THE COMMONS, PRIMARY GOODS, AND THEIR CO-OPERATIVE DEMOCRATIC GOVERNANCE

by

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1. Introduction

This paper provides a justification for the co-operative democratic governance of local public services (for a complementary argument see Mori (2013)). Two problems are addressed. The first is whether there exists a close relation between the idea of cooperative governance of public services (i.e. waterworks) and the *commons*, understood as commonly-owned resources managed according to the 'open access' principle and non-excludability of any potential user within a given domain conventionally defined (see Section 2). Consequently, the question is whether the growing understanding of the governance of commons through forms of user self-organization may teach a lesson about how users Co-operatives could provide a better solution for local public services governance and management. In other words, the question is whether the 'commons' literature may contain lessons of general value or whether it is inextricably bound up with the experience of small communities in the developing countries that are too far from the problems of the contemporary modern enterprises and economic organizations required for the provision of local public service to be relevant. We shall see that models developed in the literature on 'governing the commons' by the group of scholars centered on Elinor Ostrom – even though emendable with some additional concepts – nevertheless offer generalizable views (see Section 3).

The second problem is whether the proposal of the cooperative governance of pubic local services is a solution more efficient than the available alternatives – private governance through regulated capitalist enterprises, or bureaucratic management by state agencies (see Sections 4 and 5). Further to the reasons already put forward by Mori (2013) and besides emphasizing the inefficiencies of the alternatives, this paper examines that main threat of failure of users' Co-operative governance, that could induce to abandon it. It is the big question whether in case of

formation of a large managerial enterprise owned by users, we should expect a co-operative democracy failure, which would entail too loose control by users and too much room for managerial discretion and slackness. My main contention in this regard is that some advances in behavioral economics going beyond (but not contradicting) what we have learnt from Elinor Ostrom, give reasons to maintain that the multi-stakeholder governance of users' Co-operative enterprises, supplying local services, or common-pool resources and infrastructures seen as *commons*, would actually be organizationally efficient.

In order to test this statement, not only must we must carefully design the multi-stakeholder democratic governance of co-operatives by rethinking transaction costs and contract theory models (see Section 4), we must also solve the first problem (Section 1). Public local services must be conceived as 'common goods' , and their relation to *primary* social goods in Rawls' sense must be recognized (see Veca 2013). In order to bridge these concepts we need a further economic term (but one quite relevant to our main example: waterworks): *infrastructures*. Infrastructures are means to produce many further activities and benefits, among them public goods, welfare and merit goods, that can be seen as spillovers from the open use of an infrastructure (Frishmann 2012). These are all reasons for considering infrastructures as 'open access' resources or *commons* (see again Frishmann 2012). Thus, moving from economics, through engineering, to political philosophy, we must recognize that this concept is nearly coincident with Rawls' *primary goods.* These are 'means for many ends' , goods that are necessary to undertake all possible 'plans of life', and whose details are unforeseeable at the moment when allocation of such means is to be decided – so that their allocation can be appropriately chosen 'under a veil of ignorance' (a radical condition of ignorance about not only possible consequences but also possible personal identities or plans of life) .

Once the *commons* are so defined, they appropriately undergo the social contract on fundamental social institutions determining conditions and endowments of rights (for example, rights to access infrastructures as commons) whereby we enter a 'well-ordered society' as citizens. Yet the social contract is not only the fictitious mental model by which we give a potential explanation of how a well-ordered society is possible. It is embodied in the principles and forms of governance and management of the institutions and organizations that undertake the supply and distribution of many commons/primary goods, for instance public services and utilities at local level. The user cooperative (or any other organizational form able to manage resources on a

non-excludable and open-access basis) is itself part of the social contract, and it must be based on deliberative forms consistent with the ideal of a social contract at local level. Against the background of this view on the commons, we may state some interesting propositions on the incentives and motivations of those who operate in the co-operative firm, and hence on its efficiency. Some recent results in the theoretical and experimental literature on psychological games, preference for conformity with norms, and their application to cooperatives and non-profit enterprises are useful to this end. My main result can be stated as follows: *if* a *local* social contract properly explains the multi-stakeholder co-operative enterprise – i.e. through an agreement among users and other stakeholders – and *if* the *local* social contract is also taken as the guiding principle of the cooperative enterprise's governance and management, *then* there is no reason to expect that the typical opportunistic behaviors that may doom to failure a cooperative firm must occur (or they may be expected to be minimized), whereas a regulated capitalistic firm, because it does not conceive the service or the infrastructure as a commons, could not resort to this source of transaction costs minimization.

2. The commons

2.1 Definition

By 'common goods' I mean *natural* resources such as water basins, woods and forests, or the landscape and the historical-cultural and environmental heritage, or *artificial* resources, either physical infrastructures (aqueducts, communication routes) or computerized (the Internet or other networks), or immaterial, like knowledge and the relational and communicative system through which it circulates, *provided* that they are subject to a certain kind of *governance* and *management* whereby a particular relation arises between, on the one hand, those who supervise the resources and contribute to their maintenance, reproduction or development, and on the other, their users. This relation is characterized by the resource's *shared use* or *common appropriation*, and by *open and equal access* to it, conditional only on the geographical (spatial) extension within which that resource is available, i.e. at local, national, or international level, as the case may be. This model of governance and management (that is, a set of *rights and decision powers*, with the consequent decision-making processes that regulate the resource's appropriation, use, maintenance, and (re)production) does not permit the exclusion of any potential user from the resource within the territory in which it is available. According to this definition, not necessary

(though it may be sufficient) for a good to be common is the lack a technology that makes the good excludable. The necessary characteristic is a form of governance. A common good may be any good or resource for which, for some reason, the decision is collectively taken that it should be usable in shared manner and with open access (for a similar formulation see Frishmann 2012)

By 'open access' is meant *non-discrimination* among users and *equality* of treatment in access. As such, the common management of the good does not prevent the charging of a tariff for access, but this tariff must not be such to determine discrimination among the users according to their wealth or income. This is certainly an alternative to the market criterion according to which a good is appropriated exclusively by those who win the competition among buyers by paying the price at which the good is auctioned, so obtaining it through an exchange of property rights (whose content is the possibility to exclude from access to the good those who do not receive the owner's assent, apart from extraordinary cases of rationing). Equality of access among the resource's users in its territory of reference is essential for this definition of the commons .

Obviously, in the case of a common, 'open access' concerns a particular 'community' of reference. But the *community* is defined by the set of individuals for whom the good or the resource would be available in a certain territorial area before any discrimination came about on the basis of substantial criteria such as ethnicity, culture, political or religious belief, or wealth – besides the limits imposed by the good's physical, so to speak, availability within the boundaries of that particular territory. This is a merely *formal* definition, according to which the community – within which it is not permitted to exclude anybody – equates to the set of individuals physically able to access the resource in its area of availability. Of course, this community may be subject to the restrictive condition that none of its members can be excluded, unless their access would impede equal free access by every other user in the same situation and over time (hence *open access* may be qualified by a constraint concerning the resource's non-congestion or exhaustion). A reasonable restriction (but only for certain goods) could be the *residence* of a user within the territory where the resource is available. Hence, without changing the definition, a common good can be local or global.

2.2 Economic features

Those economists who have concerned themselves with the matter have provided a definition of 'commons' based on two *features* of its consumption: *rivalry* in the consumption, and the

possibility to *exclude* from consumption those who do not pay the price for it. These two characteristics are understood in terms of the cost of the technology required to (re)produce and distribute the good. A *private good* is rival and excludable in its consumption. If I buy an apple, that apple cannot be eaten by anyone else (unless they repurchase it from me); moreover, someone who wants an apple can be expected to pay a price for it. A *public good* is non-rival and non-excludable. Ideas are non-rival in its consumption: anyone can learn an idea without impeding its being learned by others. Moreover, it is difficult to prevent those who do not pay the price (what price?) from learning an idea. It is sufficient for the idea to be communicated by someone (also secretly). The intermediate cases are those of *club goods* and *common goods*. The consumption of the former (below a threshold of congestion) is non-rival (utility is increased if membership of the club is shared with others), although non-members may typically be excluded from access to it. The consumption of the latter is *rival* (the cubic metres that I extract from a water source cannot be used by others) but *non-excludable* (it may be impossible to prevent those who do not pay the price for extracting water from the taking water to provide for their basic needs). This latter is the economic definition of a 'common' good.

Involved in all these cases are *externalities*. If the consumption of the good is rival, when I consume it, this may have negative external effects on other consumers. If my consumption of the good exceeds a certain threshold, the others are unable to find enough of it to satisfy their demand. If the consumption is non-rival, such negative external effects do not arise: my consumption of an idea does not reduce that by other people. Conversely, positive external effects may occur: the consumption of one unit of the good by A may have positive consequences for the others B≠A, both directly, in terms of consumption of that good, and indirectly, in the sense that the value of other goods is enhanced because of A's consumption of the good. If A provides security for himself, it may happen that the reduction of crime in the territory inhabited by A is to the benefit all its other inhabitants, C. If A reduces pollution in the area where he resides, also the other residents will benefit. If A learns an idea, it may be that others can learn it better, thanks to the fact that A knows how to explain it; or others can enjoy the positive external effects of applications of the idea by A.

The two phenomena may be present simultaneously. Although the individual use of the good by numerous individuals may congest it, or even temporarily exhaust it, at the same time use of that good may have benefits for others. If many people use the Internet, they may upload open access

contents which increase the value to others of participation in the network. The level of a community's health improves with access to water through the mains water supply. This is because every consumption of the good has positive effects on the health of all the other members of the community, even if their simultaneously access may congest the network and reduce the water supply available to all of them. Water consumption by a hospital, which contributes to congestion of the water supply system, gives other users access to healthcare services which would otherwise be impossible to provide. The use of a city square for expositions creates opportunities for numerous relationships. Above a certain threshold, overcrowding decreases the value of the square's use for expositions but it can increase its value in relational terms. Relationships have value in themselves (they are relational goods), but also for the development of other activities of a private, public or common nature.

2.3 The tragedy of commons

Most of the economists and political scientists who have studied the commons have focused only on the case in which a good is rival and non-excludable in its consumption. Because of rivalry, for fear of exhaustion, each individual is induced to anticipate consumption by others through maximization of his/her own consumption. Moreover, the demand is not limited by the good's increasing price due to the decrease in the available (supply) quantity of it, since access is not regulated by the price mechanism and nobody can be excluded. Thus all individuals are induced to increase their consumption to the point at which the cumulative effect of the individual consumptions is exhaustion of the resource. The consequence is the 'tragedy of commons' (Hardin 1968): the inevitable tendency towards congestion and hyper-consumption until the exhaustion of natural resources if they are managed as common goods with open access. Note that for the dilemma to exist, it is necessary that consumers act in a rational-instrumental and egoistic manner, and that they are unable to self-restrict their consumption on the basis of voluntary agreements or the internalization of rules of behaviour or social norms (indeed, it is presumed that the problem takes the form of a typical non-cooperative game in which a social dilemma analogous to a *Prisoner's Dilemma* is generated).

The tragedy of commons has suggested privatization strategies: that is, the introduction of private property rights in place of commons. In this way, the excess of demand with respect to the quantity available is regulated by the price level, since consumers are forced to pay prices higher

than the their marginal utility for the good as its exhaustion approaches. The price level is an automatic mechanism with which to discriminate among users according to their willingness to pay (although in real conditions, with numerous local resources all of finite amount, it is obvious that, while the increasing prices would force poor consumers to exit the market, affluent and mobile users would be prepared to pay until the resource is exhausted, and then move to the consumption of next one). Alternatively, the 'tragedy of commons' has suggested systems of bureaucratic and centralized control over resources based on rationing established by a central authority, and on subjection of the 'community' (significant group of consumers) to an external authority.

Nevertheless, in the past twenty years Elinor Ostrom has led a strand of analysis which has demonstrated that it is perfectly possible to resolve the tragedy of commons on the basis of self-organization by users (see also Section 3 below). This body of inquiry has comprised a series of case studies on the community management of irrigation systems in communities of developing countries, but also the management of water basins in the United States, where common ownership is the rule, as well as laboratory and field experiments. Thus compiled has been a list of the micro and macro situational conditions which influence the capacity of rationally interacting groups of agents to establish rules and institutions regulating access to common pool natural resources, and to have them applied on a voluntary basis, thus avoiding the 'tragedy of common goods' through self-governance (Ostrom 1990 1998).

More recently, it has been shown that the reason why, under the above conditions, the tragedy of commons is avoided without recourse to the imposition of private property rights, or of an authoritarian and bureaucratic external administration, is that the agent model that corresponds or is compatible with the aforesaid micro and macro situational conditions does not perfectly coincide with the rational economic agent in his instrumental and egoistic definition. Rather, it can be described by broader and more complex behavioural models (Poteete, Janssen, Ostrom 2010). This agent is neither a pure rational egoist, nor a perfect altruist, but is instead endowed with a certain degree of pro-social behaviour derivable from preferences and beliefs conditioned by the context of interaction.

2.4 Are common goods important?

The question is therefore whether the proposal of the cooperative management of local public services – which largely overlap with those objects otherwise called 'common goods' – is a development of these self-governance arrangements alternative to the 'tragedy of commons'.

There are two objections in this regard. The first is that the self-governance solutions proposed by Ostrom would be too contingent with respect to the situations revealed, for instance, by case studies on developing countries. Small self-organized groups of fishermen or farmers, or local communities concerned with the non-exhaustion of a water basin, are institutional solutions whose simplicity would be ill-suited to the greater institutional evolution of a form of economic enterprise, however cooperative it might be. On the contrary, I believe that the behavioural hypotheses and the micro and macro situational conditions, in which the more complex model of behavior generates interactions that give rise to institutional self-governance arrangements alternative to the tragedy of common goods, have more general validity. This does not mean that self-governance is always and everywhere possible (the model of action requires situational conditions). I shall return to this point in the next section.

The second objection – more relevant to the topic of this section – is that networks or infrastructures which supply public utility services at local level (water mains networks, for instance) are not in fact common goods in the economic sense, since such infrastructures enable the use of technologies on the basis of which each unit of the good obtained by a user can be 'priced' and users can be excluded from consumption of the good if they are not prepared to pay the price of accessing it. In other words, the *non-excludability* condition would be lacking.

However, the 'common' nature of a good in the sense of a model of governance and management grounded on common appropriation and open access, albeit within the boundaries of a particular geographical area, must not be deduced from the existence or otherwise of a technology which makes it possible to exclude a subset of users. It should instead be deduced on the basis of the social choice (or preference) to consider those individuals resident within the confines of that geographical area as not excludable from access to the resource. Non-excludability is primarily a *moral question*, and only secondarily is it a legal and economic one (if by 'economic' is meant calculation of the costs of possible welfare losses associated with making a resource excludable/non-excludable, whilst 'ethical' is the underlying normative criterion). Ethical (and then juridical) norms are those which establish that certain goods must be characterized by open,

non-discriminatory access. In analogy to bioethical issues – where not all of what is technically possible is necessarily ethically admissible - , it follows that technology *may* make excludable, but not necessarily *must* make excludable, everything that *can* be made excludable.

This can naturally be translated into the economic language of the *cost of excludability*, considering what would be the cost in terms of social welfare of the social instability and the destabilization of the legal system that would ensue from the imposition of a property rights system that allowed exclusion from access to the resources that we normally consider to be 'commons' (for instance, the list at the beginning of this section) of those unable to pay the price for them. The difficulty of imposing such norms is easily translatable into the excessive cost of applying the exclusion technologies.

Following Rodotà (2012), we may understand common goods as conditions for the exercise of democratic citizenship, so that citizens – considered as equally deserving consideration and respect – have equal rights of free access to such goods. It is then evident that the application of technologies allowing the exclusion of citizens unable to pay would destabilize democratic constitutional systems. And since the conditions for citizenship can be identified as the conditions under which we enter and stably accept an agreement over the institutions of a well-ordered society (Rawls), the application of such technologies would breach the conditions for a permanently 'well-ordered society', with the risk of a return to the 'state of nature'. An economist would say that they have intolerable 'transaction costs'.

2.5 Infrastructures

However, it is restrictive to limit the discussion of common goods to the case of goods for which the 'tragedy of commons' is possible. This would be to consider only the case of rivalry in consumption, while failing to see that, besides the tragedy of commons, there may also be a 'comedy of commons' (Frishmann 2005 2012). This latter stems from the fact that whilst the consumption is (imperfectly) rival (it produces negative externalities on users *only above a certain threshold* of congestion), at the same time open access to the use of those resources termed *infrastructures* generates multiple *positive* externalities. Free use of those resources by some users may produce positive effects on the others, although they do not pay for them, and although those who first produced those resources do not appropriate any value by imposing a price.

The point can be stated as follows. What is treated as a common (in the definition adopted here, a common is a good which is subject to open access within a *community* whose meaning is purely conventional: e.g. the temporary residents of a particular territory) is not a final good, but rather an *infrastructure* whose distinctive features are the following (see Frishmann 2012):

1. *partial* rivalry of consumption: below a certain congestion threshold, consumption by one individual does not reduce consumption by the others, and the marginal cost of the addition of another consumer is irrelevant (the congestion is not a *continuous* function of individual consumption);
2. social demand for the infrastructure is not tied to its intrinsic value, but rather to the production of the further goods that it makes possible; that is to say, it is a *capital good*;
3. the infrastructure can be used as the input to many uses for the generation not only of further private goods but also of public, social and merit goods; many such goods cannot be foreseen in advance, and they have inevitable positive external effects on other users.

What requires treatment of infrastructure as a common is therefore the set of positive spillovers that its use may produce both for agents, in that the spillovers enable multiple further activities, and for other consumers, in that they are positive externalities for them. The benefits from the uses for which the infrastructure is an input cannot be entirely captured by those making the investment (to construct or use the infrastructure), so that it is illogical to ask them to pay a price equal to such benefits. Nor would it be advisable to try to make them do so, since this would inhibit further mutually beneficial uses with the characteristics of public or private goods, and whose economic cost would become prohibitive.

To be noted, in fact, is that, together with the efficiency deriving from the common creation and management of an infrastructure, on the basis of which all users can benefit from a Pareto improvement, the infrastructure also has the value of *distributive equity*. It does so because poorer or more disadvantaged individuals draw greater benefit from the opening of a broad array of further opportunities associated with access to the infrastructure. If, however, each user must pay a price equal to the average cost of the construction *ex novo* of the infrastructure (or equal to the additional cost of augmenting its capacity), they may be unable to do so (see on this Grillo 1992).

Added to this is the fact that the multiple spillovers and uses which enable the production of private and public goods cannot be foreseen *ex ante*, and every attempt to predispose the infrastructure to a pre-established set of uses would eliminate large part of those uses that are possible *ex post* (or discovered through the innovative capacity of the users). It would therefore greatly reduce the infrastructure's value in terms of well-being. These uses cannot be planned *ex ante* because knowledge is limited – both the knowledge of a centralized manager and that of users, who would be unwilling to assume the risk of high prices to discover largely uncertain uses, or ones of which they are initially unaware.

2.6 Primary goods as infrastructures

The distinctive features of the infrastructures considered here, therefore, are (i) they are means to many ends, several of which consist of common goods which cannot be used for private benefit; (ii) many of these ends are unknown *ex ante,* and they are therefore such that it is not possible to determine *ex ante* the instrumental purposes for which (and by whom) the infrastructure may be used. An infrastructure's *multi-use* and *general-purpose* nature is therefore essential for the efficiency of its governance as a common good equally and freely accessible without discrimination on the basis of the user's identity and purpose (Frishmann 2012).

Besides the consideration of efficiency, to be noted is the analogy with a key component of Rawls' (1971) theory of justice which I shall now discuss. Justice concerns the arrangement of the fundamental social institutions that allow the production and distribution of 'primary goods': that is, goods which from the standpoint of choice in the 'original position' are (a) means to many ends, (b) ends whose particular nature is unknown when we must deliberate on such institutions because they coincide with life-plans of which in the original position we know neither particular details nor the personal identity. In the original position, i.e. when the constitutional choice is made, we know that we have a life-plan, but we do not know its details (or personal identity). Hence, from the perspective of Rawls' theory of justice, we are interested in primary goods, which are *means to many ends*. Of these we prefer a larger quantity to a smaller one, independently of how we specify our particular life-plan, whose characteristics we can learn only from a post-constitutional perspective. In the constitutional perspective, we choose the arrangement of the fundamental institutions 'behind a veil of ignorance' on the basis of which we prefer that access to such goods is *as equal as possible for every agent*. Hence, when some

inequalities are required merely to serve as incentives, with the purpose of inducing those with the requisite skills or talents to produce the goods themselves, a *maximin* distribution of primary goods is the only one admissible. That is to say, the only admissible inequalities are those that maximize access to primary goods by the worst-off individual (assuming that those who benefit from the inequalities are by definition in a position of *advantage* in accessing primary goods, what counts is acceptance by those who occupy the mostly disadvantaged position in the unequal distribution).

The reasons for this principle of constitutional choice may be debated. It is clear that the veil of ignorance has normative not descriptive purposes for it serves to ensure the *impartiality* and *impersonality* of the constitutional choice. Nevertheless, there are also reasons that have to do with the *ex post* application, or compliance with the constitutional choice. In particular, egalitarianism may be grounded not only on the postulates of impersonality, impartiality and empathy, but also on the argument that only an egalitarian distribution necessarily falls on terms of agreement which correspond to a *pre-existing* equilibrium *invariant* to the symmetrical translation of the space of possible equilibria with respect to the players' position. That is, it identifies a solution that may be enacted *by the agents themselves* in the 'game of life' that comes about outside the original position where they would chose - by an impartial social contract - desirable institutions.

In other terms, the social contract could be implemented through self-imposition that - without recourse to an external authority – can be performed in 'the state of nature' from which the social contract is negotiated. Ken Binmore (2005) has shown the equivalence between the equilibrium selected through the application of the 'veil of ignorance' , i.e. the equilibrium which is invariant to a symmetric translation of the outcome space representing mutual permutation of the players' viewpoints, and the egalitarian principle of distribution, and has thus explained that, besides moral reasons, egalitarianism is supported by the fact that it satisfies the requirement that principles of distribution chosen in the state of nature must be self-enforceable. Moreover, this solution is consistent with the idea of self-organization of cooperation typical of the literature on the commons, and it is coincident to the idea that safeguarding the commons is a matter of social contract on cooperation rules, enforced 'without a sword', or without a sword being wielded by an external authority exogenous to what results from the cooperation among the users of the commons (see Ostrom, Walker, Gardner 1992, Ostrom 1998a, and also the next section).

I want to point out here that, in the theory of justice, the characterization of primary goods as *means to many ends* –radically uncertain ends – and therefore treated as 'general purpose' means useful for not *ex ante* specified ends, entails that access to such goods should be open and non-discriminatory. Thus the nature of primary goods *as means to many ends*, whose distributive rules are evaluated behind a veil of ignorance and therefore in a state of radical uncertainty, exactly replicates the characteristics of *infrastructures*. Such characteristics – important when the choice of a governance structure is at stake - are (i) instrumentality of infrastructures to many uses, some of which consist of social, public, and merit goods of particular significance for the lives of individuals, even though not referable to the market consumption of private goods, and that (ii) many of these uses are *unknown* when the decision is taken on the governance and management structure. Hence infrastructures are *homomorphous* with primary goods, and their governance structure should be assessed from a perspective at least analogous to that of the 'veil of ignorance'. In effect, it is unlikely that Rawls would not have accepted the inclusion of essential natural resources like water or the landscape, the historical-artistic and environmental heritage, or communication routes and information transmission networks, among the principal goods that – as 'conditions of self-respect' and a meaningful life (see Veca 2013) – constitute the necessary means for many individual life-plans and therefore fall under the *second principle of justice*.

From the perspective of the social contract, primary goods should be distributed on egalitarian basis. Hence the access to infrastructures (= primary goods) should be equally open to all. If for 'mere' incentivation reasons, for instance to induce a particular group to invest its personal abilities and natural talents in the more efficient production and distribution of a primary good, it is necessary to introduce an inequality (for example in income due to payment of a tariff to remunerate those who furnish the productive inputs), this should be the minimum possible and compatible with the maximization of equal access to the primary good by users and at the lowest cost (in terms of the tax or tariff levied), so as to improve the situation of the worse-off group (because of the inequality) to the greatest extent possible.

Infrastructures, therefore, are primary goods subject to the constitutional social contract and the theory of justice. In effect, design of the infrastructure's governance and management system can be viewed as the decision to create an institution limited to the production and distribution of a particular primary good, and to define its main criteria. Design of the governance and

management rules is therefore equivalent to a special social contract on a particular institution that must regulate the (re)production and distribution of a primary good. The fact that the economic analysis of these institutions envisages their management as commons is compatible with the second principle of justice of the social contract, which mandates equal accessibility to principal goods, except for those inequalities that work to the maximum advantage of the disadvantaged (in this case the poorer users).

2.7 Partial social contract and the institutions providing primary goods

When we consider public services, we are certainly referring to infrastructures with Frishmann's features, recommending their management according to the principle of commons: that is, shared use and non-discriminatory open access. This definition makes infrastructures equivalent to Rawls' primary goods subject to the social contract. Moreover Frishmann's justification of egalitarian open access based on efficiency reasons is consistent with the more general criteria for the treatment of primary goods provided by Rawlsian theory of justice. Therefore, in conclusion, when we speak of local public services we are certainly referring to commons - in the sense of both infrastructures and primary goods which require fulfilment of the criterion - *not* technological, but primarily *ethical* and then *legal* and *economic* - of non-excludability and equal open access.

In particular, the choice of an infrastructure governance form equates to a partial social contract on an institution providing a particular primary good (for the notion of partial social contract see Donaldson and Dunfee 1995, Sacconi 2010a, b, Sacconi 2011a, b). Now to be ascertained is whether this partial social contract, which must be compatible with the general social contract, would produce the User Co-operative Enterprise as the best governance form for the supply of the infrastructure, which must be consistent with the criterion of equal free access. It would not be surprising to find that it would do so, given that Rawls defines the social contract in general as the decision procedure devoted to establishing equitable terms cooperation according to which we would be prepared to enter a well ordered society understood as 'a cooperative venture for mutual advantage'. Nevertheless, there is no unambiguous implication from the idea of a social on primary goods - which in case of infrastructures asks for satisfaction of the open access requirement -, to a particular form of enterprise, namely the organization supplying the infrastructure.

The point, therefore, is whether the User Co-operative Enterprise is an institutional model *congenial* to satisfying the requirements of the social contract on these primary goods, and comparatively more effective than the alternatives. To verify this, it is necessary both to determine the *coherence* between the purpose of this form of enterprise and the partial social contract, and to ascertain whether it is *effective*, i.e. provides the incentives to achieve the objective through some form of organizational equilibrium in the interaction among the enterprise's various agents: the management, the workers, and the users (in our case all members, given that this is a multi-stakeholder User Co-operative).

My answer is that, ultimately, it is precisely the idea of a social contract grounding the multi-stakeholder User Co-operative – as an agreement on the principles of justice for the *production of* and *access to* infrastructures (understood as commons) – what furnishes the basic arguments in favor of the co-operative form for the governance and management of local public services. The social contract of the multi-stakeholder Co-operative – as a specialized form of the social contract on the institutions relative to the provision and distribution of primary goods – is an essential component of the answer, in regard not only to the aspect of coherence with principles, but also to that of effectiveness of the incentives system and deriving behaviors that explain its implementation in equilibrium.

3. Self-organization of cooperation by users of the commons: Elinor Ostrom's contribution

This section sets out the main research findings on the self-organization of of common goods management via agreement on the rules and their self-imposition – according to the definition accepted by Elinor Ostrom and her co-authors – able to resolve the 'social dilemma' of cooperation in the use of common-pool resources and to prevent the 'tragedy' of commons. In Ostrom's pioneering study (1990), the characteristics of the institutional systems that over time have proved functional to the purpose of achieving self-governed cooperation in the use and protection of common pool natural resources are summarized in the following principles (see also Ostrom 1998b):

i) *Clearly defined boundaries*: individuals, households or enterprises with rights to access a given common-pool resource (for example a water basin), and the boundaries of a given resource (for instance, the separation between a river and a lake), must be clearly defined;

ii) *Congruence*: the distribution of benefits must be proportionate to the costs imposed by the rules on the basis of which the resource is made available; the conditions restricting access (time, space, quantity) must be appropriate to the local situation.

iii) *Collective-choice mechanisms*: the majority of the individuals affected by the access rules must be able to participate in their establishment and modification.

iv) *Control*: those responsible for monitoring and control must be *accountable* to the users or be users themselves.

v) *Graduated sanctions*: those who violate the rules of access to the resource must receive sanctions proportionate to the violation, and those who inflict the sanction must be users themselves or delegates accountable to the users.

vi) *Conflict-resolution mechanisms*: there must exist easily accessible and approved institutional systems to resolve controversies among users and between delegates regulating access and users.

vii) *Recognition of the right to self-organize*: the right of the users in a given community or group to organize their own institutions for management of a local resource must not be challenged by central government authorities.

The first principle states what we already know: that by 'common goods' economic analysis means rival goods; and moreover goods for which every restriction on access is necessarily imperfect, so that access permission may concern a group or a community with the right to access the resource, but without discrimination within that group or community – apart from the discrimination deriving from the rules that set limits on individual consumption so as to prevent the resource's exhaustion. The second principle recalls a natural condition of congruence between the rules (and the costs that they generate) and the benefits and conditions of the group that must respect them. It therefore relates to the convenience of self-governance by those who know the conditions of such congruence. The principles from (iii) to (vii) are those typical of the governance institutions stemming from 'self-regulation' (which evidently have nothing to do with the equation between 'self-regulation' and 'spontaneous market order').

Various case studies – from which these principles are derived by abstraction – demonstrate that if the governance system agreed within the group possesses these characteristics, collective action by the members is able endogenously to achieve a significant level of self-organized cooperation in the use of the common natural resources which maintains their consumption significantly

below the catastrophic threshold of the 'tragedy of commons'. This therefore happens without the need for a state bureaucratic organization which brings the resource under the control of an external authority independent from the group of users. Even less does it come about through the imposition of private property rights on the resource, or through the imposition of the authority of a private owner having the prerogative of admitting or excluding the members of the user group and establishing the conditions for their appropriation of the resource. On the contrary, it requires institutions of 'self-governance' whose efficacy is determined by the principles listed above.

It is apparent that the principles for the design of cooperative institutions are rather general and applicable to different organizations and systems of rules. Nevertheless, they are flanked in the literature by further conditions identified by other studies on the institutional characteristics of effective forms of cooperation. Hence, although the conditions on which self-governance depends can be grouped into a small number of classes, they are still rather numerous and seem to give a somewhat 'contingent' or 'context-dependent' value to the explanation (Agrwal 2001). This has indubitably contributed to their being largely ignored by economists fascinated by the simplicity, elegance and abstractness, as well as (entirely seeming) generality, of the theory of efficient perfectly competitive markets. This neglect continued at least until the recognition received by this body of studies with the award of the Nobel Prize to Ostrom (an award not entirely extraneous to the desire to signal unorthodox ideas when the global financial crisis exploded).

However, subsequent research by Ostrom and her colleagues has in the meantime gone well beyond the inductive collection of the characteristics of the institutional systems that enable self-governance by users and which seemed to work in the cases observed. Such research has sought to provide a more general explanation which comprises, on the one hand, a quite general decision-maker behaviour model adaptable to different contexts, and on the other, micro-situational conditions relative to the context of interaction in which the decision-maker model seems to produce efficient cooperative behaviour by means of institutional arrangements suited to the context.

The two aspects (decision model and the context of interaction) have been studied by means of experimental games in the production and exploitation of common goods. These games have made it possible to observe under what conditions of interaction (design of the experimental game played in the laboratory) the rational action (collective and strategic) of the participants

deviates – if it deviates – from the catastrophic prediction of the standard theory and produces a result interpretable as self-governed cooperation. The most interesting aspect of this analysis is reported in experimental studies (Ostrom, Walker, Gardner 1992; Ostrom, Gardner, Walker 1994; Ostrom 1998a, Walker, Gardner and Ostrom, 2000; Ostrom 2006) that emphasise the importance of 'pre-play communication'. The basic game requires each participant to choose between either privately consuming an endowment or investing it in the provision and exploitation of a common good, with actions that produce a surplus for all up to a certain level of investment – so that the total value to be distributed grows more than proportionally with respect to the individual contributions – but above that level it instead becomes collectively counter-productive, in that the total value decreases in function of the increase in the total investment. In this way, above the optimal threshold, the individual's payoff – which is a function of the individual's share of the total amount invested weighted for the total productivity – is decreasing in others' investments, but obviously increasing in the personal investment (share of the total), so that each player has an incentive to keep his/her investment high if the others hold back from exceeding the optimal threshold of exploitation of the resource. The game is repeated twenty times under different experimental treatments in order to verify whether the level of over-investment and exploitation predicted by the standard theory of rational behaviour (the game's Nash equilibrium) is reached. Or whether in some way (by tacit coordination or explicit agreement) the players are able to maintain behaviour in line with the optimal level of investment at which the personal gain is reasonably high, but not as much as it would be for those who 'defect' from agreements with other agents, who in turn abide by agreements on the optimal levels of exploitation.

Ostrom and colleagues observe that if the experimental investment game is played without pre-play communication, the outcome expected (Nash equilibrium) by the standard theory consistent with the tragedy of commons prediction, is substantially confirmed. Each player invests too much in every period, and the individual benefit is very distant from what would be associated with an optimal level of investment. Not so, however, if the rules of the experimental game are established so as to allow a phase of pre-play communication in which the parties can agree on the investment rules (and therefore on exploitation and maintenance of the resource), even though the communication is 'cheap talk', i.e. does not allow the undertaking of commitments enforced by any imposition mechanism, and even though after the face-to-face communication the action

effectively carried out by players in the real game is anonymous ('who does what' in the game after the agreement is not identifiable).

Since these are finitely repeated games, it is noticeable that one observes that when the parties can communicate even only once to agree on the level of individual investment, the amount of investment for a certain number of repetitions significantly approximates the optimal one, with the consequent individual benefits, before worsening because of the subsequent over-investment. When instead, from a certain repetition onwards, communication is allowed before every successive repetition of the game, numerous participants in every period come close to the optimal investment (i.e. the moderate one whereby the common good is used without excessive exploitation). In other words, by using communication to discuss the collectively optimal level of investment and agree on individual levels of investment, the participants are able to comply with the collectively most advantageous behaviour in every period, with very low levels of defection, even though each of them would benefit from defection if the others complied with the agreement (note that they can renew the agreement in every period, but a punishment strategy is not yet in place). Conversely, when the parties, without communicating, can inflict punishments (each of them can impose a fine on the others in each successive repetition), one observes that they punish in an excessive, sometimes bizarre, and inefficient manner, and that the possibility to punish does not in itself improve the level of cooperation in maintaining the investment at efficient levels. Finally, when the participants are allowed to communicate in every period in order to agree on both the level of investment and the punishment strategy (imposition of fines on those who have exceeded certain levels of investment, where the fine is executed directly by participants, but without revealing the transgressor's real identity), during the sessions in which the participants reach an agreement (although this does not always happen) the behaviour very closely approximates the optimal level of investment, while defection is minimal (notice that the results of sessions in which they fail to reach an agreement are very much worse).

Therefore, although the structure of the 'social dilemma' repeatedly, but not infinitely, played has features similar to the 'prisoner's dilemma', the parties are often (though not always) able to cooperate thanks to communication. In the presence of pre-play communication, therefore, the parties can cooperate in the sense of establishing and obeying cooperation rules coincident with self-limitation in the consumption of the common pool natural resource. The conclusion is confirmed if, through communication, the parties can also agree on sanction rules which they

undertake to apply even though these are costly. Note that, because this is a non-cooperative game in which the pre-play communication does not allow the establishment of binding commitments enforceable by some automatic mechanism, according to the standard theory whether or not communication is possible in each period does not change the equilibrium solution (which would still be that of over-investment) – at least as far as the model assumes that players attach importance only to their material payoffs. The observation of communication-based cooperation therefore contradicts the rational behaviour associated with the unique Nash equilibrium of the component (and repeated) game.

This suggests that, under the conditions described – communication – the behaviour of the players diverges from the rational behaviour expected by the standard theory, either because of a systematic but fortunate error of calculation (for example, the players mistake a certainly finite repetition for an infinite one – that is, they are incapable of performing backward induction) or because it responds to further motivations, preferences or values. These other motivations have been investigated by subsequent developments of behavioural game theory (see Camerer, Loewenstein, Rabin 2004), but credit should be given to Ostrom and co-authors for opening the way to these further investigations.

Nevertheless, the conclusion reached is already of great importance for the study of institutions: the self-organization of cooperation is possible, and it is not necessary to posit a Leviathan exogenous to the interaction among the participants to enforce agreements and promises, and to sanction behaviour contrary to the social optimum (Walker, Gardner, Ostrom 1992). The socially optimal level of cooperation can be achieved through self-governance, which does not mean tacitly and spontaneously, but through explicit agreements and pacts on the levels of investment and on the fines voluntarily imposed by the participants on the transgressors. The endogenous sanction envisaged by repeated game models does not apply here, because the repetition is finite, and the application of fines only works when it is agreed through communication, which should be 'cheap talk' in the standard model because it is ineffective in influencing the game payoffs or the imposition of pacts and promises. Instead, what the experimental subjects do is to agree on the creation of 'institutions' that they themselves undertake to put into effect, although in terms of the game's payoffs they would not have an egoistic incentive to enforce them. It is *communication* (and the agreement, which for Hobbes would be 'written in sand' in the absence of the Leviathan, and which according to standard games theory should be ineffective) that is the

essential variable in explaining the emergence of these 'institutions' and of the quasi-efficient cooperative behaviours that conform with them, both when it is simply a question of complying with agreed investment rules and when these are associated with sanction rules whose execution is purely voluntary.

Such experiments have been subsequently extended outside the laboratory by means of *filed experiments*, and accompanied by further case studies. Various micro-situational conditions, which serve to establish the form of the game that the parties actually perform, have been identified as systematically correlated with the fact that interaction in the field replicates the laboratory results based on *ex ante* communication. According to a recent formulation (Poteete, Janssen, Ostrom 2010), these conditions are:

S1: The marginal benefit that the participants derive from contributing to the collective action for use and protection of the resource must be high, so that the action of the individual is not irrelevant.

S2: An individual who contributes must be guaranteed that his/her contribution will be returned if the others do not play their part: that is, every individual must be reassured that s/he will not be a 'sucker' (be exploited by the others' opportunism) if s/he cooperates.

S3: Even if there is no complete knowledge among the participants, their reputation as contributors must be known to each other.

S4: The parties must have a sufficiently long time horizon.

S5: If an individual is dissatisfied with his/her participation in a group, s/he must be able to 'exit' and join other groups.

S6: There must be communication among all the participants; trust can be generated by open face-to-face communication on alternative rules that can be used to achieve fair distributions of costs and benefits.

S7: The size of the group influences the level of cooperation: particularly in the case of common goods, as the group grows, the fear of being a 'sucker' increases, and trust declines.

Other significant conditions have proved to be: (i) the amount of *information* with regard to the *level* of contribution by *other* participants, and especially (ii) the *capacity to impose sanctions.* Finally, (iii) agents' *heterogeneity* and inequalities in terms of benefits and cost – and therefore their *unfairness* – especially where there is no opportunity to communicate in order to justify them, make cooperation more difficult.

Among the micro-situational conditions, there are some that allude to the possibility that in the experiment as well as in real life, the parties take part in a repeated game in which it is possible that participants will develop trust, in the sense of a reputation based on effective agents' compliance with their unilateral commitments. In these conditions conditional punishment strategies impose sanctions on participants depending on their previous behaviour with respect to commitments and their ex post compliance with commitment along the repeated game. No explicit agreement is required in these conditions.

Other conditions, however, refer to different forms of game in which it is important *ex ante* to have the opportunity to *establish* equitable rules regarding access to the resources by means of mutual *communication* and by *agreement*. This communication may be considered to be *cheap talk*, given the absence of externally enforced sanctions and lack of self-interested incentives to comply with the agreements due to the lack of an infinite (or virtually infinite) horizon of cooperation. In these games, nonetheless, the parties may be able to form expectations on the level of reciprocity to be shown by the others, in the sense of mutual compliance with the agreed rules. These beliefs are not necessarily created in the presence of an infinite, or undetermined, repetition of the interaction, but simply on the basis of prior experience of similar governance issues from which it is possible to infer a certain level of trust in compliance by the counterparties.

In order to understand how the rational actions of agents in these micro-situations, as in the above-mentioned experiments, can attain quasi-efficient outcomes that generate mutual trust and the capacity to maintain high levels of compliance with cooperative rules, Ostrom and her colleagues (Poteete, Janssen, Ostrom 2010) propose a rational agent model, appropriately redefined in light of studies on bounded rationality and in behavioural economics, that complements the situations described previously. This means that in the above micro-situations,

this model of choice implies that the agents will agree on, and follow, efficient rules of cooperation. Substantially:

i) The agents have incomplete information on the structure of the interaction situation, but can learn over time, especially through a repetition of the interaction.

ii) The agents have preferences of a self-interested kind – that is, associated with their own personal benefit – but at the same time, in appropriate contexts, they may demonstrate pro-social or altruistic preferences and the ability (which is not based on self-interest) to adhere to rules on the actions and distribution of the outcomes of their decisions.

iii) The agents pursue a variety of decisional heuristics and routines: in the more competitive contexts typical of market relations, they adopt routines that approximate the maximization of personal benefit, while in other contexts, the routines adopted entail other behaviours, such as the observance of social rules, or consistency with social preferences .

In this way, rational agents may learn social rules and information on the conduct of participants in a group with regard to observance of these rules. Partly through communication, they are able to subscribe to these rules, and thus comply with them, through the development of pro-social preferences that are conditional on reciprocity of compliance by the other participants, even in contexts other than those of repeated games with an infinite (or quasi-infinite) horizon, in which the mechanism of reputation would require complete knowledge of all the possible state, even though it admits uncertainty with regard to the types of players. In the place of conditional strategies or commitments with complete forecast of all the possible states, the agents can develop and adhere to routines of conduct. In this way, trust in the conduct of others is developed by an agent only with regard to established rules and to the routines that carry out them. What must be noted here is that once the participants develop mutual trust, the main condition for the effectiveness of self-organized forms of cooperation is satisfied, because mutual trust allows cooperation in accordance with self-imposed rules even without an external mechanism that enforce them. As in the experiments, the essential variable component is number (ii) (social preferences and the ability to follow rules), together with micro-situational condition S6 (which relates to the opportunity to communicate) .

What is being proposed, in effect, is a behavioural model that is broad enough to permit an explanation of the emergence of different efficient solutions that are each suited to a different contexts by using various model of (less than purely rational) behaviours. For example, in situations of perfect competition, the model allows predominantly egoistic behaviours to emerge as the efficient solution compatible with in the context of market institutions. At the same time, however, in situations characterized by the issue of the management of common goods and interactive situations such as those in S1-S7, the model allows us to forecast that agents will efficiently self-organize by using rules of cooperation. In order for these latter to work, it is essential that the non-self-interested component of preferences and the opportunity to communicate should be activated. I will demonstrate that an analogous explanation is also valid for the effectiveness of a user cooperative in removing incentives for opportunistic behaviour by its members - incentives that, according to orthodox theory, would lead to the failure of the cooperation, and to the need to replace it with a capitalistic enterprise controlled by an owner external to the cooperative group (workers or users) (Alchian and Demsetz 1971). In order to provide such an explanation I will need to return to the idea of a constitutional contract of the enterprise supplying a common good that I have already suggested in the previous Section: the management of an infrastructure that, because of its characteristics (*primary good*) is typically part of the social contract on the fundamental institutions of society (on this see in particular Section 5).

4. Efficiency and democratic governance of the multi-stakeholder users Co-operative

Of most interest is determining whether co-operative democratic governance is more efficient than management by a regulated capitalist enterprise. Although a conclusion can be reached only by making thorough assessment of all the transaction costs associated to governance and contracts of the two alternatives, I shall focus on the specific benefits and costs of this form of enterprise and make intermittent comparisons with the capitalist enterprise. The notion of co-operative governance put forward by Pier Angelo Mori (Mori 2013) is justified for the most part by an information asymmetry argument based on Hansmann's analysis (1988, 1996). Actually, Hansmann suggests two arguments in this regard:

a) *The argument in favour of user cooperatives*: in the case of regulated capitalist enterprise, under conditions of strong information asymmetry between the producers and consumers of

local public services, the entrepreneur or management may utilize their residual rights of control and the rights of appropriate the residual in order to claim the maximization of rent from the sale of units of the local public service (even if regulated). The term 'residual control right' means a right to control residual decisions, which is exercised when contracts are silent because they are incomplete and then such residual decision are non-specified by the contract. In our case it may also be seen as the *discretionary decision* to ask for a high price and declare a quality level other than the actual one, which is effective because it is impossible to the consumer verify what the true state of the world is. As a result, by offering low-quality services, the entrepreneur and management can apply a price structure intended to maximize their rents, which is then 'legitimately' appropriated as *residual*. (Notice that, given the ownership of the enterprise, even though the natural resource - for example, water - may formally remain in public ownership but subject to a concession, the enterprise's profit is legitimate.) Market sanctions on the part of consumers or the regulator fail because it is possible to lie about the quality of the service provided. Here, by definition, the consumer is not informed. The regulator, on the other hand, may not have sufficient information to discover the enterprise's opportunistic conduct, and its capacity to carry out controls may be weakened by 'capture'. Hansmann argues that if consumers were themselves custodians of residual control rights or the right to claim the residual (as in users co-operatives), the entrepreneur and management would lack the rights and incentives to adopt this kind of opportunistic behaviour. Residual decisions would be taken by the consumer (or user) representatives, who would have no interest in lying about the price/quality ratio. Nor would they have an incentive to appropriate revenue, because their purpose is instead to access high-quality services at the lowest possible prices.

Clearly, the idea here is that formal control may be associated with a right on the part of user representatives to acquire more information. At the same time ownership by users would remove the incentive to make unauthorized use of the residual control right and the right to claim the residual (that is, to maximize rents to the detriment of users).

b) *The argument in favour of non-profit enterprises*. It would nonetheless be perfectly natural to object that, although ownership rights may be exercised by the users, they would be delegated to a management structure and a board of directors, and that these bodies would effectively be able to take discretionary decisions. Despite the fact that the right to appropriate any profits

made would accrue to the users (who might not be interested in making profits, or might wish to reinvest them to improve quality and keep tariffs low), the enterprise's management may appropriate them anyway by paying bonuses, high variable wages, benefits or rewards conditional on financial results, or off-balance sheet management. These benefits could also be extended to the members of the board of directors, thereby securing an 'internal capture' (which forms a pair with the regulator's 'external capture'). Although this type of behaviour might constitute a misuse of authority with regard to the aims of the cooperative's user-owners and the fiduciary duty towards them, the abuse may in any event not be disclosed due to the high level of information asymmetry that would be a feature of the relationship between management and the members of the board of directors, on the one hand, and the individual users on the other. This information asymmetry appears especially important in the case of a cooperative with a membership consisting of many hundreds of thousands of individuals. Here, Hansmann's argument is that another form of governance and control over the enterprise should be introduced: that of a non-profit enterprise. In non-profit enterprises, the residual control right and discretion are exercised by management and the board of directors, but no one can appropriate the profits –not even the users, let alone the management. If there are no profits to be distributed, and all margins have to be reinvested to improve the services offered to users, one may presume that these profits cannot be appropriated in the form of revenue by management and the members of the cooperative's board of directors.

It is of interest to note that by subjecting itself to the cooperative governance regulations that apply in Italy, our user cooperative would have both the benefits described in a) and those listed in b), because Italian cooperatives must allocate a part of their profits to an indivisible reserve fund, which curtail the incentive for management and the board of directors to appropriate them. This law might be interpreted as a constraint on short-term appropriation not only by management but also by the members, and therefore as a disincentive to cause the cooperative to fail because of short-term opportunistic practices by the members, which would be punished by the fact that it is impossible to privately appropriate cooperative's assets in case should the co-operative fail and dissolve (by bankruptcy) due to the opportunistic conduct of its members. This constraint induces a 'long-term' perspective in which – as repeated game theory teaches us – the incentive to cooperate may prevail over a motivation to adopt free-riding behaviours. If one

considers the non-profit constraint to be wholly binding, one might conclude that the type of enterprise which emerges from joint consideration of the benefits described in a) and b) would be a kind of *social enterprise* extended to the management of common-use infrastructures and resources: in Italy, this would typically be a social cooperative, which comprises both producers and users in its membership.

Neither of the two above arguments is decisive, however. There are numerous ways to circumvent the non-profit distribution constraint, even in strictly non-profit organizations, through high wage levels, bonuses and benefits for management and directors, and off-balance sheet management. As we have seen (see Ackerman 19..., Sacconi and Faillo 2005, Grimalda and Sacconi 2005), the explanation of non-profit organizations offered by Hansmann, which is based on the impossibility for entrepreneurs to appropriate rents, is illusory, because the constraint on profits distribution prevents them from legally distribute revenue to members of the co-operative in the form of profit-sharing, but only marginally improves the situation from the point of view of limitations on opportunities for abuse of authority by management with respect to the previous case (especially if the quality of the service cannot be verified or the service contract is incomplete).

The essential concern is therefore to determine whether, aside from the allocation of residual claim rights, *cooperative governance* prevents the creation of a managerial enterprise in which the management appropriates significant amounts of rent. To this end, we must evaluate further aspects of governance: most importantly, how the co-operative democracy works – that is, a co-operative's internal decision-making processes and the possibility that there may develop information flows which make allocation of the residual control right to the users effective; and *in second place,* the virtues of the user co-operative's founding agreement , with reference to the role of founding principles and forms of adhesion renewal and conformity with these principles (*organizational culture*).

In this Section, we shall not introduce into our discussion on cooperative democracy the effect that democratic decision-making procedures, which are based on the co-operative's founding agreement, may have on the pro-social preferences of its members (see the next Section). That is to say we provisionally accept that the founding social contract of the co-operative enterprise, and the resulting organizational culture shred among members does not differentiate significantly the

co-operative enterprise from any others economic organisation. Nonetheless, we introduce a variation of the consumer cooperative model, which is the model customarily adopted by user cooperatives. On the contrary we consider a form of multi-stakeholder governance that envisages participation in governance bodies, albeit as a minority, or at least in supervisory bodies, by stakeholders other than users (and management): that is, essentially *workers* (a multi-stakeholder cooperative also includes representatives of the *risk capital investors* and the cooperative's creditors (banks); but this topic will not be developed here).

This variant introduces the first remedy against the risk that the co-operative changes in a managerial enterprises run by self-dealing managers. Stakeholders such as workers possess more information than do users. These may have a perception of the quality of services and know certain events that have a local effect on delivery – unless these services are 'credence goods', so that assessment of their quality requires the opinion of an expert – but are not aware of production costs, how much resources are available to the firm, or workers' and management's efforts. The information held by workers, whether it be in their direct possession or obtained from within the organization, makes it especially difficult to practice management abuse (unless managers do not collude with a significant portion of workers) . This information can be reported to the board of directors by worker representatives, or it may be released during the Co-operative's members meetings (predominantly users). It therefore increases the effectiveness of control by users over management and administrators.

This argument strengthens the base case in which a user co-operative, even though it may be a managerial enterprise with multiple owners, already has an information advantage with respect to a capitalist public company. The users possess information about an essential aspect of the enterprise's activities: the quality of the service with respect to the price (tariff). The shareholders, on the other hand, only see the financial results, which they may only discover *after* the balance sheet has been manipulated by management. This has an ambiguous significance, of course, because it might be said that it is precisely because their information about the enterprise's activities is even less than the information available to users that shareholders need to have representatives in the governing bodies, whereas consumers may feel that their interests can be adequately protected by a contract. The fact is, however, that if the problem is one of access to information in order to discover whether the conduct of the management and the board is improper, users (especially if they are owners) are better informed than investors of capital, and

are therefore better able to prevent opportunistic behaviour. This means that the two forms of enterprise are on the same footing at least in terms of the controlling stakeholders' access to information, while the efficiency of control contestability in the two cases in the event of poor management remains still undecided (the choice between *voice* at the members meetings, supporting alternative candidates at the board of directors elections, and *exit* – that is, selling shares to assist a takeover in the case of a public company - must be evaluated on its own.) On the other hand, if users do not control the firm, the risks to them will increase disproportionately – and become of crucial importance – if the contract relative to them is incomplete, and if the service is subject to information asymmetry. This pushes once again the control costs/benefits balance to tilt towards the control by users alternative.

Of course, multi-stakeholder governance must also deal with the possibility of collusion between the enterprise management and the other internal stakeholders, such as workers (and perhaps investors), to the detriment of the users. In this case, workers in collusion with management will not report their confidential information on management to either the board or a members meeting. Because thus far we have not included motives other than those of rational self-interest for any of the agents operating within a co-operative democracy, this possibility must be examined carefully.

The best available theory on collusion in organizations is based on Tirole's (1986) model using three players: P (the principal); S (the supervisor or manager with auditing functions), and A (the agent: that is, a middle manager or a worker with a certain margin of autonomy as regards the organization of his or her work). In our case, P is the board of the co-operative, appointed by the associated members (mainly users), S is the manager, and A represents workers with autonomy. According to Tirole's model, the agent may lie about the quality of it performance if the principal (and the supervisor) does not observe the situation beyond A's actions in such a way that the production of low-quality output may be ascribed to an adverse external situation rather than to low levels of effort. In this way, A may earn a rent (the cost difference between high and low effort levels, wage remaining equal). S may, however, lie about his or her inability to observe the situation, even where s/he would be in a position to observe it, thereby giving validity to A's statement in exchange for a share of the rent (collusion). In the case of a capitalist enterprise, principal P observes the profit level associated with a high or low quality of output. P must decide whether to pay supervisor S an information rent to incentivize him/her not to validate

agent A's false statements, or merely to incentivize the agent directly not to make false statement, regardless of the supervisor certifications, by offering the agent an information rent directly. In this case, P, the owner, is external to the productive process, and does not have direct information either on the state of affairs or on effort levels and quality of service. A user co-operative represents a less congenial situation for collusion between manager (S) and workers (A), because the users (or at least some of them) have direct information on the quality of services. They are in possession of certain elements that enable them to reach conclusions on whether the low quality of services is attributable to adverse conditions or to the provision of low-quality services by A. If the informed users are part of the membership and have representation and voting rights, they can inform the principal (at members meetings or through their representatives on the board).

If we nonetheless impose a situation where all users suffer from a substantial information asymmetry with respect to the enterprise management (the extreme example being that of 'credence goods'– but this does not seem to be the case of public utilities such as water supplies, which are more like search goods, the quality of which can be ascertained by comparing the water supply services offered in various parts of the same country), there would be no difference between the two enterprises for the purposes of collusion. In order to identify a relevant difference, the following variation must be introduced: two agents, A_1 and A_2 – that is, two distinct groups of workers (with autonomy) – must be associated with principal P and supervisor S. If both worker groups collude with management, which should be supervising them, it is likely that the enterprise's level of service will decrease to the point where users see it as unsupportable and may reach an agreement to take action with the board and report the problem, or threaten not to re-elect P (see Sacconi 1992).

The best case for the creation of a collusive coalition that exploits the substantial disinformation of the users is instead one where the supervisor colludes with only one of the workers groups (for example, A_1, the agent who can offer the supervising manager the better level of rent-sharing) by attributing responsibility for the low output quality level to the other group (A_2). But if the working conditions of agents A_1 and A_2 are similar, the latter agent will be able to infer the effort levels of the former by comparing its own results with those of the colluding agent. Because agent A_2 is a part of the members association, it can in turn report the collusion between supervisor and A_1 to principal P. This makes the coalition far less advantageous.

It may, of course, happen that the collusion between supervisor and agents is so extensive that it includes a majority of the workers in the coalition (group A_1 is far larger than group A_2), so that the part of the workers discriminated against has no influence on the appointment of worker representatives to the governing bodies: that it, it has no influence on P. Nonetheless, multi-stakeholder enterprises offer a further opportunity for prevention: even though it may be a minority, the part of the agents discriminated against may inform the users (who have majority representation on the governing bodies: that is, elect P). This will suffice to make it inconvenient for P to enter into incentivizing contracts with S and the colluding group of agents A_1.

The final case in which collusion may emerge is when, in order to justify low performance levels to obtain a rent from a low effort level, a coalition between a manager (the supervisor) and a majority of colluding workers (agents) encompasses a coalition of users willing to collude on the condition that the effects of the low quality are suffered only by the remaining users – those with regard to whom the supervisor claims that s/he is unable to observe the circumstances in which the agents provide services – so that it is treated less favourably than the colluding part of users. A coalition of this kind would typically represent a breach of the co-operative's constitutive pact, because it would discriminate among users as to the level and quality of their access to the infrastructure or service. Nonetheless, were this to happen, it would be natural to assume that this coalition also includes informed users. This kind of collusion is especially insidious, because its purpose is not merely to conquer the majority of the worker representatives on the governing bodies, as in the previous case, but also to capture Principal P in its entirety.

We now have two new players: U_1 (the colluding user group) and U_2 (the non-colluding user group). The best case for the colluding coalition is one where a minority of users (group U_1), the majority of workers (A_1), and the manager (S) contrive the appointment of principal P, being able to subscribe to a collusive pact whereby they tacitly discriminate against the majority of users (group U_2) and off-load responsibility for provision of a poor-quality service on to the minority of workers A_2, who cannot be represented on the board. A co-operative democracy can prevent this situation, however, by designing a method for the principal's appointment that mandates the use of qualified majority rules. For example, a super-majority of both users and workers may be required to appoint the principal (or the individual members of the board). A rule of this type would be incompatible with allowing workers to supply poor-quality services and divide up compensation deriving from economizing on effort. Here, in fact, a majority of users U_1 may

indeed form a coalition with the manager that protects a minority of workers A_1, who exclude an uninformed minority of users U_2 from the high-quality service. However, it could never collude with a qualified majority of workers A_1: their opportunistic behaviour would inevitably affect the quality of the services supplied to the users as a whole. In this case, it would be *self-defeating* for users U_1 to form such a coalition, and the collusive coalition would be unstable. Users U_1 would have an incentive to break up the coalition, thereby preventing capture of the principal. At the same time, a qualified majority of workers A_1 would never be able to make a convincing offer of collusion to the qualified majority of users U_1 of the type required to capture the principal and thereby being in a position of economizing on efforts and sharing the information rent with the users and the manager. In fact, suboptimal effort would certainly affect a part of the users U_1 belonging to the coalition, who would therefore have an incentive to abandon it.

In conclusion, even if one were to accept that opportunism is a feature of the behaviour of all its components, the democracy of a multi-stakeholder user co-operative, with its three types of participants (manager, users, and workers) can be established by deploying decision-making rules so as to prevent the manager from being able to act in a shamelessly self-interested manner by forming coalitions according to the situation with some of the stakeholders who participate in governance of the enterprise.

5. Infrastructures, the social contract of co-operative enterprises, and preferences for conformity

Thus far, we have assumed that the preferences of a co-operative's members are self-interested. Now, however, we consider the results obtained by Ostrom and her co-authors on pre-play communication in experimental games and the consequent willingness to cooperate and display social preferences and capacities in regard to adopting or adhering to self-governing rules. The objection to using these results when studying user co-operatives is that *face-to-face* communication can only relate to small, informal groups, not to the operation of a complex democracy consisting of hundreds of thousands of people (as is the case of some of the user co-operatives being discussed here). Nevertheless, it is today possible to exploit more highly-developed models of behavioural economics that account for the social norms embodied into the founding contracts of an enterprise as the basis for the willingness to cooperate and the pro-social preferences of the enterprise's members. The model of conformist preferences was initially

developed as an explanation of how non-profit organizations members can comply with constitutive agreements over founding principles of the organisation, so that adopted behaviours are effectively aimed at creating benefits for ill-informed beneficiaries in a state of equilibrium, while avoiding collusion between managers and workers, and overcoming the limitations of Hansmann's description (Grimalda and Sacconi 2005). It was then subjected to experimental test by means of the so-called "exclusion game" (Sacconi and Faillo, 2010).

Before describing this game, we recall that a basic assumption is that it must be possible for the enterprise to be based on a founding social contract among its stakeholders, who reach agreement on a justice principle for the distribution of certain benefits among themselves. In our case in particular, the user co-operative is an organization that reflects a specialisation of the main social contract with respect to the institution (part of the fundamental institutional structure) delegated to regulate the supply of a primary good – access to an infrastructure – with regard to which it stipulates that access must be open to all members of a certain community of potential users conventionally established by a contract. It is therefore especially appropriate in this case to consider the effects that a small-scale social contract, in the form of a specialized version of the social contract on principles of justice for the distribution of primary goods, will have on the capacity of agents to assimilate social norms and manifest preferences for conformity with these norms.

In its elementary form, the 'exclusion game' involves three players: a manager, a worker, and a user or beneficiary, who is in a weak position as a result of being especially ill-informed, and who is therefore unable to take part in decisions relative to the allocation of the enterprise's assets among alternative uses, such as improving the quality of the supply of the infrastructure's services, or permitting these assets to be appropriated in the form of rent by the producers (the manager and the worker). In this game, the standard model of rational self-interested behaviour will induce the manager and the worker to collude, and therefore to *exclude* the beneficiary from access to a fair share of the benefits, with inadequate access to the common good. With a certain linguistic licence, we may speak of a 'tragedy of non-profit organizations', as an inevitable degeneration of these organizations into forms of opportunistic behaviour which make the production of common goods for users inefficient.

The behavioural model proposed, however, is based on psychological games (Genakoplos, Pearce and Stacchetti 1989, Rabin 1993) where the preferences and utility functions of the agents depend on their mutual beliefs, and in particular – in our case – on beliefs concerning their compliance with a fairness principle, given their conjectures concerning how their counterpart will act. One may presume that during an *ex ante,* pre-play communication stage a fairness principle is agreed concerning how the amount of benefits should be allocated, through an agreement established by a vote on principles that takes place behind a 'veil of ignorance' regarding the identity and game-role of the participants as players in the game of exclusion (which follows). This is a pre-play stage, preceding the proper stage in which identified payers will actually distribute the surplus, which can be separately modelled as a voting stage on *principles for distribution* played among anonymous players completely ignorant about their successive role in the game.

We predict that this small-scale social contract will naturally reflect general principles of fair distribution typically agreed trough a social contract (notice that nobody produce the surplus, it has simply to be allocated amongst players, and the agreement of all – no matter her/his role in the game - is required). That is, the equal distribution of the amount of benefits among the three stakeholders. Afterward, this agreement is not guaranteed by any enforcement power, and in a traditional sense it would therefore be the equivalent of a *cheap talk* phase (a contract 'written in sand'). Nevertheless, we predict that it has the capacity to command its self-enforcement in the implementation stage owing to the effect of the impartial agreement on the agents' preferences.

The further hypotheses of the model, in fact, are that *if* the parties agree on the justice principle during the *ex-ante* communication pre-play phase, *and if* they expect reciprocal compliance by the parties with the agreed justice principle when they find themselves in the real context of the exclusion game, *then* a positive weight will be assumed in the players' utility function by psychological component of their preferences that adds to the material pay-offs. This component consists of positive pay-offs associated with the adoption of the strategy of complying with the principle. By reciprocal expectations of compliance is meant that one agent expects that the counterparty will choose a strategy that approximates the distribution prescribed by the principle to the extent possible given the first party's choice, and also that the first party will believe that the second party has the same expectations regarding the agent's compliance with the principle.

The psychological component of the utility functions generates psychological payoffs for both active players – the manager and the worker – so that the redefined outcomes of the game will contain *psychological equilibria*: that is, outcomes where the optimal response by one party to the other's decision of not appropriating an unfair share of benefits, and thereby enabling the beneficiary to obtain a fair quantity of services from the enterprise, is to replicate the same non-appropriation behaviour. In other words, there are equilibria based on psychological preferences for compliance with the distributive fair principle such that by selecting one of these equilibria the conduct of the active parties prevents the 'tragedy of non-profit organizations', and allows a user to receive an fair supply of services.

The model has been subjected to verification by a series of laboratory experiments replicating the exclusion game (see Sacconi and Faillo 2010 and Sacconi, Faillo and Ottone 2010). In these experiments, it was observed that:

a) In a situation of *ex ante* pre-play communication behind a veil of ignorance – that is, where the participants are anonymous and their role in the main game has not been identified in any way – the experimental subjects usually reach agreement on egalitarian distributive principles.

b) *Ex post*, when they find themselves actually playing the exclusion game, the active players (whose roles reflect those of the manager and the worker) form expectations of mutual compliance with the agreed principle by default: that is, in the absence of evidence to the contrary.

c) Actual behaviour during the phase of the *ex post* exclusion game, in which players are asked to choose according or against the agreed principle, exhibits a high level of compliance with the principle: the subjects – or the majority of subjects – who have expectations of reciprocity, and have reached agreement on an egalitarian principle during the '*cheap talk*' phase behind a veil of ignorance, also conform to it during the actual game by offering fair benefits to weak beneficiaries.

This conduct is compatible with the explanation that the agents have a disposition to comply with principles that have been selected impartially, which may be interpreted as a preference activated only when two previous conditions have been fulfilled (agreement and expectations). This

disposition, and the attitude that corresponds to it under the appropriate conditions, is equivalent to Rawls' 'sense of justice' (Rawls 1971; see also Sacconi and Faillo 2010). The sense of justice is an attitude of adhesion to fairly-instituted principles (i.e. accepted through a mental experiment of a choice made 'behind a veil of ignorance'), so that when it is publicly known that the institution is justified, and that its observance is reciprocal (in such a way that there is a reciprocal expectation of compliance, and compliance by one party is reciprocated in kind by the compliance of the other), the desire arises to comply with the institution. And this desire outweighs the material incentives not to conform – even though they may be present – which would destabilize it. Thus, besides being economic organizations for the supply of local public services, user co-operatives supplying common goods also become social agencies able to reproduce the 'sense of justice', i.e. the attitude of reciprocation of behaviours compliant with just institutions by similar compliance behaviours – which is ultimately the same as reciprocating cooperation with cooperation in the (non-opportunistic) use of common goods.

This may appear very abstract. In order to gain an intuition, consider when the founding agreement to start up a co-operative is reached. The people of a given local community become members of it through a deliberative process whereby the principles and rules of fair access to the common are discussed, agreed, and endorsed. Moreover consider the periodic re-discussion and renewal of adherence to the founding agreement by means of public discussion of the underlying principles and the *mission*, renewal of the enterprise's articles of association and code of ethics, and participation in training, information sharing and communication involving old and new members. All this has essentially to do with creation of a 'corporate culture' and its communication, which every business expert believes essential for both the creation of a sense of belonging among co-workers and the development of customer loyalty. In this case, actions aimed at the formation of a 'corporate culture' tends to re-create that condition of *pre-play communication* that will enable members to adhere to the constitutive social contract of the co-operative by simulating a decision taken under a veil of ignorance: that is, impartial deliberations on principles and the decision to comply with them.

This highlights another aspect typical of a co-operative's democratic life and how communication may take place within its memberships - when the co-operative democracy is kept alive by bringing actual decision within it process and it is properly designed . Assuming they are arenas for impartial discussion through which the choices made behind the veil of ignorance are

reproduced – which is essential for the generation of a 'sense of justice' – the democratic functioning of users co-operative for the management of common goods are also instances of 'deliberative democracy' (Gutmann and Thompson 2004), even though taking place outside political institutions. In fact, forms of communication and decision-making, such as, for example, the phase in which an incorporation agreement is discussed and then signed by the users, who then become members of the cooperative, and of discussions on the articles of association, the ethical code, and the organization's mission, all satisfy the basic condition for deliberative democracy: that choices are based on impartial arguments and may affect the preferences through which participants enter the deliberative process.

Finally, the result of our experiment and its explanation in light of the model of preference for norms compliance is significant for the purposes of forecasting the efficiency of user cooperatives in the supply of local public services *qua* common goods: a multi-stakeholder cooperative does not discriminate against ill-informed users, and does not restrict their equal access to local public services. The exclusion game as applied to our case guarantees equal access to the infrastructure, and prevents the exclusion of ill-informed participants not only in principle but also in practice. The non-exclusion condition is effectively satisfied because the multi-stakeholder cooperative avoids excluding the weakest users from supply of the good.

6. Conclusions

To conclude, Elinor Ostrom argues that *ex ante* communication encourages the formation of social preferences and learning of social reciprocity norms that permit cooperation in the supply of common goods. However, she does not take account of the fact that the nature of a common as a primary good undergoing a social contract may itself encourage agreement, and therefore the generation of conformity preferences, due to the impartial and impersonal nature of the agreement. Furthermore, face-to-face communication does not allow control over what happens during the communication process, and it introduces a large number of potential variables into the explanation of why pro-social preferences prevail *ex post*. Explanations based on trust and reciprocity rules may be confused with those based on instrumental reputations and the threat of endogenous sanctions for commitment breaching in repeated games.

Conversely, the explanation based on preferences for conformity attributes great significance to a experimentally carefully-controlled agreement process, carried out *ex ante* and under anonymity conditions, in which only the impartial nature of the agreement and the cognitive (beliefs) and motivational (preferences) processes activated by such a process seem relevant to subsequent behaviour, since no personal or affective relationship is established among the parties (these variables were intentionally omitted from the experimental design). Together with beliefs – which seem to be default inferences from the agreement – the agreement process on principles as an impartial procedure is the only reason for the emergence of behaviours that conform with the principles, which can be explained as preferences for conformity, a desire to be fair, or a sense of justice that is conditional on the *ex ante* justification of the principles and expectations of reciprocity regarding *ex post* conduct.

For the purposes of our application of the theory of conformity preferences to the supply of local public services, understood as commons, it is essential that the right of access to these goods be interpretable as reasonable term of agreement in a social contract. Thus it becomes natural to suppose that a user co-operative should be founded on a 'small-scale' social contract that complies with the criterion of impartial choice made behind a veil of ignorance among its stakeholders regarding the principles of equal distribution of benefits. It is vital for the purposes of this application that the co-operative's internal deliberative processes periodically replicate adhesion to the founding principles through regular duplication of the impartial choice over these founding principles. The choice made behind a veil of ignorance is simulated by realizing deliberative democracy processes in the enterprise's operation. Essential to this end is transmission of the founding principles and the idea that it is a specialized version of the social contract with regard to the supply of a particular primary good through the 'corporate culture' channels.

If these are the conditions, there is no reason to expect that opportunistic behaviours and rent appropriation reducing user's access to the common must ensue. But, if opportunism can be prevented, the multi-stakeholder user cooperative is a transaction-cost efficient economic institution for the management of infrastructures seen as commons, and scepticism expressed by economists must give way to substantial acceptance.

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