JEOD JOURNAL OF ENTREPRENEURIAL AND ORGANIZATIONAL DIVERSITY

Publication date: 21 December 2012 | Volume 1, Issue 1 (2012) 37-64

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Economies of Scale Versus Participation: a Co-operative Dilemma?

ABSTRACT

We examine the proposition that, in co-operatives, the need for democracy must clash with efficiency demands. To shed light on diverse issues surrounding this claim we distinguish different forms of co-operatives and identify different meanings of democratic governance and forms of economies of scale. One focus is on democratic decision-making within individual coops, including tensions between members and managers and/or boards, and how processes often labeled as "degeneration" can be averted. Another focus is on co-ordination problems among and between groups of co-ops in a network, or second tier co-ops, and how innovative forms of monitoring and forms of corporate governance may be expected to emerge in response to these potential difficulties. We also integrate evidence drawn from the available econometrics literature with this discussion. Our main source of empirical information is the provision of institutional evidence for the cases of Mondragon and co-operative banks in Finland. We conclude that the evidence for an alleged inexorable trade-off between democracy and efficiency is not compelling, but also note the need for additional theoretical and empirical work.

KEY-WORDS

CO-OPERATIVES, DEMOCRACY, EFFICIENCY, CORPORATE GOVERNANCE, MONDRAGON, FINLAND.

JEL Classification: P0; P13; L25; G340 | **DOI:** 10.5947/jeod.2012.003

Acknowledgements
An earlier version of this paper was presented at the international conference: "Promoting the understanding of co-operatives for a better world", Venice, March 15-16, 2012. The paper has benefitted from comments from participants at that conference, notably Alberto Zevi and Sonja Novkovic, and also from comments by Chris Gunn, Betsy Jensen, Mark Klinedinst, John Pencavel, Jeff Pliskin and Jaroslav Vanek as well as research assistance by Matt Poterba.

1. Introduction

A commonly voiced proposition is that the need for democracy in co-operatives must clash with efficiency demands. In a fast changing and globalized world, it is argued that market pressures, including the need for economies of scale, require individual co-operatives to be continuously increasing their scale. At the same time, this need for relentless growth is said to require changes in governance that tend to undermine the democratic nature of co-operatives and thus the very essence of what makes co-operatives different (e.g. Nilsson et al., 2009.) While some might object that technological changes during the last twenty years or so, in particular the growth of the internet, have at least undermined the economic forces that require steady increase in average plant/establishment size, there are several reasons for giving close attention to this claim. One reason is that there is a body of work mainly on the Mondragon co-operatives (e.g. Cheney (1999) and Kasmir (1996)) that has had considerable influence and which apparently tends to support certain issues concerning the claim. A second reason this contention demands attention is that often the concern is advanced by those with a deep knowledge of co-operatives themselves (e.g. Fulton and Hueth, 2009; Parnell, 2010) rather than by others, including mainstream theoretical economists, who may have limited first-hand knowledge of actual co-operatives.[1] Thirdly, the claim has long legs. A glance at earlier literature on co-ops will find that this matter has long been actively discussed within the co-op literature (See, e.g. Lambert, 1970; Yamagishi et al., 1996.)

Since we are unaware of any recent work that systematically examines the theoretical and empirical underpinnings for issues surrounding this claim, in this paper we make a preliminary step in that direction. We seek to shed light on diverse issues surrounding this alleged inexorable trade-off between democracy and efficiency and whether or not, as a result, all co-operatives must be considered organizations that are necessarily unsustainable.

We begin by distinguishing different forms of co-operatives. In the third and fourth sections we identify different meanings of democratic governance and forms of economies of scale. We endeavor to show that, in principle, the nature and potential trade-off between democracy and scale economies is not a straightforward matter. Rather it can be expected to vary depending on factors including the particular meaning of "democracy". We also discuss how tensions between scale economies and democracy might be predicted to appear and to vary by co-operative type as well as ways in which, in principle, different co-operatives may be expected to respond, to varying degrees, to these problems.

One focus is on democratic decision-making *within* individual coops, including tensions between members and managers and/or boards, and how processes often labeled as "degeneration" can be averted. Another focus is on co-ordination problems *among and between* groups of co-ops in a network, or second tier co-ops, and how innovative forms of monitoring and forms of corporate governance may be expected to emerge in response to these potential difficulties. We also integrate evidence drawn from the available econometrics literature with this discussion. But our main source of empirical information is of a qualitative nature. We focus on primarily *institutional* evidence for two cases for which we have most knowledge -- Mondragon and co-operative banks in Finland. In particular, we discuss ways in which these two dissimilar co-operative cases have continued to thrive in recent years and yet have responded, albeit with

[1] In the mainstream economics literature on co-operatives perhaps the most commonly accepted proposition concerning the behavior of one important type of co-operative, the worker cooperative, is that firms will respond perversely to product price increases. Despite the existence of massive theoretical and empirical evidence to the contrary, the conventional wisdom continues to accept the existence of a "backward-bending supply curve."

varying degrees of success, to pressures to sustain democracy. In the concluding section we summarize and discuss implications of our findings.

2. Co-operatives: Definitions

For our purposes the essential features of co-operatives are given by enterprises that have two characteristics: 1) Ownership is not determined solely by investment in shares, but by another transaction relationship with the enterprise (as employees, suppliers, or customers); 2) Voting rights are not determined in relation to capital ownership but are divided equally among members.[2] This definition de-emphasizes other Rochdale principles including open membership, limited interest on capital, religious neutrality, cash trading and the promotion of education (Bonner, 1961).

Diverse forms of co-operatives exist. Hansmann (1996) and Birchall (1997) amongst others provide good descriptions of co-operatives around the globe.[3] Empirically, the most prevalent forms of primary co-operatives, both in Europe, North America and elsewhere, appear to be co-operatives in the agricultural sector (mainly in food production), in banking and finance (in the form of credit unions and co-operative banks), in insurance (either mutual or co-operative form), and in retailing, where co-operatives are either retailer- or consumer-owned (the latter is fairly uncommon in the US but is very popular in some European countries). Co-operatives are economically significant actors all around the globe. According to the International Co-operative Alliance, the combined membership in co-operatives now exceeds one billion people (see ICA 2012)

Moreover, some co-operative types, including co-operative banks, are of growing importance in their sectors (Fonteyne 2007). For example, around 91 million inhabitants of the US were members of credit unions in 2010 (WOCCU 2011)[4], representing a substantial growth from 1996 when the membership totaled around 70 million (Emmons and Schmid 1999). In France, co-operative financial institutions have more than 50 % market share of deposits and almost 20 million members or almost one-third of total population[5]. Another example is social co-operatives which have assumed prominence in sectors in several countries including Italy (e.g. Borzaga and Defourny (2004)) However, the importance of co-operatives does not derive solely from their economic significance, but also from their democratic governance and their perceived ability to address market and government failures (see, e.g., Kalmi 2007). In part reflecting their social objectives, associations of co-operatives are a prominent feature of the co-operative landscape.

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[2] Ben-Ner and Jones (1995) investigate the roles of variation in control and return rights among diverse enterprises, including some co-operatives.

[3] The first co-operatives appear to have been established in the eighteenth century. Early utopian writers, notably Robert Owen, who saw co-operative communities as alternatives to competitive and individualistic capitalism, were a major stimulus to the establishment of these first co-operatives. Equally, practical necessities, such as the need to obtain unadulterated foods, played major roles in the formation of early co-ops such as the flour mills at Woolwich in the 1760's and the famous Rochdale store in 1844. Subsequently while the development of the co-op movement continued to be inspired by the writings and actions of individuals such as Fourier, Blanc, and Buchez, pragmatic considerations have always played prominent roles in the evolution of co-operatives.

[4] Our data on what constitute "co-operatives" are self- reported, either by co-ops or their associations. We do not attempt to systematically assess the extent to which these different co-ops are "democractic".

[5] This information comes from the European Association of Co-operative Banks (EACB) website www.eurocoopbanks.coop augmented with information from Caisse D'Epargne (which is a co-operative banking group not affiliated with EACB) website www.caisse-epargne.fr.

While a wide variety of firms can be listed under the co-operative umbrella, the form that has proved to be of particular interest to economists is the producer or worker co-operative. In such firms, the position of the worker is crucial so that membership is restricted to worker-members in the business who effectively own and control the firm. One of the best known examples today of worker co-operatives is the Mondragon co-operatives (see http://www.mcc.es/ing/). There are also important contemporary examples in Italy and France. Other cases of producer co-operatives, past and present, that have attracted attention include the US plywood co-ops (Craig and Pencavel, 1992), PCs in Uruguay (Burdin and Dean, 2009) and PCs in the former Soviet–type economies (e.g. for the case of Poland, Jones, 1993).[6]

3. Democracy

3.1 Issues in individual coops

To guide our subsequent theoretical discussions, in this section we note that the literature on co-operatives distinguishes different meanings of "democracy". These differing senses are, in turn, associated with what are, potentially at least, varying democratic challenges. For our purposes it is especially important to note that the importance and nature of "democratic challenges" can be expected to vary by co-op type and co-op structure. In particular we distinguish several matters surround the meaning and maintenance of democracy within **individual** co-ops from democratic challenges that primarily concern **groups** of co-ops.

For individual co-ops we identify three matters of especial interest. First are issues concerning **appropriate democratic decision-making procedures and structures.** These include matters such as the nature and form of representative democracy, matters that have long interested theorists of liberal democracy such as Pateman (1976) and Laycock (1989.) These arrangements are apt to be less of an issue in small co-ops with homogeneous membership, but could assume more significance in larger and multi-establishment co-ops with heterogeneous memberships and representative structures for decision-making (Hansmann, 1996.). They may also assume more significance in different kinds of co-ops where the basis for membership differs. For example, in worker co-ops, especial importance can be expected to attach to devising appropriate machinery for democracy at the workplace as well as for efficient forms of representative democracy. In other words, the maintenance of democratic decision-making structures may be challenged by economies of scale and scope (which we will review in the next section).

Many studies on co-operatives have been pessimistic about the maintenance of co-operative governance structure when co-operatives grow in size and complexity. For example, Nilsson et al. (2009) review evidence for agricultural co-ops in various countries including Sweden, Canada and Ireland and find that size and complexity in co-ops typically result in democracy being undermined. They present fresh evidence for a Swedish case and, by highlighting tensions between managers and members, show how such

[6] As such co-operatives are distinguished from most employee owned firms and firms with other financial incentives such as profit sharing and other forms of "shared capitalism" (Kruse, Freeman and Blasi, 2010.) In the vast majority of instances of employee ownership, and unlike in co-operatives, voting rights reflect ownership of capital which are not equal either amongst employees or between employee and non-employee owners. In firms with employee ownership, capital owners sometimes do introduce arrangements that enable employees to have enhanced involvement in decision-making. While this often happens, it is also rarely to such a degree that firms with employee ownership and worker co-operatives are aligned in this respect. Instances in which this has happened, such as the Eroski retail chain in Spain (Arando et al. 2011a) or in some British consumer co-operatives where employee directors are present (Jones, 1987) are the exception rather than the rule.

developments, once underway, are difficult to reverse. In particular they document how co-op members are highly sceptical of the ability of co-op leadership to introduce changes that lead to significantly enhanced member control. As such they echo the findings of many earlier studies such as Hind et al. (1997).[7] However, their study relates only to one sector of co-operatives and therefore may not be representative for all types of co-operatives. Also, there appear to be many examples when tensions between members and managers and between members and boards have subsequently been radically diminished. For example, Workshop Report, (2007) discusses the case of co-operative regeneration in Fonterra in New Zealand and how, after a series of governance scandals in UK co-operatives in the 1990s, a new code of best practices was adopted and how this is believed to have led to several subsequent examples of co-operative regeneration.

A second set of issues surrounds the **basis and incentives for membership in a co-op.** In many co-ops apparently this is a straightforward matter. Thus in consumer co-ops all users (buyers) are eligible for membership and members typically receive rewards proportional to their co-op activities (such as purchases.) Similar situations exist in agricultural co-ops and many banking co-ops (e.g. in Finland). But the transparency of rewards and mechanisms for determining rewards varies even among a given type of co-op. Hence in U.S. credit unions rewards for membership are implicit-members do not share in surplus but rather benefit, for example, from lower lending and higher deposit rates. And even within what seem to be "simple" co-ops, the issues are often more complex than initially appears. Thus in some consumer coops, while a crucial task is a need to provide democracy for consumer members, often there are other groups who are eligible for membership, for example employees, whose interests need to be accommodated. Devising democratic arrangements that balance the needs of differing groups is often a challenge. In worker co-ops the problems may be even more difficult to resolve. For example, will co-op membership be available to all workers--the principle of free admission (Estrin and Jones, 1992) -- or do other arrangements prevail? And when there are multiple classes of members how are voting rights and rewards (and on what basis) to these differing groups to be determined? Such matters potentially constitute formidable democratic challenges.

A co-operative may influence the demand for membership by many things. These include the general performance of the co-operative, the quality of the services provided by the co-operative and its pricing attractiveness, its membership policy, and the structure of co-operatives. Other things equal, well-managed and –reputed co-operatives are more attractive to join. For many potential members, the key factor in joining is pricing and quality. In consumer co-operatives, high quality goods and services that are competitively priced attract consumers to join the co-operative. Similarly, in worker co-operatives, the attractiveness of the co-operative as an employer depends on a combination of working conditions and salary, including the riskiness of the income stream as well as the degree of job security.

There are important differences in the membership policies of co-operatives. In some co-operatives, notably credit unions, all (individual) customers are required to become members. In most co-operatives, however, individuals have a choice as to whether they want to become members. In these cases, the policies of a co-operative often have a decisive role in member recruitment. For instance, a co-operative may decide whether to spend resources on informing customers on membership and to what degree; whether it is easy to join the co-operative or not; and what the pecuniary and non-pecuniary benefits are from membership. The size of the co-operative is also likely to matter. In large co-operatives and/or in co-operatives with multiple membership classes, the members are likely to experience a lower degree of common bond, having fewer opportunities to influence the policies of the co-operative, and being under lower social pressure to participate in the governance of the co-operatives. Emmons and Schmid (1999) and Jones, Jussila and

[7] In the context of credit unions, Hoel (2011) has similarly argued that members' sense of ownership and the size of the credit union are inversely related.

Kalmi (2009) explore further such trade-offs.

In the extreme, the current members may close the co-operative to new members, which will obviously cause the membership to decline. This is known as **co-operative degeneration** and, over time, will lead to conversion into a normal company, unless regeneration occurs. This has been a recurring theme in the economics literature on worker co-operatives that has followed the pioneering work of Ward (1958) and later Vanek (1970) where worker co-operatives are positioned within a standard microeconomic (comparative static) framework and it is argued they maximize income per member.[8] One set of issues in that literature concerns the comparative scarcity of worker co-operatives. Why, apparently, are such firms rare (compared to conventional investor-owned firms)? As well as leading to examination of issues relating to formation, this area is also concerned with matters surrounding survival and life cycle. In turn one of the themes that is identified in this connection is the apparent difficulty co-operatives have in sustaining their democratic character.

Beginning with the work of the Webbs (e.g. Potter, 1891) and continuing with formal economic modeling by, amongst others, Ben-Ner (1984), researchers have analyzed the tendency of producer co-operatives to transform themselves into organizations within which control rights are vested in a small number of worker-members. The key prediction is that, over time, PCs have a tendency to "degenerate" (see, e.g. Ben-Ner, 1984.) Democracy is undermined because the incentive grows for worker-members to replace retiring members with employees who remain non-members; consequently, the fraction of the workforce that comprises members will inexorably decline. Another "degeneration" prediction is that successful co-ops will end up being sold to private corporations.

Unwillingness to take in new members is a consequence of the fact that existing members are not compensated for the dilution of their ownership rights. In principle, tradable membership rights would eliminate this problem. However, there are several reasons why such markets are difficult to establish. One reason is that there might be principle-based opposition to market valuation of membership shares; high prices for membership may deter new members from joining, thus clashing with the "open membership" principle of co-operatives. Even where such markets are established, informational problems, including asymmetric information and thinness of markets, make valuing such rights very difficult (Dow 2003).

Perhaps more importantly, degeneration can be halted by establishing institutional rules that require that employees should be taken as members after a probationary period (as in France, see Perotin 1997) or by setting a limit to the maximum proportion of non-members among the workforce (as in Mondragon, Smith 2001; Arando et al, 2011a). In any case, degeneration is a problem that mostly relates to worker co-operatives and it is fundamentally due to the combination of facts that the value of membership can be relatively high and the productivity differential between member and non-member workers may be low. Conversely, in consumer co-ops, where the value of membership is relatively low but the behavioral differences between members and non-members may be high, degeneration is typically not an issue.[9]

However, the two types of democratic challenges do not always need to be in conflict. When a co-operative encounters economies of scale, and membership produces a positive behavioral response (e.g. members are more loyal towards the co-operative than non-members), then incumbent members may actually benefit from allowing new members to join the co-operative, even when the membership fee is nominal.

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[8] Note that the main institutional impetus for the emergence of this theoretical literature was the perceived behavior of the Yugoslav firm during the Tito era.

[9] Degeneration may well be an issue for other types of co-operatives as well. Thus some agricultural co-ops with large investment needs, may close membership in order to align incentives to value maximization and prevent free-riding,

3.2 Co-operative groups

To survive and thrive it is increasingly the case that all kinds of co-ops must network or develop supporting structures, creating **groups** of co-ops. Such groups are of foremost importance in banking co-ops. These structures at the group's centre typically operate as central banks for local level banks, and in this capacity they provide liquidity management services and also facilitate the payments within the group and across co-operative banks and other banks. They also develop products for local banks, undertake investment banking activities on behalf of local banks, and provide insurance and mutual funds. Typically the centres co-ordinate advertising for the whole group and provide various other services, such as ICT or training for employees and local directors. In some cases, the centre performs certain public services, such as auditing of member banks or operating a deposit insurance scheme.[10]

Group structures are prominent also in areas outside financial co-operatives. In the field of consumer co-operatives, the British Consumer Wholesale Society was launched in 1872 (its predecessor being established nine years earlier). In consumer co-operatives, the centres take care of wholesale activities, joint marketing, strategic development, research and training, and (especially in the past) industrial production. The group structures are prominent also in the field of agricultural co-operatives, but they are somewhat less common among worker co-operatives, although such structures are present in the most successful cases, notably Mondragon (of which more below).

In a way that roughly parallels the discussion of individual co-operatives, for groups of co-operatives, two types of democratic challenges may be distinguished.

First are issues concerning appropriate decision-making processes and structures. Various kinds of co-ordination issues arise when groups of co-ops are established. For example, a key issue of importance to all co-ops is how much sovereignty individual units are willing to surrender to the central institutions and yet remain democratic. The decision-making procedures in the co-operatives groups typically are less democratic than at the local level where members are rather natural legal persons; for instance, it is common to weight the voting rights in groups according to the size of member co-operatives (though not necessarily proportionally). Often the highly skewed voting arrangements may mean that the group level becomes dominated by the interests of representatives of large co-operatives, which frequently rather differ from the interests of members of small (perhaps rural) co-operatives. These tensions may lead to further consolidation within co-operatives and, in extreme cases, to the dissolution of the whole group; such tendencies were evident in the decay of German and Austrian consumer co-operative groups in the 1980s and 1990s (Brazda and Schediwy, 2001).

The centres are often dominated by representatives of managers rather than lay members, for which reason managerial (as opposed to member) preferences may receive excessive weight in decision-making. These issues may also be reflected at the local level, because policies at the central level necessarily have implications for local level operations; furthermore, increasingly the centres have direct control rights over the local units.

It is interesting to note that sometimes increased centralization may promote democracy at the local level. Thus, when more advanced operations are provided centrally by the group, local co-operatives can concentrate on issues where they have local knowledge-for instance, in banking and their analysing the credit risk of local borrowers. Also enhanced centralization may lead to a smaller scale of local units

[10] For description of various functions of centrals in financial co-operatives, see Cuevas and Fischer (2006).

becoming economically viable.[11]

Second, and related, are matters surrounding the incentives for individual co-ops or groups of co-ops to remain in a larger co-op group. This may not always be entirely voluntary: sometimes member co-operatives may be required to belong to a group by law, sometimes seceding from the group may be difficult. The potential conflicts described above (managers vs. members, large co-ops vs. small co-ops) may also lead to increased pressures for secession; we will investigate these issues further in our case studies.

Some analogies to that of degeneration in individual co-ops can be drawn. For a group of coops, is there a point at which, by some critical measure, the co-op group is in danger of degenerating? For example, if a co-op group admits entities that have mixed membership (or, in some cases, no co-op presence), at what point might the group as a whole be considered insufficiently co-operative? In some cases co-operatives acquire significant capital interests.

For instance, sometimes the shares of the group or its subsidiaries may be traded in the stock exchange, though usually the voting majority belongs directly or indirectly to co-operative members. In such cases, despite the fact that co-operatives own the majority of shares, the capital interest may become dominant. Sometimes the owner of the minority interest may also be motivated to attempt to take the control of the majority of shares, which would effectively undermine the co-operative character.

In addition organizational isomorphism may be attributable to training (or lack thereof) of co-op managers and institutional requirements for accounting and reporting that force co-ops to use practices that do not suit their character, and thus resulting in a "mission drift" (see, e..g, Di Maggio and Powell, 1983).

4. Economies of scale

The economics literature often distinguishes different types of scale economies.[12] The most relevant for our discussion are increasing returns to scale; this means that firms have to increase their size in order to remain competitive. A closely related idea is that of economies of scope, meaning that firms gain competitive advantage from joint production or marketing of two or more related goods. Which type of scale or scope economy is potentially most important may be expected to vary by co-op type. In turn, this implies that the particular tension between democracy and economies of scale may vary by co-op type. Changes in economies of scale may be driven by diverse forces, for instance by technological changes or changes in the competitive environment. In the balance of this sub-section we briefly provide illustrations (by sector and type of co-op).

One critical determining factor is that of sector. Thus in manufacturing, perhaps the most important type of scale economy is **technical** economies of scale. With manufacturing *firms* needing ever-growing scales of operations, this also requires bigger capital investments. However this does not immediately

[11] For instance, in European tightly federated financial co-operatives the size of local unit is much smaller than it is in loosely federated financial co-operatives (Ferri et al, 2012).

[12] Our focus is on economies of (rather then returns to) scale.

translate into a need for bigger individual *plants* or establishments.[13] Indeed, in the internet world, with burgeoning possibilities for what until recently were considered to be innovative arrangements, such as lean inventories and short productions runs, a bigger firm may establish several distinct groups/profit centers within it. Each of these divisions would be expected to have more distinct operations than in the past. Thus the minimum efficient scale may grow for the firm but not for the plant. And with quickening globalization, manufacturing firms also need to develop plants closer to markets (and thus often distant from the home base.) For co-ops these considerations suggest that the tensions between scale and democracy are most likely to emerge between plants and also between co-ops (rather than within a plant.)

While this firm versus plant point applies especially forcefully in sectors such as manufacturing and mining, in other sectors different economies of scale may dominate. Thus in retailing, arguably what is of most importance are **marketing** economies of scale as well as the ability of a bigger group to exercise bigger clout when buying inputs and seeking advertising.

Banking is an area where financial co-operatives, at least initially, derived competitive advantage from their small scale. Financial co-operatives originated in the 19th century. Then typically only a small economic elite had any access to financial services, enforcement of financial contracts was very low, and financial supervision was non-existent. In this situation, both bankers and their customers could be expected to honor their commitments only if other types of relationships existed between borrowers and lenders. Credit co-operatives could function in this environment because they were created in small areas in which borrowers, depositors and managers knew each other well, thus being able to impose social sanctions on those who breached their contract (Guinnane, 2001). These advantages of being smaller continued for a long time, often into the 20th century, but they have gradually been eroded by increased mobility of persons, reduced costs of exit from the community, and technological improvements that have changed the nature of economies of scale in the banking sector. For instance, Peterson and Rajan (2002) have argued that advances in information technology have made borrower information quantifiable (for instance, via credit scoring) and reduced the returns to local, "tacit" knowledge on borrowers. In many countries the global deregulation of financial services, has included the removal of bank-branching restrictions. In turn, often this has enabled retail banks to undertake investment banking activities, and also arguably has changed economies of scale in banking in favor of larger units.

In the social sector, co-operative providers have gained new ground in recent decades, especially in Italy (e.g. Restakis, 2010; Borzaga and Defourny, 2004.) This seems to be related to certain diseconomies to scale and/or government failures. Customers of large publicly provided organizations seem to suffer from the feelings of alienation and overly standardized care, leaving insufficient space for individual attention. This is also reflected in lower work morale and satisfaction in the public sector (Borzaga and Tortia 2006). Sectors such as health care and nursing services may especially benefit from smallness where client needs can be individually addressed.

[13] In terms of the formal theory of the labor managed firm, the worker maximizing firm will always under competition produce at the level of maximum economies of scale, whereas the capitalist firm will produce beyond that point with lesser factor productivity. With indefinitely increasing economies of scale the capitalist firm will tend towards monopoly and destruction of markets. (See, Vanek 1970.)

4.2. Evidence on Alleged challenges posed by Need for Economies of Scale

There is much evidence of co-ops merging. This increase in average size apparently suggests that, on average, co-ops believe that they need to grow to reap economies of scale. Thus Schroeder (1992) reports how the number of US farm supply and marketing coops declined by more than 23% from 1979-1988. He says "….attempts to improve efficiencies of operations were likely a significant force [behind the merger activity]." Also Fulton and Hueth (2009) report how the behavior of many Canadian agricultural co-ops demonstrated a strong need for additional capital or a need to grow in order to reduce members' risk. While few mergers occurred, these pressures resulted in several bankruptcies or conversions of firms into conventionally owned firms. In Spain Moyano-Estrada et al. (2001) report how pressures to realize diverse forms of economies of scale led to co-ordination and mergers among agricultural co-ops. Thus from 1994 to 1999 the number of agricultural coops fell from 5376 to 3925 and average size increased.

However, the available econometric evidence on whether or not co-ops do reap economies of scale from increasing average size is surprisingly limited. In Table 1 we present a summary review of the evidence that we were able to uncover.[14] Since studies differ enormously in crucial respects including the type of co-op investigated, the size of the sample, the time period covered, the nature of the empirical method, it is likely that they will differ in the reliability of their findings That being said, it is clear that there are no consistent findings. In some cases this is unsurprising-as noted earlier we would expect the importance of economies of scale to vary across sectors. But other findings are more surprising. Thus, among agricultural supply and marketing co-ops, it is instructive that while Schroder (1992) does find evidence of firm-wide economies of scale for most product groups that he examines, he does not do so for all product groups (e.g. not for chemicals.) Kebede and Schreiner (1996) in their analysis of Kenyan dairy marketing co-operatives find evidence of economies of scale, but they also find that these economies are exhausted for average-sized co-operatives in the sample.

The existence of economies of scale has often been tested in the banking industry. In this regard, the results from the United States are the least ambiguous. The US studies have found clear economies of scale for both co-operative banks (Rezvanian et al. 1996; Mehdian and Rezvanian 1998) and credit unions (Emmons and Schmid 1999; Wilcox 2005; Wheelock and Wilson 2011; Wilcox and Dopico 2011). This is consistent with the significant consolidation of the credit union industry that has taken place during the past two decades or so (Goddard et al. 2011).

However, when one moves outside the US, the picture looks more complicated. Lang and Welzel (1996) study German co-operative banks during 1989-1992 and found small but positive economies of scale. However, in their subsequent study on the effects of mergers with data extending to 1997 (Lang and Welzel 1999), they do not find any evidence that mergers between co-operative banks have been efficiency enhancing. For Finland, Kolari and Zardkoohi (1990) find little evidence of positive economies of scale using data on co-operative banks from the early 1980s (an era when banking was a heavily regulated industry.) Jones and Kalmi (2011), using data for the first half of 2000s, actually find some evidence on diseconomies of scale (larger co-operative banks having poorer performance). In Japan, Deelchand and Padgett (2009) find also evidence on diseconomies of scale among a sample of Japanese co-operative banks; however, Glass et al. (2010) find evidence that larger co-operative banks were more efficient than smaller

[14] In addition there is some evidence that coops can produce in the increasing returns to zone part of the production function. That is, co-ops can manage to attain sufficient scale economies but they do not need to grow to even the average size of firms in that sector (Jones-Backus, 1977).

ones.

In sum, the clearest evidence of economies of scale within financial co-operatives is related to the US experience, whereas the evidence from elsewhere is more ambiguous. This may be related to the above-mentioned benefits of integration. Collaboration among co-operative banks and the existence of second tier organizations may help local banks to maintain small scale and remain efficient. The collaboration among financial co-operatives is the least extensive in the U.S., which may expect why the clearest results on economies of scale are obtained from that market.[15]

In addition, it is clear that many co-op mergers take place under conditions that differ from those characterizing investor-owned firms. Often the main circumstance is that of duress; a merger is undertaken for reasons of solidarity, to save a co-op in economic distress from going under. For example this was the case with many Italian PCs in construction mainly during the 1990s (Jones, 2007). In this case presumably there is a symbiosis between scale economies and democracy.

5. Case Study Evidence on Democratic Challenges and Responses within Co-ops

In this section we discuss ***institutional evidence*** on the ability of co-ops to respond to democratic challenges. We provide examples of institutional adaptiveness or lack thereof concerning themes that were identified in previous sections, especially part three. To provide a manageable account we focus on two contemporary cases, the Mondragon co-operatives and co-operative banks in Finland. We select these cases because we know them well and, in the last thirty years or so, both groups typically have experienced strong growth. As such they are good "test cases" to investigate the challenges posed by the need for scale economies and possible trade-offs with democracy.

Case 1: Mondragon[16]*:*

The Mondragon group is one of the best-known examples of "real -world" PCs. Founded in 1956 with some 25 workers in the Basque country of Spain, Mondragon was originally a group of mainly industrial cooperatives. Subsequently the group has grown to include firms in other areas, notably retail and finance and, by 2008, the Mondragon group comprised about 250 cooperatives, subsidiaries and affiliated organizations, including 73 manufacturing plants overseas, altogether employing almost 100,000. Membership has always been closely linked with employee ownership and, in the early decades, essentially only and all workers were members. Membership provides a guarantee of employment, relocation or 80% of salary during times of slack demand as well as the right to participate in the firm's General Assembly, vote for and

[15] It is also not clear whether the previous studies on economies of scale have adequately controlled for the fact that smaller institutions may be less risky, and in particular they are less likely to impose systemic risk. Klinedinst (2012) provides evidence that before and during the crisis smaller financial institutions and credit unions had higher net worth than large banks, and were also much less likely to be compensate their executives excessively. However, we are not aware on any evidence whether large credit unions have been riskier than smaller ones, or whether they have been more likely to have faced difficulties during the crisis. In the U.S., the main casualties of the crisis have been some large corporate credit unions (i.e. second-tier organizations; see Hoel, 2011). However, the failure of corporate credit unions does not indicate whether there is a relationship between size and risk in primary-level credit unions.

[16] This sections draws on Arando et al. (2011a) to which the reader is referred for an extended account of the current Mondragon set-up.

serve on electoral bodies, and receive a share of profits. Other distinguishing features at Mondragon include provision for profit pooling and a rich set of institutions to support primary firms. However, in recent years a large fraction of the workforce was often non-members. The bulk of these non-member employees work in conventionally-owned subsidiaries and joint ventures that the co-ops have established outside the Basque Country, particularly in the Eroski retail chains in Spain (approximately 30,000 non-member workers), and in overseas manufacturing plants (approximately 12,000 non-member workers). Still, several thousand others are "temporary workers" inside the co-operatives themselves. These three situations involving non-member workers have all been controversial in the Mondragon group for many years and have led to numerous major debates that, in turn, has produced changes in policy and practice.

The main driver of the *Eroski distribution chain's* use of non-member employees was a growth strategy initiated in 1989 characterized by massive and rapid expansion outside its traditional base in the Basque Country in response to competitive pressures, especially from large French chains. The majority of this growth has involved the start-up and acquisition of non-cooperative supermarkets and other stores as subsidiaries of the Eroski cooperative. Eroski's expansion strategy was successful in business terms, but the balance between cooperative and non-cooperative employment gradually became very lopsided. To address the issue, in the late 1990's Eroski established a voluntary, partial employee-ownership structure (called GESPA) that eventually involved about 5,000 employees in several of its Spanish subsidiaries.[17] It was very popular among employee participants. Eroski concluded that it was not only capable of doing business successfully around the country, but that it was also capable of using cooperative principles and related organizational/ownership structures in many different places and under different circumstances. As the Eroski Group continued to grow apace through the 1990's and 2000's, GESPA, as it was initially structured and implemented, could not keep up with the speed of expansion. Hence, an increasing percentage of the Eroski work force came to consist of non-member workers in conventionally-owned subsidiaries. By 2008, only about 9,000 (18%) of Eroski's roughly 50,000 workers were co-op members and another 5,000 or so (10%) participated as partial employee-owners in GESPA (Altuna-Gabilondo, 2008). As a result, and based on the accumulated success of the GESPA process, in 2011 Eroski began to implement a multi-year initiative to "cooperativize" its operations. When this initiative is completed (by about 2014-16), the great majority of Eroski workers who, today, are non-member employees working in conventional subsidiaries or partial worker-owners in GESPA, will become worker-members of cooperative firms. Thus, in a short period, this transformation will lift the ratio of members-to-total-work-force up to about 70%-75% in the Mondragon group as a whole.

A second pressing issue concerns the use of temporary, non-member workers, mainly inside *industrial co-operatives* given the seasonal and/or cyclical nature of production (and hence demand for labor), and the prohibitive cost of providing all workers with membership. Precise longitudinal data are hard to come by, but employment has been gradually shifting in favor of non-member workers for at least two decades. Thus, by 1990, the fraction of the work force that comprised non-members in the average co-op at Mondragon was already 10% (Moye, 1993). By 2007, only 29.5% of the Mondragon group's total work force was a member of their co-op (Altuna, 2008). In other words, some 50 years after the founding of the first Mondragon co-op, a substantial majority of Mondragon workers were non-member employees.[18] During

[17] See Arando et al (2011 b) for an extended discussion of Gespa as well as findings form a study of the comparative performance of Gespa, co-operatives and conventional ownership.

[18] As such they have standard employment contracts with the coops and do not have the rights and responsibilities associated with membership --no voting rights with respect to choosing members of elected bodies, no employment guarantee and no obligation to be an employee-owner. On the other hand, non-member workers do receive an annual profit share, at a minimum 25% of the share a worker-member at the same pay grade would receive.

the 1990s, the group began to emphasize the importance of minimizing the use of temporary workers and set a goal that a minimum of 85% of the co-ops' internal work force should be made up of worker-members. While for most of the period from 1995-2005 there were steady if modest improvement in the membership ratio, improvements have accelerated since then and in 2009 the group exceeded its 85% membership goal.[19] At the same time, undoubtedly an important part of the improvement in membership ratios since 2008 has been the recession and the clearly differing provisions for job security for members and non-members.

The most complex of the situations involving non-member employees is that of the *overseas manufacturing subsidiaries of co-ops in the industrial group* employing approximately 12,000 people. In general, the co-ops have felt that opening up membership to workers in these plants is legally, financially and culturally problematic; hence, in the short-term, employee ownership overseas has been viewed as non-viable or excessively risky. This perspective has begun to change, however. A policy has been developed for overseas operations to promote "employee participation" in three areas: decision making, profits and ownership. A number of co-ops had concrete plans to experiment with partial employee ownership in their foreign plants, but these have largely been put on hold by the financial and general economic crisis. Others are debating different financial, legal and related strategies for achieving this three-pronged participation in different countries where legislation, workers' economic circumstances and cultural norms vary widely. The jury is still out on whether Mondragon can put in place substantial cooperative or similar employee ownership arrangements in its overseas activities. Since overseas employment investment can only grow in coming years, this issue bears close monitoring by researchers, policy-makers and others. It is one of the key strategic issues the Mondragon cooperatives face in the medium to long term.

5.1 Maintaining democracy within individual co-operatives and co-operative groups.

At Mondragon important challenges also have faced individual co-operatives and co-operative groups. In response there have been continuing attempts to solve the dilemma of how best to provide for a high degree of democracy and autonomy in individual firms and yet also allow central bodies to promote changes, economies of scale and sustained efficiency in the whole group. During the first generation of the group, Mondragon companies worked out common policy and governance arrangements through joint membership in their own banking cooperative, the Caja Laboral, which is a second-tier cooperative, a co-operative whose members are other co-operatives (Thomas and Logan, 1982). As years passed, the potential advantages of joint action for investment and employment planning, training, new product development, exporting and other activities became clearer. Starting in 1964 the cooperative firms decided to form subgroups based on geographic proximity.

The growth of newer sectors such as auto parts manufacturing and retailing, as well as the general sense of a need for more economically rational organizing criteria, continued to create momentum for change. Hence, after substantial discussion and debate in the late 1980s, the group decided to reorganize itself again, this time with two other features principally in mind: (1) the establishment of central structures for overall governance, strategic coordination and the provision of management services; and (2) the creation of subgroups of firms, the groups/divisions, by industrial sector instead of by region. In the main,

[19] Data for the financial group are not readily available (though this represents fewer than 5% of total employment in Mondragon.)

it simply seemed to make more economic sense to the co-ops to join together in subgroups according to product/market affinity and not geographic proximity. In 1991, the Mondragon Cooperative Corporation (MCC) was born to put these ideas into practice. At first, three different sectoral groups were created; financial, manufacturing (called "industrial"), and retail. Later a knowledge group was added. As part of this restructuring process, the manufacturing group was itself divided into a number of divisions. However, while the push was to move away from regional groups, some regional groups have remained more or less active within this new manufacturing group, e.g. at FAGOR and ULMA. Also, other structural modifications have taken place since 1991 and, in 2008, the group's name was changed from "MCC" to simply "Mondragon." Nevertheless, so far, the basic organizing principles at Mondragon remain largely intact, seeking, again, to balance autonomy for individual co-ops with strategic coordination and common governance.These structural changes might be seen as reflecting shifting views concerning the on-going debate on the optimal degree of decentralization/centralization for individual firms. While the changes mean that management practices and governance structures at the highest levels are not as "close to the shop-floor" or as participatory today as during earlier periods, at the same time, the evidence suggests that these organizational changes did not really affect day-to-day operational fundamentals. While individual firms willingly surrendered some autonomy to the groups/divisions, the balance of power continued to reside with individual firms rather than the center. The existence of individual firm autonomy is perhaps best illustrated in two areas: (1) those rare cases of co-op closures; and (2) firms' decisions to enter and/or leave the Mondragon group. In the first area, when an individual company is under serious threat, Mondragon will provide consultative and even financial help so long as it seems possible to sustain the business. But the decision to close--and to protect any remaining individually owned stakes-- is taken by the particular cooperative.[20] By contrast, in anticipation of shifting market opportunities, the center might take the initiative in suggesting concrete ways in which individual co-ops could shift their product mixes and even give advice on new plant locations. But final decisions rest with the individual co-op-those at the center do have substantial authority, formal and informal, but, where there is disagreement, they tend to negotiate decisions with individual co-ops and make recommendations. They do not have traditional executive authority. In the second area, the preeminence of co-op autonomy is also clear. Whether to enter or remain a part of the Mondragon sectoral network, depends on a decision by each co-op's General Assembly of worker-members. A small number of co-ops did, in fact, decide not to join the MCC structure when it was first proposed (e.g. the ULMA Group) or to leave the structure in later years (e.g. AMPO). Several of these have since voted to return to the Mondragon network, but the key point here is that the decision-making authority for these decisions rests in the individual co-operative firm, not in a centralized, corporate body. A key issue relating to membership and democracy in groups is the legal structure of joint ventures and subsidiaries. Again Mondragon has also shown itself to be very flexible in this area. During the early years, all enterprises in the group were cooperatives located in the Basque region and new firms entered the group as start-up co-ops or through immediate conversions or mergers of existing firms into co-ops before or upon entry. Over the years, however, the group has purposefully evolved to include *enterprises that are not restricted to cooperatives*. As well as the now extensive use of conventionally-owned subsidiaries outside the Basque Country, particularly in the Eroski retail chain and in the industrial co-ops' as part of the internationalization process, since the late 1980s, the Mondragon group has expanded by acquiring

[20] An interviewee provided details of the steps surrounding the closure of two co-ops COVIMAR and VICON during earlier crises. The process of managing this change involved many stages including pay cuts (which increased over time) and technical and financial assistance from the Caja Laboral (on behalf of the group). While sustaining jobs was a key concern, repayment of creditors was also of central importance. Ultimately the co-op decided to close.

existing firms both outside and inside the Basque Country. While some of these later acquisitions soon became co-operatives as in the early years, often the acquired companies, initially at least, continued to be structured as conventional firms. One example was the acquisition of FABRELEC, a local domestic appliance manufacturer in 1989.After a five-year period, an overwhelming majority of employees at that firm voted to became members. More or less similar processes have been undertaken in other conventional firms acquired by Mondragon co-ops. Another new organizational form that has been created is the so-called "mixed cooperative". These emerged because of rising capital requirements in start-up situations, especially in capital intensive manufacturing sectors, and the inability to obtain sufficient capital either from the traditional core source, namely worker-members' initial investments, or, given the high debt-to-equity ratios involved, through standard debt from the Caja Laboral or other banks. These mixed cooperatives allow for "investor" members, generally other cooperative firms in the Mondragon group, and are structured to provide modest, but explicitly limited control rights for new capital suppliers. An example is MULTIFOOD. Thus, the evidence for Mondragon does suggest that it is possible to adapt institutions in order to sustain meaningful democracy within individual co-ops as well as groups of co-operatives, and that changes can be made that accommodate competing needs.

Case 2: Finnish co-operative banks

Co-operative banks are very important in Finland. There are two groups of co-operative banks, of which the larger, OP-Pohjola Group, commanded a market share of 33.0% of retail lending and 32.4% in deposits in 2010. By both indicators, it was the largest retail bank in Finland. In addition, OP-Pohjola has been heavily involved in insurance after acquiring the insurance company Pohjola in 2005, and its market share in non-life insurance was 27.6% in 2010.[21]The other group, POP Bank, had a 2.0% market share in retail lending and 3.1% in deposits in 2010.[22] Thus, the combined markets shares of co-operative banks are over one-third. Finland is one of the European countries with the highest market shares of co-operative banking. Similar or somewhat higher market shares exist in France, Austria and the Netherlands (Fonteyne 2007).

Many European co-operative banks have elaborate group structures, but the Finnish OP-Pohjola Group is one of the most integrated groups, alongside with the Dutch Rabobank group (Ayadi et al. 2010). One of the significant features of the Finnish co-operative banks during the past two decades has been the tightening of the group structure. In the following we examine how this has influenced the sustainability of member democracy within the group.

[21] Prior to the acquisition it was called just OP Group.

[22] The information on bank market shares is from FFFS (2011). The information from the insurance market share is from OP-Pohjola (2011).

5.2 Democratic Challenges for individual co-operatives and co-operative groups.

In Finland centralization of co-operative banks was in large part an outcome of regulatory preference.[23] The deregulation of banking markets in the 1980s generated a huge boom in bank lending and other investment activities. When the economic cycle took a sharp turn for the worse in the early 1990s,[24] bank loan delinquencies increased to an unprecedented level. The economic and banking crises were mutually enforcing. While all banking groups were affected, co-operative banks as a group survived the crisis relatively well, whereas most savings banks, the main competitors of the co-operative banks, failed during the crisis and were acquired by other banks. However, there was significant heterogeneity among co-operative banks; some larger co-operative banks made significant losses and had to be bailed out by the group.

Throughout the crisis the central management of the co-operative banking group was rather cautious and warned the fastest-growing banks about risks in an overheating economy. However, the group center had no means to discipline banks that did not follow their advice. Traditionally the local banks had been dependent on the group's central bank (the OKO-Bank) because the central bank took care of their liquidity management; however, during the economic boom of late 1980s that followed banking deregulation, large local banks could easily obtain short-term funding directly from the market.

Since the 1930s co-operative banks have had a mutual guarantee fund that was designated to bail out failing co-operative banks. However, in the first half of the 1990s this fund was exhausted and sound co-operative banks had to make additional contributions to cover losses made by the problem banks within the group.

A new group structure was designed to overcome the problems in the structure that became apparent during the crisis. From the perspective of the managers at the group level, the key problem was that the center had no means to intervene in the operations of local banks, even in cases where the actions of some local banks were creating negative externalities for the group. The new group structure gave the group center some (although limited) rights to intervene in the management of local banks. Also all banks became fully liable for each other's debts, whereas in the past the liability, in principle, was limited by the size of guarantee fund[25].

Ever since financial co-operatives started in Finland, the central unit has audited the local banks. In turn, the national supervisory authorities audited the central unit. This system remained a part of the new group structure. In the aftermath of the crisis in the mid-1990s, the national supervisory authorities voiced strongly the opinion that the position of the center should be strengthened, even to the point where they advocated the amalgamation of all local banks into a single nationwide co-operative bank. However, this was not acceptable to local co-operative banks. The group structure was a compromise solution where the center gained more rights and all banks became jointly liable for each other's debts.

However, a minority of banks opposed both centralization and joint liability and, in 1997, they seceded from the OP-Group to form their own competing co-operative banking group, now known as POP Bank. This group is a much looser affiliation of co-operative banks than the OP-group and, as noted above, it is also much smaller than the OP-Pohjola Group. The local banks in the POP group have more autonomy than do their peers in the OP-Pohjola group. The emergence of such a split within a co-operative banking

[23] The following description is adapted from Kalmi (2012).

[24] These problems were a combination of outside shocks (dissolution of Soviet Union, recession in Western Europe) and domestic policy failures (overvalued currency, mistakes in financial deregulation).

[25] Although, as noted, in practice banks had to make additional contributions once the fund was used.

group appears to be a unique occurrence in the history of European co-operative banks. As such it is evidence that local banks may actively shape their destiny and leave the group if they do not agree with the policies of the majority.

Even though the degree of centralization of the OP-Pohjola Group is relatively high, the impact of the group on the operations of local banks may still be considered relatively limited. In the OP-Pohjola Group, local banks make independent decisions on matters such as lending and interest rates (both lending and deposits) and personnel hiring. Local banks are locally governed, and their boards are appointed by local members following the "one person, one vote" principle. For many other products (e.g. mutual funds and insurance), the local banks act as agents of the group center. Active involvement of group management in the activities of local banks is extremely rare and takes place only in exceptional circumstances. In this way, the group structure may even strengthen local-level democracy, because the local banks can be smaller and attain economies of scale through collaboration with the center.

There have been some mergers between co-operative banks. In 2000 there were 240 co-operative banks within the OP Group; by the summer of 2011 this number had fallen to 209. In the POP Group, the number of banks has been reduced through mergers from 44 to 36. In practice, the size of local banks varies quite a lot from very small local banks to large regional banks. This is likely to impact the effectiveness of local governance.

One cause for concern for co-operative banks has been the low voting activity of members. Recently the banks in the OP-Pohjola Group have tried to address this issue by enabling voting using the internet. But while member mobilization is likely to be dependent in part on how active the local banks are in promoting member participation, it is also probably the case that most customers are not interested in bank governance *per se* and are likely to feel inadequately prepared to participate in bank governance. For most customers, access to reasonably priced services is their main issue they want from their local co-operative bank and possibilities to participate in governance are likely to be of secondary concern.

5.3 Membership motivations

Concerning the motivations of customers to become members, Jones, Jussila and Kalmi (2009) have found that the size of the common bond is a significant explanatory factor in accounting for differences in membership rates among co-op banks in Finland. This holds true both for the size of the relevant population (e.g. banks operating in large towns or regional banks, have smaller member to population ratios) and for the number of customers (bigger banks have smaller member to customer ratios). They obtain this result after controlling for a number of other determinants of membership, including economic motivations to become members. Emmons and Schmid (1999) report similar results for US credit unions.

Concerning the openness of co-operatives to new members, Finnish co-operative banks have a very good recent record. In 1997 (after the split in the group) the number of members in the OP group was, 0.6 million members; by 2010 it was 1.4 million members, having more than doubled in thirteen years. In 2010 the POP group had around 0.1 million members, and between 1997-2010 its membership growth rates were very robust. [26] At least in the case of the OP Group, the growth has been sustained by a very

[26] Similar developments have taken place elsewhere. For instance in the Dutch Rabobank, the membership has increased from 0.5 million members to 1.8 million members between 1999 and 2010 (Groeneveld 2011).

conscious policy of trying to gain competitive advantage through expanding membership. The main motivating factor has been economic incentives through patronage dividends. The attractiveness of the schemes has been increased throughout the 2000s by making the system financially more rewarding.

Focusing on the years 2001-2005, Jones and Kalmi (2011) find that increases in membership ratios are associated with better bank performance. Their data also indicate that while the number of both members and customers has increased, the growth rate of membership has been much faster than the growth of customers, resulting in increases of membership ratio. On average the member to customer ratio increased from around 35% in 2001 to 39 % in 2005. Their findings, concerning a positive link between membership ratios and performance, differ from earlier literature on the subject that has claimed the relationship to be negative (Gorton and Schmid 1999; Leggett and Strand 2002). As such the Jones and Kalmi results are more promising than most findings contained in earlier literature concerning the sustainability of co-operative democracy. In total, we see both improvements and potential problems in the democratic development of Finnish co-operative banks. The broadening of membership has certainly made co-operative banks more democratic. At the same time, the trend towards centralization and increases of the average size of co-operatives may indicate potential problems in member democracy.

6. Discussion and Conclusions

Commenting on the literature on worker co-operatives up to the early 1990s, Bonin et al. (1993) noted that the literature had been theory-led and that empirical literature had lagged significantly behind. At the same time, it was apparent that theory building had often ignored many well-known stylized facts; early empirical studies often contained results that contradicted the most basic propositions of early theory. A similar observation might be made concerning the proposition that an *inevitable* conflict between democracy and scale economies allegedly exists.

While a cursory look at the evidence might suggest support for this thesis, when we probe deeper into the meaning of as well as the reasons for such a conflict we find that the conceptual basis for the claim is not straightforward and often rests on shaky ground. Thus while individual co-operatives and groups of co-operatives face many challenges concerning democratic decision-making, the nature and scope of these challenges often varies across co-operative types. In some cases, such as "degeneration" in producer co-operatives, it is clear that this is not necessarily an ineluctable process (or even a likely outcome.) In other instances, sometimes surprising outcomes can be expected-for example, group centralization may promote democracy at the local level.

Similarly diverse kinds of scale economies exist and they can be expected to have varying impacts for different co-operatives in different countries. While the range and quality of the available empirical (econometric) evidence is patchy, to date this does not lead to straightforward nor consistent support for the claim that economies of scale are always identifiable. Thus the clearest evidence of economies of scale within financial co-operatives is related to the US experience, whereas the evidence from elsewhere is more ambiguous. However, the existence of economies of scale is also dependent on regulation. For instance, Ferri and Pesce (2011) have argued that the increased compliance costs associated with new banking regulation generate artificial economies of scale that reduce the viability of small banking organizations.

To provide more detailed institutional evidence on some of these matters, we review recent developments at two important co-operative cases. We note that individual Mondragon firms continue to be worker-owned and governed while various mechanisms point to sustained solidarity within and integration of the

group. While some of these changes, e.g. new types of firms and new categories of membership, may be viewed as representing movements away from the founders' ideals, we argue that it is too early to determine whether they represent fundamental changes or not. Thus to date the jury is out on whether the evidence is supportive of some aspects of the claim in this case. Moreover, to deal with emerging challenges, the group has continued to demonstrate an ability to innovate and to make institutional adjustments. Furthermore, there is evidence that many of the developments that appear to represent departures from the founder's ideals are not likely to be sustained, but rather may turn out to be temporary phenomena. This is most clearly the case with Eroski and its on-going strategy of co-operativization. There is also evidence that firms that begin as mixed cooperatives soon assume a traditional cooperative organizational form.

Evidence against the alleged inexorable trade-off between democracy and efficiency and that as a result, all co-operatives must be considered organizations that are necessarily unsustainable, is also found from the experiences of co-op banks in Finland. For example, changes have already been made and also continue to be made to enhance the provision of services to members and to substantially expand the membership base. In addition, the nature of the co-op bank group continues to evolve in ways that are responsive to the needs of individual co-ops.

At the same time we are aware that our paper represents only a preliminary first step in systematic research of this topic and that substantial additional work is needed. As others have noted, there exists a keen need for fresh theoretical perspectives concerning diverse aspects of co-operative governance including the role of boards of directors in co-operatives (Cornforth, 2004), the changing role of social capital in co-operatives (Nilsson et al., 2012) and the determinants of co-operative membership (Jones, Jussila and Kalmi, 2009). We also note that in this paper our institutional discussion focuses on only two cases. Not only is it dangerous to generalize from such a slim empirical base, but we are aware that co-operative history is littered with co-op cases that have disappeared-e.g. in the US, producer cooperatives in sectors including barrel-making and plywood and in the UK, the long-established producer co-operatives.[27] Undoubtedly in some of these and other cases there may have been many failures in trying to deal with the challenges posed by balancing the potentially competing needs for democracy and scale economies. Equally we are aware of other cases that continue to succeed. For example, besides the Finnish case there are many other examples of successful co-operative financial institutions - e.g. see Chaves et al, 2008 for a discussion of the Spanish case. Elsewhere prominent examples of successful co-ops include the Lega and social coops in Italy and the SCOP coops in France. It follows that one key task is to try to develop a comprehensive (global) data base of co-op cases, past and present, where one can confidently determine whether or not cases were able to succeed and avoid degeneration.

A second task is to better understand what accounts for success and failure. What accounts for the demonstrated abilities of Finnish co-op banks and Mondragon to continuously develop institutional responses to potential tradeoffs between democratic challenges and scale economies? For example, what are the underlying mechanisms that need to come into play to facilitate appropriate democratic control of managers by members? Do the Finnish and Mondragon cases reflect unique cultural factors which, in turn, mean that there are factors that arguably cannot easily be transferred to other co-ops? Since the two cases are so different in crucial respects, our sense is that this limited transferability point is not a compelling one and there are many opportunities for their innovative approaches to corporate governance to be emulated. Equally, the available evidence would appear to suggest that isolated co-op cases (the norm with most US PCs) typically experience substantially greater difficulties in thwarting degeneration than do networked co-ops which usually have developed supporting structures.

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[27] See, for example, Jones (1980).

Appendix: Table 1: Mainly Econometric Studies that furnish evidence on economies/diseconomies of scale in co-operatives

Year	Authors	Type of Cooperative	Data	Issues, Hypothesis(es)	Method	Findings & Comments
2011	Jones and Kalmi	Finnish cooperative banks	Panel data for population of all Finnish banks from the first half of the 2000s	What is the impact of co-op membership on performance at Finnish banks?	Estimate fixed effects production functions	Find evidence on diseconomies of scale for Finnish cooperative banks in the first half of the 2000s
2011	Wheelock and Wilson	U.S. credit unions	Random sample; Annual observations from 1989-2006 on all non-corporate credit unions	Are there economies of scale present in U.S. credit unions? Is the current average size of credit unions smaller than what would be efficient? Implications for policy and regulation on credit unions?	Non-parametric local-linear estimator for cost relationship; ray-scale and expansion-path economies; dimension-reduction technique with bootstrap methods	Find significant evidence of increasing returns to scale across range of sizes observed among credit unions; Suggests easing regulation on credit union membership or activity would further increase size of credit unions; Wheelock and Wilson (2008) finds large banks have experienced larger increases in productivity than small banks over the past 20 years
2011	Wilcox and Dopico	U.S. credit unions	Random sample; Credit union mergers, 1984-2009; expense & revenue data, 5 yrs after merger	Common rationale is larger banks are more efficient (lower operating costs), but evidence for improvement is not compelling. Yet, annual % of credit unions that merge remained the same.	Data analysis provided by Dopico and Wilcox (2009) and (2010)	Mergers usually improve credit union cost efficiency (economies of scale); benefits include lower loan, higher deposit rates; credit union mergers have shifted over time to also benefit acquirers; Large acquirer + normal target = benefits for target, none for acquirer; Normal acquirer + normal target = more equal benefit sharing
2009		Japanese cooperative banks (Shinkin & credit cooperatives)	Random sample; 2003-2006 cross-sectional & panel data	Implications of the relationship between size and scale economies of cooperative banks in Japan	Translog cost-function methodology and intermediation approach	Significant diseconomies of scale for small & large coop banks; Larger coop banks at cost disadvantage to smaller ones throughout most of 2003-6; also need stronger risk management programs
2009	Fulton and Hueth	U.S. and Canadian agricultural cooperatives	Convenience sample; 22 previous case studies of co-ops that restructured in 21st century	Were the conversions and restructurings that occurred during the early 21st century isolated events or an on-going trend? Any applicable lessons for other cooperatives?	Case studies using prior research	Structural problems of cooperatives (lack of capital, property right, and portfolio problems) do impact structure chosen by cooperatives & their members; Natural pursuit of growth in scale, scope can lead to downfall – focuses on earnings and not patron value Restructurings & conversions to IOF (investor-owned firms) to raise capital, reduce member production & price risk, and increase member access to equity)

Year	Authors	Type of Cooperative	Data	Issues, Hypothesis(es)	Method	Findings & Comments
2008	Joshi and Smith	Cooperative leagues of Mondragon, Lega	Convenience sample;	What are the strategic incentives of individual firms to form coops, & for coops to organize into a league?	Game theory used to model league & coop formation, cost structures	Economies of scale for R&D, marketing, and finance Models the scenario in which only a coop league should operate, and yet firms decide to form a league despite higher marginal costs than cooperative counterparts
2005	Wilcox	U.S. Credit Unions	Random sample; Annual data on credit unions from 1980 to 2004	Can depository institutions achieve economies of scale?	Compare deposit & merger trends of depository institutions vs. credit unions in the U.S. over time	Find that credit unions typically experience economies of scale – larger credit unions have lower average costs and higher net incomes – attribute this growth to deregulation in the U.S. Also, most academic work finds that banks do not experience economies of scale
2001	Cavallo and Rossi	Banks and financial institutions in France, Germany, Italy, Netherlands, Spain, and UK	Random sample; Annual data from 6 countries for period 1992-1997; 442 banks in unbalanced panel data	Are cost improvements in output efficiency likely to emerge from the ongoing consolidation of European banks? What implications for future market structure?	Model cost function using dual approach (consideration of both input and output characteristics of deposits)	Results support view that regulatory changes & technology progress have raised the optimal scale of banks – consolidation justified; Also show mergers should be oriented to increase bank scale for small banks & to expand into new products for large banks While there are still cost inefficiencies for traditional banks (commercial, cooperative, S+L), significant economies of scale and scope are present for most financial institutions
2001	Moyano-Estrada, Entrena, and Serrano del Rosal	Spanish agricultural cooperatives	Convenience sample Spanish agricultural market cooperative data from 1990-1999	Analyze federations of cooperatives from ideal type of claim-oriented associations (farmers' unions); Effects of establishment of Spanish Federation of Agricultural Cooperatives (CCAE)	Theoretical analysis; discourses, strategies, and organizational models for European agricultural co-ops	Steady reduction in the number of agricultural cooperatives between 1994-1999 but increased concentration indicates likely economies of scale; cooperatives more important for social function than economic; Agricultural cooperatives form territorial associations, branch-oriented interests subordinated; CCAE cannot be seen as result of efficiency factors which reduce transaction costs between co-ops
1999	Lang and Welzel	German cooperative banks	Unbalanced panel of Bavarian cooperative banks, 1989-97	Are there economies of scale for German cooperative banks? Do post-merger cooperative banks exhibit greater cost efficiencies than pre-merger?	Frontier cost functions with time-variable stochastic efficiency term	Find that cooperative bank post-merger does not exhibit any additional efficiency; indicates economies of scale are not present
1998	Mehdian and Rezvanian	US cooperative banks	Annual data on cooperative banks from 1992-94	Do thrift institutions exhibit economies of scale and scope? What was the impact of the FIRREA of 1989 on these institutions?		Find evidence of positive economies of scale and economies of scope for cooperative banks in the US from 1992-94 Also suggest there are a few specific products that exhibit economies of scale and scope during period studied
1996	Lang and Welzel	German cooperative banks	Annual data on 757 German cooperative banks from 1989-1992	Are there economies of scale for size classes of German cooperative banks?	Multi-product translog cost function	Find positive, albeit small, economies of scale exist for German cooperative banks across all size classes Find evidence of economies of scope

Year	Authors	Type of Cooperative	Data	Issues, Hypothesis(es)	Method	Findings & Comments
1996	Kebede and Schreiner	Dairy marketing cooperatives in the Rift Valley of Kenya	Convenience sample 1989-1990 income statement, cross-sectional on 46 firms	Will the current trend of the privatization of firms in Kenya in its agricultural sector wipe out agricultural marketing firms, or will they be able to remain competitive and alive throughout this privatization?	Maximum likelihood technique used to estimate stochastic cost frontier function; can therefore determine technical efficiency & scale economies	Estimated long run average cost curve indicates scale economies; However, most of scale economies are exhausted for the average size of cooperatives in sample; scale elasticity significant at 10% level; Cooperatives are technically efficient for observed technology; can reduce unit costs by expanding volume of milk handled (existing members or adding members or merging)
1996	Rezvanian, Mahdian, and Elyasiani	Cooperative depository institutions in Massachusetts	Random sample within MA banks Detailed info on coop banks in MA, 1989-1991	Do cooperative banks exhibit economies of scale and economies of scope, both overall and within products?	Translog models for: 1) overall econ of scale; 2) prod-spec econ of scale; 3) overall econ of scope 4) prod-spec econ of scope	Previous literature reviewed find that scale economies are present for small depository institutions, but is unclear on large banks Find that ALL cooperative banks exhibit economies of scale Find all except smallest coop banks had positive scope economies, but none were statistically-significant CBs should increase both scale + scope of operation
1992	Schroeder	Farm supply and marketing cooperatives in the US	Random Sample Financial records from 29 cooperatives from 1979-1988	Trend of decline in marketing & farmer cooperatives (acquired, merged, consolidation, bankruptcy) likely explained by operating costs, cost economies. Purpose is to estimate economies of scale & scope.	Bootstrapping regression technique for estimation of confidence intervals for scale, scope elasticity	Strong support for firm-wide economies of scale; Find product-specific economies of scale for grain, petroleum, feed, fertilizer, and merchandise (but not chemical) sales; Find economies of scope for all six products; Common problem with estimations of economies of scale and scope is the lack of knowledge about confidence in estimates, and standard confidence intervals unreliable because nonlinear cost functions
1990	Kolari and Zardkoohi	Cooperative and savings banks in Finland	Convenience sample 1983-1984 year-end data on 369 coop banks, 255 savings banks	What does the cost structure of thrift institutions in Finland look like?	Modified translog cost model, using advances and bills as outputs	Results indicate cost curves for both savings & cooperative banks are L-shaped at plant level, U-shaped at firm level; Find diseconomies of scope in joint production of advances and bills Implies natural monopoly conditions not present (Fin. thrift industry)
2010	Glass, Goddard, McKillop, Wilson	Japanese cooperative banks	Convenience sample from Bankscope, around 400 observations of cooperative banks	Returns to scale and efficiency in Japanese cooperative banks	Modified translog cost model, correcting for the desirability of outputs	Japanese cooperative banks have increasing returns to scale; larger and more diversified cooperative banks are more efficient

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