

# Social Capital, a Multidimensional Concept.

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Draft

## Abstract

*There is little doubt that the concept of social capital represents a useful tool for many social sciences. Nevertheless, its use in broad domains and in different disciplines could lead in weak and, sometimes, inaccurate theoretical propositions. We suggest here to pose two basic distinctions up to better focalize the analysis and its effects on the behavior both of actors (micro level) and of social systems (macro level). The first examines the dimensions of its use: by a single versus a larger group of actors. The second distinguishes between two levels: one includes elements built and changed directly by the single actor, while elements included in the other need collective action to be created and modified. We also show the relations between dimensions and levels depicted, and their effects both on micro (individual behavior) and macro (social system behavior) levels of analysis. In the second part of the paper, we use two empirical cases to illustrate the usefulness for analysis of the proposed distinctions. The first one focusses on research regarding the labor market, the second on collective action problems related to common-pool resources management.*

## Introduction

Although the concept of social capital (SC) is commonly accepted as a useful tool for sociological and economic analysis, its complexity and the multiple standpoints from which it has been used make it ambiguous at times and, always, difficult to control (Dasgupta and Serageldin, 1999; E. Ostrom, 2001). This is in part the direct consequence of the theoretical impositions laid down by Coleman (1988 and 1990, 300-321) – a basic reference for this paper – where it is used to identify the functions of a number of different forms of social organization. He brings together under the same heading "heterogeneous phenomena, which have in common the fact that they are configurations of connections or relationships capable of increasing the efficiency of collective or individual actions " (Bianco and Eve, 1999, 169-170). Such a characteristic makes up the richness of the idea of SC but at the same time limits it: a concept capable of giving rise to studies in very different areas, but also interpretations which differ greatly even where they do not clash, and, moreover, not all based on the same model of actors as that proposed by Coleman.

The concept, if used correctly, has extraordinary potentiality. However its application in social research requires a further refinement of the instrument which allows the analysis of the separate parts as well as the putting of them together in a complex structure which shows the reciprocal relationships. This paper is intended as a contribution to such a refinement.

The paper is structured in three sections. The first section addresses the theoretical analysis of the concept and two distinctions are proposed: the first regards the use made of SC, in particular if it is used for the purposes of a single actor or of a larger group; the second distinguishes between the first and second level of SC as the capacity of individuals to modify individually the elements of which it is composed *versus* the necessity of undertaking a process of collective action. The distinctions proposed are successively reconstructed in a schema which illustrates the reciprocal relationships starting from the "metatheoretical proposition" illustrated by Coleman himself (1990, 6-23) with respect to the interaction between the micro and macro levels of social action.

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Finally, two empirical examples are presented to illustrate the use of the theoretical distinctions presented: the first examines the individual's use of SC, the second its effects at the level of the group in a situation characterized by potential problems of collective action. These are pieces of research from different areas: the first is based in the labor market, and the second is about the use of communal resources (*common-pool resources*) – showing the flexibility and the wide applicability of the concept.

## 1. Dimensions and levels of social capital

The definition of social capital given by Coleman (1990, 305) - "the function identified by the concept of 'social capital' is the value of those aspects of the social structure to actors, as resources that can be used by the actors to realize their interests" - has constituted and still constitutes the point of departure for most of the discussion on this subject. The actors are central to this, with their specific interests, which they are trying to realize, using the resources represented by specific aspects of the social structure. The definition is in itself sufficiently elastic to be used with reference to a variable number of individuals: from the single individual, who uses the available SC for his or her own ends, to various sized groups of actors, to the limit of the entire society. In the following pages, we differentiate social capital according to the number of actors who use it by employing the term *dimension*, defining *individual SC* as the case of an individual using personal resources for their own ends,<sup>3</sup> and *collective SC* when the actors involved in its use are more numerous.<sup>4</sup>

Central to the analysis are the ends for which the available SC is used and the choices made by those who use it. In the case of the individual there are both personal interests and the possibility of making choices with respect to the best strategies for reaching one's aims (i.e. how to exploit the available SC).

The case of a greater number of actors is made more problematic by the fact that the resulting group is not necessarily structured in such a way as to be able to fulfill the choices of the collective. Moreover, it may be that its members do not share every interest and the same definition of a collective interest cannot be taken for granted. In this second case therefore there are two specifications:

(1) The SC may bring about benefits which are either used for specific purposes according to a "decisional output"<sup>5</sup> of the group, or which promote a more or less general interest in a spontaneous way. In other words, the collective SC can be consciously used, in a manner similar to the individual, but may also generate spontaneous effects – either for or against the interests of the group (or of a sub group) – as a comprehensive externality - positive or negative – of the actions of the actors making up the reference group.

(2) The SC is not indifferent to outcomes, consequently it is necessary from time to time to examine the effects against the objectives. These may be chosen by the group or established by researchers – external to the group – on the basis of their scientific interests. This is not to say that the purpose expressed by the researchers will be congruent with that expressed by the group but it is necessary in each case to make explicit the objective for which SC is used or analyzed, because it acquires value only with reference to an aim. The distinction between the two dimensions of SC can appear

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<sup>3</sup> It should be noted that the point of view of the *utilizers* is placed here rather than on the elements which make up the SC. In the case of individual SC the user is single, but the SC, inasmuch as it is a resource "incorporated in the relations between persons" (Coleman, 1990, 304) includes nevertheless, by definition, a number of persons > 1. A second observation concerns the concept of actor which may also include, without modifications for the analysis, collective actors considered as a unit of study.

<sup>4</sup>The same expressions are used, "individual" and "collective" social capital as those presented by Bianco and Eve (1999). The two authors refer however to these as *levels* of SC, a term which is here used to indicate a different classification of the characteristics of SC. The distinction between individual and collective SC is made here by the term *dimensions*.

<sup>5</sup> By "decisional output" we mean the result of a process, of whatever type, which explicitly requires the group to make a choice, take a position, determine an objective, etc.

theoretically simple, but it can be seen that even the individual SC is not entirely the "private property" of the particular actor, but is constituted, at least in part, by attributes of the surrounding social context. For example, networks of relationships strictly speaking make up the individual SC while institutions, trustworthiness of social environment or shared knowledge are resources present in the group (in the nature of public goods) which can be utilized by the individual and, in this sense, make up part of his/her social capital. Vice versa, the regulations internalized by the individual (for example, reciprocity, the duty to respect agreements, etc.) can constitute a constraint on an individual's action, but may be advantageous for the group as a whole, increasing the levels of internal cooperation and the collective benefits obtainable<sup>6</sup>.

Also as a result of such ambiguity in the relation between individual and collective SC it is worthwhile to make a second distinction, focused this time on the elements which represent the empirical aspects, in other words the "aspects of social structure" which constitute the resources for the actor or the actors. In Coleman's terms, the SC is identified not by the form of its elements, but by their function, that is the fact of their being a "resource that can be utilized by the actors to realize their interests" (1990, 305). If this functional definition represents one of the more interesting aspects of the concept, as it allows the consideration of the social objects which appear relevant without raising the problem of their form or of their description in detail, it can however make more problematic the overall vision of what the SC might be, let alone the analysis of the relationships between its parts.

To avoid this problem, it is necessary to construct categories that include all the different observable forms. Because they have heuristic values they must be exhaustive and mutually exclusive. To this end, the following five categories are identified amongst which, at least at a sufficient level of approximation, we consider it possible to visible the observable elements which make up the different aspects of SC: (1) Relational, (2) Normative, (3) Cognitive, (4) Trustworthiness of social environment, (5) Institutional.

1. Relational: this is the sum of connections of relations and of exchange - variable in stability, value and contents of the exchange - which link together the different individuals in the context of reference.

2. Normative: this is the sum of the rules and norms of behavior and the values internalized by the actors analyzed. Here we are dealing not so much with the explicit rules of behavior themselves as much as the "internal evaluations", positive or negative, which the individual attaches to certain action or behavior. (E. Ostrom, 1998, 9). The process of internalization of certain norms probably begins in early childhood and continues throughout all the different aspects of social life, the construction of roles, education and the different sanctions for behavior considered appropriate or not in the actions of the individuals with whom the actor is in contact (Dasgupta, 1999, 338-339). Some recent research in the field of developmental psychology suggests that human beings may have developed over the millions of years of their evolution the capacities and the cognitive means to recognize and to learn social norms as instruments to facilitate problem-solving through social exchange. This does not mean that human beings have inherited one or a series of particular norms but that what is transmitted is rather a heightened ability to recognize and elaborate norms in order to increase long term benefits in the face of problems of collective action (Cosmides and Tooby, 1992; E. Ostrom, 1998, 10).

In any case the internalized norms do not represent so much univocal and inflexible commands able to direct the actions of the actors, as much as components in the construction of the individual perception of costs and benefits relative to a specific action, components which add themselves to the costs and objective benefits during the process of choice<sup>7</sup>.

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<sup>6</sup> See, on this subject, Flap (1999) and Snijders (1999).

<sup>7</sup> The construction of the perceived value of a determinate action through the confrontation between objective values and costs or benefits produced by the action of rules and regulations has been formalised through the use of "delta parameters" which from time to time are added to or subtracted from the presumed benefits, as perceived by the actor of reference (Crawford and Ostrom, 1995).

3. Cognitive: this is the sum of the knowledge shared and the information possessed with regard to the problems which the actor or the reference group find themselves facing. In this category are included the heuristics of the individuals, which allow the solution of new problems using the experience accumulated and the sharing of common meanings with respect to specific institutions and behavior. These permit, amongst others, the reduction of the ambiguity intrinsic in every rule, the ambiguity caused by its expression in human language, a system of symbols which lack precision and therefore, in the absence of shared meanings, have potentially conflicting interpretations. (V. Ostrom, 1980).

4. Trustworthiness of social environment: this concerns the general confidence afforded to the behavior of the individuals present in any given system. A high level of trustworthiness of social environment allows a reduction in uncertainty in the face of the possible actions and the will to cooperate of the other members of the group, diminishing in this way the costs of transactions and increasing the possibility of collaboration.

5. Institutional: this includes both informal and formal institutions. By "institution" we mean, according to the definition given by North (1990, 384), those complexes of "informal constructions, of formal rules and of mechanisms which are self-supporting", which constitute in such a way "the rules of the game of human interaction". Defined in this way, institutions, if they function efficiently, are able contemporaneously to reduce the uncertainty of the behavior of the actors and to create an incentive towards greater levels of coordination and of cooperation. These represent one of the principal forces able to influence human behavior, not by chance, the determination of systems of rules, by the participants or of an external authority, and constitute one of the principle ways of resolving the problems of collective action<sup>8</sup>.

It is possible to trace a distinction between the first three and the last two of the categories presented. Relationships, internalized rules and knowledge represent elements of social capital "close" to the individual, in the sense that they vary at least in part with the variations of the actor of reference. On the contrary, reliability in the environment and the institutions includes and explains in an analogous way their effect on a great number of actors. Moreover, and the distinction is fundamental, the component elements of the second set – institutional and trustworthiness of social environment – present strong characteristics of the public good for the whole reference group and, in consequence, their provision and/or maintenance give the problems of collective action to those who benefit from them.

We define therefore the distinction between *social capital at the first level* (SC1) and *social capital at the second level* (SC2) on the basis of the fact that their production and their maintenance respectively present and do not present one or more problems of collective action. In other words, the SC2 constitutes a non-excludable resource for the actors interested in their utilization, actors who therefore have, at least in a theoretical sense, few incentives to participate in their production and maintenance, whence the problem of collective action.

Given such a distinction, it is however plausible that the push towards the resolution of the problems characterized in the production and maintenance of SC2 can be found within the categories included in SC1. These develop in fact the relevant functions in the reduction of costs of transactions related to the processes of creation and of maintenance of the institutions, as well as in the increase in the levels of trustworthiness of social environment in the group. For example, stable relations, multiple (i.e. with different contents) and direct, as well as shared beliefs, values and preferences have been presented as "transactional resources" able to bear the costs of search, bargaining and subsequent maintenance<sup>9</sup> with respect to agreements between actors in sight of the resolution of a common question implying one or more problems of collective action (Taylor and Singleton, 1993).

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<sup>8</sup> Particular attention has been paid to the creation of institutions as a solution to problems of collective action in the study of comunal resources (*common-pool resources*). See E. Ostrom, 1990 and 1995, Ostrom-Gardner-Walker, 1994.

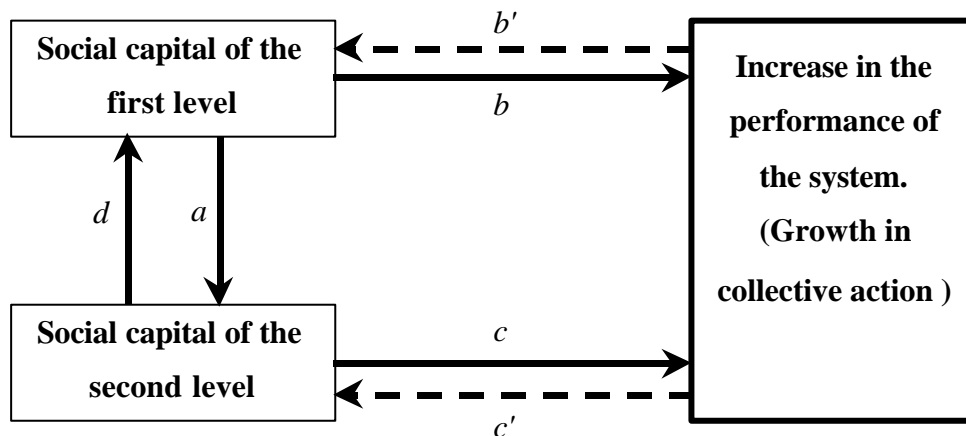
<sup>9</sup> Respectively, *search, bargaining and monitoring and enforcement costs* (Taylor e Singleton, 1993).

The SC1 therefore develops a central sustaining role in respect of SC2, but at the same time however the latter is able to reduce uncertainty about the actions of the actors who share or create incentives for cooperative action, making the investment in relationships more advantageous and increasing the breadth and the solidity of the meaning shared within the group. At best, a virtuous circle is created which tends to reinforce both levels of SC; if, however, one of the factors included in the chain shows the first signs of weakness, following the same mechanism this will be transmitted to the other elements of the cycle, thus causing a dangerous avalanche of negative effects<sup>10</sup>.

The reciprocal action of the two levels of SC appear especially relevant with respect to the collective dimension, where in these cases the objective can be reached through higher levels of coordination and cooperation. The elements which make up SC1 contribute directly to the increase of collective action in the system under examination and, indirectly, through positive action towards SC2 which, in its turn, through its work of creating incentives for the actions of the actors involved, represents a stimulus for the reaching of greater common goods (lines *a*, *b* and *c* in Figure 1).

In terms of the analysis of collective action, the combined effect of the two levels of SC constitutes therefore a "resource" for the actors involved in a social dilemma, each of whom can, thanks to this, reasonably expect cooperative attitudes on the part of the others. Acting in this way, cooperating that is in the expectation of cooperative behavior by the others, better collective (and also often individual) results can be achieved and the original dilemma can be resolved.

Figure 1: the two levels of social capital and their effect on the performance of the system.



In Figure 1 the continuous lines - *a*, *b*, *c*, *d* – represent the action of social capital, while the dotted lines - *b'*, *c'* – show the effects of *feedback* given by the increase in collective action in the system. There are two main virtuous circles which are probably created when the entire mechanism functions positively and creates advantages for the participants: the first, constituted in the section of the figure between *a* and *d*, strictly regards the two levels of social capital which tend to reinforce each other; the second is made up of *a*, *c* and *b'*, that is, the more general effect reached by social capital and the increase of the collective action.

It is now possible to present some considerations with respect to the reciprocal action of the two levels of SC and their contribution to the clarification of the concept. In the first place, the central consideration is the way SC1 and SC2 support each other in the event. It would be difficult for the institutions to function adequately if they are at odds with the capital existing at the lower level, so as to register a high grade of trustworthiness of social environment in the absence of social factors

<sup>10</sup> It should be noted that Krishna (1999) makes a similar distinction between the two levels of SC. The author distinguishes in fact between "relational" and "institutional" SC and affirms that "each of the forms of social capital must be integrated (*complemented*) with the other" (Krishna, 1999, 79).

capable of supporting it (for example, negatively sanctioning, mostly in an informal manner, the actors interested in taking advantage of other people's trust). At the same time, the presence of institutions represents a reduction of the arbitrariness of the actions of the actors considered and, therefore, a stimulus to the development of common expectations and of relations between them. Not only this, but institutions can constitute a force able to produce new SC1, even if the functioning costs in these cases are normally rather high.

In other cases, it is possible that SC1 alone may be capable of allowing the actors to achieve the desired objective. It can be noted however that, at least as far as the collective dimension is concerned, the prolonged utilization of SC1 to reach aims of better coordination or cooperation inside the group tends to create institutions, i.e. SC2, at least on the informal level. In this sense the use, especially over long periods, of SC1 can lead to the formation of SC2. This is a process not dissimilar to that observed in the study of the endogenous management of communal resources (E. Ostrom, 1990 and 1995; Ostrom-Gardner-Walker, 1994).

Finally, with respect to the problem of the study of social capital, since both levels influence the reaching of the objectives of the actor/s analyzed, in the first place they should be considered separately in order to produce an adequate description, but the central phase is that of their reorganization into a schema which includes their effects in an integrated way.

The distinction between dimensions and levels can therefore help to analyze an important concept such as SC, but which remains, since Coleman's definition, rather vague and open to diverse interpretations. However, one cannot set aside the in depth analysis of their relationship and, above all, their collocation in a schema of micro-macro interaction that best describes the links that exist between the actions of the actors and the behavior observed at the level of the system.

## **2. Dimensions and levels in the micro-macro relationship**

In describing a particular social system it is possible to distinguish the macro level - the structure of the game - from the micro - the players. These "contain within themselves some principles of action", while the game "comprises the structures which sets in motion these actions and combines them to produce behavior of the system" (Coleman, 1990, 11). Coleman thus identifies a schema with three components: the elements of the social structure produce incentives for the action of the individual (macro - micro transition); the actors on the basis of their own principles of action and the incentives produced at the macro level decide which actions to carry out (micro level); finally, the combination, according to various models, of the particular actors' actions produce the consequences on the social structure we started from (micro-macro transition). The entire schema offers therefore an interpretative key (a metatheory in the author's terms) with three components on the functioning of a specific social system and how it is influenced by the actions of the actors who make up a part of it (Coleman, 1990, 6-23).

Social capital can be examined through this lens both in its individual and collective dimensions. From the first point of view, it shows the totality of the restrictions and resources (macro) the actor must take into account in choosing his/her own behavior with the aim of realizing a personal goal (macro → micro); the choices made (micro → micro), integrating these with those of the actors who act in the same context, moving then to influence in a more or less notable manner the original SC (micro → macro). Also from the point of view of the collective dimension the schema does not change, however the analysis will be centered not so much on the effective achievement of the objectives of the single actors making up the group, but rather on their aggregated effect with respect to a specific collective aim (explicit or implicit). In other words, the point of view adopted is now macro → macro. The analysis is however carried out through studying the aggregated effects of  $n$  cycles macro → micro → micro → macro, where  $n$  is the number of actors making up the reference group.

Given the definition of the macro and micro points of view, much of the SC insofar as it is *social* can only be placed in the first area, that is it assumes a character essentially above-individual. In

effect, it makes up part of those "rules of the game" which influence the choices and the actions of the players, through the creation of opportunities and of restraints. In this sense the distinction between micro and macro does not strictly coincide with that between the dimensions nor between the levels of SC, even if it is clear that the collective SC cannot refer to anything but the macro level. Vice versa, at least a part of the individual SC is modified with the variation of the individual of reference (in other terms, it is its property): it changes, that is, with the actor and depends on his/her position in the group and on his/her past actions, assuming thus a prevalently micro character. Part of the individual SC on the contrary remains constant with the change of the actor of reference, at least as long as s/he remain within the same group<sup>11</sup>, and is therefore closer to the macro point of view of the analysis.

As shown in Table 1, the relational, normative and cognitive categories are dependent on the individual of reference, while trustworthiness of social environment and institutions vary instead as the group varies and tend to be similar for all the actors within the group. The networks created by each individual are in part inherited from the family of origin and in part acquired voluntarily (a conscious investment in SC in the form of relationships) or involuntarily (as a byproduct of actions with different aims). In consequence these will vary according to the "history" of each individual and will never coincide perfectly even in the narrowest groups. For example, a husband and wife in a long marriage will probably share relations and most of their friends but it is also probable that their past acquaintances, work colleagues and/or their companions from their favorite hobbies will be different and, therefore, their relational SC will at least in part be different<sup>12</sup>. Analogous considerations may be made for the normative and cognitive categories, never exactly coinciding in the various individuals of reference (not to deny all individual capacities of evaluation and choice and to consider the actors as purely receivers of values and knowledge, socially and uniformly diffuse).

Different considerations can be made about trustworthiness of social environment and about the institutions which tend to remain invariant within the group under examination, i.e. to be equal for all the individuals who make up the group. For example, in many of the systems of irrigation studied by Tang (1992), as well as in the cases related to the Aosta Valley, in this paper<sup>13</sup>, a rule (or a set of rules) has been found which establishes the drawing of water from the common canal in proportion to the surface area of the fields owned. Such a rule constitutes SC inasmuch as it permits the organization of collective action supporting the distribution of adequate water according to the needs of the crops and increasing common beneficial outcomes. This applies to all the farmers interested in using the system, creating incentives in this way in an analogous manner for all the actors to utilize the right quantity of water, avoiding waste and providing sanctions for transgressors.

The example proposed by Coleman (1990, 306-307 – originally dealt with by Geertz, 1962) concerns the associations of rotating credit diffuse throughout South-East Asia - where each member pays every month into the common fund a small amount of money which comes, in turn, to be put at the disposition of one of the participants for investment or personal purchases – where it is shown how the mechanism described can function only in the presence of high levels of trustworthiness of social environment which allows each of the individuals involved to expect reasonably, that, when they reach their turn, they will be able to benefit from the capital accumulated thanks to the contribution of all the other participants. From our point of view what is relevant is that the trustworthiness of social environment present in each of the associations is

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<sup>11</sup> Naturally we are dealing here with a theoretical transaction, in practice it is extremely improbable that the boundaries of the SC utilized for any desired objective will be exactly congruent with those of the group. Moreover, both the first and second are, in the majority of cases, extremely difficult if not impossible to trace and analyze.

<sup>12</sup> There could be objections that the husband could use for his own ends the SC of the wife and vice versa, but note however that in this case the SC considered is no longer strictly individual, but rather "familial", that is collective SC where the group of reference is the family.

<sup>13</sup> See § 5.

analogous and operates in a similar manner for all the members, not changing with the change of individual of reference.

It is not surprising that the distinction between categories of SC variable with the change of the individual of reference and categories variable only with a change of group coincide with the proposal between the two levels of SC, since, analogous to the last example, even this is based in the final analysis on the concept of collective action. While the individual may decide to invest in new relations or choose to break some of the existing relations, to work to find knowledge and information and, within strict limits, to change his/her own norms of reference (in this case in a mostly unconscious manner), institutions and trustworthiness of social environment are in fact given. To change the rule which establishes the turns of access to irrigation in the example given above, one would have to involve the other members of the group in a process of individuation of the possible alternatives and of successive bargaining about which of these it would be most effective to employ, in synthesis to start a process of collective action with the objective of an institutional change. But precisely the fact of being the fruit of a process of collective action constitutes the nucleus of our distinction between the two levels of social capital.

Examining the intersection between dimensions and levels reported in Table 1, the only SC which it is possible to consider really micro, in the sense that it never coincides completely with the change in the individual of reference, is placed at the first level and with the individual dimension (the top left quadrant in the table). All the other quadrants include categories of SC, which are incentives in an analogous manner to the actions of all the members of the group of reference and, in this sense, constitute the macro point of view of the analysis. It should be noted that the individual SC2 coincides with that of the membership group insofar as it is made up of the attributes of the social structure - institutions and trustworthiness of social environment - which acquire meaning only from the collective point of view. Moreover, as already noted, the single individual has no possibility to modify them without engaging in the processes of collective action, interacting therefore with other actors. Consequently, in the analysis of the SC2 we see the distinction between the individual and the collective dimensions and the macro point of view includes as much the social capital of the second level as the collective dimension of that of the first level. The micro point of view on the contrary includes only social capital of the first level with an individual dimension.

*Table 1: dimensions and levels of social capital in micro-macro connections*

SOCIAL CAPITAL		DIMENSIONS	
		Individual	Collective
LEVELS	First	<ul style="list-style-type: none"> <li>- Relational</li> <li>- Normative</li> <li>- Cognitive</li> </ul> } <b>MICRO</b>	<ul style="list-style-type: none"> <li>- Relational</li> <li>- Normative</li> <li>- Cognitive</li> </ul> } <b>MACRO</b>
	Second	<ul style="list-style-type: none"> <li>- Trustworthiness of social environment</li> <li>- Institutions</li> </ul> } <b>MACRO</b>	

### 3. Forms of social capital and their relations in the micro-macro connections

The term social capital refers to a multidimensional concept which, to be useful in research needs to be disaggregated. The form it assumes needs to be studied in specific situations to understand the connections between it and other types of capital. Moving in this direction, in the preceding



paragraph we introduced the categories. Each of these can be include within it several forms of social capital. In this section of the paper we focus on the single forms of SC analyzing the micro-macro connection.

Coleman (1990) himself distinguishes diverse forms of social capital with reference to different elements of the social structure – such as the networks, norms, obligations – which can serve to reach a determined aim in a determined situation and not in another. His list does not pretend to be exhaustive, rather “common elements of the social structure” (Coleman, 1990) which can be a form of social capital according to the objective to be reached<sup>14</sup>. He examines: “the characteristics of the social relations which might constitute resources of capital useful for individuals” (Coleman, 1990, 306). Between the forms of social capital listed by the author there are the *obligations and expectations*, the *norms and effective sanctions*, the *channels of information* and the *relations with authority*. Coleman makes an important distinction between the *appropriable social organizations* and the *intentional organizations*: the first refers to organizations created for an end which can be used for other objectives and in this sense constitutes social capital available for use; in the second case we are dealing with social capital as the profit from intentional investments.

Tracing these forms to the categories proposed in this paper, it is possible to observe that the *norms and effective sanctions* fall into the institutional category; the *information potential* in the cognitive, the *obligations and expectations*, the *relations with authority*, the *appropriable social organizations* and the *intentional organizations* make up part of the relational category, as they refer to a particular type of social relations. Precision is needed to pinpoint which *appropriable social organizations* and *intentional organizations* refer to more structured social relations of the preceding forms and how they come close to the institutional category.

The macro-micro-micro-macro connection of Coleman’s model can be applied to the single forms of social capital and allow us to take another step forward to connect the two levels of social capital. One of the principal forms of social capital is “*obligations and expectations*”. This derives from the relations of trust that an individual enjoys. “If A does something for B and trusts that B will reciprocate in future, this fact establishes an expectation for A and an obligation on the part of B not to betray the trust given by A” (Coleman, 1990, 306). This obligation can be conceived as a *credit slip* possessed by A, which can be redeemed by some action of B.

Coleman specifies, moreover, that: “Two elements are critical in this kind of social capital: the level of reliability in the social environment, which means that the obligations will be respected, and the present extent of the obligations deferred” (Coleman, 1990, 306). The social structure differs along these two dimensions, and the actors within a particular structure differ in the second. To develop this point, left hanging by the author, allows us to make important considerations about his two levels of social capital. In fact, each social structure presents a certain level of reliability and a certain extent of the obligations deferred, which is the sum of the deferred obligations of each individual who makes up a part of that structure, while actors within the same structure act in the presence of the same level of reliability, but each one has a different range of deferred obligations.

The fact that in a determined community there may be a high level of reliability present in the territory, or better to be inserted into a community based on foundations of reciprocal trust (to trust implies that there is evidence and an expectation of the greater regularity of confidence<sup>15</sup>), that is on a higher Trustworthiness of social environment, implying that the risk that the obligations will not be redeemed is very low. The possibility of trust is, therefore, a social capital at the disposition of the persons within that social structure. We are dealing here, in particular, with social capital of the second level (SC2). The trust is, however, an action undertaken by the actor, which constitutes for

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<sup>14</sup> We are dealing here with a definition which leaves room for ambiguity and which has caused different puzzles in the theoretical debate. On the other hand in the literature it is not possible yet to trace a shared definition of social capital. For the type of exercise proposed in this paper, the one proposed by Coleman seemed to us the most adequate as a reference.

<sup>15</sup> For the distinction between trust and confidence see Gambetta (1989), in particular essays by Luhmann and Hart and Dunn.

him social capital (SC1) as, for example, it reduces drastically the costs of transactions and the costs of monitoring.

Consequently, different actors within the same social structure, and therefore in the presence of the same level of “trusting”, can decide to construct themselves and can possess a different number of credits of obligations.

In the light of the concept of social capital it becomes rational for an actor to create obligations and relations of trust. Coleman specifies that a rational actor also has an interest in creating obligations intentionally, since he believes that the benefits (future) expected from his deferred obligations (reciprocation of the obligation) will be greater than the costs (present) of constructing the obligation. Thus in certain cases it may be rational to refuse to accept favors, in order not to have the obligation to repay (Coleman, 1990).

The relation between the collective and the individual social capital is twofold. On the one hand, the level of trustworthiness of social environment, the trust in that society, allows the functioning of the mechanism of generalized reciprocity and makes it convenient for individuals to invest in *credit slips*, influencing the number of obligations which each individual will create. This, in fact, defines the collective expectation that the obligations will be redeemed. On the other hand, however, the total number of the obligations of single individuals belonging to a given social structure affects the expectations that the obligations will be repaid.

The macro-micro-micro-macro relation of the social capital in the form *obligations and expectations* is represented graphically in Figure 2.

1) The first transition (macro  $\rightarrow$  micro) shows that the level of trustworthiness of social environment (SC2), made up of the objective probability that the obligations will be paid back and by the total number of the obligations deferred in a given social structure, influences the individual belief of the individuals within that structure as to the probability that the obligation will be reciprocated.

2) Such a belief conditions, in the second transition (micro  $\rightarrow$  micro), the individual calculation of cost benefits. The construction of the obligation depends on the fact that the individual believes that the expected benefits will be greater than actual costs. The value of the benefit expected depends on the probability that the obligation will be reciprocated. Therefore, if such a probability increases, the expected benefits increase and thus the range and number of the obligations that the individual decides to make will increase (SC1). Each individual within the same structure will decide to make a different number of obligations in relation to those retained that will be made use of.

3) The level of extension of obligations that each person decides to make influences, in turn, the collective dimension: both the objective probability of reciprocation and the total extent of the obligations deferred (SC2).

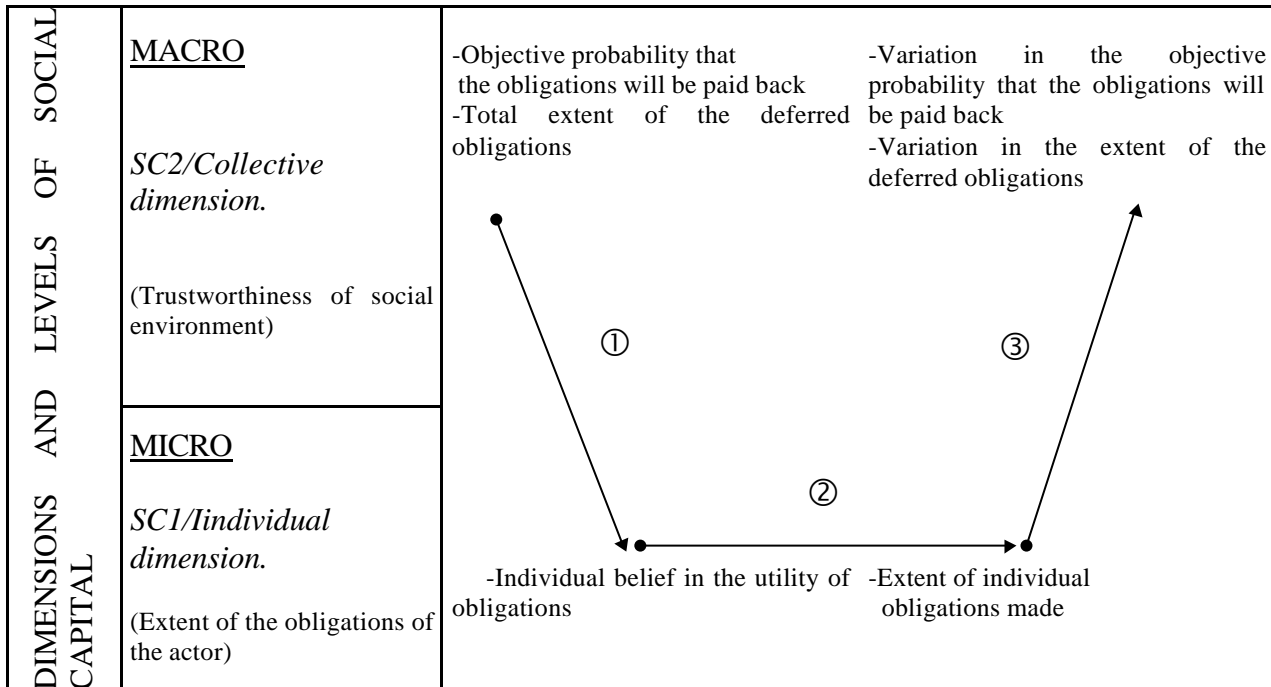
From Figure 2 we can see how it is possible to create virtuous or vicious circles. On the one hand, the individual can exploit for his/her own ends part of the collective social capital, for example the propensity towards reciprocation, and on the other hand, his/her investment in individual social capital creates the externality and produces the collective social capital which has the character of public goods; in fact, the virtuous circle which each person feeds into creates relational capital which the others can also appropriate.

Such a mechanism shows also, however, that individuals who find themselves in a situation of a low level of trustworthiness of social environment will be discouraged from creating obligations, since there is a risk that they will not be reciprocated. If more individuals come to agreements together, this would however modify the level of trustworthiness of social environment. In reality, the individual can affect the collective dimension of social capital, but this raises the problems of collective action. There is probably a critical level above which vicious circles can be transformed into virtuous ones (and vice versa).

Thinking about this form of social capital reveals, moreover, that an individual can be inserted, even without wanting to, in a system of reciprocal obligations that do not allow him/her to act as s/he would prefer. In a community with high trustworthiness of social environment the individual can be

almost obliged to accept favors and, therefore, find him/herself in debt with obligations to pay back, which push him/her to act in a manner not necessarily congruent with his/her own preferences.

Figure 2: dimensions and levels of social capital in the form of obligations and expectations.



#### 4. Social capital and individual utilization: the atypical work market

An example of utilization of social capital in its form as “*obligations and expectations*” is that of atypical semiautonomous workers in Italy, the “Coordinated and continuous collaborators”. The Collaborators are semi-independents contractors, who stipulate fixed term contracts with different firms. For these workers there is often a problem of the discontinuous nature of the work offered. These workers, in fact, often possess a lower level of professional specialization than autonomous professionals, and their network of clients and other relationships is more restricted (Reyneri, 1998). Such characteristics expose them to the negative economic cycles of the labor market. Research has shown, however, (Ires Lombardia, 1999, Luciano, 1989, Bertolini, 2001) that if the semiautonomous workers have managed to create an informal professional community they overcome the problem of the risky work market. In fact, in such a community there develops a mechanism of exchange of commissions that allows them to regularize the flow of work.

The worker instead of renouncing a commission that at that moment s/he does not have time to take on passes it on to a colleague. Certainly acting in this way s/he tries to guarantee a personal continuity in the contact with that employer, which could eventually procure him/her other work in the future. At the same time, however, and this is the interesting aspect with respect to social capital, the worker, by passing a job to a colleague, instead of turning it down, creates a *credit slip* with this other person. S/he trusts in the fact that in a moment of lack of work that colleague will pass on another job, thus paying back the credit.

Such behavior, however, can be risky for two reasons:

- 1) the colleague is a potential rival and could be revealed to be better at securing future jobs for him/herself from that employer;

2) the colleague might in future not reciprocate the *credit slip*, that is not passing on other jobs in a time of scarce work.

The worker's decision to construct at least an obligation influences then the level of trustworthiness of social environment in the way s/he acts. If s/he is part of an informal professional community with a high level of trustworthiness of social environment it is more likely that there will be trust between colleagues-rivals and the decision to create a *credit slip*, that is to pass on work. In this way, s/he not only increases the number of obligations but goes on to create a positive influence on the level of trustworthiness of social environment, which as we know, is made up of the objective probability that the obligations will be repaid and the total extent of the deferred obligations<sup>16</sup>. The increase in confidence pushes other workers to behave in the same way, that is to invest in *credit slips*.

In conditions of high trustworthiness of social environment it is even more probable that the obligation will be reciprocated, feeding the virtuous circle. Moreover those subjects who have invested more in social capital will be advantaged, because they will have at their disposition a larger number of *credit slips* which they can count on.

The result will be a diminution of the risk of discontinuity of work for the worker and the colleague and indirectly, thanks to the increase in trustworthiness of social environment, also for the community.

In the presence of an initially low level of trustworthiness of social environment, however, the worker will be discouraged from investing in *credit slips*. If, in fact, s/he decides to pass the job to a colleague this will positively influence the level of trustworthiness of social environment, but there is the risk that there will be a lack of reciprocation of the obligation on the part of the colleague. And therefore it is more probable that s/he will judge the investment as inconvenient and turn down the work. The result of such behavior will not only be the loss of individual *credit slips*, but also a diminution of the level of trustworthiness of social environment. Consequently there will also be a risk of greater discontinuity of work.

It should be noted that if more individuals agree together to invest in *credit slips* this could modify the level of trustworthiness of social environment, but this raises the problems of collective action.

From these examples we are able to deduce that the risk of discontinuity of work between the collaborators varies by function of:

- the level of trustworthiness of social environment, social capital at the second level (SC2);
- the number of obligations which the individual possesses and which can be utilized, social capital at the first level (SC1).

The SC1 and the SC2, as we have shown, interact on each other. The decision of the single individual to invest in *credit slips* influences directly on his/her own SC1, in this case relational, and indirectly on SC2, the level of trustworthiness of social environment of the professional community, through the aggregation of the effects of the decisions of all the actors who move within the same system. In turn the level of trustworthiness of social environment will have an influence on the future decisions of the actor, creating thus a circle which is sometimes virtuous and sometimes vicious where, as shown in Figure 1, SC1 and SC2 interact between themselves and influence the final outcome, in the specific situation, on the risk of discontinuous work.

Diverse other advantages derive from the creation of a professional community, since once the community exists it can be utilized by the collaborators for other ends: the exchange of information, of material, etc... In reality, once it exists, it functions as an *appropriable social organization*. The question to pose is about which factors make its creation more likely. The research (Ires Lombardia, 1999, Luciano, 1989) shows that a variable which affects their formation or not is the level of professionalism of the workers. The reality of the contracts of collaboration, in fact, groups subjects with high and low professionalism. Often communities are formed between subjects with high

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<sup>16</sup> This last transition happens independently of the reciprocation of the obligation. The trust has a binding effect in and of itself.

professionalism. In these cases it is, in fact, more likely that the expectation of collaboration between workers will be greater, since within the concept of professionalism itself is included the idea of having a reputation to safeguard. This is a demonstration of collective SC, agreed as a benefit of belonging to the club. The Collaborators negotiate through the characteristics of the opportunist nature of their behavior, which allows the formation of positive expectations of their colleagues.

## 5. Social capital and the collective dimension: the management of communal resources

A second example, from a study recently carried out with irrigation consortia in the Aosta Valley<sup>17</sup> (Bravo, 2000, 57-110), will help us understand the distinction between the two levels of SC and the relations running between them in reference to their collective dimension.

The climatic and geographical features of the valley and, in particular, the precipitation regime characterized by an almost total lack of rain in the summer months, especially in the central area, have pushed the inhabitants at least since the medieval period to construct extensive systems of canals for irrigation which, taking water from the almost inexhaustible fountains situated near the glaciers, transport it for quite some distance to pastures and cultivated fields. (Frangiaco, 1997, 63-65; Reggio, 1965). Over the centuries, the old canals have been continuously maintained and - often - increased by their owners, while new ones have been constructed to satisfy the needs of the growing population and for the intensification of the agriculture practiced. In spite of the advances made in the techniques of water exploitation and the changes in the economic, social and legal circumstances, the individual plants are usually still managed by the consortium that owns them or by the original traditional consortium. Adapting the models of management inherited from the past, the twentieth century has seen the birth and legal recognition of irrigation consortia and/or of improvements to the land, which secure the functioning and the upkeep of the existing plants - some as old as several centuries - or, eventually, providing for the construction of new ones more adapted suitable for the new circumstances.

From the point of view of the users, a plant able to carry the necessary water from a source more or less far from cultivated fields or for pasture represents an essential good, in the first place for the growth of the crops and for the cattle to drink. The system is made up of two distinct types of resources: the canals, and the water that flows in them. The first are an artificial construction with a strong character of a public good: once functioning and adequately maintained they are able to transport all the water available without direct costs for the users and their size and physical characteristics make it sometimes difficult to prevent utilization by those who do not contribute to the maintenance. Consequently, the biggest problem of management concerns above all the costs linked to their construction and to the subsequent maintenance. The water, however, constitutes a natural and subtractable resource, which, in case of scarcity, poses above all the problems of allocation, that is the division and distribution of the good between its users. Collective action ought therefore to obviate the questions of *maintenance* as far as the material infrastructure is concerned and of exploitation with respect to the sustainable use of the water<sup>18</sup>.

The analysis of the variables (both quantitative and qualitative) included in the concept of SC1 brings to light two principal elements: (1) the bonds and relationships that exist between the members of the consortium, either on the job or in the more general dimension of daily activities; (2) the presence of common values and the sharing of meanings and knowledge related to the different aspects of daily life and work.

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<sup>17</sup> The study of the systems of irrigation and the problems of collective action deriving from their utilization constitutes one of the most developed fields in the ambit of the 'analysis of communal resources' (*common-pool resources*). See, for example, Lam, 1998; Ostrom, 1990; Tang, 1992.

<sup>18</sup> With the term *maintenance* we translate the expression *provisione*, which regards the actions which the users carry out in order to maintain the resource in the best possible condition. With the term exploitation we refer to the English *appropriation* which indicates the extraction of the unit of value for the users (Ostrom, 1990, 30-31).

The SC2 has however been considered relative to the presence and the structure of the endogenous institutions, formal and informal, appointed to the management of the irrigation systems.

The "performance" of the consortia however was measured qualitatively through interviews with the cultivators following the schema put forward by Tang (1992, 49-80) which include three distinct parameters: (1) the adequacy of the levels of supply of the water coming out of the system for the growth of the existing crops, (2) the level of respect for the operating rules adopted within the system and (3) the regular carrying out of the maintenance work and, finally implementation of the resource in question.

Considered singly, the SC1 and the SC2 – differently from other factors, especially the physical character that makes the water available at the source – do not give a strong explanation of the variations of the performances found. Studying the interaction between the two levels of the SC has however made it possible to reach a better understanding of the functioning of the systems, thanks also to the analytical key made up of the informal rules of behavior. The presence of higher levels of SC1 seem to have a direct influence on respect for the rules of management included in SC2, leaving aside the levels of monitoring and formal sanctions registered. A negative correlation was also highlighted between energy spent on monitoring of transgressors with respect to the norms, suggesting a situation in which the functioning of the system is best when the sanctions are more on the social plane rather than the monetary plane and the monitoring is carried out reciprocally between all the participants.

In synthesis, what has been observed is that the institutions, formal and informal, making up SC2 succeed in functioning best above all in the presence of an adequate SC1. In their turn, these contribute to the maintenance in time, carrying out moreover a decisive role in regulating collective action within the consortium and in raising the general performance of the system, following a circular scheme not dissimilar to that presented in Figure 1. In the best of cases, the joint effect of SC1 + SC2 + performance of the system can constitute a whole able to maintain itself over time, and in some cases, capable of adapting to the changes in the external environment (the transformation from an economy essentially based on agriculture to one centered on industry and services) reducing the negative effects linked above all to emigration and the abandonment of the land.

## **Conclusions**

The aim of this paper has been to show that the concept of Social Capital can be useful, if it is used in an appropriate way. At this regard we suggested to distinguish between levels and dimensions of SC. We distinguished two levels, SC1 and SC2, on the basis of their production and their maintenance don't have problems of collective action, and two dimensions if their use is individual or collective.

In the second part of the paper we tried to connect levels and dimension in the micro-macro relationship. The third part is more analytical. We inserted the Coleman's forms of Social Capital in our model and we showed how they can work.

Finally, we suggested two applications of our model, one regarding the atypical workers in the labour market, the other one related to common-pool resources management. These cases suggested that the distinction of SC we proposed can be applied a specific studies cases, also very different among them: the labour market with a individual use, the common pool resources where is fundamental the collective SC. In both the cases SC1 and SC2 interact between them and with the output of the situation to determinate the result.

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