1. Introduction

The public goods theory and the model of the consumer’s equilibrium show that the market mechanism cannot efficiently supply the public goods. In this way, the market failures are the source of the public allocation function. Especially, the non-excludability of the public goods prevents its voluntary funding. The standard model comes to the conclusion that the provision of public goods needs some institution which determines the individual contributions levels to finance their production. In general, the supply of public goods cannot be based on voluntary gifts but in governmental compulsory exaction.

However, in contrast with the previous conclusion, we actually find numerous non-profit institutions supplying a wide range of public and quasi-public goods. In fact, in the last decade a large number of non-governmental organisations have emerged and developed over the world. At the same time, the literature related to the non-profit organisations has experienced a significant increase, dealing with their operation, funding and performance.

* Departamento de Economía Aplicada, Universidad de Valencia. Av. dels Tarongers s/n, 4602 Valencia, Spain. E-mail: Jose.Casas@uv.es, Juan.D.Montoro@uv.es and Miguel.Puchades@uv.es

1 According to the definition of Salamon and Anheier (1992), we consider non-profit organisations as the institutions which fulfil the following requisites: a) they should keep the principle of not distributing profits among either their owners or their managers, b) they must be private institutions, c) they must be legally constituted, with structure, organisation and well defined goals, d) they must be self-managed and autonomous and e) they must finance themselves through voluntary resources.
The existence of an unsatisfied demand is at the core of the theories of the autonomous setting up of the non-profit institutions. In this sense, the unsatisfied demand is a consequence of the failures of the public sector in supplying some collective goods in societies with a heterogeneous demand (Weisbrod 1975, 1988). On the other hand, the private consumption models take into account the consumers’ motivations to voluntarily funding non-profit organisations.

There is no conclusive empirical evidence about what kind of models better explain the role of non-profits in the provision of the public goods. The empirical results concerning crowding-out effects between non-profits and government provision are contradictory (Nyborg and Rege 2003). Some studies suggest a “dollar for dollar” crowding-out effect (e.g. Roberts 1984) while other analysis conclude that the crowding-out effects are very small (e.g. Kingma 1989, Ribar and Wilhelm 2002).

The problem is somewhat mixed because the non-profit organisations represent a very wide range of possibilities of supplying different kind of goods to a different consumers. The unsatisfied demand hypothesis may explain some non-profits’ activities, whereas the altruistic motivations to give would be a better explanation in many other cases. However, these models do not explain the significant differences in the size and the role of the non-profit sector among countries with similar economic development level. The question we pose is, why in some countries a particular good is supplied by private non-profit organisation just financed through voluntary contributions, while in other countries the same good is totally supplied by government?

Differences in preferences would explain the larger or shorter provision of the public goods as well as the more or less significance of the non-profits sector, but the models based on the preferences of the consumer do not explain why the provision may be governmental or non-governmental. This question becomes a political matter.

In this paper, we will bring forward the hypothesis that the individuals’ behaviour is constrained by ethical and moral rules, and that the voluntary non-profits’ provision is a collective choice. It is through the political process that consumers decide whether the provision of some collective goods should be governmental or non-governmental.

Below we first discuss the selfish and the altruist consumer models, next we discuss the significance of the ethic and moral rules in order to allow cooperation and voluntary funding of non-profit
institutions. The political process in a representative democracy is introduced in section 6 where we present, in a simplified way, how the preferences of the median voter determine whether the public goods will be supplied by non-profit organisations or by government. Finally, we put forward some possible extensions of the model and some conclusions.

2. The selfish consumer

The standard public goods model shows that the supply of public goods requires some institution co-ordinating the individual contributions to finance their production.

Let us assume a standard utility function of an individual $i$ be given as

$$u_i = U_i(X_i, G)$$  \[1\]

where $X_i$ is the quantity of private good $i$ consumes and $G$ the quantity of the collective good supplied.

A basic assumption in the model is that the individuals take the supply of public goods by the rest of the community as fixed. Under such assumption, the individuals contribution takes exclusively into account the increase of the public goods provision produced by its own contribution.

Given the budget constraint and being $P_X$ and $P_G$ the prices of the private and public good, individual $i$ reaches a Cournot-Nash equilibrium when

$$\frac{\partial U_i}{\partial G} / \frac{\partial U_i}{\partial X} = P_G / P_X$$  \[2\]

This individual behaviour leads to an underprovision of the collective good, inasmuch as, according to the familiar Samuelsonian equation, the optimum provision is obtained when

$$\sum \frac{\partial U_i}{\partial G} / \frac{\partial U_i}{\partial X} = P_G / P_X$$  \[3\]

The extent of such underprovision of the public good depends on the nature of utility functions (Cornes and Sandler 1986), but it tends to rise as the size of the community grows. The model refers to the pure public goods; that is, the goods which are characterised by non-rival joint consumption and impossibility of exclusion.

However, a part of Public Choice field deals with the non-governmental possible alternatives to the provision of collective goods.
Literatures has been mainly centred around the theory of clubs (Buchanan 1965)

Many of the good supplied by non-profit organisations embody the characteristics of the club goods, and a number of non-profit organisations are actually clubs. The provision through clubs is an alternative to the provision by government, and clubs’ supply should totally crowd-out public supply.

However, the theory of clubs is a special case non applicable to voluntary provision\(^2\) by non-profits in general. The exclusion is possible in many of the goods supplied by non-profits as well as for goods supplied by governments. In these cases, the presence of either significant externalities or a redistribute goal suggests not to utilise prices as a rationing or as an exclusion element. The theory of clubs does not explain the voluntary provision when institutions do not utilise prices or fees as a basic criterion of exclusion but they finance themselves through voluntary donations.

In addition to clubs, the rational consumers can organise themselves in order to improve their welfare, if they are unsatisfied with the government provision of public goods. This is the case of the so called private governments. Voters reject both broad based tax increase and budget deficits, while at the same time demanding improved services. Private governments are voluntary, exclusive organisations that supplement services provided by the public sector. (Helsey and Strange, 1998). According to this approach, the private governments appear because of the failures of the public sector providing public goods to consumers with heterogeneous preferences. In this sense, the voluntary provision is a residual element. In this model, the government replies to private supply by reducing its provision of the collective goods, but the crowding out effect is incomplete. The public sector’s action only partially offsets the private provision (Helsley and Strange 1998)

\(^2\) Although becoming a member of a club is a voluntary action, the production of clubs goods is not financed through really voluntary gifts. In club goods it is possible to exclude those people who do no contribute by paying either an admission fee or a utilisation fee. Buchanan (1965) regarded clubs a non-government private alternative for the provision of collective goods, but the model can be considered to be more appropriate for guiding the actions of local governments in this field than for explaining the working and functioning of voluntary non-governmental organisations.
On the other hand, private governments supply refers mainly to local public goods\(^3\), and the model is not applicable to the perhaps more representative non-profit institutions, the so called *charities*.

3. **The altruist consumer**

Charities and other non-profit organisations produce collective goods that do not directly benefit the donors who finance this supply. As the selfish consumer only takes into account the benefits his own contribution has for himself, the non-profit organisation are better seen as the product of altruism.

Selfishness does not explain all behaviour by definition but people might care about other people or ideas beyond themselves. The utility function of an altruist would be given as

\[
u_i = \bar{U}_i (X_i, G, u_{-i})\tag{4}\]

where \(u_{-i}\) represents the wellbeing of the members of the community except \(i\) himself. The idea of altruism can be also represented as a preference for equality or aversion against inequality (Fehr and Schmidt 1999).

The contributions to finance the public good \(G\) produce the of utility derived from the increase of the supply of public good plus the utility derived from the increase of social wellbeing or the reduction of social inequalities.

As long as the utility of the voluntary contributions is larger in expression [4] than in expression [1], the quantity of public good supplied will be larger in the altruism models than in the selfishness model. However, applying the same maximising criterion, a Cournot-Nash equilibrium in the pure altruism model leads us to an underprovision of public goods (Andreoni 1988, Warr 1982, Roberts 1984, Bernheim 1986). The standard model of public goods and the altruistic behaviour

---

\(^3\) The private government can be considered as a special kind of club. The collective good exhibits a type of imperfect or coarse exclusion (Helsley and Strange 1991). Specifically, with public provision, there is universal access; the collective good provided by the public sector is available to all consumer. This universal access may be the result of technical difficulties or institutional rigidities (legal guarantees of equal provision). In contrast, with private provision there is restricted access; the private supplement is only available to subscribers (members).
model do not explain the different patterns of public or private provision we find in the realities (Andreoni 1988 Sugden 1982).

A different conception of altruism considers the feelings of the contributors as the motivation to give. This is the case of the impure altruism model (Andreoni 1990), which considers the voluntary contributions as a private good consumed by the donor. In this private consumption model, the donor obtains some utility from the act of giving itself.

The utility function of the Andreoni’s impure altruist can be represented as
\[ u_i = \bar{U}_i(X_i, G, g_i) \]  
\[ [5] \]
where the voluntary contribution of individual \( i \) finances the supply of public good \( G \), but at the same time the individual obtains utility from the contribution itself. The donors get a warm glow feeling from his contributions. The impure altruism model explains the formation of non-profit institutions as the act of giving itself motivates to give, as long as gifts fulfil an increase of their psychological welfare.

The donors are indifferent about the kind of good that finally their gifts finance because they obtain some utility even though their gifts do not contribute to finance the production of any goods. The gifts are not conceived as an exchange for the goods supplied, but as private goods, that have a value themselves. The fact that the main motivation to give is not related to the output is coherent with a very low crowding out effect tested in some empirical studies (Ribar and Wilhelm 2002).

The non-profit organisations can exploit the warm glow feeling in fund raising activities but to the extent of such contributions are not related to the output of public goods, they can not be considered as a real alternative to the government provision of public goods.

In the same sense of the warm glow, social approval (Holländer 1990) or prestige (Harbaugh 1998) can also be considered as a motivation for voluntary contributions.

Social norms may encourage people to behave in a co-operative way. A system of rewards –as social approval- for obeying and punishment –as social contempt- for disobeying enforces social norms. People have preferences for social approval (Hollander 1990) modifying the utility function as:
\[ u_i = \bar{U}_i(X_i, G, q_i) \]  
\[ [6] \]
where the $i$'s social approval $q_i$ is a positive function of the contribution of individual $i$. Such a model is similar to the impure altruism model. The social approval is a by-product of individuals' contributions as the warm glob of Andreoni (1990).

4. The cooperative consumer

In the standard model of public good supply, a basic assumption is that individuals take the contributions of the others members of the community as fixed. The underprovision in models of voluntary supply of public goods derives directly from this assumption, and altruism does not allow overcoming this problem. Only a co-operative behaviour funding voluntary provision would be a real non-governmental alternative to the supply of public goods.

Cooperation can be based on a principle of reciprocity (Rabin 1993). Each individual benefits from the whole contributions and the acknowledgement of the economic interdependence involves each participant in modifying (should it be possible) the behaviour of the others. Cooperation has an externality which benefits each participant and which induces cooperation itself. According to a principle of conditional commitment, the contributions of an individual depends on what the others do (Sugden 1984).

In a small community is not so difficult to achieve an implicit cooperation agreement supported by social norms. However, in a large community this social commitment may be too costly, as the raising of transaction costs exclude such a complex mutual contract in spite of the potential earnings.

If the contractual processes of political or economic exchange are excluded, the natural way to reach coop-eration is the investment in some institutions that incorporate no contractual attempts to modify the behavior of the individuals. Without political or economic exchange, it only leaves ethics as a possible way of appropriation of the potential economic value that exists above and beyond of the ordinary policy (Buchanan 1991, 1996).

Ethical and religious principles may induce co-operative behaviour—not necessarily grounded on reciprocity. Analysing non-profit institutions we cannot leave out the ideological and religious dimension of a large part of them. Moreover, commitment emerges in nonprofits.
institutions as contributors are directly involved in the supply of the goods they produce.

Casas, Puchades and Sajardo (2001) propose a model of social commitment where a fraction of individuals is willing to behave cooperatively. At least, being a member of a religious group or of a group committed to a non profit institution an individual can trust his co-operative behaviour will influence the behaviour of the other members.

Within a group of \( n \) individuals with a co-operative commitment, if an individual decides to give a whiting contribution \( g_i \) to fund the supply of a collective good, provided that the others members behave in the same way, the increase of supply will be

\[
\Delta G = \sum_{i=1}^{n} \Delta g_i / P_g \tag{7}
\]

being \( P_g \) the price of the collective good. The cooperative behaviour allows the private supply of public goods, but, as long as free riders exist, the level of provision is not an optimum one. In this model the cooperative contributors do not increase their contributions in order to compensate the lack of contribution by the free riders, but they adjust their contributions as if the size of the community were the number of cooperative contributors instead of the total of individuals of the community.

\[
\sum_{i=1}^{n} \partial U_i / \partial G \left/ \partial U_i / \partial X \right. = P_g / P_x \tag{8}
\]

5. The honest consumer

The concept of self-interest does not mean a predatory behaviour. Selfishness is not synonymous of stealing, cheating and making defraud as much as you can. Fortunately, the law is not the main mechanism enforcing peacefully coexistence.

We can start from the assumption that individuals' behaviour is constrained by ethical and moral rules. Facing the presence of market failures, individuals can behave either in an opportunistic way or in a cooperative way. If cooperation does not work, they can set up a government to take care of the problem.

Ethic and moral constraints make people more determined to behave in a way that insures the smooth running of the economic system.
This is a way to overcome free-rider problems in the presence of altruism (Collard 1987). It also explains why people form non-profit organisations to redistribute income to the poor, lobby the government on behalf of general causes and so forth.

Ethic and moral constraints induce either cooperative or altruistic behaviour. Now altruism has a different meaning from the one discussed in the above sections. The idea of honesty may substitute pure altruism. In this sense, the individual subject to moral constraints does not seek the wellbeing of the other people or to fight against inequality. He simply acts honestly. Honest people do not steal, stop at the traffic lights and pay their taxes voluntarily. In addition, they obey the law not to avoid the possible penalties but because they think that it is their duty.

We define the honest consumer as following a Kantian ethic: that is, “act like you think everyone should” (Gassler 1998). In order to modelize the behaviour of the honest consumer, we do not need to modify the standard utility function by introducing new variables. The honest consumer behaves rationally and he will try to maximise his utility. But the maximisation is subject to two constraints. The ethic constraint operates in addition to the budget constraint.

The opportunistic consumer considers the contribution of the rest of the community as given, and he takes into account only the increase of the public good supply that his contribution makes. By contrast, the honest consumer subject to a Kantian ethic constraint reveals his real preferences for the public goods.

The ethic constraint implies that the honest consumer must not contribute less than the amount he was willing to spend if the goods were supplied by the market. The ethic restriction modifies the maximising rule. Therefore, the voluntary contributions of the consumer will be a function of the marginal utility of the public good and of the quantity of the public good he consumes or hopes to consume.

\[
g_i = 0_i \left( G_i \frac{\partial U_i}{\partial G_i} \right) \tag{9}
\]

This function would fulfil the same conditions as a function relating spending of consumer and quantity of a private good.

The notions of selfishness and altruism are still relevant. To assume honesty in a Kantian ethic is not to assume it for everyone. Only a minority of individuals need have these motives in order for the voluntary provision of public goods to take place. On the other hand, the
ethic constraint is compatible with voluntary agreements to supplement unsatisfied demand and also whit altruistic or warm glow feeling.

6. Preferences of the median voter

In the European developed countries, we are used to living in a welfare state. The public sector provides a lot of public goods, quasi-public goods and goods with significant externalities or redistributive impact.

Although the presence of non-profit organisations supplying those kinds of goods is not negligible, in many cases the government contributes largely to finance the working of these non-profits, be it directly⁴ or through fiscal incentives. And the models dealing with non-profit institutions consider either that they supplement the public provision of some goods and services or that they exist simply because altruist people want to do good things. However, it seems that we are forgetting the past centuries when the governments neglected the supply of goods as charitable services, social security, medicare, education, cultural services and so on. Historically, the supply of those goods has been made through non-governmental non-profit institutions, mainly religious institutions.

Governments have first provided the public goods related to the supporting of the own state, as national defence or public order. It has been in the last century that the state assumed the economic functions of allocation, stability and redistribution.

A benevolent despot can improve the social welfare, can take care of the poor and some increase the supply of education and cultural services, but the states have assumed the provision of more and more goods and services in democratic political systems. The current levels of governmental supply is a result of the political process in democracy, with its formal voting procedures for making and enforcing collective choices.

⁴ Non profits have experienced a significant real income growth (NCVO 1996). But a big share of such growth comes from governmental sources. In some cases, government delegates the supply of some collective goods, but that production remains mainly financed by government. It is the case of the so called "contract culture" through which the voluntary organisations compete to get the contracts to provide services funded by government and previously supplied by statutory authorities (Harrow, Palmer and Vincent 1999, Wise 1995)
Collective goods can be supplied either by the government or, alternatively, by non-governmental organisation. As the governmental provision is a collective choice, its alternative, the voluntary provision is also a collective choice.

As we have pointed out above, an efficient private provision of public goods is possible if individual behaviour is constrained by an ethic principle of honesty. In a community of $n$ honest individuals, the quantity of public goods supplied would be

$$G^* = \sum_{i}^{n} g_i / C$$

being $C$ the cost per unit of producing the public good $G$; for simplicity we assume a constant marginal cost $C$.

The output level $G^*$ fulfils the familiar Samuelsonian condition for the Pareto-optimal provision of a public good, whenever all individuals behave honestly. Despite the honest behaviour allows an optimum non-governmental provision of public good, this fact does not imply that the provision of a public good will be voluntary, even in the improbable case that free riding does not exist and that all individuals behave under the same ethic constraint. The governmental supply financed by taxes is an alternative so honest as voluntary supply.

We assume that consumers do not have previous preferences on public or private supply and that the tax system is neutral. If the government supplies the public good, the honest consumers pay their taxes because tax evasion is contrary to ethic rules. In the absence of a tax system financing the supply of the public good, they make voluntary contributions according their real preferences.

In contrast, tax evasion is a real alternative for the opportunistic consumers. They will decide to either pay or to evade taxes, depending on the penalties, the probability to be caught and their risk aversion. In absence of a compulsory system financing the public good, they do contribute nothing --or contribute according expression [2].

Individuals do not know what is the Pareto-optimum output, neither they try to maximise an aggregate welfare function. The consumers only know their preferences and vote in the political process according their own preferences. The difference is that the honest consumer behaves subject to an ethic constraint whereas the opportunistic consumer behaves subject only to his budget constraint.

The scenarios for public good provision are
a) A public provision: government collect a tax $t_i$ to all individuals and supplies a level of output $G^g$

b) A voluntary provision: honest consumers make a contribution $g_i$ to finance a level of output $G^v$ and the free riders do not contribute.

An honest individual $i$ will prefer voluntary provision as long as $G^v$ was larger than $G^g$ and $g_i$ lower than $t_i$, and will prefer public provision in the opposite case. A free rider will prefer voluntary provision except if the supply was so much reduced that his loss of utility exceed his gain from not paying taxes (Casas, Puchades and Sajardo 2001)

Let us consider a community of $n$ individuals where at least a share of members are honest consumers in the sense described above and Individuals have different preferences on a public good. The supply of the public good may be governmental, collecting a tax equal for all members, or voluntary, that is, financed with voluntary contributions. Additionally, let us assume that the political process carries a collective choice that fits the preferences of the median voter.

Then, as a result of the collective choice, the supply will be either governmental or voluntary depending on the position of the median voter in relation to the distribution of the preferences on the public good.

The result will be voluntary provision if the distribution of preferences makes the voluntary contribution of the median voter lower than the average contribution. That is, voluntary provision will occur when

$$g_j < \frac{\sum_{i=1}^{n} g_i}{n}$$

being $j$ the median voter.

On the contrary, if the distribution of preferences makes the voluntary contribution of the median voter higher than the average contribution the political process will carry to governmental supply financed by taxes.

According to this proposition, some changes in the distribution of individual preferences on public goods may change the collective choice about what institution carries the supply of the public goods. A change in the preferences distribution may crow out the supply of public goods from private to public provision or vice versa. In this sense, the model would explain the significant differences among countries. That is, why in some countries the governments finance by taxes the provision of
many public and quasi-public goods, whereas in other countries these goods are largely supplied by non-profit organisations financed through voluntary contributions.

Figure 1 represents a situation in which the collective choice process will lead to a voluntary provision of the public good. In figure 1, there are three groups of consumers with different preferences: low demand, medium demand and high demand. It is assumed that the median voter belongs to the medium demand group. The standard demand curves of each group of consumers are drawn in figure as D1, D2 and D3. The total demand, that is the sum of all individual demand curves is TD, and the marginal cost of producing the public good is C.

The level $G^*$ represents a Pareto-optimum output level of provision of public good. This output level can be reached if each consumer behaves honestly contributing to finance the output according his real preferences. The contribution of the high demand consumer would be

$$g_3 = h_3 \cdot G^*$$  \[12\]

the contributions of the medium demand consumers would be

$$g_2 = h_2 \cdot G^*$$  \[13\]

and the low demand consumers do not contribute at all. The sum of the individuals contributions equals the total cost of producing the output

$$\sum_{i=1}^{n} g_i = C \cdot G^*$$  \[14\]

Notice that in this case the low demand consumers are not exactly free riders. Despite the fact that they consume and do not pay for it, they do not behave in an opportunistic way, but they reveal their real preferences.

Government intervention is the alternative to the voluntary provision. The government can supply the output collecting a tax equal for all consumers. We assume that in a representative democracy the preferences of the median voter determine the output supplied by the government. The public provision will get to an output level $G^g$ lower than the optimum $G^*$ and each individual will will pay a tax

$$t = \frac{C}{n} \cdot G^g$$  \[15\]

Despite the government adjusting the public provision to the preferences of the median voter, voluntary provision is better for him, as it is better for low and medium demand consumers groups.
Figure 1. Voluntary provision allows reaching an optimum output level $G^*$. Low demand consumers (D1) and medium demand consumers (D2) prefer voluntary supply $G^*$ rather than government supply $G^g$. 
Figure 2. Government supplies an output level $G_g$ larger than the optimum $G^*$. High demand consumers ($D_3$) and medium demand consumers ($D_2$) prefer a government supply $G_g$ rather than a voluntary supply $G^*$. 

The diagram shows the relationship between price per unit, marginal cost ($MC$), and output ($G^*$, $G_g$). Consumers $D_3$, $D_2$, and $D_1$ are indicated at different price levels ($h_3$, $h_2$, $C/n$) and output levels ($0$, $G^*$, $G_g$). The government supply ($G_g$) is shown to be higher than the optimum ($G^*$) preferred by high demand consumers ($D_3$) and medium demand consumers ($D_2$).
Figure 3. Free riding reduces the voluntary provision of public good.
Figure 2 represents a different structure of preferences leading to an inefficient governmental provision as a collective choice outcome. The optimum output level is $G^*$, but the consumer both the high and the medium demand group prefer the governmental provision of an output $G^g$. The outcome is a governmental over-provision of the public good.

In figures 1 and 2 it is assumed that all consumer behave honestly. However, free riding can not be completely avoided. The presence of opportunist consumer who are not willing to contribute according their real preferences modifies the possibilities of production. Free riding reduces the voluntary provision of public good, as figure 3 shows.

The total demand curve TD represents the sum of the real demands of all members of the community. As some consumers do not contribute, the possibilities of voluntary supply moves form TD to TD’, being TD’ equal to TD function minus the real demand of the free riders. The voluntary supply decreases form $G^*$ to $G^{v'}$ but the low demand consumer and the medium demand consumers still prefer a voluntary supply $G^{v'}$ rather than a government supply $G^g$

If the number of free riders increases and TD moves to TD”. The output that can be supplied with voluntary contributions decreases to $G^{v''}$. Therefore, the outcome of the collective choice will change from voluntary provision to governmental provision.

7. Some extensions of the model

The model above described may be a useful tool for analysing crowding out effects and deserves a more formal and detailed analysis to be empirically tested. Governmental provision leaves the group of high demand unsatisfied, and the ethic constraint is compatible with the possibility that the honest high demand consumers supplement voluntarily the provision of the public good crowding out the government supply as far as the increases of the output modifies the preferences of the median voter.

Another interesting extension is to introduce differences in the income of the consumers. If the preferences of the public good are related to the personal income, then inequality in income distribution may contribute to favour the option of private supply, as well as a proportional or progressive tax system will influence the collective choice.
REFERENCES:


