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Gemeinschaft versus *Gesellschaft*: Cooperatives and the problem of free-riding in the provision of collective goods

Michał Pietrzak, Aleksandra Chlebicka

Abstract: **Background:** Cooperatives are unique entities that combine both non-profit and business attributes, reflecting the dual nature of *Gemeinschaft* and *Gesellschaft*.
Research objectives: This article aims to explore the hybrid nature of cooperatives and the tension between community and business aspects in the context of the provision of collective goods. Specifically, we focused on the free-riding problem, which can harm the viability of cooperatives.
Research design and methods: We based the article on critical analysis and discussion of the literature. The research questions were as follows: What is the inherent nature of cooperatives? What is the essence of the free-rider problem in cooperatives? How could the dual nature of cooperatives help deal with the problem of free-riding?
Results: We discussed different *Gemeinschaft*-based approaches to mitigate free riding, such as kinship selection, direct reciprocity, and indirect reciprocity, which, however, create limitations on the size of the group of cooperators. There is tension between *Gemeinschaft* and *Gesellschaft*, as increasing membership for economic growth can lead to the erosion of social capital. We discussed three possible solutions, including massification, privatization, and leveraging the possibilities of online communities.
Conclusions: Only the last approach, namely leveraging possibilities of online communities offers the solution to the difficult situation caused by the tension between *Gemeinschaft* and *Gesellschaft* as it does not violate the cooperative identity while still allowing for increased scale of the operations.
Keywords: cooperatives, collective goods, free-riding problem, *Gemeinschaft*, *Gesellschaft*
JEL Codes: B52, D02, D23, J54

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1. Introduction

While economic theory ascribes the provision of private goods to the business sector (the second sector), the provision of public goods is primarily attributed to the government (the first sector). However, there is also the voluntary sector of NGOs (the third sector), which provides a wide range of pure and impure public goods. In this context, we focused on the phenomenon of cooperatives, which are hybrid entities that share attributes of both business firms and non-profits.

Since Draheim's (1952) seminal work, researchers studying cooperatives have emphasized their dual nature (e.g. Bonus, 1991; Valentinov, 2004). According to this view, members of a cooperative form both a social group and a business firm. Nilsson and Hendrikse (2011) recognize that this dual nature of cooperatives is parallel to Tönnies' distinction between *Gemeinschaft* (community, fellowship) and *Gesellschaft* (modern society, but also a company/corporation), as introduced in his influential monograph (1988 [1887]).

The dual nature of cooperatives comes with both strengths and weaknesses (Bonus, 1991). For example, the challenges posed by vaguely defined property rights (Cook, 1995; Furubotn & Pejovich, 1970; Hansmann, 2000; Jensen & Meckling, 1979; Pejovich, 1969; Pietrzak, 2022; Vitaliano, 1983) are rooted in the ownership suppression observed in cooperatives. This suppression is directly connected to the social nature of the group of cooperators. According to Porter and Scully (1987), vaguely defined property rights can be a source of inherent inefficiency in cooperatives. On the other hand, such suppression is a crucial feature of cooperatives as social groups (*Gemeinschaft*). The social side of cooperatives offers some interesting solutions that can be successful in dealing with the free-rider problem, a well-known challenge in collective action.

This article aims to address three key questions pertaining to cooperatives:

– What is the inherent nature of cooperatives?
– What is the essence of the free-rider problem in cooperatives?
– How could the dual nature help deal with the problem of free-riding?

The structure of the article is as follows. The introduction provides the rationale for undertaking the problem articulated in the title. Next, we will discuss the nature and attributes of cooperatives as dual entities, which are hybrids between *Gemeinschaft* and *Gesellschaft*. Following this, we will present the nature of the free-rider problem in cooperatives. Then, we will discuss the potential solutions to the free-rider problem. Finally, we will present how the Gemeinschaft (community) side of cooperatives could help deal with the problem of free-riding in the provision of collective goods. We will finish with the synthetic conclusions. We based the article on a critical analysis and discussion of the literature.

2. Cooperatives and their dual nature

Cooperatives operate in various sectors, such as agriculture, finance, energy, housing, and retail, and are examples of self-help initiatives that deserve special attention in turbulent global conditions. For smaller and relatively weaker market players, there is an important need to regain a sense of subjectivity. According to the International Cooperative Alliance, a cooperative is 'an autonomous association of persons united voluntarily to meet their common economic, social and cultural needs and aspirations through a jointly owned and democratically controlled enterprise' (ICA, 2023).

From the above 'Statement of the Cooperative Identity,' one can easily deduce the dual nature of cooperatives, being both a social group and a business firm. As a social group, cooperatives offer potentially a sense of community, social capital, and civic engagement in the provision of diverse collective goods. At the same time, they must strive to be effective and efficient to deliver economic benefits to their members and survive in the competitive marketplace.

Nilsson and Hendrikse (2011) recognized that the dual nature of cooperatives is parallel to Tönnies' (1988 [1887]) classical sociological distinction between *Gemeinschaft* and *Gesellschaft*.

We should understand *Gemeinschaft* as a community of people who know each other and have relationships based on altruism and reciprocity. The relationships of *Gemeinschaft* members are autotelic in nature and satisfy the needs for security and belonging. *Gesellschaft* refers to modern mass society, fulfilling its needs through business and state institutions. Members of modern society are linked by formalized business relations and obligations to the state based on calculation and selfishness. Relationships between people here are instrumental, exchanges are equivalent, and the payment of benefits is immediate (Bierówka, 2009; Hołda-Róziewicz, 1992; Nilsson & Hendrikse, 2011; Szacki, 1988, pp. XIII–LII; Sztompka 2007, pp. 98–99, 212–123, 220–221, 501, 568; Tönnies, 1988, pp. 27–119; Załęski, 2011).

We should see *Gemeinschaft* and *Gesellschaft* as ideal types of interpersonal relations. In this view, we may see a cooperative as a hybrid of Gemeinschaft and Gesellschaft. The social group of cooperators owns and controls the firm, striving to receive benefits from it. The firm exists to satisfy the desires of the social group's members. The difference between the cooperative as a social group and the cooperative as a company implies different behavioural logic behind the activities within this dual unit. Borrowing Tönnies' dichotomy from classical sociology, we could state that *Gemeinschaft* logic rules within the membership group, while *Gesellschaft* logic dominates the business firms (cf. Szacki [1988, p. XXIV] who compares *Gesellschaft* to the company). Thus, the challenge for cooperatives is to align between the membership logic and the business logic (Nilsson & Hendrikse, 2011). Therefore,

> there is a risk for poor alignment between the two or that the alignment that takes place is on the conditions of one organizational unit at the expense of the other one. In any case, there is a risk of inefficient operations. … If the cooperative society is dominated by the business firm, there is a risk of members becoming uncommitted and losing their trust in the cooperative. Thus, members may reduce their trade, not invest in the cooperative, and refrain from controlling the firm. Similarly, if the cooperative society forces the firm to adapt to its own demands only, there is a risk that the firm does not become competitive enough. (Nilsson & Hendrikse, 2011, p. 1)

The pursuit of alignment between *Gemeinschaft* logic and *Gesellschaft* logic is a unique characteristic of cooperatives.

It is generally accepted that we consider a cooperative as a specific form of management because of the distinct rules of conduct, the so-called cooperative principles. In some countries, e.g. in the USA, these principles (in the so-called American version) are part of the cooperative's definition in normative acts. However, there is no single, universally accepted, set of cooperative principles (Frederick, 1997, p. 5; Henning 2015, p. 272). In Europe, the most common are the principles of the International Cooperative Alliance (ICA):

- voluntary and open membership,
- democratic member control,
- member economic participation,
- autonomy and independence,
- education, training, and information,
- cooperation among cooperatives,
- concern for community.

In addition to the principles of the ICA, the second widely used principles are the so-called American principles or USDA principles. They are popular also among European cooperative researchers (e.g. Nilsson, 1999, p. 452; Van Bekkum, 2001, p. 16; Mierzwa, 2005, pp. 42–43; Pie-

trzak 2006, 2022). This set of cooperative principles is as follows (Frederick, 1997, p. 5; Dunn et al., 2003, p. 5):

– the user-benefits principle,
– the user-ownership principle,
– the user-control principle.

These principles are at the same time basis for the widely accepted definition of a cooperative: 'a cooperative is a user-owned, user-controlled business that distributes benefits on the basis of use' (Henning 2015, p. 272).

Compared to the ICA (European) rules, the US rules are more liberal, pragmatic, and flexible, which results from a kind of minimalism. Meanwhile, ICA principles are more demanding (cf. Mierzwa, 2005; Pietrzak 2006; Szabo 2005). According to Boczar, 'cooperative principles do not belong to absolute truths, formulated once and for all. On the contrary, they are debatable and discussed' (1991, p. 14). To understand the specific nature of this type of organization, we will examine a slightly modified definition proposed by Pietrzak (2022, pp. 354–355), who tried to compile European and American approaches by enlisting the principles in two variants – a more pragmatic one and a more radical one.

A cooperative is an organization, i.e. a deliberate, purposeful system of interaction between members and the business firm that they have established. Cooperatives' key peculiar attribute, namely their dual nature, means that they consist of two parts: the community of members and the enterprise established by them. The cooperative's primary goal is to improve the economic and social situation of its members and their families through self-organization within the community. Moreover, cooperatives differ from other economic and social activities because of the principles enlisted in Table 1.

Table 1. Cooperative principles and their practical meaning in two variants

More pragmatic variant	More radical variant
The User-Benefits Principle:	
– The majority of members' benefits are tied to usage and shared in proportion to usage (at least 50% of total benefits). – Limited return on capital (not deviating from the return on safe financial instruments, e.g. government bonds). – Transactions mainly with members (at least 50% of transactions).	– The lion's share of members' benefits is tied to usage and shared in proportion to usage (nearly 100% of total benefits). – No return on capital at all. – Transactions only with members.
The User-Owner Principle:	
– The cooperative's equity comes from the members. – Limited transfer of equity shares (conditionally permitted inheritance and sale of shares in the equity of the cooperative's firm – but only with the consent of the cooperative's decisive bodies). – Withdrawal of equity shares is limited (obligation to finance by the members the permanent, non-withdrawable fund, although it does not have to be dominant in the equity structure; possible existence or even dominance of a variable share fund (floating) that is paid out upon termination of the membership). – A limited number of equity shares per member.	– The cooperative's equity comes from the members. – Prohibited transfer of equity shares. – Withdrawal of equity shares is strongly limited (the permanent, non-withdrawable fund has to have the dominant share in equity; it is not paid out upon termination of the membership). – A limited number of equity shares per member.

More pragmatic variant	More radical variant
The User-Control Principle:	
– Control of the cooperative is exercised by members making decisions through democratic voting, although limited plural voting in proportion to shares is allowed up to a maximum of 5 times of single voting rights (this can be regulated by the maximum number of shares per member).	– Control of the cooperative is exercised by members making decisions through democratic voting, which is interpreted directly, namely: one member-one vote.
Principle of investment in social capital:	
	– Obligation to educate members and employees. – Cooperation between cooperatives. – Concern for the local community.
Other principles:	
	– Voluntary and open membership (in the sense of non-discrimination, but not borders open to everyone without cost). – Autonomy and independence.

Source: Pietrzak, 2022, p. 354.

Cooperatives' ownership structure reflects their unique nature as it shares some characteristics with private property and common pool resources. The peculiarities of cooperatives make them different in many respects from an otherwise similar corporation (public limited company) and other forms of private ownership. A common feature of both cooperatives and civil law partnerships, Ltd. companies, and public limited companies – distinguishing them from individual private ownership – is the fact of sharing property rights (cross-sectional partitioning of property rights [Alchian, 2006 (1961), p. 31]), and therefore, decision sharing. However, the main difference in the case of cooperatives is the incomplete definition of property rights (see Table 2). A cooperative's member is simultaneously a supplier or a buyer and an owner. This relationship with the cooperative (using the cooperative's services) is essential and property rights are inextricably linked to it. Typically, shares in a cooperative's equity are not transferable, although a member can receive a partial return of shares if he/she resigns from membership. In contrast, shares in limited or public limited companies are transferable, but there are often restrictions on the transferability of ownership rights in civil partnerships, making them similar to cooperatives in this regard (see Table 2).

Table 2. Completeness of property rights in cooperative ownership in comparison to diverse forms of private ownership

Completeness of property rights	Ownership type				
	Individual private ownership	Civil law partnerships	Ltd. company	Public limited company	Cooperative ownership
Transferability of property rights	Full	None or restricted	Full	Full, very easy	None or restricted
Exclusivity of property rights	Full	Full	Full	Full	Mixed, some property rights to the benefits have attributes of private good, and some – of collective goods

Source: own elaboration.

The power to take certain actions against a good to which one has the right is the crux of property rights. The most significant feature of cooperatives that sets them apart from other types of private ownership is the bounded exclusivity of property rights to the benefits generated by the cooperative. This is due to the wide array of benefits provided by cooperatives, which have attributes of collective goods (pure public goods and common pool resources). This fact induces the problem of free-riding (Cook, 1995; & Meckling Jensen, 2000 [1979]; Pietrzak, 2022; Vitaliano, 1983).

3. Cooperatives as collective goods suppliers and the free-rider problem

To put it simply, we may divide the provision of goods into two categories: private goods and public goods. However, this categorization is not comprehensive enough to capture the diversity of goods. For instance, Ostrom (2003) notes a discussion between Musgrave, who argued that public goods are non-excludable, and Samuelson, who argued that public goods are non-rivalrous. Ostrom indicates the need to use both criteria proposed by Musgrave and Samuelson simultaneously (Ostrom, 2003, pp. 240–242), as illustrated in Table 3.

Table 3. Classification of economic goods

Musgrave's criterion	Samuelson's criterion	
	Rivalrous in consumption	Non-rivalrous in consumption
Excludable	private goods	club goods
Non-excludable	collective goods (or public goods in the broad meaning)	
	common pool resources (CPR)	public goods (in the strict meaning)

Source: own elaboration based on Jakubowski, 2012, p. 43; Olson, 1971, pp. 9–16; Ostrom, 2003, pp. 240–242.

Table 3 shows the four types of goods resulting from the combination of excludability and rivalry. Understanding the different categories of goods is particularly relevant for cooperatives, because they typically create many economic goods, which could potentially cover all of the categories presented in Table 3. However, in this text, we would like to focus on collective goods, the provision of which suffers from the free-rider problem.

Czarnik defines free riding as the act of benefiting from a public good without contributing to its provision (2007, p. 47). In other words, a free-rider is an economic actor who takes advantage of public goods without paying for them (Kargol-Wasiluk, 2008, p. 98). Olson identifies public goods as goods whose nature is such that if one person (X_i) in a group (X_1, …, X_i, …, X_n) uses them, it is not feasible to prevent the other members of the group from also using them. Olson refers to such resources as 'collective goods' (Olson, 1971, p. 14). Noteworthy, Olson's condition is in fact Musgrave's criterion (see Table 2). If the goods are non-excludable that means it is difficult to prevent people from using them once they are provided. As a result, people have an incentive to let others pay for the provision of such goods while they enjoy the benefits without bearing the costs of the provision.

Ostrom (2003) objects to the validity of a broad definition of public goods and popular solutions proposed to mitigate free-riding, such as government intervention. She emphasizes that Musgrave's classification, adopted by Olson, led Olson to undertake the overly ambitious task of developing a universal theory for all goods meeting the non-excludability criterion. If we

simultaneously take Samuelson's criterion into account, the collective goods category breaks down into public goods and common pool resources (CPR) – as shown in Table 2. According to Ostrom, attempts to build a common theory for the entire category of collective goods are counterproductive (2003, pp. 241–242). As Ostrom (2011 [1990]) convincingly demonstrated in her famous book, communities carrying on common pool resources can effectively deal with the problem of free-riding without recourse to government. Common pool resources are rivalrous in consumption. Ostrom (2003) proposes that the free-rider problem in CPR could be solved by striving to achieve at least partial exclusion by 'building walls' (Ostrom 2003, p. 241). In her book (Ostrom 2011 [1990]), 'clearly defined boundaries' (p. 90) constitute the first design principle drawn from the practice of long-enduring CPR institutions. This principle means that it is necessary to determine who can use the shared resources and define the boundaries of the pool of shared resources as such. 'Without defining the boundaries of the CPR and closing it to "outsiders," local appropriators face the risk that any benefits they produce by their efforts will be reaped by others who have not contributed to those efforts' (Ostrom 2011 [1990], p. 91).

How do these observations relate to cooperatives? Jensen and Meckling were the first to address the 'common-property problem' found in employee cooperatives, should the cooperative strictly follows the open membership principle with zero entry costs (Jensen & Meckling 2000 [1979], p. 43). New employees admitted to such companies receive the same residual claims as those previously employed who already made some investments. Vitaliano (1983) upholds Jensen and Meckling's argument regarding agricultural cooperatives, noting that even if new members incur entry fees, they are rarely required to make these initial fees equal to the value of the entitlements they acquire as part of their membership.

Continuing Vitaliano's work, Cook (1995) renamed the issue as the free-rider problem and distinguished between its internal and external aspects. The free-rider problem manifests in cooperatives in two forms: internally, i.e. new members receive the same benefits as existing members (this is how Jensen and Meckling (2000 [1979]) and Vitaliano (1983) understood the problem), and externally, whereby non-members benefit from the cooperative' effects. An external free-rider problem involves the fact that some of the benefits of cooperatives may be public goods in the narrow sense (cf. Table 2). An example of such a situation is the corrective effect of cooperatives on market failure (the so-called competitive yardstick role).

Cook's (1995) distinction corresponds with Ostrom's differentiation between two categories of collective goods. The internal free-rider problem relates to the category of common pool resources. Cooperatives generate benefits for all members while making it difficult to exclude from the consumption of these benefits the members who have not paid the 'full price' for them, i.e. newcomers.

The role of a cooperative as a competitive benchmark could be an example of the external free-rider problem in cooperatives. Since Nourse's (1945) advocacy, a key rationale for the economic justification of cooperatives is their competitive yardstick role. According to Nourse (1945), the presence of efficient cooperatives in any sector affects the behaviour of other market players, forcing them to behave more competitively. As a result, the whole industry functions in a way that more closely approximates the ideal of free competition, thus benefiting social welfare. In its role as a competitive yardstick, the cooperative acts as a tool to correct market imperfections (Ginder, 1993; Ingalsbe & Groves, 1989; Nourse, 1992; Zeuli & Crop, 2004). However, in such a case, any potential member could easily refuse to contribute to setting up and running a cooperative while still gaining the benefits of more attractive market prices that have changed positively as a result of the cooperative's establishment (Cook 1995, p. 1156).

4. Potential solutions to the free-rider problem

Non-mitigated free-riding problems can have several negative impacts on cooperatives' viability. It can significantly undermine the cooperative's resource base by reducing the incentives among members to contribute to the setting up and development of the cooperative. When supporting members perceive that free-riders are not contributing equally or even at all, they may become demotivated to contribute themselves. This can lead to a snowball effect in declining resources, productivity, and efficiency, which can ultimately harm the cooperative's competitiveness and its ability to generate benefits for its members. In turn, this reinforces the cooperative's death spiral. Cooperatives are built on social capital, and a free-riding attitude can undermine this capital. When members perceive such an attitude in their colleagues' behaviour, they may become less willing to cooperate. This can lead to resentment and conflict among members and ultimately result in a decline in the sense of community, trust, and will to work together. These factors are essential for the success of a cooperative, and their decline can significantly harm the cooperative's long-term viability.

Lichbach (1996; 1998) proposed a typology of solutions to the free-rider problem in cooperation. This typology varies in two dimensions: the ontology of order and deliberation. The ontology of the order can be either spontaneous or contingent, while deliberation refers to whether the actors involved in the free-rider problem discuss the situation and ultimately devise a solution. Based on these two dimensions, Lichbach's taxonomy identifies four generic solutions to the free-riding problem: market, community, contract, and hierarchy (Table 4). Each of these solutions has its advantages and disadvantages and the choice of the appropriate solution depends on the specific context and the nature of the free-rider problem at hand.

Table 4. Lichbach taxonomy of approaches to the free-rider problem

Ontology	Deliberation	
	Unplanned order	Planned order
Spontaneous order	Market	Contract
Contingent order	Community	Hierarchy

Source: Lichbach, 1998, p. 409.

Market approaches are characterized by spontaneous and unplanned order. They assume that individuals are driven by forces operating at the individual level and operate by changing the starting point parameters of the collective action problem. Market solutions adopt various strategies, such as increasing the benefits from cooperation or lowering the costs of collective action to create a scenario in which the expected gains are large enough for potential partners to realize that they will be better off cooperating. Another market solution is to reduce the supply of the public good, which resolves the problem by eliminating the object of free-riding. For example, Alchian and Demsetz suggest converting common rights into private rights as a 'remedy' for collective action problems. However, we cannot consider this solution a panacea (Alchian & Demsetz, 2006 [1973] pp. 91–92; Lichbach, 1996; 1998; Iliopoulos, 2009; Pietrzak, 2022).

Alternative solutions to market-based approaches modify the context in which the canonical model of collective action operates. Unlike market approaches, community solutions are

unplanned, but they are still based on contingent order. Community solutions assume the existence of preexisting communal structures or institutions. They rely on common belief systems to cope with free-riding, and they perceive preexisting social relationships and common knowledge and values among potential partners as enablers of cooperation. Using common knowledge assumes that people who expect others to contribute to the public good will do the same, which creates congruent expectations that can lead to cooperation in supplying public goods. We may use shared values to overcome narrow self-interest, as shown in a broad range of human activities such as blood donation, ideological dedication, or commitment to religious precepts. According to North (1981; 2011 [1990]), these values play a critical role in the extent to which non-wealth-maximizing motivations influence choices, as opposed to a simple hedonistic individual calculation of benefits and costs.

Contract approaches, like market solutions, focus on individuals, but these individuals can plan their society by studying how mutual contracts can produce collective action. To mitigate free-riding, contract solutions use various forms of mutual agreements engaging potential cooperators in the bargaining process over the type of solutions needed. Contractual voluntary agreements ameliorate free-riding through self-organized and self-regulated governance, typically consisting of rules, statutes, bylaws, and procedures aimed at avoiding opportunistic behaviour (Lichbach, 1996; 1998; Iliopoulos, 2009).

Hierarchy approaches are characterized by both contingent and planned order. They are based on organizations that preexist collective action, and which emerged to manage society and ameliorate the free-rider problem. For example, to solve the free-rider problem, potential cooperators could locate an entrepreneur who will organize the group and will act as an agent on their behalf. The agent could then impose some rules and procedures on the group members (in fact his/her principals[1]). Based on this, the agent could monitor their behaviour and punish (defection) or reward (compliance) them accordingly (Lichbach, 1996; 1998; Iliopoulos, 2009). This idea corresponds to the solution for the team production challenges: 'One method of reducing shirking is for someone to specialize as a monitor to check the input performance of team members' (Alchian & Demsetz, 1972, p. 781).

All the above-mentioned approaches to the free-rider problem have one crucial common feature: they are incomplete, as each creates a second-order free-rider problem, because the implementation of each solution is itself a second-order collective good. Thus, the preexisting institutional context, both formal (e.g. established property rights, contract law, incorporation laws) and informal (developed across communities) remains a condition for the success of any of these solutions. Moreover, to overcome the incompleteness of any particular solution, we need a combination of approaches (Lichbach, 1996; Iliopoulos, 2009).

According to Tönnies (1988), the history of humanity evinces a general trend leading from *Gemeinschaft* to *Gesellschaft*. Consequently, community-type organic relations gradually gave way to a society-type mechanical aggregate of individuals. Markets, contracts, and hierarchies (inventions of *Gesellschaft*) started dominating families and clans (*Gemeinschaft*). However, this does not mean that there can be a complete dominance of *Gesellschaft*-type relations. The

[1] This situation is reminiscent of the story about a riverboat pulling in China that Cheung brings up: 'A large group of workers marched along the shore towing a good-sized wooden boat … the collaborators actually agreed to the hiring of a monitor to whip them' (1983, p. 8). This story seems to be a mere anecdote, not recorded anywhere else, but repeatedly reproduced after Cheung. However, no matter how bizarre the example, even if it is made up, it captures in an exaggerated way the essential thrust of hierarchical solutions mitigating the problem of collective action.

complete disappearance of *Gemeinschaft* ties would lead to the disintegration of social life, and in fact, there are no collectivities composed of pure-type ties (Bierówka, 2009; Szacki, 1988).

As we mentioned at the beginning, the important feature of cooperatives is that they are a dual mix of *Gemeinschaft* and *Gesellschaft*. As such, they comprise all of the four types of solutions discussed above. What makes cooperatives an idiosyncratic phenomenon is a different and unusual form of doing business as compared to 'capitalist modes of organization' (Williamson, 1998, p. 270). However, the cooperatives' *Gesellschaft* side is similar to 'capitalist modes of organization.' What makes the difference is the *Gemeinschaft* side. In the next section, we will look more closely at how the community solutions (following Lichbach's [1996; 1998] taxonomy) could help to ameliorate the free-rider problem.

5. How can cooperatives address the free-rider problem?

We may observe cooperation in various forms of life, from cells and organisms to insect and human communities, as documented by Konieczny et al. (2017), Nowak (2006), and Riolo et al. (2001). This phenomenon presents a challenge to both social and biological sciences, as noted by Meyer (2018). Moreover, as exemplified by Marshall and Veblen, economists have been intrigued by the potential of biological metaphors and analogies to move beyond a mechanistic view of the firm (Schubert 2012). Ghiselin (1978) suggests we should see economics (political economy) and biology (natural economics) as the two pillars that together form general economics. Economists could analyse the cooperation of economic actors and the competition between them using the achievements of evolutionary biology.

The problem with cooperation is cooperation-breaking individuals, defectors, or opportunists in Williamson's terminology. If the essence of cooperation is that an individual incurs a cost c, through which another player can obtain an advantage b, then a deviator is the one who does not incur this cost and thus does not provide an advantage to others. This definition covers also free-riding behaviours.

Based on natural selection, evolution forces individuals to compete, and therefore, it seems that it should reward only selfish behaviour and punish altruism (Hirshleifer, 1978; Nowak, 2006). In a mixed population of cooperators and opportunistic individuals, defectors are better adapted to their environment, as they receive benefits b from cooperators without incurring any costs. As a result, cooperators would disappear from the population due to natural selection in the long run. However, in a population composed entirely of cooperators, the average evolutionary fitness would be higher than that of a population consisting only of opportunists (assuming $c < b$). This suggests a potential evolutionary advantage of cooperation on the group level. However, natural selection does not favour cooperation unless there are mechanisms that support it (Nowak, 2006). If we assume that reproduction, and thus trait transmission, can occur not only genetically but also culturally, we could apply this line of reasoning also in social sciences, including economics.

Cooperation is a fundamental feature of human societies and we may observe it also in various animal species. Like animals, humans have developed two primary mechanisms to promote cooperation: kinship selection and direct reciprocity. The former is the most basic mechanism that promotes cooperation between related individuals. It is successful if the degree of relatedness between individuals, r (which determines the probability of sharing common

genes), satisfies the condition: $r > c/b$. This mechanism creates by itself an important burden to the size of the group of cooperators.[2]

The second one, namely direct reciprocity (reciprocal altruism) is based on the preference for cooperative behaviours between unrelated individuals according to the principle of 'favour for favour.' One of the most popular exemplifications, which reflects the rule of reciprocity is the 'tit for tat' solution suggested by Axelrod (2006 [1984], pp. 27–54) as a strategy for iterative prisoner dilemma. In general, according to Axelrod (2006 [1984]), any effective approach to the iterative prisoner dilemma should be: nice (pp. 42–44), retaliatory (p. 44), forgiving (pp. 36, 38, 42), and clear (pp. 53–54). A condition for the stability of an evolutionary strategy based on direct reciprocity is $w > c/b$ (Nowak, 2006, p. 1560). The challenge for reciprocal altruism, as a safeguard mechanism for cooperation, is the amount of probability w with which the same individuals may meet again. Therefore, this mechanism also creates a burden on the size of the group of cooperators. However, it is not as strict as in the kinship selection case. According to Fehr and Fischbacher, direct reciprocity is 'a strong basic explanation for human altruism in small and stable groups' (2003, p. 788).

Regarding the above discussion on the potential advantages of cooperatives, we may state that small cooperatives could overcome free-riding if their *Gemeinschaft* side was rooted in kinship (kinship selection) or acquaintance relationships (reciprocal altruism). This conclusion is in line with Chlebicka and Pietrzak's results regarding Producer Organizations (POs) in Polish agriculture (2018). Based on the survey, they found that the occurrence of family bonds is much more frequent in the case of POs with membership ≤ 8 farmers than having no relatives in the PO. In POs above eight members, not having family relationships with other members of the group is the norm. Almost all respondents had some acquaintances in the group. However, while there was a fraction of farmers with no acquaintances in their POs, in the case of groups larger than eight members, this situation was extremely rare. Thus, the role of family ties is giving way to acquaintance relationships as the size of the cooperators' group is growing. However, both of these ties represent bonding social capital, which creates a limit to the size of the membership of POs. The size of the group of cooperators is decisive for the survivorship pattern, as Chlebicka and Pietrzak (2018) proved using Kaplan-Meyer test based on data from 974 POs from the period 2001–2017. However, according to the same authors, to set up and maintain a larger cooperation-based initiative, a sufficient stock of bridging social capital is needed. Mechanisms such as kinship selection or reciprocal altruism may not be enough to create such a stock.

As mentioned earlier, humans share with animals two basic solutions that promote cooperation. However, 'human communities represent a major anomaly in the animal world' (Fehr & Fischbacher, 2003, p. 785). 'Human altruism goes far beyond that which has been observed in the animal world' (Fehr and Fischbacher 2003, p. 785), where cooperative behaviours are largely restricted to kin groups and evidence for reciprocal altruism is scarce. The completely new human invention is indirect reciprocity.

With its 'favour for favour' principle, direct reciprocity resembles a barter-based economy. However, just as the invention of money was a breakthrough in economic development, an analogous breakthrough in the mechanisms of cooperation was indirect reciprocity. Indirect reciprocity requires significant cognitive abilities, including the use of language (Dunbar,

[2] Interesting examples of overcoming this burden are social insects (e.g. ants, bees), which share the same genome over pretty large groups of individuals. They achieve a high level of organization within the group through cooperative care (including care of offspring from other individuals) and labour division.

1998; Fehr & Fischbacher, 2003; Nowak, 2006). In this case, reputation plays a role analogous to money (Nowak, 2006). Helping someone builds a reputation, which is rewarded by others. These others may not have directly observed the interaction in question, but they can obtain this information through gossip, rumours, and other means. The evolutionary stable condition for indirect reciprocity is $q > c/b$, where q is the probability of knowing someone's reputation (Nowak, 2006). Importantly, this condition is much milder than in the case of reciprocal altruism. With the development of language, shared morality, and culture, the socialization of social norms, and the creation of institutions (cf. Dunbar, 2016; Fehr & Fischbacher 2003; Nowak, 2006), we may assume that q is much higher than w ($q >> w$).

When taking the form of strong reciprocity, indirect reciprocity can be an even stronger mechanism for supporting collective goods. This means combining the rewarding of cooperative behaviour with the punishment of community members for violating cooperation norms (Fehr & Fischbacher, 2003). To reduce free-riding, punishing defectors is particularly important. Punishment is referred to as second-order altruism, it is costly for the punisher and puts him or her at a disadvantage from the point of view of natural selection at the individual level, but it is beneficial for the group (Dunbar, 2016).

Fehr and Fischbacher's experiments on cooperation in groups showed that without punishment, cooperation breaks down completely in groups with more than eight members. The introduction of the possibility to punish free riders improves cooperation, which, however, decreases significantly in groups with more than 16 members and breaks down completely in groups of 128 or more. It is only the punishment of those members who do not punish defectors that maintains cooperation up to 512 persons, namely the upper limit of the studied groups (Fehr & Fischbacher, 2003).

Hence, indirect reciprocity, and even strong reciprocity, allow for explaining human altruism (and therefore mitigating free-riding) in much larger groups than those possible under the umbrella of kinship or even acquaintance relationships. This is the crucial advantage of cooperatives that take care of their *Gemeinschaft* part, namely, those that are firmly rooted in communities. We mean communities that have a stock of social capital strong enough to control the temptation to opportunism. This is the prerequisite for imposing behavioural constraints by socialization and for building norms of reciprocity and reputational concerns.

On the other hand, relying strongly on community-based indirect reciprocity creates some burdens due to the limited scope regarding the effective size of the group and its growth potential. The set-up costs of social capital and the possible rate of enhancing it restrict the community's effective size.

The *Gesellschaft* part – the business run by a group of cooperators – is subject to the common pressure of increasing size due to the economies of scale and scope and to do it quickly due to the experience curve effects and network externalities. To do this, attracting new members is needed. In fact, one of the ICA principles (2023), i.e. open membership supports this need.

However, the rapid growth in a cooperative's membership base can exceed 'the capacity' of its social capital, which at some point may become a limiting factor due to the exacerbated problem of free riding. Because social capital is idiosyncratic and linked to the personal identity of its carriers, the inability to invest in social capital continuously at an appropriate level can lead to its dissipation, which tends to be more ephemeral compared to economic capital. This is reflected in Figure 1, which illustrates different patterns of economic and social capital accumulation in cooperatives. A quick (too-quick) increase in the number of members may involve

a subadditive mechanism of social capital accumulation, which can even lead to its erosion, as noted by Valentinov (2004). Therefore, a literal interpretation of open membership contradicts the principle of building 'walls' around the community, as espoused by Ostrom (2003, p. 241; 2011, pp. 90–91). This raises the question of why walls should be built when the gates are completely open.

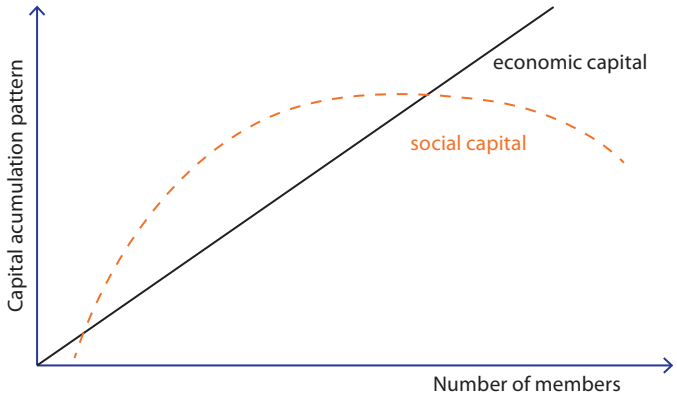

Figure 1. Different patterns of economic capital and social capital accumulation in cooperatives

Source: own elaboration based on Valentinov, 2004, p. 17.

The condition of clearly defined boundaries allows for 'building walls' that separate a community caring for the common good from the rest of the world. In this way, the public good becomes a quasi-private good for the community's surroundings. However, this does not mean that joining an existing cooperative community is impossible; rather, it requires effort and commitment. In our view, this is the proper understanding of the 'open door' principle in a community managing a common good: new members are not excluded by definition, but their admission cannot jeopardize the good that has been developed and protected by existing participants. Without this condition, cooperatives risk losing the benefits of their efforts through the invasion of outside free riders.

The benefits generated by cooperatives remain a public good within the 'walls' surrounding the community. Evolutionary biology and experimental economics suggest that first-order mechanisms, such as kin altruism or direct reciprocity, work well in small groups. However, expanding the community requires more sophisticated mechanisms, such as indirect reciprocity and strong reciprocity. These mechanisms require a socio-cultural community linked by common norms and the ability to enforce them.

A cooperative community (*Gemeinschaft*) understood in this way encounters size constraints[3] and limits to growth, which hinder the possibilities for developing the business part of cooperatives, namely *Gesselschaft*. This tension creates a kind of Gordian knot.

[3] Because the *Gemeinschaft* side of cooperatives is strongly based on altruism and trust (namely on social capital), Pietrzak (2022) suggests that the limiting size for the strong *Gemeinschaft* ties could be close to the so called Dunbar's number. Dunbar's number is an indicative upper limit of the 'natural' size of human communities resulting from the cognitive limitations of our brain. It is extremely interesting to note that the estimate of the limit of the 'natural' community (namely around 150 people) repeats with surprising convergence in a variety of contexts, both historical and contemporary (Dunbar 1998; Dunbar 2016). However, it is worth considering that modern information and communication technologies (ICT) may potentially extend these 'natural' limits.

In our view, there are three possible ways to cope with this tension, but only one of them does not violate the cooperative identity and does not break the dual unity of *Gemeinschaft* and *Gesellschaft* – see Figure 2. Cooperatives are close to the centre, but slightly below (reflecting the characteristic suppression of the owner role in favour of the user role) and slightly to the left (with a predominant concentration on the benefits of private goods, but with an important role for collective goods).

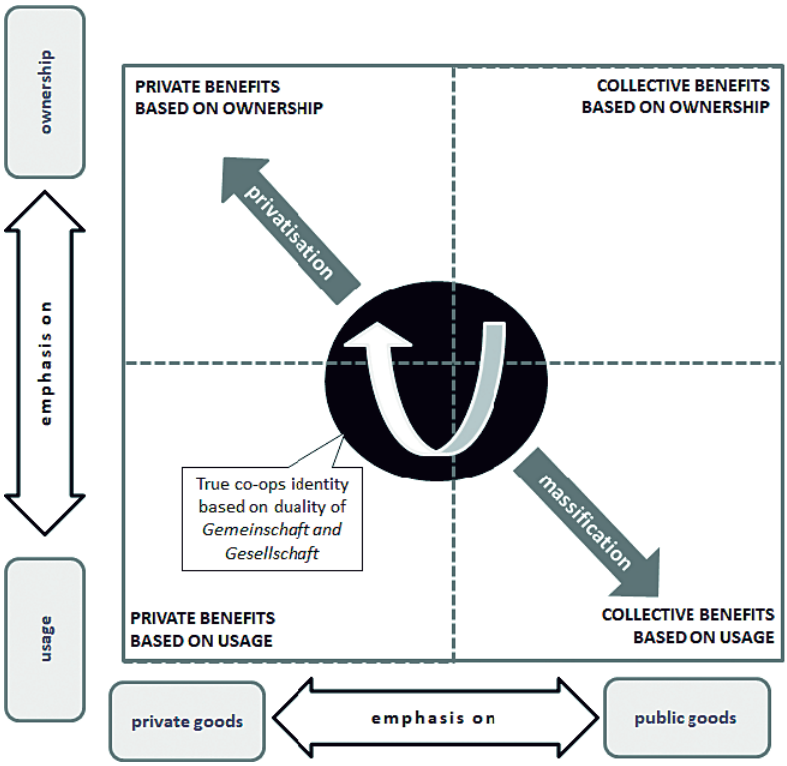

Figure 2. The essence of cooperatives and potential solutions to the tensions between *Gemeinschaft* and *Gesellschaft*

Source: own elaboration based on Pietrzak, 2019, p. 357.

Let us consider the first approach to dealing with the tension between *Gemeinschaft* and *Gesellschaft*, which we call massification (the movement towards the southeast from the centre of Figure 2), because of the significant increase in the number of cooperative members. In some situations, this approach may be advantageous, particularly when the provision of goods offered by the cooperative is characterized by diminishing marginal costs (or other kinds of economies of scale and scope), while at the same time, the size of the individual contribution needed to the cooperative equity is relatively low. In such a situation, an almost literal application of the principle of open membership can prove highly beneficial. Since the entry fees and

These technologies offer opportunities to overcome transaction costs associated with building larger communities by providing substitutes for trust and reputation that are much more scalable than their 'natural' counterparts.

shares subscribed remain relatively small, the barrier to entry for new members is then minimal, making it easier to scale up by massifying membership.

On the other hand, such massification is associated with the progressive formalization of member relations and leads to the introduction of representative democracy. In such situations, there is a risk that the slogans of democratic governance and other cooperative principles become a mere façade hiding the indifference and passivity of the members, which could facilitate the alienation of activists and management from rank-and-file members. This could lead to real governance by the few (in accordance with Michels' 'iron law of oligarchy'). We could expect that despite retaining the rhetoric of *Gemeinschaft*, the bonds typical of a community are atrophying and being replaced by formalized relationships typical of *Gesellschaft* (here: the hierarchy solution – cf. Table 4).

The second way of dealing with the tension between *Gemeinschaft* and *Gesellschaft* is called privatization (the movement towards the northwest from the centre of Figure 2). We could expect pressure on cooperatives towards this direction when the equity requires substantial members' contributions to such an extent that the capital commitment of the individual member becomes very high. Therefore, to ensure and maintain such contributions, it will become necessary to increasingly secure members as investors.

In this way, in contrast to massification, the member's user role gradually gives way to the role of equity-owner. Up to a certain point in the movement in this direction, the role of the investor is still strongly linked to the role of the user. At some point, however, the concessions to the role of members as capitalists become so large that the system goes beyond the scope of a cooperative and loses its *Gemeinschaft* features. *Gesellschaft*-type relationships replace Gemeinschaft ties (here: the mix of market and contract solution – cf. Table 4).

The third possible remedy to the tension between *Gemeinschaft* and *Gesellschaft* appears in Figure 2 as a bright looped arrow. Let us look again at the evolutionary stability condition of indirect reciprocity: $q > c/b$. Both massification and privatization focus in different ways on the c/b expression from this condition. They both strive to minimize the value of this expression by decreasing the cooperation cost (c) or by increasing benefits from it (b). Nowadays, due to the tremendous explosion of new technologies, it is possible to reconsider the left side of the condition, namely q – the probability of knowing about someone's reputation.

The development of ICT technology, internet platforms, and social media facilitates building bigger communities even in areas where it used to be too costly or too complicated, allowing large-scale coordination (Shirky 2008). The communication tools developed and adopted due to internet access ubiquity 'are the first to fit human social networks well … Rather than limiting our communications to one-to-one and one-to-many tools, which have always been a bad fit for social life, we now have many-to-many tools that support and accelerate cooperation and action' (Shirky, 2008 p. 158).

In traditional communities, the probability of knowing about someone's reputation (q) is largely based on gossip and other word-of-mouth opinions. The spread of gossip could be modelled analogously to the spread of disease. Thus, when the likelihood of contact increases, the overall spread of disease or gossip increases as well (Shirky, 2008). Hence, the internet has huge potential as an enabling factor in creating so-called online communities based on communication through email lists, chat rooms, forums, or via social media platforms such as Facebook, Instagram, Discord, Twitter, Mastodon, etc.

'As a result, the spread of information and its value as a coordinating force increased dramatically' (Shirky, 2008, p. 159). However, despite these huge possibilities, the potential of web

communities as a remedy for the size constraint and growth limits of the Gemeinschaft part of cooperatives is still under inquiry. As Shirky states, internet tools 'do not create collective action – they merely remove the obstacles to it. Those obstacles have been so significant and pervasive, however, that as they are being removed, the world is becoming a different place' (Shirky, 2008, p. 159).

There are already some forerunners of the possible changes, namely platform cooperatives, which offer a return to the roots of collective organizing and traditions of cooperatives while simultaneously encompassing new technologies (Scholz, 2016). 'The core premise of platform cooperativism … is to clone the "technological heart" of the new, digital platforms – social media, sharing economy, freelance websites, retail marketplaces, and other types – while redesigning algorithms and the ownership structure so that they become transparent, democratic, and revenue-redistributive in their nature' (Zygmuntowski, 2018, p. 181). The number of such initiatives is still not overwhelming, but Burnicka and Zygmuntowski (2019) estimated some potential for their development, namely PLN 48 million in Poland and EUR 1.3 billion in Europe. The economic success of platform cooperativism could be the catalyst that triggers the avalanche and becomes the turning point in cooperatives' development along the third way (cf. Figure 1). Only on this path will maintain cooperatives' true identity, i.e. the duality of *Gemeinschaft* and *Gesellschaft*. Otherwise, we could predict they lose the momentum, which may remain vital in specific niches or evolve into more *Gesellschaft*-oriented governance forms.

6. Conclusions

Cooperatives are hybrid entities that combine attributes of both firms and non-profits. The idea of the dual nature of cooperatives is parallel to the sociological concept of *Gemeinschaft* and *Gesellschaft* introduced by Tönnies. *Gemeinschaft* refers to a social group that is based on a sense of community, shared values, and mutual obligations. On the other hand, *Gesellschaft* refers to a modern society based on individualism, contractual relationships, and economic transactions. We may see coopoeratives' community aspect in their social capital and democratic governance structure. On the other hand, the business side of cooperatives is reflected in their economic activities, such as providing services to their members and generating profits. However, due to the provision of collective goods by cooperatives, they are prone to free riding.

Based on Lichbach's typology, we described different solutions to the free-rider problem, namely market, community, contracts, and hierarchy. Solving the free rider problem through any of these approaches is incomplete as the implementation of each solution itself becomes a second-order collective good, creating another free rider problem. Therefore, success depends on the preexisting institutional context, formal or informal, and a combination of approaches is necessary to overcome the incompleteness of any single solution.

To understand how cooperatives can mitigate the free rider problem, we scrutinized the community solutions, as defined by Lichbach's taxonomy. Community solutions reflect *Gemeinschaft* part of the dual nature of cooperatives and hence are unique for such form of running economic activity. However, on the other hand, relying on community solutions restricts the size of cooperatives due to the limitations of social capital. Meanwhile, the *Gesellschaft* part of a cooperative is subject to the common pressure of increasing size due to the economies of scale and scope and of doing it quickly due to the experience curve effects and network externalities.

Consequently, there is an inbound tension between *Gemeinschaft* (community) and *Gesellschaft* (business) in cooperatives, which creates a Gordian knot, in which increasing membership for economic growth can lead to the erosion of social capital. To deal with this tension, we propose three possible approaches, i.e. massification, privatization, and leveraging possibilities of online communities. In our view, only the last approach can solve this Gordian knot caused by the tension between *Gemeinschaft* and *Gesellschaft* as it does not violate the cooperative identity but still allows for increasing the scale of the operations.

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About Author/s

Michał Pietrzak*, PhD, Professor
Institute of Economics and Finance
Department of Economics and Organisation of Enterprises
Warsaw University of Life Sciences
ul. Nowoursynowska 16, 02-787 Warszawa, Poland
e-mail: michal_pietrzak@sggw.edu.pl
ORCID: 0000-0002-0418-3436
* Corresponding author.

Aleksandra Chlebicka, PhD
Institute of Economics and Finance
Department of Economics and Organisation of Enterprises
Warsaw University of Life Sciences
ul. Nowoursynowska 16, 02-787 Warszawa, Poland
e-mail: aleksandra_chlebicka@sggw.edu.pl
ORCID: 0000-0002-3896-154X

Authors contributions

M.P. (70%), A.Ch. (30%); Literature review: M.P. (50%) and A.Ch. (50%); Original draft preparation: M.P. (60%) and A.Ch. (40%); Writing of the work: M.P (60%) and A.Ch. (40%).
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