Social Capital and economic opportunities

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Abstract

Moving on from [Coleman, J.S., 1990. Foundations of Social Theory. Belknap Press of Harvard University Press, Cambridge, MA, London] and [Putnam, R.D., Leonardi, R., Nanetti, R.Y., 1993. Making Democracy Work Civic Traditions in Modern Italy. Princeton University Press, Princeton, NJ, Chichester], an ever-growing literature claims that repeating trustful interactions in the economy do sediment in higher levels of *generalized trust*. This aggregate stock of trust is then named *Social Capital* and treated as an input in the aggregate production function, such as labour, physical capital, or human capital. In this paper we argue that in many instances there is no need for meta-concepts like Social Capital, as trust is often simply the outcome of profit maximization. Whilst approaches that refer to Social Capital ignore the set of economic opportunities, incentives and conflicts behind trust, in this article we propose a simple model to show that when these are taken into account, the roles of trust and Social Capital can be better defined and understood.
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1. What is Social Capital

The first scholar that used the term Social Capital (henceforth SC) systematically in its current sense was Jacobs (1961). As the concept was not at essential in Jacobs' work, however, scholars generally acknowledge the French sociologist Pierre Bourdieu as the father of the term. Bourdieu started referring to SC in the 1970s (Passeron et al., 1977). Several years later, with the diffusion

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of Bourdieu's (1986) contribution "*Forms of Capital*", the concept became established in sociology, whilst economists ignored or were yet unaware of Bourdieu's work. It followed that SC was consequently introduced to most other social sciences including political sciences, anthropology, urban studies and economics through the domains of sociology SC and mostly through the contributions of Coleman (1988a, 1988b, 1990), Putnam et al. (1993) and Putnam (1995, 2000). The extensive use of SC in economics in recent years has finally become a growing phenomenon as an increasing number of papers and articles on SC are produced every year.

Despite being the source of much inspiration, SC has nevertheless brought a lot of confusion to the social sciences, to the extent there is yet no agreement on its precise role in economics, nor the exact meaning of the term. As a consequence of this confusion, a plethora of definitions can be traced down in the literature and new definitions are proposed in every new piece. The aim of this article is to assess the usefulness of the concept by stressing some of its major limits.

1.1. Social Capital, popularity and criticisms

Every article that deals with SC is structured in a similar way. First either a factual situation or a theoretical model characterized by unexplained excess performance are presented. Then SC is indicated as the *missing* explanatory variable in the model (Grootaert, 1998) or as the hidden actual factor that enhances aggregate output without requiring supplementary costs or effort.[1] In some respect, SC is similar to what Marshall identified as the entrepreneurial atmosphere in an industrial district; a sort of all-embracing uncontrolled and intangible factor that benefits all agents indistinctively. Due to this lack of clarity, definitions of what SC actually is vary from article to article. Authors often claim that it both *resides* and is the set of *social networks* characteristic of a given economy (Robison et al., 2002), or the amount of *general trust* (Rothstein and Stolle, 2002), the *ethos* (Frederking, 2002), the *civic engagement* (Putnam et al., 1993; Fukuyama, 2001), the *norms* (Woolcock, 1998), the reciprocity (Carpenter, 2000; Carter and Castillo, 2002) available to a given society. What remains shared by all authors is that in all instances, more SC will mean a higher level of welfare, more per-capita income and better economic performances.

Despite its popularity, two major criticisms have been addressed to SC. The most relevant has been proposed by Fine and Green (2000) and claims that the concept is pivoting on a major misunderstanding of who are those who create the network of social relations, the generalized level of trust, or the norms, and those who are the beneficiaries of this, or in other words, whether the *Capital* (Social), is owned by individuals, or by the community as a whole. Is it a collective good or is it individually appropriable? Surprisingly enough, this confusion is also the major reason why the concept has been so appealing to many authors, as the blurred boundaries between the *individual* and the *social* seem to offer a chance to overcome the limited individualistic approach so characteristic in economics, in favour of a renewed, more socially oriented type of approach. However, the overrated innovations of the concept vanish if we realise that even the idea of SC relies on pervasive *methodological individualism*. Analogously to the Smithsonian *invisible hand*, in fact, the most institutionalized definitions of SC exclude any conflict or form of irrational altruism in social interactions, and SC is instead depicted as a sophisticated mean to increase one's welfare. All benefits that occur to the community are either an involuntary spill over in the

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[1] The reader may see for instance the works by Alesina et al., Knack and Keefer (1997), La Porta et al. (1997) to grasp an idea of how empirical works on SC most of the times miss a clear theoretical model and specification and simply rely on Barro regression approaches to explain growth residuals through SC proxies.

pursuit of personal interest or a conscious way to enhance personal welfare. In other words, the *individual* in mainstream SC theory is still a selfish profit maximizer and not a social being, while the *social* is not treated in its complexity but simply reduced to a nexus of interactions of single individuals that by maximizing their own welfare, accidentally end up benefiting each other. The latent *individuality* in *social* relationship between individuals is the most prominent aspect of SC.

A second criticism has been devoted to the use that "social capitalists" make of the term *capital*. The association of social capital to physical capital is made to emphasize that SC is a *factor of production*, a stock input able to shift the social welfare function upwards. Similarly to what happens with physical capital, it is retained that the building of trustful relations, networks and norms requires the investment of resources and expectations upon future benefits. Other similar characteristics to physical-capital are that like other forms of capital, SC is often claimed to be *appropriable*, as one's network of, say, friendship ties, can be used for other purposes, such as collecting information or advice. By the same token, some features of *convertibility* are also traced in SC, for instance, the advantages conferred to one's position in a social network can often be converted to economic or other types of advantages. Similarly to physical capital, SC also possesses different degrees of *durability*. Durable forms of SC are often associated with family connections that remain unchanged even when repeated service extractions are made. It is also recognized almost in all contributions how SC is subject to *depreciation*, as social bonds have to be periodically renewed and reconfirmed, to avoid loss of efficacy. Similarly, SC can be rendered obsolete by contextual changes at rates that are typically unpredictable, so that even conservative accounting principles cannot estimate a meaningful depreciation rate. In this way, the physical capital analogy is pushed to its limits and often becomes an ontology, with the consequence of raising complaints (Baron and Hannan, 1994; Robison et al., 2002) as well as authoritative critiques (Arrow, 1999; Solow, 1999). Although it is generally accepted that SC is an investment with an expectation of future returns, no systematic piece of work presents a critical study of whether and how all the capital-like characteristics of SC are objectively verified and intrinsic to its nature. As each new piece work carries its own definition of SC, if some capital-like characteristics are accepted by one author they might be rejected by another. Having had to face a lot confusion, some authors resolve all ambiguities by claiming that after all, SC is a type of 'impure public good' (Adler and Kwon, 1999; Mancinelli and Mazzanti, 2002), as its use is non-rivalrous – its amount does not diminish with the use – but excludable, as some individuals can always be excluded from the possible network of beneficiaries. A last, more radical, criticism on the use of the term "capital" in SC, is again offered by Fine (2001), when he claims that to associate "social" with "capital" requires a misunderstanding of what "capital" is in the first place. Fine's point is that "capital" is an intrinsically social economic category as its possession divides the society between those who have capital (the capitalists) and those who do not have it (the proletarians). This distinction is even truer when economists deal with developing countries, where there is no diffused ownership.

In order to be acceptable concept, SC still requires some conceptual clarity. Together with identifying the capital features of SC, another necessary step would also be to identify the *locus* where it resides.[2] As Fine (2001) explains, when looking for where it resides, authors place lots of attention to the *network* of interactions, and ignore the *structure* of interactions. In other words, the direction and intensity of interactions are taken for granted and there is no questioning about why those interactions actually exist or about what (whose) purpose they actually serve. Such an

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[2] In particular, the identification of the sources of social capital has been the focus of Adler and Kwon's work (1999).

approach has evolved mostly from the early network research in sociology, which in accordance with Simmel's 'formalistic sociology', insisted on the idea that the structure generates its own content (Wellman, 1988). The importance of the content of networks ties is then downplayed to celebrate the ties themselves. The major downside of this is that the de-contextualization of network ties involves the abandonment of any analysis about the actual distribution of power within the society, and about the meaning of the ties themselves. Networks are mostly taken as simply as a privileged channel of communication. With an evident loss of explanatory power, networks are never seen as an appropriate instrument for political pressure and the control of resources. In evident disagreement with this approach, some authors (Gabbay and Zuckerman, 1998) have instead argued that if SC is the resource provided by the network of ties to which an individual belongs, it is relevant to understand what this resource is made of, while it is a mistake to simply assume that norms, trust, or beliefs equally serve everyone's purposes. As we will see later on, a contextualized analysis which takes into account the resources available and the network channels in which these are employed is in fact essential in order to understand where SC resides.

2. Social Capital, economic opportunities and rents

In the previous section we have seen how the mainstream definition of SC is embedded in methodological individualism. Yet societies are strongly typified by structural divisions and conflicts between different ethnic communities, classes, pressure groups, and along gender divisions, all of which have a strong influence on overall economic performance and welfare. Understanding the way that social elements such as cohesiveness, networks, trust or altruism influence welfare is not an effort without meaning, should this be called SC or otherwise. SC has however failed to reconcile the *structuralist* and the *individualistic* approaches, the *social* with the *individual*. We therefore propose here a new approach that extends the boundaries of methodological individualism whilst not entirely departing from it. Our attempt is to establish a connection between SC, rent-seeking behaviours and class struggles. We define SC as "excess" cooperation, after having taken into account how "natural" cooperation is triggered by the distribution of economic opportunities. Traditionally, models of SC pay no attention to economic opportunities and social incentives. The idea behind our approach is instead that it is important to understand the relationship between excess cooperation and natural cooperation, as whenever the incentives to cooperate grow, the need for excess cooperation lessens. By proposing our model we aim to fill a gap in the SC literature.

2.1. Bringing rents in

A very original contribution to the understanding of what promotes or obstructs economic development has recently been given by Chang, (1994) and Khan and Sundaram (2000). The focus of attention for these authors is on understanding the relationship between the distribution of economic opportunities within the social arena – which they call *rents* – and economic performance/growth. Although rents remain a form of 'excess income', in their acceptation they are cleared from any negative connotation, and are taken as reward attached to any economic activity. According to Khan and Sundaram (2000), rents are pervasive in the economy and necessary to promote economic and technological change.

In mainstream economic literature, rents are excess earnings or 'the portion of earnings in excess of the minimum amount needed to attract a worker to accept a particular job or a firm to enter a particular industry' (Milgrom and Roberts, 1992). Rents are interpreted to be the

outcome of inefficient resource allocations that will eventually be cleared by competition. Khan and Sundaram (2000) do not reject the classical view, as they clearly state that we have a rent when:

> "*a person [. . .] earns an income higher than the minimum that person would have accepted, the minimum being usually defined as the income in his or her next-best opportunity*".

But in Kahn and Sundaram rents are not temporary, and not necessarily wasteful or inefficient. On the contrary, they are pervasive in the economy and are behind all economic decisions[3] at all levels of the economic activity. At the macroeconomic level for instance, rents are set in place when a government distributes import licenses or when it creates monopolies; at the microeconomic level, rents are behind consumption decisions (as consumers buy to capture *quasi-rents* known as *consumer surplus*), as well as production (*producer surplus*), or management practices.[4] Rather than taking rents negatively as the result of disequilibrium in the market, Kahn and Sundaram re-locate them in a dynamic context, and see them as determinants of actions.

2.2. Rents and the agents' behaviour

But what exactly is the connection between the distribution of rents and the behaviour of agents? Khan and Sundaram (2000) have offered a powerful illustration of this by focusing on *rent-seeking* and by revising the meaning that the literature has traditionally attached to it.

Since the publication of the seminal articles by Krueger (1974) and Posner (1975) rent-seeking is perceived negatively in the literature. Its outcomes are bribery, corruption and misuse of resources. When exploring rent-seeking attached to monopolies, in 1975 Posner has hypothesizes that any artificially contrived rents will be competed away by parties seeking to secure a share of such rents. To the extent that this competition employs real resources however (to lobby, bribe, influence policy makers through any mean), he claims that these resources are wasted, and the cost must be added to the standard welfare triangle that measures the deadweight loss attached to monopolies. Tullock (1980) has gone further in this direction, showing that the cost involved in seeking monopoly rents can be even larger than the value of the rent itself.

Khan and Sundaram (2000) differ from this approach in several ways. First of all, they claim that although it is true that the rent-seekers are likely to spend resources to capture, maintain, or transfer rents,[5] these are not necessarily wasted in the process, but possibly spent and reintroduced in the economy. Rent-seeking is therefore compared to any other economic activity, such as the production of any other good or service in the market. Secondly, while conventional rent-seeking theory is generally concerned with monopoly rents, they observe that in reality rents are much diffused. A second best option is in fact attached to any economic activity. Moving further away from Krueger and Posner, Kahn and Sundaram also suggest directions in which the rent-seeking framework can be extended. First, since rents, economic opportunities and property rights are closely related, they think that rent-seeking must somehow be one of the triggers of

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[3] To support this idea note that 'the minimum amount needed to *attract*' suppliers of inputs (such as workers and capitalists) to particular industries should not be confused with the payments which may actually be necessary to induce them to *produce* the good or service. In other words, the existence of a rent has little to do with efficiency in production, but much more to do with social conflicts and social structural division.

[4] See for instance Crudeli (2001) on gain-sharing and variable wages.

[5] In equilibrium a rent seeker is expected to spend at least as many resources as the actual value of the rent she wants to capture.
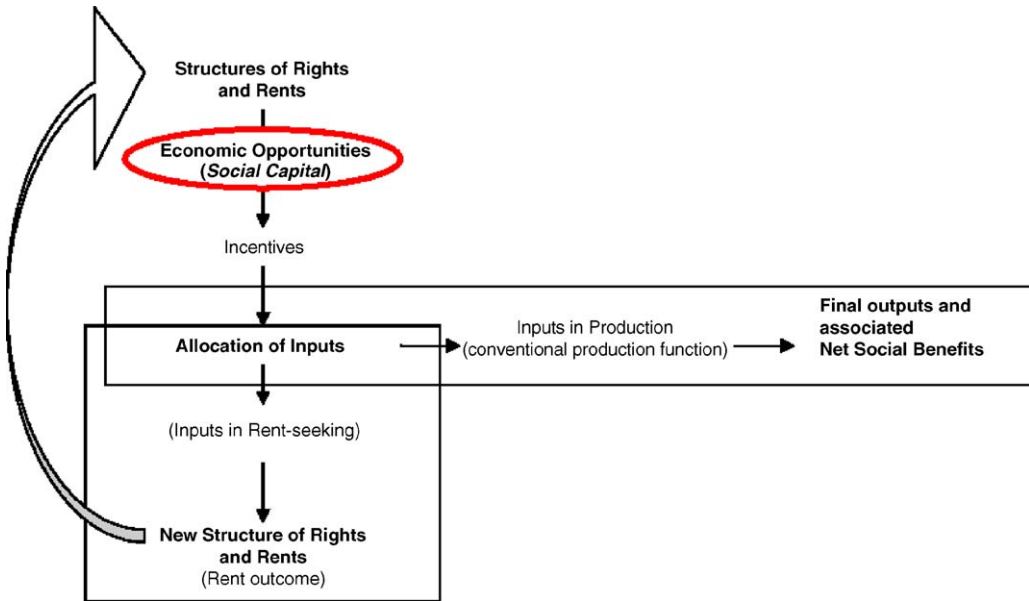
Fig. 1. The distribution of resources in the process of rent-seeking. Source: adaptation from Khan and Sundaram (2000, p. 79).

institutional change. Secondly, as attempts to change the distribution of rents may easily unleash social conflicts, they remark that rents must be related to power. Finally, they emphasize that if competition for rents does not degenerate into conflicts, the continuous process of institutional re-shaping should eventually establish more efficient arrangements, under the lead of a capable development state. In a nutshell, for Kahn and Sundaram *rent-seeking* is not simply a social cost, but rather the opportunity for economic dynamism.

2.3. Rents, social capital and growth

But what is the relation between rents, growth and economic development? To move ahead from the traditional view Kahn and Sundaram emphasize that what matters is the *net outcome* of the institutional change triggered by rent-seeking, not the cost of rent-seeking alone. Outcomes, however, are never determined a priori. The different factors that may influence them require detailed and contextualized analysis. Since rent-seeking ultimately changes the institutional set, it also re-shapes opportunities, incentives and SC. Fig. 1 proposes a synthetic view of the possible linkages between rent-seeking, SC and institutional change. The effort of the rent-seekers is, broadly speaking, thought to be devoted to two major activities: to modifying the institutional assets of the economy (*pure rent-seeking*), and production activities as normally intended by economists, since selling and buying goods is also a way to capture rents.[6] Pure rent-seeking produces renovated sets of economic opportunities, either for the advantage of new emerging classes or groups, or the defence of old interests. The effort to reshape institutions and

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[6] The reader can think, for instance, of the producer's surplus and the consumer surplus that the encounter of the curves of demand and offer determine.

the distribution of rents modifies the distribution of economic opportunities, hence the endowment of SC. The net outcome of this entire process will finally consists of what is actually produced, a new set of economic opportunities, a different level of SC, plus renovated and partly changed institutional assets, that will serve as point of departure for the following rounds of rent-seeking activities. Although in the short term total production is determined by the amount of inputs that are not used to seek rents, in the long run the growth of the economy depends on several factors, such as how fierce political conflicts are, how efficient the new institutional arrangements, how much SC is generated by the new set of economic opportunities. Generally speaking, conflicts can be thought to be harsher the scarcer the economic opportunities in the economy and the more agents need to compete for them. The harsher the conflicts, the more resources are spent in the effort of changing the institutions, the lower is total production. However, in the long run, the more institutions and the distribution of rents favour productive and innovative groups or classes, the more investments and technology will improve and the economy grows.

3. Social Capital and rents: proposing a model

We have seen how SC entails an attempt to establish the supremacy of the *agency* over the *structure*, of markets relations over social relations. We have seen how, despite being *social*, SC traditionally shows no interest for distributional conflicts. Subsequently, we have introduced the SC discourse in the framework proposed by an innovative strand of literature that sees rent-seeking as an important determinant of institutional change. In the following section we formalize this approach through a small theoretical model in the hope to shed some light on the importance of contextualized analysis and distributional conflicts for a proper understanding of SC.

3.1. General model framework

In a very stylized fashion we can think of the economy as a set of different activities or *projects*. Each economic activity, such as selling labour, trading in shares or bonds, or simply buying or selling a good, is a project. Projects yield different potential payoffs that are given ex ante. The letter P represents the total number of projects. The greek letter ϕ associated with the index i, indicates the maximum potential payoff of project i. As maximum potential payoffs are all different from each other ($\phi_i \neq \phi_j$) it is possible to rank projects from bigger to smaller as in Fig. 2.

The agents in the economy are assumed to be twice as the number of available projects, hence $2P$. Only two types of agents operate in the economy: those who are trustworthy and devote their *full effort* to the realization of one project, and the *opportunists*, who can get involved in two different projects but deliver no effort to any of them.[7] The cost of effort is supposed to be nil.[8] Each project requires the involvement of two and only two agents, who share equally the delivered *actual* payoff of the project. The actual is a portion of the maximum potential payoff that depends on how many are the trustworthy agents that are involved in the project. Since opportunists are

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[7] Without loss of generality, but simply for computational simplicity we limit the number of projects that an opportunist can intake to two. The relaxation of this imposition, however, would not affect the results of the model.

[8] A positive cost of effort would not affect the outcome of the model.

ϕ_i = net benefit of project i
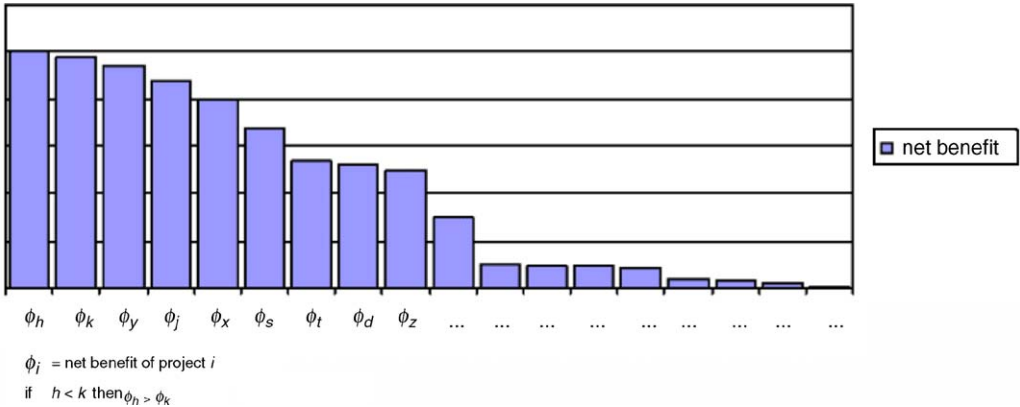
if $h < k$ then $_{\phi_h > \phi_k}$

Fig. 2. The distribution of projects according to their net benefits.

not delivering effort, we assume that for each opportunist in the project the potential benefit is reduced by a discount factor α, that ranges from 0 to 1 and is the same for all projects. The actual payoff of project i will therefore be equal to ϕ_i if both agents involved in it are trustworthy. It will be $\alpha\phi_i$ if one of the agents is opportunist. It will be $\alpha^2\phi_i$ if both are. The trustworthy are therefore those who aim to realize the full maximum payoff of a project by sustaining the opportunity cost of not getting involved in any other. Fig. 3 summarizes all different possible combination of type agents and actual benefits yielded.

The proportion of trustworthy agents in the economy is indicated by the greek letter β. The total number of trustworthy agents is equal to $\beta 2P$. The number of opportunists is $(1 - \beta)2P$. Whether an agent is trustworthy or opportunist is not given to know a priori.

Other assumptions for this model are:

- All agents are *rational* and *homo economicus*, thus their decisions are purely motivated by the desire to fulfil personal interest and fulfil personal needs;
- Information is asymmetrical, as each agent does not know if his project-partner is trustworthy or opportunist;
- No risk is attached to the projects themselves since the *potential payoff* of each project is known and obtainable. It is however unknown what *actual payoff* each project will finally yield, as agents do not know weather they will be matched with a trustworthy or opportunistic partner.

Given this economic environment, each agent has to decide whether to be trustworthy or opportunist. To understand what is more convenient agents have to take into consideration what is the probability of getting into a project; what is the probability of getting in one of the projects that yield the best potential benefits; and what is the probability to end up with a trustworthy partner.

Combination of Agents		Benefit of Project
Trustworthy	Trustworthy	ϕ_i
Opportunist	Trustworthy	$\alpha\phi_i$
Opportunist	Opportunist	$\alpha^2\phi_i$

Fig. 3. Combinations of agents and possible benefits.

3.2. The private and social costs of opportunism

The choice of being an opportunist bears some implications at the individual and at the social level. First of all, opportunism bears some private costs, since their projects will never achieve the maximum potential payoffs, but $\alpha\phi_i$ at best. This is however compensated by the possibility to be involved in two projects. Opportunists obviously procure an individual cost to their partners as well. Besides individual costs, opportunism also involves social costs of two distinct types. On the one hand, since we have assumed that the number of available projects is equal to half the number of agents, opportunists, who can compete for two, reduce the probability for other agents to be involved in a project. On the other hand, opportunists cause a general loss in x-efficiency, because the projects in which they are involved achieve less than the maximum potential payoff. The loss in x-efficiency depends on the available technology and is represented by the value of the parameter α. The closer α is to 1 the less the project's actual payoff depends on the agents' cooperation, hence the lower is the x-efficiency loss; whereas, the closer α is to 0, the more cooperation is important. α can be thought to be a measure of how "integrated" the economy is, and how big are the consequences of individual opportunism on overall economic performance.

3.3. The game structure

The economy that we have depicted can be represented in a simple chart similar to those usually used in game theory. The chart shows all possible payoffs combinations according to the type of partner that an agent (or player) can be matched with once he has decided whether to be trustworthy or opportunist (Fig. 4).

As expected, the role played by α is very relevant. The diagram shows that if we take a value of α equal to 1, for instance, defecting always pays more than cooperating, and defect—defect is a Pareto efficient Nash equilibrium. The reverse is true instead when α is equal to 0, whereas there is no clear dominant strategy when the value of α is comprised between the extremes 0 and 1.

3.4. Adding rents to the model

It is time for rents to be introduced in the model. As we have seen, a rent is the difference between a person's actual income and the income that person would have received with her next

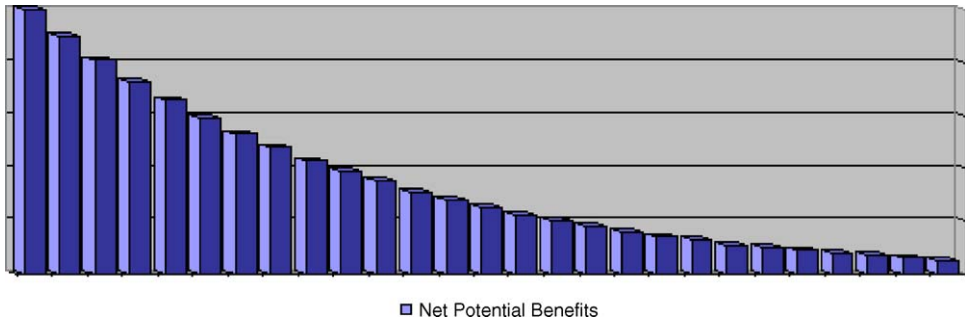|		Partner	
		Trustworthy (cooperate)	**Opportunist (defect)**
Agent	**Trustworthy (cooperate)**	ϕ_i; ϕ_i	$\alpha\phi_i$; $\alpha^2\phi_i$ + *the opportunity to be involved into another project;*
	Opportunist (defect)	$\alpha\phi_i$ + *the opportunity to be involved into another project;* $\alpha\phi_i$	$\alpha^2\phi_i$ + *the opportunity to be involved into another project;* $\alpha^2\phi_i$ + *the opportunity to be involved into another project;*

Fig. 4. The game structure.

Fig. 5. The distribution of projects when net benefits increase proportionally.

best opportunity. In our model a rent is simply the difference between the maximum potential payoff of two next projects, say ϕ_z, and ϕ_{z+1}.

$$\phi_z - \phi_{z+1} = d_z \tag{1}$$

In order to simplify computation and be able to analyse what is the relationship between trustworthiness and the general size of rents, we can assume this difference to be proportionately the same for all projects. In other words, the difference between ϕ_1 and ϕ_2 in terms of ϕ_1 to be the same as the difference between ϕ_2 and ϕ_3 in terms of ϕ_2, or the difference between ϕ_3 and ϕ_4 in terms of ϕ_3, and so on and so forth. Formally:

$$\phi_i = \phi_{i-1} - \delta\phi_{i-1}, \dots, \phi_3 = \phi_2 - \delta\phi_2; \quad \phi_2 = \phi_1 - \delta\phi_1 \tag{2}$$

At this point all projects' maximum payoffs can be expressed as a function of the largest.

$$\phi_i = \phi_{i-1} - \delta\phi_{i-1}, \dots, \phi_3 = \phi_2 - \delta\phi_2; \quad \phi_2 = \phi_1 - \delta\phi_1 \Rightarrow \phi_i = (1 - \delta)\phi_1 \tag{3}$$

The value of δ determines the size and distribution of rents. Its value can range from 0 to 1. When it is equal to 0 all net potential payoffs are the same; when it is equal to 1 only the first project (ϕ_1) exists, whereas all second projects' maximum potential payoffs are zero.

The distribution of the maximum potential payoffs depicted by Eq. (3) is visually as follows[9] (Fig. 5).

3.5. Expected payoffs

We can now normalize the model by assuming that the first project ϕ_1 is equal to 1. This allows us to easily compute what are the expected payoffs for the trustworthy and the opportunist as a function of the proportion of trustworthy agents in the economy (β), the size and distribution of rents (δ), and the technical parameter (α).

3.5.1. Expected payoff for the trustworthy
A trustworthy agent will either earn the potential value of a project entirely, or, if paired with an opportunist, discounted by α. The expected payoff for a trustworthy agent is therefore

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[9] Note that in this example each net potential benefit is supposed to be 10% smaller than the its next best one. This value has been chosen arbitrarily. Any other value would imply an important change in the slope of the graph, but not in the shape.

given by

$$\sum_{n=0}^{P} \left(\frac{2}{P} - (1 - \beta)\frac{2}{P} \right) (\beta(1 - \delta)^n + (1 - \beta)\alpha(1 - \delta)^n) \tag{4}$$

where $(2/P - (1 - \beta)2/P))$ is the probability of being involved in a project that, as we have discussed above, depends on the proportion of trustworthy people in the economy (β).

3.5.2. Expected payoff for the opportunist

The expected payoff of an opportunist also depends on how many are the trustworthy agents in the economy. As opportunists compete for two projects they expected payoff function will look as follows.

$$\sum_{n=0}^{P} \left(\frac{2}{P} - (1 - \beta)\frac{2}{P} \right) (\beta\alpha(1 - \delta)^n + (1 - \beta)\alpha^2(1 - \delta)^n) + \sum_{m=1}^{P} \left(\frac{2}{P} - (1 - \beta)\frac{2}{P} \right)$$

$$\times \left(\frac{2}{P - 1} - (1 - \beta)\frac{2}{P - 1} \right) (\beta\alpha(1 - \delta)^m + (1 - \beta)\alpha^2(1 - \delta)^m) \tag{5}$$

To understand when trust and cooperation are more profitable than mistrust and opportunism we need now to see how Eqs. (4) and (5) behave when β and δ are changing, taking α and P as fixed parameters. In other words, we need to understand for what values of β and δ Eq. (4) is greater than Eq. (5). Some easy computations show that this happens when:

$$\beta < \frac{(1 - \alpha)P}{2\alpha\sum_{n=1}^{P-1}(1 - \delta)^n} + \frac{(1 - \alpha)P}{2\alpha} \tag{6}$$

3.6. Aggregate behaviour

Fig. 6 represents Eq. (6), when α is equal to .99 and P to 50.

The curve β^e depicts the equilibrium values for β (the proportion of co-operators) in relation to the way rents are distributed in the economy (δ). The figure gives a good idea of the relationship between rents and the level of cooperation. For the area on the left hand side of the curve β^e cooperation is more rewarding than opportunism; on the right hand side opportunism is more rewarding. It should be noticed that although β^e is the locus of maximum natural cooperation, the curve does not indicate *x*-efficiency. As we have seen in fact, a loss of welfare is produced whenever there are opportunists in the economy. The size of this loss depends on the number of opportunists in the economy and is given by $(1 - \beta)P\alpha\bar{\phi}$; only when β is equal to 1 all projects yield their maximum potential payoff. In Fig. 6 maximum total production is represented by β^*.

3.7. Whither Social Capital?

Our model suggests that more unequal distributions of economic opportunities (bigger δ) push for more cooperation among agents, whereas more equal distributions unleash incentives for opportunism. This because, when rents are higher opportunity costs are also higher, being directly proportional to the size of the rents and inversely proportional to the probability of getting involved in a project. A higher level of cooperation, however, does not imply a larger endowment of SC, but rather that, to a large extent, cooperative behaviours measured on the field can be explained by
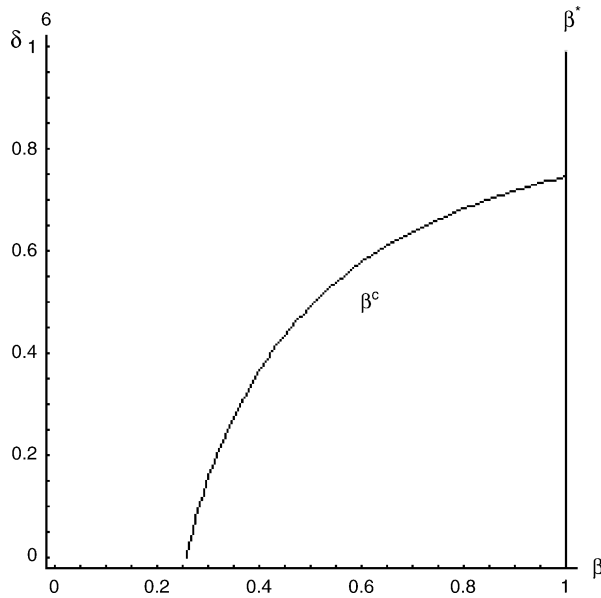
Fig. 6. Relationship between rents and trustworthiness.

the distribution of economic opportunities. The use of innovative concepts such as SC[10] should not be involved to explain natural cooperation, but limited to describe the amount of cooperation that is not explained by the model, hence whenever the economy lies at the right hand side of the curve β^e (excess cooperation). Moreover, if natural cooperation sets the boundaries to measure SC, we can also expect to find situations in which the amount of cooperation measured is less than natural, hence excess cooperation (SC) is negative.

Other considerations are on the empirical ground and concern the use that has been done of the term SC in the context of development. Following the insights of our model, we should expect developing countries to be encompassed with higher incentives to cooperate than developed economies, since these economies are characterized by scarcer and more unequally distributed economic opportunities. At equal levels of total cooperation we should however expect developed countries[11] to be characterized by relatively more excess cooperation (SC). Common sense and empirical evidence, for instance, tell us that in developing countries, opportunism (in the form of crime, bribery, and lower levels of trust) is often more diffused (Knack and Keefer, 1997) than in developed countries. Evidence of lack of trust and SC in poorer economies seems also to be supported by studies based on World Values Survey data (Rothstein and Stolle, 2002). A hypothetical pattern for excess cooperation (curve β^h) is proposed in Fig. 7.[12]

Curve β^e intersects β^h and divides the curve in two parts. The left hand half of β^h represents less then equilibrium levels of cooperation, whereas the right hand part shows more than equilibrium levels of cooperation or SC. Both parts of the curve depict out of equilibrium situations. The

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[10] The literature too often sees SC as simply as a stock of trust, concretized in norms and networks, and forgets to look if that trust is sustained by a set of incentives and can be simply brought back to one of the outcomes of profit maximization.

[11] That can be thought to be collocated in the lower part of the graph of Fig. 6, where rents are smaller.

[12] It should be stated that the shape of the relation between economic opportunities can only be determined through empirical assessment.
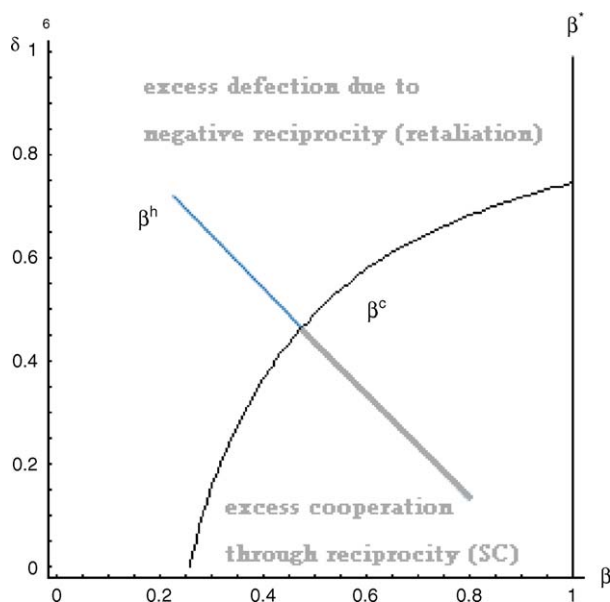
Fig. 7. Relation between rents and trustworthiness and the way the relation is depicted in the literature.

reasons why the economy should be on one or the other side of the curve are different. For levels of cooperation that are less than natural, for instance, the major causes can be hypothesized to be information deficiencies and negative reciprocity. For excess cooperation positive reciprocity should be imputed. How effectively reciprocity works depends on the size of rents, as, where the opportunity costs attached to opportunism are lower, (where rents are smaller) trustworthiness can be rewarded more since the opportunity costs involved with positive reciprocity are lower. Linkages between reciprocity and SC are well consolidated even in the literature where reciprocal behaviours are considered to be the constituent elements of SC. However, reciprocity is almost exclusively taken as positive and leading to systemic efficiency in economic exchanges. It always leads to more cooperation, and welfare enhancements. Recent lab evidence has instead showed that reciprocity can also lead to lower than equilibrium levels of cooperation, as it is not reciprocity per se that matters, but rather the intentions behind it (Falk et al., 2000). A contextual analysis of the distribution of rents and conflicts is therefore a necessary pre-requisite to properly assess the role of reciprocity.

Information inefficiencies instead occur when the agents in the economy are unaware of the benefits of cooperation. This can be the consequence of three types of mistakes;

- Type-I mistakes occur when the maximum potential payoffs of top projects are so big to induce agents to see opportunism as a means to increase the probability to be involved in these projects. This type of mistake is more common where economic opportunities are more unequally distributed, and when agents are less adverse to risk;
- Type-II mistakes occur when more unequal distributions of economic opportunities generate more stratified societies, so that information about how rents are distributed and what are the available opportunities circulate less efficiently;
- Type-III mistakes occur because less equal distributions are generally accompanied with lower levels of education and less awareness of the importance of cooperation for common welfare.

Summing up, SC seems more likely to be found in countries where economic opportunities are well diffused and where agents are aware that cooperation has higher social returns. While these conditions are easy to find in developed economies, in developing countries cooperation seems to be often less then at natural level probably because of institutional inefficiencies and negative reciprocal behaviours triggered by information inefficiencies.

4. Conclusions

In the first part of this paper, we have seen how the concept of Social Capital has recently become very popular in the economics literature, particularly in development economics. Following Fine (2001) we have showed that SC is often misused and not properly understood, mostly because of lack of an adequate understanding of social dynamics and distributional conflicts. We have then tried to re-introduce these aspects in SC by taking into account the teaching of the recent contribution by Kahn and Sundaram (2000) that focuses on rents as the engine for social conflict and institutional change. We have showed that when rents are taken into account, SC becomes a much more defined concept and circumscribed phenomenon. Using a simple mathematical model to account for the way rents are distributed we have shown the importance of contextualized analysis for the measurement of SC. With reference to the model we have also discussed how and why we should expect excess cooperation to occur more likely in developed economies, where rents are smaller and economic opportunities are more equally distributed. The focus has been to remark that the idea of SC has little meaning if it is not supported by specific contextual analysis of interpersonal relations, incentives and economic opportunities. It is always important to analyse the structure of incentives (rents) that underpin the specific set of economic transactions to which the concept of SC is applied. This can be done by examining the role of costs and benefits that these transactions involve in the economic and social domain. Also, the more SC is created, the higher its depreciation rate will probably be, as the more are the profitable chances for free riding. Strategies that focus purely on the promotion of SC without a proper understanding and management of these issues and of the contextual set of available economic opportunities are deemed to fail.

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