions to multiple public goods are private.

these two parameters impact on the magnitude of the externality generated by g_S that the subsidy must correct. On the one hand, when the size of the target group is large, the positive externality of social innovation is large as well. On the other hand, when the size of the social innovators group is large, the marginal cost of social innovation is low (as the contribution is spread across more members), and so the investment by social innovators is more aligned with the socially desirable level.

4 The Political Economy of Social Innovation

In this section, we provide a few additional insights by considering a political economy perspective. First, we look at the incentives of social innovators to contribute to social innovation when the local government, acting exclusively in the interest of the majority of citizens who do not enjoy any benefit from the satisfaction of T members' needs, does not offer the traditional public good. Second, we discuss whether an optimal (social welfare-maximizing) innovation policy can obtain the support of group C members by reducing the taxes they pay.

4.1 Social Innovation When Traditional Public Goods Do Not Exist

Suppose now that, in a median voter logic (Holcombe 1989), local government maximizes the welfare of the majority of the community members, and assume that $\frac{N_C}{N_C+N_T+N_S} > \frac{1}{2}$, i.e. members of group C are the majority in the community. It follows that $g_P^E = 0$ (and of course $\lambda^* = 0$). In this case, should we expect social innovation to be higher or lower than in the case of a social welfare-maximizing government?

It turns out that the result is ambiguous. To see this, we consider the quadratic utilities case (Eqs. 19 and 20), assuming that $\alpha_P^T = \alpha_P^S = \alpha_I^S = N_T = 1$ and $\gamma^T = \gamma^S = \gamma$. In this case, the best response to $g_P^E = 0$ yields $g_I^E = \frac{N_S-1}{N_S}$. Instead, a social welfare-maximizing government would fix $\lambda^* = \frac{1}{1+N_S}$ (as this example corresponds to a special case of altruism with $\beta = 1$), leading to $g_I^E = \frac{1}{1+\gamma}\frac{N_S}{N_S+1}$. It follows that social innovation would be higher when the traditional public good does not exist if $\frac{N_S-1}{N_S} > \frac{1}{1+\gamma}\frac{N_S}{N_S+1}$, i.e. if $\gamma > \frac{1}{N_S^2-1}$. Intuitively, we should expect social innovation to be larger in communities where a traditional public good is not offered if the social innovation is a good substitute. On the contrary, if the degree of substitutability is low enough, a social welfare maximizer government would keep both the traditional public good and the (subsidized) social innovation at a relatively high level. In other words, the degree of substitutability determines how much government involvement crowds out community contributions (Bergstrom et al. 1986).

4.2 Can Social Innovation Reduce Taxation?

The political support for social innovation requires looking not only at total social welfare, but also at the impact of social innovation for each group in the community.

Suppose that the government maximizes social welfare in two scenarios. The first is the one we considered in the basic set-up of the model, in which the government can offer the traditional public good and social innovation is feasible and possibly subsidized. In the second scenario, social innovation is not feasible due to institutional or technological constraints, while the government can still offer the traditional public good.

What we can show is that the level of taxation τ can be *lower* in the first than in the second scenario. It follows that an optimal social innovation policy, when social innovation becomes feasible, can obtain the favor of citizens who do not care about T member's needs, but who can gain from a reduction in taxation.

To see this, consider the same example discussed in Sect. 4.1. In the first scenario, under the optimal social innovation policy the total government expenditure is given by $\frac{1+\lambda^*}{1+\gamma}\frac{N_S}{N_{S+1}}$. In the second scenario, the best response to g_I=0 leads to $g_P^E = \frac{N_S}{N_S+1}$. It follows that taxation (which shares the total expenditure equally across S and C members) is lower when social innovation is present and optimally subsidized if $\frac{1+\lambda^*}{1+\gamma}\frac{N_S}{N_{S+1}} < \frac{N_S}{N_S+1}$, i.e. if $\gamma > \lambda^* = \frac{1}{1+N_S}$. Intuitively, when the degree of substitutability is large enough, the government can leverage social innovation motivation to lower significantly the investment in the traditional public, to a level that leads to a reduction in taxation even including the cost of subsidy for the government.

5 Conclusions

In this paper we discuss an economic model to analyse social innovation as the *community provision* of public goods, presenting a formalization which is also compatible with the main insights and results of the literature on social innovation in social sciences other than economics. We mainly focus on public policy towards social innovation. From a welfare point of view, traditional public goods and social innovation should coexist, with governments also playing an active role in supporting social innovation through subsidies. We also show that each community member can be better off with social innovation, as relying on social innovators' intrinsic motivations can lower taxes used to finance traditional public goods and social innovation subsidies. In other words, the simultaneous provision of two public goods variants, targeted at the same social need, is at the same time desirable and, under certain conditions, politically feasible.

The analysis of this paper could be extended in several directions. From the theoretical point of view, the model presented here is based on a quite abstract representation of the process of social innovation. Natural extensions of the model could include a less parsimonious account of the institutional setting in which social innovation can take form, including social enterprises (Besley and Ghatak 2017) and co-planning and co-design between public administrations and civic organisations (Becchetti et al. 2023).

Beyond the current focus on normative analysis, the model also yields a few empirical implications that could be tested in subsequent works. First, it predicts that higher subsidies, or other forms of financial support for social innovation, should reduce direct public expenditure while increasing provision through community contributions. Second, the size of the target group should shape the equilibrium composition of provision, with social innovation playing a larger role in communities where the target group is small. Third, differences in the degree of substitutability between social innovation and traditional public goods should translate into cross-sectional variation in their coexistence: where substitutability is high, social innovation tends to crowd out public provision; where it is low, synergies are more likely to emerge. Finally, the model suggests that appropriately designed subsidies to social innovation may allow local governments to reduce taxation without lowering welfare, an implication that could be tested by comparing localities differing in their support for community-based initiatives.

Appendix

Proof of Proposition 1

By evaluating $\frac{dW}{dg_p}$ and $\frac{dW}{dg_I}$ at g_P^E and g_I^E we obtain:

$$\left.\frac{dW}{dg_p}\right|_{g_P=g_P^E,\, g_I=g_I^E} \equiv N_T u'_{TP}\left(g_P^E,\, g_I^E\right) + N_S u'_{SP}\left(g_P^E,\, g_I^E\right) - 1 = 0 \tag{A1}$$

$$\left.\frac{dW}{dg_I}\right|_{g_P=g_P^E,\, g_I=g_I^E} \equiv N_T u'_{TI}\left(g_P^E,\, g_I^E\right) + N_S u'_{SI}\left(g_P^E,\, g_I^E\right) - 1 = N_T u'_{TI}\left(g_P^E,\, g_I^E\right) \geq 0 \tag{A2}$$

It follows that $g_I^E \leq g_I^*$. Since $u''_{TPI} \leq 0$ and $u''_{SPI} \leq 0$, then $g_P^E \geq g_P^*$.

Proof of Proposition 2

By applying the implicit function theorem on the system (13)-(14), we obtain:

$$\frac{\partial g_P^E}{\partial N_T} = -\frac{u'_{TP} N_S u''_{SI}}{\left(N_T u''_{TP} + N_S u''_{SP}\right) N_S u''_{SI} - \left(N_T u''_{TPI} + N_S u''_{SPI}\right) N_S u''_{SP}} > 0 \tag{A3}$$

$$\frac{\partial g_I^E}{\partial N_T} = \frac{u'_{TP} N_S u''_{SI}}{\left(N_T u''_{TP} + N_S u''_{SP}\right) N_S u''_{SI} - \left(N_T u''_{TPI} + N_S u''_{SPI}\right) N_S u''_{SP}} < 0 \tag{A4}$$

$$\frac{\partial g_P^E}{\partial \lambda} = \frac{N_T u''_{TPI} + N_S u''_{SPI}}{\left(N_T u''_{TP} + N_S u''_{SP}\right) N_S u''_{SI} - \left(N_T u''_{TPI} + N_S u''_{SPI}\right) N_S u''_{SP}} < 0 \tag{A5}$$

$$\frac{\partial g_I^E}{\partial \lambda} = -\frac{N_T u''_{TPI} + N_S u''_{SPI}}{\left(N_T u''_{TP} + N_S u''_{SP}\right) N_S u''_{SI} - \left(N_T u''_{TPI} + N_S u''_{SPI}\right) N_S u''_{SP}} > 0 \tag{A6}$$

where the signs are the consequence of the assumptions on $u_T(\bullet)$ and $u_S(\bullet)$ and $\left(N_T u''_{TP} + N_S u''_{SP}\right) N_S u''_{SI} - \left(N_T u''_{TPI} + N_S u''_{SPI}\right) N_S u''_{SP} > 0$ for the second order conditions to be satisfied. Finally,

$$\frac{\partial g_P^E}{\partial N_S} = \frac{N_S u''_{SI}\left(u'_{SI} - u'_{SP}\right) + N_T u''_{TPI}}{\left(N_T u''_{TP} + N_S u''_{SP}\right) N_S u''_{SI} - \left(N_T u''_{TPI} + N_S u''_{SPI}\right) N_S u''_{SP}} \tag{A7}$$

$$\frac{\partial g_I^E}{\partial N_S} = -\frac{N_S u''_{SI}\left(u'_{SI} - u'_{SP}\right) + N_T u''_{TPI}}{\left(N_T u''_{TP} + N_S u''_{SP}\right) N_S u''_{SI} - \left(N_T u''_{TPI} + N_S u''_{SPI}\right) N_S u''_{SP}} \tag{A8}$$

The sign of numerators in (A7) and (A8) is in general ambiguous. However, if $u'_{SI} - u'_{SP} > 0$, then $\frac{\partial g_P^E}{\partial N_S} < 0$ and $\frac{\partial g_I^E}{\partial N_S} > 0$. It is also immediate to notice that $\frac{\partial g_P^E}{\partial N_S} = -\frac{\partial g_I^E}{\partial N_S}$.

Proof of Proposition 3

If $u_S(g_P, g_I) \equiv \beta u_T(g_P, g_I)$, the first order conditions for the social optimum are given by:

$$(N_T + N_S\beta) u'_{TP}(g_P^*, g_I^*) = 1 \tag{A9}$$

$$(N_T + N_S\beta) u'_{TI}(g_P^*, g_I^*) = 1 \tag{A10}$$

while the conditions for a Nash equilibrium are:

$$(N_T + N_S\beta) u'_{TP}(g_P^E, g_I^E) = 1 \tag{A11}$$

$$N_S\beta u'_{TI}\left(g_P^E, g_I^E\right) = 1 - \lambda \tag{A12}$$

In order to have $g_P^* = g_P^E$ and $g_I^* = g_I^E$ it must be $\frac{1-\lambda}{N_S\beta} = \frac{1}{N_T+\beta N_S}$, from which part (i) of the Proposition follows.

If $u_T(g_P, g_I) \equiv r(g_I) + \widehat{u}_T(g_P)$ and $u_S(g_P, g_I) \equiv r(g_I)$, the first order conditions for the social optimum are given by:

$$N_T \widehat{u}'_T(g_P^*) = 1 \tag{A13}$$

$$N_T r'\left(g_I^*\right) + N_S r'\left(g_I^*\right) = 1 \tag{A14}$$

while the conditions for a Nash equilibrium are:

$$N_T \widehat{u}'_T(g_P^E) = 1 \tag{A15}$$

$$N_T r'\left(g_I^E\right) = 1 - \lambda \tag{A16}$$

In order to have $g_P^* = g_P^E$ and $g_I^* = g_I^E$ it must be $\frac{1-\lambda}{N_S} = \frac{1}{N_T+N_S}$, from which part (ii) of the Proposition follows.

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References

Acemoglu D, Robinson JA (2019) The narrow corridor: how nations struggle for liberty. Penguin UK
Alesina A, Baqir R, Easterly W (1999) Public goods and ethnic divisions. Q J Econ 114(4):1243–1284
Andreoni J (1990) Impure altruism and donations to public goods: a theory of warm-glow giving. Econ J 100(401):464–477
Andreoni J (2006) Philanthropy. In: Kolm S-C, Ythier JM (eds) Handbook of the economics of giving, altruism and reciprocity, vol 2. North-Holland, pp 1201–1269
Ashraf N, Bandiera O (2017) Altruistic capital. Am Econ Rev 107(5):70–75
Ballester C, Calvó-Armengol A, Zenou Y (2006) Who’s who in networks. Wanted: the key player. Econometrica 74(5):1403–1417
Bhattacharya S, Kundu T, Satpute RA (2024) Group specific public goods and political competition. Unpublished manuscript
Becchetti L, Pelloni A, Rossetti F (2008) Relational goods, sociability, and happiness. Kyklos 61(3):343–363
Becchetti L, Pisani F, Raffaele L (2023) Co-planning and co-design as progress in the implementation of welfare services. Int Rev Econ 70(3):301–322
Bergstrom T, Blume L, Varian H (1986) On the private provision of public goods. J Public Econ 29(1):25–49
Besley T, Ghatak M (2005) Competition and incentives with motivated agents. Am Econ Rev 95(3):616–636
Besley T, Ghatak M (2017) Profit with purpose? A theory of social enterprise. Am Econ J Econ Policy 9(3):19–58
Bewley TF (1981) A critique of Tiebout’s theory of local public expenditures. Econometrica. https://doi.org/10.2307/1911519
Bisin A, Verdier T (2011) The economics of cultural transmission and socialization. In: Benhabib J, Bisin A, Jackson MO (eds) Handbook of social economics, vol 1. North-Holland, pp 339–416
Bowles S, Carlin W, Subramanian S (2025) Civil society comes of age in economics: tracking a century of research. Econ Lett 246:112070

Bulow JI, Geanakoplos JD, Klemperer PD (1985) Multimarket oligopoly: strategic substitutes and complements. J Polit Econ 93(3):488–511
Chiappero ME, Houghton Budd C, Ziegler R (2017) Special issue on social innovation for human development. J Hum Dev Capabil 18(2):141–147
Chung KS (2024) Differentiated public goods. Unpublished manuscript
Cornes R, Itaya JI (2010) On the private provision of two or more public goods. J Public Econ Theor 12(2):363–385
Cuntz A, Foray D, Mostovova E (2020) On the economics of social innovation–a conceptual framework and its policy implications. Innovation 22(4):469–487
European Commission, Bureau of European Policy Advisers (2011) Empowering people, driving change: social innovation in the European Union. Publications Office
Commission E (2013) Guide to social innovation. Publications Office, Directorate-General for Regional and Urban Policy
Giordani PE, Rullani F, Zirulia L (2018) Endogenous growth of open collaborative innovation communities: a supply-side perspective. Ind Corp Chang 27(4):745–762
Godin B (2012) Social innovation: Utopias of innovation from c. 1830 to the present. Project on the intellectual history of innovation, Working Paper No. 11
Gui B (1996) On "relational goods": strategic implications of investment in relationships. Int J Soc Econ 23(10/11):260–278
Gui B (2013) Relational goods. In: Bruni L, Zamagni S (eds) Handbook on the economics of reciprocity and social enterprise. Edward Elgar Publishing, pp 295–305
Han, L.H. (2019). Partial ownership for a public firm and corporate social responsibility. Theor Econ Lett 9:2447–2455
Heal G (2021) Empathy and the efficient provision of public goods (No. w29255). National Bureau of Economic Research
Heal G (2022) Interdependent preferences and the mitigation of market failure (No. w29967). National Bureau of Economic Research
Holcombe RG (1989) The median voter model in public choice theory. Public Choice 61(2):115–125
Kaplow L (1995) A note on subsidizing gifts. J Public Econ 58(3):469–477
Kim SL, Lee SH, Matsumura T (2019) Corporate social responsibility and privatization policy in a mixed oligopoly. J Econ 128(1):67–89
Kung FC (2008) Voluntary contributions to multiple public goods in a production economy with widespread externalities. J Math Econ 44(12):1364–1378
Moulaert F, MacCallum D, Mehmood A, Hamdouch A (eds) (2013) The international handbook on social innovation: collective action, social learning and transdisciplinary research. Edward Elgar Publishing
Moulaert F, MacCallum D, Mehmood A, Leuboldt B (eds) (2017) Social innovation as trigger for transformation. The role of research. European Commission, DG for Research and Innovation
Moulaert F, MacCallum D (2019) Advanced introduction to social innovation. Edward Elgar Publishing
Mulgan G (2019) Social innovation: how societies find the power to change. Policy press
Nicholls A, Edmiston D (2018) Social innovation policy in the European Union. In: Heiskala R, Aro J (eds) Policy design in the European Union: an empire of shopkeepers in the making? Palgrave McMillan, pp 161–190
Nicholls A, Murdock A (eds) (2012) Social Innovation. Blurring Boundaries to Reconfigure Markets, Springer
Nussbaum MC (2011) creating capabilities: the human development approach. Harvard University Press.
Poyago-Theotoky J (2024) Mixed oligopoly and public enterprises. Cambridge University Press
Rajan R (2019) The third pillar: how markets and the state leave the community behind. Penguin Press.
Roberts RD (1984) A positive model of private charity and public transfers. J Polit Econ 92:136–147
Rubinfeld DL (1987) The economics of the local public sector. In: Auerbach AJ, Feldstein M (eds) Handbook of public economics, vol 2. Elsevier, pp 571–645
Sen A (1980) "Equality of what?" In: McMurrin S (ed) The tanner lectures on human values, vol 1, 195–220. Cambridge University Press
Sen A (1985) Commodities and capabilities. North-Holland, Amsterdam
Singh N, Vives X (1984) Price and quantity competition in a differentiated duopoly. Rand J Econ. https://doi.org/10.2307/2555525
Tiebout CM (1956) A pure theory of local expenditures. J Polit Econ 64(5):416–424

Uhlaner CJ (1989) "Relational goods" and participation: incorporating sociability into a theory of rational action. Public Choice 62(3):253–285
Vaccaro A, Ramus T (2022) Social innovation and social enterprises: towards a holistic perspective. Springer
Warr PG (1982) Pareto optimal redistribution and private charity. J Public Econ 18:131–138