

COOPERATION AND COOPERATIVES:  
THEIR ROLES IN SOCIO-ECONOMIC  
DEVELOPMENT  
*A THEORETICAL FRAMEWORK*

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***Abstract***

*Without cooperation, a developed society would not have existed. However, cooperation is not easy to maintain. Authentic cooperation is difficult in the world of prisoners' dilemma, tragedy of commons and free-riding problems. Furthermore, cooperation is difficult in low trust societies. Cooperatives may help to solve the dilemma of collective action. Using game theory as a tool of analysis, this paper discusses the role of cooperation and cooperatives in socio-economic development of nations.*

**1. COOPERATION**

Neoclassical economics seems to overemphasize the advantages of competition and thereby underemphasized the advantages of cooperation. In fact, both are important and exist together. There is no necessary tradeoff between the two; rather, they complement each other. As Douglas North noted, the potential gain from trade have not been fully realized throughout the world mainly because of lack of cooperation and coordination. North underscored that the scope of the study may go beyond market. He says:

*A neat, definitive answer to why, both throughout history and in most of the present world economies, the potential gain from trade have not been realized, as well as to why the modern Western world has realized (at least partially) this economic potential, would not only solve the issues of economic development but point toward resolving the larger issues of human conflict that continue to hang over our heads.*

Douglas North, 1990

In some cases the individual must cooperate for his or her own sake. That is, there might be "cooperation without friendship" (Axlerod 1981). In other words competition itself may lead to cooperation. In other cases cooperation may require some forms of altruism, devotion to the welfare of others. "Weak' altruism can be defined as behavior that benefits more to another individual than to the individual carrying out the behavior. 'Strong' altruism denotes behavior that benefits others, but at one's own cost (Campbell, 1983)." Both strong and weak altruism are common and necessary in developed societies (Heylighen).

Without cooperation, a developed society would not have existed. Almost everything we use and depend on in our everyday life is produced and brought to us by the coordinated actions of many other people. Almost everything made by humans is produced cooperatively. Human society is a dynamic network of cooperative activity that inseparably interlinks our lives and our actions. (Heylighen 1991).

Adam Smith may be cited as discussing the major role of cooperation when he wrote about the role of division of labor and specialization. Indeed, one of the main ways in which cooperation enables things to be done better is through specialization and division of labor. In a cooperative organization, every individual does not have to do everything needed for survival. Instead, an individual can specialize in a particular task, performing the task not only for him or herself but also for others in the group. This lets the others specialize in other tasks for the group. The result is a highly interdependent organization in which key tasks are performed by individuals who are specially trained and equipped to do them (Heylighen 1991).

Apart from specialization and division of labor cooperation enables the group to acquire capacities the individual components do not have (Heylighen). Combinations can do things that individuals cannot. Cooperative organizations are needed to perform things that cannot be done by individuals.

Cooperation enables to realize economies of scale. Cooperation enables organizing resources. Large human organizations can operate giant projects unimaginable to individuals or small groups.

A further very general advantage of cooperation is that it can prevent the harmful effects of destructive competition. Non-cooperating individuals pursue their own interests even where this damages the interests of others. A population of such individuals will damage each other's interests, and all will loose (Heylighen 1991).

The advantages of cooperation are significant. First, the advantages of cooperation are general. They benefit every member while the advantages of competition might be for the fittest of all only. Societies can solve challenges more effectively through cooperation.

Secondly, the advantages of cooperation can drive progressive evolution. They can do so because the advantages continue to apply no matter how large cooperative organization becomes. The advantages do not cease once cooperative organization reaches a particular scale. Further increases in cooperation will deliver further evolutionary advantages. The potential benefits of cooperation between organizations of the largest scale continued to drive the progressive evolution of cooperation (Heylighen1991).

### **Why then we do not cooperate all the time?**

Despite the advantages of cooperation discussed above, cooperation is not easy to achieve. The difficulty of cooperation has been better explained by the game metaphor. The followings are some of them.<sup>92</sup>

### **Assurance Games (AG)**

Assurance games are games of conviction and coordination. In a two-person assurance games, if both players subscribe to a conviction, self-interest is likely to lead to Pareto-optimum solutions<sup>93</sup>. Adam Smith's famous example about the butcher is an assurance game. Both the butcher and the customer believe in that one should *buy* his or her supper, not steal or confiscate; and, in fact, both has to subscribe to certain norm and conviction in order to make the transaction possible. Cooperation is relatively easily achieved in the case of two person assurance games.

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<sup>92</sup> Game Theory is mathematical analysis of any situation involving conflict of interest, with the intent of indicating the optimal choices that, under given conditions, will lead to a desired outcome. Although game theory has roots in the study of such well-known amusements as checkers, tick-tack-toe, and poker—hence the name—it also involves much more serious conflicts of interest arising in such fields as sociology, economics, and political and military science. A “strategy,” in game theory, means a complete program of a player stating what he or she will do in every conceivable situation he or she may find him or herself in the course of the game. “Payoff” is a measure of the meaning of the outcome to each player.

<sup>93</sup> An outcome is said to be Pareto optimal if no one can be made better off without harming any other member of the group. Otherwise, the outcome is Pareto-inferior.

Two-person AGs can be classified into at least three groups:

**1. AGs with no conflict of interest nor problem of coordination;**

	Player Two		
Player One		a <sub>2</sub>	b <sub>2</sub>
	a <sub>1</sub>	5, 5	0, 0
	b <sub>1</sub>	0, 0	2, 2
<b>Payoff Matrix 1</b>			

	Player Two		
Player One		b <sub>2</sub>	b <sub>2</sub>
	b <sub>1</sub>	6, 4	2, 1
	b <sub>1</sub>	1, 2	1, 1
<b>Payoff Matrix 2</b>			

	Player Two		
Player One		a <sub>2</sub>	b <sub>2</sub>
	a <sub>1</sub>	3, 4	4, 6
	b <sub>1</sub>	2, 1	1, 2
<b>Payoff Matrix 3</b>			

In the above three examples, there is neither conflict of interest nor problem of coordination. It is clear that these games will lead to a Pareto-superior outcome. However, if we violate the assumption that players are indifferent about the other player and substitute this assumption by "the devil's law" that *your utility will increase by hurting others more than you hurt yourself*, then even such simple games may lead to Pareto-inferior outcomes. For example, if player 1 in third example wants to hurt his opponent, he may move a<sub>2</sub> and the outcome with (1, 2) will prevail. His opponent will lose 4 units while he losses only 3. Or, the player 2 in the second game may threaten player 1 that he will move a<sub>2</sub> unless player 1 compensates him by one unit for moving a<sub>1</sub>. This is a credible threat because player 1 stands to lose more than player 2, if player 2 stands firm with his or her commitment. Nevertheless, utility maximization paradigm asserts that people are not devils nor are they Angels.

**2. AGs with no conflict of interest but with problems of coordination.**

	Player Two		
Player One		Right	Left
	R	0, 0	1, 1
	L	1, 1	0, 0

	Player Two		
Player One		b <sub>1</sub>	b <sub>2</sub>
	a <sub>1</sub>	4, 4	2, 2
	a <sub>2</sub>	1, 1	4, 4

These two are examples of *pure coordination* AGs. There is no conflict of interest in such games, but there is problem of coordination. Moreover, there are two or more equilibrium points, of which at least two are equally optimal. An example for the first type of game may be driving on the left or right side of the road. If both drive on the

same side, it is bad for both - there is no ambiguity in this account. The problem lies in deciding whether both should drive on the left or right.

**3. AGs with some conflict of interests and problem of coordination.**

	<b>Player Two</b>				<b>Player Two</b>		
<b>Player One</b>		<b>Redial</b>	<b>Don't</b>	<b>Player One</b>		<b>Opera</b>	<b>Boxing</b>
	<b>Redial</b>	0, 0	1, 2		<b>Opera</b>	3, 1	0, 0
	<b>Don't</b>	2, 1	0, 0		<b>Boxing</b>	0, 0	1, 3

These types of games are also known as "battles of the sexes". There are more than one equilibrium that yield different pay-offs to each player. This makes solving such games in one shot difficult. However, these "nice" games do have a relatively simple super game equilibria. In the telephone case for example, a conviction that the one who dialed first should redial may solve the problem. In the case of entertainment, they may arrange one day to her choice and the other day to his choice. Or, any other conviction may solve the problem.

Multi-person assurance games are tougher. The existence of a critical mass of players who abide to a conviction is necessary for an N-person AG solved automatically. For example, if enough percentage of the total driving population subscribe to the conviction of driving on the right, then, even in the absence of coercive law, driving on the right will be a stable equilibrium. But getting that critical mass is not an easy task. Furthermore, sometimes, even when there is solid conviction, problem coordination may prevent society from achieving the desired solution.

To summarize AG are games in which self-interest may lead to collectively superior outcome; although even in such games cooperation may be difficult due to lack of coordination and/or conviction.

**Chicken Games (CG)**

CGs are games of *precommitment* at the face of high risk. If a player can make his or her decision explicitly clear that he or she will not reconsider the decision, the chances of winning chicken games is high.

	<b>Player Two</b>		
<b>Player One</b>		<b>C</b>	<b>D</b>

	C	2, 2	1, 5
	D	5, 1	0, 0

The characteristic features of CGs are (1) there is no pure-strategy equilibrium point, (2) no player has any dominant strategy, and (3) there is a strong incentive to choose the risky strategy because if a player overcomes that risk, the reward is high. In the payoff matrix 8 the reward for a successful defect is at least  $5-2=3$ .

In the long run, it may pay both parties reach a cooperative equilibrium. In the above matrix, for example, the players may "cooperate" to defect each other alternatively because  $n(5/2) > 2n$ .

		Player Two	
		C	D
Player One	C	3,3	1,4
	D	4,1	0,0

In example 9, on the other hand, mutual cooperation would pay in long run because  $3n > n(4/2)$ . But in both cases problem of commitment makes cooperative outcomes very difficult to achieve.

Cooperation is difficult to achieve in chicken games. The players should trust each other and that trust should outweigh the temptation to defect

### The prisoners Dilemma

The prisoners' dilemma represents a situation where individual interest leads to collectively sub-optimal outcome. A simple model of prisoners' dilemma game is given as below:

		Person Two	
		C	D
Person One	C	13, 13	7, 15
	D	15, 7	8, 8

In such a situation, each of the two players will *rationaly* choose not to cooperate (i.e. to defect) no matter what the other does. This is because 15 is greater than 13 and 8 is greater than 7. Therefore, the most likely outcome is that both will choose not to cooperate and they will get 8 each (16 for both). The strategy defect in this game is said to be a dominant strategy. However, if they could cooperate they could have gained 13 each (26 for both). Self interest coupled with lack of trust may hinder cooperation. One possible way of solving the dilemma is to build trust between the players.

### **The Tragedy of Commons**

When resources are held in common property, the effort to upgrade the resources will diminish because the benefit of upgrading resources goes to the group as a whole rather than to those who invested in the upgrading alone. A common example is when no herder can limit grazing by anyone else's flock. If he limits his own use of the common meadow, he alone loses. Yet unlimited grazing destroys the common resource on which the livelihood of all depends (Putnam 1993, p.163).

### **The logic of Collective Action**

Mancure Olson in his book entitled "The Logic of Collective Action: Public Goods and the Theory of Groups" (1971) described that collective action (cooperation) is easier for small groups. If the group consists of large number of members, there will be little incentive for individuals to invest their resources because all the members will consume any anything that is produced by the group. Since costs are individual while benefits are general, it is better for every member in group to "free-ride". However, if every member free rides, nothing will be produced and thus everybody will be harmed. "Every worker would benefit if all struck simultaneously, but who ever raises the strike banner risks betrayal by a well-rewarded scab, so everyone waits, hoping to benefit from some else's foolhardiness (Putnam 1993, 164)".

Francis Heylighen explains the free-riding problem in the following way.

*The so-called "free rider problem" undermines cooperation in many human activities. For example, it prevents businesses in an industry from cooperating together to train sufficient employees for the industry. If an industry is to be successful and to expand, enough workers must be trained in the general skills needed in that industry. However, businesses that make the investment needed to train employees can have their trained employees poached by other*

*companies. This will often happen before the businesses have got a good return on their investment in training.*

*Free rider companies will rely on other businesses to train the skilled employees they need. Free riders will end up in front because they can get trained employees without paying the high costs of training. In contrast, companies that train can end up having paid for training without being able to hold onto trained employees. To remain competitive, more and more companies have to reduce their general training as much as they can, and join the free riders. Businesses that train for the good of the industry will be at a competitive disadvantage. As a result, the industry as a whole trains insufficient workers, and increasing numbers of businesses suffer shortages of skilled employees. And there is nothing any individual business can do about it if it is to remain competitive.*

*Free riding also undermines the ability of employees to band together to bargain with their employers for higher wages and better conditions. Any improvements won by the bargaining will apply to all employees. So free-riding employees will benefit even though they do not lose wages in strike action, and do not risk retaliation from their employer. Again, the result is that the free riders win out, and cooperation is undermined.*

*... Free riders will always end up ahead of cooperators who use energy or resources by cooperating. Wherever free riding is possible, it undermines cooperation.*

We have seen from the above discussion that cooperation is important and that there are benefits that cannot be realized by competition alone. We have also seen that cooperation is not easy to achieve because there are many barriers. Nevertheless, we cooperate. The existence of barriers makes cooperation difficult, but not impossible. The task ahead is to search for mechanism that would benefit the cooperator more than, at least not less than, the non-cooperator. Game theory and evolutionary biology are progressing in this line. The mainstream economics and sociology seems to lag behind in this particular aspect.

One way of making cooperation a dominant strategy might be organizing cooperatives.

## **2. COOPERATIVES**



Cooperatives can be understood as organizations that can help to solve problems of cooperation; that is, problems that arise from assurance games, chicken games, prisoners dilemma, the tragedy of commons, the dismal logic of collection action, and the like.

Robert Putnam on his highly celebrated book “Making Democracy Work: Civic Tradition in Modern Italy” demonstrated how discrepancy in civic tradition – and by implication in the cooperative attitude – between the north and South Italy resulted into huge discrepancies in socioeconomic levels of development between the two regions of the same country.

Putnam argues that “voluntary cooperation is easier in a community that has inherited a substantial stock of social capita in the form of norms or reciprocity and networks of civic engagement. ... Social capital refers to features of social organization such as trust, norms, and networks that can improve the efficiency of society by facilitating coordinated actions. ... Spontaneous cooperation is facilitated by social capital (p. 167).” An important characteristic of social capital is that its supply increases when it is used and it gets depleted when it is not used.

“An effective norm of generalized reciprocity is likely to be associated with dense networks of social exchange. In communities where people can be confident that trusting will be requited, not exploited, exchange is more likely to ensue. Conversely, repeated exchange over a period of time tends to encourage the development of a norm of generalized reciprocity. In addition, certain sorts of social networks themselves facilitate the resolution of the dilemmas of collective action (Putnam, p. 172).”

Francis Fukuyama in his book entitled “Trust: The Social Virtues and the Creation of Prosperity” define social capital as (adopting the definition given by James Coleman) “the ability of people to work for common purposes in groups and organization (p. 10)”. Fukuyama argues that social capital has large and measurable economic value. Fukuyama associates wealth of nations with their endowment of social capital.

Both Putnam and Fukuyama argue that social capital is produced and nurtured by voluntary associations. The frequently mentioned example is Rotating Saving and Credit Associations (ROSCA). ROSCAs lend money taking social capital as “collateral”. ROSCAs are actually one of the many traditional cooperatives.

Voluntary cooperatives are producers of social capital, the vital resource for any cooperative interaction. It is in cooperatives where social capital (norms, trust, networks, etc.) is produced and nourished.

“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. Cooperatives are people-center business enterprise which operate in all areas of economic activity and in almost all countries of the world. Cooperatives can be large enterprises with millions of members or small community enterprises. However, common to all are the cooperative values all self-help, self-responsibility, democracy, equality, equity, and solidarity. Cooperatives also believe in social responsibility and include as one of their principles the concern for the community in which they operate (COPAC, 2000)”.

“‘Cooperative society’ means a society established by individuals on voluntary basis to collectively solve their economic and social problems and democratically managed same (Proc. No. 147/1998 Art. 2. 2).

### **Principles of Cooperation**

The guiding principles of cooperative organizations are as follows:

- 1) *Voluntary, active and open membership*: The International Cooperative Alliance (ICA) states that “membership of a cooperative society shall be voluntary and available without artificial restriction or any social, political racial or religious discrimination to all persons who can make use of its services and are willing to accept the responsibilities of membership.” Therefore, people can join a cooperative if they share its common bond; however, some cooperatives are specifically for the benefit of a certain community, group of workers or region. Members must agree to the minimal requirements for membership and must be willing to support the co-operative's goals. Also, members may cancel their membership as long as they have met their obligations to the cooperative (e.g. repaid any loans).
- 2) *Democratic control*: Cooperatives provide one vote to each member, regardless of the amount of the member's contributions, capital or savings. All affairs of the cooperatives are administered by persons elected or appointed in a manner agreed by the members and accountable to them. Also, a member's family may participate in the co-operative, but each family has only one vote. This democratic control helps make sure the co-operative works for the benefit of all members.
- 3) *Limited interest on capital*: The main purpose of the co-operative is to serve its members, not to make a profit. Therefore, the interest charged on loans is kept to a minimum and is based on the cost of administration plus the interest paid to

savers. The main goal is service not profits. Capital is regarded as a wage earner but not as a source of profit. According to ICA, “the economic results, arising out of the operation of a society, belong to the members of the society and shall be distributed in such a manner as would avoid one member gaining at the expense of others.”

- 4) *Self Help and Mutual Help*: Cooperation is effective only when members are united. There should not be any discrimination between rich and poor. Nobody is subordinate to anybody; all are treated equally. Self help through mutual help is the essence of cooperation.
- 5) *Fair distribution of earnings*: Equity and justice are the basic elements of cooperation. The major objectives of cooperatives is to provide of services to its members, rather than making profits, However, if surpluses occur, members are free to decide the way of distributing the surpluses or the losses among them. Often, surpluses are distributed in proportion to each member's contributions. For example, some Saving and Credit Associations distributes their surplus according to how much interest each borrower paid. This helps to reduce the cost of loans. Others use the surplus to increase the interest paid to savers. Some cooperatives allocate some percentage of their surplus for:
  - further development of their business,
  - provision of common services like community development,
  - etc.
- 6) *Political, racial and religious neutrality*: Cooperatives accept members regardless of politics, race or religion. They remain neutral on these issues and do not discuss or promote one belief over another. Cooperatives respect the beliefs of others.
- 7) *Cooperative education*: “Create cooperators before creating cooperatives” is a catch word of cooperative movement. Cooperative education is imperative for the successful operation of cooperative organizations. A cooperative will succeed only if its members know their rights and responsibilities and understand how the cooperative should work. This includes their role in working together to make the cooperative work well.
- 8) *Cooperation among Cooperatives*: The success of cooperatives largely depends on their coordination and integration. The ICA rule states that “All cooperative organizations, in order to best serve the interests of their members and their communities, shall actively cooperate in every practical way with other cooperatives at local, national and international levels having as their aim the achievement of unity of action by cooperators throughout the world.”

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