



UNIVERSITY
OF TRENTO - Italy

Department of Economics

The firm as a common. The case of accumulation and use of common resources in mutual benefit organizations

Ermanno C. Tortia

n.
12/2011

The firm as a common.

The case of accumulation and use of common resources in mutual benefit organizations.*

Ermanno C. Tortia

University of Trento, Department of Economics

ermanno.tortia@unitn.it

Abstract

Common resources are quasi-public resources, which are rivalled but non excludable in consumption or in appropriation. While the exploitation of common resources has been widely studied in the literature originated by Elinor Ostron's works (starting from 1990), the study of common resources inside entrepreneurial organization is not sufficiently developed to date. This paper establishes three dimensions that highlight the relevance of the communality of resources in entrepreneurial organizations: the accumulation and use of common capital resources owned by the organization; the distribution of a rivalled, but non excludable value added among the controlling patrons; and the management of common non-owned resources (for example natural resources) by the organization. The first theme is selected and developed further. Cooperative firms are introduced as an instance of ownership form that appears, historically and institutionally, to be particularly keen to accumulate, use, distribute common resources.

Key words: common resources; rivalry; non-excludability; entrepreneurial organizations; accumulation; cooperative firms.

* This study is part of the research titled "The use of common resources in cooperative firms. A comparative enquire in Scotland and the Trentino Province". The research programme was financed in year 2010 by the Autonomous Province of Trento, whose support I here acknowledge.

I am indebted for precious comments and suggestions to Anthony Jensen, Cacilia Navarra, Carlo Borzaga and to the other participants at the symposium "Advancing the Cooperative Movement in Australia and Italy" held in July 2011 in Trento and organized by European Research Institute on Cooperative and Social Enterprises (EURICSE) at Trento University, jointly with the Cooperative Research Group at Sidney University. I am also very indebted to Ugo Pagano for the discussion of my paper during the session "Institutions and Cooperation" at the annual conference of the Italian Society of Law and Economics at Turin University, December 2011.

1. Introduction

The study of the management of common resources became prominent over the last decades in the economic literature in correspondence with the mounting evidence of the necessity to achieve sustainability in the exploitation of natural resources. Governance mechanisms and conflict resolution procedures came under closer scrutiny as key elements allowing to overcome the well-known tragedy of the commons problem (Hardin, 1968). Most of the literature on common-pool resources came to concentrate on forms of communal ownership that cannot be assimilated neither to public, nor to private ownership (Ostrom, 1990). Communal ownership usually implies the right to exploit the stock of resources without depleting their ability to generate equivalent flows of resources in the future (e.g. exploitation of rain forests for wood production) (Ostrom, 1990, p. 30). Communal ownership implies the non-excludability from consumption or appropriation of rivalled resources by the controlling constituencies. At the same time, non-controlling subjects are excluded from the exploitation of the resource. Common ownership appears as private ownership to people excluded from their utilization, while they are non-excludable, but rivalled for people participating to their utilization.¹ Institutional contrivances are devised to exclude the subjects not pertaining to the relevant constituencies of appropriators while, at the same time, processes of definition of the appropriation rights of the included patrons are observed.

Both theoretical and empirical studies have highlighted the fact that, given the rivalry and non-excludability of common pool resources, conflict over their appropriation is unavoidably endemic. Technologies and governing rules serve the function of regulating appropriation while limiting conflict and punishing defectors (Ratner et al., 2010). This is achieved not only through control and punishment of defectors, but also through coordination mechanisms stressing the importance of stakeholder involvement (Meinzen-Dick et al., 2006; Poteete et al., 2010) for example in the definition of appropriation rights and in patrolling their realization.

The analysis of the exploitation of common-pool resources has been mainly limited, to date, to the study of natural resources. However, it is possible to envisage that the same analysis is applied to other economic domains, for example to the organization of production in entrepreneurial organization. The paucity of analysis in this field may be due to the concentrated (private or public) nature of ownership in most business organization, a feature that, as we shall see, limits the economic relevance of resources communality. This study endeavors to single out three relevant dimensions for the study of common pool resources in entrepreneurial organizations:

- *the accumulation and use of common capital resources*: all business organization need to accumulate owned capital resources in order to self-finance investments and to build collateral guarantees offered to external financiers. The use of these resources can be characterized by communality when decisions about investments are taken in collectively by the controlling patrons. When investments are at least partially sunk (the exit option is costly) and the controlling members can have heterogeneous and/or conflicting objectives, the rivalled and non-excludable nature of common capital resources becomes relevant;

¹ Wikipedia defines common-pool resources as it follows: “In common property regimes, access to the resource is not free, and common-pool resources are not public goods. While there is relatively free but monitored access to the resource system for community members, there are mechanisms in place which allow the community to exclude outsiders from using its resource. Thus, in a common property regime, a common-pool resource appears as a private good to an outsider and as a common good to an insider of the community. The resource units withdrawn from the system are typically owned individually by the appropriators. A common property good is rivalled in consumption”.

- *the distribution of a rivaled, but non excludable value added:* the remuneration of the factors of production is always rivaled given the production of a limited value added. This implies that a higher remuneration of some specific subjects or of one specific group of patrons necessarily implies a lower remuneration of other patrons. At the same time, distribution is often characterized by a relevant degree of non-excludability. This happens, for example, when the remuneration of labor services or the setting of prices is informed by equity criteria;
- *the management of common natural, historical and cultural resources:* in some specific instances business organizations can find themselves to manage for commercial purposes resources that have public relevance (e.g. natural resources or the cultural and historical patrimony). In this case non-excludability is given by the public relevance of the resources that dictates that the resources is not depleted or otherwise spoiled.

The most widespread ownership forms in contemporary economies are the public and the private for-profit ones. To this, the cooperative, or mutual benefit form of ownership is to be added, since it represent a third typology whose diffusion is limited, but not marginal.²

1.1. The utilization of common-pool resources in private for-profit and publicly owned firms

In private for profit firms capital resources can show a high degree of communality when the firm is owned as a joint stock company. In this case the capital of the firm is managed in common by stockholders, and its use is rivaled, but non-excludable. The sunk nature of specific investments makes communality an enduring feature in the life of the entrepreneurial venture. Commonality of capital resources in for profit firms is not to be considered, however, a generalized phenomenon, but rather it involves only a subset of this firm category since a high percentage of for profit firms show concentrated and exclusive ownership. In this case commonality of capital ownership³ can be considered absent since all the relevant decisions concerning the accumulation and use of capital resources are taken by one or by a limited set of subjects. When only decision maker is present, rivalry in the utilization of resources is absent, while all the other stakeholders of the organization are understood as contractual parties who are excluded from decision concerning the utilization of the resources. Furthermore, even in the presence of pronounced phenomena of rivalry and non-excludability, stockholders in for-profit firms can transfer the ownership of shares at any time. That is, the exit option can compensate and counterbalance the growth of governance costs connected with common ownership. As it will better emerge in the following sections, a new institutionalist interpretation of this phenomenon dictates that concentrated ownership is understood as an effective way to eschew the costs of governance connected with the rivaled and non-excludable nature of common ownership. Communality in the distribution of value added in private for-profit firms is limited, but important as well. On the one hand, non-

² A fourth typology of ownership, the social or public benefit one, may be added when dealing with not-for-profit entrepreneurial organizations which have an entrepreneurial character (Weisbrod, 1988; Hanmann, 1996). This fourth case will be taken into consideration as well, but in a more tangential way since is it thought to represent a newer and less well defined form of ownership.

³ The most widespread definitions of ownership of an assets concern residual rights of control and appropriation of the net residual, implying also that the asset is at the owner disposition for sale, conversion or elimination (Hansmann, 1988). In this study, when dealing with common ownership, reference is made to residual control rights and to the appropriation of the proceedings coming from the owned assets, in a way similar to usufruct rights. As it is better explained in the following section, common ownership excludes in most cases the freedom to sell, eliminate or convert the asset.

excludability can be connected with bargaining between different stakeholders (most often investors, customers, and employees) over the distribution of the value added. On the other hand, some stakeholders can be remunerated on the basis of “equity” criteria, more than on the basis of purely “efficiency” criteria. The example of worker remuneration can be put forward again, since equity criteria can determine a relevant degree of distributive non-excludability in wage determination (Frank, 1984; Stark, 1990; Levine, 1991; Clark and Oswald, 1996).⁴ To be sure, the relevance of communality in distributive processes in for-profit firms is reduced by the lack of involvement in decision making of all the stakeholders other than investors (most often of employed workers and customers). The reason is that impoverished or absent involvement heightens the degree of distributive excludability. Finally, the role of for-profit firms in managing natural and cultural resources can be considered limited, since their utilization is often unprofitable for commercial purposes (Weisbrod, 1988).

The role of publicly owned enterprises in the accumulation, distribution and use of common capital resources is to be considered limited as well. Public ownership of production activities excludes, as a rule, the existence of net residuals or their appropriation by the controlling stakeholders. Distributive processes are, in terms of communality of resources, similar to the case of for-profit firms since most stakeholder, apart from the public controlling authority, are only weakly involved in these processes (one example of such involvement concerns the existence of public sector labor unions). Finally, public management of common natural and cultural resources is often not understood as an entrepreneurial venture, but as a simpler administrative service. Hence it falls outside the boundaries of this study.

1.2. Common pool resources in cooperative, mutual benefit enterprises

The organizational forms that have shown the greatest compatibility with the interpretation of the firm as a nexus of a common-pool resource are mutual benefit organizations, mainly cooperative firms. In mutual benefit organizations, both historically and in institutional terms, the communality of resources appears central in all three areas of concern of this study:⁵

- *The accumulation and use of common capital resources:* Most existing cooperative forms accumulate all or a relevant part of their surpluses in indivisible reserves of capital (asset lock or trust funds). This is primarily done in order to self-finance investments, to build collateral guarantee, and to insure members against future negative contingencies (Navarra, 2010). Democratic governance underpins both a high degree of rivalry and non-excludability in the use of capital assets accumulated by means of indivisible reserves: different members of groups of members may prefer

⁴ Among the most classical studies on equity in wage determination, Frank (1984) argued that egalitarian internal wage structures arise because of “equity” considerations, a concept that he equates with that of status; Stark (1990) took account of relative status deprivation in order to explain why workers are usually not paid their marginal product; Levine (1991) argued that group cohesiveness and lower wage dispersion increase efficiency in participatory firms, thereby explaining involuntary unemployment among blue collars, who are paid above-market wages in order to boost their compliance with the firm’s objectives. In some studies, worker satisfaction as a proxy for individual well-being has been connected with distributive fairness taking the form of comparison wage rates (Clark and Oswald, 1996).

⁵ Institutional solutions similar to the ones characterizing cooperative firms are found also in other not-for-profit organizational forms, such as nonprofit organizations and, more recently, social enterprises. However, these organizational forms are intended to pursue public benefit purposes more than mutual benefit ones. Because of this reason, their surpluses and assets may be excluded in the public interest from the appropriation of the controlling stakeholders.

alternative and incompatible investment programs while, at one and the same time, the existence of membership rights dictates that all demands coming from the memberships are taken into account in formulating investment programs.

- *The distribution of a rivaled, but non excludable value added:* Cooperatives are democratically managed on the basis of the “one member, one vote” rule, which implies that also distribution of the produced value added needs to take membership rights into account. This happens, normally, on the basis of rules self-defined by the membership. Non-investor stakeholders directly participate in the definition of distributive patterns. Hence, non-excludability is brought to bear on distribution. The distribution of rivaled resources needs to account for both “equity” and “efficiency” criteria.⁶ For example, all workers in worker cooperatives can be guaranteed a minimum wage beyond other distributive rules such as individual productivity, seniority and role. Since distribution on the basis of need satisfaction or equity can be in contrast, at least in some cases, with efficiency criteria such as merit, rules conjugating equity and efficiency are required to govern distributive tensions.⁷
- *The management of common natural and cultural resources:* The embedded nature of cooperative firms, which has been evidenced by various authors (for example Borzaga and Tortia, 2010), is tantamount to a criteria of closeness to the satisfaction of community needs and to participation in endogenously defined development processes (Borzaga and Tortia, 2009). The embeddedness of cooperative members is likely to entail relevant consequences for the management and exploitation of local resources, among which natural, historical and cultural resources, which show a high degree of non-excludability at the community level. For example, cooperatives are often involved in public programs aiming at guaranteeing environmental sustainability, or in partnerships with the public sector aimed at satisfying the basic needs of their membership (e.g. housing plans for worker and producer members).

This paper is set to analyze in depth the first case of communality, the one concerning accumulation of capital in indivisible reserves. One reason for this choice is the difficulty to deal exhaustively with all three cases of communality in the same paper. A second reason is the existence of a well developed theoretical and empirical literature analyzing the positive and negative imports of common resources in terms of indivisible reserves of capital in cooperative firms. As it is well-known, this literature was born in 1970 with the parallel works by Vanek, and by Furubotn and Pejovich who, in their analyses, mainly referred to the institutional system of the former Yugoslav Republic. This existing stream in the economic literature can be fruitfully reinterpreted in light of more recent approaches dealing with the govern of common-pool resources. The analysis of the second and third case of communality is left to future work.

The remaining of the paper is organized as it follows: Section 2 singles out the nature and economic relevance of common capital resources in cooperative firms. Section 3 deal with the determinants of the emergence and dimension of common-pool resources in the form of

⁶ Rivalry in the distribution of resources is also evident, since the utilization of resources to one part of the membership excludes distribution to other constituencies. Also in private and publicly owned organization distributive patterns concern rivaled resources. However, in these cases, non-controlling stakeholders are remunerated, as a norm, on the basis of contractual relations. This implies that they are excluded from the appropriation of net surpluses, and do not participate in the definition of distributive patterns. In this sense, distributive non-excludability is violated.

⁷ For contributions concerning distributive patterns in common pool resources as natural resources the reader can consult, for example, Adhikari (2005).

indivisible reserves held in locked assets or trusts. Section 4 deals with the governance of the process of accumulation and use of indivisible reserves. Section 5 draws some international comparisons in terms of different legal systems impacting on the processes of accumulation of indivisible reserves and on the performance of the cooperative system as a whole. Section 6 concludes with some policy implications.

2. The communality of capital resources in cooperatives

The communality of resources in terms of capital accumulation is present and relevant in most typologies of cooperatives, but its nature appears to be quite different in supply side cooperatives (mainly worker and producer cooperatives) *vis à vis* demand side cooperatives (consumer, credit, user, insurance cooperatives). Supply side cooperatives solve the problem of the accumulation, utilization, and distribution of scarce resources for the benefit of producers. Non-excludability concerns the restricted number of individuals or firms admitted in the membership, while all other subjected may be excluded on the basis of scarcity of available resources. This kind of organization often shows little propensity to enlarge the membership given the market share for its product. This implies that exclusion can be applied quite rigidly to non-members and membership rights guarantee a substantial role for non-excludability among members. Demand side cooperatives may instead show a pronounced tendency to include as many members as possible (this is evident in the case of consumer cooperatives), since inclusion corresponds to the enlargement of the market share of the firm. Both the problems of inclusion and non-excludability appear looser, since the stronger tendency to include as many members as possible corresponds to weaker involvement, attenuated control rights, and weaker problems connected with non-excludability. In the case of consumer cooperatives, for example, the value added of the organization is to a great extent directed to remunerate standard factors of production (non-owned capital and employed workers), while net residuals are quite unambiguously directed to enhance consumer value and protection. The amount of subtractible resources, which often take the form of patronage refunds or rebates to members, is reduced to limited imports. The following arguments will therefore mainly refer to supply side cooperatives since, in their case, the problems linked with the communality of resources appear more pressing and relevant.

We shall see in the remainder of this section how different problems connected with the self-finance of cooperative ventures can advice the accumulation of assets either as individual ownership of members, or as common ownership of the cooperative itself. A problem of optimal level of assets held in common will be singled out by comparing the costs of governance and the possible loss of efficiency connected with common ownership to the costs connected with the individual ownership of the firm assets.

2.1. The problem of capital variability and demutualization

Cooperatives can self-finance themselves by resorting to two basic typologies of financial instruments: either shares of capital individually held by members, or common ownership of capital assets. Individualized financial assets range from equity shares, to non equity shares that are saleable or reimbursable at face value upon quittance of the members, to sheer loans held by the members of the cooperative. When instead cooperatives self finance themselves through asset held in common, they usually accumulate indivisible reserves or trust funds by reinvesting the whole or part of their net surpluses into locked asset. Indivisible reserves are crucial in most, but not in all institutional systems.

Their first function is to contrast the variability of capital (Tortia, 2006). Since membership rights in cooperatives have a personal character, the ownership of capital quotas is exclusively attached to the person of the member. This implies that capital quotas held by individual members are sold, reimbursed, or transformed into debt capital when the member quits the organization, i.e. individual capital quotas are not any more part of the firm owned resources. The intensity of capital variability is proportional to the share of the total capital held individually by members and to the intensity of members' turnover. Capital variability can represent a serious obstacle to investment programs and to the ability of the organization to obtain credit from the banking system. Indivisible reserves or trust funds stabilize the amount of capital since they are owned by the organization itself and not by individual members. By contrasting the variability of capital, common ownership of capital resources contribute to investment programs financed by owned resources, to build collateral guarantees for accessing bank credit, and to shield members against future risks.

A second function of common ownership in cooperatives is to contrast the risk of demutualization, i.e. the transformation of cooperatives into investor owned firms. The sale of capital shares individually held by members to external investors can often lead to demutualization when appropriate constraints are not put in place, or when the organization does not holds part of its own assets as non-saleable entities. Cooperatives have been proven to be subject to waves of conversions into investor owned enterprises. Demutualization has appeared more pronouncedly in some historical periods, for example in the UK during the 1980s, and in certain countries, typically under common law more than under civil law. Demutualization is an ordinary phenomenon in most common law countries and represent a normal option at the disposition of the membership as it is backed by a legal system that does not create important obstacles to this process. In civil law countries, instead, demutualization is usually considered an exception to the rule, and tends to be implemented only in specific cases. In the Italian law on cooperatives, for example, demutualization is strongly discouraged since it amounts to the renouncement by the membership to the whole value of the assets held in common. In common law countries such as England and Australia, instead, cooperative assets are held as members' individual ownership, which is appropriated upon conversion of the cooperative into investor owned company.

Quite clearly, legislation plays a crucial role in favoring or halting demutualization. In countries such as Italy and Spain, all cooperatives are obliged by law to reinvest a substantial part of their net residuals into indivisible reserves, whose value may not be recouped by members not even when the firm is shut and stops operations (Jensen, 2011). In these cases the role of indivisible reserves becomes manifest: the impossibility to, or the constraints imposed on private appropriation creates a barrier to demutualization and favors instead a more stable pattern whereby the firm assets are preserved in the long term and preference is given to the continuation of activity over its sale, conversion, or closure. While civil law countries impose more constraints than common law ones, it must be noted that a substantial number of cooperatives, credit unions, building society, and employee owned companies in common law countries have been moving overtime in a spontaneous way towards the imposition of various constraints on demutualization. Many organizations have introduced forms of indivisibility for a substantial share of their owned resources, in the form of asset lock or trust funds (Erdal, 2011). Constraints, when not incompatible with the law, have often been imposed in company statutes. One of the main reasons for this choice is that the demutualization option creates incentives to discontinue operations and sale the assets of the firm. Incentives favoring demutualization can underpin misguided choices, for example under the pressure of company crises, or to the exclusive advantage of a restricted group of decision makers, such as managers. A second reason backing the imposition of constraints on private

appropriation of company assets is that demutualization may favor in an unwarranted way the incumbent membership, since it allows incumbent members to appropriate the present and future value of the organization assets, even when they did not contribute to the creation of that value. To be sure, the risk of demutualization represents an ex-ante disincentive to the creation of cooperatives since cooperating members may not be willing to face the risk of ex-post choices directed to private appropriation of the firm assets. A third reason is that the pressure towards demutualization is strongest just in the best performing cooperatives, since the shareable market value of the organization is higher in their case.

The prevention of demutualization by means of accumulation of common resources has proven to be an effective way to eschew the risk of conversion of cooperatives into investor owned companies. However, at the same time, it has been accused of dampening incentives to invest owned resources in an efficient way and to engender undercapitalization (Furubotn and Pejovich, 1970) and self-selection into low value added activities (Podivinsky and Stewart, 2006). This is the origin of the quest for the definition of an optimal amount of common capital resources in cooperatives. This optimal amount should be able to support the stability of the cooperative venture without dampening incentives that favor higher productivity, performance and investments in high value added sectors.

2.2. The optimal amount of common capital resources

Furuton and Pejovich (1970), and Vanek (1970) evidenced the potential distortions engendered by the imposition of common property regimes. These results were referred to labor managed firms in the former Yugoslav Republic, in which the whole capital stock existing in the economy was “socialized”. In this kind of system, given the impossibility to recoup the value of the invested capital upon quitting the organization, members in cooperatives would be led to invest suboptimal amounts of capital. The dynamically inefficient allocation of investment funds leads to the well-known accusations of underinvestment and undercapitalization, which explains the inability of cooperatives to spread in competitive market systems. To these accusations, various answers have been attempted, for example evidencing that various counterexamples do exist in market economies. Producer cooperatives are often able to achieve adequate degrees of capital accumulation and seem able to escape the accusations dynamic inefficiency (Hansmann, 1996). Among worker cooperatives. The often cited Mondragon group of worker cooperatives in the Basque Regions, does accumulated indivisible reserves of capital, but has never showed tendency to undercapitalization in its now almost 70 years history (White and White, 1991; Morrison, 1997). Starting from scratch at the beginning of the 1950s, the Mondragon group is now composed by about 250 grass-root cooperatives and has been able to invest in several countries and in different continents, employing at the present date about 100 thousand workers. Other, though less impressive examples exist. A notable number of worker cooperatives in central Italy, whose self-finance is almost completely made of accumulation of indivisible reserves, became leader in competitive markets in sectors characterized by high capital intensity, for example in ceramic tile production. Correspondingly, the phenomenon of employee owned companies has been spreading in the United Kingdom showing that companies owned by their employees, when able to perform on competitive markets, do not find relevant difficulties in being supported by financial markets and in investing owned resources in an efficient way.⁸ Similar evidence came from the spread of plywood

⁸ As said, some employee owned companies in the UK do accumulate common capital assets, usually in the form of trust funds, while other do not (Erdal, 2011).

cooperatives in the US Pacific North West since, in the second half of last century, these cooperatives reached about one quarter of the total US production in this sector by outperforming similar investor owned companies (Craig and Pencavel, 1992, 1993, 1994).

2.3. *Towards an integrative perspective*

The most stable and successful cooperatives and employee owned companies are often characterized by a mixed capital structure whereby part of the capital is held in common, but substantial amounts are also owned individually by members. This evidence foreshadows the possibility that the capital of the cooperative may optimally be composed by different parts serving starkly different purposes: the stabilization of the firm capital and the building of collateral guarantees in the case of indivisible resources; members' financial involvement and firm performance in the case of individual quotas. The emergence of a capital structure that is composed by different elements appears coherent with the nature cooperative firms since capital is not the controlling factor of production (Jossa and Cuomo, 1997), while its accumulation is instrumental to the pursuit of mutual benefit objectives (Borzaga and Tortia, 2010).

Given the different categories of self-finance, in terms of both common and individualized ownership, it is necessary to ask what kind of costs are attached to different financial sources. As introduced in previous paragraphs, individualized self-finance can engender relevant costs connected with members' turn-over, different time horizons in investment plans, and different members' objectives. When disagreement about investment plans is pronounced, members may become less loyal to the organization. Increased turnover can weaken the financial structure of the firm due to increased capital variability. Costs in this case are mainly connected with the contractual position of members and with their turnover. The existence of contractual costs connected with the individual position of members can be at least partially addressed by resorting to indivisible, common sources of capital since, as said, in this case the costs linked to turnover are excluded or limited. Turnover costs can still be present in an implicit form since, even in the presence of common capital resources, members' with shorter time horizons may privilege insufficient investment plans.⁹ On the other hand, however, when members' median temporal horizon is sufficiently long, the heterogeneity of members preferences about investment plans is not likely to do harm to the firm ability to invest in an efficient way. Quite clearly, common capital resources engender lower contractual costs than individualized sources of capital. This may be one of the main reasons why, where the accumulation of common capital resources is sufficiently regulated by law, cooperatives show a pronounced tendency to prefer common over individualized sources of capital. This is not to say, however, that common capital resources do not engender *any* kind of cost. Indeed, the costs connected with the accumulation and use of common resources can be substantial when proper regulation is not developed (Borzaga and Tortia, 2005). Even in the presence of collective governance of the accumulation and use of common capital resources conflict resolution and other decision making costs can be high. Hence, the contractual costs connected with the individual position of members are to be balanced with the costs of governing the accumulation and use of common capital resources.¹⁰ Individualized sources of self-

⁹ Also members disagreeing with the firm investment plans may privilege suboptimal investment levels. This source of sub-optimality can in most cases be assimilated to the presence of a limited time horizon since disagreeing members will more often look for available outside options.

¹⁰ As it is well-known, Hansmann (1996) identifies in the costs of collective decision making the most relevant weakness of cooperative firms, and above all of worker cooperatives. I have shown in this section that also the

finance can still be appealing in many cases, both because the govern of common resources may be too difficult of costly, and because financial involvement can foster productivity and favor more efficient investment choices. The equilibrium between common and individualized sources of finance can ensue from the balance between the costs of governance summed to the loss of efficiency that are connected with common ownership, and the contractual costs summed to the efficiency gains that are connected with individual ownership of capital shares. As it has been explained in the foregoing paragraphs, this equilibrium is crucially influenced by the legal frame and by the quality of internal regulation in terms of governance and working rules.

The foregoing arguments show that the optimal choice of common *vis à vis* individualized self-finance is necessarily subject to substantial variability, depending on legal and internal regulation, and on the necessity to set different appropriate mixes of economic incentives. A new interpretation of the problem of self-finance in cooperatives in which governance costs (connected with common resources) are balanced against contractual and decision making costs (connected with individualized resources) can help to single out effective solutions. This new perspective, which rests clearly within a new-institutionalist framework, is to be added, and it is not necessarily in contrast with the more traditional and orthodox perspective, which instead analyzes self-financed investment choices exclusively in terms of allocative efficiency based on standard criteria of optimality. Furthermore, the modalities and the process of establishment and continuation of these different financial components are still widely left to the initiative of individual cooperatives or group of cooperatives, while the search for regularities and policy prescription may contribute to create more reliable patterns of cooperative development. To these questions I will try to give tentative answers in the following pages, which also include a more in depth description of institutional variety in different countries and regions.

3. The emergence of common resources in cooperative firms. In search for regularities

Given the general framework described in the preceding section, it is now possible to analyze more closely the variables impacting on the accumulation of common resources. The observed heterogeneity is related in this case to the structural features of the organization and/or sector at hand. The ability to single out the causal connections between these structural features and the observed accumulation of indivisible reserves can add insights in the understanding of their pattern of development.

One initial source of the necessity to introduce indivisible reserves can be found in the heterogeneity of the membership. When members' characteristics and preferences are similar contractual costs connected to the individual position of members are lower and it is easier to coordinate investment choices based on individual financial stakes. The existence of similar investment preferences and of similar temporal horizons can reduce problems linked to members' turn-over and to the variability of capital. It can also reduce the costs connected with conflicting preferences and choices. When these stringent conditions are met, individualized investments heighten financial inclusion and can be able to foster productivity in a fashion similar to profit sharing (Kruse, 1992). In the most extreme cases, it can be possible to implement the so-called "market for membership rights", in which quitting members are allowed to sell to new-comer members their control rights as members of the

individual contractual position of members can engender substantial costs for the cooperative. Hence the need to balance collective and individual costs.

cooperative (Dow, 1993, 1996, 2003). This kind of solution is rarely observed, but there are well-known examples of groups of cooperatives that have implemented the market for membership rights. The best known example is represented by the plywood cooperatives in the US Pacific North West. The extreme homogeneity in the labor force (plywood coops were composed exclusively by lumberjack wood workers who were assigned the same job tasks on a job rotation basis) and the strong financial involvement (members had a strong interest in increasing labor productivity since this equated to increased market value of their membership rights) are reported to have contributed to creation of very competitive companies, able to outperform investor owned firms with similar characteristics (Craig and Pencavel, 1992, 1993, 1994; Pencavel, 2001). These very appealing features notwithstanding, the market for memberships rights is reported to undergo also severe limitations. It requires strong homogeneity in members' features in order to attach meaningful prices to the bundle of individual rights. Consequently, when cooperatives grow in size and differentiate production and membership features, such kind of market is rarely observed. Furthermore, the market for membership rights is easily subject to the problem of demutualization since in many instances it can be convenient for members to sell their ownership rights to external investors and not to new incoming members.¹¹ The introduction of indivisible reserves or the reinvestment of positive residuals into trust funds represent solutions that can deal with members' heterogeneity. In this case the introduction of common ownership appears as an emerging collective institution implying that the institutional features of the organization cannot be reduced any more to a collection of individual membership positions, but acquire instead a social dimension of their own.¹²

Membership heterogeneity and capital variability are likely to result in stringent consequences for the firm financial viability, and this can be studied by considering at least two additional dimensions: firm dimension and conflict resolution. The growth of members' heterogeneity goes hand in hand with dimensional growth. The two aspects clearly overlap in influencing the need to implement collective solutions for the firm financial needs, even if they are not equivalent and significant differences can be observed in different organizations and in different sectors of activity. The increase in members' heterogeneity and in firm dimension is likely to be connected with heightened costs of conflicts. The emerging risk of conflict and the connected costs have been widely documented by the literature on common resources pools, starting from the Ostrom case studies in 1990. The introduction of common ownership internalizes the costs of conflict by transforming them from costs connected to individual contractual positions to the costs of governing complex organizational process.

¹¹ Though this is not the main topic of this work, it must be noted that the existing literature discussed in detail the main limitations of the market for membership rights (for example Ellerman, 1997; Tortia, 2006). Among these: (1) when quitting members are allowed to sell their membership rights, the matching between incoming members and the preference expressed by incumbent members can be problematic since the purchase is based on the ability to pay of the incoming member more than on his/her suitability as member of the cooperative; (2) connectedly, incoming members can be financially constrained and not able to gather the resources necessary to buy the membership position; (3) when the market shows pronounced imperfections connected to the process of quitting the organization and reselling membership rights, risks of ex-post hold up and morally hazardous behaviors against incoming members who invested significant parts of their personal wealth in the membership position can become relevant. This again can result in reduced willingness to pay by newcomers. This way the market reaches suboptimal equilibrium whereby reduced willingness or ability to pay is matched by a preference given to the sale of the company to external investors. In a more succinct way "new workers often do not have the resources or credit to buy a membership share, ... they are hired as non-member employees" Ellerman, 1997, p. 68). Indeed, almost all plywood cooperatives were sold out to capitalist corporations upon retirement of the founding members.

¹² For a non-reductionist understanding of the emergence of collective institutions the reader can consult the rich evolutionary literature in this field, for example Hodgson (1993, 2006).

Dimensional growth can shift the balance of attaining the most efficient governance solution from individual contractual positions to collective governance.

A third important dimension under which the accumulation and use of common resources is to be observed concerns the ability of the firm to generate high value added and the modalities in which economic value is reinvested to self-finance investment programs. The arguments put forward in the previous pages evidenced that indivisible reserves are functional to the solution of various collective choice problems and social dilemmas, such as the stabilization of the firm capital and the governance of the growing heterogeneity in members' features. Once common resources have achieved these results, their increase may even be detrimental at the margin to the performance of the organization, as evidenced in the undercapitalization literature. This problem is especially evident in worker cooperatives operating high value added and profitable activities. The reason is that, for such activities, the reinvestment of the whole amount of net residuals into indivisible reserves would amount to the renouncement by the membership to the whole extra-gains generated by firms specific investments and other competitive advantages. Failure to find adequate solutions to the need of attributing extra-gains to members who have carried out the relevant investment plans in the past represents a relevant economic incentive against the creation of cooperative ventures in such sectors of activity (Major, 1996). The lack of creation of cooperatives in high value added sectors is clearly detrimental to the development and spread of this organizational form. The empirical evidence seems to speak in favor of this interpretation. In countries in which cooperatives reinvest all or the greatest part of their positive residuals in indivisible reserves, cooperatives are reported to self-select themselves into in high labor intensive, low value added sectors. On the contrary, when mechanisms for the individualized appropriation of substantial parts of the net residuals are introduced, as it happens in the Mondragon case, also worker cooperatives have proved to be able to generate high value added and residuals. This evidence confirms that common resources in cooperatives fulfill an insurance and stability function, more than a performance function. These arguments support the creation of mechanisms that allow members to appropriate extra-gains deriving from firm specific investments. They also advise the creation of mechanisms that establish a positive correlation between the share of the net residual distributed or reinvested individually, and the percentage of extra-gains (quasi rents) out of the total net surplus. Among the easiest mechanisms supporting this kind of outcome, net residuals can be attributed to members either in cash, in the form of end-of the year rebates or patronage refunds, or though reinvestment of such patronage refunds into individualized capital quotas, as it happens in the Mondragon cooperatives.¹³

The fourth element that can contribute crucially to the spread of common resources in cooperatives is the social relevance of the firm activity. When cooperative firms carry out activities with a community or social relevance, then often take up structural and operational features that are more and more similar to non-profit organizations, such as charities, foundations, and associations. This implies, as a norm, that larger shares or the whole net residual is reinvested into indivisible reserves, whose function is connected with the pursuit of the social mission more than with the enforcement of mutual benefit ends. While most cooperatives have a purely mutual-benefit nature, and most nonprofit organizations are exclusively guided by their social mission, intermediate forms do exist, and some examples can be put forward. Social cooperatives have been introduced first in Italian legislation in 1991 and later on in many other countries (about fifteen are counted to date) (Borzaga and

¹³ Other solutions can be envisaged and have been implemented in different groups of cooperatives in different countries and regions. I will not introduce here a precise taxonomy of these institutional solutions.

Becchetti, 2010). Social enterprises have been introduced first in the UK in 2005 and then in Italy in 2006, while various other similar reform projects are going to be completed in other countries inside and outside Europe. In the Italian and UK legislation, social enterprise can, but do not need to, take up the legal form of cooperatives. These and other organizational forms (also community development cooperatives could be cited) represent instances that strive to reconcile a mutual benefit governance with the public benefit relevance of their activity. While inclusion is guaranteed by stakeholder participation, like in traditional cooperatives, the pursuit of the social mission is usually enforced by the explicit statement of a public benefit aim, and by reinvestment of the greatest part of residuals into indivisible reserves that are exclusively directed to the achievement of that aim.

4. The governance of common-pool resources in cooperative firms

The previous section have highlighted the features and the main reasons for the emergence of common capital resources in cooperatives. This section is going to focus on the governance of such resources. The very existence of common resources call for appropriate governance mechanisms to eschew the risks linked with conflicting individual objectives. The literature on common-pool resources evidenced that governing common resources is a process strictly connected with control mechanisms and conflict resolution. The main conditions allowing their effective exploitation in the presence of scarcity and rivalry, i.e. in a tragedy of the commons situation have been spelled out as they relate to three main elements: the possibility for appropriators to participate in the gathering activity and reap its fruit; the prevention and settlement of conflicts; the control of the behavior of the appropriators and the punishment of those appropriators not abiding with collective decisions. The governance of common resources in cooperatives is characterized by similar problems. Taking the accumulation of indivisible reserves as an instance of common-pool resources in cooperatives, members need to be allowed to participate in decisions concerning the pace of accumulation and the strategic decisions on investment programs. Participatory governance represents an enabling feature of the governance structure as it corresponds to the “one member, one vote” rule. It is functional to the expression of needs, objectives and preferences to be taken into account (Sacchetti and Tortia, 2010). This correspondence between the governance of cooperatives and of common-pool resources reveals the affinity between two phenomena that have not been compared enough to date. Beyond similarities, however, it must be added that the strictly entrepreneurial nature of cooperative firm can add new dimensions to the working of participatory governance. Strategic planning of investments aimed at achieving innovative outputs and the frequent introduction of new technologies are examples showing the added complexity when new steps are taken from the simple exploitation of existing resources to integrated production processes.

The participative features of governance are underpinned by control and conflict resolution mechanisms. The endemic emergence of conflict over the accumulation and use of capital resources require that mechanisms supervising and settling such conflicts need to be put in place. The most relevant dimension involving mechanisms of control and punishment concern the way in which common resources are employed, since different investment plans and typologies (e.g. productive *vis à vis* financial investments) can benefit some constituencies more than others (e.g. managers *vis à vis* workers). Control policies need to serve the satisfaction of the needs expressed by the relevant constituencies of the cooperatives, that is the membership base. Control over the utilization of acquired physical assets needs to be put in place as well in terms of detection of misuse or excessive exploitation of physical assets. The above mentioned three dimensions of governance always exist and are independent of the

size and complexity of the organization also in terms of heterogeneity in members' features. Peer pressure, even when it is purely informal, can be considered the basic horizontal mechanisms that, in cooperatives, creates scope for control and punishment of defectors. At the substantive level, peer pressure is coherent with reciprocating behavior, which is reported by some author (Zamagni, 2005) to lie at the heart of the very notion of cooperative productive effort. One of the main functions of peer pressure is the enforcement of basic learning processes and the accumulation of firm-specific competencies. When defection in terms of free-riding or other morally hazardous behaviors is observed, the use of graduated punishment on the basis of the seriousness of offences against cooperative effort becomes apparent. Graduated punishment is indeed central in both the empirical literature of common pool resources (Ostrom, 1990) and in the now established experimental literature on public good games (Fehr and Gächter, 2000). The increase in the harm produced is usually matched by an equal or more than proportional increase in the punishment of the defector. More formalized and better enforced procedures are expected in larger and more complex organizations, but the basic mechanisms based on participation and reciprocity represent the backbone of cooperative effort at any dimensional and complexity level.

5. An international comparison of cooperative firm typologies

A useful initial empirical approach to the analysis of the patterns of emergence and diffusion of common resources in cooperatives is the comparative one at the country-legal level. The study of different legal systems can serve the production of novel scientific inquiry. The study of the operation of different legal systems is similar to the implementation of “quasi-natural” experiments since different rules result in different behaviors and outcomes, whose study and comparison can lead to evidence the relevant patterns of development. In the case of cooperative firms important differences are observed across countries. This is true both in Europe and North-America, the two main context that I am going to consider. The comparative effort, which considers many countries, can be implemented by grouping different legal systems within a limited number of institutional traditions represented in macro-regions. The simplification induced by the creation of a limited number of groups favors the tractability of the comparative analysis. At the same time, while kept in the background, within group differences can still be relevant for the explanation of specific phenomena.

The need for simplification leads to consider only three macro-regional systems. The first one includes mainly countries rules by common law, mostly Anglo-Saxon countries such as the US, the UK and Australia. In these countries the presence of indivisible reserves is not required by law and, coherently, it is often absent. The structure of owned resources is usually made of contributions by individual members, who own saleable shares of the firm assets. The mechanisms regulating the accumulation and exchange of individual shares is mostly left open to regulation by individual cooperatives. Self-regulation can put various constraints on exchange of individual shares, both among members and with external investors. In the latter case restrictions are especially needed, since the sale of shares to external investors can result in demutualization. Beyond markets for membership shares, also markets for membership rights are not forbidden by law and are at times implemented. However, because of the imperfections highlighted in Section 3, this type of solution is rarely observed also in common law countries, for example in the UK. While these systems have stressed private ownership as the main proprietary vehicle for the development of cooperatives, various instances of common ownership have tended to emerge spontaneously in individual cooperatives. One of the main reasons for the emergence of common ownership instances in common law countries

is that this kind of regime, as said, is not impermeable to demutualization. While law posed weak constraints on demutualization, many individual cooperatives and employee owned companies have introduced statutory regulation that limits this possibility. This is usually effected by limiting the sale of shares both among members and to external investors, and by introducing a substantial role for assets held in common, which cannot be appropriated by members upon quitting the firm, or upon closure. This way the choice of demutualization becomes highly impractical since the membership has a strong interest to retain control over the trusted funds. Various examples can be put forward. Forms of complete asset lock are still used by the so called “common ownership firms” in England (Ellerman, 1997). In this case the stress is put on common ownership rights as the sole or main vehicle for economic democracy in production. Less extreme and partial form of common ownership characterize many employee owned companies in the form of trust funds, in which a substantial part of the firm net residuals are reinvested on a yearly basis. One of the best known examples is the John Lewis Partnership in the UK. John Lewis was sold to its employees about 80 years ago by its former owners and founders. Over the decades it has proven to be an economically sustainable and highly competitive venture. John Lewis is nowadays one of the best performing retailers in the UK. Assets held in trust are exclusive ownership of the organization, implying that individual members do not have legal claim on its value. At least in principle this form of common ownership does not prevent demutualization, since the value of the trust contributes to the market value of the company.

The second macro-regional system includes those countries in which common property in the form of indivisible reserves is imposed by law, though not in an exclusive way. This group includes mainly continental European countries, such as France, Spain, and Italy. In these countries, legislation requires cooperatives to reinvest part of their net surpluses into indivisible reserves. For example, the Italian legislation, which is based on the so called “Basevi law” passed by the Italian Parliament in 1947, requires all cooperative forms to reinvestment of at least 30 per cent of net surpluses, while cooperative banks are required to reinvest at least 70 per cent. The rationale of these legal constraints rests with the necessity to strengthen the patrimony directly owned by the organization, independently of the individual financial position of members. It must be said that, at least in the Italian case, most cooperatives are used to reinvest in indivisible reserves much larger shares of net surpluses than what is required by law. Indeed, most Italian cooperatives are used to reinvest *all* of their surplus in indivisible reserves. The crucial role of common ownership in the Italian case is likely to have been favored by the fiscal advantages granted by law.¹⁴ However, it can also testify the important economic functions that indivisible reserves (as evidenced in Section 2) have in guaranteeing financial sustainability and patrimonial stability (Navarra, 2010). As it appears, these economic functions are spontaneously recognized and endorsed by individual cooperatives. Legislations in these countries show also important differences, for example concerning the destination of the residual value of the organization upon termination of the activity. While in Italy members cannot recoup any of the residual value of indivisible reserves, which is destined to a national mutual fund financing new start-ups of cooperatives, in France members can share such residual value. In the Italian system, the appropriation of the residual value of the firm by incumbent members is prevented by law since this value is considered the result of savings created by past generations of members. If some residual value is left, this is to be considered social ownership. The French solution is clearly more favorable to the private appropriation of residual assets. In this second group of legal systems,

¹⁴ Before the reform of corporate law 181/2003, reinvestments of net residuals in indivisible reserves were granted complete tax exemption, while after 2003 fiscal advantages became partial as they are granted only up to a limited percentage of reinvested net residuals.

when indivisible reserves do not embrace the whole value of the firm owned assets, various forms of individualized ownership are introduced. These forms, as a norm, are more similar to members loans than to shares. In some cases, like in the Mondragon group in Spain, individual capital shares are built through the reinvestment of patronage end-of-the-year refunds (Ellerman, 1997). Members recoup the value of these financial instrument upon quitting the organization or upon retirement, i.e. only when their status as members of the cooperative is extinguished.

The third group of cooperative systems includes those countries in which all the owned assets are constituted by common or social ownership. Contrary to the initial two cases, this kind of system does not allow individual ownership of assets. Consequently, it does not allow the endogenous emergence of an optimal partition between individualized and common ownership. The obvious example is represented by the former self-management system in Yugoslavia, which disappeared following the economic reforms at the beginning of the 1990s. While fully-blown social ownership is nowadays not endorsed by any national cooperative system, organizational forms that closely resemble this kind of system can be detected among entrepreneurial nonprofits pursuing public-benefit aims (Weisbrod, 1988; Hansmann, 1988). As said, however, socialized ownership of assets in this kind of organization, for example social cooperatives and social enterprises, is functional to the pursuit of social, not of mutual benefit goals. Figure 1 represent in a synthetic way the different macro-regional cooperative system groupings, as described in this section.

Figure 1 about here

5.1. The performance of different cooperative systems

The focus of the so-defined “Anglo-Saxon” model is clearly on individual control and ownership. The basic rationale of this system is the attempt to link individual membership rights with the individual ownership of assets in a way to widen as much as possible financial participation and, eventually, performance. Indeed, the example of the plywood cooperatives and of many cases of employee owned companies, for example in the UK, shows that individualized ownership can impact very positively on productivity and competitiveness. Against this evidence, it is necessary to stress also the recent spontaneous reemergence of partial forms of common ownership, both the asset lock and trust funds within the same institutional tradition. The overall process undergone by cooperatives in the Anglo-Saxon tradition appears steered by the necessity to reconcile performance and stability, to allow competitiveness on the market and, at the same time, to eschew the risk of demutualization. This process, which has been widely spontaneous, is coherent with the arguments put forward in the Section 2, since the growing need to coordinate an increasingly heterogeneous membership, and to stabilize the patrimony of the firm, seem to have advised many organizations to overcome a strictly individualistic approach to firm ownership, even if this may come with some loss of efficiency and performance potential.

The model that spread in continental Europe appears more balanced and stable at the outset since it has been able to reconcile both collective and individualistic elements. This model appear, however, maybe also because of the favorable fiscal incentives, to have tended towards quite extreme forms of common ownership, and its ability to reach adequate performance has been questioned by many commentators. While stability and resilience to change and crisis have been the most positive features of the continental European model, and above all of the Italian version of it, competitiveness has often been limited to the degree necessary to spread in traditional, low value added sectors. The upshot has been a form of

enterprise that is able to last several decades, in many cases more than one century, but that has found significant difficulties in spreading in the system at large.¹⁵

The empirical evidence shows that cooperatives are more widespread, shown more longevity and resiliency to crisis, and are of larger dimensions in countries like Italy in which reinvestment of net residuals in indivisible reserves is required by law and represent a dominant course of action. This outcome is observed in connection with the impossibility to appropriate the residual value of the firm even upon termination of activities. Hence, the stress on common ownership and on the collective aspects of control appears to show the superior long term performance of continental European cooperatives. However, the arguments developed in this paper seem to advise that this system is reformed in the direction of requiring more substantial financial participation by individual members in order to favor better performance, without waiving stability. The direction to be taken is found in widening the utilization of the various forms of individual capital shares, for example loans or redeemable, non equity capital shares. In more general terms, members need to be allowed to appropriate extra-gain ensuing from firm-specific investments over and above the accumulation of common resources required to guarantee financial sustainability and patrimonial stability. One initial mechanism allowing the attainment of this objective can be the legal imposition not only of a lower bond, but also of an upper bond to the share of net residuals that is to be reinvested in indivisible reserves.

6. Concluding remarks and policy implications

This paper represents an attempt to reformulate the problem of asset ownership in cooperative firms by looking at it from a new perspective, one which explicitly considers common ownership as a viable and relevant institutional solution. The initial stimulus comes from the burgeoning literature concerning the governance of common-pool resources, which, however, has been almost exclusively developed in dealing with the management and exploitation of natural resources. The adaptation of the common-pool approach to the study of entrepreneurial organizations has led to consider mutual benefit organizations such as cooperatives as the entrepreneurial forms that most closely reproduce the features of the management of common-pool resources both in terms of inclusive governance and in terms of common asset ownership. The spontaneous emergence of different forms of common ownership in cooperatives, but also their legal regulation clearly demonstrate the relevance of this phenomenon. Indeed, the arguments developed in this paper lead to conclude in favor of a positive and wide, but non exclusive role for common ownership in cooperative firm. The stabilization of the firm capital, the building of collateral guarantee and of insurance funds, and the support given to the dimensional growth of the organization in the presence of a heterogeneous membership are the main recognized advantages of common property. Its main limitation is found in the lack of adequate economic incentives, and, mainly because of this reason, in the limited performance induced by their exclusive implementation. The self-selection in low value added sectors of cooperatives exclusively supported by common ownership has been singled out as the most relevant evidence of this limited performance potential. The solution proposed points at a mix of different capital resources with different functions directed to reconcile individual and collective objectives, stability and performance.

¹⁵ In most legal systems cooperatives are allowed to create and absorb controlled investor-owned companies. This is mainly done in order to gather adequate financial support and, in some cases, to improve production efficiency. Cooperative controlling investor owned companies are often able to grow much beyond the original dimension of the original mutualistic organization.

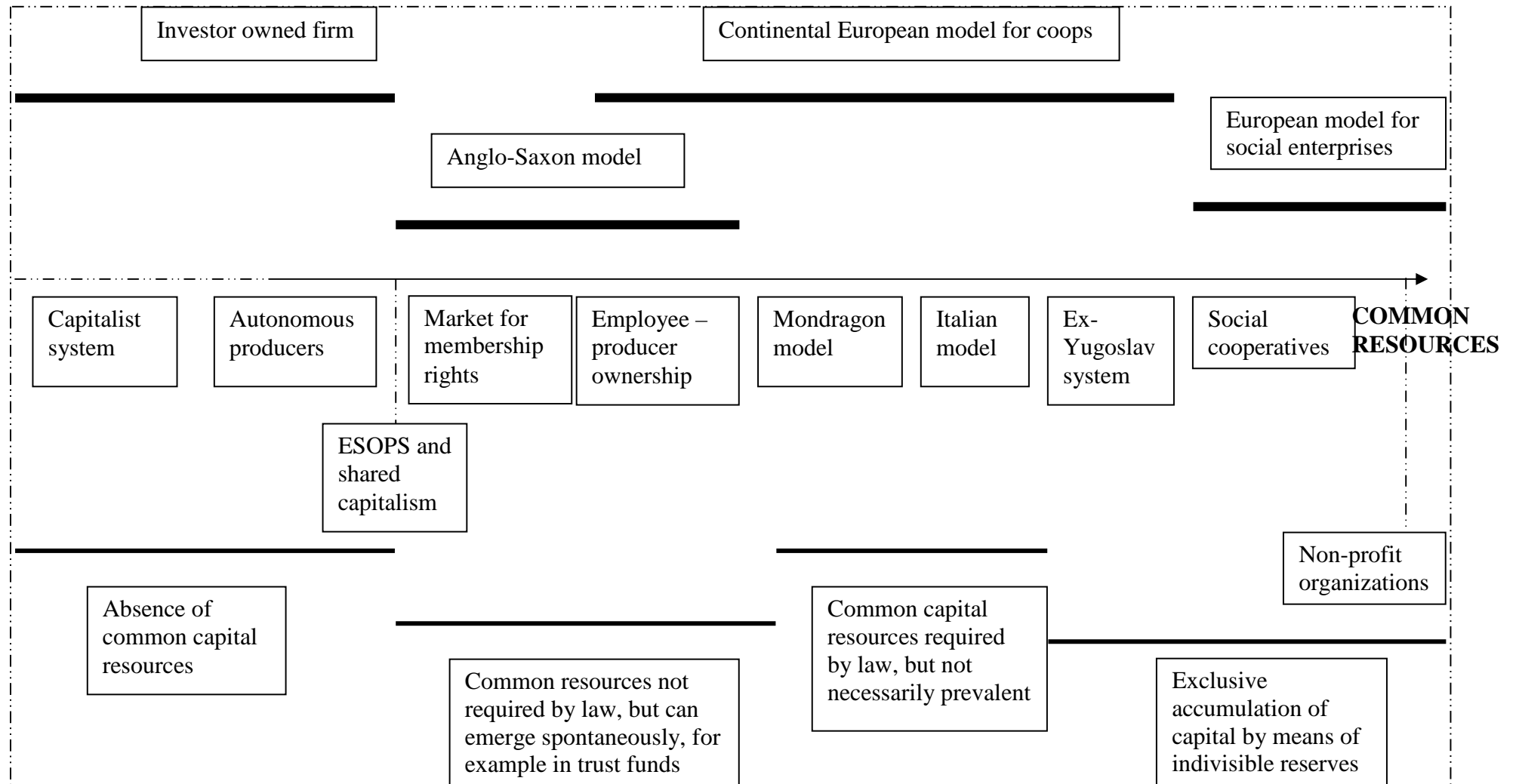
References

- Adhikari, B. (2005). Poverty, property rights and collective action: understanding the distributive aspects of common property resource management. *Environment and Development Economics*, vol. 10, 7–31.
- Borzaga, C., and Tortia E.C. (2010). The economist of social enterprises. An interpretive framework. In Becchetti L. and Borzaga C. (ed.) *The Economics of Social Responsibility. The World of social enterprises*, London, Routledge, pp. 15-33.
- Borzaga, C. and Tortia, E. (2009). Social enterprises and local economic development. In A. Noya (Ed.) *The Changing Boundaries of Social Enterprises*. Paris: OECD Publishing, pp. 195-228.
- Clark, E.A., Oswald, A.J. (1996). Satisfaction and comparison income. *Journal of Public Economics* 61 (3), 359–381.
- Common-Pool Resource. Wikipedia online. Retrieved on November, 15th, 2011 at: http://en.wikipedia.org/wiki/Common-pool_resource.
- Craig, B. and Pencavel, J. (1992). The behaviour of worker cooperatives, the plywood companies of he Pacific North-East, *American Economic Review*, vol. 82, no. 5, 1083-105.
- Craig B. and Pencavel J. (1993). The objectives of worker cooperatives. *Journal of Comparative Economics*, vol. 17, no. 2, pp. 288-308.
- Craig, B. and Pencavel, J. (1994). The empirical performance of orthodox models of the firm: Conventional firms and worker cooperatives, *The Journal of Political Economy*, vol. 102, no. 4, 718-44.
- Dow G. K. (1993). Why capital hires labor: A bargaining perspective. *The American Economic Review*, 83 (1): 118-134.
- Dow G. K. (1996). Replicating Walrasian equilibria using markets for membership in labour-managed firms. *Economic Design*, 2: 147-162.
- Dow, G. K. (2003). *Governing the Firm*, Cambridge, Mass, Cambridge University Press.
- Ellerman, D. (1997). *The Democratic Corporation*. Beijing: Xinhua Publishing House.
- Erdal, D. (2011). *Beyond the Corporation: Humanity Working*, London, The Bodley Head.
- Fher, E. and Gachter, S. (2000). Fairness and retaliation: The Economics of Reciprocity, *The Journal of Economic Perspectives*, vol. 14, 159-81.
- Frank, R.H. (1984). Are workers paid their marginal products? *American Economic Review* 74 (4), 549–571.
- Furubotn, E.G. and Pejovich, S. (1970). Property rights and the behaviour of the firm in a socialist state: the example of Yugoslavia, *Zeitschrift für Nationalökonomie*, 30(5): 431-54.
- Hansmann, H. (1988). Ownership of the firm. *Journal of Law, Economics and Organisation*, 4(2): 267-304.
- Hansmann, H. (1996). *The Ownership of Enterprise*, Cambridge, Mass: The Belknap Press of Harvard University Press.
- Hardin, G. (1968). The tragedy of the commons. *Science*, vol. 162, no. 3859, 1243–1248.
- Hodgson, G.M. (1993) *Economics and Evolution: bringing life back into economics*, Cambridge: Polity Press.

- Hodgson, G.M. (2006) *Economics in the Shadows of Darwin and Marx: essays on institutional and evolutionary themes*, Cheltenham, UK: Edward Elgar.
- Jensen, A. (2011). *Insolvency, Employee Rights, and Employee Buy Out. A strategy for restructuring*. University of Sidney, Business School, Ph.D. Thesis.
- Jossa B. and Cuomo G. (1997). *The Economic Theory of Socialism and the Labour-Managed Firm*, Cheltenham and Brookfield: Edward Elgar Publishers.
- Kruse, D. L. (1992). [Profit sharing and productivity: Microeconomic evidence from the United States](#). *The Economic Journal*, 102 (410): 24-36.
- Levine, D.I. (1991). Cohesiveness, productivity, and wage dispersion. *Journal of Economic Behavior and Organization* 15 (2), 237-255.
- Major, G., 1996. Solving the underinvestment and degeneration problems of workers' co-operatives: non-voting and vote-weighted value added residual sharing renewable shares (NOVARRS and VOWVARRS). *Annals of Public and Co-operative Economics* 67 (4), 545-601.
- Meinzen-Dick, R., Mwangi, E. and Dohrn, S. (2006). Securing the Common, CAPRI Policy Brief, no. 4, May, 1-3.
- Morrison R. (1997). *We Build the Street as We Travel. Mondragon, a Cooperative Social System*. Warner, NH: Essential Book Publishers.
- Navarra, C. (2010). Collective Accumulation of Capital in Italian Worker Cooperatives Between Employment Insurance and “We-rationality”: An Empirical Investigation, Euricse Working Papers, N. 004 | 10. Retrieved at: www.euricse.eu
- Ostrom, E. (1990). *Governing the Commons. The evolution of institutions for collective action*, Cambridge, Cambridge University Press.
- Pencavel, J. (2001). *Worker Participation: lessons from the worker co-ops of the Pacific Northwest*. New York, Russel Sage Foundation.
- Podivinsky, J.M. and Stewart, G.,(2006).Why is labour-managed firm entry so rare? An analysis of UK manufacturing data. *Journal of Economic Behavior and Organization*, 56 (2): 239-262.
- Poteete, A. R., Janssen, M. A. and Ostrom, E. (2010). *Working Together: Collective Action, the Commons, and Multiple Methods in Practice*. Princeton, NJ: Princeton University Press.
- Ramirez, R. (1999). Stakeholder analysis and conflict management. In D. Buckles (ed.), *Cultivating peace: conflict and collaboration in natural resource management*. Ottawa, Canada: IDRC.
- Ratner, B. D., Meinzen-Dick, R., May, C. and Haglund, E. (2010). Resource Conflict, Collective Action, and Resilience. Washington DC, CAPRI Working Paper no. 100. Retrieved at: <http://dx.doi.org/10.2499/CAPRIWP100>.
- Sacchetti, S. and Tortia, E.C. (2010). A new framework for the economic analysis of cooperative firms: self-defined rules, common resources, motivations, and incentives. Milan, Economics WP no. 21. Retrieved at: www.econometica.it
- Stark, O. (1990). A relative deprivation approach to performance incentives in career. *Games and other contests*. *Kyklos* 43 (2), 211-227.
- Tortia, E.C. (2006). 'Self-financing in labour-managed firms (LMFs): individual capital accounts and bonds advances', in S. Novkovic and V. Sena (eds) *Cooperative Firms in Global Markets*, Kidlington, Oxford: JAI Press/Elsevier, pp. 233-61.

- Vanek, J. (1970) *The General Theory of Labour Managed Market Economies*, Ithaca, NY: Cornell University Press.
- Weisbrod, B.A. (1988). *The Nonprofit Economy*. Cambridge, MA: Harvard University Press.
- White W. F. and White K. K. (1991). *Making Mondragon. The Growth and Dynamics of the Worker Cooperative Complex*. New York, Ithaca: Cornell University Press.
- Zamagni, S. (2005). Per una teoria civile dell'impresa cooperativa. In E. Mazzoli and S. Zamagni (eds), *Verso una Nuova Teoria della Cooperazione*. Bologna: Il Mulino, pp. 15-56.

Table 1. A taxonomy of accumulation of common capital resources in different cooperative systems



Elenco dei papers del Dipartimento di Economia
pubblicati negli ultimi due anni

2009.10 *Management of hail risk: insurance or anti-hail nets?*, Luciano Pilati, Vasco Boatto

2010.1 *Monetary policy through the "credit-cost channel". Italy and Germany pre- and post-EMU*, Giuliana Passamani, Roberto Tamborini

2010.2 *Has food price volatility risen?* Christopher L. Gilbert e C. Wyn Morgan

2010.3 *Simulating copula-based distributions and estimating tail probabilities by means of Adaptive Importance Sampling*, Marco Bee

2010.4 *The China-US co-dependency and the elusive costs of growth rebalancing*, Luigi Bonatti e Andrea Fracasso

2010.5 *The Structure and Growth of International Trade*, Massimo Riccaboni e Stefano Schiavo

2010.6 *The Future of the Sino-American co-Dependency*, Luigi Bonatti e Andrea Fracasso

2010.7 *Anomalies in Economics and Finance*, Christopher L. Gilbert

2010.8 *Trust is bound to emerge (In the repeated Trust Game)*, Luciano Andreozzi

2010.9 *Dynamic VaR models and the Peaks over Threshold method for market risk measurement: an empirical investigation during a financial crisis*, Marco Bee e Fabrizio Miorelli

2010.10 *Creativity in work settings and inclusive governance: Survey based findings from Italy*, Silvia Sacchetti, Roger Sugden e Ermanno Tortia

2010.11 *Food Prices in Six Developing Countries and the Grains Price Spike*, Christopher L. Gilbert

2010.12 *Weighting Ripley's K-function to account for the firm dimension in the analysis of spatial concentration*, Giuseppe Espa, Diego Giuliani, Giuseppe Arbia

2010.13 *I Would if I Could: Precarious Employment and Childbearing Intentions in Italy*, Francesca Modena e Fabio Sabatini

2010.14 *Measuring industrial agglomeration with inhomogeneous K-function: the case of ICT firms in Milan (Italy)*, Giuseppe Espa, Giuseppe Arbia e Diego Giuliani

2010.15 *Dualism and growth in transition economies: a two-sector model with efficient and subsidized enterprises*, Luigi Bonatti e Kiryl Haiduk

2010.16 *Intermediaries in International Trade: Direct Versus Indirect Modes of Export*, Andrew B. Bernard, Marco Grazzi e Chiara Tomasi

2010.17 *Production and Financial Linkages in inter-firm Networks: Structural Variety, Risk-sharing and Resilience*, Giulio Cainelli, Sandro Montresor e Giuseppe Vittucci Marzetti

2010.18 *Organizational Capital and Firm Performance. Empirical Evidence for European Firms*, Claudia Tronconi e Giuseppe Vittucci Marzetti

2010.19 *The Fund-flow Approach. A Critical Survey*, Giuseppe Vittucci Marzetti

2010.20 *Is Open Source about Innovation? How Interaction with the Open Source Community Impact on the Innovative Performances of Entrepreneurial Ventures*, Evila Piva, Francesco Rentocchini e Cristina Rossi Lamastra.

2011.1 *Leaving home and housing prices. The Experience of Italian youth emancipation*, Francesca Modena e Concetta Rondinelli.

2011.2 *Pareto versus lognormal: a maximum entropy test*, Marco Bee, Massimo Riccaboni e Stefano Schiavo.

2011.3 *Does a virtuous circle between social capital and CSR exist? A "network of games" model and some empirical evidence*, Giacomo Degli Antoni e Lorenzo Sacconi

2011.4 *The new rules of the Stability and Growth Pact. Threats from heterogeneity and interdependence*, Roberto Tamborini

2011.5 *Chinese reserves accumulation and US monetary policy: Will China go on buying US financial assets?* Luigi Bonatti e Andrea Fracasso

2011.6 *Taking Keller seriously: trade and distance in international R&D spillovers*, Andrea Fracasso e Giuseppe Vittucci

2011.7 *Exchange Rate Exposure under Liquidity Constraints*, Sarah Guillou e Stefano Schiavo

2011.8 *Global Networks of Trade and Bits*, Massimo Riccaboni, Alessandro Rossi e Stefano Schiavo

2011.9 *Satisfaction with Creativity: A Study of Organizational Characteristics and Individual Motivations*, Silvia Sacchetti e Ermanno Tortia

2011.10 *Do Monetary Incentives and Chained Questions Affect the Validity of Risk Estimates Elicited via the Exchangeability Method? An Experimental Investigation*, Simone Cerroni, Sandra Notaro e W. Douglass Shaw

2011.11 *Measuring (in)security in the event of unemployment: are we forgetting someone?* Gabriella Berloffia e Francesca Modena

2011.12 *The firm as a common. The case of accumulation and use of common resources in mutual benefit organizations*, Ermanno C. Tortia

PUBBLICAZIONE REGISTRATA PRESSO IL TRIBUNALE DI TRENTO